STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by:	AGREED ORDER
Union Oil Company of California	No. DE 4460

TO: Union Oil Company of California
6001 Bollinger Canyon Road
San Ramon, California 94583

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I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology) and Union Oil Company of California (Unocal) under this Agreed Order (Order) is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. The facility is the former Edmonds Bulk Fuel Terminal Site. This Order requires Unocal to conduct an interim action to remediate the soils, groundwater and sediments, and to monitor groundwater in specific areas of the Site. The interim action is intended to provide sufficient information to complete the Feasibility Study and to prepare a draft Cleanup Action Plan for the Site. Ecology believes the actions required by this Order are in the public interest. This Order supersedes Agreed Order No. DE 92TC-N328, dated October 25, 1993 (the "1993 Agreed Order").

II. JURISDICTION

This Agreed Order is issued pursuant to the Model Toxics Control Act (MTCA), RCW 70.105D.050(1).

III. PARTIES BOUND

This Agreed Order shall apply to and be binding upon the Parties to this Order, their successors and assigns. The undersigned representative of each Party hereby certifies that he or she is fully authorized to enter into this Order and to execute and legally bind such Party to comply with the Order. Unocal agrees to undertake all actions required by the terms and conditions of this Order. No change in ownership or corporate status shall alter Unocal's responsibility under this Order. Unocal shall provide a copy of this Order to all agents, contractors, and subcontractors retained to perform work required by this Order, and shall ensure that all work undertaken by such agents, contractors, and subcontractors complies with this Order.

IV. DEFINITIONS

Unless otherwise specified herein, the definitions set forth in Chapter 70.105D RCW and Chapter 173-340 WAC shall control the meanings of the terms in this Order.

A. Site: The Site is referred to as the former Edmonds Bulk Fuel Terminal Site (the Site) and is generally located at 11720 Unoco Road, Edmonds, Washington. This Site is defined by the extent of contamination caused by the release of hazardous substances at the Site. The Site is more particularly described in Exhibit A to this Order, which includes a detailed Site diagram. The Site constitutes a Facility under RCW 70.105D.020(4).

B. Parties: Refers to the State of Washington, Department of Ecology and Union Oil Company of California, a wholly owned subsidiary of Unocal Corporation ("Unocal").

C. PLP: Refers to Unocal.

D. Agreed Order or Order: Refers to this Order and each of the exhibits to the Order. All exhibits are integral and enforceable parts of this Order. The terms "Agreed Order" or "Order" shall include all exhibits to this Order.

E. Compliance Monitoring: Refers to compliance monitoring pursuant to WAC 173-340-430, including provision for contingency actions to be taken if monitoring results show that cleanup standards are not being met. Implementation of contingency actions is not considered part of compliance monitoring.

V. FINDINGS OF FACT

Ecology makes the following findings of fact, without any express or implied admissions of such facts by Unocal:

A. Unocal is the current owner of a portion of the Site. Unocal previously owned and operated a bulk fuel terminal facility on the Site, which was used for storage and transfer of petroleum hydrocarbon products from 1923 to 1991. An asphalt plant also operated at the Site from 1953 through the late 1970s. No fuel has been received at the Site since 1991.

B. Petroleum products, metals, and polynuclear aromatic hydrocarbons have been detected in the soil, sediments and groundwater at the Site. The presence of these hazardous substances has been documented in a number of reports, including the Work Plan for 2007 Lower Yard Interim Action attached hereto as Exhibit B.

C. The Site consists of the Upper Yard (comprising Parcel B and Parcel III), the Lower Yard (Parcel A), and Lot 1. These parcels and lots are depicted on Exhibit A. As a result

of interim action undertaken on the Upper Yard, contaminant levels in the Upper Yard soils now comply with direct contact cleanup levels for soil. In a letter dated October 9, 2003, Ecology determined that the Upper Yard is suitable for residential use with regard to the soil direct contact pathway. Unocal sold the Upper Yard to Point Edwards, LLC in October 2003. The City of Edmonds currently owns Lot 1.

D. Unocal currently owns Parcel A. In January 2005, Unocal executed an Agreement for Sale of Real Property (Agreement) agreeing to transfer its ownership of Parcel A to the Washington State Department of Transportation (WSDOT) upon satisfaction of certain conditions. Unocal anticipates that no additional remedial actions, other than compliance monitoring, will be required after it completes the interim remedial action required under this Order, and that if Ecology concurs that only additional compliance monitoring is required, Unocal will then transfer Parcel A to WSDOT. However, if additional remedial actions other than compliance monitoring are required by Ecology, then Parcel A will not be transferred to WSDOT until Ecology has issued a Cleanup Action Plan requiring construction of a groundwater remediation system incorporating a hydraulic capture zone and groundwater treatment system and provided written confirmation that: (1) Unocal has constructed a groundwater remediation system as required by the Cleanup Action Plan, (2) the groundwater recovery system's hydraulic capture zone is calculated and confirmed by field measurements to be at least as large as the capture zone described in the Cleanup Action Plan, and (3) the discharge from the groundwater treatment system meets the effluent limits established in a National Pollutant Discharge Elimination System permit.

E. Previous interim actions have been undertaken in the Lower Yard in 2001 and 2003 consisting of the removal of soil and groundwater containing free product, and groundwater treatment in specific areas of the Lower Yard. This Order requires Unocal to undertake an additional interim action in the Lower Yard. Ecology anticipates that after Unocal completes the interim action required under this Order, Ecology will have sufficient information to select the final remedy for the Site.

F. In 1994, Unocal completed the background review of historic Unocal operations required by Paragraph 1.a of Section IV (Work to be Performed) of the 1993 Agreed Order. In 1994, Unocal also submitted, and Ecology approved, the background history report of historic operations required by Paragraph 2.a of Section IV of the 1993 Agreed Order. Unocal has therefore completed the requirements of Paragraph 1.a and 2.a of Section IV of the 1993 Agreed Order.

G. Between October 1994 and August 1996, Unocal conducted a Remedial Investigation as required by Paragraph 1.b of Section IV of the 1993 Agreed Order. In June 2001, Unocal submitted to Ecology a Remedial Investigation Report as required by Paragraph 2.d of Section IV of the 1993 Agreed Order. Unocal also submitted a Supplemental Remedial Investigation Report to Ecology on April 28, 2003. Ecology has not yet approved either report.

H. In 1996, Unocal conducted portions of a Feasibility Study as required by Paragraph 1.b of Section IV of the 1993 Agreed Order. In 1996, Unocal submitted to Ecology a preliminary Feasibility Study Report as required by Paragraph 2.d of Section IV of the 1993 Agreed Order. Unocal also submitted an updated and expanded Feasibility Study Report in 2004. As a result of discussion regarding the Feasibility Study Report, Ecology and Unocal agreed that conducting the interim action required by this Order was necessary to complete the Feasibility Study. Ecology has not yet approved the Feasibility Study.

I. In 1993 and 1994, Unocal evaluated the effectiveness of the then-existing free petroleum product recovery system at the Site as required by Paragraph 1.c of Section IV of the 1993 Agreed Order. Unocal also submitted for Ecology's review the free petroleum product recovery system report required by Paragraph 2.e of Section IV of the 1993 Agreed Order in January 1994. Unocal has therefore completed the requirements of Paragraphs 1.c and 2.e of Section IV of the 1993 Agreed Order.

VI. ECOLOGY DETERMINATIONS

A. Unocal is an "owner or operator" as defined in RCW 70.105D.020(12) of a "facility" as defined in RCW 70.105D.020(4) because it currently owns the Lower Yard and previously operated the former Edmonds Bulk Fuel Terminal.

B. Based upon all factors known to Ecology, a "release" or "threatened release" of "hazardous substance(s)" as defined in RCW 70.105D.020(20) and RCW 70.105D.020(7), respectively, has occurred at the Site.

C. Based upon credible evidence, Ecology issued a potentially liable person status letter to Unocal dated May 29, 1992, pursuant to RCW 70.105D.040, -.020(16) and WAC 173-340-500. By letter dated June 18, 1992, Unocal voluntarily waived its rights to notice and comment and accepted Ecology's determination that Unocal is a potentially liable person (PLP) under RCW 70.105D.040.

D. Pursuant to RCW 70.105D.030(1) and -.050(1), Ecology may require PLPs to investigate or conduct other remedial actions with respect to any release or threatened release of hazardous substances, whenever it believes such action to be in the public interest. Based on the foregoing facts, Ecology believes the remedial actions required by this Order are in the public interest.

E. Under WAC 173-340-430, an interim action is a remedial action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance, that corrects a problem that may become substantially worse or cost substantially more to address if the remedial action is delayed, or that is needed to provide for completion of a site hazard assessment, remedial investigation/feasibility study (RI/FS) or design of a cleanup action. The interim action to be taken under this Order will provide data needed to complete the feasibility study (FS) for the Site and to establish cleanup levels in the final Cleanup Action Plan. Further, the interim action will extract recoverable free product from the groundwater, remove hazardous substances in soil that exceed concentrations deemed protective for direct contact, and remove impacted sediment in Willow Creek, near stormwater outfalls #001 and #002. These circumstances warrant an interim action consistent with WAC 173-340-430.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that Unocal take the following remedial action at the Site and that these actions be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein:

A. Unocal has prepared a "Work Plan for 2007 Lower Yard Interim Action" attached to this Order as Exhibit B, which Ecology must review and approve. Unocal will perform the interim action in accordance with the Work Plan and the requirements of WAC 173-340-430.

B. If Ecology determines that the interim action does not constitute the final cleanup action (other than additional compliance monitoring) for the Lower Yard, then Unocal shall complete a draft FS Work Plan within 90 days of Ecology's determination. The draft FS Work Plan shall contain a draft outline for the draft Final FS Report and a schedule, and shall specify deliverable items. Deliverable items shall include monthly progress reports and interim deliverables of the results of any studies conducted under the FS Work Plan. Unocal shall obtain Ecology's approval of the FS Work Plan. The final FS Work Plan will be submitted to Ecology within 60 days of receipt of Ecology's comments on and required revisions of the draft FS Work Plan.

C. If Ecology determines that the interim action does not constitute the final cleanup action (other than additional compliance monitoring) for the Lower Yard, then Unocal shall complete a draft Final FS Report at the completion of the FS Work Plan tasks and the interim action. The draft Final FS Report shall describe the results of the work conducted under the FS Work Plan and the interim action. The draft Final FS Report shall follow the draft report outline contained in the FS Work Plan. Substantive revisions of the draft report outline shall require approval by Ecology. In addition to submitting a hard copy of data, Unocal shall submit all validated field and laboratory data presented in the Final FS Report on computer disk. Data submitted on computer disk shall be compatible with Ecology data import requirements. The Final FS Report will be submitted to Ecology within 60 days of receipt of Ecology's comments on and required revisions of the draft Final FS Report.

D. Unocal shall submit periodic written progress reports to Ecology each month during construction. After construction is complete, Unocal shall submit progress reports each quarter. Progress reports shall be submitted by electronic mail in portable document format or in an electronic format agreed upon by Ecology and Unocal. Progress reports shall be submitted by the 15th of the month succeeding the reporting period. The reports shall include the following items:

1. A list of activities that took place during the reporting period to implement the requirements of this Order;

2. Description of any deviations from the Order;

3. Description of any deviations from the schedule, and any planned deviations during the upcoming reporting period along with plans for recovering lost time and maintaining compliance with the schedule.

E. The work to be performed under this section shall be completed according to the following schedule:

Assuming that Ecology approves of the Work Plan for the interim action by July 2007, the product recovery and soil excavation activities would be completed by October 2007. The monitoring wells would be installed by October 2007. Groundwater monitoring would begin in October 2007. The sampling events would be conducted in October and December 2007, in February, April, June, August, October, and December 2008, and in February, April, June, August, and October 2009. An assessment of the soil conditions at the base of the previous Southwest Lower Yard excavation will be conducted in November 2007. The sediment remediation activities will be conducted in August or September 2008 (during low tidal conditions) when the water levels in the drainage ditch and Edmonds Marsh are low.

In August 2007, Ecology will receive public comments regarding the Agreed Order. In August and September 2007, Ecology and Unocal will evaluate all of those comments, and Ecology will provide responses. After completing the first three groundwater monitoring events, Ecology and Unocal will review the excavation and groundwater monitoring results from the

interim action, and re-evaluate the public comments. If additional investigation activities appear to be necessary to address any remaining data gaps, Unocal will prepare a draft work plan for the investigation activities by May 2008. The final work plan for the investigation activities will be submitted to Ecology within 30 days of receipt of Ecology's comments on and required revisions of the draft report. The investigation will be conducted in 2008 after receiving Ecology's approval of a final version of the work plan. The interim action monitoring program may be subsequently modified based on the results of the investigation activities.

At least four reports will be prepared to describe the field activities and present the results of the interim action. A draft version of the first report (*Interim Action As-Built Report – Product Recovery and Soil Excavation*), which will describe the product recovery, soil excavation, and soil assessment activities, will be submitted to Ecology by March 2008. The second report (*Groundwater Sampling Report – October 2007 through October 2008*) will present the results of the first year of groundwater monitoring. A draft version of *Groundwater Sampling Report – October 2007 through October 2008* will be submitted to Ecology by December 2008. A draft version of the third report (*Interim Action As-Built Report – Sediment Remediation*), which will describe the sediment excavation activities, will be submitted to Ecology by December 2008. The fourth report (*Groundwater Sampling Report – December 2008 through October 2009*) will present the results of the second year of groundwater monitoring. A draft version of *Groundwater Sampling Report – December 2008 through October 2009* will be submitted to Ecology by December 2009. If additional investigation activities are conducted during 2008, a fifth report (*Additional Investigation Report*) will present the results of the investigation activities. A draft version of the *Additional Investigation Report* will be submitted to Ecology by December 2008. Final versions of the above reports will be

submitted to Ecology within 60 days of receipt of Ecology's comments on and required revisions of the draft reports.

F. Within 90 days following (a) completion of all activities described in Exhibit B (Work Plan), or (b) Ecology's approval of the 2001 Remedial Investigation Report, the 2003 Supplemental Remedial Investigation Report, and the Final Feasibility Study Report (if required), whichever occurs last, Unocal shall submit to Ecology for review a draft of the Cleanup Action Plan for the Site in accordance with WAC 173-340-380. A Public Review Draft Cleanup Action Plan will be submitted to Ecology within 60 days of receipt of Ecology's comments on and required revisions of the draft Cleanup Action Plan. Public comment will be sought by Ecology before finalizing the Cleanup Action Plan.

G. If, at any time after the first exchange of comments on drafts, Ecology determines that insufficient progress is being made in the preparation of any of the deliverables required by this section, Ecology may complete and issue the final deliverable.

VIII. TERMS AND CONDITIONS OF ORDER

A. Public Notices

RCW 70.105D.030(2)(a) requires that, at a minimum, this Order be subject to concurrent public notice. Ecology shall be responsible for providing such public notice and reserves the right to modify or withdraw any provisions of this Order should public comment disclose facts or considerations which indicate to Ecology that this Order is inadequate or improper in any respect.

B. Remedial Action Costs

Unocal shall pay to Ecology costs incurred by Ecology consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Site under Chapter 70.105D RCW, including remedial actions and Order preparation, negotiation, oversight, and administration. These costs shall include work performed subsequent to the issuance of the Order, and any work performed prior to the issuance of the Order for which

Unocal did not previously reimburse Ecology. Unocal shall pay the required amount within ninety (90) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general statement of work performed will be provided along with the itemized statement. Itemized statements shall be prepared quarterly. Pursuant to WAC 173-340-550(4), failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement of costs will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly.

Pursuant to RCW 70.105D.055, Ecology has authority to recover unreimbursed remedial action costs by filing a lien against Parcel A.

C. Implementation of Remedial Action

If Ecology determines that Unocal has failed without good cause to implement the remedial action, in whole or in part, Ecology may, after notice to Unocal, perform any or all portions of the remedial action that remain incomplete. If Ecology performs all or portions of the remedial action because of Unocal's failure to comply with its obligations under this Order, Unocal shall reimburse Ecology for the costs of doing such work in accordance with Section VIII. B. (Remedial Action Costs), provided that Unocal is not obligated under this Section to reimburse Ecology for costs incurred for work inconsistent with or beyond the scope of this Order.

Except where necessary to abate an emergency situation, Unocal shall not perform any remedial actions at the Site outside those remedial actions required by this Order, unless Ecology concurs, in writing, with such additional remedial actions.

D. Designated Project Coordinators

The project coordinator for Ecology is:

David L. South
Washington State Department of Ecology
3190 160th Ave SE
Bellevue, WA 98008-5452
(425) 649-7200, dsou4@ecy.wa.gov

The project coordinator for Unocal is:

Mark Brearley
Chevron EMC
P.O. Box 399
Edmonds, Washington 98020
(206) 390-3948, mbrearly@chevron.com

Each project coordinator shall be responsible for overseeing the implementation of this Order. Ecology's project coordinator will be Ecology's designated representative for the Site. To the maximum extent possible, communications between Ecology and Unocal, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order shall be directed through the project coordinators. The project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the work to be performed required by this Order.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) calendar days prior to the change.

E. Performance

All geologic and hydrogeologic work performed pursuant to this Order shall be under the supervision and direction of a geologist licensed in the State of Washington or under the direct supervision of an engineer registered in the State of Washington, except as otherwise provided for by Chapters 18.220 and 18.43 RCW.

All engineering work performed pursuant to this Order shall be under the direct supervision of a professional engineer registered in the State of Washington, except as otherwise provided for by RCW 18.43.130. All construction work performed pursuant to this Order shall be under the direct supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

Any documents submitted containing geologic, hydrologic or engineering work shall be under the seal of an appropriately licensed professional as required by Chapter 18.220 RCW or RCW 18.43.130.

Unocal shall notify Ecology in writing of the identity of any engineer(s) and geologist(s), contractor(s) and subcontractor(s), and others to be used in carrying out the terms of this Order, in advance of their involvement at the Site.

F. Access

Ecology or any Ecology authorized representative shall have the full authority to enter and freely move about all property at the Site that Unocal either owns, controls, or has access rights to at all reasonable times for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order; reviewing Unocal's progress in carrying out the terms of this Order; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by Unocal. Unocal shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by Unocal where remedial activities or investigations will be performed pursuant to this Order. Ecology or any Ecology authorized representative shall give reasonable notice 24 hours in advance to Unocal's project coordinator before entering any Site property owned or controlled by Unocal unless an emergency prevents such notice. In accordance with Unocal's Corporate Safety Policy, Ecology inspectors will be accompanied by a Unocal escort while inspecting the Site, if available. If available, the escort will apprise Ecology representatives of safety concerns, but will not restrict legitimate access and inspection activities. Lack of availability of a Unocal escort shall not limit Ecology's authority to enter and freely move about all property at the Site provided 24-hour notice is given or emergency conditions exist. All persons who access the Site pursuant to this section shall comply with the approved health and safety plan, if any. In addition, Ecology representatives who inspect the Site will have completed Ecology's 24-hour or 40-hour Health and Safety training requirements. Ecology employees and their representative shall not be required to sign any release or waiver as a condition of site property access.

G. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, Unocal shall make the results of all sampling, laboratory reports, and/or test results generated by it or on its behalf available to Ecology. Pursuant to WAC 173-340-840(5), all sampling data shall be submitted to Ecology in both printed and electronic formats as specified in Exhibit C, and in accordance with Section VII (Work to be Performed), Ecology's toxics cleanup program policy 840 (Data Submittal Requirements), and or any subsequent procedures specified by Ecology for data submittal.

If requested by Ecology, Unocal shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by Unocal pursuant to implementation of this Order. Unocal shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow Unocal and/or its authorized representative to take split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Order, provided that doing so does not interfere with Ecology's sampling. Without limitation on Ecology's rights under Section VIII. F. (Access), Ecology shall notify Unocal seven (7) days prior to any sample collection activity unless an emergency prevents such notice.

In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under Chapter 173-50 WAC for the specific analyses to be conducted, unless otherwise approved by Ecology.

H. Public Participation

A public participation plan is required for this Site and is included as Exhibit F. Ecology shall review any existing public participation plan to determine its continued appropriateness and whether it requires amendment.

Ecology shall maintain the responsibility for public participation at the Site. However, Unocal shall cooperate with Ecology, and shall:

1. If agreed to by Ecology, develop an appropriate mailing list, prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission

of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings;

2. Notify Ecology's project coordinator prior to the preparation of all press releases in fact sheets, and before major meetings with the interested public and local governments. Likewise, Ecology shall notify Unocal prior to the issuance of all press releases and fact sheets, and before major meetings with the interested public and local governments. For all press releases, fact sheets, meetings, and other outreach efforts by Unocal that do not receive prior Ecology approval, Unocal shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology;

3. When requested by Ecology, participate in public presentations on the progress of the remedial action at the Site. Participation may be through attendance at public meetings to assist in answering questions, or as a presenter;

4. When requested by Ecology, arrange and/or continue information repositories to be located at the following locations:

(a) Edmonds Public Library
650 Main Street
Edmonds, WA 98020

(b) Ecology's Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008

At a minimum, copies of all public notices, fact sheets, and press releases; all quality assured monitoring data; remedial action plans and reports, supplemental remedial planning documents, and all other similar documents relating to performance of the remedial action required by this Order shall be promptly placed in these repositories.

I. Retention of Records

During the pendency of this Order and for ten (10) years from the date of completion of work performed pursuant to this Order, Unocal shall preserve all records, reports, documents, and underlying data (collectively, "records") in its possession relevant to the implementation of

this Order and shall insert a similar record retention requirement into all contracts with project contractors and subcontractors. Upon request of Ecology, Unocal shall make all records available to Ecology and allow access for review within a reasonable time. Nothing in this Order is intended to waive any right Unocal may have under applicable law to limit disclosure of records protected by the attorney work-product doctrine, the attorney-client privilege, or any other privilege recognized under Washington law. If Unocal withholds any requested records based on an assertion of privilege, it shall provide Ecology with a privilege log specifying the records withheld and the applicable privilege. No data collected on Site shall be considered privileged.

J. Resolution of Disputes

1. In the event a dispute arises as to an approval, disapproval, proposed change, or other decision or action by Ecology's project coordinator, or an itemized billing statement, under Section VIII. B. (Remedial Action Costs), the Parties shall utilize the dispute resolution procedure set forth below.

(a) Upon receipt of the Ecology project coordinator's written decision or the itemized billing statement, Unocal has fourteen (14) days within which to notify Ecology's project coordinator in writing of its objection to the decision or itemized statement.

(b) The Parties' project coordinators shall then confer in an effort to resolve the dispute. If the project coordinators cannot resolve the dispute within fourteen (14) days, Ecology's project coordinator shall issue a written decision.

(c) Unocal may then request regional management review of the decision. This request shall be submitted in writing to the Northwest Region, Toxics Cleanup Program, Section Manager within seven (7) days of receipt of Ecology's project coordinator's written decision.

(d) The Section Manager shall conduct a review of the dispute and shall endeavor to issue a written decision regarding the dispute within thirty (30) days of Unocal's

request for review. The Section Manager's decision shall be Ecology's final decision on the disputed matter.

2. The Parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used.

3. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Order, unless Ecology agrees in writing to a schedule extension.

K. Extension of Schedule

1. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify the reason(s) the extension is needed. The request shall specify:

(a) The deadline that is sought to be extended;

(b) The length of the extension sought;

(c) The reason(s) for the extension; and

(d) Any related deadline or schedule that would be affected if the extension were granted.

2. The burden shall be on Unocal to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause may include but may not be limited to:

(a) Circumstances beyond the reasonable control and despite the due diligence of Unocal including delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by Unocal;

(b) Acts of God, including fire, flood, blizzard, extreme temperatures, storm, war, act of terrorism, or other unavoidable casualty; or

(c) Endangerment as described in Section VIII. M. (Endangerment).

However, neither increased costs of performance of the terms of this Order nor changed economic circumstances shall be considered circumstances beyond the reasonable control of Unocal.

3. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give Unocal written notification of any extensions granted pursuant to the Order. A requested extension shall not be effective until approved by Ecology. Unless the extension is a substantial change, it shall not be necessary to amend this Order pursuant to Section VIII. L. (Amendment of Order) when a schedule extension is granted.

4. An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of:

(a) Delays in the issuance of a necessary permit which was applied for in a timely manner;

(b) Other circumstances deemed exceptional or extraordinary by Ecology;

(c) Acts of God, including fire, flood, blizzard, extreme temperatures, storm, war, act of terrorism, or other unavoidable casualty; or

(d) Endangerment as described in Section VIII. M. (Endangerment).

L. Amendment of Order

The project coordinators may verbally agree to minor changes to the work to be performed without formally amending this Order. Minor changes will be documented in writing by Ecology within seven (7) days of verbal agreement.

Except as provided in Section VIII. N. (Reservation of Rights), substantial changes to the work to be performed shall require formal amendment of this Order. This Order may only be formally amended by the written consent of both Ecology and Unocal. Unocal shall submit a written request for amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner after the written request for amendment is

received. If the amendment to the Order represents a substantial change, Ecology will provide public notice and opportunity to comment. Reasons for the disapproval of a proposed amendment to this Order shall be stated in writing. If Ecology does not agree to a proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section VIII. J. (Resolution of Disputes).

M. Endangerment

In the event Ecology determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment on or surrounding the Site, Ecology may direct Unocal to cease such activities for such period of time as it deems necessary to abate the danger. Unocal shall immediately comply with such direction.

In the event Unocal determines that any activity being performed at the Site is creating or has the potential to create a danger to human health or the environment, Unocal may cease such activities. Unocal shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such activities. Upon Ecology's direction Unocal shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with Unocal's cessation of activities, it may direct Unocal to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to Section VIII. M. (Endangerment), Unocal's obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended in accordance with Section VIII. K. (Extension of Schedule), for such period of time as Ecology determines is reasonable under the circumstances.

Nothing in this Order shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

N. Reservation of Rights

This Order is not a settlement under Chapter 70.105D RCW. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any Ecology rights or authority. Ecology will not, however, bring an action against Unocal to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against Unocal regarding remedial actions required by this Order, provided Unocal complies with this Order.

Ecology nevertheless reserves its rights under Chapter 70.105D RCW, including the right to require additional or different remedial actions at the Site should it deem such actions necessary to protect human health and the environment, and to issue orders requiring such remedial actions. Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances at the Site.

O. Transfer of Interest in Property

No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Site shall be consummated by Unocal without provision for continued implementation of all requirements of this Order and implementation of any remedial actions found to be necessary as a result of this Order.

Prior to Unocal's transfer of any interest in all or any portion of the Site, and during the effective period of this Order, Unocal shall provide a copy of this Order to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least thirty (30) days prior to any transfer, Unocal shall notify Ecology of said transfer. Ecology acknowledges that Unocal and the Washington State Department of Transportation (WSDOT) have executed an Agreement for Sale of Real Property pursuant to which WSDOT will take title to the Lower Yard following completion of certain remedial actions. While this Order is in effect, Unocal shall not use the Lower Yard in a manner inconsistent with the remedial action required herein. If Unocal transfers its interest in the Lower Yard while this Order is in effect, Unocal shall

include language in the transfer documents preventing the transferee, for the duration of this Order, from using the Lower Yard in a manner inconsistent with the remedial action required herein.

P. Compliance with Applicable Laws

1. All actions carried out by Unocal pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70.105D.090. The permits or specific federal, state or local requirements that the agency has determined are applicable and that are known at the time of entry of this order have been identified in Exhibit D.

2. Pursuant to RCW 70.105D.090(1), except for the requirements of Chapter 90.48, Unocal is exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals for the remedial action under this Order. However, through this Order Unocal shall comply with the substantive requirements of such permits and approvals. The exempt permits and approvals and the applicable substantive requirements of those permits or approvals as they are known at the time of entry of this Order, have been identified in Exhibit E.

Unocal has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order. In the event either Ecology or Unocal determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order, it shall promptly notify the other party of its determination. Ecology shall determine whether Ecology or Unocal shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, Unocal shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by Unocal and on how Unocal must meet those requirements. Ecology shall inform Unocal in

writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. Unocal shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

3. Pursuant to RCW 70.105D.090(2) in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(1) would result in the loss of approval from a federal agency that is necessary for the state to administer any federal law, the exemption shall not apply and Unocal shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(1), including any requirements to obtain permits.

Q. Indemnification

Unocal agrees to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action for death or injuries to persons or for loss or damage to property to the extent arising from or on account of acts or omissions of Unocal its officers, employees, agents, or contractors in entering into and implementing this Order. However, Unocal shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action to the extent arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in entering into or implementing the activities pursuant to this Order.

Unocal and WSDOT have entered into an Agreement for Sale of Real Property (Agreement) that allocates responsibility between them for the Lower Yard. Notwithstanding the foregoing provisions in this Section, the indemnification provisions set forth herein are expressly limited to the performance of the implementation of this Order and shall not affect or otherwise amend the allocation of responsibility in the Agreement. In addition, regardless of the allocation of responsibility in the Agreement, Unocal remains fully responsible to indemnify Ecology as provided in this Section for work covered under this Order.

IX. SATISFACTION OF ORDER

The provisions of this Order shall be deemed satisfied upon Unocal's receipt of written notification from Ecology that Unocal has completed the remedial activity required by this Order, as amended by any modifications, and that the Unocal has complied with all other provisions of this Agreed Order.

X. ENFORCEMENT

Pursuant to RCW 70 105D 050, this Order may be enforced as follows:

A. The Attorney General may bring an action to enforce this Order in a state or federal court.

B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for investigative and remedial actions and orders related to the Site.

C. In the event Unocal refuses, without sufficient cause, to comply with any term of this Order, Unocal will be liable for:

(1) Up to three (3) times the amount of any costs incurred by the State of Washington as a result of its refusal to comply; and

(2) Civil penalties of up to twenty-five thousand dollars ($25,000) per day for each day it refuses to comply.

D. This Order is not appealable to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under RCW 70 105D 060.

Effective date of this Order: July 5, 2007

UNION OIL COMPANY OF CALIFORNIA

James J. Dean
Integration Manager
(925) 842-3381

STATE OF WASHINGTON DEPARTMENT OF ECOLOGY

Steven M. Alexander
Section Manager
Toxics Cleanup Program
Northwest Regional Office
(425) 649-7054

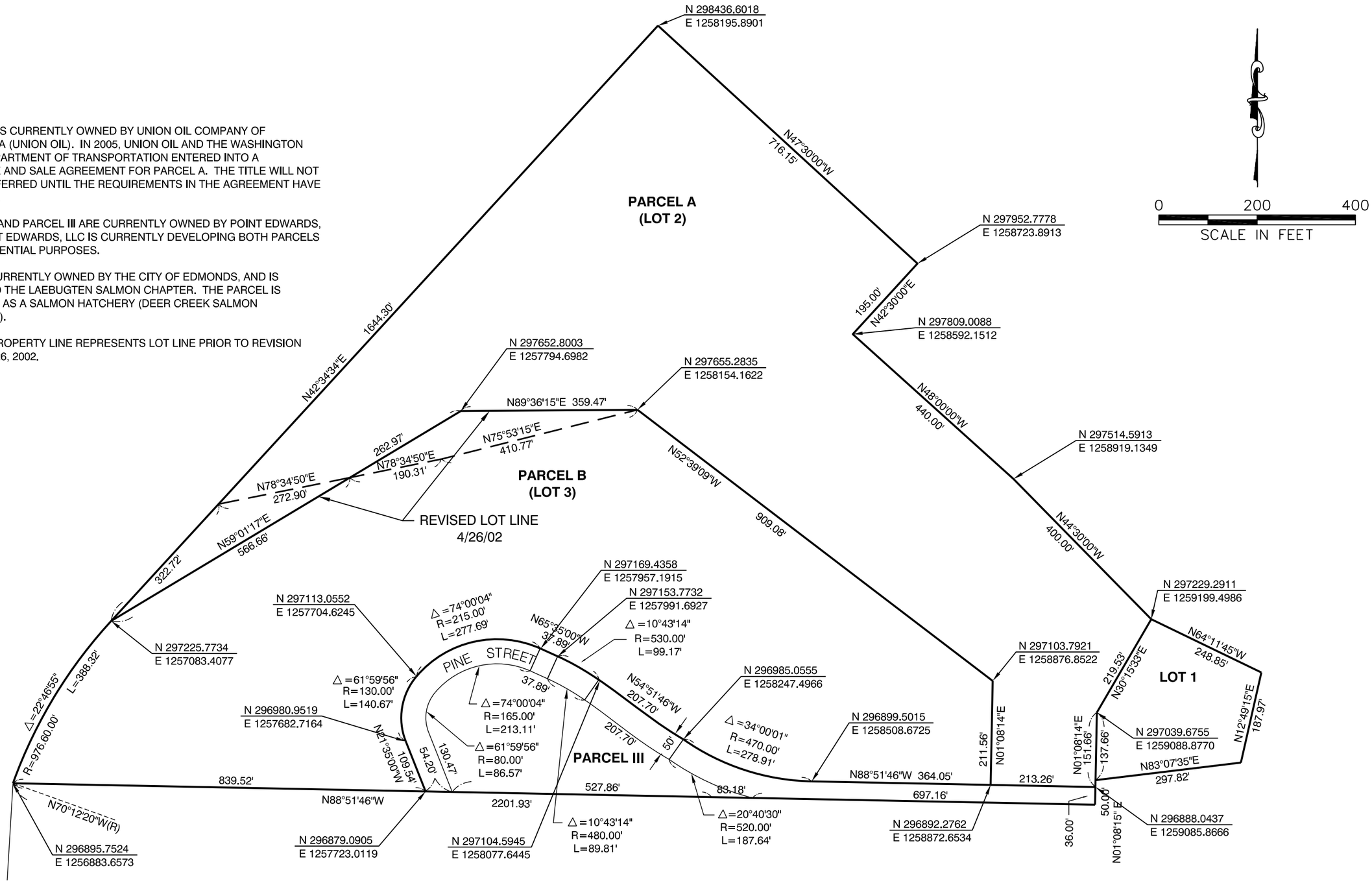
NOTES:

1) PARCEL A IS CURRENTLY OWNED BY UNION OIL COMPANY OF CALIFORNIA (UNION OIL). IN 2005, UNION OIL AND THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION ENTERED INTO A PURCHASE AND SALE AGREEMENT FOR PARCEL A. THE TITLE WILL NOT BE TRANSFERRED UNTIL THE REQUIREMENTS IN THE AGREEMENT HAVE BEEN MET.

2) PARCEL B AND PARCEL III ARE CURRENTLY OWNED BY POINT EDWARDS, LLC. POINT EDWARDS, LLC IS CURRENTLY DEVELOPING BOTH PARCELS FOR RESIDENTIAL PURPOSES.

3) LOT 1 IS CURRENTLY OWNED BY THE CITY OF EDMONDS, AND IS LEASED TO THE LAEBUGTEN SALMON CHAPTER. THE PARCEL IS OPERATED AS A SALMON HATCHERY (DEER CREEK SALMON HATCHERY).

4) DASHED PROPERTY LINE REPRESENTS LOT LINE PRIOR TO REVISION ON APRIL 26, 2002.



SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 05/07
DWN. BDT
APPR. _____
REVIS. _____
PROJECT NO.
001.0153.00004

EXHIBIT A
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

SITE DIAGRAM

C:\DRIVE_E\Clients\SLR\001\001.0153.00004\06-01.dwg, 5/29/2007 6:23:04 PM, BDT

INTERIM ACTION REPORT

WORK PLAN FOR 2007 LOWER YARD INTERIM ACTION

UNOCAL EDMONDS BULK FUEL TERMINAL

EDMONDS, WASHINGTON

Prepared for

Union Oil Company of California

June 25, 2007

Prepared by

SLR International Corp
22122 20th Avenue SE, Building H, Suite 150
Bothell, Washington 98021

Project #001.0153.00004

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1 INTRODUCTION

In July 2007, Union Oil Company of California (Unocal) entered into an Agreed Order (No. DE 4460) with the Washington Department of Ecology (Ecology) to conduct an interim remedial action at the Unocal Edmonds Terminal (Terminal) located at 11720 Unoco Road in Edmonds, Washington. The location of the Terminal is shown on Figure 1. The Agreed Order requires Unocal to conduct an interim action to remediate soil, groundwater, and sediments, and to monitor groundwater in lower yard of the Terminal.

The purposes of the interim action are to reduce potential threats to human health and the environment, to provide for completion of the feasibility study (FS) for the lower yard, and to provide information to design additional cleanup actions, if necessary. In accordance with WAC 173-340-430(1), the interim action may constitute the cleanup action for the lower yard if the interim action is subsequently shown to comply with WAC 173-340-350 through 173-340-390. If the interim action does constitute the cleanup action for the lower yard, then the FS will not need to be completed.

The specific objectives of the interim action include the following:

- Remediate the petroleum hydrocarbon-impacted soil within the lower yard that contains petroleum hydrocarbon concentrations above the soil remediation levels (RELs) or soil cleanup levels (CULs) based on direct contact
- Remove the remaining floating petroleum product beneath the lower yard
- Extract the petroleum hydrocarbon-impacted groundwater that is in contact with the floating petroleum product
- Remediate the arsenic-impacted soil within the lower yard that contains concentrations above the soil CUL based on natural background
- Remove the sediment in the drainage ditch (Willow Creek), at locations near the Terminal's two storm water outfalls, that failed the 2003 toxicity tests
- Obtain the data necessary to determine if the remaining soil concentrations are sources of free product on the groundwater table

- Obtain the data necessary to determine if the remaining soil concentrations will cause an exceedance of the groundwater CULs at the groundwater points of compliance (POCs)

- Obtain the data necessary to determine if the petroleum hydrocarbon concentrations in the groundwater beneath the lower yard will naturally attenuate to below the CULs at the groundwater POCs

- Obtain the data necessary to calculate the restoration timeframes to meet the groundwater CULs at the groundwater POCs

As required by WAC 173-340-430, Unocal has prepared this report to describe the proposed scope of the interim action. The report is organized as follows:

- Section 2 provides a summary of the Terminal features and existing site conditions pertinent to the interim action

- Section 3 details the types and distribution of contaminants at the lower yard

- Section 4 presents a conceptual model of contaminant occurrence, movement, and potential exposures

- Section 5 presents the cleanup standards for the lower yard

- Section 6 details the interim action and how it meets the criteria of WAC 173-340-430

- Section 7 describes the construction documentation procedures

- Section 8 describes the reporting procedures

- Section 9 notes the public participation activities

2 BACKGROUND

2.1 Site Description and History

The Terminal is comprised of 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 (the southwest corner of the lower yard), the Terminal boundary is approximately 160 feet from the Puget Sound shoreline. The Terminal is divided into two main parcels, the lower yard [Parcel A (also designated as Lot 2)] and the upper yard [Parcel B (also designated as Lot 3)]. There are also two additional small parcels (Lot 1 and Parcel III) located in the southeast corner of the Terminal and in the southern part of the upper yard, respectively. The boundaries of each parcel are shown on Figure 2, and a legal description of each parcel is presented in Appendix A.

The lower yard (Parcel A) is approximately 22 acres in area, lying east-southeast of BNSF Railway (BNSF) property, south of the Edmonds Marsh (also known as the Union Oil Marsh) and a drainage ditch (Willow Creek), northwest of the Deer Creek Salmon Hatchery, and north of the upper yard. The lower yard is currently vacant and all of the buildings (three office buildings, a garage, and a warehouse) were demolished in 2004. The lower yard currently contains only the components of a storm water collection and treatment system (an oil/water separator, Detention Basin No. 2, and Detention Basin No. 1; Figure 3). Previous structures in the lower yard included petroleum storage and transfer equipment (aboveground tanks and piping), two truck loading racks, a railcar loading/unloading station, an air-blown asphalt plant, and an asphalt packaging warehouse.

The upper yard is approximately 25 acres in area, located immediately south of the lower yard. Previous structures in the upper yard consisted of petroleum storage and transfer equipment (aboveground tanks and piping). Unocal sold the upper yard (Parcel B and Parcel III) to Point Edwards, LLC (Point Edwards) in October 2003. Point Edwards is currently developing the upper yard for residential purposes.

In 2005, Lot 1 (the southeast corner of the Terminal) was donated to the City of Edmonds. This area is leased to the Laebugten Salmon Chapter and is operated as a salmon hatchery (Deer Creek Salmon Hatchery).

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 at the Terminal from 1953 to the late 1970s. Detailed descriptions of the Terminal facilities and historical activities are presented in the Background History Report (EMCON, 1994b).

2.2 Current Lower Yard Physical Characteristics

2.2.1 Surface Cover

Most of the lower yard surface is unpaved and covered with gravel. Asphalt pavement is present in the lower yard on access roads and in previous parking areas near the former office buildings. Concrete slabs are present at the locations of the two former truck loading racks.

2.2.2 Storm Water Drainage System

The lower yard has a drainage system that ultimately conveys storm water to the site's oil/water separator (Figure 3). The system includes a series of catch basins connected by underground concrete pipes, a sump with a pump, two detention basins, and the oil/water separator. The system can be subdivided into five areas (southwest, southeast, west, east, and north) of the lower yard. All but the western and northern areas drain into a sump located northeast of the oil/water separator. The sump pumps the water into the oil/water separator. The western area of the lower yard drains directly into the oil/water separator, and the northern area of the lower yard drains to Detention Basin No. 2, which is lined with plastic. The outfalls from the oil/water separator (secondary outfall #001) and Detention Basin No. 2 (primary outfall #002) discharge into the drainage ditch (Willow Creek) located along the northwestern boundary of the Terminal. Excess storm water is routed to Detention Basin No. 1 for storage during large storm water events.

The method of operation for the lower yard's storm water drainage system depends on the tidal cycle in the drainage ditch to which the system discharges. Processed storm water flows by gravity from the oil/water separator to Detention Basin No. 2 and is pumped to the drainage ditch during low tide (at outfall #002). During high tide, processed water from the oil/water separator either: (1) flows by gravity to Detention Basin No. 2, where it is stored and then released to the drainage ditch during low tide; or (2) it is occasionally pumped directly into the drainage ditch (at outfall #001).

2.2.2.1 Off-Site Drainage

The part of the drainage ditch (Willow Creek) located along the northeastern-eastern boundary of the site collects runoff from the salmon hatchery and from areas northeast and east of the site (Edmonds Marsh area and State Route 104). The water in the ditch flows into a tidal basin, and is then conveyed via underground piping to Puget Sound. A

low-lying area exists along the southern half of the Terminal's northwest boundary, between the property line and the neighboring railroad tracks. This depression slopes gradually to the northeast, which allows storm water to drain into the tidal basin.

Prior to November 2003, the storm water from the upper yard was piped to the lower yard's storm water collection and treatment system, and discharged into the drainage ditch. In November 2003, a storm water collection pond was constructed in the northern part of the upper yard, and the storm water piping in the upper yard was routed to the pond. The outfall from the pond is transferred directly to the tidal basin via an underground pipe that extends through a portion of the lower yard (Figure 3).

Pine Street borders the Terminal along the eastern half of the Terminal's south edge. A roadside ditch exists on the north side of Pine Street and this ditch drains the southern edge of the upper yard. The ditch runs to the intersection of Pine Street and the Terminal entrance road where the flow is piped under Pine Street and the entrance road, and outfalls to a ditch that runs northeast to Willow Creek.

2.3 Future Land Use

In 2005, Unocal and the Washington State Department of Transportation (WSDOT) entered into a purchase and sale agreement for the Terminal's lower yard (Parcel A). WSDOT plans to use the lower yard for a multi-modal transportation facility (David Evans and Associates, 2002). The facility would integrate a relocated ferry terminal, a railroad terminal, bus service and park-and-ride facilities, and accommodations for bicycles and pedestrians. To allow for access to the ferry terminal, State Route 104 would be realigned through portions of the lower yard. The locations of the planned structures and features of WSDOT's development of the lower yard are shown on Figure 4. Conditions regarding transfer of property ownership from Unocal to WSDOT are described in the main text of the Agreed Order (see §V.D.)

2.4 Site Environmental Setting

2.4.1 Site Geology

Two main geologic units have been identified beneath the lower yard [MFA, 2001b (p. 5-4)]. The two units are discussed below.

Fill. The uppermost unit consists of fill material that occurs throughout the entire lower yard, and generally varies in thickness from approximately 1 to 8 feet. This unit is comprised of grade fill overlying finer-grained fill. Grade fill comprises the gravel covered areas of the lower yard. It is present from the surface to approximately 3 feet below ground surface (bgs), and it primarily consists of sand and gravel mixtures, with minor amounts of silt. The sand is generally fine to medium grained, and the gravel is typically crushed rock up to approximately 2½ inches in diameter.

Finer-grained fill underlies the paved surfaces of the lower yard and the grade fill in the unpaved areas. The finer-grained fill varies in composition, but generally consists of sand and silt mixtures with varying amounts of gravel, organic material, and miscellaneous debris (including wood, concrete, wire, and fabric). The fill typically consists of fine- to medium-grained sand with few to some silt, and trace to few gravel. Sand with silt and silty sand fill are also common. Finer-grained fill appears to be comprised of reworked native soil, and delineation of the contact between the fill and the underlying native soil is difficult. The fill was mapped as "modified land" and designated as the youngest unit in the area by Minard (1983).

Alluvium. Native soil underlies the fill throughout the lower yard. The native soil is present from the base of the fill to the maximum explored depth of 41.8 feet bgs. The native soil typically consists of fine- to medium-grained sand with trace to few silt, trace to few organic material, and trace gravel. Interbedded sand with silt is abundant, and interbedded silt and sandy silt are also frequent. The interbeds range in thickness from less than 1 inch to several feet, and appear to be laterally discontinuous. The native unit is interpreted to be alluvium, and is likely part of the Whidbey Formation.

2.4.2 Site Hydrology

2.4.2.1 Hydrostratigraphic Units

Two hydrostratigraphic units have been identified beneath the lower yard [MFA, 2001b (p. 5-6)]. These units are discussed below.

Surficial Fill. As described in Section 2.3.1, the uppermost unit in the lower yard consists of sand and gravel. Typically, the fill is permeable and allows precipitation to infiltrate and penetrate to deeper native material. The unit was unsaturated during the RI and supplemental RI (SRI) fieldwork. Following rainfall events, water ponds in a few areas underlain by less permeable materials, especially in the eastern part of the lower yard.

Alluvium/Whidbey Formation. The alluvium/Whidbey Formation unit underlies the fill unit. This hydrostratigraphic unit (designated as the site-wide aquifer where saturated) is unconfined (water table aquifer), tidally influenced, and likely a regional aquifer. All of the lower yard monitoring wells are screened in the site-wide aquifer.

2.4.2.2 Groundwater Elevations

RI groundwater level measurements obtained from December 1995 through November 1996 are presented in the Draft RI Report [MFA, 2001b (Appendix F)]. SRI groundwater level measurements obtained from June 2001 through May 2002 are presented in the Draft SRI Report [MFA, 2003a (Appendix G)]. During the RI and SRI investigation periods, the groundwater table was approximately 1 to 9 feet beneath the

lower yard surface, and was typically in the 3 to 7 feet bgs range. Groundwater elevations in the lower yard ranged from 6.45 to 12.11 feet (relative to the MLLW datum), with the highest elevations in the central and eastern parts of the lower yard and the lowest elevations in the southwestern part of the lower yard.

The highest groundwater elevations beneath the lower yard occur during the month of January, and the lowest groundwater elevations occur between June and September. The deeper wells appear to be screened in the same aquifer (site-wide aquifer) as the shallow wells, based on similar water levels, similar lithology, and the lack of a low permeability layer between the shallow and deeper zones.

2.4.2.3 Groundwater Flow Directions and Velocity

Site-wide aquifer elevation contours roughly follow the ground surface contours and have limited seasonal variability. Groundwater flow does not appear to be influenced by the presence of subsurface utilities. The general groundwater flow directions are to the northwest in the western part of the lower yard, towards Detention Basin No. 1 in the central part of the lower yard, and to the northeast in the eastern part of the lower yard. Groundwater flows toward the drainage ditch (to the northeast) in the eastern part of the lower yard, away from the ditch in the northern part of the lower yard, and radially into Detention Basin No. 1 [MFA, 2001b (p. 5-13 through 5-16)]. Figure 5 presents a shallow groundwater elevation contour map of water level data obtained on January 18, 1996.

The specific conductance of water samples collected from wells located between the drainage ditch (Willow Creek) and Detention Basin No. 1 indicate flow from the drainage ditch to the detention basin. During the RI, the specific conductance in wells LM-2, MW-108, and MW-109 ranged from 1,400 to 22,000 µS/cm, similar to ditch sediment pore water measurements (EMCON, 1995). Since ditch water levels are higher than both on-site groundwater levels adjacent to the ditch and water levels in Detention Basin No. 1, the ditch around and downstream of the detention basin serves as a recharge source, with groundwater flowing toward the site from the ditch. This condition substantially controls the migration of contaminants in this area of the site.

Horizontal hydraulic gradients beneath the lower yard range from 0.0006 to 0.01 feet/foot. Horizontal hydraulic gradients between the drainage ditch and Detention Basin No. 1 are up to 0.1 feet/foot. Based on a comparison of groundwater elevations in adjacent shallow and deeper monitoring wells, the average vertical hydraulic gradients are 0.008 feet/foot downward at well MW-120 (in the southwestern part of the lower yard), 0.012 feet/foot downward at well MW-121 (adjacent to the drainage ditch in the northwestern part of the lower yard), and 0.024 feet/foot upward at well MW-122 (along the south corner of Detention Basin No. 1). Though slight downward gradients exist at MW-120 and MW-121, vertical hydraulic conductivities are typically 10 times lower than horizontal hydraulic conductivities, yielding shallow groundwater flow directions that are nearly horizontal at these locations (see Section 2.3.2.4).

The site-wide aquifer beneath the lower yard is recharged laterally from the south of the site and from the drainage ditch (Willow Creek) at the northern part of the site. It is recharged vertically from infiltration of precipitation. The site-wide aquifer discharges laterally to the drainage ditch, to Detention Basin No. 1, and to Puget Sound.

The average linear velocity for the shallow groundwater was estimated by using the following equation (Freeze and Cherry, 1979):

$$v = ki/n$$

where k = hydraulic conductivity (centimeters per second [cm/sec]),

i = gradient (feet/foot), and

n = porosity (dimensionless).

Based on an average porosity of 0.375 [MFA, 2001b (p. 5-15)], horizontal hydraulic gradients (0.0006 to 0.01 feet per foot), and the average horizontal hydraulic conductivity (9×10^{-3} cm/sec; see Section 2.3.2.4), the estimated average linear velocity ranges from approximately 15 to 248 feet per year.

2.4.2.4 Hydraulic Conductivity

During the RI, three methods were used to estimate the hydraulic conductivity (k) of the water-bearing units beneath the lower yard. These methods included: (1) laboratory tests on core samples, (2) tidal response study calculations, and (3) short-term, in situ, rising head tests (slug tests). The mean horizontal hydraulic conductivity of the fill/alluvium beneath the lower yard is 9×10^{-3} centimeters per second. Based on the tidal response study calculations (representing the aquifer's hydraulic conductivity between the wells and Puget Sound), the least permeable part of the site-wide aquifer lies between the site and Puget Sound. The laboratory permeameter tests indicate that the finer grained interbeds in the lower yard provide a significant barrier to downward groundwater flow [MFA, 2001b (p. 5-12 and 5-13, Tables 5-1, 5-2, and 5-3, and Appendix G)].

2.4.2.5 Tidal Influence

A tidal response study was conducted between January 17 and 24, 1996. During the period of the study, Puget Sound tides, measured at the end of the Terminal dock, varied between -2.34 and 13.15 feet relative to the MLLW datum. Groundwater elevations (MLLW datum) in the site-wide aquifer ranged from 7.43 feet to 11.74 feet. Groundwater elevations in the 11 monitored shallow wells fluctuated 0.26 to 2.08 feet, and groundwater elevations in the 3 monitored deep wells fluctuated 1.06 to 2.52 feet. Detention Basin No. 1 and drainage ditch (Willow Creek) water elevations ranged from 7.49 feet in the detention basin to 12.73 feet at surface water station D-3 (in the ditch). Water level fluctuations in Detention Basin No. 1 and the drainage ditch ranged from

1.92 to 3.05 feet. Based on the results of the tidal response study, it appears that the groundwater in the site-wide aquifer is influenced by tidal fluctuations in Puget Sound. Groundwater flow directions beneath the site were similar during low and high tides; however, the gradients were steeper at low tides [MFA, 2001b (p. 5-10 through 5-12 and Appendix G)].

The average (arithmetic mean) groundwater and surface water elevations were calculated for the data collected on January 18, 1996. Groundwater contour patterns under all tidal conditions (i.e., average, low tide, and high tide) were similar and showed that during the period of the test, the water elevation in the drainage ditch was higher than the groundwater elevations in the wells nearest the ditch. The water elevation in Detention Basin No. 1 was consistently lower than the groundwater elevations in the wells, and groundwater flow was toward Detention Basin No. 1 in the north-central part of the site. Groundwater flow was toward the northwest in the western part of the site (Figure 5).

2.4.3 Surface Water

The Terminal is located within 1,000 feet east of Puget Sound. The site is bounded to the northwest and east-northeast by the drainage ditch (Willow Creek) that carries surface runoff from the Terminal and from areas east of the Terminal to Puget Sound. Specifically, the drainage ditch carries surface water into a tidal basin, where the water is conveyed beneath the BNSF property, via a 48-inch-diameter culvert, to Puget Sound. As previously noted, north of the drainage ditch lies a 23-acre freshwater and brackish water marsh known as the Edmonds Marsh (also known as Union Oil Marsh). The marsh is tidally influenced and also fed by Shelleberger Creek on the southeast side of the marsh. Small creeks and ditches drain the upland areas to the east of the site.

The drainage ditch and 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. Based on salinity tests conducted in conjunction with the upland sediment evaluation, marine water intrusion appears to extend up to surface water station D-4 during high tide. The location of D-4 is shown on Figure 5. During periods of low tide, the marsh completely drains. Surface water elevations in the drainage ditch (including at the downstream end of the marsh) varied from 8.53 to 10.98 feet between December 1995 and November 1996 [MFA, 2001b (p. 5-9 and Appendix F)]. The surface water elevation difference between the upstream surface water station (D-4) and the tidal basin was less than 0.5 feet.

As discussed in Section 2.2.2, the unlined Detention Basin No. 1 was part of the storm water drainage system prior to July 2003. Water elevations in Detention Basin No. 1 varied from 5.92 to 10.42 feet between December 1995 and November 1996, and 10 of

the 12 monthly basin water elevation measurements[1] during that period were lower than the surrounding groundwater and surface water elevations (MFA, 2001b). The highest water level recorded in Detention Basin No. 1 during the RI was approximately 3 feet below the top of the berm around the basin (MFA, 2001b). Water elevations in Detention Basin No. 2, which is lined with plastic, were consistently higher than adjacent groundwater elevations and were typically higher than surface water elevations in the drainage ditch.

2.4.4 Upland Sediments

During a flood tide, the upland sediments on the banks of the drainage ditch (Willow Creek) and the tidal basin are partially to fully inundated with water, and during an ebb tide, the sediments on the banks are uncovered. Observations of the sediments in the bottom center of the drainage ditch during field sampling indicated that these sediments are constantly submerged [MFA, 2001b (p. 5-19)]. The water covering the upland sediments is generally brackish [1 to 30 parts per thousand (ppt) salinity] as a result of the mixing of surface water runoff with salt water from tidal incursion. In June 1995, upland sediment pore water salinities measured between 11 and 21 ppt at depths of up to 10 centimeters.

Upland sediments observed along the northeast boundary of the site were highly organic, very soft to firm, olive brown to black sandy silts [MFA, 2001b (p. 5-19 and Appendix E)]. Upland sediments that were at an elevation high enough to support perennial vegetation retained a peat-like composition. Sediments located in the bottom of the drainage ditch and also along the northwest property boundary were generally loose olive gray to gray silty sands. Tidal basin sediments were loose gray to brown gravelly sands. Reducing sediments indicative of anoxic conditions were observed along the northeast boundary of the lower yard. Amphipods were observed in the upland sediments.

2.5 Lower Yard Interim Actions

From August to November 2001, Unocal conducted an interim action to remove floating petroleum free product and product-saturated soil from four areas of the lower yard. The interim action mainly consisted of the excavation of a total of 9,199 banked cubic yards (cy) of soil from four areas (Excavations A, B, C, and D), and the extraction of 76,237 gallons of free product and groundwater from the open excavations (MFA, 2002). The areas of soil excavation are shown on Drawing 1. Excavations A, B, C, and D were extended vertically to depths of approximately 9, 10.5, 6.5, and 6.5 feet bgs, respectively. The excavations were extended laterally until product-saturated soil was not observed in

[1] Except for May 10 and July 9, 1996. Based on a review of the rainfall records for the week proceeding May 10 and July 9, 1996, a review of the water level measurements, and a comparison of detention basin water levels to water levels in wells significantly upgradient (e.g., MW-3 and MW-133) of the detention basin, it appears that the detention basin water levels on these two dates were erroneous [MFA, 2001b (p. 5-9)].

the sidewalls or until there were concerns over the structural integrity of nearby site storm water system equipment. The excavated soil from each excavation was placed in a stockpile and sampled for laboratory analysis. The stockpiled soil that contained concentrations of total petroleum hydrocarbons (TPH) [sum of gasoline-range organics (GRO), diesel-range organics (DRO), and heavy oil-range organics (HO) concentrations] above 5,000 milligrams per kilogram (mg/kg) was hauled off site for thermal treatment at a licensed facility. The stockpiled soil that contained TPH concentrations below 5,000 mg/kg was used to backfill the excavation from which it was removed, at depths above the high groundwater elevation (e.g., soil removed from Excavation C was used to backfill Excavation C). Clean imported material was used to backfill the excavations at depths below the high groundwater elevation and near ground surface. Prior to backfilling, sidewall samples were collected to evaluate the petroleum hydrocarbon concentrations in the unsaturated soil at the extent of each excavation. The extracted product and groundwater were transported off site for disposal.

From August through December 2003, Unocal conducted an interim action at four areas of the lower yard: 1) Detention Basin No. 1, 2) the Southwest Lower Yard area, 3) Metals Area 3, and 4) the area near the storm drain line that runs from the upper yard detention pond through the lower yard to the tidal basin. The purposes of the interim action were to remove petroleum hydrocarbon- and arsenic-impacted material and underlying soil from the detention basin, to remove petroleum hydrocarbon- and arsenic-impacted soil from the southwestern part of the lower yard, and to remove petroleum hydrocarbon-impacted soil during the installation of Point Edwards' underground storm drain line. The interim action consisted of the excavation and off-site thermal treatment or landfill disposal of 39,130 tons of material/soil, and the extraction and on-site treatment of approximately 1,861,520 gallons of groundwater from the Detention Basin No. 1 and Southwest Lower Yard excavations [MFA, 2004a (p. 4-2)]. The treated groundwater was discharged to the drainage ditch (Willow Creek) at the Terminal's storm water outfall #002.

Unocal-specified action levels for TPH and arsenic (3,000 and 20 mg/kg, respectively) were used to delineate the extents of the Detention Basin No. 1 and Southwest Lower Yard excavations. The arsenic action level was also used for the Metals Area 3 excavation. The extents of the storm drain line excavation were based on the excavated area required to install the line, and action levels were not applied. The Detention Basin No. 1, Southwest Lower Yard, and storm drain line excavations were extended vertically to maximum depths of approximately 6, 7.5, and 8.5 feet bgs, respectively. The Metals Area 3 excavation extended to a maximum depth of approximately 1 foot bgs. To evaluate the petroleum hydrocarbon and/or arsenic concentrations at the extents of each excavation, soil samples were collected from the sidewalls and/or floors of the excavations. The interim action effectively removed the impacted soil that contained TPH and/or arsenic concentrations above the action levels, except at localized areas along the northwest corner and southwest sidewalls of the Detention Basin No. 1 excavation and at localized areas along the northwest and northeast sidewalls of the

Southwest Lower Yard excavation. The remaining soils along the excavation sidewalls that contained concentrations above the action levels were not removed due to structural concerns for the detention basin berm and an asphalt driveway, and due to proximity to the northwest property line.

3 NATURE AND EXTENT OF CONTAMINATION

This section details the types and distribution of contaminants at the lower yard of the Terminal. The nature and extent of contamination were evaluated based on the data collected during the RI (MFA, 2001b); the supplemental RI (MFA, 2003a); an additional assessment that was conducted during 2003 (MFA, 2004b); four additional surface water sampling events that were conducted during 2004 (SLR, 2004a); five additional groundwater sampling events that were conducted during 2004, 2005, and 2006 (SLR, 2004b; SLR, 2005a; SLR, 2005b; SLR, 2006a; and SLR, 2006b); and investigations that were conducted prior to the RI [described in Section 7 of the Background History Report (EMCON, 1994b)]. The data collected during the 2001 interim action (MFA, 2002) and the 2003 interim action (MFA, 2004a) were also used to evaluate the nature and extent of contamination.

Petroleum hydrocarbons are the primary contaminants in the lower yard. During the lower yard investigation activities, soil, groundwater, sediment, and surface water samples were analyzed for TPH in the gasoline range, diesel range, and/or the heavy oil range. To evaluate the hydrocarbon compositions, selected samples were also analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), for polycyclic aromatic hydrocarbons (PAHs), and for volatile and extractable petroleum hydrocarbon (VPH/EPH) fractions.

Prior to conducting the 2001 and 2003 lower yard interim actions, floating petroleum product was present in six areas of the lower yard (near the former railroad loading rack area, near the northeastern former truck loading rack, beneath the northeasternmost office building, beneath the former asphalt plant, to the north-northeast of the former asphalt plant, and to the south-southwest of Detention Basin No. 1). The approximate extents of the areas of floating product in June 2001, approximately two months prior to the 2001 interim action, are shown on Figure 6. The floating product was likely the result of releases during former site operations. During the interim actions, most of the recoverable product was removed from four of the areas [near the northeastern former truck loading rack, beneath the former asphalt plant, to the northeast of the former asphalt plant (in one of the product areas), and near the former railroad loading rack]. Petroleum hydrocarbon constituents in the soil and dissolved in groundwater are primarily present in the vicinity of the floating free product areas and in areas where residual product is trapped in the unsaturated zone above the groundwater table. Prior to the 2003 interim action, petroleum hydrocarbons were also present in the material within Detention Basin

No. 1. After completing the 2003 interim action, only localized areas of impacted soil remain along the northwest and southwest berms of the detention basin.

Petroleum hydrocarbons are present in the surface water (low concentrations only) and the sediment in Willow Creek and the tidal basin. Based on the distribution of the petroleum hydrocarbon concentrations, the sources of the petroleum hydrocarbons in the surface water and sediment appear to be impacted groundwater from beneath the Terminal and impacted storm water from on-site and off-site sources. During a storm event in April 1996, petroleum hydrocarbons were detected in storm water samples from the lower yard and upper yard. The samples contained DRO, GRO, and total BTEX concentrations of up to 950, 630, and 200 micrograms per liter (µg/L), respectively [MFA, 2001b (p. 6-39)].

During the lower yard investigation activities, selected soil, groundwater, sediment, and surface water samples were analyzed for metals (primarily arsenic, antimony, cadmium, chromium, copper, lead, mercury, and zinc). Metals are present in the soil and groundwater beneath the lower yard, and in the sediment and surface water in Willow Creek and in the tidal basin. The highest metals concentrations in soil were present in areas of sand blast grit and paint chips that occurred under pipe runs in the southwestern part of the lower yard. Most of the metals-impacted soil in the lower yard was removed during the 2003 interim action. During the RI, the highest dissolved and total metals concentrations in groundwater were present in isolated locations that typically were not associated with sources of metals. Metals are present in the surface water (low concentrations only) and sediment in Willow Creek and the tidal basin. Based on the distribution of the metals concentrations, the sources of the metals in the surface water and sediment appear to be impacted storm water from on-site and off-site sources. During a storm event in April 1996, metals were detected in storm water samples from the lower yard and upper yard. The samples contained arsenic, chromium, copper, lead, and zinc concentrations of up to 7, 15, 27, 31, and 410 µg/L, respectively [MFA, 2001b (p. 6-39)].

The following sections that describe the nature and extent of contamination will focus mainly on the indicator hazardous substances (IHSs) that were selected for the lower yard. IHSs are the chemicals expected to account for the majority of the risks at the site. The IHSs currently selected for soil are TPH (sum of GRO, DRO, and HO concentrations), benzene, toxicity-adjusted total carcinogenic PAHs [cPAHs; sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene concentrations that are adjusted by using toxicity equivalence factors], and arsenic. The IHSs currently selected for groundwater and surface water are TPH, benzene, and toxicity-adjusted total cPAHs. Arsenic was recently eliminated as an IHS for groundwater and surface water because the arsenic concentrations in the groundwater are likely caused by geochemical conditions associated with naturally occurring organic carbon sources in the soil beneath the site [Integral Consulting, Inc. (Integral), 2006], and the arsenic concentrations in the previous

surface water samples from Willow Creek reflect background conditions (SLR, 2004a). The Integral memorandum dated November 6, 2006, that presents the rationale for eliminating arsenic as an IHS for groundwater and surface water is presented in Appendix B. Since there was not enough scientific evidence to establish a specific contaminant(s) as a source of sediment toxicity, there were no identified IHSs for sediment [MFA and SLR, 2005 (p. 5-1 through 5-4)].

3.1 Soil Quality

Soil samples have been collected from locations throughout the lower yard and to the northwest of the Terminal (off site). The soil sample locations (soil borings, monitoring wells, test pits, excavation samples, surface soil samples) are shown on Drawing 1. To evaluate the vertical and lateral distribution of petroleum hydrocarbons in soil, the TPH concentrations were mapped at the following depth intervals: 0 to 3 feet bgs, 3 to 6 feet bgs, and greater than 6 feet bgs (Drawings 2, 3, and 4, respectively). The lateral distributions of benzene, total cPAHs, and arsenic, at depths from ground surface to greater than 6 feet bgs, are shown on Drawings 5, 6, and 7, respectively.

3.1.1 Petroleum Hydrocarbons

Gasoline, diesel, and oil were historically used at the Terminal, and the TPH concentrations consist of varying proportions of these three fuels. Since the TPH concentrations in soil are a mixture of GRO, DRO, and/or HO, the following discussion focuses on TPH (sum of GRO, DRO, and HO concentrations) rather than the individual product ranges. As shown on Drawings 2 and 3, TPH is present in the shallow soil above the groundwater table throughout most of the lower yard. The 2001 and 2003 interim actions removed the impacted soil within the areas of excavation; however, the mean TPH concentrations in the soil backfilled in Excavations A, B, C, and D, at depths above the groundwater table, were 897, 724, 3,203 and 1,356 mg/kg, respectively. In general, the areas of TPH-impacted soil coincide with historical site operations (e.g., asphalt plant, and fuel storage and distribution areas); however, impacted soil is also present in the southeastern part of the site and the source of the contamination in that area is not known.

The soils containing TPH concentrations greater than 2,000 mg/kg occur in a large area beneath the central part of the lower yard and in localized areas throughout the rest of the lower yard. The impacted soil is most laterally extensive at depths between 3 and 6 feet bgs (zone of groundwater fluctuation and capillary fringe). At depths of greater than 6 feet bgs (soil beneath the groundwater table), TPH concentrations greater than 2,000 mg/kg are present in localized areas beneath Excavation B, beneath the storm drain line from the upper yard, and in the southeastern part of the lower yard near borings SB-180 and SB-181 (Drawing 4). The maximum TPH concentrations at depths of 0 to 3 feet bgs, 3 to 6 feet bgs, and greater than 6 feet bgs are 31,600, 147,230, and 18,852 mg/kg, respectively.

TPH concentrations in all of the soil samples located to the west-northwest of the site (off site) were less than 2,000 mg/kg, except for samples from two of the borings located in Admiral Way (SB-1 and SB-4). Samples from SB-1 and SB-4 contained TPH concentrations of up to 2,694 and 3,203 mg/kg, respectively [MFA, 2003a (Table 5-1)]. Based on the localized distribution of the impacted soil to the northwest of the lower yard, it appears that the impacted soil beneath Admiral Way is from off-site sources (SLR, 2006c). The SLR memorandum dated December 20, 2006, that presents the results of an evaluation of the soil and groundwater data collected from the southwestern portion of the Terminal's lower yard, from the neighboring BNSF property, from beneath Admiral Way, and from the Port of Edmonds south marina property (northwest of Admiral Way) is presented in Appendix C.

3.1.1.1 Benzene

As shown on Drawing 5, benzene is present in the soil in localized areas of the lower yard. Benzene was not detected at concentrations above the method reporting limit (MRL) in any of the soil samples located to the west-northwest of the site (off site). Benzene concentrations greater than 5 mg/kg are present in localized areas in the southeastern, central, and western parts of the lower yard. The areas containing benzene concentrations greater than 5 mg/kg also typically contain TPH concentrations greater than 2,000 mg/kg. The maximum benzene concentration in the soil beneath the lower yard is 78 mg/kg.

3.1.1.2 CPAHs

As shown on Drawing 6, cPAHs are present in the soil in large areas beneath the central and eastern-southeastern parts of the lower yard, and in more localized areas beneath the northern and western-southwestern parts of the lower yard. Total cPAH concentrations (adjusted using toxicity equivalence factors) greater than 0.1 mg/kg are located in small localized areas throughout the lower yard. The areas containing total cPAH concentrations greater than 0.1 mg/kg also typically contain TPH concentrations greater than 2,000 mg/kg. The maximum total cPAH concentration in the soil beneath the lower yard is 1.56 mg/kg.

Total cPAH concentrations in the soil samples located to the west-northwest of the site (off site) were less than 0.1 mg/kg, except for samples from one of the borings (SB-4) located in Admiral Way and from three of the borings (MW-105, MW-106, and MW-138) located between the drainage ditch (Willow Creek) and the railroad tracks. Samples from SB-4, MW-105, MW-106, and MW-138 contained total cPAH concentrations of up to 0.44, 0.90, 0.41, and 0.19 mg/kg, respectively. The cPAH-impacted soils to the west-northwest of the lower yard are likely from off-site sources because: 1) the impacted soil at two of the borings occurred at depths above the groundwater table, and 2) the impacted areas are located at least 30 feet away from any of the hydrocarbon source areas in the lower yard and cPAHs are relatively immobile.

3.1.2 Arsenic

Arsenic was identified as the only metals IHS in the soil at the lower yard. The 2003 interim action effectively removed most of the arsenic-impacted soil beneath the lower yard (Drawing 7). After completing the 2003 interim action, arsenic is only present at concentrations above 20 mg/kg at a localized area (at surface soil sample SS-106) in the southwestern corner of the site. Sample SS-106 contained an arsenic concentration of 1,900 mg/kg.

3.2 Free Product

During the RI, free product samples were collected from monitoring wells MW-5, MW-13, MW-118, and MW-130 to assess the chemical and physical characteristics of the product. The samples were analyzed for hydrocarbon identification, specific gravity, and viscosity. All of the samples contained gasoline, diesel, and oil [MFA, 2001b (p. 6-32 and 6-33 and Table 6-36)]; however, the samples primarily consisted of gasoline and diesel (88 to 96%). The sample from MW-5 (near the former asphalt plant) contained more diesel than gasoline (52 to 36%), and the rest of the samples contained more gasoline than diesel (76 to 18% near the former railroad loading rack, 59 to 36% to the northeast of the former asphalt plant, 54 to 38% near the northeastern former truck loading rack, and 73 to 23% to the south-southwest of Detention Basin No. 1). The specific gravity results ranged from 0.834 to 0.956. The highest specific gravities were in the samples from MW-5 and MW-13 (near the former asphalt plant and near the former railroad loading rack). The viscosity values ranged from 1.38 to 7.67 centistokes. The highest viscosity values were in the samples from MW-5 and MW-13 (5.05 and 7.67 centistokes), which were slightly greater than diesel #2 product viscosities. The samples from MW-113, MW-118 and MW-130 (northeast of the former asphalt plant, near the northeastern former truck loading rack, and to the south-southwest of Detention Basin No. 1) contained viscosity values that were comparable to diesel #1 product viscosities.

Prior to the 2001 interim action, there were 6 main areas of floating free product beneath the lower yard (Figure 6). From 1988 through June 2001, approximately 9,500 gallons of floating product were recovered as part of interim product recovery activities [MFA, 2001b (p. 6-29)]. During the 2001 interim action, an additional estimated 2,500 gallons of product were removed from the excavations [MFA, 2002 (p. 4-2)]. The depth to groundwater and free product data that were collected as part of the RI and the interim product recovery program showed that the migration of the product was limited (typically less than 5 feet per year) [MFA, 2001b (p. 6-33 and 6-34); EMCON, 1997 (p. 3); EMCON, 1998 (p. 4); EMCON, 1999 (p. 5); and MFA, 2001a (p. 5 and 6)]. Free product has never been observed seeping into the tidal basin or Willow Creek, and product has never been detected in the off-site monitoring wells.

After completing the 2001 interim action, the depths to groundwater and free product, if present, were measured in most of the wells in the lower yard in January, May, August,

and November 2002, in February, July, August, and October 2003, in February and August 2004, in February and August 2005, and in February and August 2006. In August 2006, depths to groundwater and free product, if present, were measured in all of the monitoring wells in the lower yard and to the west-northwest of the lower yard. Measurable free product was present in wells MW-W, MW-17R, MW-25, MW-112R, MW-130, MW-133, MW-140, and MW-144 at thicknesses ranging from 0.07 to 1.62 feet [SLR, 2006b (Table 1)]. Based on the 2006 groundwater monitoring results, floating free product is currently present in 4 areas, as shown on Figure 7. The 2006 groundwater monitoring data indicate that the interim actions effectively removed the recoverable free product near the former railroad loading rack, beneath the former asphalt plant, and in an area to the northeast of the former asphalt plant (areas of Southwest Lower Yard Excavation and Excavations B and C).

3.3 Groundwater Quality

Groundwater samples have been collected from monitoring wells located throughout the lower yard and to the west-northwest of the Terminal. The locations of the current and previous groundwater sample locations (existing and abandoned/destroyed monitoring wells) are shown on Drawing 1.

3.3.1 Petroleum Hydrocarbons

Prior to conducting the 2001 interim action, a site-wide groundwater sampling event was conducted in June 2001. As shown on Drawing 8, TPH was present in the shallow groundwater throughout most of the western, northwestern, and central parts of the lower yard, and in localized areas beneath the southwestern, northern, eastern, and southeastern parts of the lower yard. In general, the areas of impacted groundwater beneath the lower yard coincided with historical site operations (e.g., asphalt plant, and fuel storage and distribution areas); however, the source of the impacted groundwater beneath the southeastern part of the lower yard is not known. TPH concentrations greater than 500 µg/L were located throughout the western-northwestern part of the lower yard, and in localized areas beneath the southwestern, northern, central, eastern, and southeastern parts of the lower yard. The groundwater sample analytical results indicate that the TPH concentrations have typically decreased to low or non-detectable levels within 150 feet downgradient of the source areas. Based on the distribution of contaminant concentrations and the hydrogeological and geochemical conditions beneath the lower yard, it is reasonable to conclude that the decrease in concentrations is mainly due to natural attenuation [MFA and SLR, 2005 (Appendix C)].

During the June 2001 sampling event, TPH was not detected in the groundwater samples collected from any of the wells, except MW-106, located to the west-northwest of the lower yard. The sample from MW-106 contained a TPH concentration of 547 µg/L. During the supplemental RI, seven soil borings (SB-1 through SB-7) were drilled and sampled in Admiral Way, and groundwater samples were collected from each boring.

TPH was only detected in the samples from borings SB-1 and SB-6, at concentrations of 4,191 and 1,151 µg/L, respectively [MFA, 2003a (p. 5-9 and 5-10, Figure 5-11, and Table 5-23)]. From the first time that the well was sampled (December 1995) to February 1998, the TPH concentrations in the groundwater samples from off-site well MW-106 were typically greater than 2,000 µg/L. After July 1998, the TPH concentrations in the samples from MW-106 were consistently below 600 µg/L. The reduction in TPH concentrations indicates that the source of the contamination had been eliminated; however, the sources of the impacted groundwater beneath the southwestern part of the lower yard (upgradient of MW-106) were not actively remediated until 2001 and 2003. Based on the reduction in the TPH concentrations at MW-106 prior to conducting the remedial activities at the site, as well as the known presence of shallow soil contamination on the BNSF property, the remaining TPH concentration in the 2001 sample from groundwater at well MW-106 was likely due to a source of contamination at the BNSF property that had been eliminated prior to the late 1990s (SLR, 2006c). Based on the elevated TPH concentrations in SB-1 and SB-6, the distribution of petroleum hydrocarbons in the groundwater beneath the site and off-site (SLR, 2006c), and the modeled rate of natural attenuation beneath the lower yard area [MFA and SLR, 2005 (Appendix C)], the impacted groundwater in the borings within Admiral Way was likely due to off-site sources.

After the 2003 interim action, site-wide groundwater sampling events were conducted in February 2004, August 2004, February 2006, and the Fall (August, September, and October) of 2006, and surface water compliance well groundwater sampling events were conducted in February and August 2005. As shown on Drawing 9, the areas of TPH-impacted groundwater in the Fall of 2006 are smaller than the impacted areas in June 2001. Based on the results of the 2001 and 2003 interim actions, TPH-impacted groundwater is no longer present at the Southwester Lower Yard excavation or downgradient of the Detention Basin No. 1 excavation, and the TPH concentrations have decreased in the vicinities of Excavations B and C. Due to the continued presence of floating free product in the Excavation A and D areas, elevated TPH concentrations in groundwater remained in the vicinity of Excavations A and D. The 2006 groundwater sampling results also show that TPH-impacted groundwater is no longer present in the southeastern part of the lower yard. Since remediation activities have not been conducted in the southeastern part of the lower yard, it is reasonable to conclude that the decrease in concentrations is mainly due to natural attenuation.

3.3.1.1 Benzene

In June 2001 (prior to conducting the 2001 interim action), benzene concentrations were detected in the shallow groundwater in localized areas in the western, southwestern, and central parts of the lower yard (see Drawing 10). Benzene was also likely present in the areas of free product (southwestern, western, northern, central, and eastern parts of the lower yard). Benzene was not detected in the southeastern part of the lower yard. Outside of the areas of free product, benzene concentrations greater than 20 µg/L were

only present in the western part of the lower yard (near the northeastern former truck loading rack) and in the southwestern part of the lower yard. The groundwater sample analytical results indicate that the benzene concentrations have typically decreased to low or non-detectable levels within 100 feet downgradient of the product areas. Based on the distribution of contaminant concentrations and the hydrogeological and geochemical conditions beneath the lower yard, it is reasonable to conclude that this decrease in concentrations is mainly due to natural attenuation.

During the June 2001 sampling event, benzene was not detected in the groundwater samples collected from any of the wells located to the west-northwest of the lower yard. During the supplemental RI, the groundwater samples collected from two of the borings (SB-1 and SB-6) located in Admiral Way contained detectable benzene concentrations (1.17 and 2.54 µg/L, respectively) [MFA, 2003a (p. 5-9 and 5-10, Figure 5-11, and Table 5-23)]. As discussed in Section 3.3.1, the impacted groundwater beneath Admiral Way was likely due to off-site sources.

As shown on Drawing 11, the area of benzene-impacted groundwater in the western part of the lower yard in the Fall 2006 is similar to the impacted area in June 2001; however, based on the results of the 2003 interim action, benzene-impacted groundwater is no longer present in the southwestern part of the lower yard. Based on the effective removal of floating free product, the 2001 interim action likely decreased the benzene concentrations in the vicinities of Excavations B and C. Due to the continued presence of floating free product in the Excavation A and D areas, elevated benzene concentrations remain in the groundwater near those excavation areas.

3.3.1.2 CPAHs

In June 2001 (prior to conducting the 2001 interim action), cPAHs were only detected in a groundwater sample collected from one well (MW-8) in the lower yard (see Drawing 12). The sample from MW-8 contained an estimated total cPAH concentration (adjusted using toxicity equivalence factors) of 0.42 µg/L. CPAHs were also likely present in the areas of floating product. CPAHs were not detected in the groundwater samples collected from any of the wells located to the west-northwest of the lower yard.

As shown on Drawing 13, the Fall 2006 groundwater sampling results showed that cPAHs were only detected in the groundwater samples collected from two wells (MW-8 and MW-22) in the lower yard. The samples from MW-8 and MW-22, which are located in the western part of the lower yard, contained total cPAH concentrations (adjusted using toxicity equivalence factors) of 0.085 and 0.043 µg/L. CPAHs were also likely present in the remaining areas of floating product.

3.4 Surface Water

During the RI, the supplemental RI, the 2003 assessment, and subsequent to the 2003 assessment, four surface water samples (SW-1 through SW-4 or SW-1A through SW-4) were collected from Willow Creek and the tidal basin in April 1996, September 2001, October 2003, and in May, July, and August 2004. The locations of the surface water samples are shown on Drawing 1. The 1996 samples were collected during a storm event. In April 1996, the samples from Willow Creek and the tidal basin did not contain GRO, DRO, or HO concentrations above the method reporting limits (MRLs). The samples (SW-3 and SW-4) located downstream of the Terminal's storm water outfalls contained toluene, ethylbenzene, total xylenes, and/or pyrene concentrations of up to 1 µg/L [MFA, 2001b (p. 6-36 and 6-37)]. The upstream (background) surface water sample (SW-1) located near the salmon hatchery contained detectable concentrations of PAH compounds (including cPAHs) that ranged from 0.017 to 1.1µg/L. Arsenic, chromium, copper, lead, and zinc were detected in almost all of the samples, although the detections were estimated values due to the low concentrations.

During the 2001 and 2003 sampling events, GRO, DRO, HO, and BTEX constituents were not detected in the surface water samples collected from Willow Creek or the tidal basin [MFA, 2003a (p. 5-11) and MFA, 2004b (Table 3a)]. The 2001 samples were not analyzed for PAHs or metals. In 2003, samples SW-1, SW-3, and SW-4 contained detectable concentrations of PAH compounds (including cPAHs) that ranged from 0.030 to 0.066 µg/L [MFA, 2004b (Table 3c)]. Samples SW-3 and SW-4 contained total copper and total lead concentrations that ranged from 12 to 19 µg/L; however, the dissolved copper and dissolved lead concentrations ranged up to only 1 µg/L [MFA, 2004b (Table 3b)].

The 2004 surface water sampling events were conducted to determine the source of the previously detected arsenic concentrations at downstream sample locations SW-3 and SW-4. The sample analytical results showed that the dissolved arsenic concentrations (after using a reaction cell procedure to minimize chloride interference from the brackish water) ranged from 1.4 to 2.1 µg/L, and that the arsenic concentrations in all of the samples reflected the upstream concentrations that flow into the site area [SLR, 2004a (p. 2 and 3)].

3.5 Sediment

In 1996, 15 sediment samples (US-01 through US-15) were collected from Willow Creek and the tidal basin, and 2 sediment samples were collected from off-site control locations. The samples were analyzed for bioassay and conventionals [e.g., grain size and total organic carbon] testing. In 2003, sediment samples were collected from the 1996 sample locations in Willow Creek and the tidal basin, as well from as an additional location (US-16) between samples US-14 and US-15. The locations of the sediment samples are shown on Drawing 1. The 1996 bioassay testing results identified sediments in Willow

Creek [including at upstream (background) location US-15] that produced effects on amphipod (*Eohaustarius estuaris*) survival, bivalve (*Mytilus edulis*) larvae survival and development, and juvenile polychaete (*Neanthes arenaceodentata*) growth. Each of the tests identified different samples as producing the greatest effects, and none of the samples produced significant effects in all three tests. There was no discernable pattern to the test results that would identify a single sediment toxicity source [MFA, 2001b (p. 6-40 through 6-44 and p. 6-46, Tables 6-45 through 6-49, and Tables 7-1, 7-2, and 7-3)].

The 2003 sediment samples were initially analyzed for chemical concentrations and for conventionals testing. GRO and DRO were detected in 10 of the samples and HO was detected in 13 of the samples. The GRO, DRO, and HO concentrations (without normalization to organic carbon contents) ranged up to 59.1, 1,470, and 5,480 mg/kg, respectively [MFA, 2004b (Table 4a)]. The highest GRO concentration was near the Terminal's storm water outfall #002 (sample US-07), and the highest DRO and HO concentrations were downgradient (northwest) of the former asphalt plant (sample US-04). PAH compounds (including cPAHs) were detected in several of the samples (including upstream sample location US-15) [MFA, 2004b (Table 4c)]. Volatile organic compounds and chlorinated hydrocarbons were not detected in any of the samples [MFA, 2004b (Tables 4a and 4f)]. Polychlorinated biphenyls (PCBs) were detected at a total concentration of 0.484 mg/kg (without normalization to organic carbon content) in the sample (US-07) located near storm water outfall #002 [MFA, 2004b (Table 4h)]. Arsenic, copper, and zinc were detected in all of the samples, lead was detected in 15 of the samples, and chromium was detected in all 6 of the samples that were analyzed for additional metals (chromium, mercury, and silver). The highest metals concentrations were detected in one of the upstream samples (US-16) [MFA, 2004b (Table 4b)].

Based on the results of the chemical analyses, sediment samples US-03, US-04, US-05, US-07, US-12, and US-15 were analyzed for bioassay tests [10-day amphipod (*Eohaustorius estuaris*) survival, 48-hour bivalve (*Mytilus galloprovincialis*) larvae survival and development, and 20-day polychaete (*Neanthes arenaceodentata*) growth tests]. The test results showed that samples US-03, US-04, and US-12 exhibited acceptable toxicity. Samples US-05, US-07, and US-15 failed at least one of the toxicity tests [MFA, 2004b (Integral Consulting, Inc. memorandum dated February 24, 2004)]. Samples US-5 and US-07 were located near the Terminal's storm water outfalls #001 and #002, respectively, and US-15 was the upstream background sample. The test results suggest that the Terminal's storm water outfalls may have caused the observed toxicity at US-05 and US-07. The toxicity at US-15 may have been due to runoff from Pine Street and/or Highway 104 into the creek, or to illegal dumping of chemicals into a stream or storm drain that was upstream of the site by someone in the community of Woodway.

4 CONCEPTUAL SITE MODEL

This section of the Interim Action Report synthesizes the data collected during the previous investigations and interim actions into a conceptual model of contaminant occurrence, movement, and potential exposures. The conceptual site model was used to develop site CULs and RELs, and the interim action.

4.1 Source Characterization

The lower yard was used only for office purposes after 1991, and there are no continuing sources of hazardous substance releases at the Terminal. Based on the results of the previous investigations, it appears that the former asphalt plant and the former fuel storage and distribution operations (aboveground tanks and piping, truck loading racks, and railroad loading rack) were the primary sources of contamination in the lower yard. GRO, DRO, and HO were released from the former asphalt plant and fuel storage and distribution activities. Metals were released due to sandblasting of aboveground tanks and piping. Off-specification asphalt from the asphalt plant was disposed in Detention Basin No. 1.

4.2 Fate and Transport of Contaminants

Figure 8 is a graphical representation of the fate and transport of the contaminants in the lower yard. After releases, the contaminants were initially located in surface soils. Petroleum components in soil exist in four different phases: adsorbed to soil particles, dissolved in soil pore water, as vapors in soil pore air, and as separate nonaqueous-phase liquid (NAPL) or residual product in the soil pore spaces. Metals in soil exist in two phases: adsorbed to soil particles and dissolved in soil pore water.

As rain falls on the ground surface and infiltrates the subsurface, contaminants in surface soils dissolve in the rainwater and percolate through the subsurface soils. Some of the contaminants remain in the subsurface soils, in the phases listed previously, and some eventually reach the groundwater. Petroleum contaminants in groundwater exist in three phases: a dissolved phase, a light NAPL (LNAPL) phase, and adsorbed to the soil particles in the aquifer. LNAPL refers to the fact that the petroleum is less dense than water, so it remains near the top of the aquifer. Metals in groundwater exist in two phases: a dissolved phase and adsorbed to the soil particles in the aquifer.

Petroleum- and metals-contaminated surface soils, subsurface soils, and groundwater in the lower yard currently act as potential sources of exposure and contaminant transport to other media and possibly off site. Groundwater beneath the lower yard is hydraulically connected to Puget Sound and is brackish; therefore, it is unsuitable for human consumption.

Humans and terrestrial wildlife could be exposed to surface soils through direct contact, which includes dermal contact with soil, incidental ingestion of soil, and inhalation of windborne dust. If subsurface soils were excavated and brought to the surface, humans and wildlife could be exposed to subsurface soils through direct contact. Some mixing of surface and subsurface soils is likely during the future redevelopment of the lower yard. After the buildings are constructed, exposure to subsurface soils is unlikely, except in the case of construction workers performing subsurface utility work.

Portions of the volatile components of petroleum in surface soils, subsurface soils, and groundwater could volatilize into the soil pore spaces and move upward to ambient air and indoor air. Humans and terrestrial wildlife could be exposed through inhalation of volatilized chemicals and windblown dust outdoors. Humans could also be exposed through inhalation of volatilized chemicals that migrate into buildings.

Terrestrial plants growing in contaminated areas can take up contaminants from surface and subsurface soil through their roots. Terrestrial plants are not likely to take up contaminants from groundwater because it is too deep (typically 3 to 7 feet bgs). The contaminants taken up from soil become incorporated into the plant material. Soil-dwelling invertebrates may also accumulate chemicals from the soil. Wildlife may consume plants or soil biota that have accumulated contaminants from the soil. Gardening will not likely be conducted at the site (see Section 4.4.1), so humans will not likely eat potentially contaminated plants.

Storm water runoff conveys chemicals onto the lower yard from upgradient locations. Storm water runoff from the lower yard also conveys chemicals to off-site surface water and sediment.

Groundwater beneath the southeastern, eastern, and northwestern areas of the lower yard flows toward Willow Creek; groundwater beneath the southwestern area flows toward Puget Sound; and groundwater beneath the northern and central areas flow toward Detention Basin No. 1. Contaminants in groundwater discharge to the surface water and the sediments in Willow Creek. Aquatic plants take up contaminants from the sediments and surface water through their roots and leaves.

Aquatic biota are exposed to chemicals in surface water and sediment through ingestion, dermal contact, and respiration. Aquatic invertebrates and fish also consume aquatic plants and animals that may have accumulated chemicals present in water and sediments. Wildlife using aquatic habitats are exposed to chemicals primarily through ingestion of

aquatic plants and animals that have accumulated chemicals from the environment, through incidental ingestion of sediment while foraging, and by drinking water.

If humans were to fish in Willow Creek, they could be exposed by eating fish or shellfish that have accumulated contaminants from surface water and sediments. They could also be exposed by direct contact with the surface water or sediments. The brackish water in the vicinity of the lower yard is not suitable for drinking, so humans are unlikely to be exposed through drinking surface water.

The following environmental media have, or may have, become contaminated and could be acting as sources of exposure for humans, terrestrial biota, or aquatic biota:

- Surface soil
- Subsurface soil
- Groundwater
- Ambient air
- Surface water
- Sediments

4.3 Potential Receptors

4.3.1 Human Receptors

The lower yard is currently vacant. Maintenance workers and environmental consultants occasionally enter the property to perform routine maintenance and environmental sampling. Trespassers might also enter the property occasionally. People are not likely to fish in Willow Creek because the creek does not support a substantial fishery.

The lower yard will be developed as a multi-modal transportation facility. Commercial workers, who are expected to work typical eight-hour workdays, will be present in buildings on site. Travelers will be present for shorter periods of time and commonly on an irregular basis. A summary of the current and potential future human receptors is shown on Figure 9.

4.3.2 Ecological Receptors

The lower yard, which is approximately 22 acres in area, is a former industrial site that has recently been subject to intensive remedial activity, including excavation, backfilling, and grading. Except for a small area (approximately 2 acres) in the southeastern part of the lower yard that contains native vegetation, there is limited vegetation. The lower yard will be redeveloped for commercial use and it will be covered mostly by buildings and pavement. At present, the lower yard offers limited, disturbed terrestrial habitat. The sparse vegetative cover, low species diversity, and amount of human disturbance in this area limit wildlife use of this habitat [Adolfson Associates, Inc., 1996 (p. 9)].

The southeastern, eastern, northern, and northwestern parts of the lower yard are adjacent to Willow Creek, a small stream (and drainage ditch) that feeds into Puget Sound. Parts of the stream along the southeastern tip of the lower yard are freshwater. Most of the creek in the vicinity of the lower yard is brackish. The Deer Creek Salmon Hatchery is located over 100 feet upstream of the lower yard. The hatchery raises coho salmon for release into the Lake Washington watershed. The salmon do not enter the hatchery from Willow Creek, and they are not released to Willow Creek. Although it has been reported that the Edmonds Marsh and Willow Creek provide habitat for resident and sea-run cutthroat trout, chum salmon, coho salmon, sculpins, and three-spined stickleback [MFA, 2001b (p. 7-14)], field observations by ecological risk assessors indicate that the creek/drainage ditch is unlikely to support a significant fishery of either vertebrate or invertebrate species (Integral Consulting, Inc., 2003).

4.4 Potential Exposures

4.4.1 Exposures to Human Receptors

4.4.1.1 Current Exposures

The human receptors currently present at the lower yard include maintenance workers, environmental consultants, and trespassers that are on site for short periods of time and on an irregular basis. They are potentially exposed to surface soil through ingestion, dermal contact, and inhalation of windblown dust.

MTCA Method B soil RELs and CULs based on the standard Method B CULs for direct contact will be proposed for the lower yard. The Method B soil CULs for direct contact are designed to protect residents from daily exposure, so they are sufficiently protective for exposures in a commercial setting. Standard Method B soil CULs for direct contact address the dermal pathway for petroleum, but not for metals. However, metals are not as well absorbed through the skin. Standard Method B soil CULs for direct contact do not explicitly address the inhalation of windblown dust; however, they are sufficiently protective of that pathway. Exposures through inhalation of windblown dust are much smaller than exposures through incidental ingestion, and the inhalation of windblown dust is considered an exposure pathway of negligible importance for the IHSs.

Maintenance workers, environmental consultants, and trespassers could be exposed to surface soil through direct contact, and they could inhale soil or groundwater vapors in outdoor air. Since these receptors are infrequently present at the site, the soil RELs and CULs and the groundwater CULs will be sufficiently protective of them. Maintenance workers, environmental consultants, and trespassers are not expected to contact groundwater, surface water, or sediments, or to eat terrestrial or aquatic biota at the site.

4.4.1.2 Potential Future Exposures

Workers involved in the redevelopment of the lower yard could be exposed for short periods during construction projects. After the lower yard is redeveloped, human receptors will include commercial workers and travelers (commercial customers). Workers will be present more than other receptors, presumably for a standard 40-hour workweek for up to 25 years. Utility workers involved in subsurface work, such as trenching, could be present for short periods of time (up to two months). Utility workers and workers involved in the redevelopment of the lower yard could be exposed to surface and subsurface soils through incidental ingestion, dermal contact, and inhalation of windblown dust. The soil RELs and CULs, which are based on standard Method B soil CULs, assume daily exposure of children present at the lower yard, 365 days per year, for 6 years. Because children are more highly exposed on a body weight basis than adults, the soil RELs and CULs are adequately protective of adult workers present during redevelopment of the lower yard and of adult utility workers present during a trenching project. Future commercial workers and travelers are not expected to be exposed to surface or subsurface soils because the surface will be covered by buildings and pavement. However, if they were exposed, the soil RELs and CULs would be sufficiently protective for these receptors as well.

Construction workers and utility workers could be exposed to soil or groundwater vapors in outdoor air. Commercial workers and travelers could be exposed to soil or groundwater vapors in indoor and outdoor air. Construction workers, utility workers, commercial workers, and travelers are not expected to be exposed through ingestion of plants or seafood, or through direct contact with surface water or sediments.

If people were to use Willow Creek recreationally, they could come into direct contact with surface water, and they could potentially eat contaminated fish or shellfish from the creek. Method B surface water CULs are designed to protect people eating contaminated seafood. Method B surface water CULs do not address direct human contact with surface water, but this is not considered significant because exposures through ingestion of seafood are likely to be much higher than incidental exposures through contact with surface water. Furthermore, Method B surface water CULs address aquatic receptors that live in the water (see Section 5.3), which is a much more sensitive endpoint than incidental human contact. Since Willow Creek does not support a substantial fishery, it is unlikely that humans will actually be exposed through fishing. The brackish water in the vicinity of the lower yard is not fit for consumption, so human receptors will not be exposed through ingestion of the water.

People using Willow Creek recreationally could also have incidental contact with sediments. Although sediment CULs are not proposed for this interim action, sediments will be remediated so that potential future exposures will be controlled (see Section 6.2).

In summary, the soil RELs and CULs are adequately protective for workers and other human receptors currently visiting the site. They are also adequately protective for future construction workers, utility workers, commercial workers, and travelers. Method B surface water CULs and the proposed sediment interim action (see Section 6.2) are adequately protective for the hypothetical pathway of people fishing recreationally in Willow Creek.

4.4.2 Exposures to Ecological Receptors

4.4.2.1 Current Exposures

There is currently limited habitat in contaminated areas to encourage visits by terrestrial wildlife. Receptors present in contaminated areas could be exposed through incidental or intentional ingestion of surface and subsurface soil, dermal absorption from surface and subsurface soil, and inhalation of windblown particulates. Terrestrial receptors could also be exposed by inhaling soil or groundwater vapors in outdoor air, by eating prey that have accumulated contaminants from the environment, and by ingesting surface water. Exposures to terrestrial wildlife were evaluated in a terrestrial ecological evaluation (TEE) (see Appendix D).

Aquatic receptors in Willow Creek could be exposed through ingestion of and direct contact with surface water and sediment, and through ingestion of plants and prey that have accumulated contaminants from the environment. Method B surface water CULs are protective of aquatic receptors living in the creek/drainage ditch.

4.4.2.2 Potential Future Exposures

After the lower yard is redeveloped, there will be limited habitat for terrestrial ecological receptors because most of the area will be covered by buildings and pavement. The site-specific TEE, which evaluated exposures to soil in accordance with Washington Administrative Code (WAC) 173-340-7493, was ended because any soil concentrations exceeding the ecological indicator soil concentrations will be covered by buildings or pavement as part of the site redevelopment (Appendix D). There will be no opportunities for terrestrial ecological receptors to contact soil concentrations in excess of ecologically-based CULs. Considering exposures of terrestrial wildlife to surface water, the Method B surface water CULs should be sufficiently protective for terrestrial receptors occasionally drinking the water, since the CULs address aquatic receptors living in the water.

In the future, it will be possible for aquatic receptors in Willow Creek to continue to be exposed through ingestion of and direct contact with surface water and sediment, and through ingestion of plants and prey that have accumulated contaminants from the environment. Method B surface water CULs are sufficiently protective for the surface water exposure pathways. Numerical, chemical-specific sediment CULs are not proposed for this interim action; contaminated sediments, as defined by bioassay results,

will be remediated so that exposures will be controlled. After removal of an approximate 1-foot-thick layer of contaminated sediments, a clean cover will be placed over the excavated area (see Section 6.2.4).

5 CLEANUP STANDARDS

A cleanup standard consists of the following three elements (WAC 173-340-700[3]):

- CUL, the concentration that must be met to protect human health and the environment
- Point of compliance (POC), the location where the CUL must be achieved
- Other regulatory requirements, commonly referred to as applicable or relevant and appropriate requirements (ARARs), that apply to the site because of the type of action or the location of the site

In addition to CULs, soil RELs will be used for the interim action. An REL is a concentration higher than the CUL that defines an area of the site where a particular cleanup action component will be used [WAC 173-340-355(1)]. The soil concentrations of interest for TPH and benzene are considered RELs rather than CULs because they are based on the direct contact pathway and do not consider the leaching pathway or residual saturation (Section 5.5.2). At the conclusion of the interim action, an empirical demonstration is expected to show that soil concentrations of TPH and benzene are protective of groundwater, in which case the soil RELs for these IHSs will become soil CULs. The soil concentration of interest for total cPAHs is the minimum CUL for all endpoints evaluated (direct contact), so it is considered a CUL rather than a REL. The soil concentration of interest for arsenic is based on the natural background concentration (Section 5.5.2), so it is considered a CUL rather than a REL. The groundwater and surface water concentrations of interest are based on Method A CULs for TPH and water quality criteria (WQC) for benzene and cPAHs (Sections 5.3.2 and 5.4.2). They are not expected to change as a result of remedial activities, so they are considered CULs rather than RELs.

The lower yard will be used for commercial purposes (multi-modal transportation terminal), so a Method B approach was used for establishing CULs and RELs. Soil CULs and RELs must protect the groundwater, and groundwater CULs must protect the surface water and sediment in Willow Creek at locations adjacent to the lower yard. CULs, RELs, and POCs are discussed in Sections 5.2 through 5.5. Chemical-specific ARARs are included in the discussions of CULs and RELs. Action-specific and location-specific ARARs are discussed in Section 5.7.

5.1 Indicator Hazardous Substances

IHSs are the chemicals expected to account for most of the risks at the site, and cleanup standards must be developed for each IHS in each medium. IHSs were identified in the Draft RI Report [MFA, 2001b (Section 7)] for soil, groundwater, and surface water, according to the process specified by WAC 173-340-703. Because of changes in MTCA and the collection of additional site data since the Draft RI Report was published, the IHS selection process is revisited in this section.

5.1.1 Sediments

The Draft RI Report concluded that there were no impacts to the sediments in Willow Creek [MFA, 2001b (p. 7-11)], so no IHSs were proposed for sediments at that time. Subsequent to the report, contaminant concentrations were detected in the sediments of Willow Creek, which resulted in concerns about sediment and surface water contamination via the groundwater transport pathway. Consequently, the chemicals in sediments were compared with sediment management standards (SMS) (WAC 173-204) to identify IHSs for sediments. The only contaminant present at a concentration greater than the SMS was total PCBs (32 mg/kg normalized to organic carbon content) at a single sample location (US-07). Sample station US-07 is located near the Terminal's storm water outfall #002. Because of the presence of petroleum hydrocarbons in sediments and the possibility of a groundwater-to-sediments-to-surface water pathway, several additional chemicals or compound groups were designated as tentative IHSs, based on their presence in groundwater and potential for surface water contamination. These additional chemicals or compound groups include the following:

- TPH (sum of GRO, DRO, and HO concentrations)
- PAHs - expressed as individual substances or as aggregates of low molecular weight (LPAH) and high molecular weight (HPAH) compounds
- Trace metals - arsenic, chromium, copper, lead, mercury, and zinc

According to the SMS, sites with sediments that exceed numeric chemical criteria[2] may go through confirmatory biological testing. In 2003, biological testing of sediment samples was conducted with the following objectives:

- Identify areas of sediment toxicity that would spatially define the extent of cleanup that may be necessary
- Evaluate relationships between sediment chemistry and sediment toxicity that may be used to identify specific IHSs

[2] Total PCBs is the only substance that failed comparisons with numeric sediment management standards.

- Quantify CULs that could be used to judge sediment remediation alternatives

The results of the sediment toxicity testing showed that the toxicity at two sample stations (US-05 and US-07) exceeded cleanup screening levels (CSLs), and the sediment toxicity at upstream (background) station US-15 was sufficient to prevent use of this station as a reference station for two of the three bioassay test species. With the exception of PCBs at station US-07, as noted above, none of the chemical concentrations at these locations exceeded the SMS (MFA, 2004b and Integral Consulting, Inc., 2004).

The sediment chemistry data from the 2003 samples were also evaluated to determine possible gradients in contamination that could explain toxicity. The results of this analysis do not suggest strong gradients of contamination of either single chemicals or compound categories that could explain the toxicity, nor does the toxicity seem to be caused by groundwater impacting the sediments. Toxicity testing results at each sample station appear to be driven by the station's own particular suite of chemicals and environmental conditions. From upstream to downstream, these conditions are:

- Sample station US-15 - Concentrations of arsenic and lead were elevated in comparison with downstream locations, and also exceeded threshold effect guidelines[3] for freshwater environments (MacDonald, Ingersoll, and Berger, 2000). Zinc concentrations were also elevated, but not in excess of sediment guidelines. Station US-15 is located upstream of the lower yard, within the freshwater marsh that drains to Willow Creek. The toxicity, based on bioassay failure, at this station is not likely site-related given its upstream location, low levels of petroleum hydrocarbons, and anomalous concentrations of arsenic and lead. The toxicity at US-15 may have been due to runoff from Pine Street and/or Highway 104 into the creek, or to illegal dumping of chemicals into a stream or storm drain that was upstream of the site by someone in the community of Woodway.

- Sample station US-07 - Concentrations of HPAHs and GRO were elevated in comparison with other stations. The HPAH levels also exceeded threshold effect guidelines (MacDonald, 1994). Station US-07 is located near the Terminal's storm water outfall #002. The presence of these substances and their high concentrations relative to the other stations suggest that the Terminal's storm water discharge (at outfall #002) is the source of the contamination and toxicity.

- Sample station US-05 - With the exception of GRO, sediment chemical concentrations were all low in comparison with reference stations and stations with no toxicity. The GRO concentration normalized to organic carbon content

[3] The threshold effect concentration is intended to identify the concentration of sediment-associated contamination below which no adverse effects to sediment-dwelling organisms are expected to occur.

was approximately 25 percent of the GRO concentration at station US-07, but above that of downstream stations. Station US-05 is located near the Terminal's storm water outfall #001. The sediments at Station US-05 also had a low organic carbon content (0.52%). The organic carbon content of sediments controls mobility and bioavailability of many organic compounds such as aliphatic and aromatic petroleum hydrocarbons. Consequently, the low organic carbon content coupled with increased mobility and bioavailability of petroleum hydrocarbons provides a possible explanation of the toxicity observed at US-05. The high GRO concentration relative to the other stations suggests that the Terminal's storm water discharge (at outfall #001) is the source of the contamination and toxicity.

In summary, confirmatory toxicity tests indicate that stations US-05 and US-07 exceeded CSLs, and station US-15 does not meet performance standards for a reference station based on biological criteria. Sediment chemistry values measured during the confirmatory testing were all below the SMS, based on chemical criteria, with the exception of total PCBs at station US-07. PCBs have not been identified as an IHS for the site, and they were likely discharged with storm water at outfall #002. Each sample station that exceeds biological CSL values seems to have unique sediment chemistry or environmental characteristics that offer a possible explanation of sediment toxicity because they exceed threshold effect concentrations or promote chemical bioavailability. However, although plausible, the scientific strength of these observations is not sufficient to establish any of these substances as an IHS or to justify a threshold effect concentration as a sediment CUL. Therefore, IHSs were not identified for sediments. Even without identified IHSs, the interim remedial action will include the removal of sediment that failed bioassay tests due to on-site contaminant/toxicity sources (at stations US-05 and US-07).

5.1.2 Surface Water and Groundwater

During the RI, zinc and TPH as oil and grease were identified as IHSs for surface water [MFA, 2001b (p. 7-16)]. TPH, benzene, chrysene, lead, zinc, and tentatively arsenic and copper were identified as IHSs for the site-wide aquifer, based on protection of surface water. Since the endpoint for groundwater CULs is protection of surface water (see Section 5.4), a combined list of groundwater/surface water IHSs was developed. The combined list reflects differences in the way petroleum mixtures are evaluated, due to revisions to MTCA since the Draft RI was completed. It also reflects an additional surface water screening step (see Section 5.1.4), which eliminated copper, lead, and zinc from further consideration. Arsenic was recently eliminated as a groundwater/surface water IHS because the arsenic concentrations in the groundwater are likely caused by geochemical conditions associated with naturally occurring organic carbon sources in the soil beneath the site (Integral Consulting, Inc., 2006; see Appendix B), and the arsenic concentrations in the previous surface water samples from Willow Creek reflect background conditions [SLR, 2004a (p.3)] (see Section 5.1.4).

The final list of surface water and groundwater IHSs is as follows:

- TPH (sum of GRO, DRO, and HO concentrations)
- Benzene
- Toxicity-adjusted total cPAHs [sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene concentrations that are adjusted using toxicity equivalency factors to represent a total benzo(a)pyrene concentration[4]]

5.1.3 Soil

The Draft RI Report identified GRO, DRO, HO, benzene, chrysene, arsenic, and antimony as IHSs for soil in the lower yard [MFA, 2001b (p. 7-15)]. Due to revisions to MTCA, petroleum mixtures are now evaluated differently for different soil endpoints. For this interim action, IHSs were identified separately for the following four endpoints considered for soil:

- TEE
- Direct human contact (incidental ingestion)
- Leaching to groundwater
- Residual saturation

For the TEE and residual saturation concentrations (C_{sat}), each of the original soil IHSs was considered (see Appendix E). For RELs and CULs based on direct human contact and for evaluating the leaching pathway, GRO, DRO, HO, benzene, and cPAHs were considered in combination so that a single TPH REL could be developed (see Appendix E). A separate soil REL for benzene and a separate CUL for toxicity-adjusted total cPAHs were also developed to ensure compliance with the MTCA Method B risk target for individual carcinogens (1E-6) [WAC 173-340-705(2)(c)(ii)]. Arsenic was evaluated for direct contact but not for leaching because arsenic is not an IHS for groundwater or surface water.

Antimony and arsenic concentrations at the lower yard are highly correlated. If arsenic is remediated to the natural background value of 20 mg/kg, antimony concentrations should be within the range of antimony detection limits (1.4 to 9.5 mg/kg). On this basis, antimony was eliminated as a soil IHS (see Section 5.1.5).

Residual saturation is relevant only to organic chemicals that are liquid at ambient soil temperatures, so arsenic was eliminated as an IHS for residual saturation. According to information in the U.S. Environmental Protection Agency's (USEPA) on-line Hazardous

[4] The toxicity equivalency factors published in CLARC Version 3.1 (Ecology, 2001) are used to make the adjustments.

Substance Data Base (accessed in December 2003), cPAHs exist as needles and platelets at ambient soil temperatures, so they were also eliminated as IHSs for residual saturation.

The final soil IHSs for the TEE and residual saturation are:

- GRO
- DRO
- HO
- Benzene
- CPAHs (TEE only)
- Arsenic (TEE only)

The final soil IHSs for direct contact and the leaching pathway are:

- TPH (sum of GRO, DRO, and HO concentrations)
- Benzene
- Toxicity-adjusted total cPAHs [sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene concentrations that are adjusted using toxicity equivalency factors to represent a total benzo(a)pyrene concentration[4]]
- Arsenic (direct contact only)

5.1.4 Surface Water Screening for Metals

Concentrations of arsenic, copper, lead, and zinc in the surface water of Willow Creek were compared against screening levels to determine if the metals should be retained as surface water IHSs. On April 23, 1996, and October 27, 2003, surface water samples were collected from Willow Creek at stations SW-1 through SW-4 (MFA, 2001b and MFA, 2004b). Station SW-1 is upstream of the lower yard, near the Deer Creek Salmon Hatchery. This sample location should not be influenced by site run-off or site-related groundwater contamination, so it is considered to be a background station. During the April 1996 sampling event, three samples were collected from each station (a total of 12 samples). During the October 2003 sampling event, one sample was collected from each station. Since the screening levels are expressed in terms of dissolved metals (see Table 1), only the dissolved metals analytical results were evaluated. The April 1996 samples were analyzed for lead and zinc. The October 2003 samples were analyzed for arsenic, copper, lead, and zinc. The surface water concentrations from both sampling events were compared with the screening levels (see Appendix H).

The samples collected in April 1996 did not contain dissolved lead or zinc concentrations above their screening levels. The samples collected in October 2003 did not contain copper, lead, or zinc concentrations above their screening levels, though the reporting limits for copper and lead at SW-1 and SW-2 exceeded their screening levels. These

results support eliminating copper, lead, and zinc as surface water IHSs. The arsenic concentrations in all of the October 2003 samples were above the screening level; therefore, arsenic was retained for further analysis.

In August 2004, SLR collected surface water samples from the four sampling locations in Willow Creek to identify the source of the previously detected arsenic concentrations at downstream sample locations SW-3 and SW-4. Since the surface water at SW-3 and SW-4 is brackish, the samples were analyzed with and without a reaction cell procedure to evaluate if the previous arsenic concentrations were biased high due to chloride interference from the brackish water. The reaction cell procedure is designed to minimize the positive interference (i.e., high bias) that occurs when a substance with the same mass-to-charge ratio as the analyte is present in a sample (chloride is a common interference for arsenic). The analytical results showed that without the reaction cell procedure, the dissolved arsenic concentrations in the samples from SW-3 and SW-4 were 4.1 to 4.4 µg/L greater than the concentration from the upstream (background) sample location (SW-1A). With the reaction cell procedure, the dissolved arsenic concentrations in the samples from SW-3 and SW-4 were equal to or 0.1 µg/L less than the concentration in the sample from SW-1A. After minimizing chloride interference, the sampling results indicated that the arsenic concentrations in all of the samples reflect the upstream concentrations that flow into the site area, and that the groundwater beneath the lower yard is not increasing the arsenic concentrations in the creek [SLR, 2004a (p.3)]. On this basis, arsenic was eliminated as an IHS for surface water.

5.1.5 Collocation of Antimony and Arsenic in Soil

From September 1995 through January 1996, 20 soil samples collected from the lower yard were analyzed for both antimony and arsenic (MFA, 2001b). Thirteen of the samples were located in Detention Basin No. 1, one sample was located in Detention Basin No. 2, one sample was located near Detention Basin No. 1, and five samples were located in the southwestern part of the lower yard. Most of the samples were collected from the surface or shallow subsurface (up to 0.5 feet bgs). At two locations in Detention Basin No. 1 (BSS-105 and BSS-110), the samples were collected from multiple depths, down to 7.5 feet bgs.

Antimony was detected in seven of the samples, with concentrations ranging from 4.4 mg/kg to 200 mg/kg. Detection limits ranged from 1.4 mg/kg to 9.5 mg/kg. Arsenic was detected in all 20 samples, with concentrations ranging from 1.4 mg/kg to 2,000 mg/kg.

Statistical evaluations were conducted on the following four data sets (see Appendix I):

- Full data set of 20 samples
- Subset of 7 samples with detected concentrations of antimony

- Subset of 13 samples collected from eight locations in Detention Basin No. 1
- Subset of 5 surface samples collected from the southwestern part of the lower yard

For analyses involving non-detected antimony results, the non-detected results were assigned a value of ½ of the detection limit.

Regression analyses of the data indicate a statistically significant relationship between antimony and arsenic for the full data set, the detected antimony data set, and the southwestern part of the lower yard data set; however, the relationship was not statistically significant for the Detention Basin No. 1 data set. The soil CUL for arsenic, based on natural background, is 20 mg/kg (see Section 5.6). Assuming an arsenic soil CUL of 20 mg/kg, the antimony concentrations predicted by the regression equation range from 4 mg/kg for the full data set to 7 mg/kg for the detected antimony data set. These values are within the range of detection limits for antimony (1.4 to 9.5 mg/kg), and are below the MTCA Method B soil CUL (32 mg/kg). The statistical evaluation indicates that, outside of Detention Basin No. 1, if an arsenic CUL of 20 mg/kg is achieved, the remaining antimony concentrations are expected to be below detection limits. In Detention Basin No. 1, antimony was detected only once in 13 samples, at a concentration just above the range of detection limits (9.8 mg/kg). MTCA requires that CULs not be set at concentrations below practical quantitation limits [WAC 173-340-740(5)(c)]. This supports the elimination of antimony as an IHS for soil.

5.2 Sediment Cleanup Standards

Sediment cleanup standards are not proposed for sediment management of the drainage ditch (Willow Creek). Sediment chemistry values from the 2003 sampling event were all below SMS, based on chemical criteria, with the exception of total PCBs at sample station US-07. PCBs have not been identified as an IHS in the lower yard. Each station that exceeded biological CSL criteria has unique sediment chemistry or environmental characteristics that offer a possible explanation of sediment toxicity because they exceed threshold effect concentrations or promote chemical bioavailability. However, although plausible, the scientific strength of these observations is not sufficient to establish any of these substances as an IHS or to justify a threshold effect concentration as a sediment CUL. Although sediment CULs are not proposed for this interim action, contaminated sediments will be remediated at locations (stations US-05 and US-07) that failed bioassay tests due to on-site contaminant/toxicity sources (see Section 6.2.4).

5.3 Surface Water Cleanup Standards

5.3.1 Endpoints for Cleanup Levels

Method B surface water CULs must address the following four endpoints [WAC 173-340-730(b)]:

- Washington State WQC for freshwater and marine water
- Federal WQC for freshwater organisms, marine organisms, and humans ingesting seafood
- National Toxics Rule
- For chemicals lacking WQC, or for chemicals with insufficiently protective WQC, the MTCA Method B equation values for surface water

The cancer risk associated with the WQC can be evaluated using MTCA equation 730-2 by substituting the WQC cancer value for the surface water CUL and solving for risk. The WQC for benzene (51 µg/L) is associated with a cancer risk of 2×10^{-6} and the WQC for cPAHs (0.018 µg/L) is associated with a cancer risk of 6×10^{-7}. Since the cancer risks associated with the WQC are less than 1×10^{-5}, the WQC can be used as CULs without modification [WAC 173-340-730(5)(b)].

Willow Creek is not listed in Table 602 - Use Designations for Fresh Waters by Water Resource Inventory Area, of Chapter 173-201A WAC. The lower reaches of Willow Creek, adjacent to the lower yard, are hydrologically connected to Puget Sound, which is a marine water body that is not suitable for drinking. The reasonable maximum exposure scenario for surface water near the lower yard is exposure of aquatic organisms and human exposure by ingestion of aquatic organisms [MFA, 2001b (p. 7-16)]. A drinking water endpoint is not applicable to Willow Creek or Puget Sound. Even the fish ingestion endpoint is conservative, since the creek/drainage ditch does not support a significant fishery of either vertebrate or invertebrate organisms (see Section 4.4.2).

5.3.2 Cleanup Levels

Table 2 summarizes the state and federal WQC and the criteria from the National Toxics Rule for the protection of surface water IHSs. For each IHS, the lowest of these values was selected as the minimum WQC. The water in Willow Creek is brackish because of its hydrologic connection with Puget Sound, so both freshwater and marine chronic criteria were considered. Continuous chronic criteria are shown in Table 2 because they are more conservative than the maximum (acute) criteria, and they are appropriate for long-term exposures.

5.3.2.1 TPH

WQC are not available for TPH. MTCA allows the use of Method A groundwater CULs as surface water CULs for petroleum [WAC 173-340-730(3)(b)(iii)(C)]. A preliminary evaluation of whole effluent toxicity test results on groundwater samples collected from six lower yard wells indicated that the Method A groundwater CULs (800 µg/L for GRO and 500 µg/L each for DRO and HO) should be protective of aquatic receptors (Ecology, 2003). Therefore, Method A groundwater CULs were used as the surface water CULs for TPH.

The Method A TPH groundwater CULs in MTCA Table 720-1 were derived by setting the hazard index (HI) for each of the mixtures (i.e., GRO, DRO, and HO) to 1.0. Using all three of the Method A CULs would be equivalent to establishing an HI of 3.0, which exceeds the MTCA target of 1.0. The CULs for GRO, DRO, and HO were adjusted, using information on the relative proportions of the TPH mixtures in groundwater beneath the lower yard, to achieve an HI of 1.0 across all three mixtures. TPH concentrations in groundwater samples collected between February 7, 2001, and March 3, 2003, were reviewed to determine the relative proportions of GRO, DRO, and HO in each of the perimeter monitoring wells located near Willow Creek (see Appendix J and Table 4). Wells in which TPH was not detected (MW-105, MW-106, MW-107, MW-108, MW-137, MW-138, and MW-139) were not included in the evaluation. DRO dominates the mixture in perimeter wells located on the eastern side of the lower yard, while GRO dominates the mixture in wells located on the western side of the lower yard. The transition between the two patterns occurs near the drainage ditch between well MW-139 and former well MW-102, and runs straight south to the lower yard property line. The demarcation between the eastern and western sides of the lower yard is shown on Drawing 14.

To ensure that the total HI across all three mixtures would not exceed 1.0, the raw Method A groundwater CULs (800 µg/L for GRO and 500 µg/L each for DRO and HO) were adjusted as follows to account for the compositions on the eastern and western sides of the lower yard (Table 4):

Total TPH CUL = 1 / (%GRO/800 + %DRO/500 + %HO/500)

Where:

Total TPH CUL = Overall CUL adjusted for HI=1 (µg/L)

%GRO = Area-specific percentage of GRO in groundwater (unitless)

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

%DRO = Area-specific percentage of DRO in groundwater (unitless)

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

%HO= Area-specific percentage of HO in groundwater (unitless)

The adjusted surface water CULs are 506 µg/L for the eastern area and 706 µg/L for the western area (Table 3). The demarcation between the eastern area and the western area is shown on Drawing 14. Compliance samples could also be evaluated on an individual basis by calculating an HI for each sample.

The surface water CULs are as follows (see Table 4):

- Benzene: 51 µg/L
- Total cPAHs: 0.018 µg/L
- Total TPH (eastern side of site): 506 µg/L
- Total TPH (western side of site): 706 µg/L

5.3.3 Point of Compliance

The POC for surface water CULs is the point where groundwater discharges to surface water [WAC 173-340-730(6)]. The points where groundwater discharges to surface water will be monitored by using 17 surface water compliance monitoring wells located along the western, northern, and eastern edges of the lower yard. A total of 12 of the compliance wells (existing wells MW-150, MW-149, MW-147, MW-8, MW-20R, MW-104, MW-101, MW-139, and LM-2, and 3 planned wells) are located from the southwest corner of the lower yard to the northern corner of Detention Basin No. 1. The other 5 compliance wells (existing wells MW-108, MW-109, MW-135, and MW-136, and 1 planned well) are distributed from the north corner of Detention Basin No. 1 to the southeastern corner of the lower yard. The locations of the existing and planned surface water compliance monitoring wells are shown on Drawing 14.

The demarcation between the eastern and western sides of the lower yard (TPH CULs of 506 and 706 µg/L, respectively) occurs between compliance well MW-139 and a planned compliance well to the southwest of MW-139, and extends south to the lower yard property line (see Drawing 14). The compliance wells in the western part of the site will include MW-150, MW-149, a planned well near MW-148, MW-147, MW-8, MW-20R, MW-104, MW-101, and a planned well to the northeast of MW-101. The compliance wells in eastern part of the site will include MW-139, a planned well near MW-103R, LM-2, MW-108, MW-109, a planned well near MW-122, MW-135, and MW-136.

5.4 Groundwater Cleanup Standards

5.4.1 Endpoints for Cleanup Levels

The groundwater beneath the lower yard is hydraulically connected to Puget Sound. MTCA allows groundwater that is hydrologically connected to marine surface water to be classified as non-potable if the following five criteria can be met [WAC 173-340-720(2)(d)]:

- The groundwater does not serve as a current source of drinking water
- Ecology determines that it is unlikely that the hazardous substances will be transported from the contaminated groundwater to groundwater that is or could be a source of drinking water
- There are known or projected points of entry of the groundwater into the surface water
- The surface water is not classified as a suitable domestic water supply source under Chapter 173-201A WAC
- The groundwater is sufficiently hydraulically connected to the surface water that it is not practicable to use the groundwater as a drinking water source

There are no drinking water supply wells located at the lower yard or between the Terminal and Puget Sound, so the first criterion is satisfied. Ecology has determined that it is unlikely that the hazardous substances at the lower yard will be transported to an aquifer that could be used for drinking water, so the second criterion is satisfied. Groundwater monitoring results demonstrate that the general direction of groundwater flow beneath the eastern part of the lower yard is toward Willow Creek, which empties into Puget Sound, and the general direction of groundwater flow beneath the western part of the lower yard is toward Willow Creek and Puget Sound. Tidal response studies and salinity concentrations in the groundwater have shown that there is a clear hydraulic connection between the groundwater beneath the lower yard and the surface water in Willow Creek (directly connected to Puget Sound). Thus, the third and fifth criteria are satisfied. Puget Sound is marine water, which is not suitable for domestic water supply. Willow Creek is not listed in Chapter 173-201A WAC, but it is sufficiently hydraulically connected to Puget Sound to be brackish. Therefore, the fourth criterion is satisfied.

Based on meeting the criteria stated above, drinking water is not an appropriate endpoint for the groundwater beneath the lower yard. The endpoint for groundwater is protection of surface water in Willow Creek and Puget Sound.

5.4.2 Cleanup Levels

Since the endpoint for groundwater is protection of surface water, the surface water CULs identified in Section 5.3.2 will serve as the groundwater CULs for the lower yard (see Table 4). The groundwater CULs are as follows:

- Benzene: 51 µg/L
- Total cPAHs: 0.018 µg/L
- Total TPH (eastern side of site): 506 µg/L
- Total TPH (western side of site): 706 µg/L

5.4.3 Point of Compliance

The standard POC for groundwater CULs is throughout the aquifer [WAC 173-340-720(8)(b)]. For properties abutting surface water, a conditional POC may be approved within the surface water, as close as technically possible to the point where groundwater flows into the surface water, if the following seven criteria are met [WAC 173-340-720(8)(d)(i)]:

- Contaminated groundwater is entering the surface water, and it will continue to enter the surface water after implementation of the selected cleanup action.

- It is not practicable to meet the groundwater CUL at a point within the groundwater before it enters the surface water, within a reasonable timeframe.

- There is no use of a mixing zone.

- Groundwater discharges are provided with all known available and reasonable methods of treatment before being released to surface water.

- Groundwater discharges do not result in violations of sediment quality values.

- Groundwater and surface water monitoring will be conducted to assess the long-term performance of the cleanup action.

- A notice of the proposal is mailed to the natural resource trustees, the Washington State Department of Natural Resources (DNR), and the U.S. Army Corps of Engineers (COE).

The lower yard is directly adjacent to Willow Creek (including the drainage ditch) and within 1,000 feet of Puget Sound. The general groundwater flow directions beneath the lower yard are toward Willow Creek, Puget Sound, and/or Detention Basin No. 1. The interim action will not alter these directions of flow. Therefore, the first criterion is met.

The groundwater discharge to Willow Creek is diluted by the flow in the creek so that IHSs are not detectable in the creek/drainage ditch.

The proposed conditional POC is the surface water compliance monitoring well network, so the groundwater CULs will be met before the groundwater flows into the surface water. Thus, the second criterion is met. Since the surface water compliance well network will be used to assess compliance, no mixing zone will be used, and the third criterion is met.

As described in Section 6.2, groundwater that is recovered during the interim action will be treated and discharged to the drainage ditch. Treatment system effluent samples will be collected to verify the performance of the system. Therefore, the fourth criterion is met.

As indicated in Section 5.1.1, confirmatory biological testing indicated that the toxicity observed in the drainage ditch (Willow Creek) sediments is probably related to the storm water discharge near stations US-05 and US-07, not to groundwater, so the fifth criterion is met. The interim action includes provisions for long-term groundwater monitoring to ensure that CULs will be met at the surface water compliance well network, so the sixth criterion is met. Notification to the natural resource trustees, DNR, or COE will not be necessary, since groundwater CULs will be met prior to discharge to surface water. Therefore, the seventh criterion is not applicable.

For sites meeting the above criteria, monitoring wells located upland of the surface water body may be established as conditional POCs [WAC 173-340-720(8)(e)]. Unocal proposes to use the surface water compliance well network described in Section 5.3.3 as the POC for groundwater CULs. Since the interim action meets the necessary criteria, a conditional POC for groundwater may be established at the surface water compliance monitoring well network. The locations of the surface water compliance wells, and the demarcation between the eastern and western areas of the lower yard are shown on Drawing 14.

5.5 Soil Cleanup Standards

5.5.1 Endpoints for Cleanup Levels and Remediation Levels

As many as six possible endpoints must be considered for soil :

- TEE
- Direct human contact (incidental ingestion)
- Leaching to groundwater
- Residual saturation
- Inhalation of soil vapors

- Dermal contact with soil

The first four endpoints must be addressed at every site. Whether the last two endpoints are relevant to a site depends on site conditions and certain decisions made during the development of soil CULs. Each of the endpoints is addressed separately in Appendix E. The final soil CULs and RELs are summarized in Section 5.5.2. POCs for soil are addressed in Section 5.5.3.

5.5.2 Cleanup Levels and Remediation Levels

Final soil CULs and RELs are discussed in this section and are presented in Table 5. The final soil TPH REL of 2,975 mg/kg was calculated by using Ecology's MTCATPH11 spreadsheet for the direct contact pathway. The REL is the median of the results from 14 fractionated soil samples. The final soil REL for benzene (18 mg/kg) was calculated by using Ecology's MTCASGL10 spreadsheet for the direct contact pathway. The use of direct contact RELs for TPH and benzene is based on the assumption that an empirical demonstration at the completion of the interim action will show that free product is not present on the groundwater, and that TPH and benzene concentrations above leaching CULs are not impacting groundwater. To protect against both soil and groundwater vapors in indoor air, a deed restriction will be established that requires the installation of a vapor barrier beneath all future enclosed buildings on the property.

The final soil CUL of 0.14 mg/kg for toxicity-adjusted total cPAHs is based on direct contact, the minimum value for all endpoints considered. It was calculated using Ecology's MTCASGL10 spreadsheet. The final soil CUL of 20 mg/kg for arsenic is based on the natural background concentration.

5.5.3 Points of Compliance

POCs for soil differ depending on the endpoint (e.g., direct contact vs. leaching). Soil POCs for each endpoint are discussed in Appendix E. A summary of those discussions is presented below.

- For the direct contact pathway, the soil CULs or RELs must be met within the top 15 feet of soil. If post-interim action soil concentrations of TPH, benzene, toxicity-adjusted total cPAHs, or arsenic exceed their CULs or RELs of 2,975, 18, 0.14, or 20 mg/kg, respectively, in the top 15 feet of soil, an FS will be completed and additional remedial actions will be conducted.

An empirical demonstration is expected to show compliance with leaching CULs throughout the saturated zone. Soil samples in the saturated zone contain large amounts of water, and it is difficult to determine whether the measured contaminant concentrations reside in the soil phase or in the water phase. If groundwater

concentrations at the conditional POCs (the surface water compliance well network described in Section 5.3.3) are below the groundwater CULs after sufficient time has elapsed for the contamination in the saturated zone to have leached from the soil and migrated to the POCs, then the soils in the saturated zone are protective of groundwater.

An empirical demonstration is expected to show compliance with residual saturation CULs throughout the saturated and unsaturated zones. Although an empirical demonstration cannot be made at present because free product exists on the groundwater, Unocal believes that an empirical demonstration will be made at the completion of the interim action. If an empirical demonstration is not made at the completion of the interim action, the FS will be completed and additional remedial actions will be conducted.

5.6 Summary of Soil and Groundwater Cleanup Levels and Remediation Levels

The soil CULs and RELs and the groundwater CULs that will be used for the interim action are summarized in Table 5. The soil RELs or CULs of 2,975 mg/kg for TPH, 18 mg/kg for benzene, and 0.14 mg/kg for toxicity-adjusted total cPAHs are based on direct contact. The soil CUL of 20 mg/kg for arsenic is based on the natural background concentration.

The TPH groundwater CULs of 506 μg/L (the eastern part of the lower yard) and 706 μg/L (the western part of the lower yard) are based on protection of surface water, using a weighted average of the Method A groundwater CULs for GRO, DRO, and HO, and considering the composition of the TPH in the groundwater beneath the lower yard. The groundwater CULs of 51 μg/L for benzene and 0.018 μg/L for total cPAHs are based on protection of surface water, considering humans eating fish.

5.7 Other Potentially Applicable Requirements

MTCA requires that all cleanup actions comply with applicable state and federal laws (WAC 173-340-710). MTCA defines applicable state and federal laws to include "legally applicable requirements" and "relevant and appropriate requirements." Appendix K describes the relevant and appropriate requirements, the substantive (as opposed to procedural) requirements, and the local government permits and approvals that were evaluated to ensure conformance with WAC 173-340-710. The laws and regulations cited in Appendix K do not address the handling and treatment/disposal of hazardous wastes because we do not anticipate that hazardous wastes will be generated during the interim action.

6 PROPOSED INTERIM ACTION

To meet the objectives described in Section 1, the proposed interim action will consist of excavation of petroleum hydrocarbon- and arsenic-impacted soil, extraction of free product and hydrocarbon-impacted groundwater, excavation of sediment in the vicinity of storm water outfalls #001 and #002, and groundwater monitoring over a two-year period. The groundwater monitoring results will be used to: 1) determine if the remaining soil concentrations will be sources of free product on the groundwater table, 2) evaluate if the remaining soil concentrations will cause an exceedance of groundwater CULs at the POCs, based on observed conditions and projected impacts of contaminant migration, 3) determine if the remaining petroleum hydrocarbon concentrations in the groundwater will naturally attenuate to below the groundwater CULs at the POCs, and 4) calculate the restoration timeframes to meet the groundwater CULs at the POCs.

6.1 Federal, State, and Local Permits

A list of federal, state, and local permits and actions that may be required for the interim action is provided below.

Federal

- Nationwide Permit (NWP) 38 Notification
- Rivers and Harbors Act Section 10 Permit
- Section 7 Consultation under the Endangered Species Act
- National Environmental Policy Act (NEPA) Review

State

- NPDES Stormwater Permits (federal CWA Section 402 regulations under the jurisdiction of Ecology), including an Industrial Stormwater General Permit for discharge of the site stormwater during the interim action period and an Individual Stormwater Permit for the treatment and discharge of the extracted groundwater and surface water during the interim action (presented in Appendix M)
- Section 401 Water Quality Certification (federal Clean Water Act Section 401 regulations under the jurisdiction of Ecology)

- Coastal Zone Management Determination/Certification
- Hydraulic Project Approval
- SEPA Environmental Checklist (presented in Appendix N)

Local (City of Edmonds)

- Grading Permits (one permit for the product recovery and soil excavation activities and one permit for the sediment remediation)

The federal, state, and local laws and regulations contain numerous exemptions, waivers, and variances. As such, these regulations will be evaluated further as part of the permitting phase of the interim action.

Pursuant to RCW 70.105D.090, the interim action is exempt from procedural requirements of certain state laws; however, all substantive requirements must be met. In practice, this means that all substantive requirements of the appropriate permits be 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 interim action.

6.2 Description of Interim Action

In accordance with WAC 173-340-430(3)(a), the proposed interim action is consistent with components of the recommended cleanup action that was presented in the Draft FS Report [MFA and SLR, 2005 (p. 6-11 and 6-12)]. The proposed interim action is detailed below.

6.2.1 Mobilization

Prior to conducting the interim action, a traffic control plan will be prepared and the site health and safety plan will be updated. Air monitoring procedures will be established for the purposes of controlling dust and the monitoring and controlling of petroleum vapors. Exclusion zones and associated site controls will be established in accordance with the health and safety plan. An erosion and sedimentation control (ESC) plan will also be prepared and submitted to the City of Edmonds for review. The ESC plan will specify the control methods to be implemented during the work. Storm drain inlets will be protected with filter fabric fences or straw bale barriers. Filter fabric fences will also be installed below the excavation areas located on the south bank of the drainage ditch (Willow Creek).

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

6.2.2 Product Recovery

To remove the recoverable free product, the soil at the four areas that contain floating free product (e.g., near the northeasternmost office building, to the northeast of the former asphalt plant, near the southwestern former truck loading rack, and to the south-southwest of Detention Basin No. 1) will be excavated to allow direct access to the product. The areas of free product are shown on Drawing 15.

Prior to excavation, a private utility locating company will identify and mark the locations of underground utilities within 50 feet of the planned excavation areas. The existing monitoring wells (MW-W, MW-17R, MW-25, MW-112R, MW-116, MW-130, MW-133, MW-140, and MW-144) that are located in the planned areas of excavation will be abandoned prior to conducting the excavation activities. A licensed well driller will abandon the wells pursuant to the procedures described in *Minimum Standards for Construction and Maintenance of Wells* (WAC 173-160-310).

Each excavation will typically extend to a depth of approximately 8 feet bgs (approximately 1 to 2 feet below the low seasonal groundwater table). The excavations will extend laterally and vertically until the contaminant concentrations are below the RELs for TPH and benzene, and the CUL for total cPAHs. The total estimated amount of excavated soil is 22,500 tons. The soil excavated at depths above 4 feet bgs will be stockpiled on impermeable liners, and the soil excavated at depths above 4 feet bgs will be directly hauled off site for recycling, treatment, and/or disposal at a licensed facility. Each stockpile will be constructed to prevent runoff.

The soil stockpiles will sampled according to the procedures described in the Sampling and Analysis Plan (Appendix L). The samples will be submitted to an Ecology-certified laboratory for analysis of DRO and HO by Ecology Method NWTPH-Dx (after silica gel cleanup); GRO by Ecology Method NWTPH-Gx; and benzene by EPA Method 8021B. Any sample that contains detectable DRO and/or HO concentrations will be analyzed for cPAHs by EPA Method 8270C. The stockpiled soil that contains petroleum hydrocarbon (TPH, benzene, or total cPAH) concentrations above the soil REL or CULs described in Section 5.6 will be hauled off site for recycling, treatment, and/or disposal at a licensed facility.

The product that collects in the open excavations will be removed by pumping methods. Hydrocarbon-impacted groundwater will also be pumped during the extraction of the product. To remove much of the dissolved-phase petroleum hydrocarbons associated with the product, at least three excavation volumes of groundwater will be extracted from each excavation. Approximately 25,000 gallons of free product and 550,000 gallons of groundwater will be extracted. The recovered product will be hauled off site for recycling and/or disposal at a licensed facility. The extracted groundwater will be pumped into an on-site groundwater treatment system prior to discharge to Detention Basin No. 2 for subsequent discharge pursuant to the conditions of an NPDES Individual

Stormwater Permit. Provisions for groundwater treatment (e.g., oil/water separator tank, filtration unit) will be evaluated during preparation of the construction specifications. A copy of the NPDES Individual Stormwater Permit for the treatment and discharge of the extracted groundwater and surface water during the interim action is provided in Appendix M. A copy of the existing NPDES Industrial Stormwater General Permit for discharge of the site storm water from the lower yard during the interim action period is also provided in Appendix M.

After product and groundwater removal, the excavations will be backfilled with imported material that contains TPH concentrations below the MTCA Method A cleanup level, with imported material from the Fruhling Sand & Topsoil (Fruhling) pit in Bothell, Washington, that Fruhling certifies as clean, and with the excavated soil from the Site that contains TPH and benzene concentrations below the RELs and total cPAH concentrations below the CUL. The excavated soil will only be used as backfill material at depths above the high seasonal groundwater table.

6.2.3 Soil Excavation

In addition to the soil removed to extract the free product, the soil that contains TPH and benzene concentrations greater than the RELs and total cPAH and arsenic concentrations greater than the CULs described in Section 5.6 will be excavated and hauled off site for recycling, treatment, and/or disposal at a licensed facility. The planned areas of soil excavation are shown on Drawing 15.

The existing monitoring wells (MW-3, MW-27, MW-103R, MW-119, MW-141, and MW-148) that are located in the planned areas of excavation will be abandoned prior to conducting the excavation activities. A licensed well driller will abandon the wells pursuant to the procedures described in *Minimum Standards for Construction and Maintenance of Wells* (WAC 173-160-310).

The excavations to remove the petroleum hydrocarbon-impacted soil will typically extend to a depth of approximately 8 feet bgs (approximately 1 to 2 feet below the low seasonal groundwater table); however, one of the excavations will extend to approximately 14 feet bgs at the known area of impacted soil below 8 feet bgs (see Drawing 15). The excavation to remove the arsenic-impacted soil will extend to a depth of approximately 1 foot bgs, except in the areas that also contain TPH and benzene concentrations above the RELs or total cPAH concentrations above the CUL. The excavations will extend laterally and vertically until the contaminant concentrations are below the RELs for TPH and benzene, and the CULs for total cPAHs and arsenic (arsenic excavation only). The total estimated amount of excavated soil is approximately 42,500 tons.

Soil samples will be collected from the sidewalls and floor of each excavation to determine the extents of excavation and to document the concentrations that remain after

completing the interim action. The sampling will be performed following the procedures specified in the Sampling and Analysis Plan (Appendix L). The samples from the petroleum hydrocarbon excavations will be submitted to an Ecology-certified laboratory for analysis of DRO, HO, GRO, and benzene. Any sample that contains detectable DRO and/or HO concentrations will be analyzed for cPAHs. The samples from the arsenic excavation will be submitted to an Ecology-certified laboratory for analysis of arsenic by EPA Method 6020.

If the hydrocarbon-impacted soil extends beneath the Terminal's oil/water separator, the separator will be removed. If the separator is removed, the site storm water will be plumbed into Detention Basin No. 2 [from northern area of lower yard only (consistent with current system)] or into the groundwater treatment system described in Section 6.2.2.

The excavated soil from the arsenic excavation will be hauled off site for disposal at a licensed facility. The soil excavated from the petroleum hydrocarbon excavations at depths above 4 feet bgs will stockpiled on impermeable liners, and the soil excavated at depths below 4 feet bgs will be directly hauled off site for recycling, treatment, and/or disposal at a licensed facility. Each stockpile will be constructed to prevent runoff. The soil stockpiles will sampled according to the procedures described in the Sampling and Analysis Plan (Appendix L). The samples will be submitted to an Ecology-certified laboratory for analysis of DRO, HO, GRO, and benzene. Any sample that contains detectable DRO and/or HO concentrations will be analyzed for cPAHs. The stockpiled soil that contains petroleum hydrocarbon (TPH, benzene, or total cPAH) concentrations above the soil REL or CULs described in Section 5.6 will be hauled off site for recycling, treatment, and/or disposal at a licensed facility.

The excavations will be backfilled with imported material that contains TPH concentrations below the MTCA Method A cleanup level, with imported material from the Fruhling pit in Bothell, Washington, that Fruhling certifies as clean, and with the excavated soil that contains TPH and benzene concentrations below the RELs and total cPAH concentrations below the CUL. The excavated soil will only be used as backfill material at depths above the high seasonal groundwater table. The excavated soil that contains TPH or benzene concentrations above the RELs, or total cPAH concentrations above the CUL will be hauled off site for recycling, treatment, and/or disposal at a licensed facility.

6.2.4 Sediment Removal

A total of approximately 360 linear feet of the drainage ditch (Willow Creek) streambed will be remediated in the vicinity of storm water outfalls #001 and #002. The proposed sediment remediation area is shown on Drawing 15. The remediation will consist of removing the soil and sediment to a depth of approximately one foot (the maximum sediment thickness in the area), from the streambed up to the ordinary high water mark

on both banks. To minimize the volume of water to be diverted around the remediation area, the work will be conducted during a low tidal cycle that occurs within a dry period of the year.

Prior to conducting the work, coffer dams will be installed at the southwest (downstream) and northeast (upstream) ends of the excavation area. The area of the ditch between the coffer dams will be dewatered by pumping the water into an on-site water treatment system prior to discharge to the drainage ditch at a location downstream of the sediment remediation area. The water treatment and subsequent discharge will be pursuant to the conditions of an NPDES Individual Stormwater Permit. The dewatering will be conducted throughout the excavation/backfilling, as necessary. During dewatering, a qualified wildlife biologist will remove any fish and marine organisms from the dammed area. The water in the ditch that collects along the outside of each dam (depending upon the flow direction in the ditch) will be pumped around the remediation area.

Provisions for surface water treatment (e.g., sediment settling tanks, filtration unit) will be evaluated during preparation of the construction specifications. A copy of the NPDES Individual Stormwater Permit for the treatment and discharge of the extracted groundwater and surface water during the interim action is provided in Appendix M.

Since the sediment that occurs within 90 feet of the likely sources of toxicity (storm water outfalls) will be removed and it will take too long to conduct bioassay testing of the remaining material at the extents of each excavation, the width of the excavation will be based on the previous investigation results. The excavation will extend between two previous sediment samples (US-4 and US-8) that exhibited acceptable toxicity. Samples of the sediment and soil at the extents of the excavation will not be collected for laboratory testing. The excavated material will be hauled off site for recycling, treatment, and/or disposal at a licensed facility. An estimated total of approximately 600 tons of sediment and soil will be removed from the ditch. The excavation areas will be backfilled with silty loam (a similar material to the excavated sediment) that is provided by an Ecology-approved supplier, and is certified as clean. Additional bank restoration will include erosion control, native grass seeding, and tree and shrub planting adjacent to the banks.

6.2.5 Groundwater Monitoring

After completing the soil excavation activities, groundwater monitoring will be conducted over a two-year period. The purposes of the groundwater monitoring are: 1) to determine if the remaining soil concentrations will be sources of free product on the groundwater table, 2) to evaluate if the remaining soil concentrations will cause an exceedance of groundwater CULs at the POCs, 3) to determine if the remaining petroleum hydrocarbon concentrations in the groundwater will naturally attenuate to below the groundwater CULs at the POCs, and 4) to calculate the restoration timeframes to meet the groundwater CULs at the POCs.

To facilitate the effective monitoring of the groundwater conditions upgradient, within, and downgradient of the remediation areas, a total of 18 groundwater monitoring wells will be installed in the interior of the lower yard and 8 groundwater monitoring wells will be installed along the perimeter of the Terminal (surface water compliance wells). The proposed locations of the wells are shown on Drawing 14; however, the proposed locations of the two surface water compliance wells located between wells MW-122 and MW-135 will likely be adjusted to be as close to the woody vegetation near Willow Creek as possible, without disturbing the vegetation. The wells will be drilled and installed by a licensed well driller in accordance with the procedures described in the Sampling and Analysis Plan (Appendix L).

Groundwater sampling events will be conducted on at least an every other month basis for 24 months (at least 13 sampling events). During each sampling event, groundwater samples will be collected from a total of 21 wells (existing wells MW-8 and MW-143, and 19 proposed wells) that are located within three designated groundwater flow paths (see Drawing 14) to monitor the natural attenuation of the dissolved-phase concentrations. Due to the short distances (approximately 30 to 130 feet) between the free product areas and the nearest surface water compliance wells or Detention Basin No. 1, the three groundwater flow paths consist of 7 monitoring wells (an upgradient well, 3 source area wells, and 3 downgradient wells). Each flow path is wider at the downgradient end to account for up to 30 percent variability in the flow direction due to tidal influence. The downgradient wells in each flow path are at least 50 feet from Willow Creek to minimize any surface water influence on the sampling results. The three flow paths should provide an indication of any natural attenuation variability beneath the lower yard.

During each every-other-month sampling event, groundwater samples will also be collected from the 21 surface water compliance monitoring wells (existing wells LM-2, MW-8, MW-20R, MW-101, MW-104, MW-108, MW-109, MW-135, MW-136, MW-139, MW-147, MW-149, and MW-150, and 8 proposed wells) to monitor the groundwater quality conditions at the POCs (near Willow Creek). During each sampling event, a groundwater sample will also be collected from the proposed monitoring well near former well MW-112R to evaluate the groundwater conditions upgradient of the proposed surface water compliance well at the northwest end of Detention Basin No. 2 (see Drawing 14). The sampling will be conducted in accordance with the procedures described in the Sampling and Analysis Plan (Appendix L).

Prior to each sampling event, the surface water elevations will be measured at the six measuring stations in Willow Creek (TB, D-1, D-2, D-3, D-4, and D-5) and Detention Basin No. 1 (D-6), and the depths to groundwater and free product, if present, will be measured in all of the on-site monitoring wells.

The surface water elevations and depths to groundwater in wells will be measured within a short enough time period that tidal effects in the surface water and groundwater do not

change significantly. Surface water stations TB, D-3, and D-5 and selected monitoring wells will be measured first, and again at the end of the surface water data collection period. The selected wells will be chosen to gather data on tidal influence across the site. For each sampling event, tide charts for Edmonds, Washington during the sampling event will be included with the data (these data will be obtained from the Internet or from commercially available tide charts). Times of groundwater elevation measurement and times of groundwater sample collection will be recorded..

The monitoring data will be used to determine if the remaining soil concentrations are sources of free product on the groundwater table, to assess the flow direction within each flow path, to evaluate tidal influence, and to evaluate the effects of groundwater elevation fluctuations on the groundwater sampling results. If measurable free product (at least 0.01 feet thick) is encountered in a well, the product will be removed by bailing methods. If measurable product is encountered in a well more than two times, the interim action will be modified to remove that product by additional excavation.

All of the groundwater samples collected during each sampling event will be analyzed to monitor and evaluate the concentrations of the groundwater IHSs. The samples will be submitted to an Ecology-certified laboratory for the following analyses:

- GRO by Ecology Method NWTPH-Gx
- DRO and HO by Ecology Method NWTPH-Dx (after silica-gel cleanup)
- Benzene by EPA Method 8021B
- Total PAHs, including naphthalene by EPA Method 8270C

In accordance with current EPA protocols (EPA, 2004 and EPA, 1999) and Ecology guidance (Ecology, 2005), the groundwater samples collected from all of the wells will also be analyzed for geochemical indicators. The geochemical indicators will be measured to provide evidence that biodegradation is occurring. The geochemical indicators will include:

- Dissolved oxygen by field measurement (Method 360.1)
- Redox potential by field measurement (Standard Method 2580B)
- pH by field measurement (Method 150.1)
- Specific conductivity by field measurement (Method 120.1)
- Temperature by field measurement (Method 170.1)
- Sulfate by laboratory analysis (EPA Method 300.0)
- Nitrate by laboratory analysis (EPA Method 300.0)
- Dissolved ferrous iron by field measurement (Standard Method 3500)
- Dissolved manganese by laboratory analysis (EPA Method 6020)
- Alkalinity by laboratory analysis (EPA Method 310.1)
- Dissolved methane by laboratory analysis (EPA Method RSK 175)

6.2.6 Assessment of Soil Beneath Southwest Lower Yard Excavation

As described in Section 2.5, Unocal conducted an interim action in 2003 that included the excavation of approximately 19,657 tons of soil from southwestern corner of the site (Southwest Lower Yard excavation; see Drawing 1). The excavation was extended laterally over an area of approximately 35,900 square feet and vertically to a maximum depth of approximately 7.5 feet bgs (up to 1.5 feet below the groundwater table) (MFA, 2004a). At the time of the excavation, soil samples were collected from the sidewalls of the excavation, but not from the base of the excavation. To assess the soil conditions at the base of the previous Southwest Lower Yard excavation, a total of 64 soil borings will be drilled and sampled within the footprint of the previous excavation area (see Figure 10). The proposed boring locations will be spaced within a grid pattern up to 25 feet apart.

The drilling and sampling will be performed following the procedures specified in the Sampling and Analysis Plan (Appendix L). The sample collected from each boring, at a depth immediately below the previous excavation backfill material, will be submitted to an Ecology-certified laboratory for analysis of DRO, HO, GRO, and benzene. Any sample that contains detectable DRO and/or HO concentrations will be analyzed for cPAHs. If any of the samples contain concentrations that exceed the soil RELs (TPH or benzene) or the soil CUL (total cPAHs), the interim action will be modified to remove that impacted soil by additional excavation.

6.2.7 Data Evaluation

The depth to groundwater and depth to product, if present, measurements that will be collected on at least an every-other-month basis will be used to determine if the remaining soil concentrations are a source of free product on the groundwater table. Since the Terminal operations were discontinued in 1991, any free product detected in the monitoring wells would be due to leaching of existing product from the soil. If product is not detected in any of the wells at the site during the two year monitoring period, then the monitoring data will provide an empirical demonstration that the remaining soil is not a source of free product on the groundwater table [WAC 173-340-747(10)(c)].

The groundwater sampling from the wells within the flow paths will provide the data to utilize Ecology's Data Analysis Tool Package A (Modules 1, 2, and 3) (Ecology, 2005). The locations of the three flow paths and the wells within each flow path are shown on Drawing 14. The flow paths are triangle-shaped with the wide end of the triangle being downgradient. To allow for a linear relationship within each triangular flow path, the maximum concentrations from the wells within each flow path that are approximately the same distance from the upgradient end of the flow path will be entered into the Modules.

For each sampling event, the most conservative concentrations from one of the wells in each of the following sets of wells will be used:

- The three downgradient wells in each flow path
- The two downgradient in-plume wells in the western flow path
- The two downgradient in-plume wells in the central flow path
- The two downgradient in-plume wells in the eastern flow path

The sampling results (IHS concentrations) and the groundwater monitoring data from the wells within the flow paths will be used in Module 1 to evaluate if the plume is shrinking, expanding, or stable. These data will also be used in Module 2 to estimate the restoration time to meet the CULs at the compliance wells (if the CULs are not met at the completion of the interim action). The groundwater sampling results for the geochemical indicators will be used in Module 3 to assess if biodegradation is occurring.

The groundwater sampling results from the surface water compliance wells will be used to evaluate if the remaining soil concentrations are causing an exceedance of groundwater CULs at the POCs, and to determine if the remaining petroleum hydrocarbon concentrations in the groundwater will naturally attenuate to below the groundwater CULs at the POCs. Since the CULs are based on chronic or carcinogenic threats, the true mean concentration at each compliance well over the two-year period will be used to evaluate compliance with the groundwater CULs [WAC 173-340-720(9)(c)(v)(B)]. The analytical results will be evaluated by using statistical methods that are in accordance with WAC 173-340-720(9)(c), WAC 173-340-720(9)(d), WAC 173-340-720(9)(e), and WAC 173-340-720(9)(f).

If the statistical analysis of the groundwater analytical data shows that the IHS concentrations at all of the POCs are below the groundwater CULs and the concentrations within the flow paths are stable, then the monitoring data will provide an empirical demonstration that the remaining soil concentrations will not cause an exceedance of groundwater CULs at the points of the compliance [WAC 173-340-747(9)(b)]. Since there are no existing potential sources of contamination at the site, the empirical demonstration would show that the remaining soil would not cause an exceedance of groundwater CULs at the POCs. The monitoring data would also provide an empirical demonstration that the petroleum hydrocarbon concentrations in the groundwater are naturally attenuating to below the groundwater CULs at the POCs.

If the statistical analysis of the groundwater analytical data shows that any of the IHS concentrations are above the groundwater CULs at any of the POCs, a feasibility study will be prepared that provides alternatives for addressing the source(s) of the ongoing groundwater contamination. The feasibility study will also provide alternatives (including groundwater recovery and treatment) for addressing the groundwater contamination.

6.3 Schedule

Assuming that Ecology approves of the work plan for the interim action by July 2007, the product recovery and soil excavation activities would begin in July 2007 and be completed by October 2007. The monitoring wells would be installed in October 2007. The groundwater monitoring would begin in October 2007, and the sampling events would be conducted in October and December 2007, in February, April, June, August, October, and December 2008, and in February, April, June, August, and October 2009. The assessment of the soil conditions at the base of the previous Southwest Lower Yard excavation will be conducted in November 2007. The sediment remediation activities will be conducted in August or September 2008 (during low tidal conditions) when the water levels in the drainage ditch and Edmonds Marsh are low. If Ecology approves of the work plan for the interim action after July 2007, all of the dates for the product recovery and soil excavation activities, for the well installation, and for the groundwater sampling events will be pushed back by a corresponding amount of time.

In August 2007, Ecology will receive public comments regarding the Agreed Order. In August and September 2007, Ecology and Unocal will evaluate all of those comments, and Ecology will provide responses. After completing the first three groundwater monitoring events, Ecology and Unocal will review the excavation and groundwater monitoring results from the interim action, and re-evaluate the public comments. If additional investigation activities appear to be necessary to address any remaining data gaps, Unocal will prepare a draft work plan for the investigation activities by May 2008. The investigation will be conducted in 2008 after receiving Ecology's approval of a final version of the work plan. The interim action monitoring program may be subsequently modified based on the results of the investigation activities.

At least four reports will be prepared to describe the field activities and present the results of the interim action. A draft version of the first report (*Interim Action As-Built Report – Product Recovery and Soil Excavation*), which will describe the product recovery, soil excavation, and soil assessment activities, will be submitted to Ecology by March 2008. The second report (*Groundwater Sampling Report – October 2007 through October 2008*) will present the results of the first year of groundwater monitoring. A draft version of *Groundwater Sampling Report – October 2007 through October 2008* will be submitted to Ecology by December 2008. A draft version of the third report (*Interim Action As-Built Report – Sediment Remediation*), which will describe the sediment excavation activities, will be submitted to Ecology by December 2008. The fourth report (*Groundwater Sampling Report – December 2008 through October 2009*) will present the results of the second year of groundwater monitoring. A draft version of *Groundwater Sampling Report – December 2008 through October 2009* will be submitted to Ecology by December 2009. If additional investigation activities are conducted during 2008, a fifth report (*Additional Investigation Report*) will present the results of the investigation activities. A draft version of the *Additional Investigation Report* will be submitted to Ecology by December 2008. Final versions of the above

reports will be submitted to Ecology within 60 days of receipt of Ecology's comments on and required revisions of the draft reports.

7 CONSTRUCTION DOCUMENTATION

As required by WAC 173-340-400(6)(b), the construction aspects of the interim action 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 briefly discussed below.

The contractor will complete records to document the work performed. The 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 activities and to identify personnel working on site. These records will be completed daily and will be provided weekly to a Unocal designated representative.

- On-site Transfer Log – The contractor 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 "Excavation Area F") and the approximate quantity of soil will be identified in this daily log. Copies will be provided weekly to a Unocal designated representative.

- Off-site Tracking Log – A continuous log of all off-site shipments, which will be maintained by the contractor, will include the following information: type of material, source of material, day shipped, receiver, and weight. Copies will be provided weekly to a Unocal designated representative.

- 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.

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

Once the excavation activities have been completed, a registered surveyor will survey the boundaries of each excavation, as well as the locations of the soil borings. The surveys will be used to generate as-built drawings for the Interim Action As-built Reports (see Section 8).

8 REPORTING

The technical requirements in the contractor bid documents will be transmitted to Ecology for review and comment no later than the time they are transmitted to the contractor(s).

As required by WAC 173-340-400(6)(b)(ii), an Interim Action As-Built Report will be completed by the engineer responsible for oversight of the interim action. Since the two major excavation components of the interim action will be conducted over a year apart, two Interim Action As-Built Reports will be prepared for this project. The first report will be prepared after the completion of the product recovery, soil excavation, and soil assessment activities, and the second report will be prepared after the completion of the sediment remediation activities. Each report will include as-built drawings of the excavation activities 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 surveyed extents of excavation.

Each Interim Action As-Built Report will include the following:

- Descriptions of field activities, including unusual or unexpected conditions or events
- Figures showing the final lateral and vertical extents of the excavations
- Figures showing post-excavation soil sampling locations and results (posted at the sampling locations) (first report only)
- Figures showing the soil boring locations and sample results (posted at the sampling locations) (first report only)
- Tables presenting the post-excavation soil sampling results and the soil assessment sampling results (first report only)
- Figures, tables, and text documenting the estimated nature and extent of contamination remaining in the lower yard at the conclusion of the interim action, including an estimate of the concentration distribution and mass of petroleum remaining (first report only)
- An estimate of the total in-place volume (bank cubic yards) of excavated soil or sediment
- A summation of the soil or sediment material, in wet tons or bank cubic yards, that were transmitted off site
- An estimate of the volume of extracted product and groundwater (first report only)

- A summation of the recovered product and groundwater, in gallons, that were transmitted off site (first report only)
- A summation of the recovered groundwater, in gallons, that was treated and discharged to the drainage ditch (Willow Creek) (first report only)
- Copies of daily reports and other field documentation
- Copies of laboratory reports and chain-of-custody documentation (first report only)
- Copies of all waste manifests and bills of lading

Since the groundwater monitoring will be conducted over a two-year period, a groundwater sampling report will be prepared after each year of sampling. Each groundwater sampling report will include the following:

- Descriptions of field activities, including unusual or unexpected conditions or events
- Figures showing TPH, benzene, and total cPAH concentrations in the groundwater samples
- Tables presenting the groundwater monitoring data, and the groundwater sample analytical results (geochemical indicators and IHSs)
- Copies of laboratory reports and chain-of-custody documentation

The second groundwater sampling report (Groundwater Sampling Report – December 2008 through October 2009) will also include the results of the groundwater data analyses (using Modules 1, 2, and 3), the statistical analysis of the sampling results, and the rationale behind any empirical demonstrations.

If additional investigation activities are conducted during 2008, an Additional Investigation Report will be prepared to present the results of the investigation. The report will include the following:

- Descriptions of field activities, including unusual or unexpected conditions or events
- Figures showing the test pit, soil boring, and/or monitoring well locations
- Figures showing soil sampling locations and results (posted at the sampling locations)
- Figures showing the groundwater and/or surface water sampling locations and sample results (posted at the sampling locations)
- Tables presenting the soil sampling results, groundwater sampling results, and/or surface water sampling results
- Figures, tables, and text documenting the estimated nature and extent of contamination remaining in the lower yard in the Fall of 2008
- Copies of laboratory reports and chain-of-custody documentation

All draft reports will be submitted as electronic files. The electronic copy will be in Word, Excel, or other format as agreed to between Ecology and Unocal. Figures will be submitted as AutoCAD files. Ecology may request that hard copies be submitted if necessary.

All final reports will be submitted as electronic files. The electronic files will be in Adobe Acrobat and will be submitted in files of less than 1.5 Mb in size. In addition to having the complete report in Adobe Acrobat files, the final report will be submitted in Word, Excel, and AutoCAD files, as appropriate. One hard copy of the final report also will be submitted. Ecology may request additional hard copies if necessary.

All sample analytical data and field data from the interim action will be submitted to Ecology in an electronic form that is capable of being transferred into Ecology's data management system. The data will also be submitted in a printed form. The electronic soil and groundwater data will be submitted in accordance with Ecology's Environmental Information Management (EIM) system format.

9 PUBLIC PARTICIPATION

The 2007 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 action.

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

- This Interim Action Report will be available for review during a 30-day public comment period
- A notice will be placed in the MTCA Site Register
- Ecology will prepare and distribute a Fact Sheet to describe the interim action
- A display advertisement will be published in the local newspaper of highest circulation, and the advertisement will announce the public comment period and public meeting
- Copies of this report will be placed at designated repositories
- A public meeting will be held within 30 days after publication of this report to describe the interim action and to solicit public comment

Additionally, Unocal will prepare a letter that will be distributed to the neighbors adjacent to the Terminal. The letter will describe the interim action activities and schedule. Unocal contact information will be provided in the letter. Unocal may distribute letters at various times of the interim action schedule to ensure that property owners are aware of imminent activities.

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TABLES

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LEGAL DESCRIPTIONS OF PARCELS WITHIN TERMINAL

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MTCATPH11 SPREADSHEET TABLES

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MTCASGL10 SPREADSHEET TABLES

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SUMMARY OF POTENTIALLY APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

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APPENDIX M

NPDES PERMITS

THESE DOCUMENTS ARE AVAILABLE FOR REVIEW AT PUBLIC REPOSITORY OR CONTACT DAVID SOUTH OF THE DEPARTMENT OF ECOLOGY [(425) 649-7200 OR DSOU461@ECY.WA.GOV] TO OBTAIN COPIES

APPENDIX N

SEPA CHECKLIST

APPENDIX O

SLR'S PHASE I ESA REPORTS REGARDING THE SOURCES OF IMPORTED SOIL

Table 1
Surface Water Screening Levels for Metals
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

Metal	State Chronic WQC		Federal Chronic WQC			National Toxics Rule			Minimum WQC	Surface Water Screening Level
	Aquatic Receptors		Aquatic Receptors		Human Receptors	Aquatic Receptors		Human Receptors		
	Freshwater	Marine	Freshwater	Marine	Ingest Fish Only	Freshwater	Marine	Ingest Fish Only		
Arsenic	190	36	150	36	0.14	190	36	0.14	0.14	0.14
Copper[a]	11.4	3.1	9	3.1	1,300	11	2.4	NA	2.4	2.4
Lead[a]	2.5	8.1	2.5	8.1	NA	2.5	8.1	NA	2.5	2.5
Zinc[a]	104	81	120	81	26,000	100	81	NA	81	81

NOTES:

Concentrations in µg/L (dissolved form).

NA = Not available.

WQC = Water quality criteria.

[a]State and federal chronic WQC for freshwater depend on hardness. The value shown was calculated assuming a default hardness of 100 mg/L.

Table 2
Summary of Federal and State Water Quality Criteria
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

Indicator Hazardous Substance	State Chronic WQC		Federal Chronic WQC			National Toxics Rule			Minimum WQC
	Aquatic Receptors		Aquatic Receptors		Human Receptors	Aquatic Receptors		Human Receptors	
	Freshwater	Marine	Freshwater	Marine	Ingest Fish Only	Freshwater	Marine	Ingest Fish Only	
TPH	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	51	NA	NA	71	51
Total cPAHs	NA	NA	NA	NA	0.018	NA	NA	0.031	0.018

NOTES:

Concentrations in micrograms per liter (µg/L).

NA = Not available.

TPH = Total petroleum hydrocarbons.

WQC = Water quality criteria.

cPAHs = Carcinogenic polycyclic aromatic hydrocarbons.

Table 3
Method A Groundwater Cleanup Levels
Adjusted for TPH Compositions in Perimeter Monitoring Wells
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

Site Area	Perimeter Well	Average Proportion GRO	Average Proportion DRO	Average Proportion HO	Total
Proportions of Total TPH Mixture (percentages)[a]					
East Area[b]	MW-136	2.14%	86.07%	11.78%	100.00%
	MW-135	8.40%	55.61%	35.99%	100.00%
	MW-139	11.90%	45.42%	42.68%	100.00%
	LM-2	2.92%	66.68%	30.40%	100.00%
	LM-3	0.74%	80.00%	19.26%	100.00%
	n	5	5	5	
	Minimum	0.74%	45.42%	11.78%	
	Average	5.22%	66.76%	28.02%	
	Median	2.92%	66.68%	30.40%	
	Maximum	11.90%	86.07%	42.68%	
Transition	MW-102/102R	43.34%	47.57%	9.09%	100.00%
West Area[c]	MW-101	49.84%	16.72%	33.44%	100.00%
	MW-104	76.38%	7.87%	15.75%	100.00%
	MW-20/20R	88.09%	5.62%	6.29%	100.00%
	MW-145	79.34%	6.89%	13.77%	100.00%
	n	4	4	4	
	Minimum	49.84%	5.62%	6.29%	
	Average	73.41%	9.28%	17.31%	
	Median	77.86%	7.38%	14.76%	
	Maximum	88.09%	16.72%	33.44%	
Method A Groundwater Cleanup Levels Adjusted for HI=1 (µg/L)					
Raw values		800	500	500	1800
Adjusted for Eastern Area[d]					506
Adjusted for Western Area[e]					706

NOTES:

µg/L = micrograms per liter.

n = Number of samples.

TPH = Total petroleum hydrocarbons.

DRO = TPH in diesel range.

GRO = TPH in gasoline range.

HO = TPH in oil range.

[a] Statistical evaluations shown in Appendix J.

[b] No data are shown for MW-108 and MW-109, because all results were nondetect.

[c] No data are shown for MW-105, MW-106, MW-107, and MW-137 because all results were nondetect.

[d] Equation: 1/[(median % GRO East Area/800) + (median % DRO East Area/500) + (median % HO East Area/500)]

[e] Equation: 1/[(median % GRO West Area/800) + (median % DRO West Area/500) + (median % HO West Area/500)]

Table 4
Surface Water and Groundwater Cleanup Levels
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

Indicator Hazardous Substance	Surface Water and Groundwater Cleanup Level	
	Eastern	Western
Total TPH[a]	506	706
Benzene[b]	51	51
Total cPAHs[b]	0.018	0.018

NOTES:

Concentrations in micrograms per liter (µg/L).

[a]From Table 3.

[b]From Table 2.

Table 5
Summary of Soil Cleanup Levels and Remediation Levels and Groundwater Cleanup Levels
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

Indicator Hazardous Substance	Soil Cleanup Level or Remediation Level (mg/kg)	Basis	Groundwater Cleanup Level (µg/L)	Basis
Total TPH	2,975	a	506 eastern part of lower yard; 706 western part of lower yard	b
Benzene	18	c	51	d
Total cPAHs[e]	0.14	f	0.018	d
Arsenic	20	g	NA	

NOTES:

DRO = Diesel-range organics.

GRO = Gasoline-range organics.

CUL = Cleanup level.

REL = Remediation level.

WQC = Water quality criteria.

NA = Not applicable because arsenic is not an indicator hazardous substance for groundwater.

[a]REL based on Method B direct contact. Assumes empirical demonstration will be used to show compliance with residual saturation concentrations (2,000 mg/kg for DRO and 1,000 mg/kg for GRO).

[b]Protection of surface water using a weighted average of Method A groundwater CULs for GRO, DRO, and HO, and considering the composition of the TPH in the groundwater beneath the lower yard.

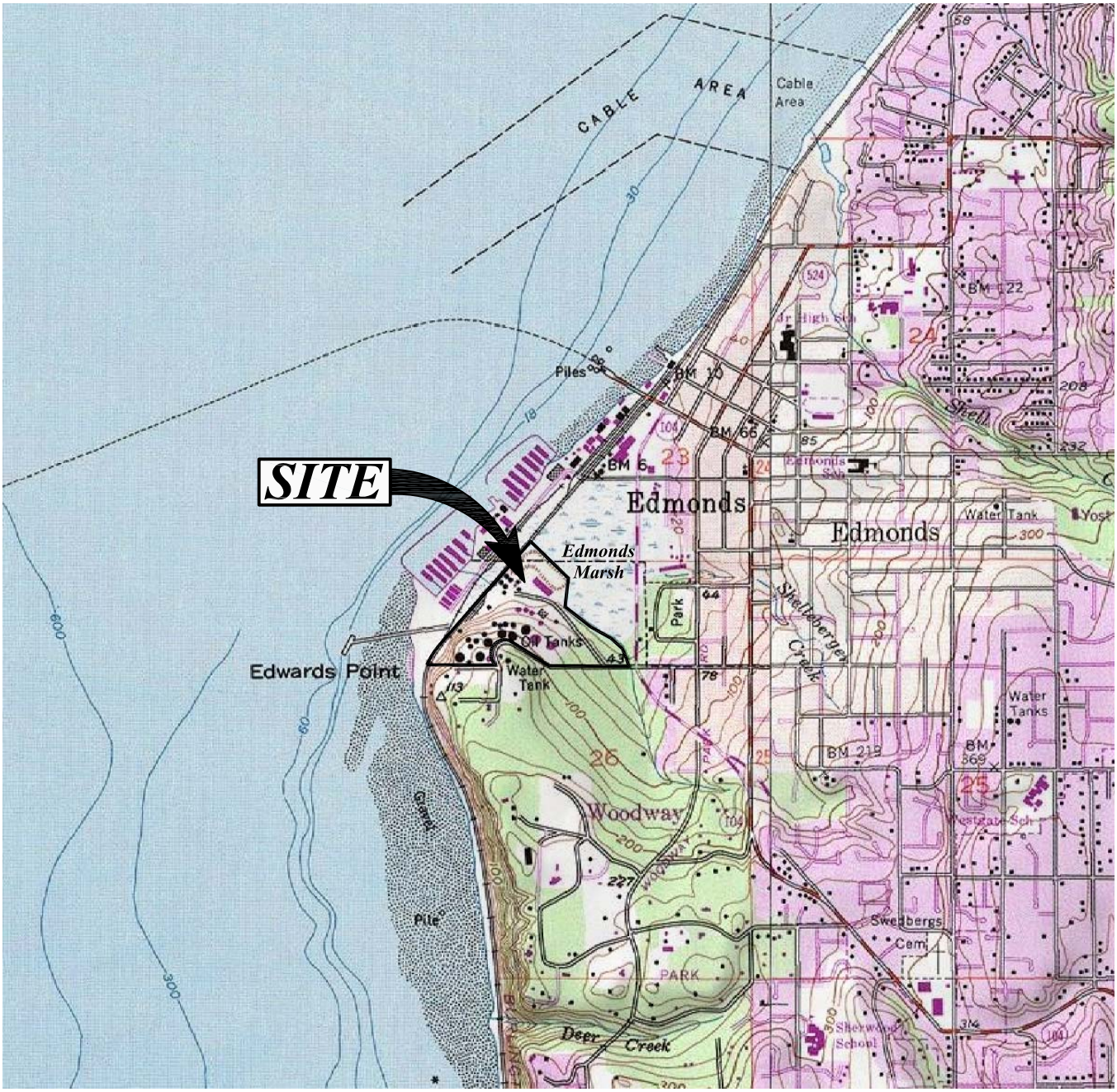
[c]REL based on Method B direct contact. Assumes empirical demonstration will be used to show that direct contact cleanup level for benzene is also protective of groundwater.

[d]Protection of surface water using federal WQC for human consumption of fish.

[e]The CUL for total cPAHs is presented in terms of toxicity-adjusted total cPAHs (benzo(a)pyrene equivalents).

[f]CUL based on Method B direct contact.

[g]CUL based on natural background.



0 2000 4000

SCALE IN FEET

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FIGURE 1
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

SITE LOCATION MAP

NOTES:

1) PARCEL A IS CURRENTLY OWNED BY UNION OIL COMPANY OF CALIFORNIA (UNION OIL). IN 2005, UNION OIL AND THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION ENTERED INTO A PURCHASE AND SALE AGREEMENT FOR PARCEL A. THE TITLE WILL NOT BE TRANSFERRED UNTIL THE REQUIREMENTS IN THE AGREEMENT HAVE BEEN MET.

2) PARCEL B AND PARCEL III ARE CURRENTLY OWNED BY POINT EDWARDS, LLC. POINT EDWARDS, LLC IS CURRENTLY DEVELOPING BOTH PARCELS FOR RESIDENTIAL PURPOSES.

3) LOT 1 IS CURRENTLY OWNED BY THE CITY OF EDMONDS, AND IS LEASED TO THE LAEBUGTEN SALMON CHAPTER. THE PARCEL IS OPERATED AS A SALMON HATCHERY (DEER CREEK SALMON HATCHERY).

4) DASHED PROPERTY LINE REPRESENTS LOT LINE PRIOR TO REVISION ON APRIL 26, 2002.

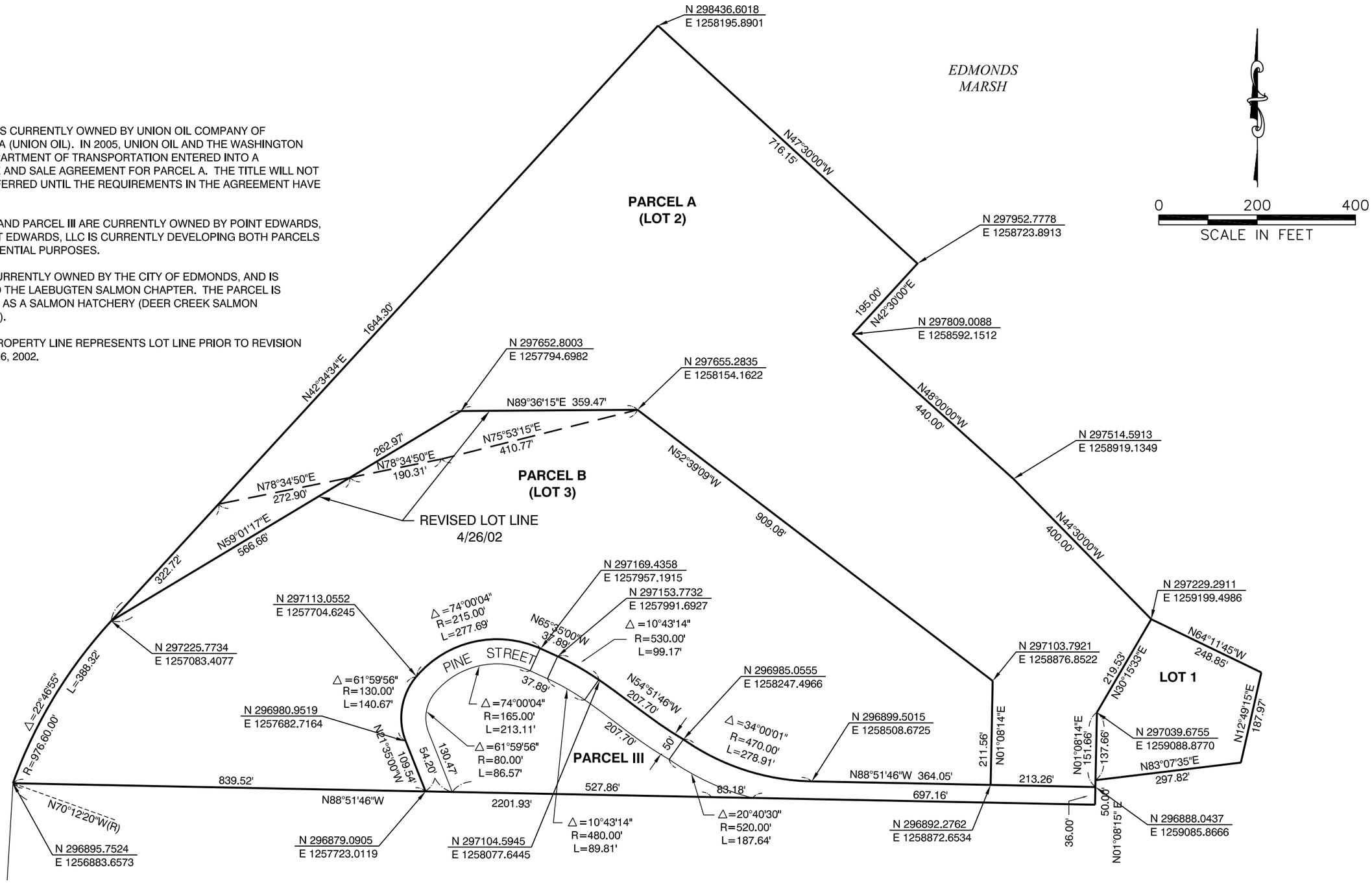

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FIGURE 2
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

TERMINAL PARCEL BOUNDARIES

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OUTFALL #002

OUTFALL #001

DETENTION BASIN NO. 1 PUMP

DETENTION BASIN NO. 2 PUMPS

EDMONDS MARSH

DETENTION BASIN NO. 1

DETENTION BASIN NO.2

DRAINAGE DITCH (WILLOW CREEK)

TRANSFER PUMP

OIL/WATER SEPARATOR

UPPER YARD OUTFALL

SDT

WILLOW CREEK

FROM POINT EDWARDS (UPPER YARD) STORM WATER COLLECTION POND

LEGEND:

- LOWER YARD SITE BOUNDARY
- STORM WATER PUMP LOCATION
- CATCH BASIN LOCATION
- SDT — STORM WATER DETENTION TANK
- FM — STORM WATER FORCEMAIN
- DRAINAGE DITCH
- STORM WATER CULVERT
- POWER POLE
- E — OVERHEAD ELECTRIC LINE

0 150 300

SCALE IN FEET

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FIGURE 3
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

CURRENT STORM WATER DRAINAGE SYSTEM

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PORT OF EDMONDS
SOUTH MARINA

BNSF RAILWAY
RIGHT-OF-WAY

DRAINAGE DITCH
(WILLOW CREEK)

PLANNED COVERED
PEDESTRIAN WALKWAY

PLANNED DAYLIGHTED SECTION
OF DRAINAGE DITCH (LINED CHANNEL)

BULKHEAD

ADMIRAL WAY

PLANNED
TERMINAL BUILDING

PLANNED
RAILROAD PLATFORMS

TO FERRY DOCK

PLANNED
STORMWATER
TREATMENT POND

EDMONDS
MARSH

PLANNED BUS
LOADING AREA

PLANNED 2-LEVEL
PARKING GARAGE

LOWER YARD

PLANNED DROP-OFF AND
SHORT TERM PARKING

PLANNED INCOMING FERRY
TRAFFIC HOLDING AREA

PLANNED STAIRS
AND ELEVATOR

PLANNED EMPLOYEE
PARKING STALLS

PLANNED TERMINAL ACCESS ROAD

WILLOW CREEK
(APPROX. LOCATION)

SHELLEBERGER CREEK
(APPROX. LOCATION)

0 200 400
SCALE IN FEET

UPPER YARD

PLANNED DAYLIGHTED SECTION OF
DRAINAGE DITCH (LINED CHANNEL)

PLANNED
WILLOW CREEK
OUTLET

PLANNED TOLL BOOTHS

PLANNED FERRY DOCK ENTRY/EXIT ROAD

POINT EDWARDS, LLC RESIDENTIAL DEVELOPMENT

PARCEL III

PINE STREET

**DEER CREEK
SALMON HATCHERY
(CITY OF EDMONDS
PROPERTY)**

LEGEND:

- PROPERTY BOUNDARIES
- EXISTING FEATURES
- PLANNED FEATURES
- APPROXIMATE AREA OF PLANNED SITE REDEVELOPMENT WITHIN LOWER YARD

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FIGURE 4
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

**SITE MAP SHOWING
PLANNED FUTURE USE OF LOWER YARD**

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FIGURE 5
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
GROUNDWATER ELEVATIONS
SITE-WIDE AQUIFER
JANUARY 18, 1996

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SCALE IN FEET
0 150 300

LEGEND

MW-104 — MONITORING WELL LOCATION AND DESIGNATION
9.70 — GROUNDWATER ELEVATION (FEET ABOVE MWWL) ON JANUARY 18, 1996

D-3 — SURFACE WATER STATION AND DESIGNATION
10.51 — SURFACE WATER ELEVATION (FEET ABOVE MWWL) ON JANUARY 18, 1996

10 — GROUNDWATER ELEVATION CONTOUR (FEET ABOVE MWWL)

INFERRED GROUNDWATER FLOW DIRECTION

SURFACE WATER

* Groundwater elevation not contoured

UPPER YARD

LOWER YARD

DETENTION BASIN NO. 1

DETENTION BASIN NO.2

DRAINAGE DITCH (WILLOW CREEK)

EDMONDS MARSH

SHELLEBERGER CREEK

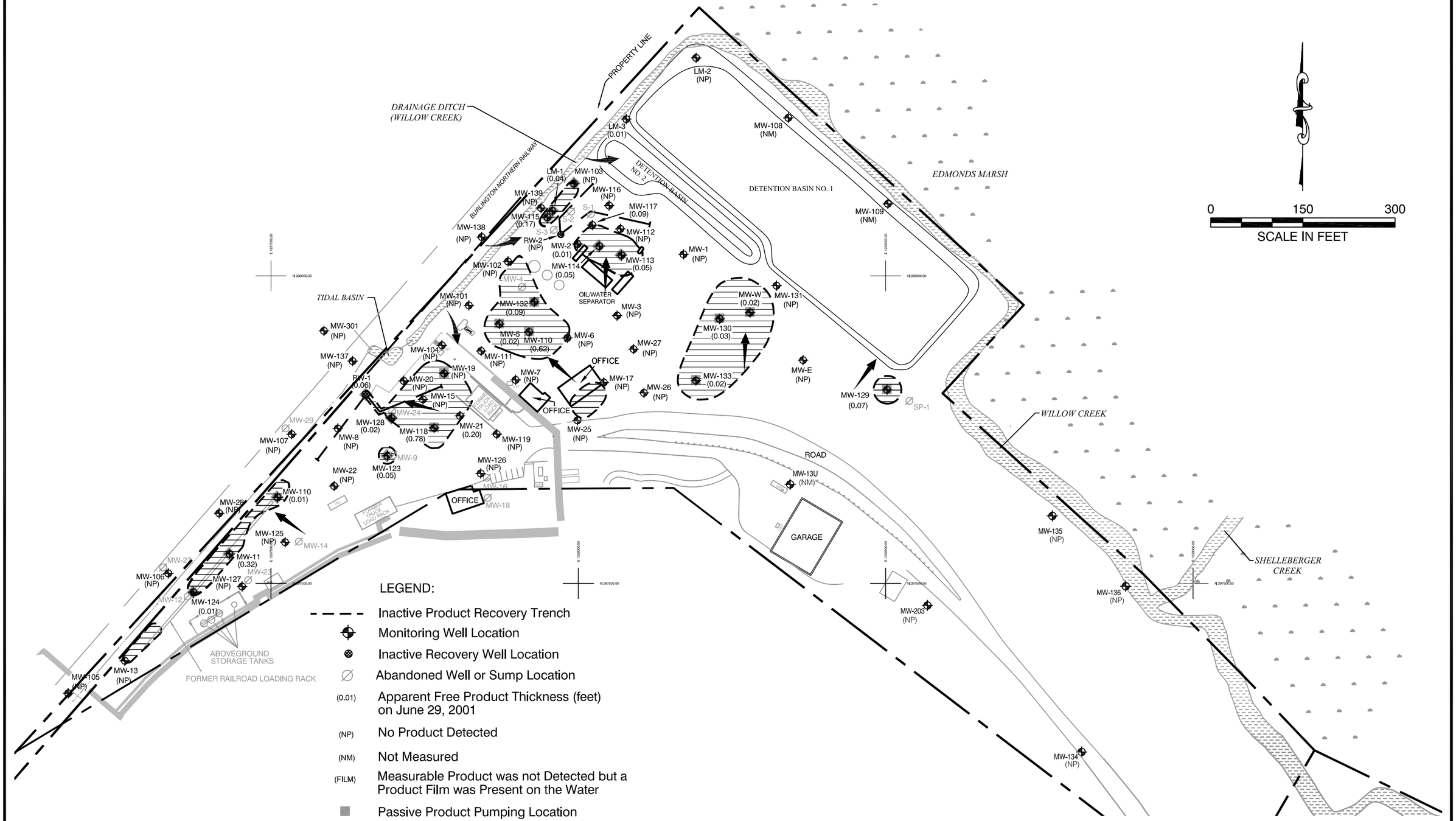
WILLOW CREEK

FORMER GARAGE

FORMER OFFICE

CONCRETE SLAB

MW-201 9.27
P-201D 12.36
P-203D 11.21
MW-7U 11.25
MW-134 16.78*
MW-136 10.89
MW-135 10.78
D-4 10.36
MW-203 11.18
MW-204 11.06
MW-13U 11.22
MW-202 11.57
P-202D 12.48
MW-105 8.89
MW-106 8.85
MW-124 9.28
MW-127 8.84*
MW-125 9.13
MW-28 9.26
MW-22 9.42
MW-126 11.53
MW-123 9.44
MW-107 9.28
MW-8 9.37
MW-128 9.46
MW-15 9.55
MW-20 9.52
MW-137 9.48
TB 10.73
MW-111 9.90
MW-104 9.70
MW-5 9.93
MW-101 9.83
MW-301 6.98
MW-119 10.80
MW-25 11.34
MW-26 10.95
MW-17 11.65
MW-7 11.11
MW-133 10.89
MW-E 10.03
MW-27 10.60
MW-6 11.28
MW-03 10.43
MW-132 9.50
MW-102 9.95
MW-138 9.33
MW-139 9.20
MW-103 9.38
MW-116 9.39
MW-117 9.41
MW-115 9.54
MW-114 9.45
MW-112 9.36
MW-02 9.60
MW-01 9.61
MW-131 9.99
MW-W 9.99
MW-129 10.24
MW-109 10.25
D-3 10.51
DB-1 7.54
D-2 9.50
MW-108 9.10
LM-3 9.30
D-1 10.46
LM-2 8.36
LM-1 9.55



LEGEND:

- Inactive Product Recovery Trench
- Monitoring Well Location
- Inactive Recovery Well Location
- Abandoned Well or Sump Location
- (0.01) Apparent Free Product Thickness (feet) on June 29, 2001
- (NP) No Product Detected
- (NM) Not Measured
- (FILM) Measurable Product was not Detected but a Product Film was Present on the Water
- Passive Product Pumping Location
- Approximate Area of Floating Free Product Based on 2000 and 2001 Data
- General Groundwater Flow Direction

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FIGURE 6
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

APPROXIMATE AREAS OF FLOATING FREE PRODUCT - JUNE 2001

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DETENTION BASIN NO. 1 EXCAVATION

DRAINAGE DITCH (WILLOW CREEK)

EXCAVATION C

EXCAVATION D

EXCAVATION B

TIDAL BASIN

SOUTHWEST LOWER YARD EXCAVATION

STORM DRAIN LINE EXCAVATION

EXCAVATION A

EDMONDS MARSH

WILLOW CREEK

SHELLEBERGER CREEK

0 150 300

SCALE IN FEET

E 1257500.00 N 298000.00

E 1258500.00 N 298000.00

E 1258000.00 N 297500.00

E 1257500.00 N 297500.00

E 1258500.00 N 297500.00

LM-1 LM-2 LM-3

MW-1 (NP)
MW-3 (NP)
MW-5
MW-6
MW-7
MW-7R (NP)
MW-8 (NP)
MW-10
MW-11
MW-13
MW-15
MW-17
MW-17R (1.56)
MW-18
MW-19
MW-20
MW-20R (NP)
MW-21
MW-22 (NP)
MW-25 (0.15)
MW-26 (NP)
MW-27 (NP)
MW-28 (NP)
MW-101 (NP)
MW-102
MW-102R
MW-103
MW-103R (NP)
MW-104 (NP)
MW-105 (NP)
MW-106 (NP)
MW-107 (NP)
MW-108 (NP)
MW-109 (NP)
MW-110
MW-111
MW-112
MW-112R (1.62)
MW-113
MW-114
MW-115
MW-116 (NP)
MW-117
MW-118
MW-119 (NP)
MW-120
MW-121
MW-122 (NP)
MW-123
MW-124
MW-125
MW-126 (NP)
MW-127
MW-128
MW-129 (NP)
MW-130 (0.13)
MW-131 (NP)
MW-132
MW-133 (0.07)
MW-134 (NP)
MW-134X (NP)
MW-135 (NP)
MW-136 (NP)
MW-137 (NP)
MW-138 (NP)
MW-139 (NP)
MW-140 (0.13)
MW-141 (NP)
MW-142 (NP)
MW-143 (NP)
MW-144 (1.52)
MW-145 (NP)
MW-146
MW-147 (NP)
MW-148 (NP)
MW-149 (NP)
MW-150 (NP)
MW-151 (NP)
MW-203 (NP)
MW-301 (NP)
MW-E (NP)
MW-W (0.24)

LEGEND:

- MW-203 — Monitoring Well Location and Designation
- MW-122 — Deep Monitoring Well Location and Designation
- MW-20 — Decommissioned or Abandoned Monitoring Well Location and Designation
- Surveyed Extents of 2001 and 2003 Soil Excavations That Extended Below the Groundwater Table
- Lower Yard Property Boundary
- (1.29) — Apparent Free Product Thickness (feet) on August 25, 2006
- (NP) — No Product Detected
- Approximate Area of Floating Free Product Based on February and August 2006 Data
- General Groundwater Flow Direction

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FIGURE 7
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

APPROXIMATE AREAS OF FLOATING FREE PRODUCT- AUGUST 2006

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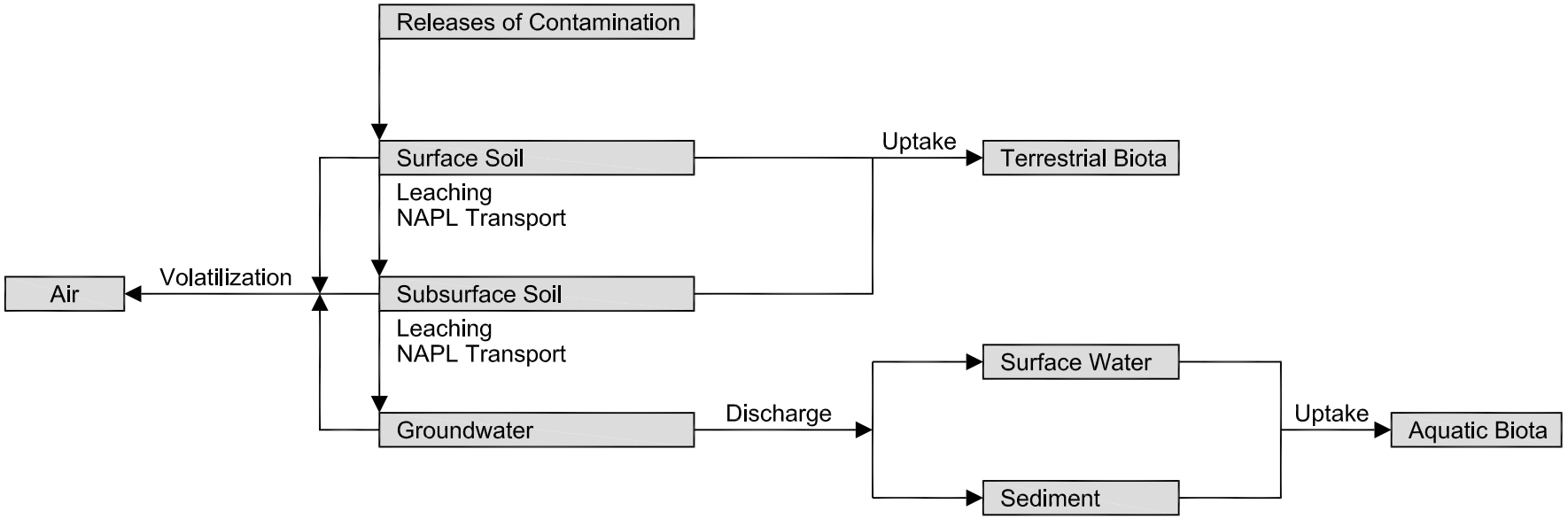

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FIGURE 8
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

TRANSPORT MECHANISMS

Media	Exposure Pathway	Human Receptors					Ecological Receptors	
		Commercial Workers	Commercial Customers	Construction and Utility Workers	Upper Story Residents	Recreational Users of Willow Creek	Terrestrial Biota	Aquatic Biota
Surface soil	Ingestion	X	X	X	X		X	
	Dermal contact	X	X	X	X		X	
	Inhalation of particulates	X	X	X	X		X	
	Uptake						X	
Subsurface soil	Incidental ingestion			X				
	Dermal contact			X				
	Uptake						X	
Groundwater	Incidental ingestion			X				
	Dermal contact			X				
Surface water	Ingestion					X	X	X
	Dermal contact					X	X	X
	Respiration							X
Sediment	Ingestion					X	X	X
	Dermal contact					X	X	X
	Uptake							X
Terrestrial biota	Ingestion						X	
Aquatic biota	Ingestion					X	X	X
Air	Inhalation	X	X	X	X	X	X	

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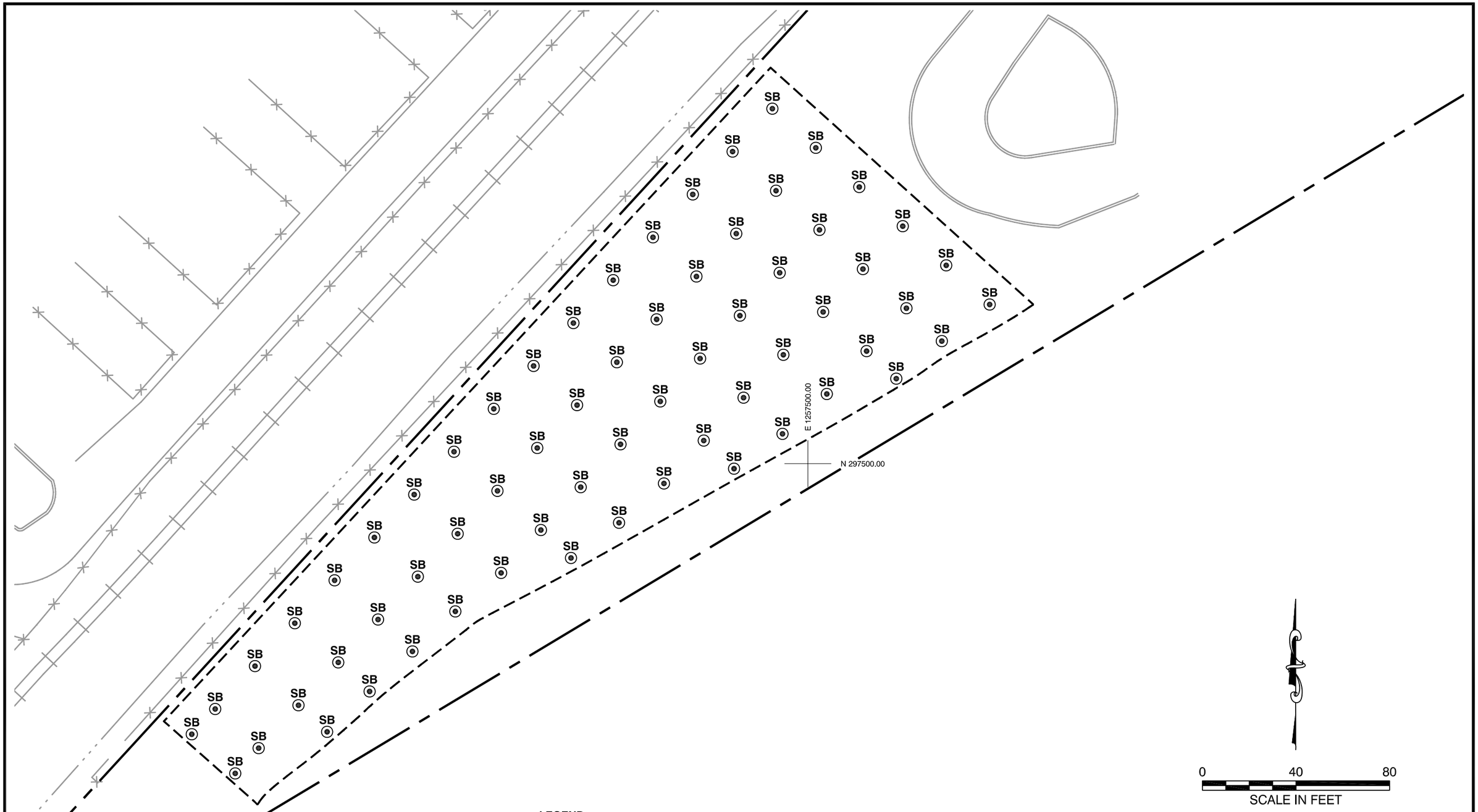
FIGURE 9
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

EXPOSURE ROUTES



LEGEND:

SB ⊙ PROPOSED SOIL BORING LOCATION

SURVEYED EXTENTS OF 2003 SOIL EXCAVATION

LOWER YARD PROPERTY BOUNDARY

0 40 80

SCALE IN FEET

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FIGURE 10
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

PROPOSED SOIL BORING LOCATIONS

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DETENTION BASIN NO. 1 EXCAVATION

EXCAVATION C

EXCAVATION D

DRAINAGE DITCH (WILLOW CREEK)

EXCAVATION B

EDMONDS MARSH

DETENTION BASIN NO. 2

WILLOW CREEK

STORM DRAIN LINE EXCAVATION

SOUTHWEST LOWER YARD EXCAVATION

EXCAVATION A

METALS AREA 3 EXCAVATION

E 1257500.00

N 298000.00

E 1258000.00

N 297500.00

E 1258500.00

N 297500.00

E 1259000.00

N 297500.00

SW-1 & SW-1A (NEAR HATCHERY)

BLVD

FORMER OFFICE

FORMER GARAGE

FORMER WAREHOUSE

CONCRETE SLAB

OIL/WATER SEPARATOR

LEGEND:

SB-105	SOIL BORING LOCATION AND DESIGNATION
MW-122	DEEP MONITORING WELL LOCATION AND DESIGNATION
MW-203	MONITORING WELL LOCATION AND DESIGNATION
SW-1	SURFACE WATER SAMPLING LOCATION AND DESIGNATION
TP-103	RI TEST PIT LOCATION AND DESIGNATION
TP-9	2001 TEST PIT LOCATION AND DESIGNATION
SS-107	SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
US-03	SEDIMENT SAMPLE LOCATION AND DESIGNATION
EX-A-7A	2001 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
DB1-B-27	2003 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
	SURVEYED EXTENTS OF 2001 AND 2003 SOIL EXCAVATIONS
SB-153	SOIL BORING LOCATION AND DESIGNATION THAT WAS SUBSEQUENTLY EXCAVATED
MW-110	ABANDONED OR DESTROYED MONITORING WELL LOCATION AND DESIGNATION
	LOWER YARD PROPERTY BOUNDARY

0 100 200

SCALE IN FEET

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Drawing 1
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

LOWER YARD EXPLORATION MAP

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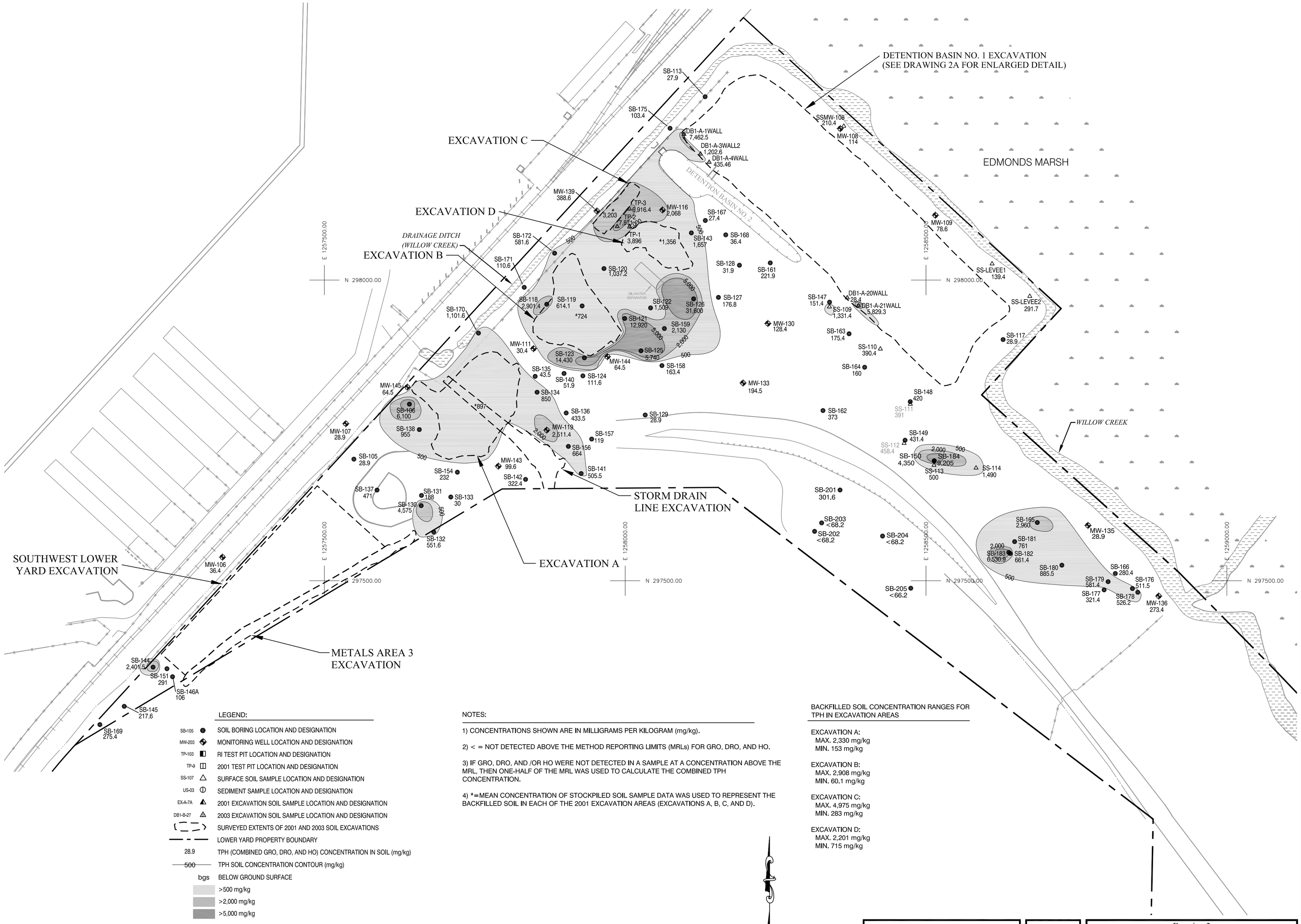

LEGEND:

SB-105 ●	SOIL BORING LOCATION AND DESIGNATION
MW-203 ⊕	MONITORING WELL LOCATION AND DESIGNATION
TP-103 ◧	RI TEST PIT LOCATION AND DESIGNATION
TP-9 ◫	2001 TEST PIT LOCATION AND DESIGNATION
SS-107 △	SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
US-03 ◐	SEDIMENT SAMPLE LOCATION AND DESIGNATION
EX-A-7A ▲	2001 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
DB1-B-27 △	2003 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
	SURVEYED EXTENTS OF 2001 AND 2003 SOIL EXCAVATIONS
	LOWER YARD PROPERTY BOUNDARY
28.9	TPH (COMBINED GRO, DRO, AND HO) CONCENTRATION IN SOIL (mg/kg)
500	TPH SOIL CONCENTRATION CONTOUR (mg/kg)
bgs	BELOW GROUND SURFACE
	>500 mg/kg
	>2,000 mg/kg
	>5,000 mg/kg
*789	= SEE NOTE 4.

NOTES:

1) CONCENTRATIONS SHOWN ARE IN MILLIGRAMS PER KILOGRAM (mg/kg).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMITS (MRLs) FOR GRO, DRO, AND HO.

3) IF GRO, DRO, AND /OR HO WERE NOT DETECTED IN A SAMPLE AT A CONCENTRATION ABOVE THE MRL, THEN ONE-HALF OF THE MRL WAS USED TO CALCULATE THE COMBINED TPH CONCENTRATION.

4) *=MEAN CONCENTRATION OF STOCKPILED SOIL SAMPLE DATA WAS USED TO REPRESENT THE BACKFILLED SOIL IN EACH OF THE 2001 EXCAVATION AREAS (EXCAVATIONS A, B, C, AND D).

BACKFILLED SOIL CONCENTRATION RANGES FOR TPH IN EXCAVATION AREAS

EXCAVATION A:
MAX. 2,330 mg/kg
MIN. 153 mg/kg

EXCAVATION B:
MAX. 2,908 mg/kg
MIN. 60.1 mg/kg

EXCAVATION C:
MAX. 4,975 mg/kg
MIN. 283 mg/kg

EXCAVATION D:
MAX. 2,201 mg/kg
MIN. 715 mg/kg

0 100 200
SCALE IN FEET

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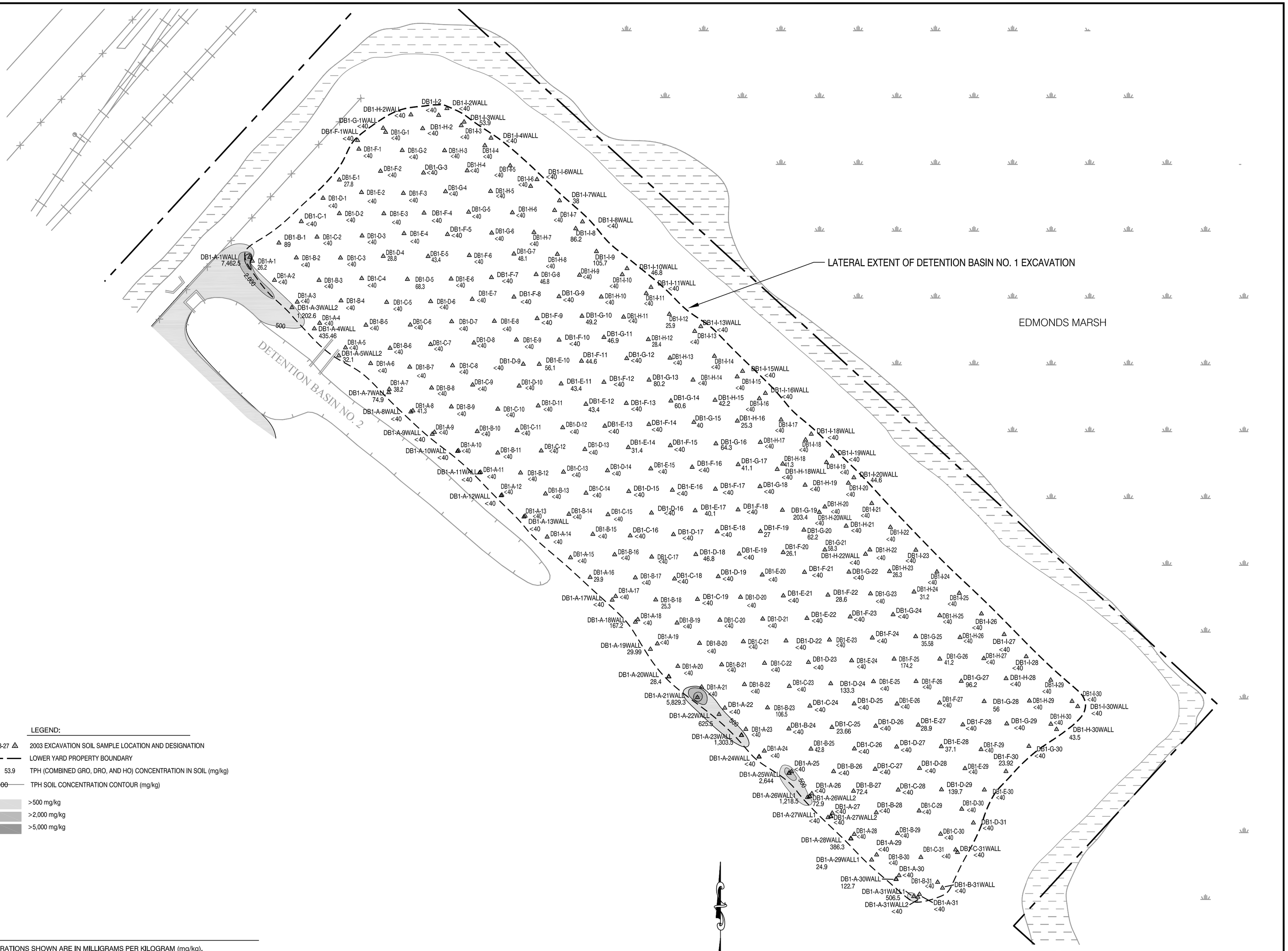
Drawing 2
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

MAXIMUM CONCENTRATIONS OF TPH IN SOIL - 0-3 FOOT DEPTH



NOTES:

1) CONCENTRATIONS SHOWN ARE IN MILLIGRAMS PER KILOGRAM (mg/kg).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMITS (MRLs) FOR GRO, DRO, AND HO.

3) IF GRO, DRO, AND /OR HO WERE NOT DETECTED IN A SAMPLE AT A CONCENTRATION ABOVE THE MRL, THEN ONE-HALF OF THE MRL WAS USED TO CALCULATE THE COMBINED TPH CONCENTRATION.

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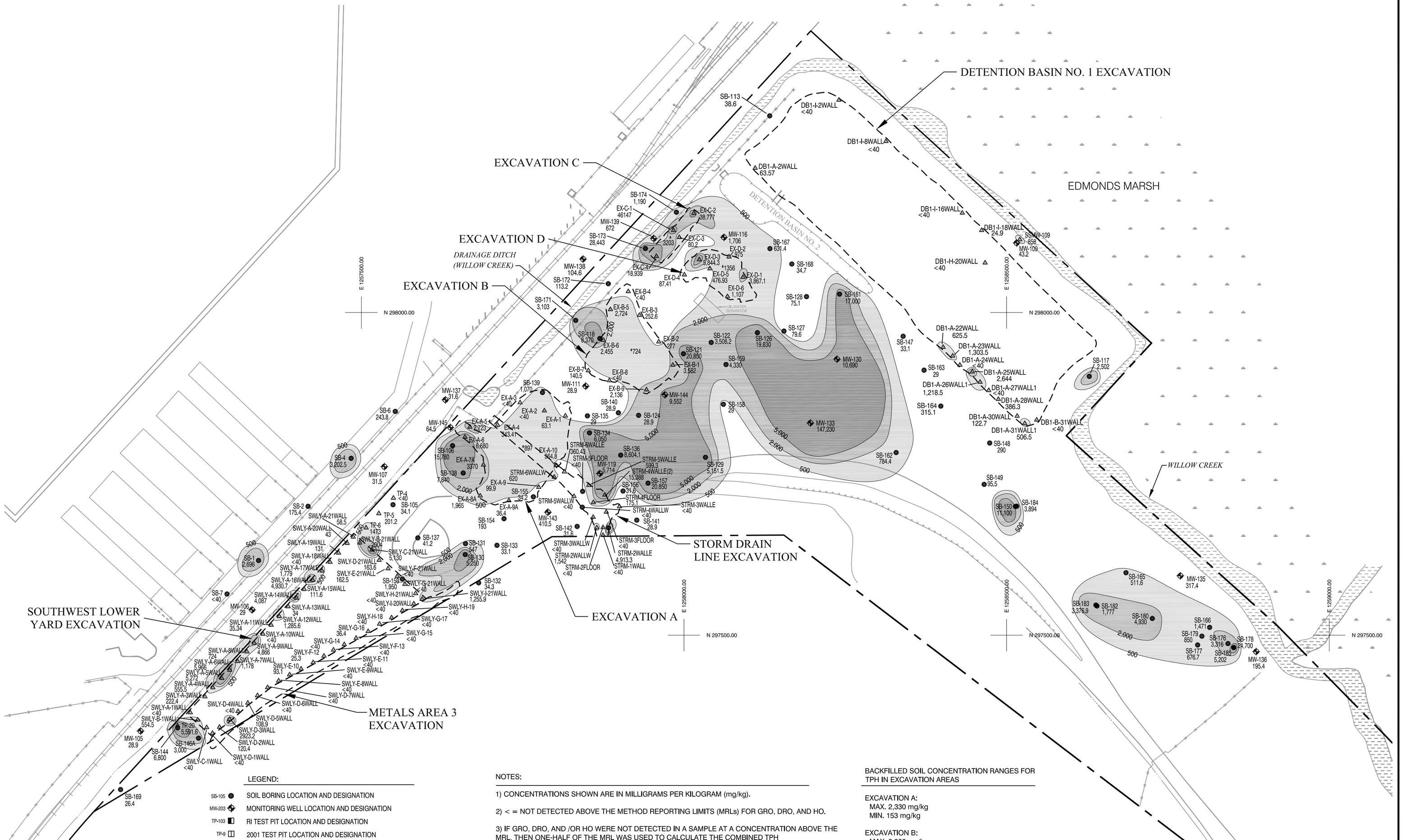
Drawing 2A
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

DETENTION BASIN NO. 1 EXCAVATION - MAXIMUM CONCENTRATIONS OF TPH IN SOIL



LEGEND:

SB-105 ●	SOIL BORING LOCATION AND DESIGNATION
MW-203 ⊕	MONITORING WELL LOCATION AND DESIGNATION
TP-103 ◧	RI TEST PIT LOCATION AND DESIGNATION
TP-9 ◫	2001 TEST PIT LOCATION AND DESIGNATION
SS-107 △	SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
US-03 ⊙	SEDIMENT SAMPLE LOCATION AND DESIGNATION
EX-A-7A ▲	2001 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
DB1-B-27 ◬	2003 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
	SURVEYED EXTENTS OF 2001 AND 2003 SOIL EXCAVATIONS
	LOWER YARD PROPERTY BOUNDARY
120.4	TPH (COMBINED GRO, DRO, AND HO) CONCENTRATION IN SOIL (mg/kg)
500	TPH SOIL CONCENTRATION CONTOUR (mg/kg)
bgs	BELOW GROUND SURFACE
	>500 mg/kg
	>2,000 mg/kg
	>5,000 mg/kg
*789	= SEE NOTE 4.

NOTES:

1) CONCENTRATIONS SHOWN ARE IN MILLIGRAMS PER KILOGRAM (mg/kg).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMITS (MRLs) FOR GRO, DRO, AND HO.

3) IF GRO, DRO, AND /OR HO WERE NOT DETECTED IN A SAMPLE AT A CONCENTRATION ABOVE THE MRL, THEN ONE-HALF OF THE MRL WAS USED TO CALCULATE THE COMBINED TPH CONCENTRATION.

4) *=MEAN CONCENTRATION OF STOCKPILED SOIL SAMPLE DATA WAS USED TO REPRESENT THE BACKFILLED SOIL IN EACH OF THE 2001 EXCAVATION AREAS (EXCAVATIONS A, B, C, AND D).

BACKFILLED SOIL CONCENTRATION RANGES FOR TPH IN EXCAVATION AREAS

EXCAVATION A:
MAX. 2,330 mg/kg
MIN. 153 mg/kg

EXCAVATION B:
MAX. 2,908 mg/kg
MIN. 60.1 mg/kg

EXCAVATION C:
MAX. 4,975 mg/kg
MIN. 283 mg/kg

EXCAVATION D:
MAX. 2,201 mg/kg
MIN. 715 mg/kg

0 100 200
SCALE IN FEET

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Drawing 3
UNOCAL EDMONDS TERMINAL
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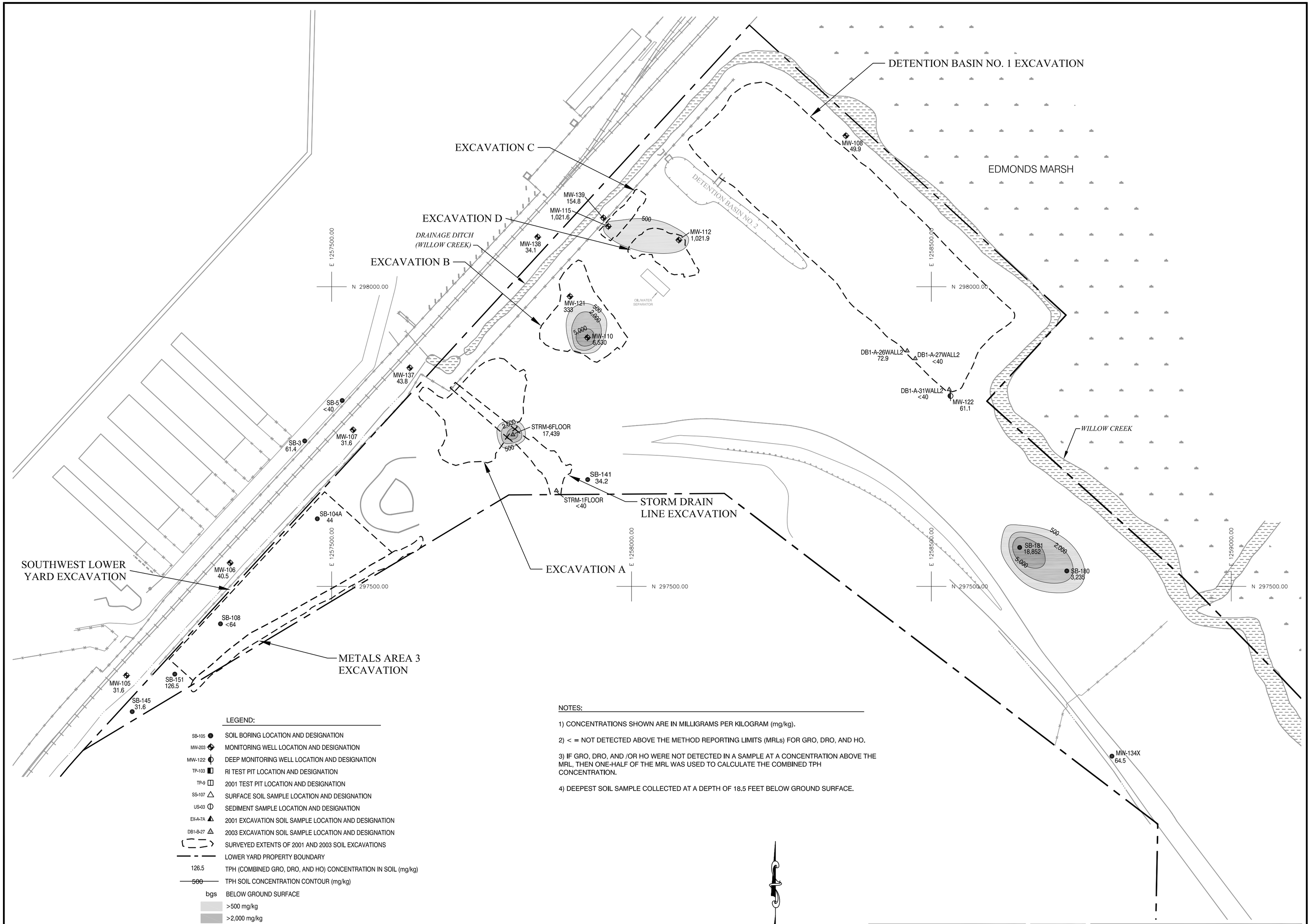
MAXIMUM CONCENTRATIONS OF TPH IN SOIL - 3-6 FOOT DEPTH



LEGEND:

SB-105	SOIL BORING LOCATION AND DESIGNATION
MW-203	MONITORING WELL LOCATION AND DESIGNATION
MW-122	DEEP MONITORING WELL LOCATION AND DESIGNATION
TP-103	RI TEST PIT LOCATION AND DESIGNATION
TP-9	2001 TEST PIT LOCATION AND DESIGNATION
SS-107	SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
US-03	SEDIMENT SAMPLE LOCATION AND DESIGNATION
EX-A-7A	2001 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
DB1-B-27	2003 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
	SURVEYED EXTENTS OF 2001 AND 2003 SOIL EXCAVATIONS
	LOWER YARD PROPERTY BOUNDARY
126.5	TPH (COMBINED GRO, DRO, AND HO) CONCENTRATION IN SOIL (mg/kg)
500	TPH SOIL CONCENTRATION CONTOUR (mg/kg)
bgs	BELOW GROUND SURFACE
	>500 mg/kg
	>2,000 mg/kg
	>5,000 mg/kg

NOTES:

1) CONCENTRATIONS SHOWN ARE IN MILLIGRAMS PER KILOGRAM (mg/kg).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMITS (MRLs) FOR GRO, DRO, AND HO.

3) IF GRO, DRO, AND /OR HO WERE NOT DETECTED IN A SAMPLE AT A CONCENTRATION ABOVE THE MRL, THEN ONE-HALF OF THE MRL WAS USED TO CALCULATE THE COMBINED TPH CONCENTRATION.

4) DEEPEST SOIL SAMPLE COLLECTED AT A DEPTH OF 18.5 FEET BELOW GROUND SURFACE.

0 100 200
SCALE IN FEET

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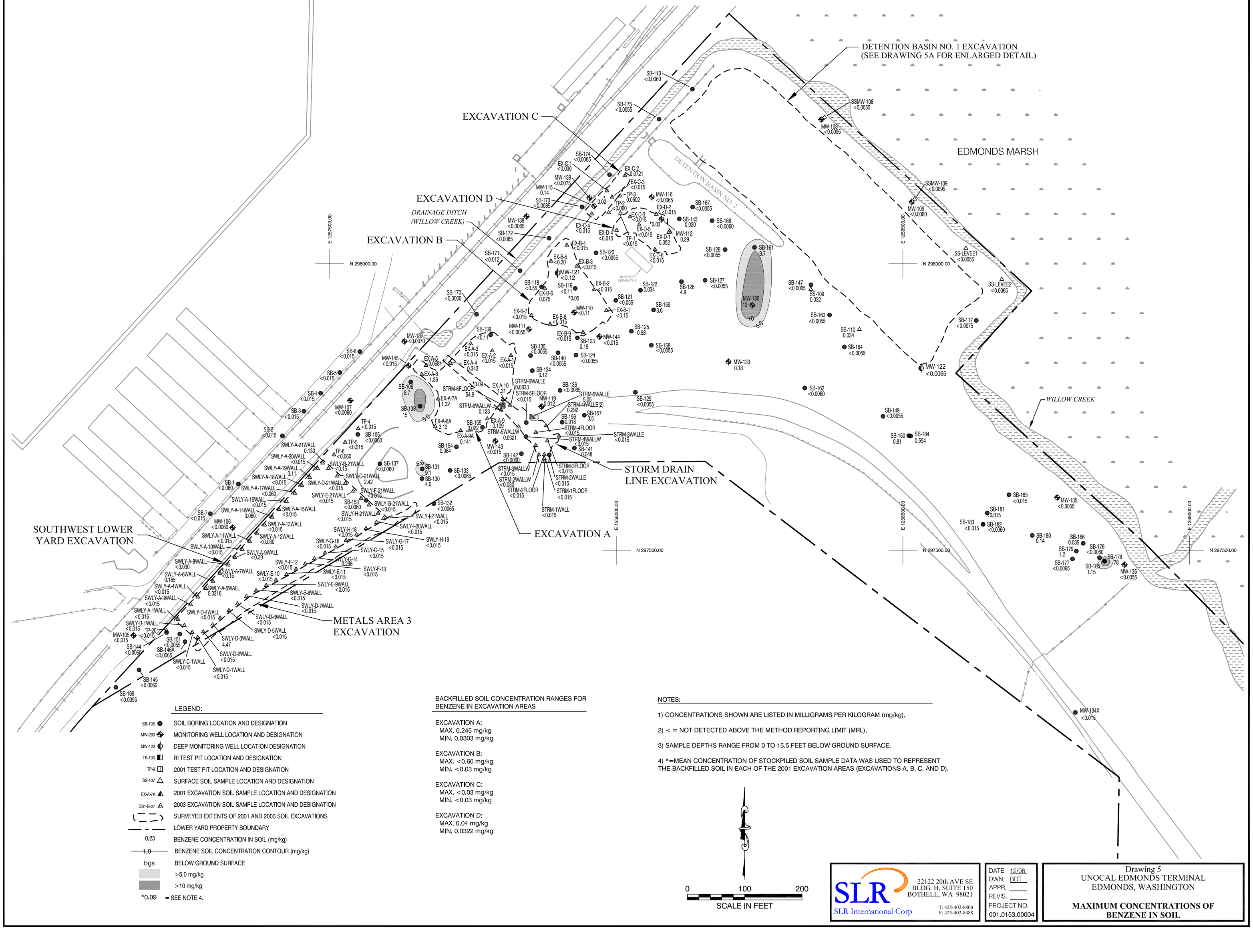
Drawing 4
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

MAXIMUM CONCENTRATIONS OF TPH IN SOIL - 6+ FOOT DEPTH



LEGEND:

- SB-105 — SOIL BORING LOCATION AND DESIGNATION
- MW-203 — MONITORING WELL LOCATION AND DESIGNATION
- MW-122 — DEEP MONITORING WELL LOCATION DESIGNATION
- TP-103 — RI TEST PIT LOCATION AND DESIGNATION
- TP-9 — 2001 TEST PIT LOCATION AND DESIGNATION
- SS-107 — SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
- EX-A-7A — 2001 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
- DB1-B-27 — 2003 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
- SURVEYED EXTENTS OF 2001 AND 2003 SOIL EXCAVATIONS
- LOWER YARD PROPERTY BOUNDARY
- 0.23 — BENZENE CONCENTRATION IN SOIL (mg/kg)
- 1.0 — BENZENE SOIL CONCENTRATION CONTOUR (mg/kg)
- bgs — BELOW GROUND SURFACE
- >5.0 mg/kg
- >10 mg/kg
- *0.09 = SEE NOTE 4.

BACKFILLED SOIL CONCENTRATION RANGES FOR BENZENE IN EXCAVATION AREAS

EXCAVATION A:
MAX. 0.245 mg/kg
MIN. 0.0303 mg/kg

EXCAVATION B:
MAX. <0.60 mg/kg
MIN. <0.03 mg/kg

EXCAVATION C:
MAX. <0.03 mg/kg
MIN. <0.03 mg/kg

EXCAVATION D:
MAX. 0.04 mg/kg
MIN. 0.0322 mg/kg

NOTES:

1) CONCENTRATIONS SHOWN ARE LISTED IN MILLIGRAMS PER KILOGRAM (mg/kg).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMIT (MRL).

3) SAMPLE DEPTHS RANGE FROM 0 TO 15.5 FEET BELOW GROUND SURFACE.

4) *=MEAN CONCENTRATION OF STOCKPILED SOIL SAMPLE DATA WAS USED TO REPRESENT THE BACKFILLED SOIL IN EACH OF THE 2001 EXCAVATION AREAS (EXCAVATIONS A, B, C, AND D).

0 100 200
SCALE IN FEET

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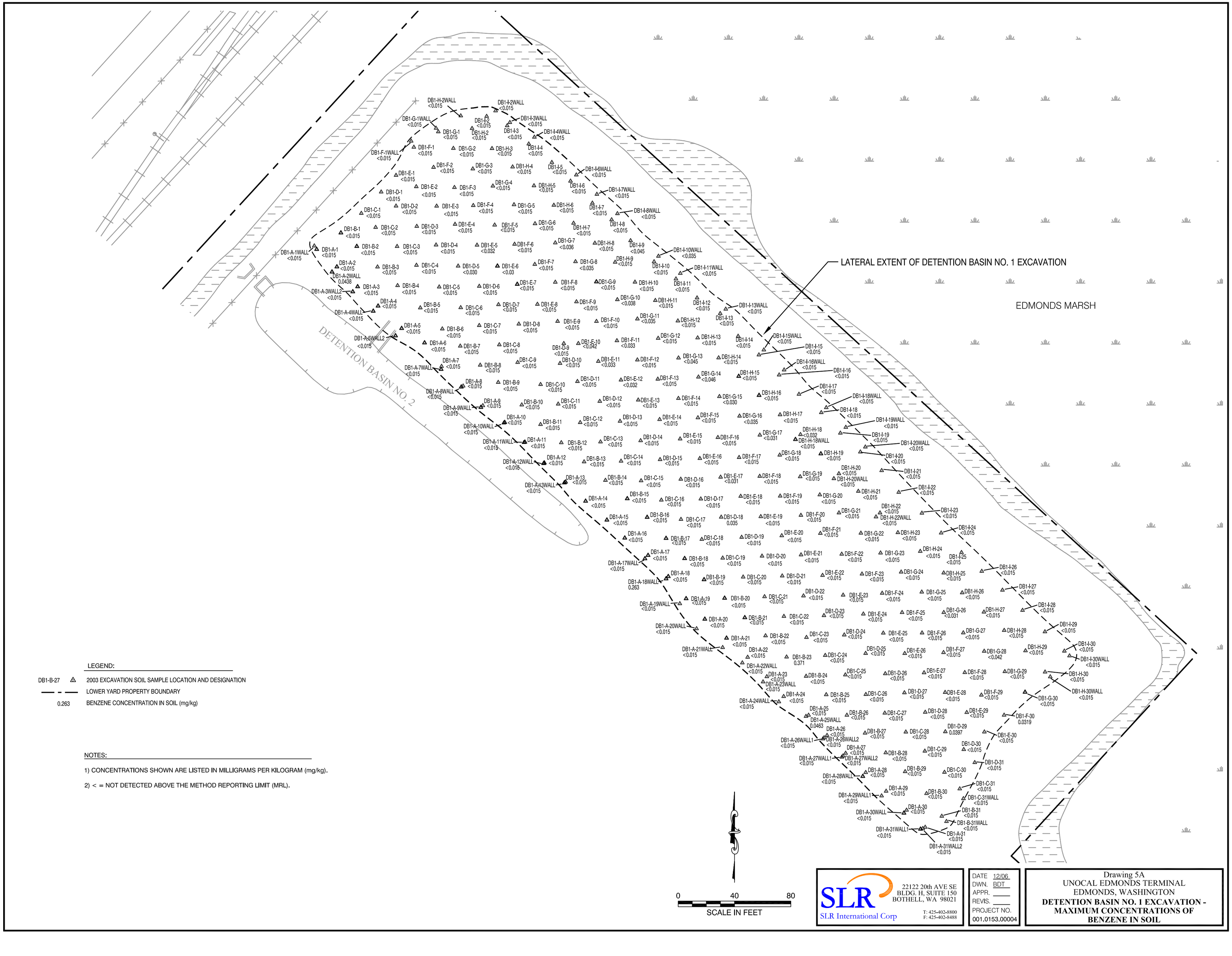
Drawing 5
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

MAXIMUM CONCENTRATIONS OF BENZENE IN SOIL



LEGEND:

DB1-B-27 △ 2003 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION

LOWER YARD PROPERTY BOUNDARY

0.263 BENZENE CONCENTRATION IN SOIL (mg/kg)

NOTES:

1) CONCENTRATIONS SHOWN ARE LISTED IN MILLIGRAMS PER KILOGRAM (mg/kg).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMIT (MRL).

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Drawing 5A
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
DETENTION BASIN NO. 1 EXCAVATION - MAXIMUM CONCENTRATIONS OF BENZENE IN SOIL

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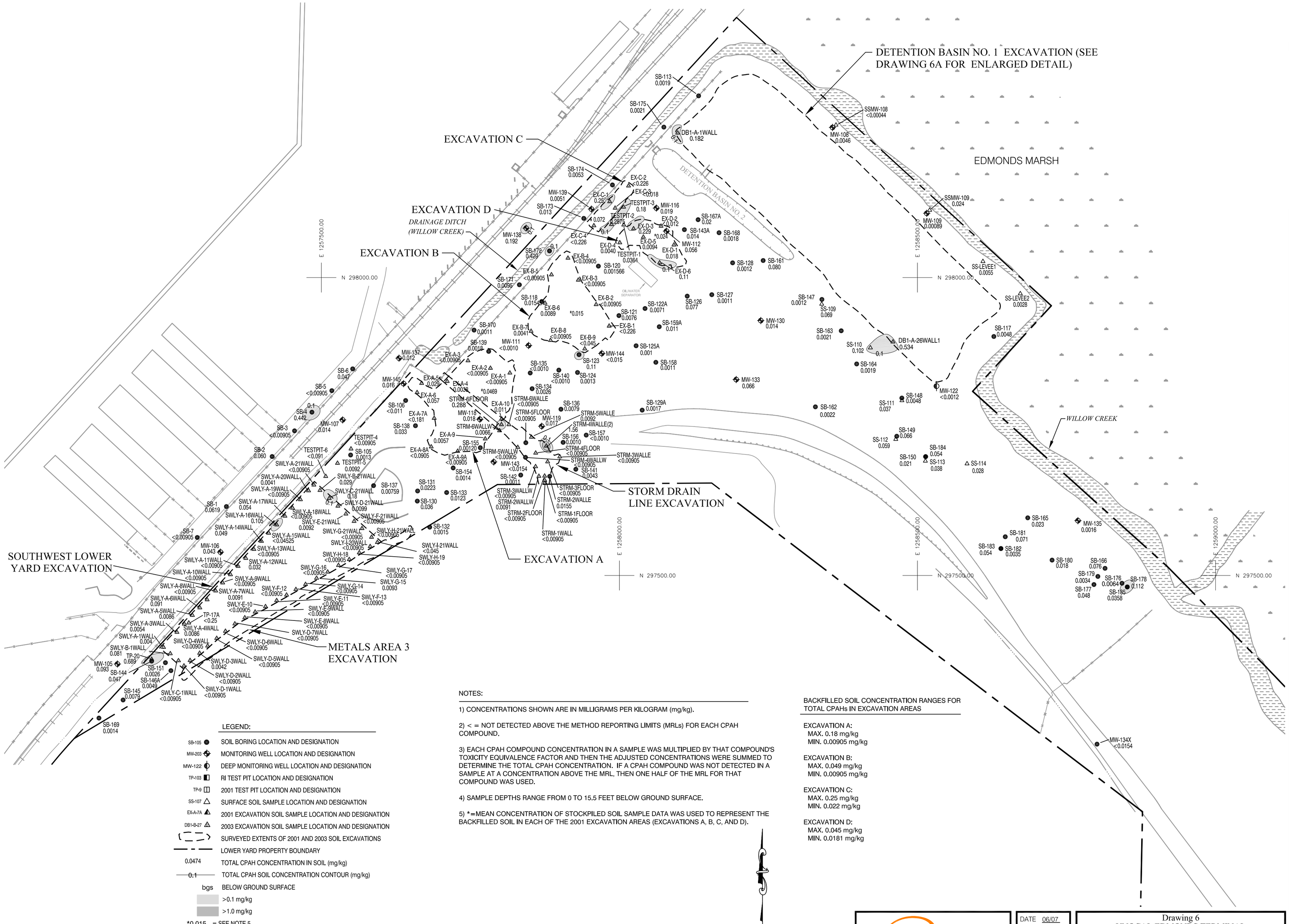

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Drawing 6
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

MAXIMUM CONCENTRATIONS OF TOTAL CPAHs IN SOIL

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LEGEND:

DB1-B-27 △ 2003 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION

LOWER YARD PROPERTY BOUNDARY

0.092 TOTAL CPAH CONCENTRATION IN SOIL (mg/kg)

0.1 TOTAL CPAH SOIL CONCENTRATION CONTOUR (mg/kg)

>0.1 mg/kg

>1.0 mg/kg

NOTES:

1) CONCENTRATIONS SHOWN ARE LISTED IN MILLIGRAMS PER KILOGRAM (mg/kg).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMIT (MRL) FOR EACH CPAH COMPOUND.

3) EACH CPAH COMPOUND CONCENTRATION IN A SAMPLE WAS MULTIPLIED BY THAT COMPOUND'S TOXICITY EQUIVALENCE FACTOR AND THEN THE ADJUSTED CONCENTRATIONS WERE SUMMED TO DETERMINE THE TOTAL CPAH CONCENTRATION. IF A CPAH COMPOUND WAS NOT DETECTED IN A SAMPLE AT A CONCENTRATION ABOVE THE MRL, THEN ONE HALF OF THE MRL FOR THAT COMPOUND WAS USED.

SCALE IN FEET

0 40 80

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Drawing 6A
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
DETENTION BASIN NO. 1 EXCAVATION - MAXIMUM CONCENTRATIONS OF TOTAL CPAHs IN SOIL

EDMONDS MARSH

DETENTION BASIN NO. 2

LATERAL EXTENT OF DETENTION BASIN NO. 1 EXCAVATION

0 40 80
SCALE IN FEET

SWLY-A-21WALL 3.15
SWLY-B-21WALL 1.64
SWLY-A-20WALL 8.25
SWLY-C-21WALL 2.96
SWLY-A-19WALL 3.14
SWLY-D-21WALL 3.98
SWLY-A-18WALL 1.92
SWLY-E-21WALL 3.15
SWLY-A-17WALL 8.91
SWLY-F-21WALL 2.43
SWLY-A-16WALL 0.862
SWLY-G-21WALL 3.64
SWLY-A-15WALL 1.8
SWLY-H-21WALL 2.87
SWLY-A-14WALL <0.25
SWLY-I-21WALL 6.29
SWLY-A-13WALL 3.13
SWLY-I-20WALL 6.67
SWLY-A-12WALL 3.46
SWLY-H-19 5.17
SWLY-A-11WALL 4.56
SWLY-H-18 4.5
SWLY-A-10WALL 2.93
SWLY-G-17 7.14
SWLY-A-9WALL 4.43
SWLY-G-16 4.31
SWLY-A-8WALL 2.35
SWLY-G-15 2.64
SWLY-A-7WALL 2.5
SWLY-G-14 5.57
SWLY-A-6WALL 2.67
SWLY-F-13 2.2
SWLY-A-5WALL 2.89
SWLY-F-12 1.63
SWLY-A-4WALL 9.17
SWLY-E-11 1.4
SWLY-A-3WALL 3.4
SWLY-E-10 2.02
SWLY-E-9WALL 1.86
SWLY-E-8WALL 1.76
SWLY-D-7WALL 5.68
SWLY-D-6WALL 3.41
SWLY-D-5WALL 3.46
SWLY-D-4WALL 1.8
SWLY-A-1WALL 3.92
SWLY-D-3WALL 2.13
SWLY-B-1WALL 4.83
SWLY-D-2WALL 2.26
SWLY-C-1WALL 2.34
SWLY-D-1WALL 2.47
SS-106 1,900
20
3-A-1 5.68
3-A-3 8.73
3-B-2 3.19
3-B-4 7.45
3-A-5 10.3
3-B-6 3.59
3-A-7 6.83
3-B-8 4.55
3-A-9 4.93
3-B-10 14.3
3-A-11 6.18
3-B-12 1.69
3-A-13 4.27
3-B-14 5.35
3-A-15 5.49
3-B-16 1.95
3-A-17 4.99
3-B-18 12.1
3-A-19 5.23
3-B-20 2.19
3-A-21 2.12
3-A-23 5.73
3-B-22 2.9
3-B-24 3.83

E 1257500.00
N 298000.00
E 1258500.00
N 298000.00
E 1258000.00
N 297500.00
E 1258500.00
N 297500.00

DETENTION BASIN NO. 1 EXCAVATION
(SEE DRAWING 7A FOR ENLARGED DETAIL)

EDMONDS MARSH

DETENTION BASIN NO. 2

EXCAVATION C

DRAINAGE DITCH (WILLOW CREEK)

OIL/WATER SEPARATOR

EXCAVATION D

EXCAVATION B

WILLOW CREEK

SB-184 3.19
SB-150 0.81
SB-183 4.54
SB-185 5.51
SS-108 11

STORM DRAIN LINE EXCAVATION

EXCAVATION A

SOUTHWEST LOWER YARD EXCAVATION
(SEE ENLARGED DETAIL ON THIS SHEET)

METALS AREA 3 EXCAVATION
(SEE ENLARGED DETAIL ON THIS DRAWING)

LEGEND:

SB-105 ●	SOIL BORING LOCATION AND DESIGNATION
MW-203 ⊕	MONITORING WELL LOCATION AND DESIGNATION
TP-103 ◧	RI TEST PIT LOCATION AND DESIGNATION
TP-9 ◫	2001 TEST PIT LOCATION AND DESIGNATION
SS-107 △	SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
EX-A-7A ▲	2001 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
DB1-B-27 ◬	2003 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
	SURVEYED EXTENTS OF 2001 AND 2003 SOIL EXCAVATIONS
	LOWER YARD PROPERTY BOUNDARY
2.34	ARSENIC CONCENTRATION IN SOIL (mg/kg)
20	ARSENIC SOIL CONCENTRATION CONTOUR (mg/kg)
	> 20 mg/kg

NOTES:

1) CONCENTRATIONS SHOWN ARE LISTED IN MILLIGRAMS PER KILOGRAM (mg/kg).

2) < = NOT DETECTED AT OR ABOVE THE METHOD REPORTING LIMIT (MRL).

3) SAMPLE DEPTHS RANGED FROM 0 TO 6.0 FEET BELOW GROUND SURFACE.

0 100 200
SCALE IN FEET

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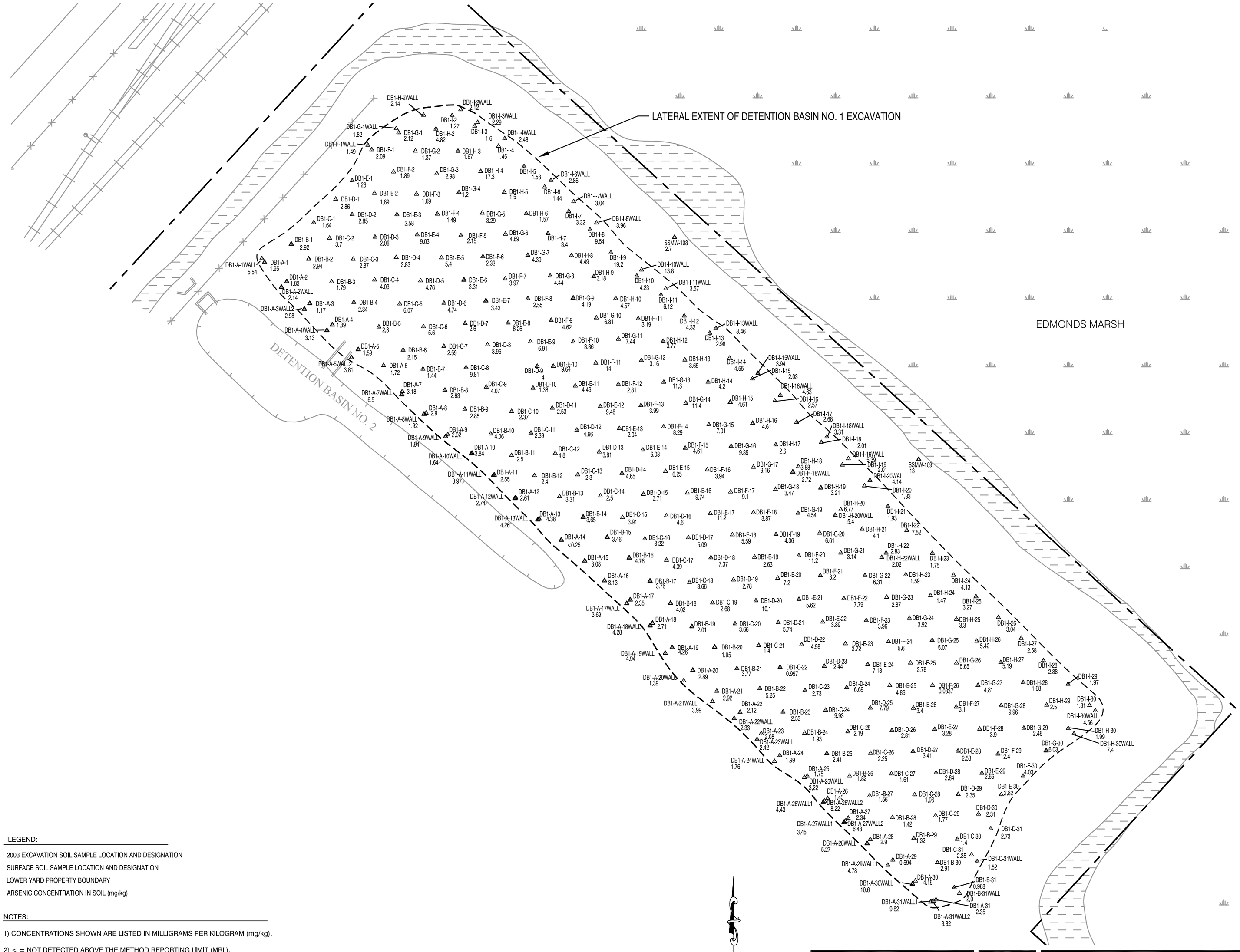
Drawing 7
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

MAXIMUM CONCENTRATIONS OF ARSENIC IN SOIL



LEGEND:

DB1-B-27	△	2003 EXCAVATION SOIL SAMPLE LOCATION AND DESIGNATION
SSMW-109	△	SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
— — —		LOWER YARD PROPERTY BOUNDARY
9.81		ARSENIC CONCENTRATION IN SOIL (mg/kg)

NOTES:

1) CONCENTRATIONS SHOWN ARE LISTED IN MILLIGRAMS PER KILOGRAM (mg/kg).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMIT (MRL).

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Drawing 7A
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EDMONDS, WASHINGTON
DETENTION BASIN NO. 1 EXCAVATION - MAXIMUM CONCENTRATION OF ARSENIC IN SOIL

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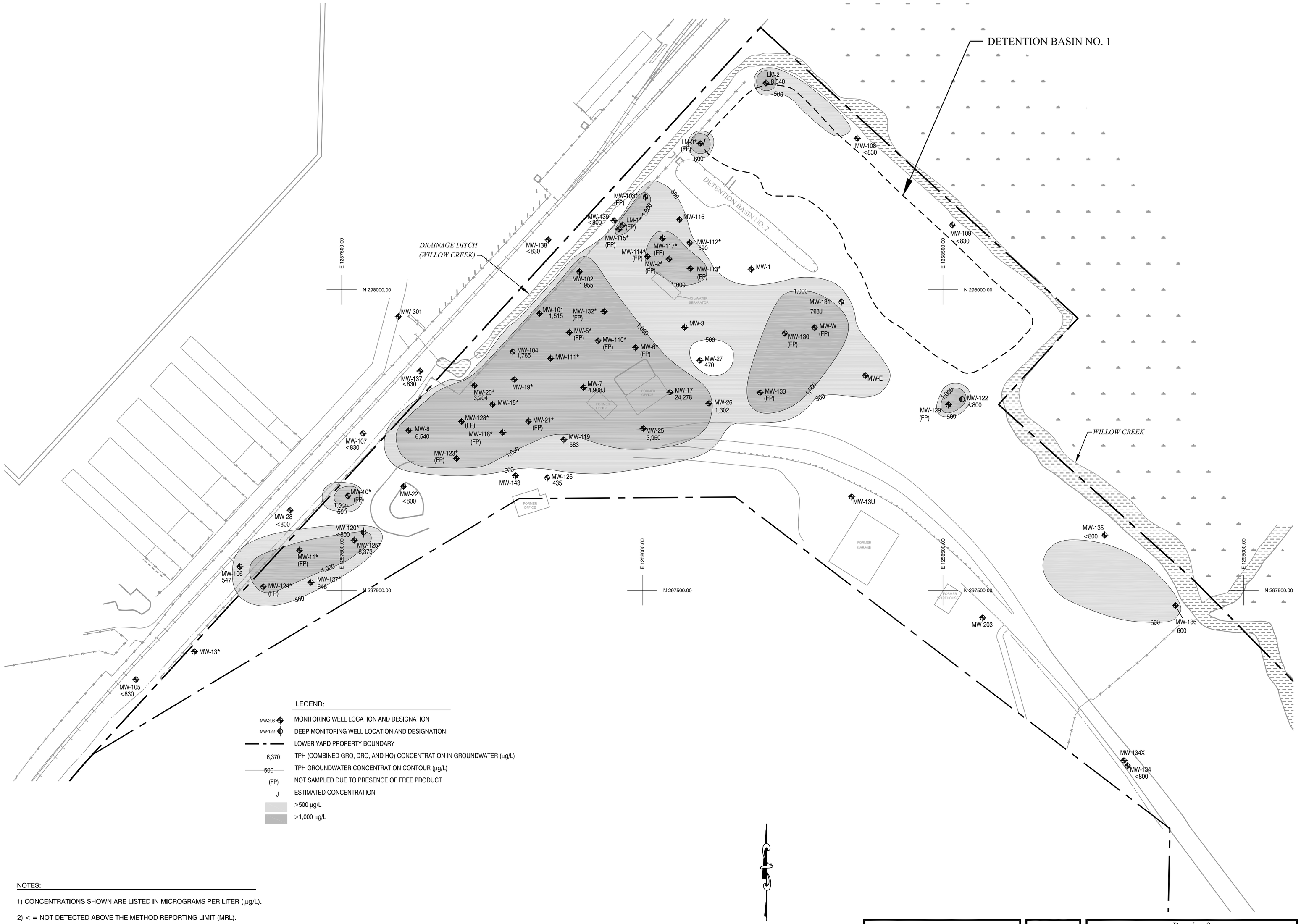

LEGEND:

MW-203	MONITORING WELL LOCATION AND DESIGNATION
MW-122	DEEP MONITORING WELL LOCATION AND DESIGNATION
	LOWER YARD PROPERTY BOUNDARY
6,370	TPH (COMBINED GRO, DRO, AND HO) CONCENTRATION IN GROUNDWATER (µg/L)
500	TPH GROUNDWATER CONCENTRATION CONTOUR (µg/L)
(FP)	NOT SAMPLED DUE TO PRESENCE OF FREE PRODUCT
J	ESTIMATED CONCENTRATION
	>500 µg/L
	>1,000 µg/L

NOTES:

1) CONCENTRATIONS SHOWN ARE LISTED IN MICROGRAMS PER LITER (µg/L).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMIT (MRL).

3) IF GRO, DRO, AND/OR HO WERE NOT DETECTED IN A SAMPLE AT A CONCENTRATION ABOVE THE MRL, THEN ONE-HALF OF THE MRL WAS USED TO CALCULATE THE COMBINED TPH CONCENTRATIONS.

4) *=WELL WAS SUBSEQUENTLY ABANDONED OR DESTROYED DURING 2001 OR 2003 INTERIM ACTION.

0 100 200
SCALE IN FEET

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Drawing 8
UNOCAL EDMONDS TERMINAL
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TPH CONCENTRATIONS IN GROUNDWATER JUNE 2001 SAMPLING EVENT

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DETENTION BASIN NO. 1 EXCAVATION

EXCAVATION C

EXCAVATION D

EXCAVATION B

SOUTHWEST LOWER YARD EXCAVATION

STORM DRAIN LINE EXCAVATION

EXCAVATION A

METALS AREA 3 EXCAVATION

EDMONDS MARSH

DETENTION BASIN NO. 2

DRAINAGE DITCH (WILLOW CREEK)

WILLOW CREEK

OIL/WATER SEPARATOR

E 1257500.00
N 298000.00

E 1258500.00
N 298000.00

E 1258000.00
N 297500.00

E 1257500.00
N 297500.00

E 1259000.00
N 297500.00

LM-2 <404
LM-3
MW-108 <404
MW-109 <404
MW-103R 915
MW-103
MW-139 <405
MW-116 1,368
MW-112R (FP)
MW-115
MW-117
MW-112
MW-138 <379
MW-142 790
MW-114
MW-2
MW-1 <404
MW-102
MW-102R
MW-113
MW-301
MW-101 <379
MW-121
MW-132
MW-131 3,076
MW-W (FP)
MW-130 (FP)
MW-141 666
MW-5
MW-3 898
MW-110
MW-6
MW-20R 3,664
MW-104 598
MW-111
MW-144 (FP)
MW-27 <404
MW-E <411
MW-137 <379
MW-19
MW-7R 908
MW-7
MW-17
MW-17R (FP)
MW-133 (FP)
MW-129 678
MW-122 <411
MW-145 643
MW-20
MW-15
MW-128
MW-118
MW-21
MW-26 <404
MW-8 1,544
MW-25 (FP)
MW-107 <379
MW-140 (FP)
MW-119 570
MW-123
MW-143 <404
MW-147 535
MW-126 <379
MW-10
MW-22 <404
MW-13U <395
MW-28 <379
MW-120
MW-148 <404
MW-125
MW-146
MW-151 <404
MW-11
MW-135 <379
MW-106 <379
MW-124
MW-127
MW-149 <404
MW-203 <395
MW-136 <379
MW-13
MW-150 <404
MW-105 <379
MW-134X <404
MW-134 474

1,000
500

LEGEND:

- MW-203 — MONITORING WELL LOCATION AND DESIGNATION
- MW-122 — DEEP MONITORING WELL LOCATION AND DESIGNATION
- MW-20 — DECOMMISSIONED OR ABANDONED MONITORING WELL LOCATION AND DESIGNATION
- SURVEYED EXTENTS OF 2001 AND SUBSEQUENT 2003 SOIL EXCAVATIONS THAT EXTENDED BELOW THE GROUNDWATER TABLE
- LOWER YARD PROPERTY BOUNDARY
- 681.2 — TPH (COMBINED GRO, DRO, AND HO) CONCENTRATION IN GROUNDWATER (µg/L)
- (FP) — NOT SAMPLED DUE TO PRESENCE OF FREE PRODUCT
- 500 — TPH GROUNDWATER CONCENTRATION CONTOUR (µg/L)
- >500 µg/L
- >1,000 µg/L

NOTES:

1) CONCENTRATIONS SHOWN ARE LISTED IN MICROGRAMS PER LITER (µg/L).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMIT (MRL).

3) IF GRO, DRO, AND/OR HO WERE NOT DETECTED IN A SAMPLE AT A CONCENTRATION ABOVE THE MRL, THEN ONE-HALF OF THE MRL WAS USED TO CALCULATE THE COMBINED TPH CONCENTRATIONS.

0 100 200
SCALE IN FEET

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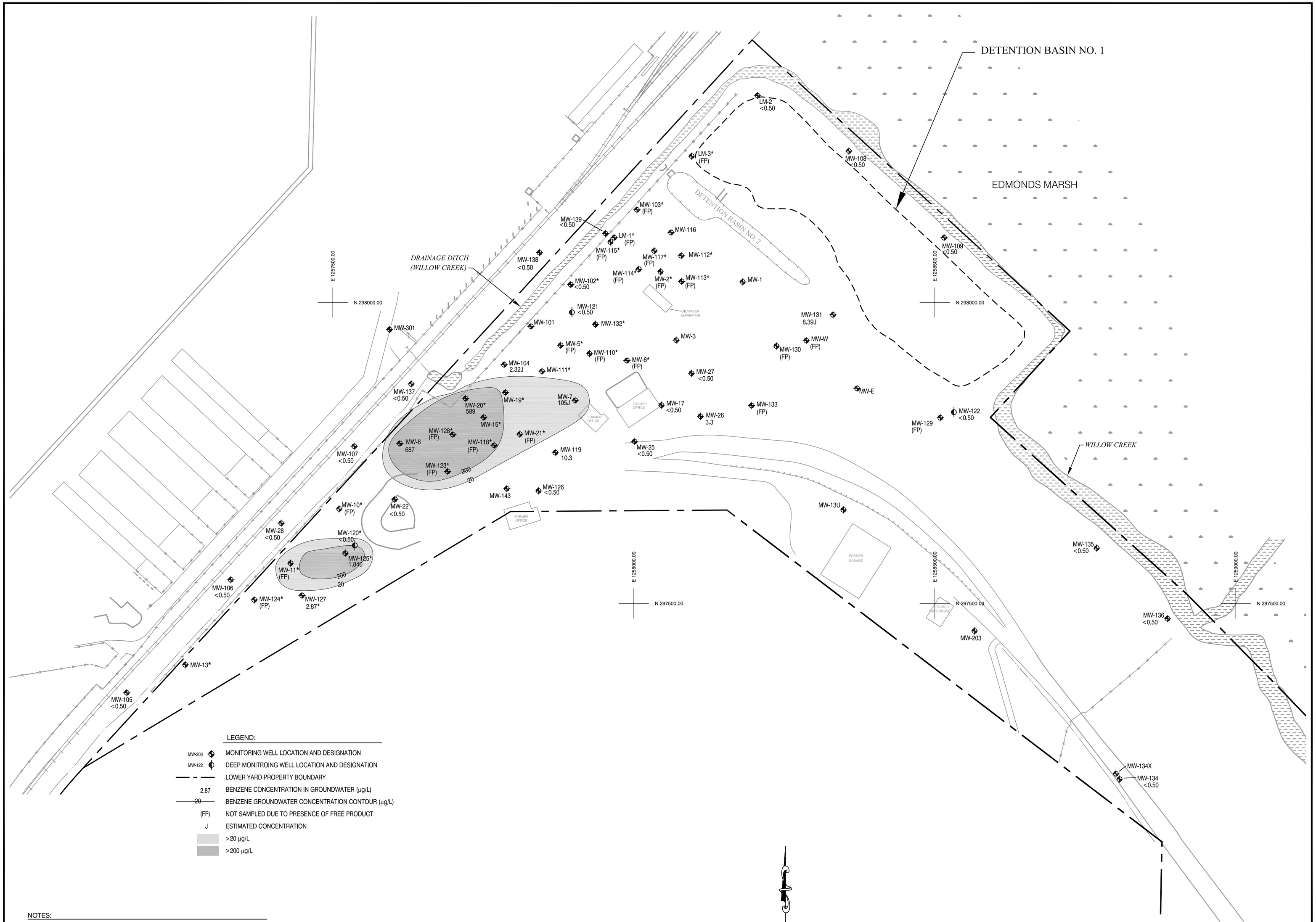
Drawing 9
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

TPH CONCENTRATIONS IN GROUNDWATER - FALL 2006 SAMPLING EVENT



LEGEND:

MW-203	MONITORING WELL LOCATION AND DESIGNATION
MW-122	DEEP MONITROING WELL LOCATION AND DESIGNATION
	LOWER YARD PROPERTY BOUNDARY
2.87	BENZENE CONCENTRATION IN GROUNDWATER (µg/L)
20	BENZENE GROUNDWATER CONCENTRATION CONTOUR (µg/L)
(FP)	NOT SAMPLED DUE TO PRESENCE OF FREE PRODUCT
J	ESTIMATED CONCENTRATION
	>20 µg/L
	>200 µg/L

NOTES:

1) CONCENTRATIONS SHOWN ARE LISTED IN MICROGRAMS PER LITER (mg/L).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMIT (MRL).

3) *=WELL WAS SUBSEQUENTLY ABANDONED OR DESTROYED DURING 2001 OR 2003 INTERIM ACTION.

0 100 200
SCALE IN FEET

SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 12/06
DWN. BDT
APPR. ____
REVIS. ____
PROJECT NO.
001.0153.00004

Drawing 10
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

BENZENE CONCENTRATIONS IN GROUNDWATER - JUNE 2001 SAMPLING EVENT

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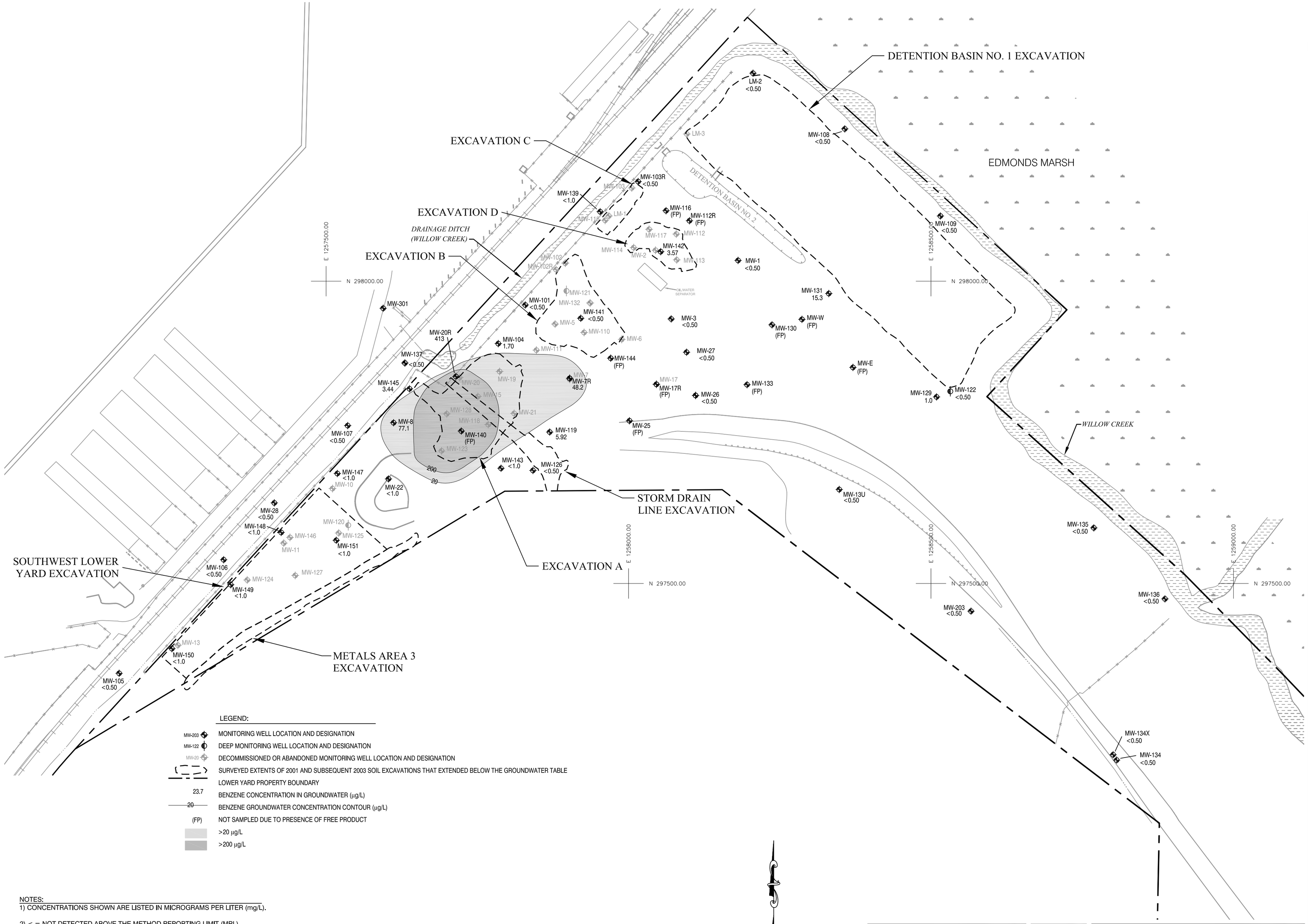

LEGEND:

- MW-203 — MONITORING WELL LOCATION AND DESIGNATION
- MW-122 — DEEP MONITORING WELL LOCATION AND DESIGNATION
- MW-20 — DECOMMISSIONED OR ABANDONED MONITORING WELL LOCATION AND DESIGNATION
- SURVEYED EXTENTS OF 2001 AND SUBSEQUENT 2003 SOIL EXCAVATIONS THAT EXTENDED BELOW THE GROUNDWATER TABLE
- LOWER YARD PROPERTY BOUNDARY
- 23.7 — BENZENE CONCENTRATION IN GROUNDWATER (µg/L)
- 20 — BENZENE GROUNDWATER CONCENTRATION CONTOUR (µg/L)
- (FP) — NOT SAMPLED DUE TO PRESENCE OF FREE PRODUCT
- >20 µg/L
- >200 µg/L

NOTES:

1) CONCENTRATIONS SHOWN ARE LISTED IN MICROGRAMS PER LITER (mg/L).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMIT (MRL).

3) EACH CPAH COMPOUND IN A SAMPLE WAS MULTIPLIED BY THAT COMPOUND'S TOXICITY EQUIVALENCE FACTOR AND THEN THE ADJUSTED CONCENTRATIONS WERE SUMMED TO DETERMINE THE TOTAL CPAH CONCENTRATION. IF A CPAH COMPOUND WAS NOT DETECTED IN A SAMPLE AT A CONCENTRATION ABOVE THE MRL, THEN ONE HALF OF THE MRL FOR THAT COMPOUND WAS USED.

0 100 200
SCALE IN FEET

SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

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APPR. ____
REVIS. ____
PROJECT NO.
001.0153.00004

Drawing 11
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
BENZENE CONCENTRATIONS IN GROUNDWATER - FALL 2006 SAMPLING EVENT

DETENTION BASIN NO. 1

EDMONDS MARSH

DETENTION BASIN NO. 2

DRAINAGE DITCH (WILLOW CREEK)

WILLOW CREEK

E 1257500.00

N 298000.00

E 1258500.00

N 298000.00

E 1257500.00

N 297500.00

E 1258000.00

N 297500.00

E 1258500.00

N 297500.00

E 1259000.00

N 297500.00

OIL/WATER SEPARATOR

FORMER OFFICE

FORMER OFFICE

FORMER OFFICE

FORMER GARAGE

FORMER WAREHOUSE

LM-2 <0.905

LM-3* (FP)

MW-108 <0.0905

MW-109 <0.0905

MW-139 <0.0905

MW-103* (FP)

LM-1* (FP)

MW-116

MW-117* (FP)

MW-115* (FP)

MW-112 <0.0905

MW-138 <0.0905

MW-114* (FP)

MW-2* (FP)

MW-102* <0.0905

MW-113* (FP)

MW-1

MW-131 <0.0905

MW-121 <0.0905

MW-301

MW-101 <0.0905

MW-132* (FP)

MW-3

MW-W (FP)

MW-130 (FP)

MW-5* (FP)

MW-110* (FP)

MW-6* (FP)

MW-104 <0.0905

MW-111*

MW-27

MW-E

MW-137 <0.0905

MW-20* <0.0905

MW-19*

MW-7 <0.905

MW-17

MW-133 (FP)

MW-15*

MW-26

MW-129

MW-122 <0.0905

0.01

MW-8 0.42

MW-128* (FP)

MW-21* (FP)

MW-107 <0.0905

MW-118* (FP)

MW-119 <0.0905

MW-25

MW-123* (FP)

MW-126 <0.0905

MW-10* (FP)

MW-22 <0.0905

MW-13U <0.0905

MW-28 <0.0905

MW-120* <0.0905

MW-125* <0.453

MW-135 <0.0905

MW-11* (FP)

MW-106 <0.0905

MW-124* (FP)

MW-127* <0.181

MW-136 <0.10

MW-203 <0.0905

MW-13*

MW-105 <0.18

MW-134X

MW-134 <0.0905

NOTES:

1) CONCENTRATIONS SHOWN ARE LISTED IN MICROGRAMS PER LITER (mg/L).

2) < = NOT DETECTED ABOVE THE METHOD REPORTING LIMIT (MRL).

3) EACH CPAH COMPOUND IN A SAMPLE WAS MULTIPLIED BY THAT COMPOUND'S TOXICITY EQUIVALENCE FACTOR AND THEN THE ADJUSTED CONCENTRATIONS WERE SUMMED TO DETERMINE THE TOTAL CPAH CONCENTRATION. IF A CPAH COMPOUND WAS NOT DETECTED IN A SAMPLE AT A CONCENTRATION ABOVE THE MRL, THEN ONE HALF OF THE MRL FOR THAT COMPOUND WAS USED.

4) *=WELL WAS SUBSEQUENTLY ABANDONED OR DESTROYED DURING 2001 OR 2003 INTERIM ACTION.

LEGEND:

MW-203	MONITORING WELL LOCATION AND DESIGNATION
MW-122	DEEP MONITORING WELL LOCATION AND DESIGNATION
	LOWER YARD PROPERTY BOUNDARY
0.42	TOTAL CPAH CONCENTRATION IN GROUNDWATER (µg/L)
0.01	TOTAL CPAH GROUNDWATER CONCENTRATION CONTOUR (µg/L)
(FP)	NOT SAMPLED DUE TO PRESENCE OF FREE PRODUCT
	>0.01 µg/L

0 100 200

SCALE IN FEET

SLR
SLR International Corp
22122 20th AVE SE
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BOTHELL, WA 98021
T: 425-402-8800
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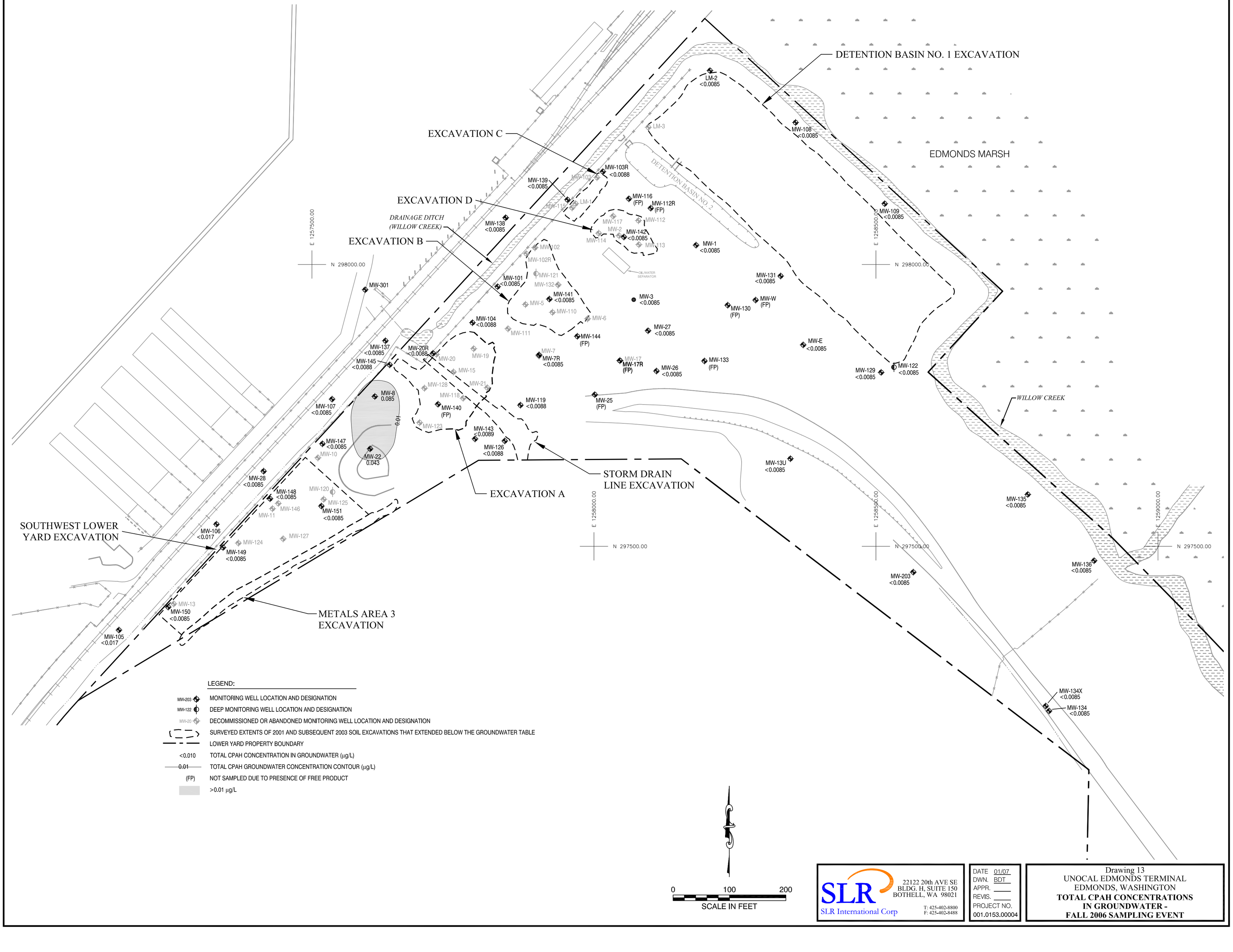
DWN. BDT
APPR. ____
REVIS. ____
PROJECT NO. 001.0153.00004

Drawing 12
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
TOTAL CPAH CONCENTRATIONS IN GROUNDWATER - JUNE 2001 SAMPLING EVENT



SLR
SLR International Corp
22122 20th AVE SE
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BOTHELL, WA 98021
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F: 425-402-8488

DATE 01/07
DWN. BDT
APPR. ____
REVIS. ____
PROJECT NO.
001.0153.00004

Drawing 13
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON
TOTAL CPAH CONCENTRATIONS IN GROUNDWATER - FALL 2006 SAMPLING EVENT

DETENTION BASIN NO. 1 EXCAVATION

EXCAVATION C

EXCAVATION D

EXCAVATION B

SOUTHWEST LOWER YARD EXCAVATION

EXCAVATION A

STORM DRAIN LINE EXCAVATION

DEMARCATION BETWEEN WESTERN AND EASTERN SIDES OF LOWER YARD

EDMONDS MARSH

DETENTION BASIN NO. 2

DRAINAGE DITCH (WILLOW CREEK)

WILLOW CREEK

E 1257500.00

N 298000.00

E 1258500.00

N 298000.00

E 1257500.00

N 297500.00

E 1258500.00

N 297500.00

E 1259000.00

N 297500.00

MW-301 MW-104 MW-101 MW-139 MW-138 MW-103R* MW-116* MW-112R* MW-142 MW-109 MW-108 LM-2 MW-1 MW-131 MW-3* MW-130* MW-W* MW-27* MW-E MW-122 MW-129 MW-133* MW-17R* MW-26 MW-7R MW-20R MW-137 MW-145 MW-141* MW-144* MW-107 MW-8 MW-140* MW-119* MW-25* MW-143 MW-126 MW-147 MW-22 MW-28 MW-148* MW-151 MW-106 MW-149 MW-150 MW-105 MW-13U MW-135 MW-136 MW-203 MW-134X MW-134

LEGEND:

MW-203	MONITORING WELL LOCATION AND DESIGNATION
MW-122	DEEP MONITORING WELL LOCATION AND DESIGNATION
MW-8	EXISTING SURFACE WATER COMPLIANCE MONITORING WELL LOCATION AND DESIGNATION
MW	PROPOSED SURFACE WATER COMPLIANCE MONITORING WELL LOCATION
MW	PROPOSED MONITORING WELL LOCATION
	SURVEYED EXTENTS OF 2001 AND 2003 SOIL EXCAVATIONS THAT EXTENDED BELOW THE GROUNDWATER TABLE
	LOWER YARD PROPERTY BOUNDARY
	GENERAL GROUNDWATER FLOW DIRECTION
	GROUNDWATER FLOW PATH DIRECTION

NOTE:

1) *= MONITORING WELL WILL BE ABANDONED PRIOR TO CONDUCTING THE PROPOSED INTERIM ACTION.

0 100 200

SCALE IN FEET

SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 02/07
DWN. BDT
APPR. ____
REVIS. ____
PROJECT NO.
001.0153.00004

Drawing 14
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

GROUNDWATER FLOW PATH LOCATIONS

PROPOSED SEDIMENT REMEDIATION AREA

OUTFALL #002

EXCAVATION C

OUTFALL #001

EXCAVATION D

DRAINAGE DITCH (WILLOW CREEK)

EXCAVATION B

THIS AREA OF EXCAVATION WILL EXTEND TO A DEPTH OF APPROXIMATELY 14 FEET BELOW GROUND SURFACE

SOUTHWEST LOWER YARD EXCAVATION

METALS AREA 3 EXCAVATION

EXCAVATION A

STORM DRAIN LINE EXCAVATION

DETENTION BASIN NO. 1 EXCAVATION

DETENTION BASIN NO. 2

OIL/WATER SEPARATOR

EDMONDS MARSH

WILLOW CREEK

E 1257500.00
N 298000.00

E 1258500.00
N 298000.00

E 1258000.00
N 297500.00

E 1258500.00
N 297500.00

E 1259000.00
N 297500.00

LEGEND:

- LOWER YARD SITE BOUNDARY
- SURVEYED EXTENTS OF PREVIOUS INTERIM ACTION SOIL EXCAVATIONS
- PROPOSED FREE PRODUCT EXCAVATION AREA
- PROPOSED SOIL EXCAVATION AREA (WITHIN SOIL ACTION LEVEL BOUNDARY)
- PROPOSED SEDIMENT REMEDIATION AREA BOUNDARY

NOTES:

1) THE FREE PRODUCT AND SOIL EXCAVATIONS WILL EXTEND TO A DEPTH OF APPROXIMATELY 8 FEET BELOW GROUND SURFACE, EXCEPT WHERE NOTED ON THE DRAWING.

2) THE SEDIMENT REMEDIATION WILL CONSIST OF EXCAVATING THE SEDIMENT AND SOIL TO A DEPTH OF APPROXIMATELY 1 FOOT, FROM THE STREAMBED UP TO THE ORDINARY HIGH WATER MARK ON BOTH BANKS.

0 100 200
SCALE IN FEET

SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 02/07
DWN. BDT
APPR. ____
REVIS. ____
PROJECT NO.
001.0153.00004

Drawing 15
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

PROPOSED SOIL EXCAVATION AREAS

PARCEL A
Lot Line Adjustment for Union Oil Company, AF # 200202145001

LOT 2, CITY OF EDMONDS SHORT PLAT (S-98-018) RECORDED UNDER AUDITOR'S FILE NO. 9810055004, BEING A PORTION OF GOVERNMENT LOT 3, IN SECTION 23 AND GOVERNMENT LOT 1 AND PORTION OF THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 26, ALL IN TOWNSHIP 27 NORTH, RANGE 3 EAST, W.M., RECORDS OF SNOHOMISH COUNTY, WASHINGTON.

EXCEPT THAT PORTION OF LOT 2 CITY OF EDMONDS SHORT PLAT (S-98-108) DESCRIBED AS FOLLOWS:
COMMENCING AT THE INTERSECTION OF THE EAST LINE OF LOT 3 CITY OF EDMONDS SHORT PLAT (S-98-018) AND PINE STREET EXTENSION (216th STREET SW),THENCE N 01°08'14" E ALONG SAID EAST LINE, 211.56 FEET;
THENCE N 52°39'09" W, 909.08 FEET;
THENCE S 75°53'15" W, 410.77 FEET;
THENCE S 78°34'50" W 190.31 FEET TO THE TRUE POINT OF BEGINNING:
THENCE N 59°01'17" E, 262.97 FEET;
THENCE N 89°36'15" E, 359.47 FEET, TO THE MOST NORTHERLY CORNER OF SAID LOT 3;
THENCE S 75°53'15" W, 410.77 FEET TO A POINT WHICH BEARS N 78°34'50' E FROM THE TRUE POINT OF BEGINNING;
THENCE S 78°34'50" W, 190.31 FEET TO THE TRUE POINT OF BEGINNING.

TOGETHER WITH THAT PORTION OF LOT 3 CITY OF EDMONDS SHORT PLAT (S-98-018) DESCRIBED AS FOLLOWS:
COMMENCING AT THE INTERSECTION OF THE EAST LINE OF SAID LOT 3 CITY OF EDMONDS SHORT PLAT (S-98-018) AND PINE STREET EXTENSION (216th STREET SW),THENCE N 01°08'14"E ALONG SAID EAST LINE, 211.56 FEET;
THENCE N 52°39'09" W, 909.08 FEET;
THENCE S75°53'15" W, 410.77 FEET;
THENCE S 78°34'50" W, 190.31 FEET TO THE TRUE POINT OF BEGINNING:
THENCE S 78°34'50" W, 272.90 FEET TO THE EASTERLY MARGIN OF THE BURLINGTON NORTHERN RIGHT OF WAY;
THENCE S 42°34'34" W ALONG SAID MARGIN A DISTANCE OF 322.72 FEET TO A POINT WHICH BEARS S 59°01'17" W FROM THE TRUE POINT OF BEGINNING;
THENCE N 59°01'17" E, 566.66 FEET TO THE TRUE POINT OF BEGINNING.
CONTAINING 946,897 SQUARE FEET OR 21.74 ACRES, MORE OR LESS.

LOT 1

THAT PORTION OF PARCEL II OF CITY OF EDMONDS SHORT PLAT RECORDED UNDER AUDITOR'S FILE NUMBER 8101160175, RECORDS OF SNOHOMISH COUNTY, WASHINGTON, IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 26, TOWNSHIP 27 NORTH, RANGE 3 EAST W.M., IN SNOHOMISH COUNTY WASHINGTON DESCRIBED AS FOLLOWS:

BEGINNING AT THE MOST EASTERLY CORNER OF SAID PARCEL II; THENCE SOUTH 12˚49'15" WEST 187.97 FEET TO AN ANGLE POINT IN THE MARGIN OF SAID PARCEL II;
THENCE SOUTH 83˚07'35" WEST 297.82 FEET TO AN ANGLE POINT IN THE MARGIN OF SAID PARCEL II;
THENCE LEAVING SAID MARGIN NORTH 01˚08'14" EAST 137.66 FEET;
THENCE NORTH 30˚15'33" EAST 219.53 FEET TO AN ANGLE POINT IN THE NORTHEASTERLY LINE OF SAID PARCEL II;
THENCE SOUTH 64˚11'45" EAST 248.85 FEET TO THE POINT OF BEGINNING.

CONTAINING 76,504 SQUARE FEET OR 1.76 ACRES, MORE OR LESS.

PARCEL B
Lot Line Adjustment for Union Oil Company, AF # 200202145001

LOT 3, CITY OF EDMONDS SHORT PLAT (S-98-018) RECORDED UNDER AUDITOR'S FILE NO. 9810055004, BEING A PORTION OF GOVERNMENT LOT 3, IN SECTION 23 AND GOVERNMENT LOT 1 AND PORTION OF THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 26, ALL IN TOWNSHIP 27 NORTH, RANGE 3 EAST, W.M., RECORDS OF SNOHOMISH COUNTY, WASHINGTON.

EXCEPT THAT PORTION OF LOT 3 CITY OF EDMONDS SHORT PLAT (S-98-018) DESCRIBED AS FOLLOWS:
COMMENCING AT THE INTERSECTION OF THE EAST LINE OF SAID LOT 3 CITY OF EDMONDS SHORT PLAT (S-98-018) AND PINE STREET EXTENSION (216th STREET SW), THENCE N 01°08' 14" E ALONG SAID EAST LINE, 211.56 FEET;
THENCE N 52°39'09" W, 909.08 FEET;
THENCE S 75°53'15" W, 410.77 FEET;
THENCE S 78°34'50" W, 190.31 FEET TO THE TRUE POINT OF BEGINNING:
THENCE S 78°34'50" W, 272.90 FEET TO THE EASTERLY MARGIN OF THE BURLINGTON NORTHERN RIGHT OF WAY;
THENCE S 42°34'34" W, ALONG SAID MARGIN A DISTANCE 322.72 FEET TO A POINT WHICH BEARS S 59°01'17" W FROM THE TRUE POINT OF BEGINNING;
THENCE N 59°01'17" E, 566.66 FEET TO THE TRUE POINT OF BEGINNING.

TOGETHER WITH THAT PORTION OF LOT 2 CITY OF EDMONDS SHORT PLAT (S-98-018) DESCRIBED AS FOLLOWS:
COMMENCING AT THE INTERSECTION OF THE EAST LINE OF LOT 3 CITY OF EDMONDS SHORT PLAT (S-98-018) AND PINE STREET EXTENSION (216th STREET SW), THENCE N 01°08' 14" E ALONG SAID EAST LINE, 211.56 FEET;
THENCE N 52°39'09" W, 909.08 FEET;
THENCE S 75°53'15" W, 410.77 FEET;
THENCE S 78°34'50" W 190.31 FEET TO THE TRUE POINT OF BEGINNING:
THENCE N 59°01'17" E, 262.97 FEET;
THENCE N 89°36'15" E, 359.47 FEET TO THE MOST NORTHERLY CORNER OF SAID LOT 3;
THENCE S 75°53'15" W, 410.77 FEET TO A POINT WHICH BEARS N 78°34'50' E FROM THE TRUE POINT OF BEGINNING;
THENCE S 78°34'50" W, 190.31 FEET TO THE TRUE POINT OF BEGINNING.

CONTAINING 916,913 SQUARE FEET OR 21.05 ACRES, MORE OR LESS.

PARCEL III
FILE NO. S-2-80, REC. NO.: 8101160175

THAT PORTION OF GOVERNMENT LOT 1, SECTION 26 AND THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 26 IN TOWNSHIP 27 NORTH, RANGE 3 EAST, W.M., IN SNOHOMISH COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT A CONCRETE MONUMENT AT THE SOUTHWEST CORNER OF THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 26; THENCE NORTH 88°51'46" WEST ALONG THE SOUTH LINE OF SAID GOVERNMENT LOT 1, A DISTANCE OF 527.86 FEET;
THENCE NORTH 21°35'00" WEST 130.47 FEET TO THE POINT OF CURVATURE OF A CURVE TO THE RIGHT HAVING A RADIUS OF 80.00 FEET;
THENCE NORTHERLY ALONG SAID CURVE 86.57 FEET TO A POINT OF A COMPOUND CURVE HAVING A RADIUS OF 165.00 FEET;
THENCE EASTERLY ALONG SAID CURVE 213.10 FEET TO THE POINT OF TANGENCY;
THENCE SOUTH 65°35'00" EAST 37.89 FEET TO THE POINT OF CURVATURE OF A CURVE TO THE RIGHT HAVING A RADIUS OF 480.00 FEET;
THENCE SOUTHEASTERLY ALONG SAID CURVE 89.81 FEET TO THE POINT OF TANGENCY;
THENCE SOUTH 54°51'46" EAST 207.70 FEET TO THE POINT OF CURVATURE OF A CURVE TO THE LEFT HAVING A RADIUS OF 520.00 FEET;
THENCE SOUTHEASTERLY ALONG SAID CURVE 187.64 FEET TO A POINT ON THE SOUTH LINE OF SAID NORTHWEST QUARTER OF THE NORTHEAST QUARTER, SAID POINT BEING SOUTH 88°51'46" EAST 83.18 FEET FROM THE POINT OF BEGINNING;
THENCE NORTH 88°51'46" WEST ALONG SAID SOUTH LINE 83.18 FEET TO THE POINT OF BEGINNING;

SUBJECT TO A 10.00 FOOT WIDE SLOPE EASEMENT ALONG THE NORTHERLY AND WESTERLY LINES ADJACENT TO THE PINE STREET EXTENSION ROAD.

CONTAINING 101,018 SQUARE FEET OR 2.32 ACRES MORE OR LESS.

integral consulting inc.

Integral Consulting Inc.
12303 Airport Way, Suite 370
Broomfield, CO 80021

telephone: 303-404-2944
facsimile: 303-404-2945

www.integral-corp.com

MEMORANDUM

To:	Mike Staton - SLR
From:	Todd Martin Mike Martin
Date:	November 06, 2006
Subject:	Unocal Edmonds Site: Evaluation of Arsenic in Groundwater
Project No.:	C147-0101

On September 8, 20006, Ecology provided comments to the Revised Draft Interim Action Report, Work Plan for 2006 Lower Yard Interim Action, Unocal Edmonds Bulk Fuel Terminal in Edmonds, Washington. This memorandum addresses one of Ecology's comments, which pertains to the occurrence of arsenic in groundwater at the site:

> *P. 3-8, §3.2.2, Arsenic: The text indicates groundwater arsenic concentrations are due to leaching from background soil concentrations in soil; however, the leaching is likely being caused by geochemical conditions associated with the petroleum and is hence due to contamination at the site. Sampling results from MW-204, an upgradient well, shows arsenic in groundwater has been less than 1 µg/L in monitoring rounds conducted since 1996. Revise this paragraph to include as the last sentence, "The leaching is likely being caused by geochemical conditions associated with petroleum hydrocarbon contamination."*

Ecology's supposition that arsenic leaching from soils to groundwater is the result of the geochemical conditions associated with petroleum contamination at the Unocal Edmonds site has a basis in microbiological processes that commonly occur in groundwater systems which, in turn, influence subsurface geochemical conditions. Generally speaking, through the process of respiration, microorganisms gain energy by transferring electrons from organic carbon to a terminal electron acceptor (TEA) – typically oxygen (if present). In groundwater systems, oxygen (which has limited solubility in water) is often depleted when sufficient organic carbon is present (e.g., degradable organic contaminant and/or naturally occurring organic materials) and a reduced environment is established as microbial respiration shifts to an alternate TEA.

One of the more energetic TEAs in subsurface systems is ferric iron (Fe^{3+}), which is commonly present as the mineral hydrous ferric oxide (HFO) at the surfaces of the soil grains within an aquifer. As microorganisms transfer electrons to Fe^{3+}, it is reduced to ferrous iron (Fe^{2+}) and the HFO minerals dissolve into solution. HFO is a primary adsorbent of metals/metalloids in groundwater systems and arsenic has a strong affinity to HFO surfaces. As a result, elevated arsenic concentrations can be present when petroleum or other degradable organic contaminants are released to the subsurface environment. Further, arsenic concentrations in reduced groundwater environments can be higher than in oxic systems, as HFO is unstable in reduced environments and, thus, the tendency for arsenic to adsorb to aquifer soil grains is reduced. It is important to note, however, that while often associated with petroleum contamination, reduced groundwater environments also frequently occur due to influence of naturally-present organic carbon sources (e.g., organic carbon present in the subsurface, infiltration of organics-bearing water from a surface water body or wetlands).

Groundwater Eh data from the Unocal site indicate that, in general, the site supports a reduced redox environment, although groundwater is locally oxic below portions of the site. Further, the site data tend to support the hypothesis that arsenic groundwater concentrations are greatest in areas where reduced groundwater conditions occur at the site. As shown on Figure 1, the highest arsenic concentrations at the site (i.e., >10 μg/L) occur under the negative redox (Eh) conditions that would be expected in an iron reducing environment. As a result, the detections of arsenic in groundwater underlying the Unocal site are consistent with the presence of a reduced groundwater environment under which arsenic binding to HFO is insignificant.

Figure 2, which presents a comparison of site groundwater TPH[1] concentrations to groundwater Eh, suggests that groundwater TPH concentrations of greater than 1-2 mg/L tend to support a reduced groundwater environment. However, TPH concentrations are below this level in the majority of the site wells and there appears to be no correlation between TPH concentration and Eh in these wells (both oxidized and reduced groundwater conditions are present in wells with TPH concentrations of less than 1-2 mg/L). This suggests that the effects of TPH on groundwater redox are likely limited in extent and that other organic carbon sources in the system may be responsible for the reduced groundwater environment and associated arsenic mobility in site groundwater.

This conclusion is supported by the fact that groundwater arsenic concentrations do not correlate with groundwater TPH concentrations—demonstrating that the occurrence of arsenic in site groundwater is largely independent of the presence/absence of TPH in

[1] Calculated as the sum of GRO, DRO, and HRO; with non-detect values set at ½ the detection limit.

groundwater. Figure 3 presents TPH concentrations versus arsenic concentrations in all of the previous groundwater sampling events, while Figure 4 presents the same for data collected prior to 2001 when the first Interim Action (IA) was completed at the site. Both figures confirm a lack of a relationship between TPH and arsenic in site groundwater. Further, the fact that no relationship was apparent prior to 2001 demonstrates that the findings are not skewed as a result of IAs and associated reduction in the extent of site petroleum impacts.

A specific example of the lack of correlation between arsenic and TPH concentrations is in the area to the north and east of Detention Basin No. 1. Proposed surface water compliance wells LM-2, MW-108, and MW-109 are located at the northeastern edge of the site, directly adjacent to Willow Creek and immediately downgradient of Detention Basin No. 1. An IA was completed Detention Basin No. 1 from August through December 2003 to remove soils containing >3,000 mg/kg TPH. In addition to TPH, sampling was performed to confirm that the remaining soil contained arsenic concentrations below the site cleanup standard of 20 mg/kg. The IA excavation extended from the surface to slightly below the groundwater table, in places, to achieve the TPH remediation goal. The arsenic concentrations in the final excavation confirmation samples were typically on the order of 5 – 10 mg/kg.

Typically, the dissolved arsenic concentrations in proposed surface water compliance wells LM-2, MW-108, and MW-109 are on the order of 10 µg/L and have been stable for approximately 3 years following the completion of the IA at the detention basin (Figure 5). The spatial and temporal uniformity of groundwater arsenic concentrations in the three wells during the period following the adjacent IA suggests that the arsenic in the wells is not associated with the basin. Further, TPH has only been sporadically detected at low concentrations in well LM-2 (typical concentrations of ~600 mg/L) and has not been detected in wells MW-108 and MW-109 since the completion of the IA (Table 1). These data indicate that petroleum releases are unlikely a significant contributor to the reduced groundwater environment in this area and that the arsenic concentrations in the wells are unrelated to petroleum-related releases.

Eh data from compliance wells LM-2, MW-108, and MW-109 indicate that the groundwater in the area is reduced (Table 2) — a condition that is supported by the elevated arsenic concentrations in the wells. The lack of TPH in the wells suggests that an alternative source of organic carbon is present and responsible for the reduced environment. A likely source of the organic carbon is an "organic clay" unit that was noted in borehole logs for wells MW-108 and MW-109 (Attachment 1), and was visible throughout much of the base of the Detention Basin No. 1 excavation (M. Staton 2006, personal communication). The presence of such an organic unit could promote a naturally-reduced environment in the local groundwater system and, in turn, support

slightly elevated arsenic concentrations relative to what would be present in an oxidized groundwater environment.

In conclusion, the evaluation presented here indicates that:

1. Reduced conditions exist in groundwater throughout much of the site. Such conditions are consistent with the detection of dissolved arsenic in site groundwater samples.

2. Groundwater TPH and Eh levels are not correlated except in localized areas where TPH is present at elevated levels (e.g., >1-2 mg/L). As a result, the reduced groundwater environment at the site is not the result of petroleum contamination—suggesting that a naturally-occurring organic carbon source is responsible for these conditions.

3. Groundwater TPH concentrations show no relationship to groundwater arsenic concentrations – indicating that arsenic in site groundwater is not related to petroleum contamination at the site.

4. Groundwater arsenic concentrations in proposed surface water compliance wells LM-2, MW-108, and MW-109 were unaffected by the IA at the immediately adjacent Detention Basin No. 1, suggesting that the basin is not the source of arsenic in the wells and that the arsenic is not related to site activities and, thus, likely naturally-occurring. This likely source is the naturally occurring organic clayey material observed in area boring logs and at the base of the Detention Basin No. 1 excavation.

5. The future IA planned for the lower yard, which primarily addresses petroleum-impacted soil and groundwater, is unlikely to have a significant influence on arsenic concentrations in the proposed surface water compliance wells.

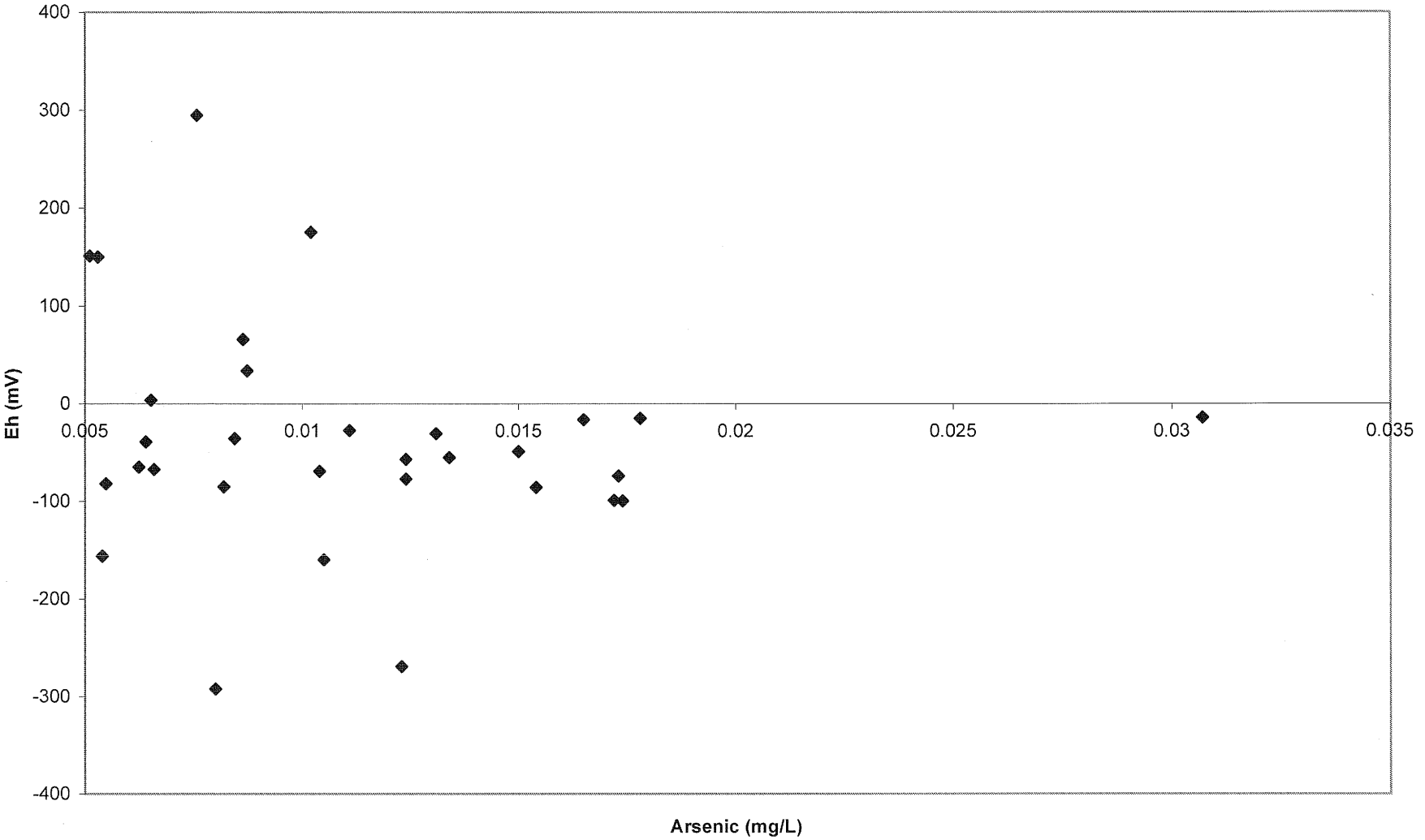


Figure 1. Groundwater dissolved arsenic versus Eh for samples with >5 µg/L dissolved arsenic.

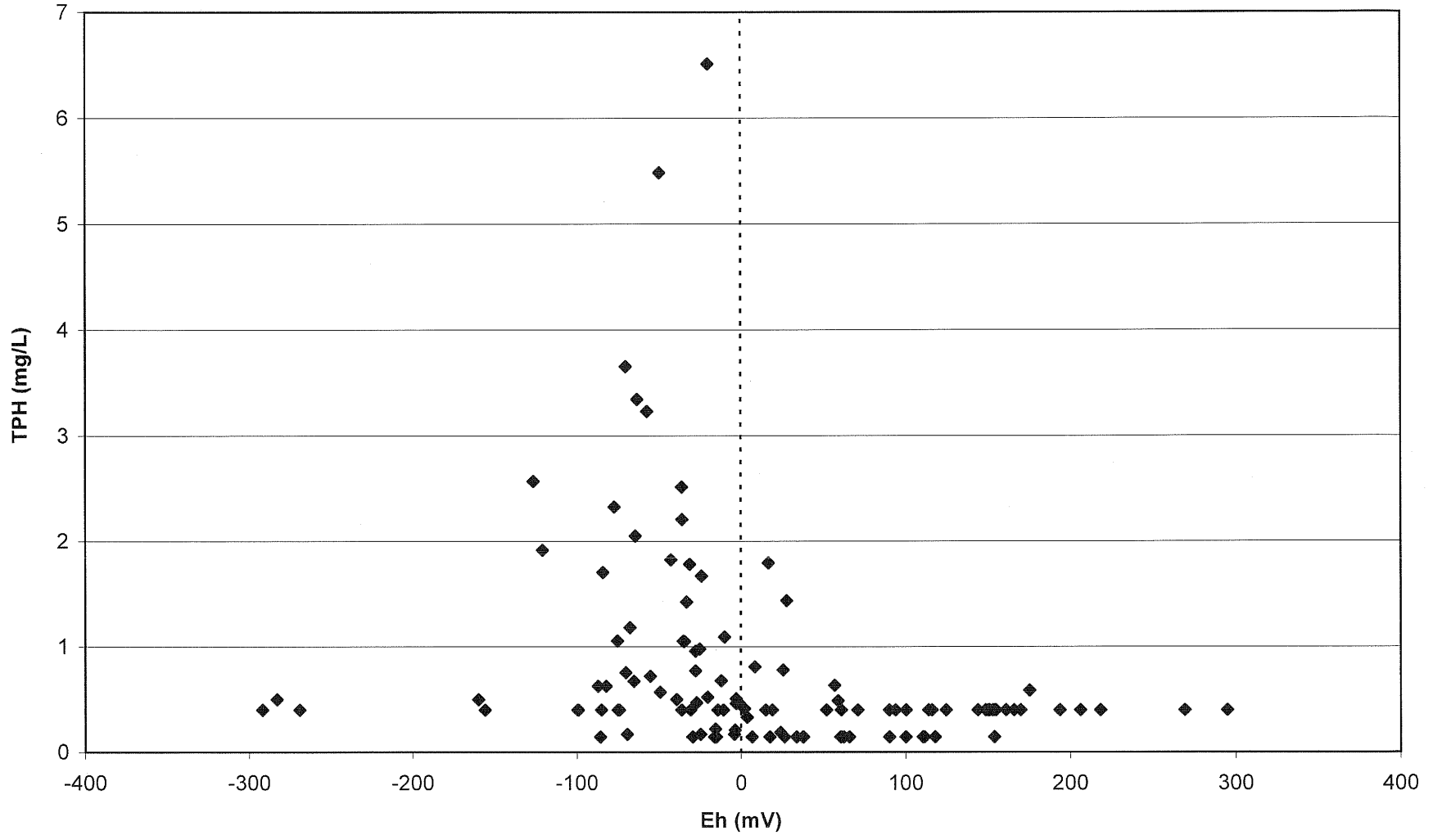


Figure 2. TPH concentration versus Eh in site groundwater samples.

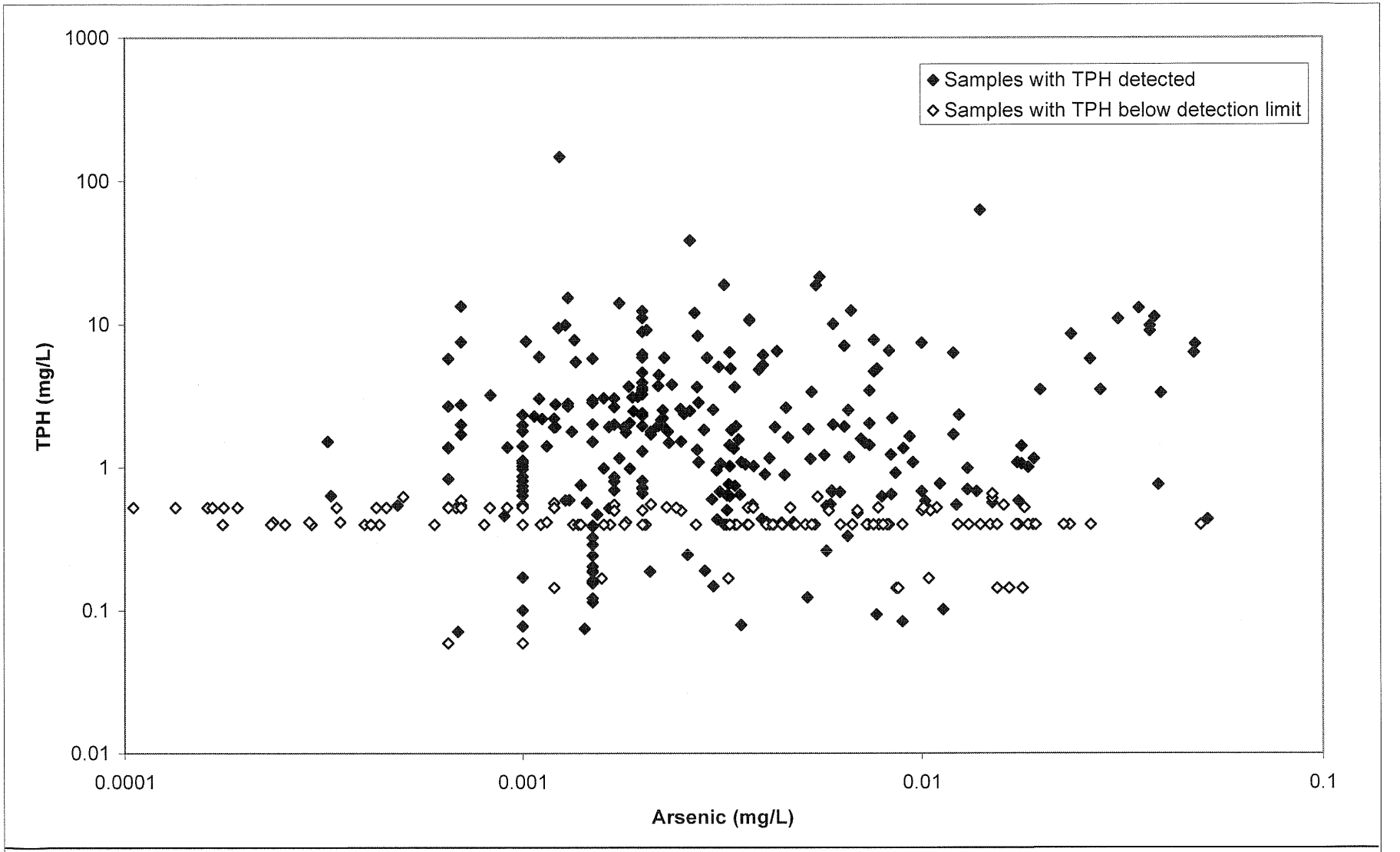


Figure 3. Groundwater dissolved arsenic versus TPH.

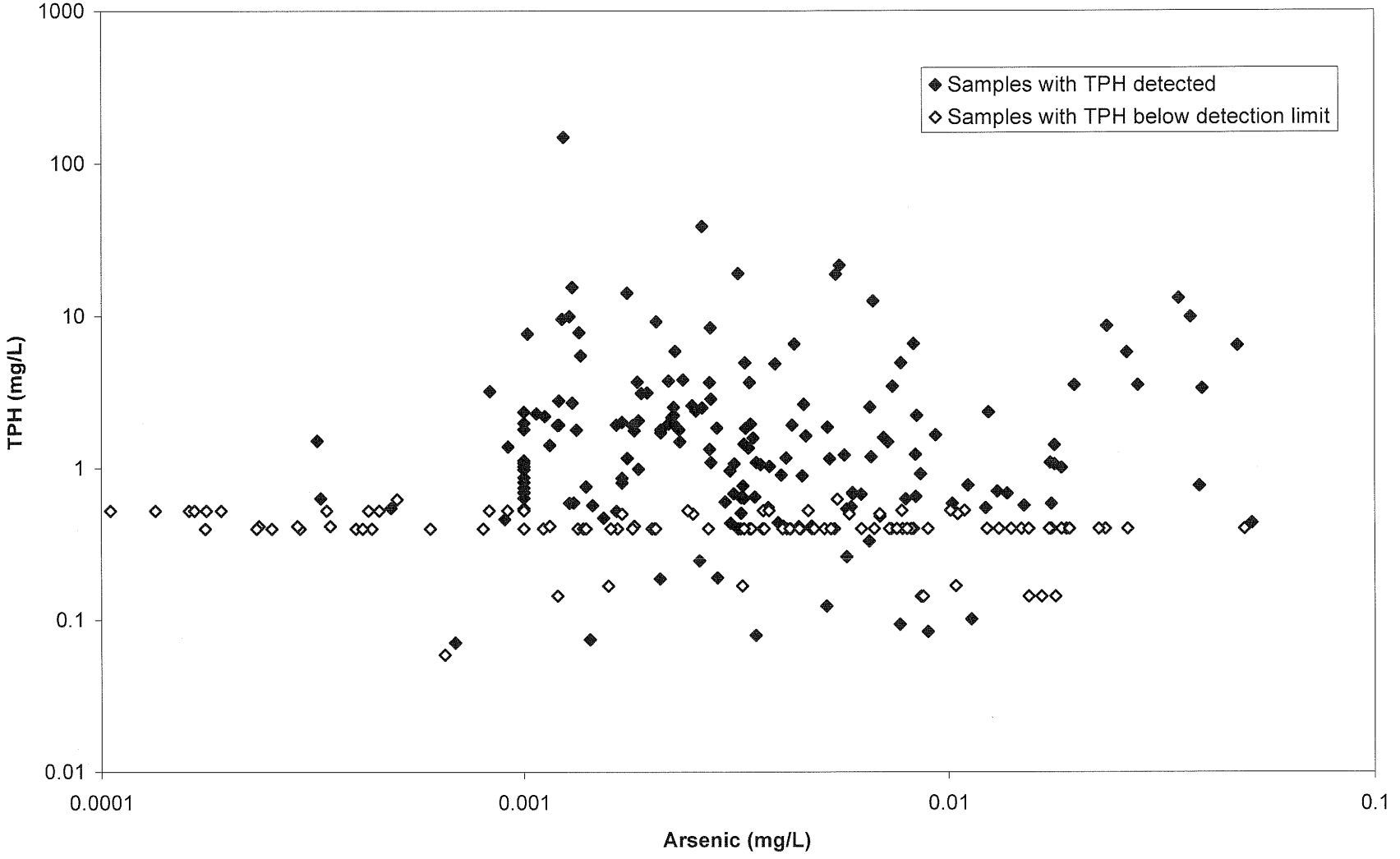


Figure 4. Groundwater dissolved arsenic versus TPH for samples collected prior to the first Interim Action (August 2001).

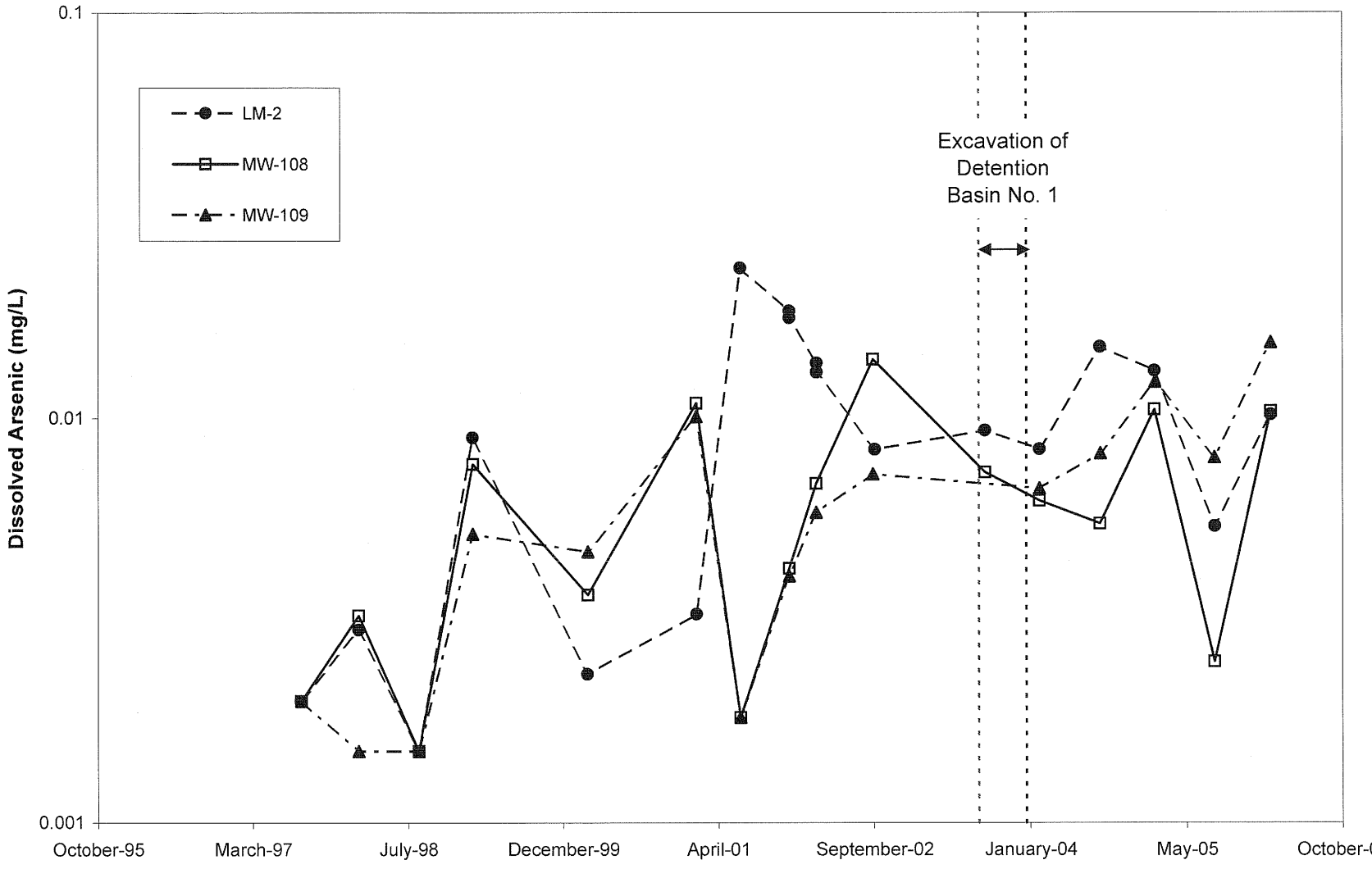


Figure 5. Groundwater dissolved arsenic concentrations for proposed surface water compliance wells LM-2, MW-108, and MW-109

Table 1. Arsenic and TPH Concentrations in proposed compliance wells post completion of IRM.

Sample Location	Sample Date	Total Arsenic mg/L	Dissolved Arsenic mg/L	TPH mg/L
LM-2	8/21/2003	0.00716	0.00933	1.648
LM-2	2/12/2004	0.00601	0.00839	0.649
LM-2	8/24/2004	0.0108	0.015	0.568
LM-2	2/14/2005	0.00351	0.0131	0.4 *U*
LM-2	8/26/2005	0.004	0.0054	0.4 *U*
LM-2	2/21/2006	--	0.0102	0.58465
MW-108	8/21/2003	0.00215	0.00735	0.4 *U*
MW-108	2/12/2004	0.00476	0.00625	0.4 *U*
MW-108	8/24/2004	0.00619	0.00548	0.625 *U*
MW-108	2/14/2005	0.00711	0.0105	0.5 *U*
MW-108	8/25/2005	0.0026	0.0025	0.5 *U*
MW-108	2/21/2006	--	0.0104	0.16765 *U*
MW-109	2/12/2004	0.00261	0.0067	0.4 *U*
MW-109	8/26/2004	0.00631	0.00819	0.4 *U*
MW-109	2/16/2005	0.00572	0.0123	0.4 *U*
MW-109	8/25/2005	0.007	0.008	0.4 *U*
MW-109	2/21/2006	--	0.0154	0.14315 *U*

Table 2. Eh values in the proposed compliance wells.

Well	Sample Date	Eh (mV)
LM-2	12/3/2001	-17
LM-2	2/13/2004	-31
LM-2	2/28/2002	147
LM-2	3/1/2002	-84
LM-2	6/27/2001	37
LM-2	8/21/2003	67
LM-2	2/14/2005	-30.6
LM-2	2/21/2006	175.3
LM-2	8/24/2004	-49
LM-2	8/26/2005	-156
MW-108	12/3/2001	-5
MW-108	2/13/2004	-25
MW-108	2/28/2002	-241
MW-108	3/3/2003	-182
MW-108	6/28/2001	95
MW-108	8/21/2003	78
MW-108	8/28/2002	-204
MW-108	2/14/2005	-159.9
MW-108	2/21/2006	-69.2
MW-108	8/24/2004	-82
MW-108	8/25/2005	-283
MW-109	12/3/2001	7
MW-109	2/13/2004	-15
MW-109	2/28/2002	-107
MW-109	2/28/2003	40
MW-109	6/28/2001	17
MW-109	8/28/2002	-157
MW-109	2/16/2005	-269.1
MW-109	2/21/2006	-85.6
MW-109	8/26/2004	-85
MW-109	8/25/2005	-292

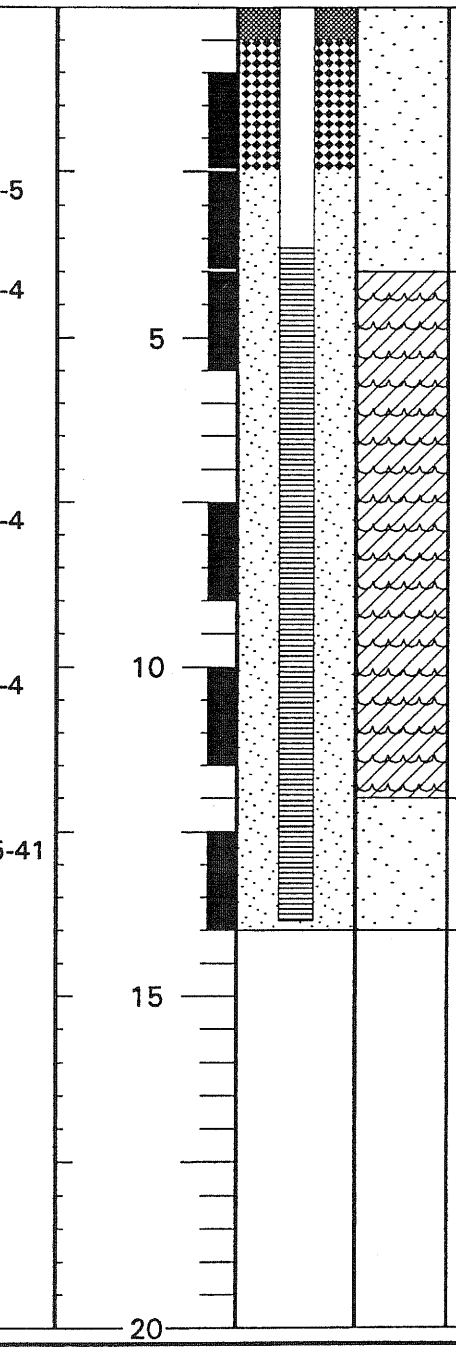
ATTACHMENT 1

Boring Logs for MW-108 and MW-109

LOG OF EXPLORATORY BORING

PROJECT NAME	**UNOCAL Bulk Fuel Terminal R.I.**	BORING NO.	**MW-108**
LOCATION	**Edmonds, Washington**	PAGE	**1 OF 2**
DRILLED BY	**Geo-Tech Explorations, Inc.**	REFERENCE ELEV.	**14.89'**
DRILL METHOD	**Electric Minute Man Hollow-Stem Auger**	TOTAL DEPTH	**14.00'**
LOGGED BY	**Holly Corner**	DATE COMPLETED	**09/27/95**

SAMPLING METHOD AND NUMBER	PID (in ppm)	BLOWS PER 6 INCHES	LITHOLOGIC DESCRIPTION
SS-1	2		**0 to 4.0 feet: SAND (SP)**, brown, fine, trace silt, dry. (FILL)
SS-2.5	1	5-4-5	
SS-4	0	3-3-4	**4.0 to 12.0 feet: ORGANIC CLAY (OH)**, brown, medium plasticity, few organics, trace fine to medium sand, moist. (FILL/ALLUVIUM)
SS-7.5	20	1-3-4	@ 7.0 feet: wet.
SS-10	127	1-3-4	@ 8.8 feet: 0.25-inch-thick lens of sand, fine to medium, hydrogen-sulfide-like odor.
SS-12.5	58	16-25-41	@ 11.2 to 11.5 feet: sand, gray, fine to medium, hydrogen-sulfide-like odor.
			12.0 to 14.0 feet: SAND (SP), gray, fine to medium, trace silt, wet, hydrogen-sulfide-like odor. (ALLUVIUM)
			Total depth drilled = 14.0 feet. Total depth sampled = 14.0 feet.
			See Page 2 for Well Completion Details.



REMARKS

(1) SS = collected with a 1.5-inch i.d. split spoon sampler. (2) SB = collected with a 2.5-inch i.d. split barrel sampler. (3) HA = collected with a 3.25-inch hand auger. (4) ST = collected with a Shelby tube. (5) Blow counts do not represent SPT results. (6) Sample numbers preceded by well or boring designation (e.g. MW-108-2.5, where MW-108 is well designation). (7) Reference elevation = top of PVC (MLLW). (8) PID = photoionization detector calibrated using +/- 100 ppm isobutylene gas.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NAME	UNOCAL Bulk Fuel Terminal R.I.	BORING NO.	MW-108
LOCATION	Edmonds, Washington	PAGE	2 OF 2
DRILLED BY	Geo-Tech Explorations, Inc.	REFERENCE ELEV.	14.89'
DRILL METHOD	Electric Minute Man Hollow-Stem Auger	TOTAL DEPTH	14.00'
LOGGED BY	Holly Corner	DATE COMPLETED	09/27/95

SAMPLING METHOD AND NUMBER	PID (in ppm)	BLOWS PER 6 INCHES	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL DETAILS	LITHOLOGIC COLUMN	LITHOLOGIC DESCRIPTION
				25 30 35 40				**WELL COMPLETION DETAILS:** +1.3 to 3.65 feet: Nominal 2-inch-inside-diameter, flush-threaded, Schedule 40 PVC blank riser pipe. 3.65 to 13.75 feet: Nominal 2-inch-inside-diameter, flush-threaded, Schedule 40 PVC well screen with 0.020-inch machined slots. 13.75 to 13.85 feet: Nominal 2-inch-inside-diameter, flush-threaded, Schedule 40 PVC end cap. Above-ground monument. 0.5 to 2.5 feet: Medium bentonite chips, hydrated with potable water. 2.5 to 14.0 feet: CSSI 20 - 40 silica sand.

REMARKS

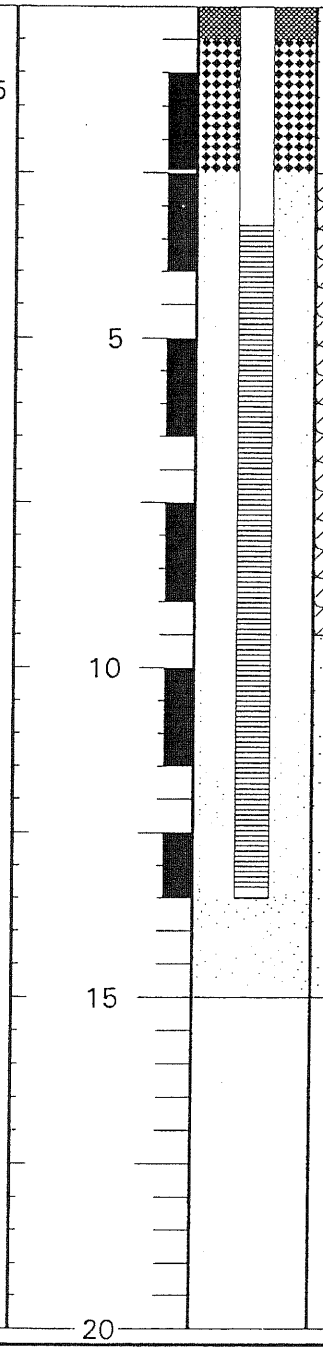
(1) SS = collected with a 1.5-inch i.d. split spoon sampler. (2) SB = collected with a 2.5-inch i.d. split barrel sampler. (3) HA = collected with a 3.25-inch hand auger. (4) ST = collected with a Shelby tube. (5) Blow counts do not represent SPT results. (6) Sample numbers preceded by well or boring designation (e.g. MW-108-2.5, where MW-108 is well designation). (7) Reference elevation = top of PVC (MLLW). (8) PID = photoionization detector calibrated using +/- 100 ppm isobutylene gas.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NAME	UNOCAL Bulk Fuel Terminal R.I.	BORING NO.	MW-109
LOCATION	Edmonds, Washington	PAGE	1 OF 2
DRILLED BY	Geo-Tech Explorations, Inc.	REFERENCE ELEV.	16.12'
DRILL METHOD	Electric Minute Man Hollow-Stem Auger	TOTAL DEPTH	15.00'
LOGGED BY	Holly Corner	DATE COMPLETED	10/03/95

SAMPLING METHOD AND NUMBER	PID (in ppm)	BLOWS PER 6 INCHES	LITHOLOGIC DESCRIPTION
SS-1	0	10-13-15	**0 to 2.5 feet: SAND (SP)**, gray-brown, trace silt, moist. (FILL)
SS-2.5	0	8-8-7	**2.5 to 9.5 feet: ORGANIC CLAY (OH)**, brown to gray, low to medium plasticity, trace to some organics, trace fine sand, with occasional interbedded fine sand, moist. (FILL/ALLUVIUM)
SS-5	2	3-5-7	
			@ 6.5 feet: wet.
SS-7.5	0	1-1-1	
SS-10	7	7-13-15	**9.5 to 14.0 feet: SAND (SP)**, gray, fine to medium, few silt, trace organics, wet, strong hydrogen-sulfide-like odor. (ALLUVIUM)
SS-12.5	0	12-50/6"	@ 12.5 to 15.0 feet: slight hydrogen-sulfide-like odor.
			Total depth drilled = 15.0 feet. Total depth sampled = 13.5 feet.
			See Page 2 for Well Completion Details.



REMARKS

(1) SS = collected with a 1.5-inch i.d. split spoon sampler. (2) SB = collected with a 2.5-inch i.d. split barrel sampler. (3) HA = collected with a 3.25-inch hand auger. (4) ST = collected with a Shelby tube. (5) Blow counts do not represent SPT results. (6) Sample numbers preceded by well or boring designation (e.g. MW-108-2.5, where MW-108 is well designation). (7) Reference elevation = top of PVC (MLLW). (8) PID = photoionization detector calibrated using +/- 100 ppm isobutylene gas.

EMCON

LOG OF EXPLORATORY BORING

PROJECT NAME	UNOCAL Bulk Fuel Terminal R.I.	BORING NO.	MW-109
LOCATION	Edmonds, Washington	PAGE	2 OF 2
DRILLED BY	Geo-Tech Explorations, Inc.	REFERENCE ELEV.	16.12'
DRILL METHOD	Electric Minute Man Hollow-Stem Auger	TOTAL DEPTH	15.00'
LOGGED BY	Holly Corner	DATE COMPLETED	10/03/95

SAMPLING METHOD AND NUMBER	PID (in ppm)	BLOWS PER 6 INCHES	GROUND WATER LEVELS	DEPTH IN FEET	SAMPLES	WELL DETAILS	LITHOLOGIC COLUMN	LITHOLOGIC DESCRIPTION
				25				**WELL COMPLETION DETAILS:** +1.57 to 3.3 feet: Nominal 1-inch-inside-diameter, flush-threaded, Schedule 80 PVC blank riser pipe. 3.3 to 13.4 feet: Nominal 1-inch-inside-diameter, flush-threaded, Schedule 80 PVC well screen with 0.020-inch machined slots. 13.4 to 13.5 feet: Nominal 1-inch-inside-diameter, flush-threaded, Schedule 80 PVC end cap. Above-ground monument. 0.5 to 2.5 feet: Medium bentonite chips, hydrated with potable water. 2.5 to 14.0 feet: CSSI 20 - 40 silica sand. 14.0 to 15.0 feet: Slough.
				30				
				35				
				40				

REMARKS

(1) SS = collected with a 1.5-inch i.d. split spoon sampler. (2) SB = collected with a 2.5-inch i.d. split barrel sampler. (3) HA = collected with a 3.25-inch hand auger. (4) ST = collected with a Shelby tube. (5) Blow counts do not represent SPT results. (6) Sample numbers preceded by well or boring designation (e.g. MW-108-2.5, where MW-108 is well designation). (7) Reference elevation = top of PVC (MLLW). (8) PID = photoionization detector calibrated using +/- 100 ppm isobutylene gas.

EMCON

Memorandum

To: David South, Washington Department of Ecology

From: Mike Staton, SLR International Corp

cc: Mark Brearley, Union Oil Company

Date: December 20, 2006

Re: Source of Petroleum-Impacted Soil and Groundwater beneath the Port of Edmonds' South Marina Property

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It has been suggested by the Port of Edmonds (Port) and Landau Associates, Inc. (LAI) that petroleum contamination at the Unocal Edmonds Terminal could be the source of the petroleum hydrocarbons detected at the Port's south marina property (LAI, 1998). The area of contamination within the south marina property is located at the Port's dry stack storage area. The dry stack storage area is located approximately 100 feet to the northwest of the Terminal (Figure 1). To evaluate the potential for petroleum hydrocarbons from the Unocal Edmonds Terminal to migrate to the Port property, SLR reviewed the previous soil and groundwater data collected from the southwestern part of the Terminal's lower yard, from the neighboring BNSF Railway (BNSF) property (located between the Terminal and the Port property), from Admiral Way (adjacent to the Port property), and from the Port property. For comparative purposes only, SLR evaluated the soil and groundwater analytical data in relation to current Model Toxics Control Act (MTCA) Method A cleanup levels[1]. This memorandum presents the results of the data evaluation.

Background

In 1944, Unocal purchased a property designated as Parcel C, which includes the land currently occupied by the Port's dry stack storage facility. Historical photos show that Parcel C consisted of Puget Sound shoreline, beach, and an undeveloped upland marshy area. A Great Northern Railroad rail spur that served neighboring steel and manufacturing facilities to the northeast of Parcel C extended across the upland area of the parcel. There is no record of any Unocal use of Parcel C from the date of purchase until 1957, when Unocal sold the parcel to the Port (EMCON, 1994).

[1] Chapter 173-340 WAC, *Model Toxics Control Act Cleanup Regulation*, Method A Cleanup Levels. Amended February 2001.

In 1962, approximately 12 to 15 feet of fill was reportedly placed in the eastern part of Parcel C by the U.S. Army Corps of Engineers. The fill consisted of dredged sediments from the construction of the Port's marina (LAI, 1998). The western portion of Parcel C was developed as part of the Port's marina and the eastern portion of Parcel C was developed for boat storage. The eastern portion of Parcel C was paved with asphalt, and included several boat storage sheds and an uncovered boat storage area. The sheds were removed in 1998 when the current stack storage facility was constructed.

Previous Investigation Results - Port of Edmonds Property and Admiral Way

1996 Geotechnical Assessment

During a March 1996 geotechnical assessment at the location of the Port's current dry stack storage facility, LAI discovered physical evidence of petroleum hydrocarbon contamination at depths of 10 to 15 feet in a boring (B-1) located near the northeastern corner of the facility and at 10 feet in another boring (B-2) located near the southeastern corner of the facility (LAI, 1996). Soil samples were not collected from the borings for chemical analysis. The locations of B-1 and B-2 are shown on Figure 1.

1997 Assessment of Backfill around Storm Drain Line

The Port contacted Unocal in the Spring of 1997 regarding the petroleum contamination. LAI and the Port suggested two potential contaminant migration pathways from the lower yard of the Terminal to the Port property. These pathways included groundwater migration in the backfill above a Washington Department of Transportation (WSDOT) storm drain line (potential preferential migration pathway), and groundwater migration under the BNSF property. During construction of State Route 104 in the early 1970s, WSDOT obtained an easement to install an underground storm drain line across the lower yard to beneath the southeastern tidal basin. As the 72-inch-diameter drain line departs the lower yard, the depth of the line is at approximately 14 feet below ground surface (bgs) [Washington State Department of Highways (WSDOH), 1971], which is approximately 6 to 9 feet below the groundwater table. After departing the Terminal and extending beneath the two tidal basins and BNSF property, the storm drain line turns southwest and runs beneath the Port property along the west side of Admiral Way. The location of the storm drain line is shown on Figure 1.

In May 1997, EMCON installed a groundwater monitoring well (MW-301) at a location adjacent to the WSDOT storm drain line to assess if the backfill around the line was a petroleum migration pathway (EMCON, 1997). The location of MW-301 is shown on Figure 1. The well is located within the backfill material around the line, approximately 5 feet from the pipe. During installation of the well, a soil sample was collected immediately above the groundwater table for laboratory analysis. The sample was analyzed for total petroleum hydrocarbons (TPH) as gasoline (TPH-G), TPH as diesel (TPH-D), TPH as oil

(TPH-O), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). The sample contained TPH-O and TPH-D concentrations [190 and 32.8 milligrams per kilogram (mg/kg), respectively] that were below the current MTCA Method A cleanup levels (2,000 mg/kg for both TPH-O and TPH-D). TPH-G and BTEX were not detected at concentrations above the method reporting limits (MRLs). There was no evidence of petroleum product observed in the well. Between 1997 and 2006, subsequent monitoring of MW-301 showed that product has not been present in the well.

1997 Investigation of Port Property

In November 1997, LAI conducted a limited subsurface investigation at the location of the Port's current dry stack storage facility to determine if contamination existed at levels of concern and to determine the source(s) of the contamination, if present. The investigation consisted of advancing nine soil borings (P-1 through P-9) near the 1996 geotechnical borings (B-1 and B-2) that showed evidence of soil contamination. The locations of the borings are shown on Figure 1. A total of four soil samples were collected from each boring. Two of the samples were collected from the unsaturated soil above the water table (S-1 and S-2), one sample was collected at the water table (S-3), and the other sample was collected at a depth below the water table (S-4). At least one selected soil sample from each boring was analyzed by a laboratory for TPH-D and TPH-O. In addition, four groundwater samples (PW-2, PW-4, PW-5, and PW-9) were collected from borings P-2, P-4, P-5, and P-9, and analyzed for TPH-D and TPH-O. The samples were selected for analysis based on the presence or absence of physical evidence of contamination (e.g., staining, odor, sheen), thus providing the limits of observed contamination.

Soil samples collected from borings P-1 (at depths above and at the groundwater table), P-7 (at depths at and below the groundwater table), and P-8 (at the groundwater table) contained TPH-O and/or TPH-D concentrations (up to 20,000 and 17,000 mg/kg, respectively) that exceeded the current MTCA Method A cleanup levels (LAI, 1998). The laboratory noted that the chromatograms suggested a weathered combination of heavy diesel oil and lubricating oil. All of the soil samples from borings P-2, P-3, P-4, P-5, P-6, and P-9 contained TPH-D and TPH-O concentrations that were below the current Method A cleanup levels or the MRLs. "Oil globs" were observed on the groundwater sample from boring P-1; therefore, the TPH concentrations were not quantified. The groundwater samples from borings P-2 and P-5 contained TPH-D and TPH-O concentrations [up to 13,000 and 11,000 microgams per liter (µg/L), respectively] that exceeded the current Method A cleanup levels (500 µg/L for both TPH-D and TPH-O). The groundwater samples from borings P-4 and P-9 contained TPH-D and TPH-O concentrations below the current Method A cleanup levels or below the MRLs.

Based on the investigation results, the soil beneath the Port property that contained TPH-D or TPH-O concentrations greater than the current Method A cleanup levels only occurred in a localized area beneath the eastern part of the current dry stack storage area (Figure 1). The groundwater that contained TPH-D or TPH-O concentrations greater than the current Method

A cleanup levels occurred beneath the eastern part of the current dry stack storage area (Figure 2).

2000 Phase I Assessment of Marina Beach Park

A Phase I Environmental Site Assessment performed for the City of Edmonds at Marina Beach Park identified two potential contaminant sources on Port property (CH2M Hill, 2000). Ecology records indicated that an underground storage tank was present at 458 Admiral Way (Port property located approximately 350 feet northeast of Parcel C), and that a designated Solid Waste Facility/Landfill Site was located at 336 Admiral Way (Port property located approximately 1,300 feet northeast of Parcel C).

In 2000, CH2M Hill drilled three soil borings (S1, S2, and S4) on Port property to the south of the dry stack storage facility, and collected a groundwater sample from each boring for laboratory analysis. The locations of the borings are shown on Figure 2. The groundwater samples did not contain TPH-G, TPH-D, or TPH-O concentrations above the MRLs (MFA, 2003).

2001 Investigation along Admiral Way

As part of the supplemental remedial investigation (SRI) at the Unocal Edmonds Terminal in 2001, seven soil borings (SB-1 thru SB-7) were advanced and sampled along the east side of Admiral Way to assess the potential for impacted groundwater from the lower yard to migrate under the BNSF property to the Port property. The locations of the borings are shown on Figure 1. Field screening results [including photoionization detector (PID) measurements, appearance, and odor] were used to aid in determining the soil samples to submit for laboratory analysis. At least one selected soil sample from each boring was analyzed for TPH-G, TPH-D, TPH-O, BTEX, and polycyclic aromatic hydrocarbons (PAHs). The samples collected from SB-1 and SB-4, at approximately 6 feet bgs (near the groundwater table), contained TPH-D concentrations (2,190 mg/kg and 2,010 mg/kg, respectively) that exceeded the current MTCA Method A cleanup level, and TPH-O concentrations that were below the current Method A cleanup level or the MRL [Maul Foster & Alongi, Inc. (MFA), 2003]. The samples from SB-2, SB-3, SB-5, SB-6, and SB-7 contained TPH-D and TPH-O concentrations that were below the current Method A cleanup levels or the MRLs. The samples from all of the borings, except SB-1, contained TPH-G and BTEX concentrations below the MRLs. The 6-foot-deep sample from SB-1 contained a TPH-G concentration of 366 mg/kg; however, the laboratory reported that the value was primarily due to overlap from diesel-range hydrocarbons. The 6-foot-deep sample from SB-4 contained a toxicity-adjusted total carcinogenic PAH (cPAH) concentration that exceeded the current Method A cleanup level (0.10 mg/kg). The samples from SB-1, SB-2, SB-3, SB-5, SB-6, and SB-7 contained toxicity-adjusted total cPAH concentrations that were below the current Method A cleanup level. The localized areas of petroleum-impacted soil along Admiral Way are shown on Figure 1.

After drilling, a temporary wellpoint was installed in each boring and a groundwater sample was collected from each wellpoint for laboratory analysis. The groundwater samples were analyzed for TPH-G, TPH-D, TPH-O, and BTEX. The analytical results showed that the groundwater sample from SB-1 contained TPH-D and TPH-G concentrations (1,650 and 891 µg/L, respectively) that exceeded the current MTCA Method A cleanup levels (500 and 800 µg/L, respectively). The groundwater samples from SB-2 through SB-7 contained TPH-G, TPH-D, TPH-O, and BTEX concentrations below the current Method A cleanup levels or the MRLs. The localized area of petroleum-impacted groundwater beneath Admiral Way is shown on Figure 2.

Previous Investigation Results – BNSF Railway Property

In 1991, three groundwater monitoring wells (MW-27, MW-28, and MW-29) were installed on BNSF property along the east side of the railroad tracks. The locations of the wells are shown on Figure 1. During drilling, one or two soil samples from each boring were selected for laboratory analysis. The soil samples did not contain TPH-G, TPH-D, TPH-O (as TPH-IR), or BTEX concentrations greater than the MRLs (MFA, 2001b). In May 1991, groundwater samples were collected from the three wells for laboratory analysis (TPH-G, TPH-D, and BTEX only). The samples did not contain TPH-G, TPH-D, or benzene concentrations greater than the MRLs. The sample from MW-28 contained toluene, ethylbenzene, and total xylenes concentrations (0.7, 0.9, and 1.4 µg/L, respectively) below the current MTCA Method A cleanup levels (1,000, 700, and 1,000 µg/L, respectively). Wells MW-27 and MW-29 were abandoned prior to 1995.

From 1995 through 2006, groundwater samples were collected from MW-28 on a quarterly to annual basis (total of 23 samples). The samples did not contain TPH-G, TPH-D, TPH-O, or BTEX concentrations greater than the current MTCA Method A cleanup levels or the MRLs. The groundwater sample analytical results (for TPH-G, TPH-D, and TPH-O only) are shown on Table 1.

As part of the remedial investigation (RI) at the Unocal Edmonds Terminal in 1995, four monitoring wells (MW-105, MW-106, MW-107, and MW-137) were installed on BNSF property along the east side of the railroad tracks, to the south, southeast, and east of the Port's current dry stack storage area. The locations of the wells are shown on Figure 1. At least 5 soil samples from each boring were submitted to a laboratory for analysis of TPH-G, TPH-D, TPH-O, BTEX, and PAHs. The samples from all of the borings contained TPH-G, TPH-D, TPH-O, and BTEX concentrations below the current MTCA Method A cleanup levels or the MRLs (MFA, 2001b). The 1-foot-deep sample from boring MW-105 and the 3.5-foot-deep sample from boring MW-106 contained total cPAH concentrations that exceeded the current Method A cleanup level. The other samples from MW-105 and MW-106, and all of the samples from MW-107 and MW-137 contained toxicity-adjusted total cPAH concentrations that were below the current Method A cleanup level. The samples from MW-105 and MW-106 that contained total cPAH concentrations greater than the

Method A cleanup level were collected at depths above the groundwater table which indicates that there were releases of products containing cPAHs at the BNSF property.

From 1995 through 2006, groundwater samples were collected from wells MW-105, MW-106, MW-107, and MW-137 on a quarterly to annual basis (total of 23 samples from each well). The groundwater sample analytical results showed that most of the samples collected from wells MW-105 and MW-106 prior to 1999 contained TPH-D and/or TPH-O concentrations that exceeded the current MTCA Method A cleanup levels. After 1998, all of the samples from MW-105 and MW-106 contained TPH-G, TPH-D, TPH-O, BTEX, and toxicity-adjusted total cPAH concentrations that were below the current Method A cleanup levels or the MRLs. The sample collected from MW-107 in August 1997 contained a TPH-D concentration (533 µg/L) that exceeded the current Method A cleanup level. All of the other samples from MW-107 contained TPH-G, TPH-D, TPH-O, BTEX, and toxicity-adjusted total cPAH concentrations that were below the current Method A cleanup levels or the MRLs. All of the samples collected from MW-137 contained TPH-G, TPH-D, TPH-O, BTEX, and toxicity-adjusted total cPAH concentrations that were below the current Method A cleanup levels or the MRLs (MFA, 2001b; MFA, 2003; SLR, 2004; SLR, 2005a; SLR, 2005b; SLR, 2006a; and SLR, 2006c). The previous groundwater sample analytical results (for TPH-G, TPH-D, and TPH-O only) are shown on Table 1.

Previous Investigation Results – Southwestern Part of Lower Yard of Unocal Edmonds Terminal

From 1986 to 2002, numerous investigations were conducted at the lower yard of the Unocal Edmonds Terminal, including an RI that was conducted from 1994 to 1996 and an SRI that was conducted in 2001 and 2002. Within the southwestern part of the lower yard, the investigation activities included drilling and sampling 54 soil borings, installing 20 monitoring wells, excavating and sampling 26 test pits, and collecting groundwater samples from selected monitoring wells and test pits. The locations of the borings, wells, and test pits are shown on Figure 1. Since BTEX compounds were not detected at concentrations above the current MTCA Method A cleanup levels in the soil and groundwater beneath the BNSF property and Admiral Way, SLR did not evaluate the BTEX concentrations at the Unocal Edmonds Terminal. Since there were releases of products containing cPAHs at the BNSF property, SLR also did not evaluate the cPAH concentrations at the Unocal Edmonds Terminal.

Prior to conducting interim actions in the southwestern part of the lower yard in 2001 and 2003, floating petroleum free product was present in the southwestern part of the lower yard at two locations, near the former railroad loading rack and between the northeastern former truck loading rack and the southeastern tidal basin. The estimated lateral extents of the areas of floating product in December 2000 are shown on Figure 2. The product in both areas consisted of a mixture of gasoline, diesel, and oil; however, both products consisted primarily of gasoline (approximately 54 to 76 percent) (MFA, 2001b). The product near the tidal basin contained approximately 42 percent diesel and 5 percent oil, and the product near the former

railroad loading rack contained approximately 18 percent diesel and 6 percent oil. The viscosity of the product located near the former railroad loading rack (7.67 centistokes at 40º C) was slightly greater than a diesel #2 product, and the viscosity of the product located near the southern tidal basin (1.86 centistokes at 40º C) was comparable to a diesel #1 product (MFA, 2001b).

Based on the presence of product near well MW-11 in 1986 (GeoEngineers, 1986) and the lack of product in downgradient well MW-28 (on BNSF property) by 2003 (prior to the interim action to recover the product), the migration rate of the product near the former railroad loading rack is estimated at less than 35 feet in at least 17 years (less than 2.1 feet per year). The locations of MW-11 and MW-28 are shown on Figure 2. Based on the presence of product in well MW-20 in 1989 (GeoEngineers, 1989) and the lack of product in the southeastern tidal basin by 2001 (prior to the interim action to recover the product), the product migration rate near the tidal basin is estimated at less than 20 feet in 12 years (less than 1.7 feet per year). The locations of MW-20 and the tidal basin are shown on Figure 2. From the dates of well installation (1991 or 1995) through 2006, free product has not been observed in any of the monitoring wells on BNSF property. BNSF well MW-28 is located only 35 feet northwest (downgradient) of a previous area of floating free product. The low product migration rates are likely due to the high product viscosities and to groundwater table fluctuations (due primarily to tidal influence) filling most of the pore spaces in the product-bearing zone with water.

Prior to conducting the interim actions in 2001 and 2003, soil samples from borings and test pits located throughout most of the northwestern half of the southwestern part of the lower yard contained TPH-G, TPH-D, and/or TPH-O concentrations greater than the current MTCA Method A cleanup levels (MFA, 2001b and MFA, 2003). The soil containing TPH-G, TPH-D, and/or TPH-O concentrations greater than the current MTCA Method A cleanup levels occurred more sporadically within the southeastern half of the southwestern part of the lower yard. At several locations, the impacted soil extended beyond the lower yard property line, likely less than 20 feet into the southeastern portion of the BNSF property. The estimated areas of petroleum-impacted soil, in 2001, are shown on Figure 1.

Prior to conducting the previous interim actions, groundwater samples from monitoring wells and test pits located throughout most of the northwestern half of the southwestern part of the lower yard contained TPH-G, TPH-D, and/or TPH-O concentrations greater than the current MTCA Method A cleanup levels (MFA, 2001b; and MFA, 2003). The groundwater containing TPH-G, TPH-D, and/or TPH-O concentrations greater than the current MTCA Method A cleanup levels also occurred locally within the southeastern half of the southwestern part of the lower yard. The impacted groundwater extended beyond the lower yard property line, likely less than 20 feet into the southeastern portion of the BNSF property. The estimated areas of petroleum-impacted groundwater in 2001 are shown on Figure 2. The previous groundwater sample analytical results from the monitoring wells (for TPH-G, TPH-D, and TPH-O only) are presented in Table 1.

Previous Interim Remedial Action Results – Southwestern Part of Lower Yard of Unocal Edmonds Terminal

To recover the floating petroleum free product near the southeastern tidal basin, a passive product recovery trench [with recovery sump (RW-1)] was installed between the northeastern former truck loading rack and the tidal basin in 1987 (GeoEngineers, 1987). The location of the trench is shown on Figure 2. Over 7,500 gallons of product were extracted from the trench by 1992 when the operation was discontinued due to low recovery rates. From 1992 through 2000, a total of approximately 1,970 gallons of product was passively recovered (by bailing) from the monitoring wells in the lower yard that contained recoverable product (including wells located in the southwestern part of the Terminal) (MFA, 2001a).

In 2001 and 2003, interim remedial actions were conducted at the lower yard to recover floating petroleum product and to remove the source of the floating product. In 2001, the interim action included soil excavation and groundwater/product recovery to remove the floating product between the northeastern former truck loading rack and the southeastern tidal basin. Approximately 4,500 cubic yards of hydrocarbon-impacted soil were excavated from the southwestern part of the lower yard (from an excavation designated as Excavation A), and the soil that contained combined TPH-G, TPH-D, and TPH-O concentrations greater than 5,000 mg/kg were hauled off site for thermal treatment (MFA, 2002). The excavation was completed at a depth of approximately 9 feet bgs (at least 1 foot below the low seasonal groundwater table) to allow access to the free product. The excavation was extended laterally until product-saturated soil was not observed in sidewalls. The area of Excavation A is shown on Figure 3. The excavated soil that contained combined TPH-G, TPH-D, and TPH-O concentrations less than 5,000 mg/kg were used to backfill the excavation at depths above the high seasonal groundwater table. The free product that collected on the groundwater in Excavation A was extracted and hauled off-site for recycling. After completing the interim action, free product has been detected in a post-excavation monitoring well (MW-140) located near the center of the excavation, indicating that the interim action did not remove all of the product in the area. The estimated area of the remaining recoverable product in 2006 is shown on Figure 4.

In 2003, an additional interim action was conducted in the southwestern part of the lower yard to recover the product near the former railroad loading rack and to remove the soil that contained petroleum hydrocarbon concentrations greater than Unocal-specified action levels. The work included excavating approximately 19,600 tons of hydrocarbon-impacted soil and extracting product/groundwater from the excavation (designated as Southwest Lower Yard Excavation) (MFA, 2004). The excavation was completed at a depth of approximately 7.5 feet bgs (approximately 1 foot below the groundwater table) to allow access to the free product. The excavation extended laterally from the toe of the upper yard slope to near the northwestern property boundary, and from approximately 20 feet northeast of the former southwestern piping trestle to the asphalt driveway near the southwestern former truck loading rack (Figure 3). The excavation was extended laterally until the soil concentrations were below the action levels, where possible. The excavated soil was hauled off-site for

thermal treatment or disposal, and the excavation was backfilled with clean, imported fill. An estimated total of 800,000 gallons of groundwater were pumped from the excavation and treated on site prior to discharge to Willow Creek (under the Terminal's NPDES permit). An unknown volume of product was extracted with the groundwater. The product was collected in the on-site treatment system and hauled off-site for recycling. After completing the interim action, free product has not been detected in the monitoring wells in that area, indicating that the interim action effectively removed the product. Therefore, the potential for future product migration in that area has been removed.

Groundwater Monitoring Results After 2003

After completing the interim remedial actions, the groundwater concentrations decreased in the southwestern part of the lower yard, especially in the vicinity of the Southwestern Lower Yard Excavation (SLR, 2004; SLR, 2005a; SLR, 2005b; SLR, 2006a; and SLR, 2006c). By 2006, petroleum hydrocarbon concentrations in the groundwater that exceeded the current MTCA Method A cleanup levels only occurred in the northern part of the area, primarily in the vicinity of the remaining area of floating petroleum product (see Figure 4). The impacted groundwater beneath the northern part of the area extended beyond the lower yard property line, likely less than 20 feet into the southeastern portion of the BNSF property. Based on the lack of impacted groundwater in downgradient off-site well MW-107, the area of impacted groundwater appears to be stable. The groundwater sample analytical results (for TPH-G, TPH-D, and TPH-O only) from the monitoring wells located in the southwestern part of the lower yard are presented in Table 1.

Geologic and Hydrogeologic Setting

Based on the previous investigation data, two shallow geologic units (fill and underlying alluvium) are present beneath the lower yard of the Unocal Edmonds Terminal, and these units extend to beneath the Port property. Figure 5 presents a geologic cross section (A-A') that extends from the southwestern portion of the lower yard to the Port property. The location of the cross section is shown on Figure 1. The fill beneath the southwestern part of the lower yard and beneath the BNSF and Port properties primarily consists of sand and gravel. The underlying alluvium typically consists of sand with trace to few silt, trace to few organic material, and trace gravel (MFA, 2001b). Interbedded sand with silt is abundant, and interbedded silt and sandy silt are also frequent. The lithologies beneath the area do not provide preferential pathways (e.g., sand or gravel beds; channels in predominantly fine-grained silt or clay; laterally continuous sand interbeds in silt or clay) for the migration of petroleum product or dissolved-phase hydrocarbons.

The excavation to install the WSDOT storm drain line was reportedly backfilled with the excavated material (WSDOH, 1971). The backfill around the line would therefore primarily consist of sand and gravel (confirmed in the borehole log for well MW-301) and is likely to have similar hydraulic properties to those of the fill and alluvium under the lower yard, the BNSF property, and the Port property. Given the similar lithologies of the backfill material

and the surrounding subsurface material, the backfill material should not act as a preferential groundwater migration pathway. Additionally, there are no other subsurface utilities or pipelines in the southwestern portion of the lower yard that occur at depths below the groundwater table and could provide a preferential groundwater migration pathway. Based on the lack of preferential pathways, any petroleum migration from the lower yard should disperse laterally with distance.

Groundwater is present in the fill and alluvium beneath the southwestern part of the lower yard and beneath the BNSF property at depths ranging from approximately 5 to 7.5 feet bgs. The shallow groundwater is unconfined, tidally influenced, and likely a regional aquifer. The general groundwater flow direction beneath the southwestern portion of the lower yard is to the northwest, toward the BNSF and Port properties (MFA, 2001b; MFA, 2003; and SLR, 2006b).

Conclusions

Based on the presence of petroleum hydrocarbons beneath the Port property in 1996, LAI and the Port suggested two potential petroleum migration pathways from the lower yard of the Unocal Edmonds Terminal to the Port property. These pathways included groundwater migration in the backfill above a WSDOT storm drain line (potential preferential migration pathway), and groundwater migration under the BNSF property. Based on SLR's evaluation of the previous the investigation data, petroleum hydrocarbons did not migrate to the Port property via either suggested pathway, and the contamination beneath the Port property was not due to the migration of petroleum hydrocarbons from the lower yard. It appears that the source of the contamination beneath the Port property is due to an off-site petroleum hydrocarbon source(s) to the northwest or north of the lower yard. A summary of the rationale behind the elimination of each suggested migration pathway and a listing of potential petroleum sources to the northwest and north of the lower yard are presented below.

Potential Contaminant Migration in WSDOT Storm Drain Line Backfill

Based on the previous investigation results, the backfill above WSDOT's storm drain line did not provide a preferential pathway for petroleum migration from the lower yard to the Port property, as demonstrated by the following:

- The petroleum contamination beneath the southwestern part of the lower yard consists primarily of gasoline while the contamination detected in the soil beneath the Port property consisted only of diesel and oil. The laboratory that analyzed the soil samples from the Port property also evaluated the chromatograms of the samples and concluded that the contamination was a combination of heavy diesel oil and lubricating oil. Laboratory analysis of product samples from the southwestern portion of the lower yard showed that the products consisted of 54 to 76 percent gasoline and only 5 to 6 percent oil.

- Free product has never been detected in the monitoring well (MW-301) installed within the backfill above the storm drain line.

- Free product was not observed in the soil samples collected from boring MW-301 and the detected petroleum hydrocarbon concentrations in the analyzed soil sample from the boring were low. The detected TPH-O and TPH-D concentrations in the soil sample from MW-301 were up to 19,810 mg/kg less than the detected concentrations in the soil beneath the Port property. We would expect much higher petroleum concentrations in the soil at MW-301 if contamination was migrating within the backfill.

- The groundwater beneath the lower yard is hydraulically connected to the surface water in the southeastern tidal basin and Willow Creek. Since the storm drain line runs beneath the tidal basin, any product within the backfill above the line would likely have migrated into the basin if it had reached that location. To date, free product has never been observed in the tidal basin.

- The storm drain backfill is similar lithologically and hydraulically to the surrounding fill and alluvium, and thus would not create a preferential pathway for groundwater migration from the lower yard.

Potential Contaminant Migration Beneath BNSF Property

Based on the previous investigation results, petroleum hydrocarbons at the lower yard did not migrate beneath the BNSF property to the Port property, as demonstrated by the following:

- As stated above, the petroleum contamination beneath the lower yard consists primarily of gasoline while the contamination detected in the soil beneath the Port property consisted only of diesel and oil.

- The shallow geology under the lower yard, BNSF property, and Port property are similar and the lithologies beneath the area do not provide continuous preferential pathways for contaminant migration. Besides the WSDOT storm drain line, there are no underground utilities or pipelines that occur at depths below the groundwater table and could act as a preferential migration pathway. Based on the lack of preferential pathways, any petroleum migration from the lower yard should disperse with distance.

- The migration rates of the product beneath the southwestern part of the lower yard are very slow (less than 2.1 feet per year) due to high viscosities and to groundwater table fluctuations (due primarily to tidal influence) filling most of the pore spaces in the product-bearing zone with water. Based on the product migration rates, it would take over 70 years for the products beneath the southwestern portion of the lower yard to migrate to the Port property. Since there are no potential preferential

product migration pathways, product would likely have been detected in at least one of the BNSF wells if product was migrating beneath the BNSF property.

- The distributions of petroleum hydrocarbons in the soil beneath the southwestern part of the lower yard and off-site provide no indication of the migration of petroleum hydrocarbons from the lower yard to the Port property (see Figures 1 and 3). The soil samples collected at depths at or near the groundwater table from the borings located on the BNSF property did not contain petroleum hydrocarbon concentrations above the current MTCA Method A cleanup levels. Soil samples from only two of the seven soil borings located within Admiral Way (SB-1 and SB-4) contained petroleum hydrocarbon (TPH-D and toxicity-adjusted total cPAHs only) concentrations that exceeded the current MTCA Method A cleanup levels. The TPH-D concentrations in the soil beneath the Port property were up 14,990 mg/kg greater than the TPH-D concentrations at SB-1 and SB-4, which indicates that the contamination beneath the Port property was not likely due to contaminant migration through the areas of SB-1 or SB-4. The soil samples collected from the two soil borings (SB-2 and SB-3) within Admiral Way that were located directly between the area of impacted soil beneath the southwestern part of the lower yard and the area of impacted soil beneath the Port property did not contain TPH-D or TPH-O concentrations greater than the current Method A cleanup levels or the MRLs. The soil samples from SB-2 and SB-3 also did not contain TPH-G or BTEX concentrations above the MRLs.

- The distributions of petroleum hydrocarbons in the groundwater beneath the southwestern part of the lower yard and off-site provide no indication of the migration of petroleum hydrocarbons from the lower yard to the Port property (see Figures 2 and 4). Of the 13 wells and borings located between the area of groundwater contamination beneath the southwestern portion of lower yard and the area of groundwater contamination beneath the Port property, only groundwater samples collected from well MW-106 (prior to 1999 only), well MW-107 (only one sample out of 23), and boring SB-1 contained petroleum hydrocarbon concentrations greater than the current MTCA Method A cleanup levels. The TPH-D and TPH-O concentrations in the groundwater beneath the Port property were up to 12,467 mg/kg greater than the detected TPH-D and TPH-O concentrations in the groundwater samples from MW-106, MW-107, and SB-1, which indicates that the contamination beneath the Port property was not likely due to contaminant migration through the areas of MW-106, MW-107, and SB-1.

- Prior to 1999, at least one groundwater sample from off-site wells MW-105, MW-106, and MW-107 contained TPH-D and/or TPH-O concentrations greater than the current MTCA Method A cleanup levels. These wells are located on BNSF property. After 1998, all of the groundwater samples from MW-105, MW-106, and MW-107 contained TPH-D and TPH-O concentrations below the current Method A cleanup levels or the MRLs. The reduction in TPH-D and TPH-O concentrations

indicates that the source of the contamination had been eliminated; however, the sources of the impacted groundwater beneath the southwestern part of the lower yard were not actively remediated until 2001 and 2003. This indicates that the groundwater contamination at the wells on BNSF property was likely due to sources of contamination at the BNSF property that were eliminated prior to the late 1990s.

- The lack of petroleum hydrocarbon concentrations above the current MTCA Method A cleanup levels in the BNSF wells after 1998 indicates that the downgradient extent of the impacted groundwater beneath the southwestern part of the lower yard has stabilized within 30 feet of the property line.

Potential Sources of the Petroleum-Impacted Soil and Groundwater Beneath the Port Property

Based on our review of the investigation data and information about historical uses of the area, potential sources of the impacted soil and groundwater at the Port property include the following:

- The dredged sediments from the marina site that were used to fill the Port property may have been impacted.

- There are potential petroleum sources (underground storage tank and a designated landfill site) on Port properties located to the northeast of the dry stack storage facility.

- Petroleum releases may have occurred during railroad operations at the Great Northern Railroad railspur that ran through the Port property prior to 1962.

- Based on the presence of elevated total cPAH concentrations in soil beneath the BNSF property at depths above the groundwater table and the presence of elevated petroleum hydrocarbon concentrations in the groundwater beneath the BNSF property prior to 1999, there have been releases of products containing cPAHs (likely petroleum hydrocarbons) at the BNSF property. These releases at the BNSF property may be the source(s) of the contamination at the Port property.

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Table 1
Groundwater Sample Analytical Results - All Events
TPH Concentrations
Unocal Edmonds Terminal

Location	Sample ID	Date	TPH-G or Gasoline Range Hydrocarbons[a] (µg/L)	TPH-D or Diesel Range Hydrocarbons[b] (µg/L)	TPH-O or Heavy Oil Range Hydrocarbons[c] (µg/L)
Monitoring Wells in Southwestern Part of Lower Yard					
MW-8	MW-8-1195	11/30/1995	**2,800 J**	**20,000**	**12,000**
	MW-8-0296	2/21/1996	**4,000**	**7,900**	**3,700**
	MW-8-0596	5/14/1996	**3,200**	**30,000**	**13,000**
	MW-08-1196	11/13/1996	400 J	**6,300**	**1,100 J**
	MW-8-0601	6/26/2001	**2,700**	**2,500**	**1,310**
	MW-8-1003	10/21/2003	<50	<250	<500
	MW-8-0204	2/9/2004	220	<250	<500
	MW8-0804	8/19/2004	**2,300**	**647**	<500
	MW8-0205	2/11/2005	**1,430**	**834**	<500
	MW8-0805	8/26/2005	**3,280**	<250	<500
	MW8-0206	2/10/2006	50.2	<236	<472
	MW210-0206 (dup of MW-8)	2/10/2006	<50	<236	<472
	MW8-0806	8/31/2006	**1,190**	<236	<472
MW-20	MW-20-1195	11/30/1995	**9,300 J**	**10,000**	**2,500**
	MW-20-0297	2/26/1997	**1,500**	**3,750**	**928**
	MW-20-0298	2/12/1998	**3,300**	**8,520**	**2,290**
	MW-20-0298	2/25/1998	<50	**624**	<500
	MW-20-0898	8/31/1998	400	300 BJ	<750
	MW-20-0299	2/17/1999	**1,700**	204 BJ	<750
	MW-20-0200	2/22/2000	**5,900**	**8,120**	**1,370**
	MW-20-0800	8/25/2000	---	<464	<1,390
	MW-20-0201	2/7/2001	**1,500**	**929**	<750
	MW-20-0301	3/2/2001	**1,100**	288	<750
	MW-20-0301-Dup	3/2/2001	**930**	318	<750
	MW-20-0601	6/29/2001	**2,700**	294	<500
MW-20R	MW-20R-0202	2/26/2002	**5,200**	420	<500
	MW-20R-0802	8/27/2002	**1,600 JD**	<250	<500
	MW-20R-0802-Dup	8/27/2002	**1,800**	<250	<500
	MW-20R-0203	2/26/2003	**3,600**	<250	<500
	MW-20R-0803	8/20/2003	**1,500**	<250	<500
	MW-320-0803 (dup of MW-20R)	8/20/2003	**1,600**	**804**	<500
	MW-20R-0204	2/9/2004	**1,200**	<250	<500
	MW20R-0804	8/19/2004	**3,000**	<250	<500
	MW20R-0205	2/11/2005	433	<250	<500
	MW20R-0805	8/26/2005	**1,540**	<250	<500
	MW20R-0206	2/13/2006	**1,300**	<236	<472
	MW20R-0906	9/5/2006	**3,310**	<236	<472
MW-22	MW-22-1195	11/29/1995	100 J	**1,300**	**890**
	MW-22-0296	2/21/1996	<100	450	<710
	MW-22-0596	5/14/1996	100 J	440	<740
	MW-22-0896	8/14/1996	180 J	**900**	<710
	MW-22-1196	11/6/1996	120 J	**890**	<710
	MW-22-0601	6/26/2001	<50	<250	<500
	MW-22-1003	10/21/2003	<50	<250	<500
	MW-22-0204	2/9/2004	<50	<250	<500
	MW22-0804	8/19/2004	<50	<250	<500
	MW22-0206	2/9/2006	<50	<236	<472
	MW22-0806	8/31/2006	<100	<236	<472
MW-104	MW-104	12/28/1992	**15,000 J**	460[d]	---
	MW-104-1195	11/30/1995	**8,300 J**	**1,300**	<770
	MW-104-1195-Dup	11/30/1995	**8,900 J**	**690**	---
	MW-104-0296	2/22/1996	**7,400 J**	**580**	<750
	MW-104-0596	5/14/1996	**7,400 J**	**590**	<710
	MW-104-0896	8/14/1996	**5,000 J**	**550**	<780
	MW-104-1196	11/5/1996	**4,300 J**	400	<710
	MW-104-0297	2/26/1997	**11,000**	**748**	<750
	MW-104-0297-Dup	2/26/1997	**11,000**	**661**	<750

Table 1
Groundwater Sample Analytical Results - All Events
TPH Concentrations
Unocal Edmonds Terminal

Location	Sample ID	Date	TPH-G or Gasoline Range Hydrocarbons[a] (µg/L)	TPH-D or Diesel Range Hydrocarbons[b] (µg/L)	TPH-O or Heavy Oil Range Hydrocarbons[c] (µg/L)
Monitoring Wells in Southwestern Part of Lower Yard (Continued)					
MW-104	MW-104-0897	8/11/1997	**2,600**	**602**	<500
(Cont.)	MW-104-0897-Dup	8/11/1997	**3,700**	**691**	---
	MW-104-0298	2/19/1998	**1,400 E**	301 B	199
	MW-104-0898	8/31/1998	**2,900**	150 BJ	<750
	MW-104-0898-Dup	8/31/1998	**2,700**	266 B	<750
	MW-104-0299	2/18/1999	**7,400**	129 BJ	<750
	MW-104-0200	2/22/2000	**1,700**	<250	<750
	MW-104-0201	2/7/2001	580	<250	<750
	MW-104-0601	6/29/2001	**1,400**	<250	<500
	MW-104-0601-Dup	6/29/2001	**1,000**	<250	<500
	MW-104-1101	11/29/2001	**3,300 J**	267 J	<500
	MW-104-1101-Dup	11/29/2001	**3,200 J**	261 J	<500
	MW-104-0202	2/27/2002	**1,600**	<250	<500
	MW-104-0802	8/27/2002	790 J	<250	<500
	MW-104-0203	2/26/2003	**1,200 J**	<250	<500
	MW-104-0803	8/21/2003	510	<250	<500
	MW-104-0204	2/10/2004	**1,600**	<250	<500
	MW104-0804	8/19/2004	680	<250	<500
	MW-104-0205	2/11/2005	**1,450**	<250	<500
	MW104-0805	8/26/2005	380	<250	<500
	MW104-0206	2/13/2006	643	<236	<472
	MW104-0906	9/5/2006	244	<236	<472
MW-123	MW-123-1195	11/30/1995	**2,000 J**	**2,800**	**1,200**
	MW-123-0296	2/21/1996	**2,400 J**	**3,500**	**4,200**
	MW-123-0596	5/14/1996	**2,400**	**2,500**	<710
	MW-123-0896	8/15/1996	**1,700**	**4,300**	<770
	MW-123-0896-Dup	8/15/1996	**1,700 J**	**7,900**	**1,200**
	MW-123-1196	11/6/1996	**2,400 J**	**6,700**	**1,600**
	MW-123-0297	2/26/1997	**2,800**	**6,860**	**1,450**
	MW-123-0897	8/11/1997	**4,700**	**14,000**	<500
	MW-123-0298	2/12/1998	**5,200**	**2,750**	334
MW-124	MW-124-1195	11/29/1995	**3,500**	**6,300**	**1,300**
	MW-124-0301	3/28/2001	**1,500**	**27,000**	<7,500
	MW-124-1101	11/29/2001	---	---	---
MW-125	MW-125-1195	11/29/1995	800 J	**6,200**	**4,600**
	MW-125-0296	2/21/1996	**3,500 J**	**4,600**	**1,400**
	MW-125-0596	5/14/1996	**3,600**	**3,700**	**890**
	MW-125-0896	8/14/1996	**2,600 J**	**4,300**	**2,100**
	MW-125-0896-Dup	8/14/1996	**2,700 J**	**3,600**	**1,000**
	MW-125-1196	11/6/1996	**2,000 J**	**5,900**	**3,400**
	MW-125-0297	2/26/1997	**3,700**	**5,770**	**1,480**
	MW-125-0897	8/11/1997	**7,100**	**5,670**	<500
	MW-125-0298	2/12/1998	**3,100**	290 B	133
	MW-125-0898	8/31/1998	**5,000**	436 B	296 J
	MW-125-0299	2/17/1999	**3,000**	261	<750
	MW-125-0601	6/26/2001	**5,700**	443	<500
	MW-125-1003	10/20/2003	**1,700**	**6,030**	**2,080**
MW-127	MW-127-1195	11/29/1995	<2,000	**1,100**	<710
	MW-127-0296	2/21/1996	<100	**3,100**	**1,100**
	MW-127-0596	5/14/1996	<100	**3,000**	<710
	MW-127-0896	8/14/1996	<100	**2,400**	<710
	MW-127-1196	11/6/1996	<100	**2,500**	<840
	MW-127-1196-Dup	11/6/1996	<100	**2,600**	---
	MW-127-0601	6/26/2001	57	340	<500
MW-128	MW-128-1195	11/30/1995	**3,300 J**	**1,400**	<710
	MW-128-1195-Dup	11/30/1995	**2,200**	**1,500**	**800**
	MW-128-0296	2/21/1996	**3,300 J**	**2,100**	**820**

Table 1
Groundwater Sample Analytical Results - All Events
TPH Concentrations
Unocal Edmonds Terminal

Location	Sample ID	Date	TPH-G or Gasoline Range Hydrocarbons[a] (µg/L)	TPH-D or Diesel Range Hydrocarbons[b] (µg/L)	TPH-O or Heavy Oil Range Hydrocarbons[c] (µg/L)
Monitoring Wells in Southwestern Part of Lower Yard (Continued)					
MW-140	MW-140-0502	5/28/2002	**4,100**	499	<500
	MW-140-0203	2/26/2003	**5,000 J**	**1,430**	<500
MW-143	MW-143-0202	2/27/2002	<250	<250	<500
	MW-143-0502	5/29/2002	<50	<250	<500
	MW-143-0802	8/27/2002	<50	<250	<500
	MW-143-0203	2/26/2003	<50	<250	<500
	MW-143-0803	8/20/2003	<50	328	<500
	MW-143-0204	2/9/2004	<50	<250	<500
	MW143-0804	8/19/2004	<50	<250	<500
	MW143-0206	2/10/2006	<50	<236	<472
	MW143-0906	9/1/2006	<100	<236	<472
MW-145	MW-145-0502	5/29/2002	**1,900 J**	<250	<500
	MW-145-0802	8/27/2002	**1,800 J**	<250	<500
	MW-145-0203	2/26/2003	**1,100 J**	<250	<500
	MW-145-0803	8/20/2003	**1,200**	**529**	<500
	MW-145-0204	2/9/2004	490	<250	<500
	MW145-0804	8/19/2004	**1,000**	<250	<500
	MW145-0206	2/13/2006	350	<236	<472
	MW145-0906	9/1/2006	289	<236	<472
MW-147	MW147-0804	8/12/2004	81	347	<500
	MW147-0205	2/10/2005	**929**	**1,390**	<500
	MW147-0805	8/26/2005	**1,330**	<250	<500
	MW147-0206	2/9/2006	**894**	**701**	<472
	MW147-0806	8/30/2006	181	<236	<472
MW-148	MW148-0804	8/12/2004	**4,900**	**1,350**	<500
	MW148-0205	2/10/2005	<50	<250	<500
	MW148-0805	8/25/2005	258	<250	<500
	MW148-0206	2/9/2006	<50	<236	<472
	MW148-0806	8/29/2006	<100	<236	<472
MW-149	MW149-0804	8/12/2004	<50	<250	<500
	MW149-0205	2/10/2005	<50	<250	<500
	MW149-0805	8/25/2005	<50	<250	<500
	MW149-0206	2/9/2006	<50	<236	<472
	MW149-0806	8/29/2006	<100	<236	<472
MW-150	MW150-0804	8/12/2004	<50	<250	<500
	MW150-0205	2/10/2005	<50	<250	<500
	MW150-0805	8/24/2005	<50	<250	<500
	MW150-0206	2/9/2006	<50	<236	<472
	MW150-0806	8/29/2006	<100	<236	<472
MW-151	MW151-0804	8/12/2004	95	<250	<500
	MW151-0205	2/10/2005	<50	<250	<500
	MW151-0206	2/9/2006	<50	<236	<472
	MW151-0806	8/29/2006	<100	<236	<472
Monitoring Wells on BNSF Property					
MW-27	MW-27 (BNRR)	5/8/1991	<1,000	<1,000	---
MW-28	MW-28 (BNRR)	5/8/1991	<1,000	<1,000	---
	BNRR-MW28-1295	12/4/1995	<100	<240	<710
	MW-28-0296	2/21/1996	<100	<240	<710
	MW-28-0596	5/14/1996	<100	<250	<750
	MW-28-0896	8/14/1996	<100	<240	<710
	MW-28-1196	11/5/1996	<100	<240	<710
	MW-28-0297	2/25/1997	<50	<250	<750
	MW-28-0897	8/12/1997	<50	<250	<500

Table 1
Groundwater Sample Analytical Results - All Events
TPH Concentrations
Unocal Edmonds Terminal

Location	Sample ID	Date	TPH-G or Gasoline Range Hydrocarbons[a] (µg/L)	TPH-D or Diesel Range Hydrocarbons[b] (µg/L)	TPH-O or Heavy Oil Range Hydrocarbons[c] (µg/L)
Monitoring Wells on BNSF Property (Continued)					
MW-28	MW-28-0298	2/19/1998	12 B	99.7 B	<92
(Cont.)	MW-28-0598	8/26/1998	5.3 BJ	70.5 J	<750
	MW-28-0299	2/16/1999	<50	29.1 BJ	<750
	MW-28-0200	2/23/2000	<50	<250	<750
	MW-28-0201	2/7/2001	<50	<250	<750
	MW-28-0601	6/28/2001	<80	<250	<500
	MW-28-1101	11/30/2001	<50	<250	<500
	MW-28-0502	5/28/2002	<50	<250	<500
	MW-28-0802	8/28/2002	<50	<250	<500
	MW-28-0203	2/27/2003	<50	<250	<500
	MW-28-0204	2/13/2004	<50	<250	<500
	MW28-0804	8/24/2004	<50	<250	<500
	MW28-0805	8/24/2005	<50	<250	<500
	MW28-0206	2/17/2006	<50	<236	<472
	MW28-0906	9/26/2006	---	<236	<472
	MW28-1006	10/4/2006	<50	---	---
MW-29	MW-29 (BNRR)	5/8/1991	<1,000	<1,000	---
MW-105	MW-105-1295	12/27/1995	<100	**680**	<710
	MW-105-1295-Dup	12/27/1995	<100	**690**	**740**
	MW-105-0296	2/21/1996	<100	**510**	**890**
	MW-105-0596	5/14/1996	<100	**1,000**	**1,100**
	MW-105-0896	8/14/1996	<100	**620**	<710
	MW-105-1196	11/5/1996	<100	**940**	**1,000**
	MW-105-0297	2/25/1997	5.50 BJ	**705**	<750
	MW-105-0897	8/12/1997	<50	**944**	<500
	MW-105-0298	2/19/1998	18 B	285 B	323
	MW-105-0298-Dup	2/19/1998	14 B	459 B	443
	MW-105-0598	8/26/1998	7.40 BJ	87.6 J	95 J
	MW-105-0299	2/16/1999	<50	52.9 BJ	<750
	MW-105-0200	2/23/2000	<50	<250	<750
	MW-105-0201	2/7/2001	<50	<250	<750
	MW-105-0601	6/28/2001	<50	<250	<500
	MW-105-1101	11/30/2001	<50	<250	<500
	MW-105-0502	5/28/2002	<50	<250	<500
	MW-105-0802	8/28/2002	<50	<250	<500
	MW-105-0203	2/27/2003	<50	<250	<500
	MW-105-0204	2/13/2004	<50	<250	<500
	MW105-0804	8/24/2004	<50	<250	<500
	MW105-0805	8/24/2005	<50	<250	<500
	MW105-0206	2/17/2006	<50	<236	<472
	MW105-0906	9/26/2006	---	<236	<472
	MW105-1006	10/4/2006	<50	---	---
MW-106	MW-106-1295	12/27/1995	<100	**1,600**	**<1,300**
	MW-106-0296	2/21/1996	<100	**530 E**	<710
	MW-106-0596	5/14/1996	<100	**1,700**	**1,300**
	MW-106-0896	8/14/1996	<100	**1,700**	**1,000**
	MW-106-1196	11/5/1996	<100	**1,200**	**740**
	MW-106-0297	2/25/1997	11 BJ	**2,400**	**1,520**
	MW-106-0897	8/12/1997	<50	**2,100**	<500
	MW-106-0298	2/19/1998	21 B	**1,750**	**1,080**
	MW-106-0598	8/26/1998	6.20 BJ	137 J	<750
	MW-106-0299	2/16/1999	<50	122 BJ	<750
	MW-106-0200	2/23/2000	<50	<250	<750
	MW-106-0201	2/7/2001	<50	<250	<750
	MW-106-0601	6/28/2001	<80	257	<500
	MW-106-1101	11/30/2001	<50	<250	<500
	MW-106-0502	5/28/2002	<50	<250	<500
	MW-106-0802	8/28/2002	<50	<250	<500
	MW-106-0203	2/27/2003	<50	<250	<500

Table 1
Groundwater Sample Analytical Results - All Events
TPH Concentrations
Unocal Edmonds Terminal

Location	Sample ID	Date	TPH-G or Gasoline Range Hydrocarbons[a] (µg/L)	TPH-D or Diesel Range Hydrocarbons[b] (µg/L)	TPH-O or Heavy Oil Range Hydrocarbons[c] (µg/L)
Monitoring Wells on BNSF Property (Continued)					
MW-106	MW-106-0204	2/13/2004	<50	<250	<500
(Cont.)	MW106-0804	8/24/2004	<50	<250	<500
	MW106-0805	8/24/2005	<50	<250	<500
	MW106-0206	2/17/2006	<50	<236	<472
	MW106-0906	9/26/2006	---	<236	<472
	MW106-1006	10/4/2006	<50	---	---
MW-107	MW-107-1295	12/27/1995	<100	<240	<710
	MW-107-0296	2/21/1996	<100	<240	<710
	MW-107-0596	5/14/1996	<100	<250	<740
	MW-107-0896	8/14/1996	<100	<240	<720
	MW-107-1196	11/5/1996	<100	<240	<710
	MW-107-0297	2/25/1997	34 BJ	252	<750
	MW-107-0897	8/12/1997	<50	**533**	<500
	MW-107-0298	2/19/1998	15 B	110 B	117
	MW-107-0598	8/26/1998	16 BJ	93.1 J	<750
	MW-107-0299	2/16/1999	<50	51.6 BJ	<750
	MW-107-0200	2/23/2000	<50	<250	<750
	MW-107-0201	2/7/2001	<50	<250	<750
	MW-107-0201-Dup	2/7/2001	<50	<250	<750
	MW-107-0601	6/28/2001	<80	<250	<500
	MW-107-1101	11/30/2001	<50	<250	<500
	MW-107-0502	5/28/2002	<50	<250	<500
	MW-107-0802	8/28/2002	<50	<250	<500
	MW-107-0203	2/27/2003	<50	<250	<500
	MW-107-0204	2/13/2004	<50	<250	<500
	MW107-0804	8/24/2004	<50	<250	<500
	MW107-0805	8/24/2005	<50	<250	<500
	MW107-0206	2/17/2006	<50	<236	<472
	MW107-0906	9/26/2006	---	<236	<472
	MW107-1006	10/4/2006	<50	---	---
MW-137	MW-137-1295	12/27/1995	<100	<240	<730
	MW-137-0296	2/21/1996	<100	<240	<710
	MW-137-0596	5/14/1996	<100	<240	<730
	MW-137-0896	8/14/1996	<100	<240	<710
	MW-137-1196	11/5/1996	<100	<250	<740
	MW-137-0297	2/25/1997	<50	<250	<750
	MW-137-0897	8/12/1997	<50	<250	<500
	MW-137-0298	2/19/1998	18 B	132 B	139
	MW-137-0598	8/26/1998	41 BJ	99.5 J	<750
	MW-137-0299	2/17/1999	<50	<250	<750
	MW-137-0200	2/23/2000	<50	<250	<750
	MW-137-0201	2/7/2001	<50	<250	<750
	MW-137-0601	6/28/2001	<80	<250	<500
	MW-137-1101	11/30/2001	<50	<250	<500
	MW-137-0502	5/28/2002	<50	<250	<500
	MW-137-0802	8/28/2002	<50	<250	<500
	MW-137-0203	2/27/2003	<50	<250	<500
	MW-137-0204	2/13/2004	<50	<250	<500
	MW137-0804	8/24/2004	<50	<250	<500
	MW137-0805	8/25/2005	<50	<250	<500
	MW137-0206	2/17/2006	<50	<238	<476
	MW137-0906	9/26/2006	---	<236	<472
	MW137-1006	10/4/2006	<50	---	---

Table 1
Groundwater Sample Analytical Results - All Events
TPH Concentrations
Unocal Edmonds Terminal

Location	Sample ID	Date	TPH-G or Gasoline Range Hydrocarbons[a] (µg/L)	TPH-D or Diesel Range Hydrocarbons[b] (µg/L)	TPH-O or Heavy Oil Range Hydrocarbons[c] (µg/L)

Notes:

µg/L = Micrograms per liter.

Bold values exceed the current MTCA Method A cleanup levels (used for comparative purposes only).

--- = Not analyzed.

BJ = Estimated result due to contamination in associated method blank.

JD = Estimated result due to sample dilution.

D = Sample was diluted.

E = Analyte concentration exceeds instrument calibration range.

JS = Estimated result due to sample matrix interference associated with surrogate recoveries.

B = Contamination present in associated method blank.

BCR = Result rejected due to contaminant in the associated method blank.

J = The analyte was positively identified; the associated numerical value is estimated.

[a] Total petroleum hydrocarbons (TPH) as gasoline (TPH-G) or gasoline range hydrocarbons analyzed by Ecology Methods NWTPH-Gx, WTPH-G, or EPA Method 8015M.

[b] TPH as diesel (TPH-D) or diesel range hydrocarbons analyzed by Ecology Methods NWTPH-Dx, WTPH-D, or EPA Method 8015M.

[c] TPH as oil (TPH-O) or heavy oil range hydrocarbons analyzed by Ecology Methods NWTPH-Dx, WTPH-D, or EPA Method 8015M.

[d] Chromatogram did not match the typical diesel fingerprint.

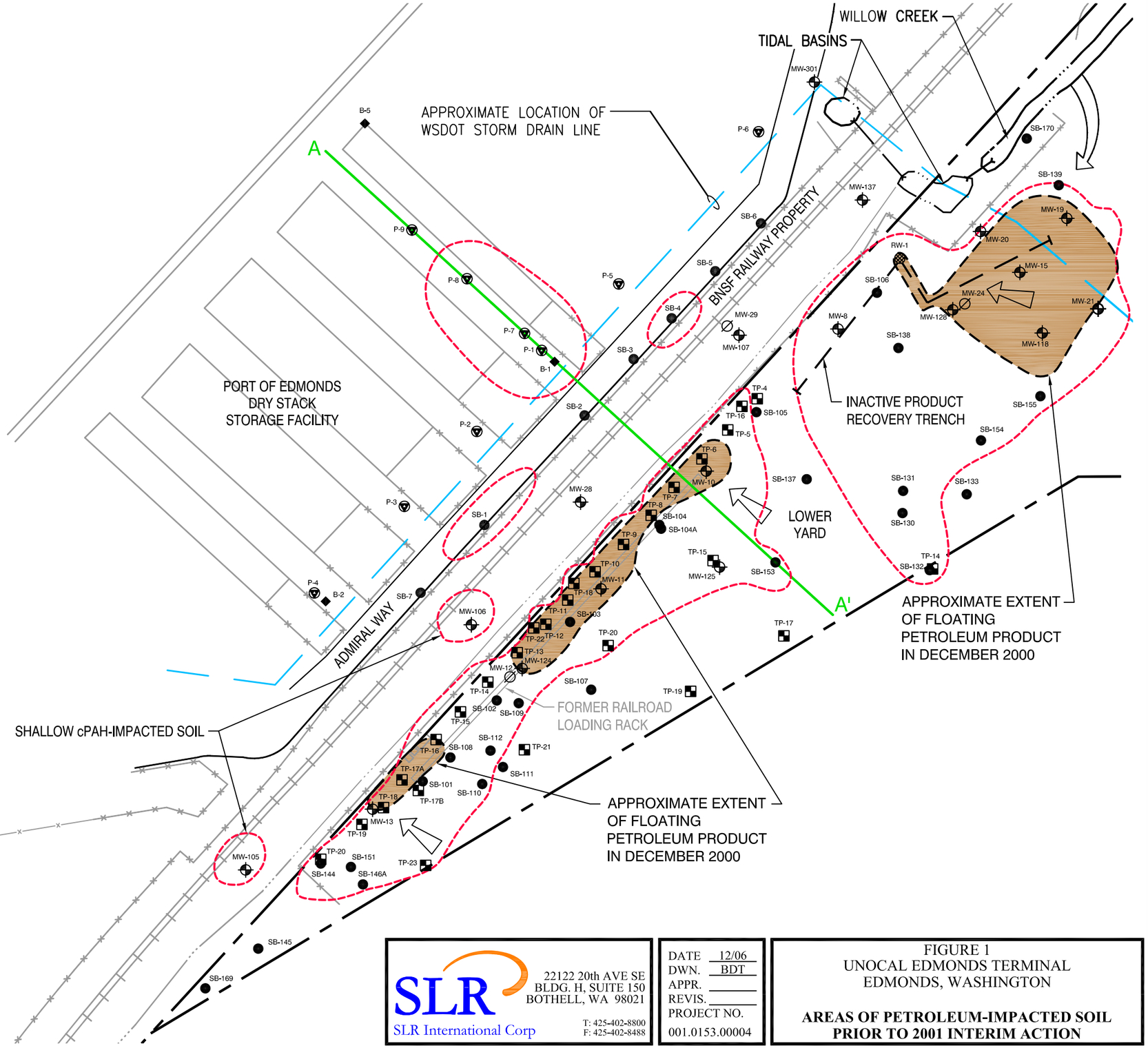
LEGEND:

- INACTIVE RECOVERY SUMP
- ABANDONED MONITORING WELL
- UNOCAL SOIL BORING LOCATION
- UNOCAL MONITORING WELL LOCATION
- UNOCAL TEST PIT LOCATION
- PORT OF EDMONDS SOIL BORING (1997)
- PORT OF EDMONDS SOIL BORING (1996)
- A—A' CROSS SECTION LOCATION
- APPROXIMATE EXTENT OF PETROLEUM-IMPACTED SOIL IN 2001
- APPROXIMATE EXTENT OF FLOATING FREE PRODUCT BASED ON 2000 DATA
- GENERAL GROUNDWATER FLOW DIRECTION

NOTES:

1) THE OFF-SITE EXTENTS OF PETROLEUM-IMPACTED SOIL ARE BASED ON TPH-G, TPH-D, THP-O, BTEX, AND/OR TOXICITY-ADJUSTED cPAH CONCENTRATIONS GREATER THAN CURRENT MTCA METHOD A CLEANUP LEVELS. BENEATH THE LOWER YARD, THE EXTENTS OF IMPACTED SOIL ARE ONLY BASED ON TPH-G, TPH-D, AND/OR TPH-O CONCENTRATIONS GREATER THAN CURRENT METHOD A CLEANUP LEVELS BECAUSE BTEX COMPOUNDS WERE NOT DETECTED OFF-SITE AT CONCENTRATIONS GREATER THAN METHOD A CLEANUP LEVELS AND THERE HAVE BEEN RELEASES OF PRODUCTS CONTAINING cPAHs AT THE BNSF PROPERTY.

2) THE EXTENTS OF PETROLEUM-IMPACTED SOIL ARE BASED ON DATA COLLECTED PRIOR TO THE 2001 INTERIM REMEDIAL ACTION.



0 80 160

SCALE IN FEET

SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 12/06
DWN. BDT
APPR. ____
REVIS. ____
PROJECT NO.
001.0153.00004

FIGURE 1
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

AREAS OF PETROLEUM-IMPACTED SOIL PRIOR TO 2001 INTERIM ACTION

LEGEND:

- INACTIVE RECOVERY SUMP
- ABANDONED MONITORING WELL
- UNOCAL SOIL BORING LOCATION
- UNOCAL MONITORING WELL LOCATION
- UNOCAL TEST PIT LOCATION
- PORT OF EDMONDS SOIL BORING (1997)
- CH2M HILL SOIL BORING
- APPROXIMATE EXTENT OF PETROLEUM-IMPACTED GROUNDWATER IN 2001
- APPROXIMATE EXTENT OF FLOATING FREE PRODUCT BASED ON DATA FROM 2000
- GENERAL GROUNDWATER FLOW DIRECTION

NOTES:

1) THE OFF-SITE EXTENTS OF PETROLEUM-IMPACTED GROUNDWATER ARE BASED ON TPH-G, TPH-D, THP-O, BTEX, AND/OR TOXICITY-ADJUSTED cPAH CONCENTRATIONS GREATER THAN CURRENT MTCA METHOD A CLEANUP LEVELS. BENEATH THE LOWER YARD, THE EXTENTS OF IMPACTED GROUNDWATER ARE ONLY BASED ON TPH-G, TPH-D, AND/OR TPH-O CONCENTRATIONS GREATER THAN CURRENT METHOD A CLEANUP LEVELS BECAUSE BTEX COMPOUNDS WERE NOT DETECTED OFF-SITE AT CONCENTRATIONS GREATER THAN METHOD A CLEANUP LEVELS AND THERE HAVE BEEN RELEASES OF PRODUCTS CONTAINING cPAHs AT THE BNSF PROPERTY.

2) THE EXTENTS OF PETROLEUM-IMPACTED GROUNDWATER ARE BASED ON DATA COLLECTED IN 2001, WHERE AVAILABLE. THE GROUNDWATER SAMPLES FROM BORINGS P-2, P-4, P-5, AND P-9 WERE COLLECTED IN 1997, AND THE GROUNDWATER SAMPLES FROM BORINGS S1, S2, AND S4 WHERE COLLECTED IN 2000.

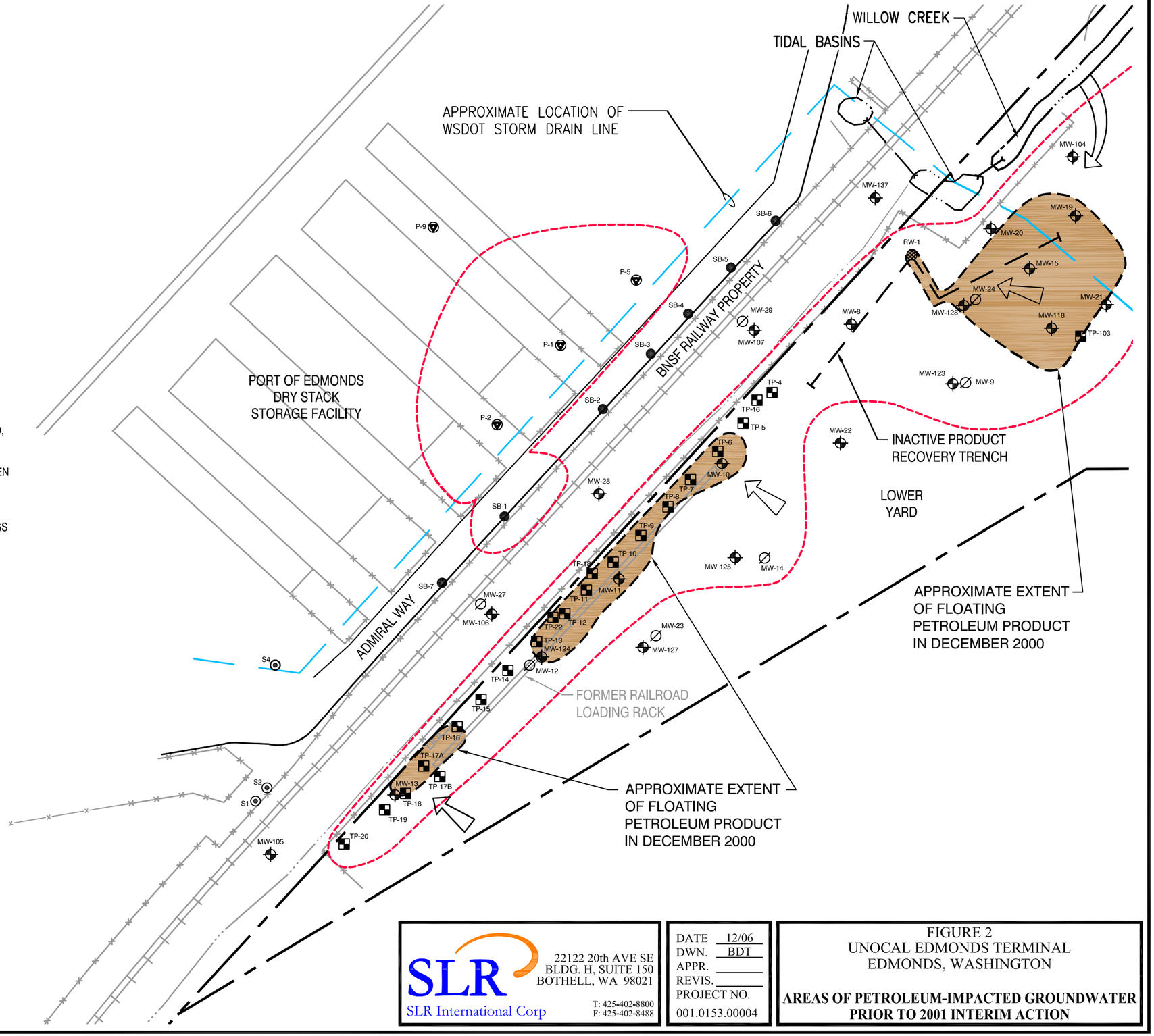


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FIGURE 2
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

AREAS OF PETROLEUM-IMPACTED GROUNDWATER PRIOR TO 2001 INTERIM ACTION

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LEGEND:

- INACTIVE RECOVERY SUMP
- ABANDONED MONITORING WELL
- UNOCAL SOIL BORING LOCATION
- UNOCAL MONITORING WELL LOCATION
- UNOCAL TEST PIT LOCATION
- UNOCAL SOIL EXCAVATION SIDEWALL SAMPLE LOCATION
- PORT OF EDMONDS SOIL BORING (1997)
- PORT OF EDMONDS SOIL BORING (1996)
- APPROXIMATE EXTENT OF PETROLEUM-IMPACTED SOIL IN 2006
- APPROXIMATE EXTENT OF FLOATING PETROLEUM PRODUCT BASED ON DATA FROM 2006
- EXTENT OF PREVIOUS SOIL EXCAVATION
- GENERAL GROUNDWATER FLOW DIRECTION

NOTES:

1) THE OFF-SITE EXTENTS OF PETROLEUM-IMPACTED SOIL ARE BASED ON TPH-G, TPH-D, THP-O, BTEX, AND/OR TOXICITY-ADJUSTED cPAH CONCENTRATIONS GREATER THAN CURRENT MTCA METHOD A CLEANUP LEVELS. BENEATH THE LOWER YARD, THE EXTENTS OF IMPACTED SOIL ARE ONLY BASED ON TPH-G, TPH-D, AND/OR TPH-O CONCENTRATIONS GREATER THAN CURRENT METHOD A CLEANUP LEVELS BECAUSE BTEX CONPOUNDS WERE NOT DETECTED OFF-SITE AT CONCENTRATIONS GREATER THAN METHOD A CLEANUP LEVELS AND THERE HAVE BEEN RELEASES OF PRODUCTS CONTAINING cPAHs AT THE BNSF PROPERTY.

2) EXCAVATION SAMPLE NUMBERS NOT INCLUDED ON THIS FIGURE.

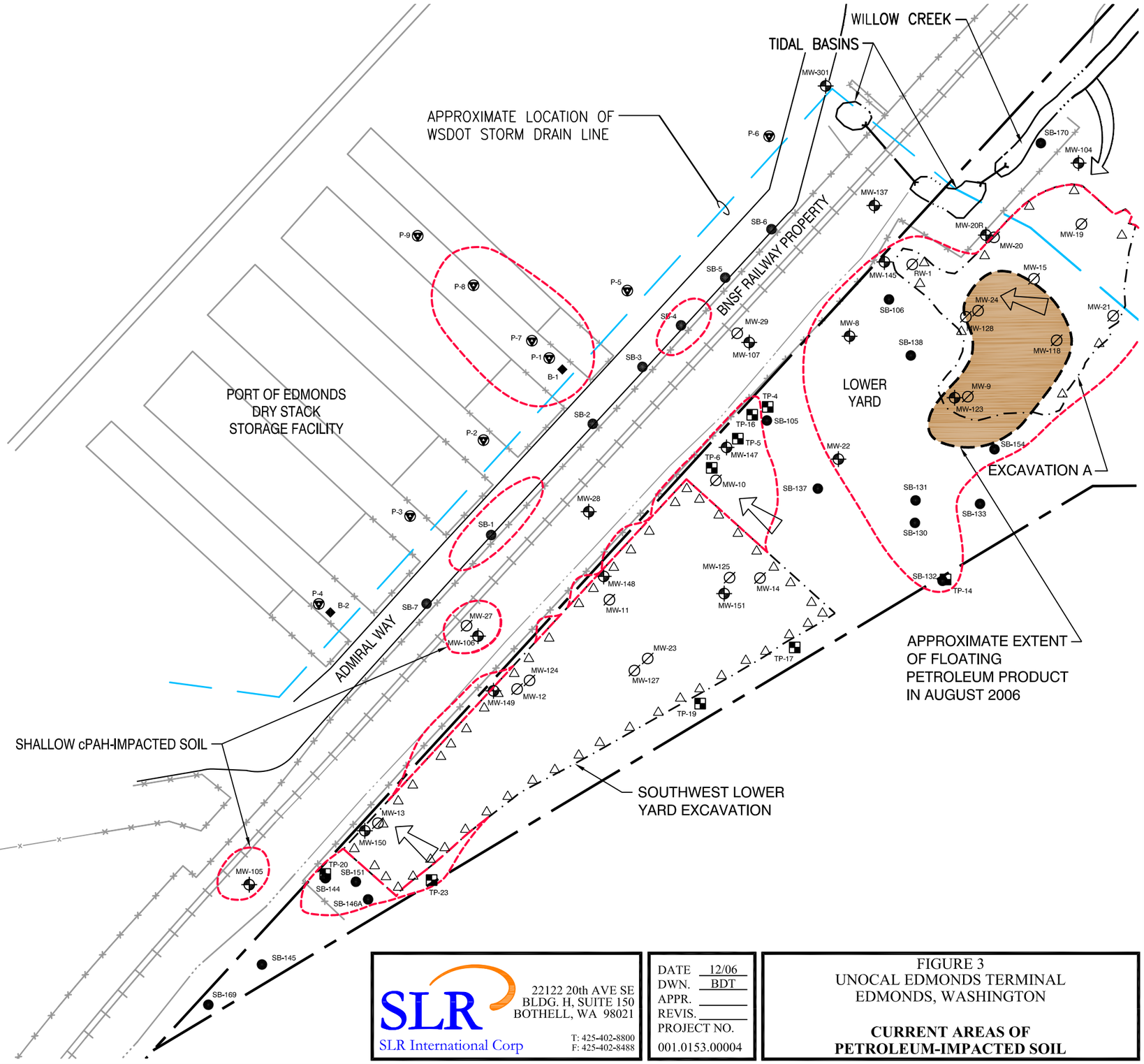

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FIGURE 3
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

CURRENT AREAS OF PETROLEUM-IMPACTED SOIL

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LEGEND:

- INACTIVE RECOVERY SUMP
- ABANDONED MONITORING WELL
- UNOCAL SOIL BORING LOCATION
- UNOCAL MONITORING WELL LOCATION
- UNOCAL TEST PIT LOCATION
- APPROXIMATE EXTENT OF PETROLEUM-IMPACTED GROUNDWATER IN 2006
- APPROXIMATE EXTENT OF FLOATING PETROLEUM PRODUCT PLUMES BASED ON DATA FROM 2006
- EXTENT OF PREVIOUS SOIL EXCAVATION
- GENERAL GROUNDWATER FLOW DIRECTION

NOTES:

1) THE OFF-SITE EXTENTS OF PETROLEUM-IMPACTED GROUNDWATER ARE BASED ON TPH-G, TPH-D, THP-O, BTEX, AND/OR TOXICITY-ADJUSTED cPAH CONCENTRATIONS GREATER THAN CURRENT MTCA METHOD A CLEANUP LEVELS. BENEATH THE LOWER YARD, THE EXTENTS OF IMPACTED GROUNDWATER ARE ONLY BASED ON TPH-G, TPH-D, AND/OR TPH-O CONCENTRATIONS GREATER THAN CURRENT METHOD A CLEANUP LEVELS BECAUSE BTEX COMPOUNDS WERE NOT DETECTED OFF-SITE AT CONCENTRATIONS GREATER THAN METHOD A CLEANUP LEVELS AND THERE HAVE BEEN RELEASES OF PRODUCTS CONTAINING cPAHs AT THE BNSF PROPERTY.

2) THE EXTENTS OF PETROLEUM-IMPACTED GROUNDWATER BENEATH THE LOWER YARD AND THE SOUTHEASTERN SIDE OF BNSF PROPERTY ARE BASED ON 2006 DATA. THE EXTENTS OF PETROLEUM-IMPACTED GROUNDWATER BENEATH ADMIRAL WAY AND THE PORT'S DRY STACK STORAGE FACILITY ARE BASED ON DATA THAT ARE FROM 2000 AND 1997, RESPECTIVELY.

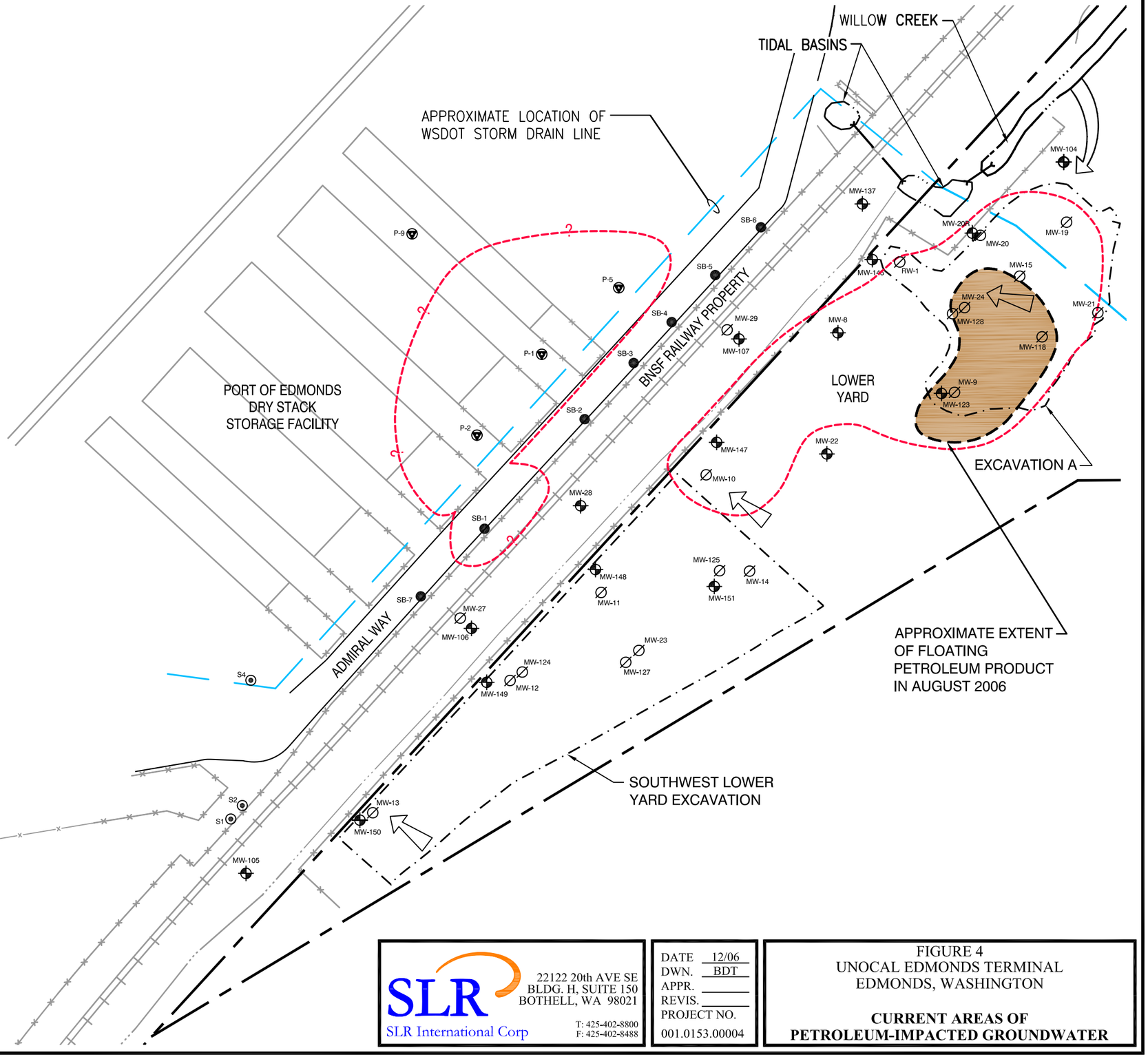

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FIGURE 4
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

CURRENT AREAS OF PETROLEUM-IMPACTED GROUNDWATER

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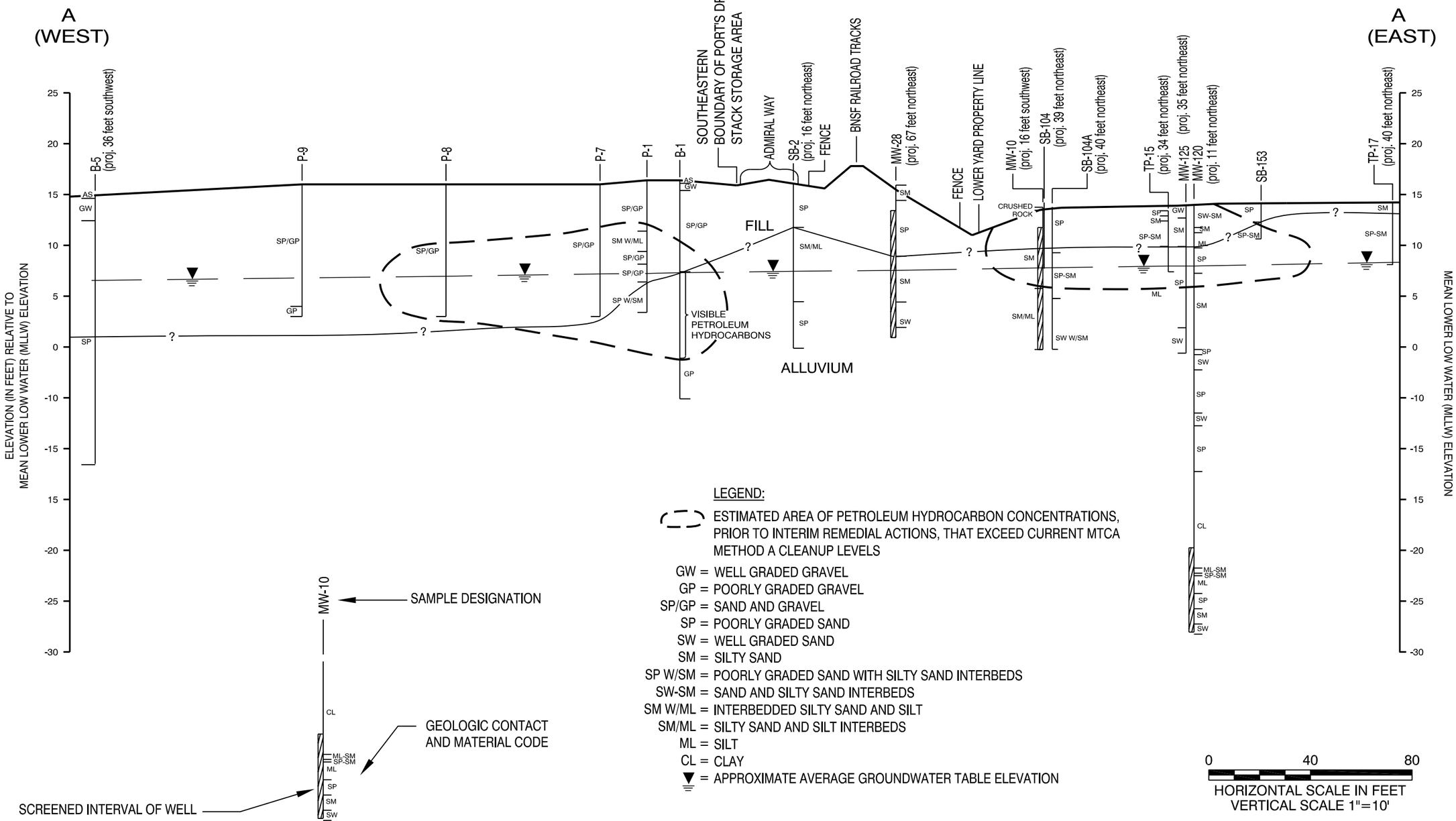

LEGEND:

ESTIMATED AREA OF PETROLEUM HYDROCARBON CONCENTRATIONS, PRIOR TO INTERIM REMEDIAL ACTIONS, THAT EXCEED CURRENT MTCA METHOD A CLEANUP LEVELS

GW = WELL GRADED GRAVEL
GP = POORLY GRADED GRAVEL
SP/GP = SAND AND GRAVEL
SP = POORLY GRADED SAND
SW = WELL GRADED SAND
SM = SILTY SAND
SP W/SM = POORLY GRADED SAND WITH SILTY SAND INTERBEDS
SW-SM = SAND AND SILTY SAND INTERBEDS
SM W/ML = INTERBEDDED SILTY SAND AND SILT
SM/ML = SILTY SAND AND SILT INTERBEDS
ML = SILT
CL = CLAY
▼ = APPROXIMATE AVERAGE GROUNDWATER TABLE ELEVATION

0 40 80
HORIZONTAL SCALE IN FEET
VERTICAL SCALE 1"=10'

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FIGURE 5
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

GEOLOGIC CROSS SECTION A-A'

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EVALUATION OF SOIL CLEANUP LEVELS AND REMEDIATION LEVELS

E.1 SOIL CLEANUP STANDARDS

E.1.1 Endpoints for Cleanup Levels and Remediation Levels

In addition to soil cleanup levels (CULs), soil remediation levels (RELs) will be used for the interim action. An REL is a concentration higher than the CUL that defines an area of the site where a particular cleanup action component will be used [WAC 173-340-355(1)]. The soil concentrations of interest for TPH and benzene are considered RELs rather than CULs because they are based on the direct contact pathway and do not consider the leaching to groundwater pathway or residual saturation (Section E.1.8). At the conclusion of the interim action, an empirical demonstration is expected to show that soil concentrations of TPH and benzene are protective of groundwater, in which case the soil RELs for these IHSs will become soil CULs. The soil concentration of interest for total cPAHs is the minimum CUL for all evaluated endpoints (Section E.1.8); therefore, it is considered a CUL rather than an REL. The soil concentration of interest for arsenic is based on the natural background concentration (Section E.1.8) so it is considered a CUL rather than a REL.

As many as six possible endpoints must be considered for soil contamination:

- Terrestrial ecological evaluation (TEE)
- Direct human contact
- Leaching to groundwater
- Residual saturation
- Inhalation of soil vapors
- Dermal contact with soil

The first four endpoints must be addressed at every site. Whether the last two endpoints are relevant to a site depend on site conditions and certain decisions made during the development of soil CULs and RELs. Each of the endpoints is addressed separately in Sections E.1.2 through E.1.7. The following discussions about each individual endpoint use the term CUL rather than REL because that is standard practice. The CULs for the

individual endpoints are shown in Table E-1. A summary discussion of soil CULs and RELs, and points of compliance (POC) is presented in Section E.1.8.

E.1.2 Terrestrial Ecological Evaluation

The TEE for the lower yard is presented in Appendix D. A site-specific TEE is required for the lower yard because it is located directly adjacent to the Edmonds Marsh, an area in which local land use plans will maintain native vegetation. However, the expected future development of the lower yard as a multi-modal transportation facility minimizes potential exposures of terrestrial ecological receptors to soil contaminants on site. Institutional controls in the form of deed restrictions will be used to manage any soils exceeding the ecological indicator soil concentrations (Table E-1) [WAC 173-340-7493(2)(a)(ii)]. This will ensure there are no complete exposure pathways to soil concentrations of IHSs exceeding the ecological indicator soil concentrations. If there are no complete exposure pathways, no further evaluation is necessary under the site-specific TEE [WAC 173-340-7493(2)(a)(ii)].

The standard POC for the TEE is 15 feet bgs [WAC 173-340-7490(4)(b)]. Pavement or building structures may be relied upon as barriers preventing exposure to terrestrial ecological receptors if an institutional control is used to ensure the maintenance of the barriers [WAC 173-340-7493(2)(a)(ii)].

If post-remedial soil concentrations of IHSs within the top 15 feet exceed the TEE CULs, then deed restrictions will be used to ensure that the areas are covered by buildings or pavement (exposure barriers), that these covers will be maintained, and that if the covers are disturbed, the contaminated soils are managed appropriately. The TEE CUL of 5,000 mg/kg for GRO will be applied in a 40-foot radius around the location of excavation sidewall sample SWLY-D-3wall-3.75, which is the only fractionated sample that was predominantly GRO. The TEE CUL of 6,000 mg/kg will be applied to the remainder of the lower yard. The TEE CULs of 12 mg/kg and 132 mg/kg for cPAHs and arsenic, respectively, apply to the entire lower yard. Benzene is not listed in MTCA Table 749-3, so there is no TEE CUL for benzene.

E.1.3 Direct Human Contact

E.1.3.1 Approach

Soil CULs for direct human contact were developed by using Ecology's MTCATPH11 spreadsheet (for TPH), which implements MTCA Equations 740-2 and 740-3, and Ecology's MTCASGL10 spreadsheet [for benzene, toxicity-adjusted total cPAHs (benzo(a)pyrene equivalents), and arsenic], which implements MTCA Equations 740-1 and 740-2. The MTCATPH11 spreadsheet was obtained from Ecology in December 2003. The spreadsheets can be used in the forward mode to calculate risks based on site soil concentrations, or in the reverse mode to calculate soil CULs based on the acceptable risks defined in MTCA (HI of 1.0, individual cancer risk of 1E-6, and total cancer risk of 1E-5) [WAC 173-340-708(5)].

No changes were made to the default exposure assumptions in any of the equations. The input data and the results of the MTCATPH11 spreadsheet evaluations are presented in Appendix F of this report. The input parameter values and the results of the MTCASGL10 spreadsheet evaluations are in Appendix G of this report. MTCATPH11 calculates soil CULs based on both incidental ingestion of soil and dermal contact with soil. MTCASGL10 calculates soil CULs based on incidental ingestion of soil, with an option to include dermal contact. Dermal contact with soil is addressed in Section E.1.7.

During the 2003 assessment and interim action, a total of 14 "fractionated" soil samples were collected from the lower yard to support the MTCATPH11 evaluations (MFA, 2004a and MFA, 2004b). Six of the samples were collected from three borings (SB-183, SB-184, and SB-185) located in the southeastern part of the lower yard, at depths ranging between 2.5 and 5.5 feet bgs. Four samples were collected from the sidewalls of the Detention Basin No. 1 excavation, at depths ranging between 1 and 4 feet bgs. Four samples were collected from the sidewalls of the Southwest Lower Yard excavation, at a depth of approximately 3.75 feet bgs. Any fractionated samples collected prior to 2003 were excluded from analysis, since they may reflect conditions no longer present at the site.

The "fractionated" samples were analyzed for VPH, EPH, BTEX, PAHs, and n-hexane. The VPH/EPH results were reported as concentrations of multiple carbon chain ranges of aliphatic and aromatic petroleum compounds, ranging from an effective carbon chain of 5 (EC5) to EC34. The samples were not analyzed for petroleum additives ethylene dibromide (EDB), ethylene dichloride (EDC), and methyl-tert-butyl ether (MTBE) because the additives were not detected during previous investigation activities.

The fractionation results for the 14 samples were adjusted by making assumptions about the presence or absence of certain constituents, and by subtracting the concentrations of individual constituents from the fractionated results to avoid double counting the individual constituents. EDB, EDC, and MTBE were assigned concentrations of 0 mg/kg. All of the other fractions and constituents were detected at least once somewhere in the lower yard, so non-detected results were assigned a value of half the detection limit. The following five adjustments were made to avoid double counting individual constituents:

- The concentration of n-hexane was subtracted from aliphatics EC>5-6
- The concentrations of ethylbenzene and xylenes were subtracted from aromatics EC>8-10
- The concentrations of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene (total naphthalenes) were subtracted from aromatics EC>10-12
- The concentrations of benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)-fluoranthene, benzo(a)pyrene, and chrysene were subtracted from aromatics EC>16-21

- The concentrations of dibenz(a,h)anthracene and indeno(1,2,3-cd)pyrene were subtracted from aromatics EC>21-34

Each of the 14 fractionated samples was evaluated using MTCATPH11.

E.1.3.2 Results

The TPH CUL results for the individual fractionated samples are presented in Appendix F. The direct contact CULs for the soil IHSs are summarized in Table E-1. The TPH CUL of 2,975 mg/kg is the median of the 14 fractionated samples. In contrast with TPH, CULs for the direct contact pathway are not sample-specific for benzene, cPAHs, and arsenic. The direct contact CULs are 18 mg/kg for benzene, 0.14 mg/kg for toxicity-adjusted total cPAHs, and 0.67 for arsenic.

E.1.3.3 Point of Compliance

The POC for direct contact CULs is 15 feet bgs, the depth from which an excavation might bring soil up to the surface where people could come into contact with it [WAC 173-340-740(6)(d)]. A remedial action can use containment, such as pavement or a building covering the contaminated soil to prevent direct contact, if the following six criteria are met [WAC 173-340-740(f)]:

- The selected remedy is permanent to the maximum extent practicable
- The cleanup action is protective of human health
- The cleanup action is protective of terrestrial ecological receptors
- Institutional controls are used to prohibit or limit activities that could interfere with the long-term integrity of the containment system
- Compliance monitoring and periodic reviews will be used to ensure the long-term integrity of the containment system
- The cleanup action plan specifies the types, levels, and amounts of hazardous substances remaining on site and the measures used to prevent migration and contact with the substances

If post-remedial soil concentrations of IHSs within the top 15 feet exceed the direct contact CULs, deed restrictions will be used to ensure the areas are covered by buildings or pavement as exposure barriers, that these covers will be maintained, and that, if the covers are disturbed, the contaminated soils are managed appropriately. The covers and institutional controls will meet the first, second, third, and fourth criteria.

The cleanup action will be protective of human health because each of the exposure pathways to soil, groundwater, surface water, and sediment identified in the conceptual site model will be controlled. Sections 5.2, 5.3, 5.4, and 5.5 of this report explain how exposures to sediments, surface water, groundwater, and soil, respectively, will be

addressed. The cleanup action will be protective of terrestrial ecological receptors, as discussed in Appendix D of this report. Compliance monitoring and periodic reviews will ensure that the buildings and pavement are maintained to control the direct contact pathway; therefore, the fifth criterion will be met. The Interim Action As-built Report will provide the necessary information to meet the sixth criterion.

E.1.4 Leaching Pathway

E.1.4.1 Approach

Soil CULs for the leaching pathway are typically different for the unsaturated and the saturated zones because of differences in soil characteristics between the two zones. Soil CULs based on the leaching pathway in the unsaturated zone were determined for TPH, benzene, and cPAHs by using Ecology's MTCATPH11 spreadsheet, which implements the four-phase partitioning model [WAC 173-340-747(6)] (see Appendix F). CULs were determined for benzene and cPAHs by using MTCATPH11, rather than MTCASGL10, because the transport behavior of individual petroleum components is influenced by the composition of the mixture. No changes were made to any of the default hydrogeological exposure assumptions in either of the models. A soil CUL based on the leaching pathway was not developed for arsenic because arsenic is not an IHS for groundwater or surface water.

Soil CULs based on the leaching pathway were not determined for the saturated zone because of difficulties demonstrating compliance in the saturated zone. Soil samples from the saturated zone contain groundwater, and it is difficult to distinguish whether the measured concentrations reside in the water phase or the soil phase. Groundwater impacts from the saturated zone will be evaluated during remediation by using groundwater monitoring data. Once the groundwater concentrations are in compliance with groundwater CULs, then soil concentrations in the saturated zone must, by definition, be protective of groundwater.

The surface water CULs developed in Section 5.3.2 (Table 4) of this report were used as the basis for developing soil CULs for the leaching pathway. For TPH, a surface water CUL of 500 µg/L was used because TPH in soil is predominantly in the DRO and HO ranges. Only one of the fractionated samples (SWLY-D-3wall-3.75) was predominantly GRO, for which the surface water CUL is 800 µg/L. Using a surface water CUL of 500 µg/L to evaluate this sample is conservative (protective). The HI adjustments performed in Section 5.3.2.1 of this report were not used for the leaching evaluation because the adjustments reflect the composition of petroleum in groundwater, not in soil. In any case, the surface water CUL of 500 µg/L used in the leaching evaluation is not significantly different from the surface water CUL of 506 µg/L in Table 4 of the report.

The MTCATPH11 spreadsheet refused to calculate CULs for the leaching pathway for 8 of the 14 fractionated samples (see Appendix F). This occurs when samples consist mainly of heavy end components that do not tend to leach. In these cases, even soil concentrations as high as 70,000 mg/kg TPH are found to be protective of groundwater. Soil TPH concentrations higher than approximately 70,000 mg/kg cannot be tested

because the spreadsheet returns an error message that NAPL is supersaturated and the calculation is not correct.

For the purpose of statistical analyses, it was necessary to assign leaching CULs to those samples for which the spreadsheet could not calculate TPH leaching CULs. A value of 5,000 mg/kg was assumed for each sample that did not have a calculated leaching CUL. Since the true leaching CUL would be much higher (greater than 70,000 mg/kg), this is a conservative assumption leading to lower soil CULs. The TPH leaching CUL reported in Table C-1 is the median of the values from the 14 fractionated samples.

Benzene and cPAH leaching CULs can be calculated by using MTCASGL10; however, this does not reflect the influence of other petroleum constituents. The composition of the petroleum mixture influences the transport behavior of individual components. To calculate leaching CULs for benzene and cPAHs, TPH soil concentrations were tested iteratively by using MTCATPH11 to identify soil concentrations that would predict groundwater concentrations equal to the groundwater CULs (51 µg/L for benzene and 0.018 µg/L for toxicity-adjusted total cPAHs).

When a TPH soil concentration is tested, the spreadsheet shows the soil concentration of each individual component. For many samples, when the maximum TPH concentration of 70,000 mg/kg was tested, the predicted groundwater concentrations of benzene and cPAHs were still below their groundwater CULs. In these cases, it could only be noted that the true leaching CUL was greater than the maximum concentration used in the test. These cases are indicated by a ">" sign in Appendix F of this report. For the purpose of statistical analyses, it was necessary to assign leaching CULs for those samples without calculated benzene and cPAH leaching CULs. For samples with a ">" sign, the associated numerical value was used. For example, since sample SB-184-2.5 yielded a benzene CUL of >4.36 mg/kg, a CUL of 4.36 mg/kg was used for the statistical analysis. This is a conservative approach leading to lower soil CULs. The benzene and cPAH leaching CULs reported in Table E-1 are the medians of the values from the 14 fractionated samples. Although leaching CULs are reported in Table E-1 for benzene and cPAHs, it is expected that an empirical demonstration will be used after remediation to show that soil concentrations of benzene and cPAHs are protective of groundwater and surface water. Therefore, the leaching CULs were not used in determining the final soil RELs shown on Table 5 of this report.

E.1.4.2 Results

The CUL results for TPH, benzene, and cPAHs in individual fractionated samples are presented in Appendix F. The leaching CULs for the soil IHSs are summarized in Table E-1. The CULs of 5,000 mg/kg for TPH, 0.81 mg/kg for benzene, and 12 mg/kg for toxicity-adjusted total cPAHs are the medians of the 14 fractionated samples.

E.1.4.3 Point of Compliance

The POC for leaching CULs is the soil throughout the site, with no depth limit. As with direct contact, containment such as buildings and pavement can be used to control the

leaching pathway in the unsaturated zone, provided that the appropriate criteria are met. Building and paved areas meet the six criteria for use of containment (Section E.1.3.3). When the groundwater CULs are met at the POCs for groundwater, this will demonstrate that the leaching pathway is controlled in the saturated zone.

E.1.5 Residual Saturation

When a NAPL, such as petroleum hydrocarbons, is released to soil, some of the liquid will dissolve in the soil pore water, some will adsorb to the soil particles, some will vaporize in the soil pore air, and some will be held by capillary force in liquid form (NAPL) in the soil pore spaces. The threshold concentration at which NAPL begins to form is called the C_{sat}. At concentrations just above C_{sat}, the NAPL exists in small, isolated blobs. The concentration at which the isolated NAPL blobs become connected to form streamers is called residual saturation. At concentrations below residual saturation, the isolated blobs are immobile. At concentrations above residual saturation, the NAPL streamers can migrate downward under the force of gravity, and the NAPL can reach groundwater if a sufficient volume is present. This process can occur even beneath a cap that limits infiltration from precipitation (i.e., in the absence of leaching).

Default residual C_{sat} values of 1,000 mg/kg for GRO and 2,000 mg/kg for DRO were obtained from MTCA Table 747-5 (see Table E-1). The footnote in Table 747-5 indicates that these values are for coarse sand and gravelly soils. Data for additional soil types [Ecology, 2001 (p. 343)] indicate that residual C_{sat} values for silt to find sand (the predominant soil type in the unsaturated zone) can range as high as 9,643 mg/kg for GRO and 22,857 mg/kg for DRO. Residual C_{sat} values for fine to medium sand (the predominant soil type in the saturated zone) can range as high as 5,625 mg/kg for GRO and 13,333 mg/kg for DRO. Using the default residual saturation values in Table 747-5 is a conservative (protective) approach for the lower yard.

MTCASGL10 calculates C_{sat}, but not residual saturation. The calculated C_{sat} concentration of 493 mg/kg for benzene is reported in Table E-1 with a “>” sign to indicate that the true residual C_{sat} would be higher. Residual saturation is not relevant to cPAHs because they are not liquids at ambient soil temperatures (see Section 5.1.3 of this report).

An empirical demonstration may be used to show that free product in soil is not impacting groundwater, if the following three criteria can be met [WAC 173-340-747(10)(c)]:

- NAPL is not accumulating on or in groundwater.
- The soil contamination has been present sufficiently long for NAPL to reach groundwater.
- Site conditions will not change in the future to promote NAPL migration.

Although an empirical demonstration cannot be made at present because free product exists in groundwater, Union Oil believes that an empirical demonstration will be made at the completion of the planned interim action. If an empirical demonstration cannot be made, Union Oil will excavate additional soils to remove hot spots and recover additional free product from the groundwater. The empirical demonstration removes residual saturation from consideration in establishing soil CULs. Although residual saturation levels for TPH and benzene are shown for informational purposes in Table E-1, they were not used in determining the final soil RELs shown in Table 5 of this report.

E.1.6 Vapor Pathway

There are certain situations in which the soil to vapor pathway must be evaluated [WAC 173-340-740(3)(c)(iv)]. Vapors are of more concern indoors than outdoors, because vapors can potentially accumulate to high concentrations in enclosed spaces, while outside they are diluted by the ambient air. To protect against both soil and groundwater vapors in indoor air, a deed restriction will be established that requires the installation of a vapor barrier beneath all future enclosed buildings built on the property. This institutional control eliminates the need to evaluate the vapor pathway further.

E.1.7 Dermal Pathway

Dermal contact with the IHSs must be evaluated if changes have been made to the direct contact equations 740-1 and 740-2 [WAC 173-340-740(3)(c)(iii)]. No changes were made to the equations for calculating CULs, so the dermal pathway is not triggered for benzene, cPAHs, or arsenic. Dermal contact is automatically included in direct contact Equation 740-3 for TPH, as evaluated by MTCATPH11.

E.1.8 Summary of Soil Cleanup Levels and Points of Compliance

Soil CULs for individual endpoints are summarized in Table E-1. Final soil CULs and RELs are summarized in Table 5 and Section 5.5.2 of this report. For TPH, a REL of 2,975 mg/kg based on direct contact is used instead of the residual saturation CUL of 2,000 mg/kg, because an empirical demonstration at the conclusion of remediation is expected to show that soil concentrations of TPH are protective of groundwater and surface water. The minimum CUL of 0.67 mg/kg for arsenic, based on direct contact, is adjusted up to 20 mg/kg based on natural background concentrations [WAC 173-340-740(5)(c)]. The value of 20 mg/kg was obtained from MTCA Table 740-1. The minimum CUL of 0.14 mg/kg for toxicity-adjusted total cPAHs is based on direct contact. For benzene, a REL of 18 mg/kg based on direct contact is used instead of the leaching CUL of 0.81 mg/kg, because an empirical demonstration at the conclusion of remediation is expected to show that soil concentrations of benzene are protective of groundwater and surface water.

Table E-1
Soil Cleanup Levels for Individual Endpoints
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

Indicator Hazardous Substance	Ecological Indicator Soil Concentration[a]	Unrestricted Direct Contact	Leaching (Protect Surface Water)	Residual Satuation
Total TPH	NA	2,975	5,000	NV
GRO	5,000	NA	NA	1,000[b]
DRO	6,000	NA	NA	2,000[b]
HO	NV	NA	NA	2,000[b]
Benzene	NV	18[c]	0.81[d]	>493[b]
cPAHs	12[e]	0.14[c]	12[d]	NA
Arsenic	132[f]	0.67[c]	NA	NA

Notes:

Concentrations in milligrams per kilogram (mg/kg).

NV = No value listed.

DRO = Diesel range organics.

GRO = Gasoline range organics.

HO = Heavy oil range orgamics.

cPAHs = Toxicity-adjusted total carcinogenic polycyclic aromatic hydrocarbons [benzo(a)pyrene equivalents].

NA = Not applicable.

[a] From MTCA Table 749-3, wildlife column.

[b] TPH residual saturation values from MTCA Table 747-5. Benzene value is C_{sat} from MTCASGL10, which is the lower limit for residual saturation. Residual saturation is not applicable to cPAHs and arsenic.

[c] From MTCASGL10 (see Appendix G).

[d] From MTCATPH11 (see Appendix F).

[e] Based on benzo(a)pyrene.

[f] Based on arsenic V, the form expected in the unsaturated zone.

Table F-1
Fractionation Data from Soil Samples
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

		Southeast Lower Yard						Detention Basin No. 1				Southwest Lower Yard			
		SB-183-2.5	SB-183-5.5	SB-184-2.5	SB-184-4.0	SB-185-4.0	SB-185.5.5	DB1-A-26wall1-4	DB1-A-1wall-2.5	DB1-A-21wall-2.5	DB1-A-25wall-3.5	SWLY-A-5wall-3.75	SWLY-A-14wall-3.75	SWLY-C-21wall-3.75	SWLY-D-3wall-3.75
Fraction/Constituent		**10/1/2003**	**10/1/2003**	**10/1/2003**	**10/1/2003**	**10/1/2003**	**10/1/2003**	**9/5/2003**	**9/16/2003**	**10/10/2003**	**10/10/2003**	**10/16/2003**	**11/26/2003**	**12/5/2003**	**10/17/2003**
Aliphatic	EC>5-6	4.95	2.45	44.85	22.84	37.30	31.30	2.25	2.25	2.40	9.89	4.75	9.75	45.49	68.70
	EC>6-8	5.00	2.50	350.00	83.80	178.00	199.00	2.50	2.50	2.50	10.00	5.00	10.00	312.00	826.00
	EC>8-10	5.00	24.90	530.00	166.00	137.00	94.90	2.50	2.50	19.50	41.70	277.00	66.50	287.00	19.60
	EC>10-12	80.70	111.00	649.00	342.00	287.00	249.00	2.50	2.50	81.80	80.00	908.00	173.00	353.00	16.30
	EC>12-16	641.00	558.00	1,020.00	581.00	717.00	840.00	12.30	291.00	481.00	269.00	2,500.00	431.00	732.00	39.10
	EC>16-21	1,770.00	785.00	1,270.00	717.00	858.00	1,080.00	23.70	1,030.00	973.00	438.00	1,720.00	310.00	528.00	32.60
	EC>21-34	1,400.00	443.00	500.00	245.00	306.00	395.00	51.00	1,060.00	575.00	564.00	817.00	98.40	742.00	12.80
Aromatic	EC>8-10	16.49	10.38	617.51	241.38	338.90	333.10	2.43	2.43	2.43	54.34	26.36	21.46	299.51	280.10
	EC>10-12	102.79	85.40	1,571.22	714.39	641.30	899.97	2.43	2.20	2.16	228.77	214.58	63.86	416.87	2.79
	EC>12-16	340.00	309.00	1,420.00	624.00	325.00	978.00	19.00	22.50	92.50	483.00	1,080.00	65.90	308.00	303.00
	EC>16-21	930.02	539.64	518.63	332.69	326.61	477.59	18.27	450.40	547.41	355.49	1,679.85	158.38	326.32	28.84
	EC>21-34	698.95	452.95	345.95	212.95	215.95	294.95	82.25	642.80	337.90	565.90	886.99	67.45	573.80	7.55
BTEX	Benzene	0.015	0.015	0.554	0.150	1.150	1.150	0.015	0.015	0.015	0.046	0.032	0.060	2.420	4.470
	Toluene	0.025	0.025	4.090	1.160	2.420	3.330	0.025	0.025	0.025	0.095	0.110	0.100	1.430	6.250
	Ethylbenzene	0.171	0.086	4.190	1.490	27.100	43.900	0.025	0.025	0.025	0.572	0.298	0.523	6.390	17.900
	Total xylenes	0.444	0.336	15.300	6.130	72.000	25.000	0.050	0.050	0.050	1.990	0.438	1.320	25.100	35.000
Constituents	Total naphthalenes	8.207	4.104	18.780	12.610	53.700	29.030	0.075	0.300	0.341	1.234	35.420	5.940	20.130	3.890
	n-Hexane	0.0500	0.0500	5.1500	2.1600	12.7000	18.7000	0.2500	0.2500	0.0965	0.1130	0.2500	0.2500	4.5100	17.9000
Additives	MTBE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EDB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EDC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPAHs	Benzo(a)anthracene	0.2340	0.0949	0.0976	0.0845	0.1090	0.1160	0.0776	0.1000	0.1520	0.1310	0.0307	0.1020	0.1000	0.0050
	Benzo(b)fluoranthene	0.0779	0.0250	0.0250	0.0250	0.0617	0.0713	0.0893	0.1000	0.1080	0.1200	0.0050	0.1150	0.1000	0.0050
	Benzo(k)fluoranthene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0250	0.1000	0.0721	0.0733	0.0166	0.1240	0.1000	0.0050
	Benzo(a)pyrene	0.1630	0.0250	0.0250	0.0250	0.0545	0.0601	0.5010	0.1000	0.0250	0.0250	0.0108	0.0767	0.1000	0.0264
	Chrysene	0.5010	0.2110	0.2220	0.1730	0.1670	0.1650	0.1360	0.2050	0.2320	0.1620	0.0880	0.2000	0.2850	0.0154
	Dibenzo(a,h)anthracene	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.1000	0.0721	0.0733	0.0050	0.0250	0.1000	0.0050
	Indeno(1,2,3-cd)pyrene	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.1000	0.0250	0.0250	0.0050	0.0250	0.1000	0.0050
Total		6,004.84	3,329.24	8,885.64	4,307.11	4,537.57	5,994.38	222.44	3,512.54	3,118.84	3,104.74	10,156.24	1,484.56	4,984.85	1,722.86

Notes:

MTBE, EDB, and EDC were not detected in the lower yard, so they were assigned concentrations of 0 mg/kg for all fractionated samples. All other fractions and constituents were detected in at least one sample in the lower yard, so they were assigned half the detection limit for undetected results. Adjustments were made to avoid double-counting of individual constituents, as discussed in the User's Guide to the MTCATPH10 spreadsheet.

Table F-2
Composition of Fractionated Samples
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

		Southeast Lower Yard						Detention Basin No. 1				Southwest Lower Yard			
		SB-183-2.5	SB-183-5.5	SB-184-2.5	SB-184-4.0	SB-185-4.0	SB-185.5.5	DB1-A-26wall1-4	DB1-A-1wall-2.5	DB1-A-21wall-2.5	DB1-A-25wall-3.5	SWLY-A-5wall-3.75	SWLY-A-14wall-3.75	SWLY-C-21wall-3.75	SWLY-D-3wall-3.75
Fraction/Constituent		**Oct. 2003**	**Oct. 2003**	**Oct. 2003**	**Oct. 2003**	**Oct. 2003**	**Oct. 2003**	**9/5/2003**	**9/16/2003**	**10/10/2003**	**10/10/2003**	**10/16/2003**	**11/26/2003**	**12/5/2003**	**10/17/2003**
Aliphatic	EC>5-6	0.08%	0.07%	0.50%	0.53%	0.82%	0.52%	1.01%	0.06%	0.08%	0.32%	0.05%	0.66%	0.91%	3.99%
	EC>6-8	0.08%	0.08%	3.94%	1.95%	3.92%	3.32%	1.12%	0.07%	0.08%	0.32%	0.05%	0.67%	6.26%	47.94%
	EC>8-10	0.08%	0.75%	5.96%	3.85%	3.02%	1.58%	1.12%	0.07%	0.63%	1.34%	2.73%	4.48%	5.76%	1.14%
	EC>10-12	1.34%	3.33%	7.30%	7.94%	6.32%	4.15%	1.12%	0.07%	2.62%	2.58%	8.94%	11.65%	7.08%	0.95%
	EC>12-16	10.67%	16.76%	11.48%	13.49%	15.80%	14.01%	5.53%	8.28%	15.42%	8.66%	24.62%	29.03%	14.68%	2.27%
	EC>16-21	29.48%	23.58%	14.29%	16.65%	18.91%	18.02%	10.65%	29.32%	31.20%	14.11%	16.94%	20.88%	10.59%	1.89%
	EC>21-34	23.31%	13.31%	5.63%	5.69%	6.74%	6.59%	22.93%	30.18%	18.44%	18.17%	8.04%	6.63%	14.89%	0.74%
Aromatic	EC>8-10	0.27%	0.31%	6.95%	5.60%	7.47%	5.56%	1.09%	0.07%	0.08%	1.75%	0.26%	1.45%	6.01%	16.26%
	EC>10-12	1.71%	2.57%	17.68%	16.59%	14.13%	15.01%	1.09%	0.06%	0.07%	7.37%	2.11%	4.30%	8.36%	0.16%
	EC>12-16	5.66%	9.28%	15.98%	14.49%	7.16%	16.32%	8.54%	0.64%	2.97%	15.56%	10.63%	4.44%	6.18%	17.59%
	EC>16-21	15.49%	16.21%	5.84%	7.72%	7.20%	7.97%	8.21%	12.82%	17.55%	11.45%	16.54%	10.67%	6.55%	1.67%
	EC>21-34	11.64%	13.61%	3.89%	4.94%	4.76%	4.92%	36.98%	18.30%	10.83%	18.23%	8.73%	4.54%	11.51%	0.44%
BTEX	Benzene	0.00%	0.00%	0.01%	0.00%	0.03%	0.02%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.26%
	Toluene	0.00%	0.00%	0.05%	0.03%	0.05%	0.06%	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%	0.03%	0.36%
	Ethylbenzene	0.00%	0.00%	0.05%	0.03%	0.60%	0.73%	0.01%	0.00%	0.00%	0.02%	0.00%	0.04%	0.13%	1.04%
	Total xylenes	0.01%	0.01%	0.17%	0.14%	1.59%	0.42%	0.02%	0.00%	0.00%	0.06%	0.00%	0.09%	0.50%	2.03%
Constituents	Total naphthalenes	0.14%	0.12%	0.21%	0.29%	1.18%	0.48%	0.03%	0.01%	0.01%	0.04%	0.35%	0.40%	0.40%	0.23%
	n-Hexane	0.00%	0.00%	0.06%	0.05%	0.28%	0.31%	0.11%	0.01%	0.00%	0.00%	0.00%	0.02%	0.09%	1.04%
Additives	MTBE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	EDB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	EDC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CPAHs	Benzo(a)anthracene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%
	Benzo(b)fluoranthene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%
	Benzo(k)fluoranthene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%
	Benzo(a)pyrene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.23%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%
	Chrysene	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.06%	0.01%	0.01%	0.01%	0.00%	0.01%	0.01%	0.00%
	Dibenzo(a,h)anthracene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Total GRO (EC>5-10)		0.54%	1.22%	17.69%	12.19%	17.78%	12.52%	4.51%	0.29%	0.87%	3.82%	3.09%	7.41%	19.74%	74.06%
Total DRO (EC>10-21)		64.51%	71.86%	72.79%	77.17%	70.72%	75.97%	35.56%	51.23%	69.86%	59.78%	80.13%	81.42%	53.86%	24.76%
Total HO (EC>21-34)		34.96%	26.91%	9.52%	10.63%	11.50%	11.51%	59.93%	48.48%	29.27%	36.40%	16.78%	11.18%	26.40%	1.18%
Total		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Predominant ranges[a]		D O	D O	D G	D G O	D G O	D G O	O D	D O	D O	D O	D O	D O	D O G	G D

Notes:

CPAHs = Carcinogenic polycyclic aromatic hydrocarbons.

D = Diesel range.

DRO = Diesel-range organics.

EC = Effective carbon chain range.

EDB = Ethylene dibromide.

EDC = Ethylene dichloride.

G = Gasoline range.

GRO = Gasoline-range organics.

HO = Heavy oil-range organics (lube oil).

MTBE = Methyl-tert-butyl ether.

O = Lube oil range.

[a]Predominant ranges defined as ranges exceeding 10% of the mixture, in decreasing order of predominance.

Table F-3
MTCATPH11 Results for
Fractionated Samples in Lower Yard
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

Location	Sample Number	Test Current Conditions[a]		Method B Soil Cleanup Levels (mg/kg)[a]					Statistical Evaluation of Leaching CULs			Method C TPH Soil CUL	
		Concen. (mg/kg)	Unrestrict. Land Use	TPH Direct Contact CUL	TPH Direct Contact Basis	TPH Leaching[b]	Benzene Leaching[c]	cPAHs Leaching[c]	TPH Leaching[d]	Benzene Leaching[e]	cPAHs Leaching[f]	CUL	Basis
Southeast Lower Yard	SB-183-2.5	6,004.94	Fail	2.94E+03	CPAH=1E-6	NV	>1.75E-01	>1.20E+01	5.00E+03	1.75E-01	1.20E+01	4.61E+04	HI=1
	SB-183-5.5	3,329.24	Fail	2.91E+03	HI=1	NV	>3.15E-01	>8.54E+00	5.00E+03	3.15E-01	8.54E+00	3.60E+04	HI=1
	SB-184-2.5	8,885.64	Fail	3.17E+03	HI=1	1.61E+02	>4.36E+00	>3.31E+00	1.61E+02	4.36E+00	3.31E+00	4.52E+04	HI=1
	SB-184-4.0	4,307.11	Fail	3.06E+03	HI=1	2.52E+02	>2.44E+00	>4.11E+02	2.52E+02	2.44E+00	4.11E+02	4.25E+04	HI=1
	SB-185-4.0	4,537.57	Fail	3.25E+03	HI=1	8.87E+01	>1.77E+01	>6.83E+00	8.87E+01	1.77E+01	6.83E+00	4.52E+04	HI=1
	SB-185-5.5	5,994.38	Fail	3.22E+03	HI=1	1.33E+02	>1.34E+01	>5.40E+00	1.33E+02	1.34E+01	5.40E+00	4.34E+04	HI=1
Detention Basin No. 1	DB1-A-26wall-1-4	222.44	Fail	4.32E+01	CPAH=1E-6	NV	>4.72E+00	>2.77E+02	5.00E+03	4.72E+00	2.77E+02	1.74E+03	CR=1E-5
	DB1-A-1wall-2.5	3,512.54	Fail	2.00E+03	CPAH=1E-6	NV	>2.99E-01	>1.60E+01	5.00E+03	2.99E-01	1.60E+01	4.90E+04	HI=1
	DB1-A-21wall-2.5	3,118.84	Pass	3.41E+03	HI=1	NV	>3.37E-01	>1.54E+01	5.00E+03	3.37E-01	1.54E+01	4.18E+04	HI=1
	DB1-A-25wall-3.5	3,104.74	Fail	3.01E+03	HI=1	NV	>1.04E+00	>1.37E+01	5.00E+03	1.04E+00	1.37E+01	8.81E+04	HI=1
Southwest Lower Yard	SWLY-A-5wall-3.75	10,156.24	Fail	2.49E+03	HI=1	NV	>2.18E-01	>1.11E+00	5.00E+03	2.18E-01	1.11E+00	3.18E+04	HI=1
	SWLY-A-14wall-3.75	1,484.56	Fail	1.23E+03	CPAH=1E-6	NV	>2.83E+00	>3.15E+01	5.00E+03	2.83E+00	3.15E+01	3.52E+04	HI=1
	SWLY-C-21wall-3.75	4,984.85	Fail	2.83E+03	CPAH=1E-6	3.03E+02	5.83E-01	>1.24E+01	3.03E+02	5.83E-01	1.24E+01	4.22E+04	HI=1
	SWLY-D-3wall-3.75	1,722.86	Pass	5.85E+03	CPAH=1E-6	3.63E+01	3.11E-01	>2.71E+00	3.63E+01	3.11E-01	2.71E+00	9.04E+04	HI=1
Statistics	Minimum			4.32E+01					3.63E+01	1.75E-01	1.11E+00	1.74E+03	
	Average			2.81E+03					2.93E+03	3.48E+00	5.84E+01	4.56E+04	
	Median			2.98E+03					5.00E+03	8.12E-01	1.22E+01	4.30E+04	
	Maximum			5.85E+03					5.00E+03	1.77E+01	4.11E+02	9.04E+04	

Notes:

cPAHs = Toxicity-adjusted total carcinogenic polycyclic aromatic hydrocarbons [benzo(a)pyrene equivalents].

CR = Cancer risk.

CUL = Cleanup level.

GW = Groundwater.

HI = Hazard index.

NV = No value available; spreadsheet will not calculate a soil CUL for the leaching pathway, because it would exceed the total NAPL saturation level. In these cases, other endpoints, such as residual saturation, drive the soil CUL.

TPH = Total petroleum hydrocabons.

[a]For testing of current soil conditions, the spreadsheet automatically assumes protection of potable groundwater. Calculation of soil leaching CULs assumes protection of surface water.

[b]TPH soil CUL for the leaching pathway based on a groundwater CUL of 500 µg/L.

[c]Benzene and cPAH soil CULs for the leaching pathway based on protection of surface water CULs of 51 µg/L and 0.018 µg/L, respectively. MTCATPH11 was used for calculating the benzene and cPAH leaching CULs, rather than MTCASGL10, because the transport properties of individual components are affected by the composition of the petroleum mixture. In many cases, the highest TPH soil concentration tested (75,000 mg/kg) yielded a benzene or cPAH groundwater concentration below the groundwater CUL. In these cases, benzene and cPAHs are not predicted to impact groundwater at any soil concentration.

[d]For statistical purposes, results of "NV" were substituted with 5,000 mg/kg. This is a conservative approach, because soil concentrations as high as 75,000 mg/kg would be protective of the leaching pathway.

[e]For statistical purposes, results listed as ">" were substituted with the value, which is a conservative approach, because the true CUL is higher. Results not calculated because the TPH CUL was "NV" were substituted with 6.23, which is the highest calculated benzene leaching CUL.

[f]For statistical purposes, results listed as ">" were substituted with the value, which is a conservative approach, because the true CUL is higher. Results not calculated because the TPH CUL was "NV" were substituted with 5.72, which is the highest calculated cPAH leaching CUL.

Table F-1
Fractionation Data from Soil Samples
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

		Southeast Lower Yard						Detention Basin No. 1				Southwest Lower Yard			
		SB-183-2.5	SB-183-5.5	SB-184-2.5	SB-184-4.0	SB-185-4.0	SB-185.5.5	DB1-A-26wall1-4	DB1-A-1wall-2.5	DB1-A-21wall-2.5	DB1-A-25wall-3.5	SWLY-A-5wall-3.75	SWLY-A-14wall-3.75	SWLY-C-21wall-3.75	SWLY-D-3wall-3.75
Fraction/Constituent		**10/1/2003**	**10/1/2003**	**10/1/2003**	**10/1/2003**	**10/1/2003**	**10/1/2003**	**9/5/2003**	**9/16/2003**	**10/10/2003**	**10/10/2003**	**10/16/2003**	**11/26/2003**	**12/5/2003**	**10/17/2003**
Aliphatic	EC>5-6	4.95	2.45	44.85	22.84	37.30	31.30	2.25	2.25	2.40	9.89	4.75	9.75	45.49	68.70
	EC>6-8	5.00	2.50	350.00	83.80	178.00	199.00	2.50	2.50	2.50	10.00	5.00	10.00	312.00	826.00
	EC>8-10	5.00	24.90	530.00	166.00	137.00	94.90	2.50	2.50	19.50	41.70	277.00	66.50	287.00	19.60
	EC>10-12	80.70	111.00	649.00	342.00	287.00	249.00	2.50	2.50	81.80	80.00	908.00	173.00	353.00	16.30
	EC>12-16	641.00	558.00	1,020.00	581.00	717.00	840.00	12.30	291.00	481.00	269.00	2,500.00	431.00	732.00	39.10
	EC>16-21	1,770.00	785.00	1,270.00	717.00	858.00	1,080.00	23.70	1,030.00	973.00	438.00	1,720.00	310.00	528.00	32.60
	EC>21-34	1,400.00	443.00	500.00	245.00	306.00	395.00	51.00	1,060.00	575.00	564.00	817.00	98.40	742.00	12.80
Aromatic	EC>8-10	16.49	10.38	617.51	241.38	338.90	333.10	2.43	2.43	2.43	54.34	26.36	21.46	299.51	280.10
	EC>10-12	102.79	85.40	1,571.22	714.39	641.30	899.97	2.43	2.20	2.16	228.77	214.58	63.86	416.87	2.79
	EC>12-16	340.00	309.00	1,420.00	624.00	325.00	978.00	19.00	22.50	92.50	483.00	1,080.00	65.90	308.00	303.00
	EC>16-21	930.02	539.64	518.63	332.69	326.61	477.59	18.27	450.40	547.41	355.49	1,679.85	158.38	326.32	28.84
	EC>21-34	698.95	452.95	345.95	212.95	215.95	294.95	82.25	642.80	337.90	565.90	886.99	67.45	573.80	7.55
BTEX	Benzene	0.015	0.015	0.554	0.150	1.150	1.150	0.015	0.015	0.015	0.046	0.032	0.060	2.420	4.470
	Toluene	0.025	0.025	4.090	1.160	2.420	3.330	0.025	0.025	0.025	0.095	0.110	0.100	1.430	6.250
	Ethylbenzene	0.171	0.086	4.190	1.490	27.100	43.900	0.025	0.025	0.025	0.572	0.298	0.523	6.390	17.900
	Total xylenes	0.444	0.336	15.300	6.130	72.000	25.000	0.050	0.050	0.050	1.990	0.438	1.320	25.100	35.000
Constituents	Total naphthalenes	8.207	4.104	18.780	12.610	53.700	29.030	0.075	0.300	0.341	1.234	35.420	5.940	20.130	3.890
	n-Hexane	0.0500	0.0500	5.1500	2.1600	12.7000	18.7000	0.2500	0.2500	0.0965	0.1130	0.2500	0.2500	4.5100	17.9000
Additives	MTBE	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EDB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EDC	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPAHs	Benzo(a)anthracene	0.2340	0.0949	0.0976	0.0845	0.1090	0.1160	0.0776	0.1000	0.1520	0.1310	0.0307	0.1020	0.1000	0.0050
	Benzo(b)fluoranthene	0.0779	0.0250	0.0250	0.0250	0.0617	0.0713	0.0893	0.1000	0.1080	0.1200	0.0050	0.1150	0.1000	0.0050
	Benzo(k)fluoranthene	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0250	0.1000	0.0721	0.0733	0.0166	0.1240	0.1000	0.0050
	Benzo(a)pyrene	0.1630	0.0250	0.0250	0.0250	0.0545	0.0601	0.5010	0.1000	0.0250	0.0250	0.0108	0.0767	0.1000	0.0264
	Chrysene	0.5010	0.2110	0.2220	0.1730	0.1670	0.1650	0.1360	0.2050	0.2320	0.1620	0.0880	0.2000	0.2850	0.0154
	Dibenzo(a,h)anthracene	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.1000	0.0721	0.0733	0.0050	0.0250	0.1000	0.0050
	Indeno(1,2,3-cd)pyrene	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.0250	0.1000	0.0250	0.0250	0.0050	0.0250	0.1000	0.0050
Total		6,004.84	3,329.24	8,885.64	4,307.11	4,537.57	5,994.38	222.44	3,512.54	3,118.84	3,104.74	10,156.24	1,484.56	4,984.85	1,722.86

Notes:

MTBE, EDB, and EDC were not detected in the lower yard, so they were assigned concentrations of 0 mg/kg for all fractionated samples. All other fractions and constituents were detected in at least one sample in the lower yard, so they were assigned half the detection limit for undetected results. Adjustments were made to avoid double-counting of individual constituents, as discussed in the User's Guide to the MTCATPH10 spreadsheet.

Table F-2
Composition of Fractionated Samples
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

		Southeast Lower Yard						Detention Basin No. 1				Southwest Lower Yard			
		SB-183-2.5	SB-183-5.5	SB-184-2.5	SB-184-4.0	SB-185-4.0	SB-185.5.5	DB1-A-26wall1-4	DB1-A-1wall-2.5	DB1-A-21wall-2.5	DB1-A-25wall-3.5	SWLY-A-5wall-3.75	SWLY-A-14wall-3.75	SWLY-C-21wall-3.75	SWLY-D-3wall-3.75
Fraction/Constituent		**Oct. 2003**	**Oct. 2003**	**Oct. 2003**	**Oct. 2003**	**Oct. 2003**	**Oct. 2003**	**9/5/2003**	**9/16/2003**	**10/10/2003**	**10/10/2003**	**10/16/2003**	**11/26/2003**	**12/5/2003**	**10/17/2003**
Aliphatic	EC>5-6	0.08%	0.07%	0.50%	0.53%	0.82%	0.52%	1.01%	0.06%	0.08%	0.32%	0.05%	0.66%	0.91%	3.99%
	EC>6-8	0.08%	0.08%	3.94%	1.95%	3.92%	3.32%	1.12%	0.07%	0.08%	0.32%	0.05%	0.67%	6.26%	47.94%
	EC>8-10	0.08%	0.75%	5.96%	3.85%	3.02%	1.58%	1.12%	0.07%	0.63%	1.34%	2.73%	4.48%	5.76%	1.14%
	EC>10-12	1.34%	3.33%	7.30%	7.94%	6.32%	4.15%	1.12%	0.07%	2.62%	2.58%	8.94%	11.65%	7.08%	0.95%
	EC>12-16	10.67%	16.76%	11.48%	13.49%	15.80%	14.01%	5.53%	8.28%	15.42%	8.66%	24.62%	29.03%	14.68%	2.27%
	EC>16-21	29.48%	23.58%	14.29%	16.65%	18.91%	18.02%	10.65%	29.32%	31.20%	14.11%	16.94%	20.88%	10.59%	1.89%
	EC>21-34	23.31%	13.31%	5.63%	5.69%	6.74%	6.59%	22.93%	30.18%	18.44%	18.17%	8.04%	6.63%	14.89%	0.74%
Aromatic	EC>8-10	0.27%	0.31%	6.95%	5.60%	7.47%	5.56%	1.09%	0.07%	0.08%	1.75%	0.26%	1.45%	6.01%	16.26%
	EC>10-12	1.71%	2.57%	17.68%	16.59%	14.13%	15.01%	1.09%	0.06%	0.07%	7.37%	2.11%	4.30%	8.36%	0.16%
	EC>12-16	5.66%	9.28%	15.98%	14.49%	7.16%	16.32%	8.54%	0.64%	2.97%	15.56%	10.63%	4.44%	6.18%	17.59%
	EC>16-21	15.49%	16.21%	5.84%	7.72%	7.20%	7.97%	8.21%	12.82%	17.55%	11.45%	16.54%	10.67%	6.55%	1.67%
	EC>21-34	11.64%	13.61%	3.89%	4.94%	4.76%	4.92%	36.98%	18.30%	10.83%	18.23%	8.73%	4.54%	11.51%	0.44%
BTEX	Benzene	0.00%	0.00%	0.01%	0.00%	0.03%	0.02%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.05%	0.26%
	Toluene	0.00%	0.00%	0.05%	0.03%	0.05%	0.06%	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%	0.03%	0.36%
	Ethylbenzene	0.00%	0.00%	0.05%	0.03%	0.60%	0.73%	0.01%	0.00%	0.00%	0.02%	0.00%	0.04%	0.13%	1.04%
	Total xylenes	0.01%	0.01%	0.17%	0.14%	1.59%	0.42%	0.02%	0.00%	0.00%	0.06%	0.00%	0.09%	0.50%	2.03%
Constituents	Total naphthalenes	0.14%	0.12%	0.21%	0.29%	1.18%	0.48%	0.03%	0.01%	0.01%	0.04%	0.35%	0.40%	0.40%	0.23%
	n-Hexane	0.00%	0.00%	0.06%	0.05%	0.28%	0.31%	0.11%	0.01%	0.00%	0.00%	0.00%	0.02%	0.09%	1.04%
Additives	MTBE	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	EDB	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	EDC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
CPAHs	Benzo(a)anthracene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%
	Benzo(b)fluoranthene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%
	Benzo(k)fluoranthene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%
	Benzo(a)pyrene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.23%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%
	Chrysene	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%	0.06%	0.01%	0.01%	0.01%	0.00%	0.01%	0.01%	0.00%
	Dibenzo(a,h)anthracene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Indeno(1,2,3-cd)pyrene	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Total GRO (EC>5-10)		0.54%	1.22%	17.69%	12.19%	17.78%	12.52%	4.51%	0.29%	0.87%	3.82%	3.09%	7.41%	19.74%	74.06%
Total DRO (EC>10-21)		64.51%	71.86%	72.79%	77.17%	70.72%	75.97%	35.56%	51.23%	69.86%	59.78%	80.13%	81.42%	53.86%	24.76%
Total HO (EC>21-34)		34.96%	26.91%	9.52%	10.63%	11.50%	11.51%	59.93%	48.48%	29.27%	36.40%	16.78%	11.18%	26.40%	1.18%
Total		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Predominant ranges[a]		D O	D O	D G	D G O	D G O	D G O	O D	D O	D O	D O	D O	D O	D O G	G D

Notes:

CPAHs = Carcinogenic polycyclic aromatic hydrocarbons.

D = Diesel range.

DRO = Diesel-range organics.

EC = Effective carbon chain range.

EDB = Ethylene dibromide.

EDC = Ethylene dichloride.

G = Gasoline range.

GRO = Gasoline-range organics.

HO = Heavy oil-range organics (lube oil).

MTBE = Methyl-tert-butyl ether.

O = Lube oil range.

[a]Predominant ranges defined as ranges exceeding 10% of the mixture, in decreasing order of predominance.

Table F-3
MTCATPH11 Results for
Fractionated Samples in Lower Yard
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

Location	Sample Number	Test Current Conditions[a]		Method B Soil Cleanup Levels (mg/kg)[a]					Statistical Evaluation of Leaching CULs			Method C TPH Soil CUL	
		Concen. (mg/kg)	Unrestrict. Land Use	TPH Direct Contact CUL	TPH Direct Contact Basis	TPH Leaching[b]	Benzene Leaching[c]	cPAHs Leaching[c]	TPH Leaching[d]	Benzene Leaching[e]	cPAHs Leaching[f]	CUL	Basis
Southeast Lower Yard	SB-183-2.5	6,004.94	Fail	2.94E+03	CPAH=1E-6	NV	>1.75E-01	>1.20E+01	5.00E+03	1.75E-01	1.20E+01	4.61E+04	HI=1
	SB-183-5.5	3,329.24	Fail	2.91E+03	HI=1	NV	>3.15E-01	>8.54E+00	5.00E+03	3.15E-01	8.54E+00	3.60E+04	HI=1
	SB-184-2.5	8,885.64	Fail	3.17E+03	HI=1	1.61E+02	>4.36E+00	>3.31E+00	1.61E+02	4.36E+00	3.31E+00	4.52E+04	HI=1
	SB-184-4.0	4,307.11	Fail	3.06E+03	HI=1	2.52E+02	>2.44E+00	>4.11E+02	2.52E+02	2.44E+00	4.11E+02	4.25E+04	HI=1
	SB-185-4.0	4,537.57	Fail	3.25E+03	HI=1	8.87E+01	>1.77E+01	>6.83E+00	8.87E+01	1.77E+01	6.83E+00	4.52E+04	HI=1
	SB-185-5.5	5,994.38	Fail	3.22E+03	HI=1	1.33E+02	>1.34E+01	>5.40E+00	1.33E+02	1.34E+01	5.40E+00	4.34E+04	HI=1
Detention Basin No. 1	DB1-A-26wall-1-4	222.44	Fail	4.32E+01	CPAH=1E-6	NV	>4.72E+00	>2.77E+02	5.00E+03	4.72E+00	2.77E+02	1.74E+03	CR=1E-5
	DB1-A-1wall-2.5	3,512.54	Fail	2.00E+03	CPAH=1E-6	NV	>2.99E-01	>1.60E+01	5.00E+03	2.99E-01	1.60E+01	4.90E+04	HI=1
	DB1-A-21wall-2.5	3,118.84	Pass	3.41E+03	HI=1	NV	>3.37E-01	>1.54E+01	5.00E+03	3.37E-01	1.54E+01	4.18E+04	HI=1
	DB1-A-25wall-3.5	3,104.74	Fail	3.01E+03	HI=1	NV	>1.04E+00	>1.37E+01	5.00E+03	1.04E+00	1.37E+01	8.81E+04	HI=1
Southwest Lower Yard	SWLY-A-5wall-3.75	10,156.24	Fail	2.49E+03	HI=1	NV	>2.18E-01	>1.11E+00	5.00E+03	2.18E-01	1.11E+00	3.18E+04	HI=1
	SWLY-A-14wall-3.75	1,484.56	Fail	1.23E+03	CPAH=1E-6	NV	>2.83E+00	>3.15E+01	5.00E+03	2.83E+00	3.15E+01	3.52E+04	HI=1
	SWLY-C-21wall-3.75	4,984.85	Fail	2.83E+03	CPAH=1E-6	3.03E+02	5.83E-01	>1.24E+01	3.03E+02	5.83E-01	1.24E+01	4.22E+04	HI=1
	SWLY-D-3wall-3.75	1,722.86	Pass	5.85E+03	CPAH=1E-6	3.63E+01	3.11E-01	>2.71E+00	3.63E+01	3.11E-01	2.71E+00	9.04E+04	HI=1
Statistics	Minimum			4.32E+01					3.63E+01	1.75E-01	1.11E+00	1.74E+03	
	Average			2.81E+03					2.93E+03	3.48E+00	5.84E+01	4.56E+04	
	Median			2.98E+03					5.00E+03	8.12E-01	1.22E+01	4.30E+04	
	Maximum			5.85E+03					5.00E+03	1.77E+01	4.11E+02	9.04E+04	

Notes:

cPAHs = Toxicity-adjusted total carcinogenic polycyclic aromatic hydrocarbons [benzo(a)pyrene equivalents].

CR = Cancer risk.

CUL = Cleanup level.

GW = Groundwater.

HI = Hazard index.

NV = No value available; spreadsheet will not calculate a soil CUL for the leaching pathway, because it would exceed the total NAPL saturation level. In these cases, other endpoints, such as residual saturation, drive the soil CUL.

TPH = Total petroleum hydrocabons.

[a]For testing of current soil conditions, the spreadsheet automatically assumes protection of potable groundwater. Calculation of soil leaching CULs assumes protection of surface water.

[b]TPH soil CUL for the leaching pathway based on a groundwater CUL of 500 µg/L.

[c]Benzene and cPAH soil CULs for the leaching pathway based on protection of surface water CULs of 51 µg/L and 0.018 µg/L, respectively. MTCATPH11 was used for calculating the benzene and cPAH leaching CULs, rather than MTCASGL10, because the transport properties of individual components are affected by the composition of the petroleum mixture. In many cases, the highest TPH soil concentration tested (75,000 mg/kg) yielded a benzene or cPAH groundwater concentration below the groundwater CUL. In these cases, benzene and cPAHs are not predicted to impact groundwater at any soil concentration.

[d]For statistical purposes, results of "NV" were substituted with 5,000 mg/kg. This is a conservative approach, because soil concentrations as high as 75,000 mg/kg would be protective of the leaching pathway.

[e]For statistical purposes, results listed as ">" were substituted with the value, which is a conservative approach, because the true CUL is higher. Results not calculated because the TPH CUL was "NV" were substituted with 6.23, which is the highest calculated benzene leaching CUL.

[f]For statistical purposes, results listed as ">" were substituted with the value, which is a conservative approach, because the true CUL is higher. Results not calculated because the TPH CUL was "NV" were substituted with 5.72, which is the highest calculated cPAH leaching CUL.

Table H-1
Lead and Zinc Concentrations in Surface Water Samples from Willow Creek and Tidal Basin - April 1996 Sampling Event
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

Sample ID	Total Lead	Dissolved Lead	Total Zinc	Dissolved Zinc
SW-1A	12	<0.85	59	15 J
SW-1B	12	<0.85	58	9.70 J
SW-1C	11 J	<0.85	58	13 J
SW-2A	2.30 J	<0.85	14 J	7.30 J
SW-2B	2.60 J	<0.85	18 J	5.70 J
SW-2C	<0.85	1.70 J	12 J	5.70 J
SW-3A	3.10 J	<0.85	22 J	7.60 J
SW-3B	3.20 J	<0.85	25	10 J
SW-3C	2.70 J	<0.85	24	9.10 J
SW-4A	2.70 J	<0.85	19 J	10 J
SW-4B	2.50 J	<0.85	21 J	8.70 J
SW-4C	3.10 J	<0.85	20 J	9.70 J
Maximum Detected Concentration	12	1.70	59	15
Screening level[a]		2.50		81

Notes:
Concentrations in micrograms per liter (µg/L).
J = Estimated value.
SW-1A, SW-1B, and SW-1C were collected at the background (upstream) sampling station.
[a]From Table 1 of the report.

Table H-2
Dissolved Metals Concentrations in Surface Water Samples from Willow Creek and Tidal Basin - October 2003 Sampling Event
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

Sample ID	Dissolved Arsenic	Dissolved Copper	Dissolved Lead	Dissolved Zinc
SW-01-1003	1.88	<10	<10	<10
SW-02-1003	1.88	<10	<10	<10
SW-03-1003	2.85	1.89	1.94	<10
SW-04-1003	2.31	1.64	1.19	<10
Maximum Detected Concentration	2.85	1.89	1.94	<10
Screening level[a]	0.098	2.40	2.50	81

Notes:

Concentrations in micrograms (µg/L).

SW-01-1003 was collected at the background (upstream) sampling station.

[a]From Table 1 of the report.

Table I-1
Data Set for Evaluation of Collocation of Antimony (Sb) and Arsenic (As)
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

COMPLETE DATA SET												
Sample Location	Depth	Location	Sample Date	Antimony				Arsenic			Ratio Sb/As	Ratio As/Sb
				Raw			Adjusted	Raw		Adjusted		
BSS-101	0.0	DB1	1/9/1996	<	6.1	E	3.05	5.1	J	5.1	0.60	1.67
BSS-102	0.0	DB1	1/9/1996	<	9.5	E	4.75	8.4	J	8.4	0.57	1.77
BSS-103	0.0	DB1	1/9/1996	<	7.0	E	3.5	6.6	J	6.6	0.53	1.89
BSS-104	0.5	DB1	10/2/1995		9.8	JE	9.8	18.0		18	0.54	1.84
BSS-105	2.5	DB1	10/18/1995	<	1.7	E	0.85	2.7	JE	2.7	0.31	3.18
BSS-105	5.0	DB1	10/18/1995	<	1.8	E	0.9	2.9	JE	2.9	0.31	3.22
BSS-105	7.5	DB1	10/18/1995	<	1.5	E	0.75	1.4	JE	1.4	0.54	1.87
BSS-107A	0.4	DB1	11/1/1995	<	2.4		1.2	5.3	J	5.3	0.23	4.42
BSS-110	1.0	DB1	10/18/1995	<	1.6	E	0.8	6.0	JE	6	0.13	7.50
BSS-110	2.5	DB1	10/18/1995	<	1.6	E	0.8	3.9	JE	3.9	0.21	4.88
BSS-110	5.0	DB1	10/18/1995	<	1.5	E	0.75	2.4	JE	2.4	0.31	3.20
BSS-110	7.5	DB1	10/18/1995	<	1.4	E	0.7	2.0	JE	2	0.35	2.86
BSS-111	0.3	DB1	10/26/1995	<	4.3	U	2.15	30.0	J	30	0.07	13.95
BSS-201	0.0	DB2	1/9/1996	<	9.3	E	4.65	7.2		7.2	0.65	1.55
SB-115	1.0	near DB1	10/18/1995					2.0	JE	2		
SB-115	2.5	near DB1	10/18/1995					2.7	JE	2.7		
SS-101	0.0	SWLY	9/12/1995		4.4	JE	4.4	18.0	E	18	0.24	4.09
SS-102	0.0	SWLY	9/12/1995		70.0	E	70	740.0	JE	740	0.09	10.57
SS-103	0.0	SWLY	9/12/1995		180.0	E	180	2,000		2,000	0.09	11.11
SS-104	0.0	SWLY	9/12/1995		200.0	E	200	1,700	JE	1,700	0.12	8.50
SS-105	0.0	SWLY	9/12/1995		170.0	E	170	1,700	JE	1,700	0.10	10.00
SSMW-109	0.0	near DB1	9/26/1995		5.4	JE	5.4	13.0	E	13	0.42	2.41

Table I-1
Data Set for Evaluation of Collocation of Antimony (Sb) and Arsenic (As)
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

BASIC STATISTICS ON ALL SAMPLES (NONDETECTS ASSIGNED 1/2 OF DETECTION LIMIT)							
	Antimony			Arsenic		Ratios	
	Detected	Nondetected	All	Raw	Adjusted	Sb/As	As/Sb
Count	7	13	20		22	20	20
Minimum	4.4	1.4	0.7		1.4	0.07	1.55
Median			3.275		6.3	0.31	3.21
Mean			33.2225		285.3455	0.32	5.02
Maximum	200.0	9.5	200		2,000	0.65	13.95

BASIC STATISTICS ON SAMPLES WITH DETECTED ANTIMONY						
	Antimony		Arsenic		Ratios	
	Raw	Adjusted	Raw	Adjusted	Sb/As	As/Sb
Count		7		7	7	7
Minimum		4.4		13	0.09	1.84
Median		70		740	0.12	8.50
Mean		91		884	0.23	6.93
Maximum		200		2,000	0.54	11.11

Notes:

Concentrations in milligrams per kilogram (mg/kg).

DB1 = Detention Basin No. 1

DB2 = Detention Basin No. 2

SWLY = Southwest portion of lower yard.

Table I-2
Statistical Evaluation of Collocation of Antimony (Sb) and Arsenic (As)
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

ALL SAMPLES ANALYZED FOR BOTH SB AND AS (NONDETECTS ASSIGNED 1/2 OF DETECTION LIMIT)

Regression — As = X, Sb = Y

Sb	As
3.05	5.1
4.75	8.4
3.5	6.6
9.8	18
0.85	2.7
0.9	2.9
0.75	1.4
1.2	5.3
0.8	6
0.8	3.9
0.75	2.4
0.7	2
2.15	30
4.65	7.2
4.4	18
70	740
180	2000
200	1700
170	1700
5.4	13

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.991777004
R Square	0.983621625
Adjusted R Square	0.982711715
Standard Error	8.760555657
Observations	20

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	82964.64534	82964.64534	1081.010108	1.58466E-17
Residual	18	1381.452038	76.74733543		
Total	19	84346.09738			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.981432075	2.177206937	0.91007981	0.374806569	-2.592713504	6.555577655	-2.592713504	6.555577655
X Variable 1	0.099606459	0.003029512	32.87871816	1.58466E-17	0.093241687	0.105971232	0.093241687	0.105971232

SAMPLES WITH DETECTED VALUES OF SB

Regression — As = X, Sb = Y

Sb	As
9.8	18.0
4.4	18.0
70.0	740.0
180.0	2000.0
200.0	1700.0
170.0	1700.0
5.4	13.0

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.986108105
R Square	0.972409195
Adjusted R Square	0.966891034
Standard Error	16.25849451
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	46581.70107	46581.70107	176.2197929	4.33629E-05
Residual	5	1321.693219	264.3386438		
Total	6	47903.39429			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	4.780908674	8.961659178	0.533484769	0.616551245	-18.25573198	27.81754933	-18.25573198	27.81754933
X Variable 1	0.09793725	0.007377693	13.27478033	4.33629E-05	0.078972318	0.116902182	0.078972318	0.116902182

Table I-2
Statistical Evaluation of Collocation of Antimony (Sb) and Arsenic (As)
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

SAMPLES IN SOUTHWEST LOWER YARD

Regression

Sb	**As**
4.4	18.0
70.0	740.0
180.0	2000.0
200.0	1700.0
170.0	1700.0

As=X
Sb=Y

SUMMARY OUTPUT

Regression Statistics

Multiple R	0.976612439
R Square	0.953771855
Adjusted R Square	0.938362474
Standard Error	20.86209507
Observations	5

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	26938.60697	26938.60697	61.89553107	0.004278404
Residual	3	1305.681032	435.2270108		
Total	4	28244.288			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.844420911	18.10125364	0.157139443	0.885115179	-54.76190089	60.45074272	-54.76190089	60.45074272
X Variable 1	0.099087024	0.01259468	7.867371294	0.004278404	0.059005094	0.139168955	0.059005094	0.139168955

DETENTION BASIN NO. 1 SAMPLES (NONDETECTS ASSIGNED 1/2 OF DETECTION LIMIT)

Regression

Sb	**As**
3.05	5.1
4.75	8.4
3.5	6.6
9.8	18.0
0.85	2.7
0.9	2.9
0.75	1.4
1.2	5.3
0.8	6.0
0.8	3.9
0.75	2.4
0.7	2.0
2.15	30.0

As = X
Sb = Y

SUMMARY OUTPUT

Regression Statistics

Multiple R	0.493146936
R Square	0.243193901
Adjusted R Square	0.174393346
Standard Error	2.366715914
Observations	13

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	19.79944435	19.79944435	3.53476658	0.086822509
Residual	11	61.61478642	5.60134422		
Total	12	81.41423077			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.147824575	0.900811633	1.274211537	0.228850152	-0.834849463	3.130498614	-0.834849463	3.130498614
X Variable 1	0.159221547	0.084687921	1.880097492	0.086822509	-0.027175404	0.345618498	-0.027175404	0.345618498

Table I-3
Summary of Statistical Evaluation of Collocation of Antimony (Sb) and Arsenic (As)
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

Data Set	n	Correlation Coefficient	Regression r^2	ANOVA F Significance	Regression Equation	Predicted Sb for As at 20 mg/kg
Full set	20	0.992	0.984	1.58E-17	Sb = 9.96E-2 x As + 1.98	4
Antimony Detected	7	0.986	0.972	4.34E-05	Sb = 9.79E-2 x As + 4.78	7
Detention Basin No. 1 Samples	13	0.493	0.243	8.68E-02	Insignificant relationship	
Southwest Lower Yard Samples	5	0.977	0.954	4.28E-03	Sb = 9.91E-2 x As + 2.84	5

Notes:
ANOVA = Analysis of variance
n = Number of samples

Table J-1
Statistical Evaluation of TPH Composition in Groundwater
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
Perimeter Wells										
p	LM-2-0202	avg	3/1/2002	Diesel	mg/L	0.32		0.25	J	
p	LM-2-0203	P01	2/28/2003	Diesel	mg/L	3.32		0.25	J	
p	LM-2-0902	P01	9/3/2002	Diesel	mg/L	0.361		0.25	J	
p	LM-2-0202	avg	3/1/2002	Gasoline Range Hydrocarbons	µg/L	125	<	250		
p	LM-2-0203	P01	2/28/2003	Gasoline Range Hydrocarbons	µg/L	25	<	50		
p	LM-2-0902	P01	9/3/2002	Gasoline Range Hydrocarbons	µg/L	25	<	50		
p	LM-2-0202	avg	3/1/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	LM-2-0203	P01	2/28/2003	Lube Oil Range Hydrocarbons	mg/L	0.731		0.5	J	
p	LM-2-0902	P01	9/3/2002	Lube Oil Range Hydrocarbons	mg/L	0.843		0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.32	3.32	1.33	66.68%	3	3	60%
Gas	0.025	0.125	0.06	2.92%	3	0	0%
Oil	0.25	0.84	0.61	30.40%	3	2	40%
Total:	0.6	4.3	2.00	100.00%	--	5	100%

p	LM-3-0203	P01	2/28/2003	Diesel	mg/L	5.38		1.25	J	
p	LM-3-0301	P01	3/2/2001	Diesel	mg/L	1.5		0.25		
p	LM-3-1201	P01	12/3/2001	Diesel	mg/L	1.21		0.25	J	
p	LM-3-0203	P01	2/28/2003	Gasoline Range Hydrocarbons	µg/L	25	<	50		
p	LM-3-0301	P01	3/2/2001	Gasoline Range Hydrocarbons	µg/L	25	<	50		
p	LM-3-1201	P01	12/3/2001	Gasoline Range Hydrocarbons	µg/L	25	<	50		
p	LM-3-0203	P01	2/28/2003	Lube Oil Range Hydrocarbons	mg/L	0.864		0.5	J	
p	LM-3-1201	P01	12/3/2001	Lube Oil Range Hydrocarbons	mg/L	0.709		0.5		
p	LM-3-0301	P01	3/2/2001	TPH(as motor oil)	mg/L	0.375	<	0.75		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	1.21	5.38	2.70	80.00%	3	3	60%
Gas	0.025	0.025	0.03	0.74%	3	0	0%
Oil	0.38	0.86	0.65	19.26%	3	2	40%
Total:	1.6	6.3	3.37	100.00%	--	5	100%

Table J-1
Statistical Evaluation of TPH Composition in Groundwater
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
p	MW-101-0202	P01	2/27/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-101-0203	P01	2/26/2003	Diesel	mg/L	0.125	<	0.25		
p	MW-101-0802	avg	8/29/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-101-0202	P01	2/27/2002	Gasoline Range Hydrocarbons	µg/L	426		250		
p	MW-101-0203	P01	2/26/2003	Gasoline Range Hydrocarbons	µg/L	350		50		
p	MW-101-0802	avg	8/29/2002	Gasoline Range Hydrocarbons	µg/L	342		50		
p	MW-101-0202	P01	2/27/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-101-0203	P01	2/26/2003	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-101-0802	avg	8/29/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.125	0.125	0.13	16.72%	3	0	0%
Gas	0.342	0.426	0.37	49.84%	3	3	100%
Oil	0.25	0.25	0.25	33.44%	3	0	0%
Total:	0.7	0.8	0.75	100.00%	--	3	100%

p	MW-102-0200	avg	2/22/2000	Diesel	mg/L	6.73		0.25	J	
p	MW-102-0201	avg	2/7/2001	Diesel	mg/L	0.505		0.25		J
p	MW-102-0301	P01	3/2/2001	Diesel	mg/L	0.125	<	0.25		J
p	MW-102-0601	P01	6/29/2001	Diesel	mg/L	0.125	<	0.25		
p	MW-102-0200	avg	2/22/2000	Gasoline Range Hydrocarbons	µg/L	1690		50		
p	MW-102-0201	avg	2/7/2001	Gasoline Range Hydrocarbons	µg/L	1850		50	J	
p	MW-102-0301	P01	3/2/2001	Gasoline Range Hydrocarbons	µg/L	1700		50		
p	MW-102-0601	P01	6/29/2001	Gasoline Range Hydrocarbons	µg/L	1580		80		
p	MW-102-0601	P01	6/29/2001	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-102-0200	avg	2/22/2000	TPH(as motor oil)	mg/L	0.4305	<	0.861		
p	MW-102-0201	avg	2/7/2001	TPH(as motor oil)	mg/L	0.375	<	0.75		
p	MW-102-0301	P01	3/2/2001	TPH(as motor oil)	mg/L	0.375	<	0.75		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.125	6.73	1.87	47.57%	4	2	33%
Gas	1.580	1.85	1.71	43.34%	4	4	67%
Oil	0.25	0.43	0.36	9.09%	4	0	0%
Total:	2.0	9.0	3.93	100.00%	--	6	100%

Table J-1
Statistical Evaluation of TPH Composition in Groundwater
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
p	MW-104-0202	P01	2/27/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-104-0203	P01	2/26/2003	Diesel	mg/L	0.125	<	0.25		
p	MW-104-0802	P01	8/27/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-104-0202	P01	2/27/2002	Gasoline Range Hydrocarbons	µg/L	1630		1250		
p	MW-104-0203	P01	2/26/2003	Gasoline Range Hydrocarbons	µg/L	1220		50	J	
p	MW-104-0802	P01	8/27/2002	Gasoline Range Hydrocarbons	µg/L	787		50	J	
p	MW-104-0202	P01	2/27/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		J
p	MW-104-0203	P01	2/26/2003	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-104-0802	P01	8/27/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.125	0.125	0.13	7.87%	3	0	0%
Gas	0.787	1.63	1.21	76.38%	3	3	100%
Oil	0.25	0.25	0.25	15.75%	3	0	0%
Total:	1.2	2.0	1.59	100.00%	--	3	100%

area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
p	MW-135-0202	P01	2/28/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-135-0303	P01	3/3/2003	Diesel	mg/L	0.909		0.25	J	
p	MW-135-0802	P01	8/29/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-135-0202	P01	2/28/2002	Gasoline Range Hydrocarbons	µg/L	125	<	250		
p	MW-135-0303	P01	3/3/2003	Gasoline Range Hydrocarbons	µg/L	25	<	50		
p	MW-135-0802	P01	8/29/2002	Gasoline Range Hydrocarbons	µg/L	25	<	50		
p	MW-135-0202	P01	2/28/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-135-0303	P01	3/3/2003	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-135-0802	P01	8/29/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.125	0.909	0.39	55.61%	3	1	100%
Gas	0.025	0.125	0.06	8.40%	3	0	0%
Oil	0.25	0.25	0.25	35.99%	3	0	0%
Total:	0.4	1.3	0.69	100.00%	--	1	100%

Table J-1
Statistical Evaluation of TPH Composition in Groundwater
2007 Lower Yard Interim Action
Unocal Edmonds Terminal

area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
p	MW-136-0202	P01	2/28/2002	Diesel	mg/L	0.715		0.25	J	J
p	MW-136-0303	P01	3/3/2003	Diesel	mg/L	8.1		1.25		
p	MW-136-0802	P01	8/29/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-136-0202	P01	2/28/2002	Gasoline Range Hydrocarbons	µg/L	125	<	250		
p	MW-136-0303	P01	3/3/2003	Gasoline Range Hydrocarbons	µg/L	72.4		50		
p	MW-136-0802	P01	8/29/2002	Gasoline Range Hydrocarbons	µg/L	25	<	50		
p	MW-136-0202	P01	2/28/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-136-0303	P01	3/3/2003	Lube Oil Range Hydrocarbons	mg/L	0.724		0.5	J	
p	MW-136-0802	P01	8/29/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.125	8.1	2.98	86.07%	3	2	50%
Gas	0.025	0.125	0.07	2.14%	3	1	25%
Oil	0.25	0.72	0.41	11.78%	3	1	25%
Total:	0.4	8.9	3.46	100.00%	--	4	100%

p	MW-139-0202	avg	2/26/2002	Diesel	mg/L	0.548		0.25		
p	MW-139-0203	avg	2/28/2003	Diesel	mg/L	0.125	<	0.25		
p	MW-139-0802	P01	8/30/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-139-0202	avg	2/26/2002	Gasoline Range Hydrocarbons	µg/L	125	<	250		
p	MW-139-0203	avg	2/28/2003	Gasoline Range Hydrocarbons	µg/L	25	<	50		
p	MW-139-0802	P01	8/30/2002	Gasoline Range Hydrocarbons	µg/L	59.1		50		
p	MW-139-0202	avg	2/26/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-139-0203	avg	2/28/2003	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-139-0802	P01	8/30/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.125	0.548	0.27	45.42%	3	1	50%
Gas	0.025	0.125	0.07	11.90%	3	1	50%
Oil	0.25	0.25	0.25	42.68%	3	0	0%
Total:	0.4	0.9	0.59	100.00%	--	2	100%

Table J-1
Statistical Evaluation of TPH Composition in Groundwater
2007 Lower Yard Interim Action
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area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
p	MW-140-0203	P01	2/26/2003	Diesel	mg/L	1.43		0.25		
p	MW-140-0502	P01	5/28/2002	Diesel	mg/L	0.499		0.25		
p	MW-140-0203	P01	2/26/2003	Gasoline Range Hydrocarbons	µg/L	4960		50	J	
p	MW-140-0502	P01	5/28/2002	Gasoline Range Hydrocarbons	µg/L	4100		250		
p	MW-140-0203	P01	2/26/2003	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-140-0502	P01	5/28/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.499	1.43	0.96	16.79%	2	2	50%
Gas	4.100	4.96	4.53	78.86%	2	2	50%
Oil	0.25	0.25	0.25	4.35%	2	0	0%
Total:	4.8	6.6	5.74	100.00%	--	4	100%

area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
p	MW-141-0202	P01	2/27/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-141-0203	P01	2/27/2003	Diesel	mg/L	0.539		0.25		
p	MW-141-0502	avg	5/29/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-141-0802	P01	8/29/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-141-0202	P01	2/27/2002	Gasoline Range Hydrocarbons	µg/L	273		250		
p	MW-141-0203	P01	2/27/2003	Gasoline Range Hydrocarbons	µg/L	571		50	J	
p	MW-141-0502	avg	5/29/2002	Gasoline Range Hydrocarbons	µg/L	698		50	J	
p	MW-141-0802	P01	8/29/2002	Gasoline Range Hydrocarbons	µg/L	1430		50	J	
p	MW-141-0202	P01	2/27/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-141-0203	P01	2/27/2003	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-141-0502	avg	5/29/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-141-0802	P01	8/29/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.125	0.539	0.23	18.71%	4	1	20%
Gas	0.273	1.43	0.74	60.83%	4	4	80%
Oil	0.25	0.25	0.25	20.47%	4	0	0%
Total:	0.6	2.2	1.22	100.00%	--	5	100%

Table J-1
Statistical Evaluation of TPH Composition in Groundwater
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area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
p	MW-142-0202	P01	2/27/2002	Diesel	mg/L	0.393		0.25		
p	MW-142-0203	P01	2/28/2003	Diesel	mg/L	0.908		0.25	J	
p	MW-142-0502	P01	5/29/2002	Diesel	mg/L	0.343		0.25		
p	MW-142-0802	P01	8/29/2002	Diesel	mg/L	0.38		0.25	J	
p	MW-142-0202	P01	2/27/2002	Gasoline Range Hydrocarbons	µg/L	559		250		
p	MW-142-0203	P01	2/28/2003	Gasoline Range Hydrocarbons	µg/L	112		50		
p	MW-142-0502	P01	5/29/2002	Gasoline Range Hydrocarbons	µg/L	1560		250		
p	MW-142-0802	P01	8/29/2002	Gasoline Range Hydrocarbons	µg/L	1370		50	J	
p	MW-142-0202	P01	2/27/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-142-0203	P01	2/28/2003	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-142-0502	P01	5/29/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-142-0802	P01	8/29/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.343	0.908	0.51	30.55%	4	4	50%
Gas	0.112	1.56	0.90	54.35%	4	4	50%
Oil	0.25	0.25	0.25	15.09%	4	0	0%
Total:	0.7	2.7	1.66	100.00%	--	8	100%

area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
p	MW-144-0502	P01	5/29/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-144-0802	avg	8/30/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-144-0502	P01	5/29/2002	Gasoline Range Hydrocarbons	µg/L	649		50	J	
p	MW-144-0802	avg	8/30/2002	Gasoline Range Hydrocarbons	µg/L	139.7		50		
p	MW-144-0502	P01	5/29/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-144-0802	avg	8/30/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.125	0.125	0.13	16.25%	2	0	0%
Gas	0.140	0.649	0.39	51.26%	2	2	100%
Oil	0.25	0.25	0.25	32.49%	2	0	0%
Total:	0.5	1.0	0.77	100.00%	--	2	100%

Table J-1
Statistical Evaluation of TPH Composition in Groundwater
2007 Lower Yard Interim Action
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area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
p	MW-145-0203	P01	2/26/2003	Diesel	mg/L	0.125	<	0.25		
p	MW-145-0502	P01	5/29/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-145-0802	P02	8/27/2002	Diesel	mg/L	0.125	<	0.25	J	
p	MW-145-0203	P01	2/26/2003	Gasoline Range Hydrocarbons	µg/L	1060		50	J	
p	MW-145-0802	P01	8/27/2002	Gasoline Range Hydrocarbons	µg/L	1820		50	J	
p	MW-145-0203	P01	2/26/2003	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-145-0802	P02	8/27/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5	J	

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.125	0.125	0.13	6.89%	3	0	0%
Gas	1.060	1.82	1.44	79.34%	2	2	100%
Oil	0.25	0.25	0.25	13.77%	2	0	0%
Total:	1.4	2.2	1.82	100.00%	--	2	100%

area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
p	MW-20R-0202	P01	2/26/2002	Diesel	mg/L	0.42		0.25		
p	MW-20R-0203	P01	2/26/2003	Diesel	mg/L	0.125	<	0.25		
p	MW-20R-0802	avg	8/27/2002	Diesel	mg/L	0.125	<	0.25		
p	MW-20R-0202	P01	2/26/2002	Gasoline Range Hydrocarbons	µg/L	5180		2500		
p	MW-20R-0203	P01	2/26/2003	Gasoline Range Hydrocarbons	µg/L	3610		250		
p	MW-20R-0802	avg	8/27/2002	Gasoline Range Hydrocarbons	µg/L	1710		500	J	
p	MW-20R-0202	P01	2/26/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-20R-0203	P01	2/26/2003	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
p	MW-20R-0802	avg	8/27/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.125	0.42	0.22	5.62%	3	1	25%
Gas	1.710	5.18	3.50	88.09%	3	3	75%
Oil	0.25	0.25	0.25	6.29%	3	0	0%
Total:	2.1	5.9	3.97	100.00%	--	4	100%

Table J-1
Statistical Evaluation of TPH Composition in Groundwater
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area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
Interior Wells										
	MW-103-0200	P01	2/22/2000	Diesel	mg/L	106		0.25		
	MW-103R-0203	P01	2/28/2003	Diesel	mg/L	4.71		1.25	J	
	MW-103R-0802	P01	8/30/2002	Diesel	mg/L	0.125	<	0.25		
	MW-103-0200	P01	2/22/2000	Gasoline Range Hydrocarbons	µg/L	884		50		
	MW-103-0298	P01	2/12/1998	Gasoline Range Hydrocarbons	µg/L	187		5		
	MW-103R-0203	P01	2/28/2003	Gasoline Range Hydrocarbons	µg/L	91.9		50		
	MW-103R-0802	P01	8/30/2002	Gasoline Range Hydrocarbons	µg/L	109		50		
	MW-103R-0203	P01	2/28/2003	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
	MW-103R-0802	P01	8/30/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
	MW-103-0200	P01	2/22/2000	TPH(as motor oil)	mg/L	41.1		0.75		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.125	106	36.95	72.26%	3	2	29%
Gas	0.092	0.884	0.32	0.62%	4	4	57%
Oil	0.25	41.10	13.87	27.12%	3	1	14%
Total:	0.5	148.0	51.13	100.00%	--	7	100%

	MW-112-0601	P01	6/26/2001	Diesel	mg/L	0.125	<	0.25
	MW-112-0601	P01	6/26/2001	Gasoline Range Hydrocarbons	µg/L	215		50
	MW-112-0601	P01	6/26/2001	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5
	MW-117-0298	P01	2/25/1998	Diesel	mg/L	0.625	<	1.25
	MW-117-0298	P01	2/25/1998	Diesel Range Hydrocarbons	µg/L	25	<	50
	MW-117-0298	P01	2/25/1998	Gasoline Range Hydrocarbons	µg/L	125	<	250
	MW-117-0298	P01	2/25/1998	Gasoline Range Hydrocarbons	µg/L	125	<	250
	MW-117-0298	P01	2/25/1998	Gasoline Range Hydrocarbons	µg/L	1300		50 E
	MW-117-0298	P01	2/25/1998	TPH(as motor oil)	mg/L	2.88		0.5

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.625	25	12.81	79.04%	2	0	0%
Gas	0.125	1.3	0.52	3.19%	3	1	50%
Oil	2.88	2.88	2.88	17.77%	1	1	50%
Total:	3.6	29.2	16.21	100.00%	--	2	100%

Table J-1
Statistical Evaluation of TPH Composition in Groundwater
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area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
	MW-119-0601	P01	6/26/2001	Diesel	mg/L		<	0.25		
	MW-119-0601	P01	6/26/2001	Gasoline Range Hydrocarbons	µg/L	208		50		
	MW-119-0601	P01	6/26/2001	Lube Oil Range Hydrocarbons	mg/L		<	0.5		
	MW-123-0298	P01	2/12/1998	Diesel	mg/L	2.75		0.021		
	MW-123-0298	P01	2/12/1998	Gasoline Range Hydrocarbons	µg/L	5250		250		
	MW-123-0298	P01	2/12/1998	TPH(as motor oil)	mg/L	0.334		0.092		
	MW-124-0301	P01	3/28/2001	Diesel	mg/L	27		2.5		27
	MW-124-0301	P01	3/28/2001	Gasoline Range Hydrocarbons	µg/L	1500		50		1.5
	MW-124-0301	P01	3/28/2001	TPH(as motor oil)	mg/L		<	7.5		3.75
										32.25
	MW-125-0299	P01	2/17/1999	Diesel	mg/L	0.261		0.021		
	MW-125-0601	P01	6/26/2001	Diesel	mg/L	0.443		0.25		
	MW-125-0298	P01	2/12/1998	Gasoline Range Hydrocarbons	µg/L	3080		125		
	MW-125-0299	P01	2/17/1999	Gasoline Range Hydrocarbons	µg/L	3020		2500		
	MW-125-0601	P01	6/26/2001	Gasoline Range Hydrocarbons	µg/L	5680		2500		
	MW-125-0898	P01	8/31/1998	Gasoline Range Hydrocarbons	µg/L	5000		250		
	MW-125-0601	P01	6/26/2001	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
	MW-125-0298	P01	2/12/1998	TPH(as motor oil)	mg/L	0.133		0.092		
	MW-125-0299	P01	2/17/1999	TPH(as motor oil)	mg/L	0.046	<	0.092		
	MW-125-0898	P01	8/31/1998	TPH(as motor oil)	mg/L	0.296		0.092	J	

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.261	0.443	0.35	7.44%	2	2	25%
Gas	3.020	5.68	4.20	88.72%	4	4	50%
Oil	0.05	0.30	0.18	3.83%	4	2	25%
Total:	3.3	6.4	4.73	100.00%	--	8	100%

Table J-1
Statistical Evaluation of TPH Composition in Groundwater
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area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
	MW-126-0601	avg	6/26/2001	Diesel	mg/L		<	0.25		
	MW-126-0601	avg	6/26/2001	Gasoline Range Hydrocarbons	µg/L	42.8		50		
	MW-126-0601	avg	6/26/2001	Lube Oil Range Hydrocarbons	mg/L		<	0.5		
	MW-127-0601	P01	6/26/2001	Diesel	mg/L	0.34		0.25		
	MW-127-0601	P01	6/26/2001	Gasoline Range Hydrocarbons	µg/L	56.6		50		
	MW-127-0601	P01	6/26/2001	Lube Oil Range Hydrocarbons	mg/L		<	0.5		
	MW-131-0601	P01	6/26/2001	Diesel	mg/L		<	0.25		
	MW-131-0601	P01	6/26/2001	Gasoline Range Hydrocarbons	µg/L	388		50	J	
	MW-131-0601	P01	6/26/2001	Lube Oil Range Hydrocarbons	mg/L		<	0.5		
	MW-17-0203	avg	2/27/2003	Diesel	mg/L	19.2		2.5		
	MW-17-0601	P01	6/29/2001	Diesel	mg/L	21.8		2.75		
	MW-17-0203	avg	2/27/2003	Gasoline Range Hydrocarbons	µg/L	230.5		50		
	MW-17-0601	P01	6/29/2001	Gasoline Range Hydrocarbons	µg/L	228		80		
	MW-17-0203	avg	2/27/2003	Lube Oil Range Hydrocarbons	mg/L	2.86		0.5	J	
	MW-17-0601	P01	6/29/2001	Lube Oil Range Hydrocarbons	mg/L	2.75	<	5.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	19.2	21.8	20.50	87.11%	2	2	40%
Gas	0.228	0.2305	0.23	0.97%	2	2	40%
Oil	2.75	2.86	2.81	11.92%	2	1	20%
Total:	22.2	24.9	23.53	100.00%	--	5	100%

Table J-1
Statistical Evaluation of TPH Composition in Groundwater
2007 Lower Yard Interim Action
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area	samp_id	res_type	samp_date	comp_name	c_unit	conc.	rep_flag	limit_1	er_q1	er_q2
	MW-19-0301	P01	3/28/2001	Diesel	mg/L	45		2.5		
	MW-19-0301	P01	3/28/2001	Gasoline Range Hydrocarbons	µg/L	41000		500		
	MW-19-0301	P01	3/28/2001	TPH(as motor oil)	mg/L		<	7.5		
	MW-25-0601	P01	6/29/2001	Diesel	mg/L	2.69		0.25		
	MW-25-0601	P01	6/29/2001	Gasoline Range Hydrocarbons	µg/L	1010		80		
	MW-25-0601	P01	6/29/2001	Lube Oil Range Hydrocarbons	mg/L		<	0.5		
	MW-26-0601	P01	6/29/2001	Diesel	mg/L	0.269		0.25		
	MW-26-0601	P01	6/29/2001	Gasoline Range Hydrocarbons	µg/L	783		80		J
	MW-26-0601	P01	6/29/2001	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
					total=	1.302				
					Diesel	0.206605223				
					Gas	601.3824885				
					Oil	0.192012289				
	MW-27-0601	avg	6/29/2001	Diesel	mg/L	0.125	<	0.25		
	MW-27-0601	avg	6/29/2001	Gasoline Range Hydrocarbons	µg/L	67.8		80		J
	MW-27-0601	avg	6/29/2001	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
					total=	0.4428				
					Diesel	0.28229449				
					Gas	153.1165312				
					Oil	0.564588979				
	MW-7-0601	P01	6/26/2001	Diesel	mg/L	0.648		0.25		
	MW-7-0601	P01	6/26/2001	Gasoline Range Hydrocarbons	µg/L	4010		250	J	
	MW-7-0601	P01	6/26/2001	Lube Oil Range Hydrocarbons	mg/L		<	0.5		
	MW-8-0601	P01	6/26/2001	Diesel	mg/L	2.5		0.25		
	MW-8-0601	P01	6/26/2001	Gasoline Range Hydrocarbons	µg/L	2730		1000		
	MW-8-0601	P01	6/26/2001	Lube Oil Range Hydrocarbons	mg/L	1.31		0.5		
	MW-146-0203	P01	2/26/2003	Diesel	mg/L	3.61		0.25		
	MW-146-0502	avg	5/28/2002	Diesel	mg/L	0.89		0.25		
	MW-146-0802	P01	8/27/2002	Diesel	mg/L	0.6		0.25	J	
	MW-146-0203	P01	2/26/2003	Gasoline Range Hydrocarbons	µg/L	15300		500		
	MW-146-0502	avg	5/28/2002	Gasoline Range Hydrocarbons	µg/L	18950		2500		
	MW-146-0802	P01	8/27/2002	Gasoline Range Hydrocarbons	µg/L	15500		2500	J	
	MW-146-0203	P01	2/26/2003	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
	MW-146-0502	avg	5/28/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		
	MW-146-0802	P01	8/27/2002	Lube Oil Range Hydrocarbons	mg/L	0.25	<	0.5		

	Min	Max	Avg	Relative TPH Composition	# samples	# detects	FOD relative to total #detects
Diesel	0.6	3.61	1.70	9.17%	3	3	50%
Gas	15.300	18.95	16.58	89.48%	3	3	50%
Oil	0.25	0.25	0.25	1.35%	3	0	0%
Total:	16.2	22.8	18.53	100.00%	--	6	100%

SUMMARY OF POTENTIALLY APPLICABLE REQUIREMENTS

WAC 173-340-710 – Applicable Local, State, and Federal Laws states that cleanup actions conducted under MTCA shall comply with applicable state and federal laws. The code also addresses applicable relevant and appropriate requirements (ARARs), substantive (as opposed to procedural) requirements, and local government permits and approvals. This appendix summarizes the analysis completed to ensure conformance with WAC 173-340-710.

K.1 Exemptions, Waivers, and Variances

The federal and state laws, regulations, and rules summarized below contain numerous exemptions, waivers, and variances. MTCA was amended in 1994 to exempt persons conducting a remedial action at a facility under a consent decree, order, or agreed order. These remedial actions are exempt from the procedural requirements of Chapters 70.94 (Air), 70.95 (Solid Waste), 70.105 (Hazardous Waste), 77.55 (Hydraulic Permit), 90.48 (Water Quality), and 90.58 (Shorelands) Revised Code of Washington (RCW), and the procedural requirements of any laws requiring or authorizing local government permits or approvals for the actions.

Ecology is required to ensure compliance with the substantive provisions of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW, and the substantive provisions for laws requiring or authorizing local government permits or approvals. It is at the discretion of Ecology to make a final decision regarding which substantive provisions are applicable. Under Policy and Procedure Directive 130B, Ecology describes how these exemptions will be implemented and how compliance will be assured.

Affect on the Proposed Interim Action:

Since the interim action will be conducted under the agreed order, an evaluation of the allowed exemptions to the laws, regulations, and rules will be conducted during the design of the interim action. The interim action will be developed to ensure conformance with the substantive provisions of the exempt laws, regulations, and rules.

K.2 Federal Laws and ARARs

The interim action will be subject to a variety of federal laws and regulations that govern site cleanup. The laws and ARARs are discussed below.

K.2.1 Clean Water Act

The federal Water Pollution Control Act (FWPCA) Amendments of 1972, commonly referred to as the Clean Water Act (CWA), set forth a number of provisions that require the development of regulations to protect the nation's waters. Provisions applicable to the interim action are described below.

Section 402. Section 402 of the CWA requires the development of comprehensive programs for preventing, reducing, or eliminating pollution in the nation's waterways. National Pollutant Discharge Elimination System (NPDES) requirements are specified in Section 402. This program has been delegated to the State of Washington; as such, the NPDES requirements for the project are discussed in the summary of state requirements (see Section K.3).

Section 404. Section 404 of the CWA prohibits discharging dredged or fill material into U.S. waters without a permit from the U.S. Army Corps of Engineers (COE). The COE has determined that the proposed sediment remediation will not require a Section 404 permit.

Nationwide Permit 38. The COE issues Nationwide Permits (NWPs) for actions that are considered to have minimal effects on the environment (and do not require a Section 404 permit). NWPs typically require preconstruction notification (PCN) rather than a formal permit application with public review. The COE has determined that the interim action will be required to comply with the substantive conditions and requirements applicable to NWP 38 - Cleanup of Hazardous and Toxic Waste. These conditions and requirements include a PCN, in accordance with the "Notification" General Condition for the NWPs, and a Coastal Zone Management (CZM) determination from Ecology (see Section K.2.2).

Section 401 Water Quality Certification. All activities that require a NWP also require a Section 401 Water Quality Certification. The Water Quality Certification has been delegated to Ecology and is discussed in the summary of state requirements (see Section K.3).

Section 10 Permit. Section 10 of the Rivers and Harbors Act prohibits the obstruction or alteration of navigable waters of the United States without a COE permit. A Section 10 permit is required for any work that affects the course, location, condition, or capacity of navigable waters. The COE has yet to determine if the proposed sediment remediation will require a permit under Section 10; however, the drainage ditch (Willow Creek) was not found on the COE's list of designated navigable waters.

Affect on the Proposed Interim Action:

The COE has determined that a Nationwide Permit 38 is required for the interim action. The State of Washington has been delegated the authority to implement the NPDES rules and regulations; therefore, discharges to surface water will be managed under the State program (see Section K.3). A Section 401 Water Quality Certification will be obtained from Ecology during the design phase of the interim action (see Section K.3).

K.2.2 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA; 33 CFR Part 325) encourages the appropriate development and protection of the nation's coastal and shoreline resources. The CZMA states the primary role in managing these areas. Under the CZMA, an applicant for a federal permit pertaining to activity in a state's coastal zone must certify that the proposed activity will comply with the state's coastal zone management (CZM) program. Washington's CZM program is set forth in the Shoreline Management Act (SMA) of 1971 (90.58 RCW). The SMA requires that federally permitted projects submit a CZM Determination/Certification to the state (through Ecology) for concurrence or objection (see Section K.3). In general, however, local governments have primary responsibility to enforce the SMA using shoreline master programs (SMPs; see Section K.4).

Affect on the Proposed Interim Action:

The COE ordinarily will not issue permits related to coastal zone work until Ecology has concurred with the applicant's CZM certification. Further effects on design are discussed in the SMP section (Section K.4).

K.2.3 Endangered Species Act

The Endangered Species Act (ESA) of 1973 protects plant and animal species that are listed by the federal government as "endangered" or "threatened," as well as critical habitat necessary for the protection of these species (16 USC 1531-1543 and 50 CFR 10, 13, 17, 222, 226, 402, 424, and 450-453). In addition to federally listed threatened and endangered species, there are state-listed sensitive species. Section 7 of the ESA discusses the requirements of obtaining a consultation from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) concerning the presence of listed species in a project area. Section 9 of the ESA stipulates the prohibitions against the "taking" of a listed species. Taking of a listed species has been broadly defined by the courts to include "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect," and also prohibits the significant modification of habitat considered critical to the protection of the listed species.

The Puget Sound (adjacent to the Terminal) contains or is connected to water bodies that contain threatened species of fish. Since the surface water concentrations in the drainage ditch (Willow Creek) comply with surface water quality cleanup levels, aquatic species are not expected to be impacted by site-related contamination. A Wildlife Habitat Study was conducted in 1996 as part of the remedial investigation at the Terminal[1]. The only threatened or endangered species identified in the vicinity of the Terminal was the bald eagle. Bald eagles have been observed in flight over the Terminal, and they may perch in trees while hunting for fish in Puget Sound. These behaviors are not expected to result in exposure to site-related contamination; therefore, adverse impacts to threatened and endangered wildlife are not expected.

Coverage of ESA Section 7 (consultation requirements) is expansive because any federal government authorization triggers it. Thus, operations authorized or funded by the federal government have the potential to trigger Section 7 requirements.

Affect on the Proposed Interim Action:

As noted previously, the CWA will likely require one or more COE permits for the proposed sediment remediation. Obtaining approval from the COE is a federal authorization that is likely to trigger federal ESA requirements, possibly including consultation under Section 7 with both the NMFS and the USFWS. Nonetheless, by implementing the interim action in conformance with MTCA, wildlife, including any threatened and endangered species, will be protected.

K.2.4 Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) of 1918 makes it unlawful to kill migratory birds by any means unless permitted by regulations. Furthermore, the MBTA requires that identified ecosystems of special importance to migratory birds be protected against pollution, detrimental alterations, and other environmental degradations.

Affect on the Proposed Interim Action:

To protect migratory birds during the product excavation activities, landing deterrents will be installed around all excavations that could contain floating petroleum product. These landing deterrents include posts that have reflective mylar strips attached to them. In addition, a plastic owl will be installed on top of each post.

K.2.5 Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was initially passed by Congress in 1974, and then amended in 1986. The SDWA establishes maximum contaminant levels (MCLs)

[1] Adolfson Associates, Inc. Unocal Bulk Fuel Terminal Wildlife Habitat Study. July 1996.

and maximum contaminant level goals (MCLGs) for the protection of the nation's public water systems. The EPA has established MCLs in 40 CFR Part 141 as the maximum permissible concentrations of specific contaminants in water that is delivered to any user of a public water system. While nonenforceable, MCLGs represent the maximum level beyond which persons drinking the water may experience adverse effects.

Washington has authorization from the EPA to administer and enforce this act, and although the state has developed and continues to develop state-specific MCLs and MCLGs, it incorporates the federal standards by reference. The groundwater beneath the lower yard qualifies as non-potable under MTCA [MFA and SLR, 2005 (p. 5-11 and 5-12)]; therefore, MCLs and MCLGs are not ARARs for the Terminal.

Affect on the Proposed Interim Action:

The MCLs and MCLGs do not apply because the groundwater beneath the lower yard is non-potable.

K.2.6 Natural Resource Damages

The Natural Resource Damage provisions of the Oil Pollution Act of 1990 and the CWA permit the United States government, acting as trustee, to seek damages for losses arising from injury to public natural resources caused by the release of hazardous substances. Once natural resource damages have been established by federal, state, or Native American Tribe trustees, then the responsible party takes action to restore the damaged resource.

43 CFR 11.62 provides the definitions of what constitutes an injury to a natural resource, particularly the definitions of injury to surface water resources, groundwater resources, air resources, geologic resources, and biological resources. The definition of injury either must be met or likely will be met for natural resource damages to be included for a given facility or property.

Affect on the Proposed Interim Action:

Per MTCA, the interim action design will establish means and methods to ensure that the action minimizes short-term risks during implementation. Consequently, natural resource damages caused by interim action implementation will be avoided.

K.2.7 U.S. Department of Transportation Hazardous Materials Regulations

The U.S. Department of Transportation has published regulations, including communications and emergency response requirements and shipping and packaging requirements (40 CFR 171 through 180), that govern the transportation of hazardous materials to or from a site.

Affect on the Proposed Interim Action:

The interim action design will include specifications requiring conformance with these regulations for transport of any hazardous materials (e.g., recovered product and excavated soil).

K.2.8 National Environmental Policy Act

The National Environmental Policy Act (NEPA) of 1969, as amended (42 USC 4321 *et seq.*), requires an environmental impact review of federal actions. As discussed above, the COE has determined that the proposed sediment remediation will not require a Section 404 permit because it is considered to have minimal effects on the environment.

The NEPA process involves an environmental impact review by the COE. Relevant information is evaluated to determine the likelihood and significance of adverse environmental impacts. If the COE determines that environmental impacts are possible, it will prepare an environmental assessment (EA). The EA may identify relatively minor impacts that can be avoided or mitigated, resulting in potential permit conditions. However, if the EA finds that the impacts are likely to be substantial, the applicant or project proponent may need to prepare an EIS.

Affect on the Proposed Interim Action:

The COE conducted an EA and determined that potential impacts are minimal. Therefore, an EIS will not have to be conducted.

K.2.9 National Ambient Air Quality Standards Attainment Area

The EPA has established national ambient air quality standards (NAAQS) for a variety of potentially airborne substances known as criteria pollutants. NAAQS are ARARs for any conditions at a site that may result in emissions to the air of any listed criteria pollutant. Criteria pollutants include carbon monoxide, nitrogen dioxide, ozone, lead, particulates smaller than 10 micrometers, and sulfur dioxide.

Affect on the Proposed Interim Action:

The air emissions generated by handling soil and groundwater at the Terminal are subject to applicable air quality standards to control or prevent the emission of air contaminants. The applicable criteria pollutant at the Terminal would be particulate matter (dust).

K.2.10 Occupational Safety and Health Administration

Occupational Safety and Health Administration (OSHA) regulations pertaining to hazardous waste sites are addressed under 29 CFR 1910.120, the Hazardous Waste

Operations and Emergency Response Standard. This standard applies to cleanup and corrective actions

Affect on the Proposed Interim Action:

All work will be performed under a site health and safety plan in conformance with the applicable federal and state OSHA regulations.

K.3 State Laws and ARARs

In determining the ARARs in the state of Washington, the laws and regulations, and local requirements discussed below were evaluated.

K.3.1 Site Cleanup under the Model Toxics Control Act

In the state of Washington, MTCA governs the investigation and cleanup of contaminated sites (Chapter 70.105D RCW). A contaminant is defined as any chemical, physical, biological, or radiological substance that does not occur naturally or that occurs at concentrations greater than natural levels.

MTCA became effective in March 1989, and was enacted through a voter initiative process. The MTCA cleanup regulation, cited under Chapter 173-340 WAC, contains provisions controlling site cleanup activities, including site discovery, priority, listing, investigation and cleanup; liability provisions; administrative options for remedial actions, payment of costs, and funding; public participation; cleanup standards; and other general provisions. The law regulates the cleanup of sites contaminated with CERCLA hazardous substances, all state and federal Resource Conservation and Recovery Act hazardous and dangerous wastes, and petroleum products. Wood debris in aquatic sediments and decomposition products (for example, methane produced by solid-waste decomposition in a landfill) is also considered a hazardous substance under MTCA.

In February 2001, MTCA was amended to incorporate new language on conducting terrestrial ecological evaluations, to update groundwater and soil cleanup levels, to establish a citizen technical advisor, to revise the remedy-selection process (including incorporation of remediation levels), to authorize the development of model remedies, and to provide clarity on the use of natural attenuation as a remedial action. These amendments came about not only to meet the five year review requirement of the MTCA rule, but also as a result of the need for additional guidance, policy, and clarification to the existing language of the rule based on comments received on earlier rule drafts.

Affect on the Proposed Interim Action:

All elements of the interim action will comply with MTCA standards.

K.3.2 NPDES Stormwater Permit Program

Chapter 173-220 WAC establishes a state individual permit program, applicable to the discharge of pollutants and other wastes and materials to the surface waters of the state, that operates under state law as a part of the NPDES created by Section 402 of the FWPCA. Permits issued under this chapter are intended to satisfy the requirements for discharge permits under both section 402(b) of the FWPCA and Chapter 90.48 RCW.

Union Oil currently has an NPDES Industrial Stormwater General Permit for the discharge of site storm water, and Ecology has determined that the existing permit can be used for the discharge of site storm water during the interim action.

The interim action includes groundwater extraction and treatment during the soil excavation phase of the work, and surface water extraction and treatment during the sediment removal phase of the work. The treated water would be discharged in conformance with the NPDES program, following Chapter 173-220 WAC regulations. Ecology has determined that an Individual Stormwater Permit is required for the discharge of treated groundwater and surface water during the interim action.

Affect on the Proposed Interim Action:

As indicated above, it will be necessary to obtain an NPDES Individual Stormwater Permit for the discharge of treated groundwater and surface water during the interim action. To meet the permit discharge requirements, the planned groundwater treatment system will consist of two baffled, 21,000-gallon product collection tanks in series followed by a transfer pump. The transfer pump will force the water effluent from the second collection tank through a sand filter system, and two parallel series of three treatment units that each contain 2,000 to 6,000 pounds of granular activated carbon. Chitosan polymer will be metered into the water prior to the sand filter to assist with flocculation and precipitation of sediment particles suspended in the water. The planned surface water treatment system, which will focus on reducing turbidity, will consist of a 21,000-gallon sediment settling tank followed by a transfer pump and a sand filter system. Chitosan polymer will be metered into the water prior to the sand filter.

K.3.3 Section 401 Water Quality Certification

Per Section 401 of the CWA, an applicant for a federal permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States is required to obtain a certification from the state. Certification review is the responsibility of Ecology. Approval of a certification statement indicates that Ecology anticipates that the applicant's project will comply with state water quality standards and other aquatic resource protection requirements.

Affect on the Proposed Interim Action:

A Section 401 Water Quality Certification will be obtained during the design phase of the interim action.

K.3.4 Shoreline Management Act

The state Shoreline Management Act (SMA; Chapter 173-22 WAC) regulates any action in upland areas (shorelands) located within 200 feet of the ordinary high water mark of shorelines. Shorelands within cities are regulated by shoreline master programs (Chapter 173-26 WAC) adopted by those cities. Substantive shoreline management requirements may be triggered by the interim action (see Section K.4). However, the interim action is exempt from the permitting requirements (Chapter 173-27 WAC).

The SMA includes Washington's Coastal Zone Management Program. As discussed above (Section K.2), an applicant for a federal permit pertaining to activity in the state's coastal zone must submit a CZM Determination/Certification to Ecology for concurrence or objection.

Affect on the Proposed Interim Action:

A CZM certification statement will be submitted to Ecology during the design phase of the interim action. Federal permits will not be approved without Ecology's concurrence of the CZM certification. Additional effects on design are discussed in the Shoreline Master Program section below (Section K.4).

K.3.5 Air Quality Standards

Chapters 173-400, -460, and -470 WAC establish provisions for general regulation of air pollution sources, ambient air quality standards, and acceptable levels for particulate matter. They also stipulate requirements for new sources of toxic air pollutant emissions. These standards are typically administered and enforced by the local clean air agency, which would be the Puget Sound Clean Air Agency (PSCAA). Per the PSCAA, the interim action should be exempt due to low anticipated volumes of fugitive emission. Engineering controls may be appropriate during the interim action to control particulate emissions generated during soil excavation activities.

Affect on the Proposed Interim Action:

During soil excavation, it may be necessary to implement engineering controls such as soil wetting to control particulate emissions. Air testing may be required to show that emissions meet the substantive requirements of applicable air quality permits and rules.

K.3.6 Noise Regulations

Chapter 173-60 WAC lists the maximum allowable environmental noise levels. Approved procedures for measurement of environmental noise are contained in Chapter 173-58 WAC.

Affect on the Proposed Interim Action:

During design, expected noise levels will be estimated and compared to the limitations established in 173-60 WAC. The need to adjust the interim action to meet these requirements will be determined. For example, the noise level regulations may limit the operating hours of some parts of the interim action.

K.3.7 State Environmental Policy Act

The State of Washington administers and enforces a program equivalent to the federal NEPA. The State Environmental Policy Act (SEPA), contained in Chapter 43.21C RCW, provides the framework for agencies to consider the environmental consequences of a proposal before taking action. It also gives agencies the ability to condition or deny a proposal due to identified likely significant adverse impacts. The act is implemented through the SEPA Rules and Procedures, Chapters 197-11 and 173-802 WAC, respectively.

All actions affecting environmental use are potentially subject to the SEPA requirements, and are generally incorporated during a permitting application process. For a specified action, SEPA requires the preparation of an environmental checklist that includes a review of the environmental impacts and a proposal of mitigation measures. The completed checklist helps to identify potential environmental impacts associated with the proposed action. Following a threshold determination, the lead agency will issue either a Determination of Non-Significance that will allow the action or permitting process to continue, or a Determination of Significance that will require that an EIS be prepared before agency action can be taken. Typically, an environmental checklist or EIS is required for a project, although it may require modification or application of numerous permits by federal, state, or local agencies.

Affect on the Proposed Interim Action:

A SEPA checklist has been prepared and is presented to Ecology in Appendix N of this report.

K.3.8 Spill Prevention, Preparedness, and Response

Operations and design standards, operations manual standards, personnel oil handling training and certification, and oil spill prevention plan standards are all regulated at oil handling facilities under WAC 173-180A, -180B, -180C, and -180D, respectively.

Affect on the Proposed Interim Action:

The groundwater and surface water treatment systems will require a spill prevention, control, and countermeasures plan to prevent recontamination of soil or groundwater.

K.3.9 Hydraulic Project Approval

Chapter 220-110 WAC establishes regulations for the construction of hydraulic projects that will use, divert, obstruct, or change the natural flow or bed of any waters of the state, and sets forth procedures for obtaining a hydraulic project approval. These provisions have been deemed necessary to minimize project specific and cumulative impacts to fish life. The Washington Department of Fish and Wildlife handles all hydraulic permit applications for Washington locations west of the crest of the Cascade Mountains. Cleanup actions that have the potential to impact fish life due to flow changes to waters of the state may require a hydraulic project approval (HPA).

Affect on the Proposed Interim Action:

The sediment remediation component of the interim action will require an HPA.

K.3.10 Sediment Management Standards

Chapter 173-204 WAC establishes regulations to reduce and ultimately eliminate adverse effects on biological resources and significant health threats to humans from surface sediment contamination. It establishes standards for the quality of surface sediments and provides a management and decision process for the cleanup of contaminated sediments. Sediment source control standards are used as a basis for controlling the effects of point and non-point source discharges to sediments through the NPDES program and state water quality management permit programs.

Sediment cleanup standards establish administrative procedural requirements and criteria to identify, screen, rank and prioritize, and clean up contaminated surface sediment sites. They constitute the minimum cleanup levels to be achieved in all cleanup actions.

Affect on the Proposed Interim Action:

The interim action will comply with sediment management standards.

K.3.11 Construction of Wastewater Facilities

Chapter 173-240 WAC describes the necessary procedures for obtaining construction approval for industrial wastewater facilities. This chapter implements RCW 90.48.110 and requires that plans and specifications, which are interpreted to include engineering reports, plans and specifications, and general sewer plans, are submitted for Ecology review and approval before the construction or the modification of an industrial wastewater facility.

Affect on the Proposed Interim Action:

These regulations are potentially applicable and are considered relevant and appropriate to the groundwater and surface water treatment components of the interim action. The plans and specifications required under MTCA for the treatment systems will be developed in conformance with these requirements, as appropriate.

K.3.12 Operation of Wastewater Facilities

WAC 173-230 requires that wastewater facilities be operated by certified personnel. Any industrial wastewater facilities discharging to waters of the state must meet effluent standards set forth in WAC 173-201A, -204, -205, -220 and -221A. For any facility to discharge to navigable waters, a certification must be obtained (WAC 173-225). All discharges must be monitored regularly. Any exceedances of critical materials, as defined in WAC 173-40, must be submitted annually in a written report to Ecology.

Affect on the Proposed Interim Action:

The operation plan for the groundwater and surface water treatment systems, that is required under MTCA, will be structured to conform to the substantive requirements of this regulation. This will include a sampling plan that specifies discharge monitoring and reporting requirements, and the use of certified personnel.

K.3.13 Water Pollution Control Act

Washington's Water Pollution Control Act, RCW 90.48, makes it unlawful to throw, drain, run, or otherwise discharge into any water of the state, or to permit or allow seepage or otherwise discharge into state waters "any organic or inorganic matter that shall cause or tend to cause pollution of such waters according to the determination" of Ecology (RCW 90.48.080). Washington's Water Pollution Control Act regulates discharges to both surface water and groundwater. Any person who conducts a commercial or industrial operation of any type that results in the disposal of solid or liquid waste materials into the waters of the state is required to obtain a permit from Ecology (RCW 90.48.160). Ecology must require the use of all known available and

reasonable methods by industries or others to prevent and control the pollution of the waters (RCW 90.148.010 and 90.48.520). RCW 90.48.260 designates Ecology as the state water pollution control agency for all purposes of the federal CWA, and therefore, the authority to administer and enforce permitting and compliance requirements under these provisions.

Affect on the Proposed Interim Action:

It will be necessary to obtain an NPDES Individual Stormwater Permit to allow for the discharge of treated groundwater and surface water during the interim action. The conditions in the NPDES permit would set the design parameters for the groundwater and surface water treatment systems.

K.3.14 Construction of Wells

Standards for the drilling of soil borings and the construction and maintenance of monitoring wells are contained in Chapter 173-160. All monitoring wells must be constructed by licensed well contractors and operators (WAC 173-162).

Affect on the Proposed Interim Action:

The design of the proposed monitoring wells will be in conformance with these regulations. The specifications will require construction by licensed well drilling contractors and maintenance by licensed personnel.

K.3.15 Washington Industrial Safety and Health Administration

Washington Industrial Safety and Health Administration (WISHA) regulations pertaining to hazardous waste sites are addressed under WAC 296-843, the Hazardous Waste Operations. This standard applies to cleanup and corrective actions at MTCA-regulated sites.

Affect on the Proposed Interim Action:

All work will be performed under a site health and safety plan in conformance with the applicable WISHA regulations.

K.4 Local Requirements

K.4.1 Shoreline Master Program

A cleanup action or "substantial development" performed along all shorelines of statewide significance within the city of Edmonds is regulated under the Shoreline Master

Program (Chapter 23.10 of the Edmonds Community Development Code). A Shoreline Substantial Development Permit (SDP) is required for dredging in urban shorelines.

Affect on the Proposed Interim Action:

Since the work is not being conducted within 200 feet of the ordinary high water mark of Puget Sound, the City of Edmonds has determined that an SPD will not be required for the interim action (see attached letter dated February 9, 2007).

K.4.2 City of Edmonds Critical Area Determination

Completion of a Critical Areas Checklist is typically required by the City of Edmonds to determine whether any potential critical areas are, or may be, present on the property where the work is being conducted. The city will review the checklist, make a precursory site visit, and make a determination of the subsequent steps necessary to complete the development permit application.

Affect on the Proposed Interim Action:

The City will make a Critical Areas Determination during the design phase of the interim action.

K.4.3 City of Edmonds Grading Permit

The City of Edmonds (Edmonds Municipal Code Title 19) requires building permits for grading, excavation, and fill activities. A full review of all plans and specifications by the city is required prior to permit issuance.

Affect on the Proposed Interim Action:

A grading permit for the product recovery and soil excavation activities will be obtained during the design phase of the interim action. A grading permit for the sediment remediation will be obtained in 2008, prior to conducting the work.

K.4.4 City of Edmonds Chapter 5.30 – Noise Abatement and Control

The City of Edmonds requires that sounds originating from temporary construction sites as a result of construction activities are exempt from the provisions of this chapter, but only during the hours of 7:00 a.m. to 6:00 p.m. on weekdays and from 10:00 a.m. to 6:00 p.m. on Saturdays, except of federal holidays.

Affect on the Proposed Interim Action:

The interim action activities will typically be conducted between the hours of 7:00 a.m. to 6:00 p.m. on weekdays. If work is conducted outside of the hours listed above or on a federal holiday, then noise monitoring will be conducted to ensure compliance with noise requirements stated in Chapter 5.30.

CITY OF EDMONDS

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DEVELOPMENT SERVICES DEPARTMENT
Planning • Building • Engineering

GARY HAAKENSON
MAYOR

February 9, 2007

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Bothell, WA 98021

Mr. David Pater
WA State Department of Ecology
Environmental Review Section
Shorelines Program
3190 160th Avenue SE
Bellevue, WA 98008-5452

Subject: INTERIM REMEDIAL ACTION, FORMER UNOCAL FUEL TERMINAL SITE

Dear Mr. Staton:

The City of Edmonds Planning Division has reviewed your request dated November 14, 2006 (received on November 20, 2006), for an exemption from the requirement to obtain a Shoreline Substantial Development Permit (SDP). As described in your letter, the project is to conduct an interim remedial action at the former Unocal Edmonds Terminal consisting of removing contaminated sediment from a portion of Willow Creek.

Upon review of the proposed replacement and repair work as outlined in your letter of November 14, 2006, including the enclosed site plans and project description, the City has concluded that the proposed work is exempt from the need to obtain a Shoreline Substantial Development Permit pursuant to WAC Section 173-27-040(3). This exemption applies to "hazardous substance remedial actions" covered by an Agreed Order such as the Order in effect for this site. Note that this exemption only applies to the activities within the jurisdiction of the Shoreline Management Act, including areas within 200 feet of the shoreline and areas within the boundaries of the Edmonds Marsh. Portions of the project within Willow Creek and the immediately adjoining portions of the Unocal "lower yard" generally fall within this jurisdiction. Other portions of the project outside

of this jurisdiction are not covered by the Shoreline Master Program and are therefore not regulated by the Shoreline Master Program.

Although the exemption means that a SDP is not required for this project, the project must still comply with the substantive requirements of the Shoreline Management Act and the City of Edmonds Shoreline Master Program. Since the agreed order addressing remediation of the former Unocal Edmonds Terminal has been previously reviewed and found to be consistent with the City's SMP, proceeding with the proposed interim remedial action is appropriate.

This exemption is issued under the following assumptions and conditions:

1. The City conditions its approval on the State Department of Ecology approving the proposed "interim action work plan" referenced toward the bottom of page three of your November 14, 2006, letter. A copy of the "interim action work plan" approved by DOE shall be provided to the City prior to beginning the work.

2. The project shall be conducted according to the conditions and stipulations outlined in your November 14, 2006, letter.

3. The applicant is responsible for obtaining all other pertinent permits and approvals, including the requirement to obtain a City of Edmonds grading permit through the Edmonds Building Division. Note that Best Management Practices for erosion control shall be utilized during the project; any questions regarding City standards for erosion control should be addressed to the City of Edmonds Engineering Division, 425-771-0220.

Related to the request contained in the letter, we have also been requested to respond to how the City's Critical Areas Ordinance (CAO) applies to the project.

Under the City of Edmonds CAO, the Edmonds Marsh is a designated Category 1 wetland and Willow Creek is a Type F, anadromous fishbearing stream. Both of these are regulated critical areas. Standard buffer widths for Category 1 wetlands are 200 feet; buffers for Type F streams with anadromous fish are 100 feet.

As described above, a significant portion of the project area is within a critical area or critical area buffer. A critical areas report will be required to support the activities proposed as part of the remediation project. However, it is expected that the "interim action work plan" that is approved by the Department of Ecology could satisfy this requirement.

The normal way to gain critical areas approval for a project of this type would be to file an application for a grading permit with the City of Edmonds Building Division, accompanying the permit application with a copy of the DOE-approved interim action work plan. If not specifically noted in the work plan, you should also provided

documentation on who prepared the plan together with their qualifications (the City's CAO requires that studies are prepared by a "Qualified Professional," such as a biologist with experience in preparing reports for the relevant type of habitat).

Should there be a change in any of the work described in the request for a shorelines exemption, or in the assumptions underlying the exemption, the applicant is responsible for contacting the City to verify whether any changes in permitting will be necessary.

If you have any further questions regarding this matter, please do not hesitate to contact me at 425-771-0220.

Sincerely,
Development Services Department - Planning Division

Robert Chave, AICP
Planning Manager

Enclosures

c: File No. SM-2006-147
Duane Bowman, Development Services Director
Stephen Clifton, Community Services Director
Dave Gebert, City Engineer
Jeannine Graf, Building Official
Brian McIntosh, Parks & Recreation Director

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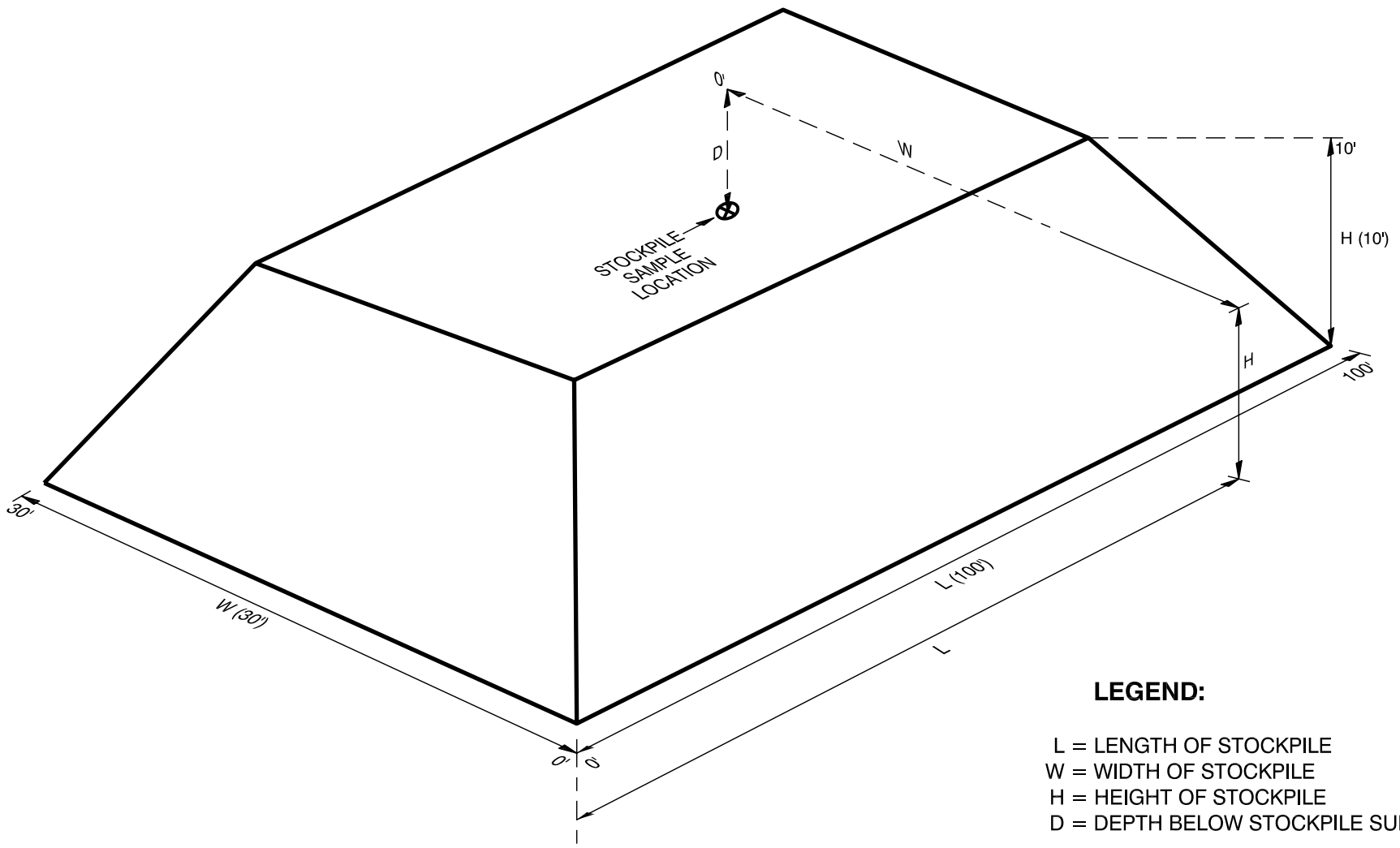

LEGEND:

L = LENGTH OF STOCKPILE
W = WIDTH OF STOCKPILE
H = HEIGHT OF STOCKPILE
D = DEPTH BELOW STOCKPILE SURFACE

SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 06/07
DWN. BDT
APPR. _____
REVIS. _____
PROJECT NO.
001.0153.00004

FIGURE 1
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

SAMPLING OF EXCAVATION SOIL STOCKPILES

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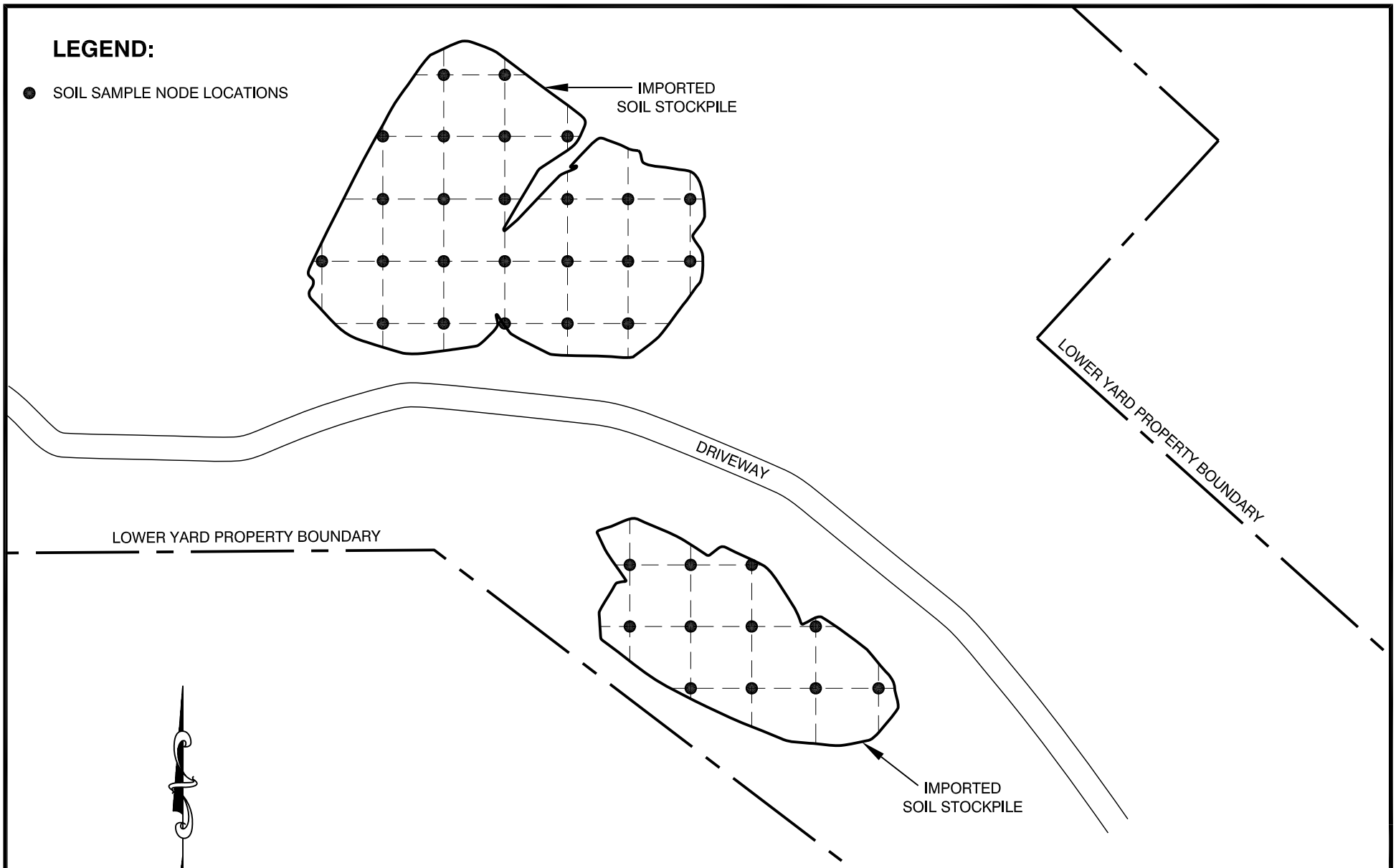

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SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 06/07
DWN. BDT
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REVIS. _____
PROJECT NO.
001.0153.00004

FIGURE 2
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

SAMPLING GRID FOR IMPORTED SOIL STOCKPILES

Log of Exploratory Boring

CLIENT _____
PROJECT No. _____
Engineer/Geologist _____
Drilling Contractor _____
Drilling Method _____
Hole Diameter _____

Sheet ____ **of** _____
Boring Number _____
Date Started _____
Date Finished _____
Total Depth _____
Ground Elevation _____
Datum _____

Water Level Data

Depth				
Time				
Date				
Boring Depth				

Completion Details	Sample Number	Sampling Method	Blow Count	Sample Interval	Other (Specify)	Depth in Feet	Soil Group Symbol	Field Location of Boring:

Notes:

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FIGURE 3
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

BORING LOG FORM

E:\Clients\SLR\Forms\Boring Log Form .pub Last edited: 06/14/07 by: BDT

SOIL DESCRIPTION CHECKLIST - FIELD LOG

Guide for Written Soil Description

1. Depth of sample or unit, in feet below ground surface
2. Classification (description and symbol)
3. Color
4. Grain size distribution beginning with most abundant to least abundant constituents (i.e., percentage of fines including plasticity; percentage and size of sand, gravel cobbles, and boulders)
5. Relative density and consistency (condition)
6. Moisture conditions
7. Other relevant information (e.g., structure, laminations, occurrences or organic material)
8. Geologic interpretation (e.g., fill, alluvium)
9. Length of sample recovery/length driven

Example: 5-to 6.5 feet: SILTY SAND (SM), dark gray, 80% fine to medium sand, 15 to 20% non-plastic silt, <5% subrounded fine gravel, very dense, wet. Some leaves, twigs on bedding planes. Sulfur odor. (ALLUVIUM) (14"/18")

Basic Classification

GRAVEL: Gravel Size: Fine = #4 sieve to 3/4"
Medium = 3/4" to 1-1/2"
Coarse = 1-1/2" to 3"

a. GW, well-graded gravel (2 to 5% fines)
b. GW-GM or GW-GC, well-graded gravel with silt or clay (5 to 15% fines)
c. GM or GC, well-graded silty or clayey gravel (>15% fines)
d. GP, poorly-graded gravel (0 to 5% fines)
e. GP-GM or GP-GC, poorly-graded gravel with silt or clay (5 to 15% fines)
f. GM or GC, poorly-graded silty or clayey gravel (>15% fines)

SAND: Sand Size: Fine = #200 (75 μm) to # 40 (425 μm) sieve
Medium = # 40 (425 μm) to #10 (2mm) sieve
Coarse = #10 (2mm) sieve to #4 (4.75 mm) sieve

a. SW, well-graded sand (2 to 5% fines)
b. SW-SM or SW-SC, well-graded sand with silt or clay (5 to 15% fines)
c. SM or SC, well-graded silty or clayey sand (>15% fines)
d. SP, poorly-graded sand (0 to 5% fines)
e. SP-SM or SP-SC, poorly-graded sand with silt or clay (5 to 15% fines)
f. SM or SC, poorly-graded silty or clayey sand (>15% fines)

FINES: Minus #200 Sieve (less than 75 μm)

a. ML, inorganic silts, fine sands, clayey silts or sands of low plasticity, or non-plastic
b. CL, inorganic clays, sandy or silty clays of medium plasticity
c. OL, inorganic silts or clays of low plasticity
d. MH, organic silts, micaceous or diatomaceous fine sand or silty soils, elastic silts
e. CH, organic clays or silts or high plasticity, fat clays
f. OH, organic clays or silts of low to medium plasticity
g. PT, peat and other highly organic soils

COBBLES: 3 to 12" diameter, estimate size(s) and percentage

BOULDERS: Greater than 12" diameter, note size(s) and estimate percentage

MINOR ORGANIC CONTENTS: Describe type and occurrence

a. Wood debris = roots, branches, logs
b. Organic debris = decaying vegetation

MISCELLANEOUS DESCRIPTIVE TERMS (use with discretion, estimate percentages if possible):

Trace	- particles are present but <5%
Few	- 5 to 15%
Little	- 15 to 25%
Some	- 25 to 45%

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FIGURE 4
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

SOIL DESCRIPTIONS

Procedure for Estimating Plasticity

1. Remove particles larger than the #40 sieve size (greater than fine sand). Select a specimen the size of a 1/2" cube. Mold the specimen to the consistency of putty. It too dry, add water and if sticky, spread it out in a thin layer and allow it to lose some moisture by evaporation. Roll the specimen by hand on a smooth surface, or between the palms, into a thread about 1/8" in diameter. Fold the thread and re-roll repeatedly. This procedure gradually reduces the moisture content and the specimen will stiffen, eventually losing its plasticity. It will crumble at a diameter of 1/8" when near plastic limit.
2. After the thread crumbles, combine the pieces and knead slightly. Continue kneading until the lump crumbles.
3. If the specimen forms a tough thread near the plastic limit and if a lump is stiff when it crumbles, the colloidal clay fraction in the soil is high. Weakness of the thread at the plastic limit and quick loss of coherence of the lump below the plastic limit indicate either inorganic clay or low plasticity.
4. Highly organic clays feel very weak and spongy at the plastic limit.

Criteria for Describing Plasticity

Non-plastic	A 1/8" thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be re-rolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	The specimen can be rolled and kneaded to reach the plastic limit. The thread can be re-rolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.

Condition

1. Relative density for sand or gravel

   a. Using Standard Penetration Test, blows per foot

Blows/ft (N)	Relative Density
0 – 4	very loose
5 – 10	loose
11 – 30	medium
31 – 50	dense
> 50	very dense

   b. Estimated (no testing)

Loose – sand and/or gravel can be excavated with a shovel
Compact – sand and/or gravel requiring use of a pick for removal

   c. Consistency for fines (note whether blow counts or tactile tests were used)

Blows/ft (N)	Relative Density	Tactile Test
< 2	very soft	sample sags or slumps
2 – 4	soft	sample can be pinched in two
5 – 8	firm	sample easily imprinted to 1" by thumb
9 – 15	stiff	sample readily indented by thumb with pressure
16 – 30	very stiff	sample readily indented by thumbnail
> 30	hard	sample cannot be imprinted w/thumb, can pierce w/pencil

Moisture

1. Dry: contains no water (rarely occurs in nature))
2. Damp: less water than moist
3. Moist: "optimum" water content: a sample squeezes tight and maintains its shape, but you cannot squeeze out excess water
4. Wet: more water than moist

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FIGURE 4 (Cont.)
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

SOIL DESCRIPTIONS

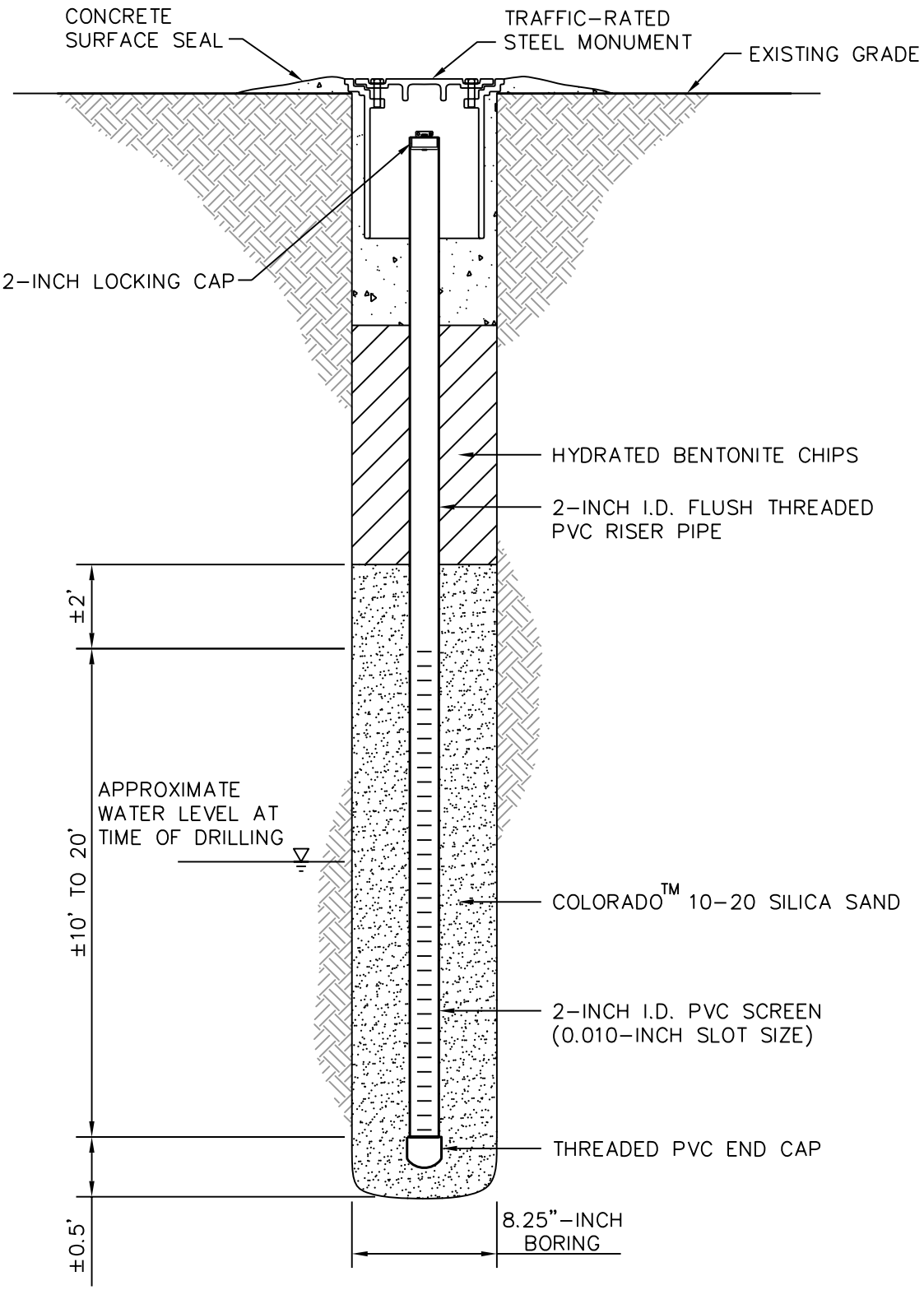

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FIGURE 5
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

GENERALIZED WELL INSTALLATION DETAILS

Groundwater Field Sampling Data Sheet

Project Name: _____
Client Name: _____ Sample Location: _____
Project Number: _____
Sample Name: _____ Sampler: _____

Hydrology/Level Measurements (Nearest 0.01ft.)

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW (Product Thickens)	DTB-DTW (Water Column)	Volume (gallons) (Gallons/ft x Water Column)	
							1 Pore Vol.:	
							3 Pore Vol.:	

Gallons of Water/Foot for Various Well Diameters
(1" = 0.041 gal/ft) (2" = 0.136 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (10" = 4.080 gal/ft) (12" = 5.875 gal/ft)

Water Quality Data

Vol. #	Purge Method*	Gallons Purged	pH	E Cond (µS/em)	Temp (C°/F°)	DO (mg/L)	Redox Potential	Water Quality Observations
1								
2								
3								
4								

* Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) PVC/Teflon Bailer (5) Dedicated Bailer (6) Dedicated Pump (7) Other [Specify]:

Groundwater Sampling Data

Bottle Type	Date	Time	Method*	Num. @ Vol.	Preservative (Circle)	Filtered (Y/N) Filtered
VOA Glass				3 @ 40 ml.	HCL	YES / NO
Amber Glass				@	None/HCL/H_2SO_4	YES / NO
White Poly				@	None	YES / NO
Yellow Poly				@	H_2SO_4	YES / NO
Green Poly				@	NaOH	YES / NO
Red Total Poly				@	HNO_3	YES / NO
Red Diss. Poly				@	HNO_3	YES / NO
				@		YES / NO

(Circle if Used) Total Bottles (Include duplicate count): _____ Duplicate ID:

Bottle Type	Typical Analysis Allowed Per Bottle Type (Circle Applicable or Specify Non-Standard Analysis Below)
VOA Glass	(8010) (8010/8020) (8021B) (8020) (8060) (8240) (8260) (BTEX) (NWTPH-G_X) (BTEX/NWTPH-G_X) OR [ ] WA [ ]
Amber Glass	(PAH) (TPH-HCID) (TPH-D_X) (TPH-418.1) (Oil & Grease)
White Poly	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO_3/CO_3) (SO_4) (NO_3) (NO_2) (F)
Yellow Poly	(COD) (TOC) (Total PO_4) (Total Keldahl Nitrogen) (NH_3) (NO_3/NO_2)
Green Poly	(Cyanide)
Red Total Poly	(As) (Sb) (Ba) (Ca) (Cd)(Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (So) (Tl) (V) (Zn) (Hg) (K) (Na)
Red Diss. Poly	(As) (Sb) (Ba) (Ca) (Cd)(Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (So) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness)

SAMPLER: _____ _____
(Printed Name) (Signature)

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FIGURE 6
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

GROUNDWATER SAMPLING DATA SHEET

E:\Clients\SLR\Forms\Groundwater Field Sampling Data Sheet.pub Last edited: 06/13/07 by: BDT

SAMPLING ALTERATION CHECKLIST

Sample program identification: _____

Material to be sampled: _____

Measurement variable: _____

Standard procedure for analysis: _____

_____

Reference:: _____

_____

_____

Variation from standard procedure: _____

_____

_____

_____

_____

_____

Reason for variation: _____

_____

_____

_____

Resultant change in field sample procedure: _____

_____

_____

_____

Special equipment, material, or personnel required: _____

_____

_____

Author's name: _____ Date: _____

Approval: _____ Title: _____

Date: _____

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FIGURE 7
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

SAMPLING ALTERATION CHECKLIST

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CHAIN OF CUSTODY REPORT

Work Order #:

CLIENT:

REPORT TO:
ADDRESS:

PHONE: FAX:

INVOICE TO:

P.O. NUMBER:

PROJECT NAME:

PROJECT NUMBER:

SAMPLED BY:

TURNAROUND REQUEST
in Business Days *

Organic & Inorganic Analyses
10 STD. | 7 | 5 | 4 | 3 | 2 | 1 | < 1

Petroleum Hydrocarbon Analyses
5 STD. | 4 | 3 | 2 | 1 | < 1

OTHER Specify:

** Turnaround Requests less than standard may incur Rush Charges.*

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE / REQUESTED ANALYSES	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

RELEASED BY:		DATE:	RECEIVED BY:		DATE:
PRINT NAME:	FIRM:	TIME:	PRINT NAME:	FIRM:	TIME:
RELEASED BY:		DATE:	RECEIVED BY:		DATE:
PRINT NAME:	FIRM:	TIME:	PRINT NAME:	FIRM:	TIME:

ADDITIONAL REMARKS:

TEMP:

PAGE OF

COC REV 1/03

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FIGURE 8
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

CHAIN OF CUSTODY FORM

E:\Clients\SLR\Forms\Chain of Custody Form .pub Last edited: 06/13/07 by: BDT

Issuance Date: June 20, 2007
Effective Date: July 1, 2007
Expiration Date: June 20, 2010

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE PERMIT No. WA-003215-8

State of Washington
DEPARTMENT OF ECOLOGY
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.

UNION OIL COMPANY
P.O. Box 399
Edmonds, WA 98020

Facility Location: Unocal Edmonds Bulk Fuel Terminal 11720 Unoco Road Edmonds, WA 98020	Receiving Water: Willow Creek (Tributary to Puget Sound)
Waterbody I.D. No.: 1223911478067	Discharge Location: Latitude: 47° 48' 25" N Longitude: 121° 23' 22" W
Industry Type: Contaminated Soil Remediation	

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

Issuance Date:	August 21, 2002
Effective Date:	September 20, 2002
Expiration Date:	September 20, 2007
Modification Date:	December 1, 2004
Effective Date of Modifications:	January 14, 2005

THE INDUSTRIAL STORMWATER GENERAL PERMIT

A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND STATE WASTE DISCHARGE GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES

State of Washington
DEPARTMENT OF ECOLOGY
Olympia, Washington 98504-7600

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.

Until this permit expires, is modified or revoked, Permittees that have properly obtained coverage under this general permit are authorized to discharge in accordance with the special and general conditions which follow.

David C. Peeler, Manager
Water Quality Program
Washington State Department of Ecology

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:	Model Toxics Control Act (MTCA) Interim Action at Lower Yard of Unocal Edmonds Bulk Fuel Terminal
2. Name of applicant:	Union Oil Company of California
3. Address and phone number of applicant and contact person:	Dr. Mark Brearley Union Oil Company P. O. Box 399 Edmonds, WA 98020
4. Date checklist prepared:	June 15, 2007
5. Agency requesting checklist:	Washington Department of Ecology

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

The interim cleanup action in the lower yard of the Terminal will consist of soil excavation, petroleum product and groundwater recovery from open excavations, sediment/soil excavation from a drainage ditch (Willow Creek), and groundwater monitoring over a 2½-year period. Assuming that the interim action scope of work is approved by Ecology by July 2007, the petroleum product recovery and soil excavation activities would begin in July 2007 and be completed by October 2007. A total of 26 groundwater monitoring wells would be installed in October 2007. The groundwater monitoring would begin in October 2007. All of the 21 monitoring wells located within the three designated groundwater flow paths, all 21 of the surface water compliance wells, and a proposed monitoring well near well MW-112R will be sampled every two months in October and December 2007, in February, April, June, August, October, and December 2008, and in February, April, June, August, and October 2009. Investigation activities to assess the soil conditions at the base of the previous Southwest Lower Yard excavation will be conducted in November 2007. The sediment remediation activities will be conducted in August or September 2008 (during low tidal conditions) when the water levels in the drainage ditch and Edmonds Marsh are low.

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

Yes. If the interim action does not constitute the cleanup action for the lower yard, then a feasibility study (FS) and cleanup action plan will be prepared, and a Consent Decree will be entered with Ecology. If the interim action does constitute the cleanup action for the lower yard, then the FS will not need to be completed. Depending upon the results of the interim action, the cleanup action plan would include long-term groundwater monitoring or additional active remediation and groundwater monitoring.

The Washington Department of Transportation plans to construct a multi-modal (ferry, rail, and bus) terminal at the lower yard some time after the interim action has been completed. A description of the planned terminal is presented in the Edmonds Crossing *Final Environmental Impact Statement and Final Section 4(f) Evaluation*, dated November 2004. The site remediation activities are independent of the planned construction of the terminal, and the terminal construction and operation will not impact the future remediation and/or monitoring activities.

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

Interim Action Report, Work Plan for 2007 Lower Yard Interim Action, Unocal Edmonds Bulk Fuel Terminal. Prepared for Union Oil Company by SLR International Corp, dated February 28, 2007. Union Oil is currently in negotiations with Ecology about this report, and a revised version of the report will be presented to Ecology in June 2007.

A Notice of Intent was submitted to Ecology in December 2006 to obtain an National Pollutant Discharge Elimination System (NPDES) Individual Stormwater Permit for the discharge of treated groundwater and surface water during the excavation and sediment removal phases of the interim action. The Terminal's existing NPDES Industrial Stormwater General Permit will be used for the discharge of site storm water during the interim action period.

A letter from City of Edmonds to SLR International Corp , dated February 9, 2007, states that the interim action is exempt from the need to obtain a Shoreline Substantial Development Permit.

Letter from SLR International Corp to the U.S. Corps of Engineers (Corps), dated February 7, 2006, requesting a determination as to if the Corps will require any permits for the interim action.

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.

None known.

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

NPDES storm water permits (federal CWA Section 402 regulations under the jurisdiction of Department of Ecology) are required for the interim action. The Terminal's existing Industrial Stormwater General Permit will be used for the discharge of site storm water during the interim action period, and an Individual Stormwater Permit will be obtained for the discharge of treated groundwater and surface water during the excavation and sediment removal phases of the interim action.

Since the interim action will be conducted under an Agreed Order, the work must meet the substantive requirements of the following state and local permits and actions:

State

Section 401 Water Quality Certification (federal CWA Section 401 regulations under the jurisdiction of Department of Ecology)

Hydraulic Project Approval

Coastal Zone Management Determination/Certification

SEPA Environmental Checklist

Local (City of Edmonds)

City of Edmonds Noise and Abatement Control

City of Edmonds Grading, Fill & Excavation Permit

The following federal permits and actions may be required:

Nationwide Permit (NWP) 38 Notification

Rivers and Harbors Act Section 10 Permit

Section 7 Consultation under the Endangered Species Act

National Environmental Policy Act (NEPA) Review

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.)

Union Oil proposes to conduct an interim action at the lower yard of the Terminal to reduce potential threats to human health and the environment, to provide for completion of the FS, and to provide information to design additional cleanup actions, if necessary. In accordance with WAC 173-340-430(1), the interim action may constitute the cleanup action for the lower yard if the interim action is subsequently shown to comply with WAC 173-340-350 through 173-340-390. If the interim action does constitute the cleanup action for the lower yard, then the FS will not need to be completed.

The specific objectives of the interim action include the following:

1) Excavate the petroleum hydrocarbon-impacted soil (approximately 65,000 tons) within the lower yard that contains TPH and benzene concentrations above soil remediation levels (based on direct contact) and total cPAH concentrations above the soil cleanup level (based on direct contact). Excavate the soil within the lower yard that contains arsenic concentrations above the soil cleanup level (based on the natural background conditions). The excavated soil that contains contaminant concentrations above the remediation levels for TPH and benzene, and the cleanup levels for total cPAHs and arsenic will be hauled off site for treatment and/or disposal. The excavated soil that contains petroleum hydrocarbon concentrations below the remediation levels for TPH and benzene and the cleanup levels for total cPAHs and arsenic will be used to backfill the excavations at depths above the groundwater table.

2) Remove the remaining floating petroleum product (approximately 25,000 gallons) beneath the lower yard. The extracted petroleum product will be hauled off site for recycling or disposal.

3) Extract the petroleum hydrocarbon-impacted groundwater (approximately 550,000 gallons) that is in contact with the floating petroleum product. The extracted groundwater will be pumped into an on-site groundwater treatment system prior to discharge to the drainage ditch (under an NPDES permit).

4) Remove the sediment/soil (approximately 600 tons) in the drainage ditch (Willow Creek) at the area near the Terminal's two storm water outfalls that failed the 2003 toxicity tests. The excavated sediment/soil will be hauled off site for treatment or disposal.

5) Obtain the data necessary to determine if the remaining soil concentrations are sources of free petroleum product on the groundwater table.

6) Obtain the data necessary to determine if the remaining soil concentrations will cause an exceedance of the groundwater cleanup levels at the groundwater points of compliance, at any time in the future.

7) Obtain the data necessary to determine if the petroleum hydrocarbon concentrations in the groundwater beneath the lower yard will naturally attenuate to below the cleanup levels at the groundwater points of compliance.

8) Obtain the data necessary to calculate the restoration timeframes to meet the groundwater cleanup levels at the groundwater points of compliance.

9) Obtain the data necessary to determine if the remaining soil concentrations at the base of the previous Southwest Lower Yard excavation are below the soil cleanup levels or remediation levels.

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 Bulk Fuel Terminal is located at 11720 Unoco Road in Edmonds, Washington (Snohomish County). The Terminal is in Section 23 and the northwest quarter of the northeast quarter of Section 26 in Township 27 North, Range 3 East, Willamette Meridian. The lower yard of the Terminal is approximately 22 acres in area. A site vicinity map and lower yard site map are attached (Figures 1 and 2, respectively).

1. **Earth**

a. General description of the site (circle one): **Flat**, rolling, hilly, steep slopes, mountainous, other.

b. What is the steepest slope on the site (approximate percent slope)?

The lower yard is relatively flat. The drainage ditch (Willow Creek) has sloped banks (up to approximately 35% slope).

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 lower yard is underlain by fill and alluvium. **Fill.** The uppermost unit consists of fill material that occurs throughout the entire lower yard, and generally varies in thickness from approximately 1 to 8 feet. This unit is comprised of grade fill overlying finer-grained fill. Grade fill comprises the gravel covered areas of the lower yard. It is present from the surface to approximately 3 feet below ground surface (bgs), and it primarily consists of sand and gravel mixtures, with minor amounts of silt. The sand is generally fine to medium grained, and the gravel is typically crushed rock up to approximately 2½ inches in diameter.

Finer-grained fill underlies the paved surfaces of the lower yard and the grade fill in the unpaved areas. The finer-grained fill varies in composition, but generally consists of sand and silt mixtures with varying amounts of gravel, organic material, and miscellaneous debris (including wood, concrete, wire, and fabric). The fill typically consists of fine- to medium-grained sand with few to some silt, and trace to few gravel. Sand with silt and silty sand fill are also common. Finer-grained fill appears to be comprised of reworked native soil, and delineation of the contact between the fill and the underlying native soil is difficult.

Alluvium. Native soil underlies the fill throughout the lower yard. The native soil is present from the base of the fill to the maximum explored depth of 41.8 feet bgs. The native soil typically consists of fine- to medium-grained sand with trace to few silt, trace to few organic material, and trace gravel. Interbedded sand with silt is abundant, and interbedded silt and sandy silt are also frequent. The interbeds range in thickness from less than 1 inch to several feet, and appear to be laterally discontinuous. The native unit is interpreted to be alluvium, and is likely part of the Whidbey Formation.

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

No.

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

Excavations to remove petroleum product and petroleum hydrocarbon-impacted soil will typically extend to a depth of approximately 8 feet bgs (approximately 1 to 2 feet below the low seasonal groundwater table). These excavations will extend laterally and vertically until the contaminant concentrations are below the soil remediation levels for TPH and benzene, and the soil cleanup levels for total cPAHs and arsenic (arsenic excavation only). The excavation to remove the arsenic-impacted soil will extend to a depth of approximately 1 foot bgs. The total estimated amount of excavated soil is 65,000 tons. These areas will be backfilled to match the original grade. The excavations will be backfilled with imported fill (containing contaminant concentrations below the MTCA Method A cleanup levels) and with excavated soil that contains petroleum hydrocarbon concentrations below the soil remediation levels for TPH and benzene, and the soil cleanup level for total cPAHs. Approximately 22,000 cubic yards of imported fill material have been hauled to site. Based on the results of previous Phase I environmental assessments of the sources of that fill material, the soil will be stockpiled and sampled during the interim action for TPH as diesel and TPH as oil analyses. The soil that contains TPH concentrations below the MTCA Method A cleanup level will be used as excavation backfill material. The soil that contains TPH concentrations greater than the Method A cleanup level will be hauled off site for treatment and/or disposal. Future imported fill is anticipated to be obtained from the Fruhling Sand & Topsoil pit in Bothell, Washington,

pending approval by Ecology, and will be certified as clean by the supplier. The planned areas of soil excavation are shown on the attached Figure 3.

A total of approximately 360 linear feet of the drainage ditch (Willow Creek) streambed will be remediated in the vicinity of site storm water outfalls #001 and #002. The remediation will consist of removing the sediment and soil to a depth of approximately one foot, from the streambed up to the ordinary high water mark on both banks. An estimated total of approximately 600 tons of sediment and soil will be removed from the ditch. The excavation area will be backfilled with imported, clean silty loam. At this time, the source of the imported loam is not known. The imported material will be obtained from a facility that is approved by Ecology, and will be certified as clean by the supplier. Additional bank restoration will include erosion control, native grass seeding, and tree and shrub planting adjacent to the banks. The planned area of sediment removal is shown on the attached Figure 3.

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

Potential erosion could occur during excavation if the work is conducted during rainy periods. Erosion will be controlled per an erosion and sedimentation control plan.

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

The percent of impervious surfaces at the site will not change due to the interim action.

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

Prepare and implement an erosion and sedimentation control plan. Measures will include use of filter fabric fences, straw bales barriers, and storm drain inlet protection.

2. 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 the excavation activities, dust, truck emissions, and petroleum hydrocarbon odors could be emitted to the air. There would be 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.

No.

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, backfilling, and grading. Air monitoring will be conducted to test for petroleum hydrocarbon emissions.

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 the east, northeast, north, and northwest boundaries of the lower yard, and discharges into Puget Sound. Edmonds Marsh is located to the northeast of the lower yard, and is connected to Willow Creek. Willow Creek consists of a man-made drainage ditch and an underground piped culvert between Edmonds Marsh and Puget Sound.

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.

SEDIMENT REMEDIATION: A total of approximately 360 linear feet of the drainage ditch (Willow Creek) streambed will be remediated in the vicinity of storm water outfalls #001 and #002. The planned sediment remediation area is shown on the attached Figure 3. The remediation will consist of removing the soil and sediment to a depth of approximately one foot (the maximum sediment thickness in the area), from the streambed up to the ordinary high water mark on both banks. To minimize the volume of water to be diverted around the remediation area, the work will be conducted during a low tidal cycle that occurs within a dry period of the year.

Prior to conducting the work, coffer dams will be installed at the southwest (downstream) and northeast (upstream) ends of the excavation area. The area of the ditch between the coffer dams will be dewatered by pumping the water into an on-site water treatment system prior to discharge to the drainage ditch at a location downstream of the remediation area. The water treatment and subsequent discharge will be pursuant to the conditions of an NPDES Individual Stormwater Permit. The dewatering will be conducted throughout the excavation/backfilling, as necessary. During dewatering, a qualified wildlife biologist will remove any fish and marine organisms from the dammed area. The water in the ditch that collects along the outside of each dam (depending upon the flow direction in the ditch) will be pumped around the remediation area.

Since the sediment that occurs within 90 feet of the likely sources of toxicity (storm water outfalls) will be removed and it will take too long to conduct bioassay testing of the remaining material at the extents of each excavation, the width of the excavation will be based on the previous investigation results. The excavation will extend between two previous sediment samples (US-4 and US-8) that exhibited acceptable toxicity. Samples of the sediment and soil at the extents of the excavation will not be collected for laboratory testing. The excavated material will be hauled off site for recycling, treatment, and/or disposal at a licensed facility. An estimated total of approximately 600 tons of sediment and soil will be removed from the ditch. The excavation areas will be backfilled with silty loam (a similar material to the excavated sediment). Additional bank restoration will include erosion control, native grass seeding, and tree and shrub planting adjacent to the banks.

SOIL AND FREE PETROLEUM PRODUCT REMEDIATION: Excavations to remove petroleum hydrocarbon-impacted soil and petroleum free petroleum product will be conducted within 200 feet of a drainage ditch (Willow Creek). The planned excavation areas are shown on the attached Figure 3. Each excavation will extend laterally and vertically until soil concentrations are below the site remediation levels for TPH and benzene, and the soil cleanup level for total cPAHs. The total estimated amount of excavated soil is 65,000 tons. The excavated soil will be stockpiled on impermeable liners, and the visibly-impacted soil will be stockpiled separately from the non-visibly impacted soil. The non-visibly impacted soil stockpiles will sampled for laboratory analysis. The excavated soil that is visibly impacted or contains petroleum hydrocarbon concentrations above the soil remediation levels for TPH and benzene, or the soil cleanup level for total cPAHs will be hauled off site for recycling, treatment, and/or disposal at a licensed facility.

The petroleum product that collects in the open excavations will be removed by pumping methods. Hydrocarbon-impacted groundwater will also be pumped during the extraction of the petroleum

product. To remove much of the dissolved-phase petroleum hydrocarbons associated with the petroleum product, at least three excavation volumes of groundwater will be extracted from each excavation. Approximately 25,000 gallons of free petroleum product and 550,000 gallons of groundwater will be extracted. The recovered petroleum product will be hauled off site for recycling and/or disposal at a licensed facility. The extracted groundwater will be pumped into an on-site groundwater treatment system prior to discharge to Detention Basin No. 2 for subsequent discharge pursuant to the conditions of an NPDES Individual Stormwater Permit.

After petroleum product and groundwater removal, the excavations will be backfilled with clean imported material and the excavated soil that contains petroleum hydrocarbon concentrations below the remediation levels for TPH and benzene and the cleanup level for total cPAHs. The excavated soil will only be used as backfill material at depths above the high seasonal groundwater table.

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.

The remediation of the drainage ditch (Willow Creek) will consist of removing the soil and sediment to a depth of approximately one foot, from the streambed up to the ordinary high water mark on both banks. An estimated total of approximately 600 tons of sediment and soil will be removed from the ditch. The excavation area will be backfilled with silty loam imported from an Ecology-approved source to be determined. All imported fill will be certified clean by the supplier. Additional bank restoration will include erosion control, native grass seeding, and tree and shrub planting adjacent to the banks.

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

To minimize the volume of water to be diverted around the remediation area, the work will be conducted during a low tidal cycle that occurs within a dry period of the year. Prior to conducting the work, coffer dams will be installed at the southwest (downstream) and northeast (upstream) ends of the excavation area. The area of the ditch between the coffer dams will be dewatered by pumping the water into an on-site treatment system prior to discharge to the drainage ditch at a location a location downstream of the remediation area. The water treatment and subsequent discharge will be pursuant to the conditions of an NPDES Individual Stormwater Permit. The dewatering will be conducted throughout the excavation/backfilling, as necessary. During dewatering, a qualified wildlife biologist will remove any fish and marine organisms from the dammed area. The water in the ditch that collects along the outside of each dam (depending upon the flow direction in the ditch) will be pumped around the remediation area.

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.

The groundwater that is extracted from the free petroleum product excavations will be pumped through an on-site groundwater treatment system prior to discharge to the drainage ditch, via Detention Basin No. 2 and a site storm water outfall. An estimated volume of 550,000 gallons of groundwater will be pumped through the system. The system will be operated and the effluent sampled in accordance with an NPDES Individual Stormwater Permit.

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.

The petroleum product that collects in the open excavations will be removed by pumping methods. Hydrocarbon-impacted groundwater will also be pumped during the extraction of the petroleum product. To remove much of the dissolved-phase petroleum hydrocarbons associated with the petroleum product, at least three excavation volumes of groundwater will be extracted from each excavation. Approximately 25,000 gallons of free petroleum product and 550,000 gallons of groundwater will be extracted. The recovered petroleum product will be hauled off site for recycling and/or disposal at a licensed facility. The extracted groundwater will be pumped into an on-site groundwater treatment system prior to discharge to Detention Basin No. 2 for subsequent discharge to the drainage ditch. The operation and discharge from the treatment system will be pursuant to the conditions of an NPDES Individual Stormwater Permit.

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, transfer pumps, an oil/water separator tank, and two detention basins (Detention Basin No. 1 and Detention Basin No. 2). The oil/water separator will be removed during the soil excavation activities. After removal of the separator, the site storm water will be plumbed into Detention Basin No. 2 [from northern area of lower yard only (consistent with current system)] or pumped into an on-site groundwater treatment system prior to discharge. After completion of the excavation phase of the interim action, all of the site storm water will be plumbed into Detention Basin No. 2 prior to discharge. Storm water runoff is ultimately discharged to Willow Creek pursuant to the Terminal's existing NPDES Industrial Stormwater General Permit.

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

No. The effluent from the groundwater treatment system and/or Detention Basin No. 2 will be sampled in accordance with the NPDES permit requirements to confirm that the surface water will not be adversely impacted.

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

Impacts to storm water runoff will be controlled by use of the existing storm water collection system and the on-site groundwater treatment system. An erosion and sedimentation control plan will be prepared and implemented. Should soil particulate still become entrained in storm water runoff, detention (settling) will be provided by groundwater treatment system settling tanks and Detention Basin No. 2 prior to discharge.

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

__X__ 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?

The excavation activities in the sediment remediation area of the drainage ditch will include removal of vegetation from the streambed up to the ordinary high water mark. After completing the excavation and backfilling, bank restoration in the remediation area will include native grass seeding, and tree and shrub planting.

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

None known.

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

None.

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:
fish: bass, **salmon, trout**, herring, shellfish, other:

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

Bald eagle territory is located to the south of the site. Bald eagles are reported as nesting approximately 1 mile south of the Terminal.

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

No.

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

Removal of contaminated sediment/soil from the drainage ditch (Willow Creek).

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 hydrocarbon vapors, petroleum product, or petroleum hydrocarbon-contaminated soil/groundwater. Risks to be controlled by site specific health and safety plan, including dust control, air monitoring, and protective clothing.

1) Describe special emergency services that might be required.

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 training. Workers will follow a site-specific health and safety plan, including use of protective clothing as required. Air monitoring with field instruments and visual monitoring of fugitive dust will be performed during the interim action.

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, material, and fill, and with truck traffic to and from the site. Expected hours of operation are 7:30 a.m. to 5:00 p.m., Monday though 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.

8. **Land and shoreline use**

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

The site is a former bulk fuel storage/distribution terminal. The site is currently vacant. The properties to the north/northeast is open space (Edmonds Marsh); to the southeast is Deer Creek Salmon Hatchery; to the south is a new condominium development; and to the west/northwest are BNSF railroad tracks and the Port of Edmonds marina.

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

No.

c. Describe any structures on the site.

Two storm water detention basins and an oil/water separator.

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

Yes. The oil/water separator will be removed.

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

The lower yard is zoned MP2 (Master Plan Hillside Mixed Use). MP2 allowed uses include multi-family residential; office; hotels/motels; restaurants, excluding drive-in business; local public facilities; retail uses excluding activity that relies on outdoor display of merchandise; conference/performing arts center; day care; parks and open spaces; and multimodal transporation center. Residential use is prohibited on the ground floor of any building.

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

The City of Edmonds Comprehensive Plan, dated March 2005, designates the lower yard as Master Plan Development. Guidelines from the Downtown Waterfront Plan suggest the lower yard as Waterfront Transportation.

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. The eastern edge of the lower yard (along Willow Creek and part of the Edmonds Marsh) was characterized as a wetland. Portions of the upper yard were characterized as steep slope.

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:

The 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?

None.

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

No.

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 Route 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).

No.

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

BNSF Railway tracks are located adjacent to the northwest of the site. The Port of Edmonds marina is located to the northwest of the site, beyond the BNSF property.

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**.

Storm water conveyance system.

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.

None.

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: .....

Date Submitted: .....

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 emissions of dust and volatile petroleum hydrocarbons, and production of noise from excavation/backfilling equipment. The extracted groundwater will be treated and then discharged to the drainage ditch.

Proposed measures to avoid or reduce such increases are:

Air monitoring will be performed to monitor petroleum hydrocarbon emissions during the interim action. Visual monitoring of fugitive dust will be conducted and water spray will be used as necessary to control dust during excavation, backfill, and grading. The groundwater treatment system will be operated in accordance with an NPDES Individual Stormwater Permit to prevent any impacts to the surface water in the ditch.

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

Upland work will not affect plant, animals, fish or marine life. Prior to conducting the work in the drainage ditch (Willow Creek), coffer dams will be installed at the southwest (downstream) and northeast (upstream) ends of the excavation area. The area of the ditch between the coffer dams will be dewatered by pumping the water into an on-site treatment system and discharge the treated water at a location downstream of the remediation area. The water treatment and subsequent discharge will be pursuant to the conditions of an NPDES Individual Stormwater Permit. The dewatering will be conducted throughout the excavation/backfilling, as necessary. A qualified wildlife biologist will remove any fish and marine life from the dammed area. The water in the ditch that collects along the outside of each dam (depending upon the flow direction in the ditch) will be pumped around the remediation area. Bank restoration will include native grass seeding and tree and shrub planting.

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

A qualified wildlife biologist will remove any fish and marine life from the dammed area as indicated above.

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?

   The proposed project will improve the sediment conditions in the drainage ditch (Willow Creek) by removal of contaminated sediment/soil, and backfilling with clean material.

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

   Does not apply.

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 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?

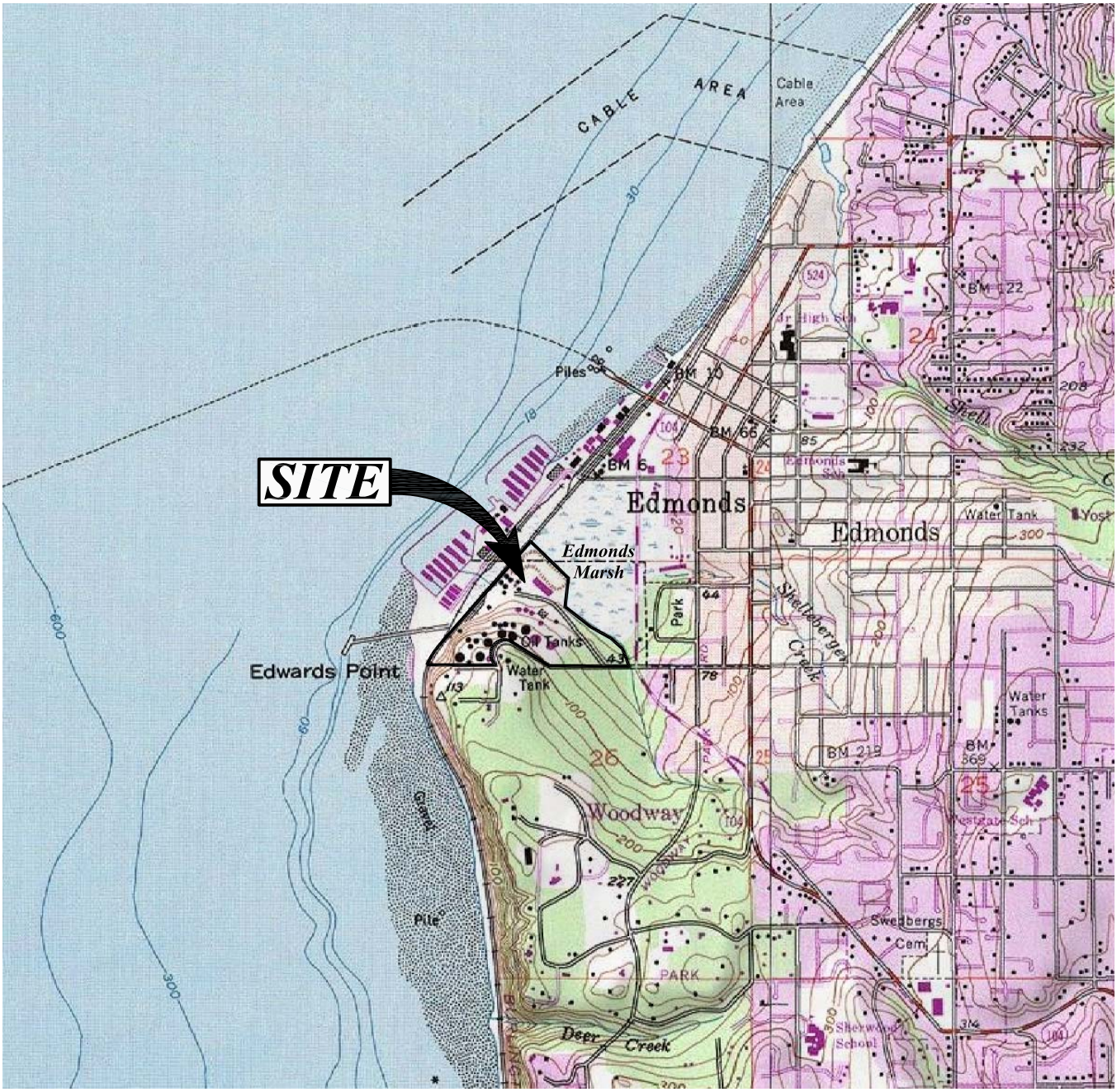
   Does not apply.

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.

   The project will not conflict with any of the laws or regulations for the protection of the environment.



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SCALE IN FEET

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SLR International Corp
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DATE 06/07
DWN. BDT
APPR. _____
REVIS. _____
PROJECT NO.
001.0153.00004

FIGURE 1
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

SITE LOCATION MAP

LEGEND:

- MW-203 — MONITORING WELL LOCATION AND DESIGNATION
- MW-20 — DECOMMISSIONED OR ABANDONED MONITORING WELL LOCATION AND DESIGNATION
- SURVEYED EXTENTS OF 2001 AND 2003 SOIL EXCAVATIONS THAT EXTENDED BELOW THE GROUNDWATER TABLE
- LOWER YARD PROPERTY BOUNDARY
- APPROXIMATE AREA OF FLOATING PRODUCT IN AUGUST 2006
- GENERAL GROUNDWATER FLOW DIRECTION

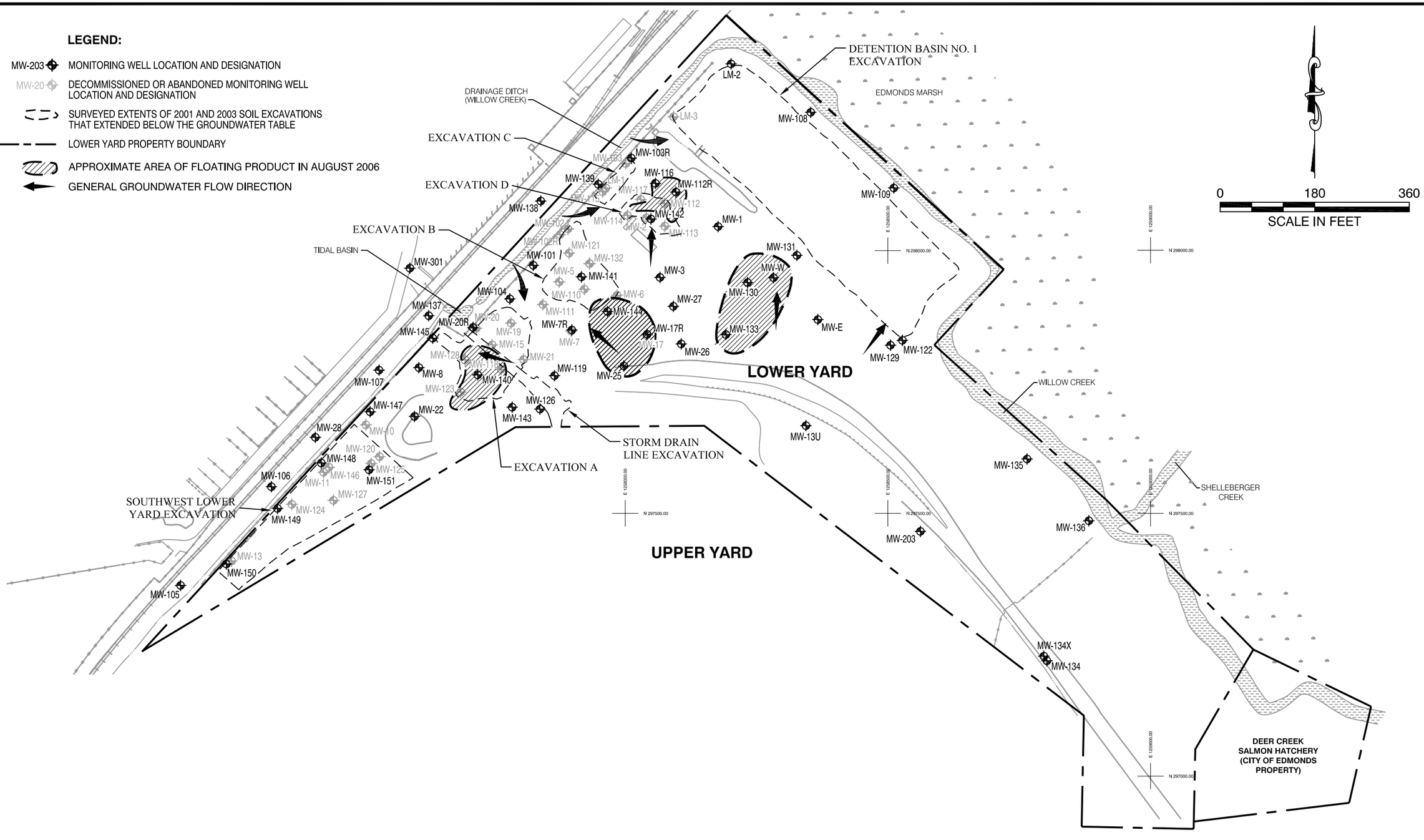

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FIGURE 2
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

LOWER YARD SITE MAP

Unocal Edmonds Bulk Fuel Terminal
2007 Lower Yard Interim Action

DETERMINATION OF NONSIGNIFICANCE

Description of proposal: An interim cleanup action will be conducted in the Lower Yard of the Unocal Edmonds Bulk Fuel Terminal, Edmonds, Washington. The interim action will consist of soil excavation, petroleum product removal, groundwater recovery from open excavations, and sediment excavation from Willow Creek. Twenty-three groundwater monitoring wells will be installed. Groundwater monitoring will be conducted for a 2½ year period following soil excavation and free product recovery. The interim action will begin in June or July of 2007. Sediment excavation will occur in August or September 2007 when the water levels in Willow Creek and Edmonds Marsh are low. The sediment excavation will be conducted during low tidal conditions. It is anticipated all excavation and well installation will be complete by October 2007.

Proponent: Union Oil Company of California, 6001 Bollinger Canyon Road, San Ramon, California 94583.

Location of proposal, including street address, if any: 11720 Unoco Road, Edmonds, Washington.

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. (Comment on this DNS will be combined with the Model Toxics Control Act comment period for the 2007 Lower Yard Interim Action)

☐ 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 .....

Responsible official: Steven M. Alexander

Position/title: Toxics Cleanup Program, Regional Section Manager **Phone:** 425-649-7054

Address: 3190 160th Avenue SE, Bellevue, WA 98008-5452

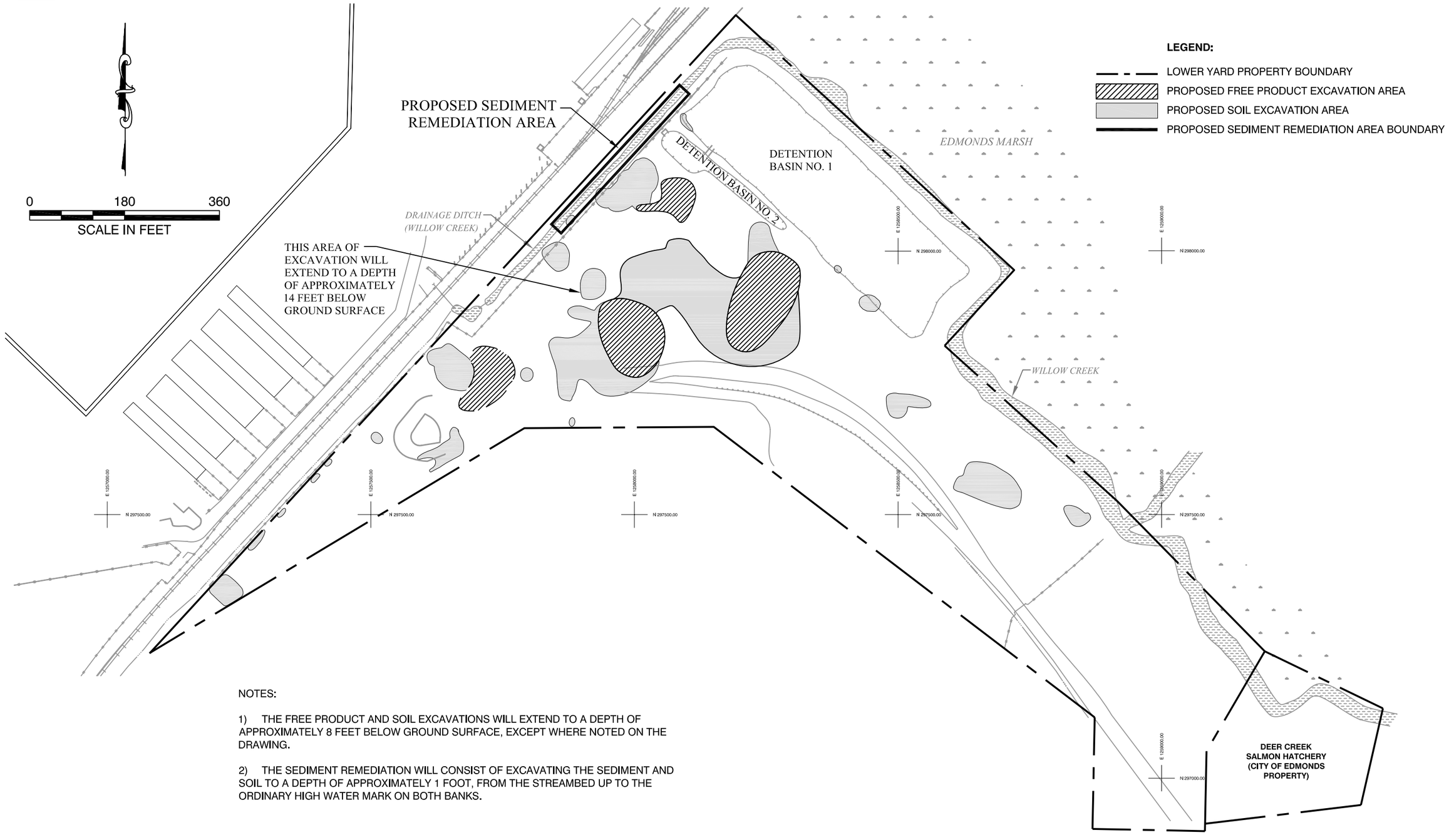
Date July 5, 2007 Signature Steven M. Alexander

(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.



NOTES:

1) THE FREE PRODUCT AND SOIL EXCAVATIONS WILL EXTEND TO A DEPTH OF APPROXIMATELY 8 FEET BELOW GROUND SURFACE, EXCEPT WHERE NOTED ON THE DRAWING.

2) THE SEDIMENT REMEDIATION WILL CONSIST OF EXCAVATING THE SEDIMENT AND SOIL TO A DEPTH OF APPROXIMATELY 1 FOOT, FROM THE STREAMBED UP TO THE ORDINARY HIGH WATER MARK ON BOTH BANKS.

SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 06/07
DWN. BDT
APPR. _____
REVIS. _____
PROJECT NO.
001.0153.00004

FIGURE 3
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

PROPOSED SEDIMENT AND SOIL REMEDIATION AREAS

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

Lake City Housing Site
12730-12740 30th Avenue NE
Seattle, Washington

SLR Project #001.0274.00001

Prepared for:
Chevron Environmental Management Company
P.O. Box 399
Edmonds, Washington 98020

Prepared by:
Kim A. Saganski
Senior Project Geologist
SLR International Corp

Reviewed by:
Michael D. Staton
Principal Geologist
SLR International Corp

Date:
June 14, 2007

EXECUTIVE SUMMARY

SLR International Corp (SLR) is pleased to present this Phase I Environmental Site Assessment (ESA) report. Presented below is an overview of the project, including a summary of our significant findings:

Property Name ("*Site*"):	Lake City Housing Site
***Site* Address (or Other Physical Location Description):**	12730-12740 30th Avenue Northeast, Seattle, Washington
***Site* and Area Description:**	A large multi-family housing construction project began at the *Site* in January 2007 and construction is still in progress. Surrounding land use is a mix of commercial and residential with commercial buildings located adjacent to the north, east, south, and west of the *Site* and residential developments located adjacent to the north, northeast and northwest of the *Site*.
Observed Current *Site* Use/Operations:	Multi-family housing project currently under construction.

Year	Summary of *Site* History
1920s to 1990s	Two houses were constructed at the *Site* in 1924 and 1926, and a third house was constructed at the *Site* in 1942. Two of the houses were demolished in the early 1980s and the third house was demolished in the early 1990s.
1990s to January 2007	The *Site* was vacant. In January 2007, the *Site* was excavated in preparation for redevelopment.

Conclusions
In May 2007, SLR performed a Phase I ESA of the Lake City Housing site located at 12730-13740 30th Ave NE, in Seattle, Washington (the "*Site*"). The purpose of the assessment was to identify any known or potential sources of contamination that could have impacted the shallow soil that was excavated at the *Site* in 2007, at depths of up to 8 feet below ground surface, and hauled to the Unocal Edmonds Bulk Fuel Terminal. The assessment was performed in conformance with the scope and limitations of ASTM Practice E 1527 to the extent that this practice could be used to fulfill the project objective. Based on the results of this assessment, there are no identified known sources of contamination that could have impacted the shallow soil that was removed from the *Site* in 2007. The only identified potential sources of contamination that could have impacted the excavated shallow soil are the historical and current operations at the commercial property adjacent to the northeastern part of the *Site* and a former heating oil tank at a former residence located adjacent to the southern boundary of the *Site*. However, based on previous soil sample analytical results from the December 2006 investigation, the lack of field evidence of contamination (e.g., staining and odors) in the excavated soil and the excavation sidewalls, the potential for impacts to the excavated soil, at depths above the groundwater table, is low.

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 PROPERTY NAME AND LOCATION

Property Name (*"Site"*):	Lake City Housing Site
***Site* Street Address (or Other Physical Location Description):**	12730-12740 30th Avenue Northeast, Seattle, Washington

Figure 1 in Appendix B presents a map showing the location of the *Site* and the general vicinity within an approximate 1-mile radius.

1.2 CLIENT AND *SITE* OWNER INFORMATION

Client ("User"):	Chevron Environmental Management Company
***Site* Owner ("Owner"):**	Lake City Senior Housing Associates Limited Partnership
Date Project Authorized:	May 10, 2007

1.3 OBJECTIVE

The objective of this Phase I Environmental Site Assessment (ESA) was to identify, to the extent feasible, potential sources of contamination that could have impacted the shallow soil that was excavated at the *Site* in 2007, at depths of up to 8 feet below ground surface, and hauled to the Unocal Edmonds Bulk Fuel Terminal. The excavation only removed soil that occurred at depths above the groundwater table; therefore, the potential for off-site impacts to the excavated soil is limited. The potential sources considered in this Phase I ESA are historic site use and/or historic operations on adjacent properties. This Phase I ESA only takes into account the historic activities prior to January 2007 when the excavated soil was removed from the *Site*.

1.4 SCOPE OF WORK, SIGNIFICANT ASSUMPTIONS, TERMS AND CONDITIONS

The scope of work, significant assumptions, and terms and conditions applicable to this Phase I ESA are identified in the following documents:
Soil investigation using the methodologies of ASTM Designation E 1527-05.
Statement of Limitations presented in Appendix A of this report.

Unless specifically addressed within the body of this report, the assessment of the following items, identified as "non-scope items" in the ASTM Practice, were not included in the scope of work of this assessment:

- Radon
- Asbestos-containing materials
- Lead-based paint
- Lead in drinking water
- Wetlands
- Endangered species
- Cultural, historical, and ecological resources

1.5 DATA GAPS AND/OR RESTRICTIONS

Data Gaps In, or Deletions From, the Above-Referenced Scope of Work:	None.

Weather-Related Restrictions:	None.
Facility Access Restrictions:	The facility was not entered.

In the opinion of the Environmental Professional, do the identified data gaps or restrictions prevent the development of conclusions regarding the presence of contamination on the *Site*?	No.

1.6 RELIANCE

This report was prepared for the exclusive use of the following:
• Chevron Environmental Management Company

No other entity may rely on the information presented in the report without the expressed written consent of SLR. Any use of this Phase I ESA report constitutes acceptance of the terms and conditions under which it was prepared. SLR's liability extends only to its client and not to any other parties who may obtain the Phase I ESA report.

1.7 USER PROVIDED INFORMATION

Prior to initiating the site reconnaissance, SLR requested the following information from the User of this Phase I ESA report:

Reason Why the User Wants to Have the Phase I ESA Performed:	To identify any known or potential sources of any contamination that may be present in the soil excavated from the *Site* in 2007.

1.8 PROVIDED DOCUMENTS

The following documents were provided to SLR for review:

Document	Source	Brief Description
Subsurface Exploration, Geologic Hazard, and Preliminary Geotechnical Engineering Report	Prepared by Associated Earth Sciences, Inc. (AESI), dated December 19, 2005	The report documents a geotechnical evaluation of the site. Based on SLR's experience with these types of investigations, when contaminated soil is observed, this information is included in the report. The report did not indicate that contamination was present in the six test pits excavated at the *Site*.
Soil Sampling Report, City of Seattle Parks Department, Vacant Lot at 30th Ave NE and NE 127th St.	Prepared by SLR, dated January 11, 2007	The report documents the results of soil sampling and analysis conducted at the *Site* in December 2006, prior to redevelopment excavation activities. Soil samples were collected from eight test pits and submitted for analysis of metals (antimony, arsenic, barium, beryllium, boron, cadmium, cobalt, copper, lead, magnesium, manganese, mercury, molybdenum, nickel, selenium, silver, thallium, tin, vanadium, and zinc) and total petroleum hydrocarbons (TPH) as gasoline-range organics (GRO), TPH as diesel-range organics (DRO), and TPH as heavy-oil-range organics (HO). The analyzed soil samples were collected at depths between 2 and 4 feet below ground surface.

Document	Source	Brief Description
		The following analytical methods were used: EPA Method 6010B for boron and tin, EPA Method 1631E for mercury, EPA Method 7841 for vanadium, EPA Method 200.8 for all of the other metals, Ecology Method NWTPH-Dx (after silica gel/sulfuric acid cleanup) for DRO and HO, and Ecology Method NWTPH-Gx for GRO. Concentrations of DRO, HO, and GRO were not detected above the laboratory method detection limits (MRLs). The metals concentrations were either not detected above the MRLs or were detected below their respective MTCA Method A or B cleanup levels. The detected metals concentrations were low and likely reflected background conditions.

2.0 *SITE* AND SURROUNDING AREA RECONNAISSANCE

A site reconnaissance was conducted by Ms. Kim Saganski of SLR International Corp on May 10, 2007.

2.1 METHODOLOGY

SLR utilized the following methodology to observe the *Site*:
• Observed current *Site* and surrounding land use.

2.2 GENERAL DESCRIPTION

***Site* and Area Description:**	A large multi-family housing construction project began on the *Site* in January 2007 and construction is still in progress. Surrounding land use is a mix of commercial and residential with commercial buildings located adjacent to the north, east, south, and west of the *Site* and residential developments located adjacent to the north, northeast and northwest of the *Site*.
Structures, Roads, Other Improvements:	The *Site* is currently under construction and appears to be approximately 10 percent complete. The footprint of the building under construction extends to within 10 feet of the property boundaries.
***Site* Size (acres):**	3.25 acres.
Estimated % of *Site* Covered by Buildings and/or Pavement:	95 percent.
Observed Current *Site* Use/Operations:	Multi-family housing project under construction.
Evidence of Past *Site* Use(s):	None.

Figure 2 in Appendix B presents a site plan. *Site* photographs are provided in Appendix C.

2.3 HAZARDOUS SUBSTANCES AND PETROLEUM PRODUCTS

SLR made the following visual and/or physical observations during the site reconnaissance and/or identified the presence of the following during the interview or records review portions of the assessment:

Observation	Description
Hazardous Substances and Petroleum Products:	None observed.
Drums (≥ 5 gallons):	None observed.
Strong, Pungent, or Noxious Odors:	None detected.
Pools of Liquid:	None observed.
Unidentified Substance Containers:	None observed.
PCB-Containing Equipment:	None observed.

2.4 INTERIOR OBSERVATIONS

SLR did not enter the building that was under construction during the site reconnaissance.

2.5 EXTERIOR OBSERVATIONS

SLR did not observe evidence of contamination around the perimeter of the *Site* during the site reconnaissance that would indicate a potential for impacts to *Site* soil prior to the 2007 redevelopment.

2.6 UNDERGROUND STORAGE TANKS/STRUCTURES

Existing USTs:	No visible evidence (fill pipes, vent pipes, dispensers, surface patches), which would indicate the presence of USTs, was discovered during the site reconnaissance.
Former USTs:	No visible evidence (fill pipes, vent pipes, dispensers, surface patches), or other evidence of the former presence of USTs was discovered during this Phase I ESA.

2.7 ABOVEGROUND STORAGE TANKS

Existing ASTs:	A small AST (approximately 250 gallons in capacity) was observed at the southeast corner of the Glastra Heating, Inc. facility located approximately 15 feet from the northern *Site* boundary (see Figure 2). During the *Site* reconnaissance, SLR noted that the north sidewall of the soil excavation was exposed near the AST and that no evidence of soil contamination (e.g., discoloration or staining) was observed.
Former ASTs:	No evidence of the former presence of ASTs was discovered during this Phase I ESA.

2.8 ADJOINING PROPERTIES

2.8.1 Current Uses of Adjoining Properties

North:	Apartment buildings are located north of the western half of the *Site*, a Glastra Heating, Inc. facility is located north of the eastern half of the *Site*, and apartment buildings are located northeast and northwest of the *Site*.
South:	A parking lot and strip mall are located south of the *Site*. The strip mall contains a laundry facility, a dry cleaner (Best Cleaners), restaurants and commercial offices.
East:	Adjacent to the east of the *Site* is a QFC shopping center that includes a drug store, video store, a Radio Shack store, and Schucks automotive store. Another commercial building is located north of the QFC shopping center and east of the *Site*. This building appeared to be vacant at the time of the *Site* reconnaissance.
West:	Across 30th Ave NE is an apartment complex, a medical clinic, and a food bank.

2.8.2 Evidence of Past Uses of Adjoining Properties

North:	The Glastra Heating, Inc. building appears to be the same building that was historically used as a cabinet shop and foundry.
South:	None observed.
East:	None observed.
West:	None observed.

2.8.3 Pits, Ponds or Lagoons on Adjoining Properties

North:	None observed.
South:	None observed.
East:	None observed.
West:	None observed.

2.9 OBSERVED PHYSICAL SETTING

Topography of the *Site* and Surrounding Area:	The *Site* and immediate vicinity slope moderately towards the south. The south end of the *Site* also slopes towards the west.

3.0 RECORDS REVIEW

3.1 FEDERAL/STATE ENVIRONMENTAL RECORDS

A regulatory agency database search report was obtained from a third-party environmental database search firm. A complete copy of the database, including the date the report was prepared, the date the information was last updated, and the definition of databases searched, is provided in Appendix D.

Environmental Agency Lists, Search Distance, Listings

Agency List/Database	Search Radius	Number of Listed Sites
Federal NPL	1.0 mile	0
Federal CERCLIS List	0.5 mile	0
Federal CERCLIS NFRAP	*Site*/ Adjoining Property	0
Federal RCRA CORRACTS	1.0 mile	0
Federal RCRA Non-CORRACTS TSD	0.5 mile	0
Federal RCRA Generators	*Site*/ Adjoining Property	13
Federal ERNS	*Site*	0
State-Equivalent NPL (CSCS)	1.0 mile	6
State-Equivalent CERCLIS (ICR)	0.5 mile	9
State Solid Waste Facilities	0.5 mile	0
State UST Sites	*Site*/ Adjoining Property	11
State LUST Sites	0.5 mile	6

3.1.1 Listings for *Site*

The *Site* was not identified in the environmental database report.

3.1.2 Listings for Nearby Sites with Potential to Impact *Site*

SLR evaluated data presented in the environmental agency database search report. Since none of the facilities listed on agency lists or databases presented in the report are located adjacent to the *Site*, there were no identified facilities that were considered to be of potential environmental concern regarding the shallow soil that was excavated from the *Site*.

3.2 LOCAL/REGIONAL ENVIRONMENTAL RECORDS

SLR checked the following sources to obtain information pertaining to *Site* use and/or indicative of potential concerns in connection with the *Site*:

3.2.1 Health Department/Environmental Division

Agency Name, Contact Information	Finding
King County Health Department	SLR requested environmental records pertaining to the *Site*; however none were found.

3.2.2 Fire Department

Agency Name, Contact Information	Finding
Seattle Fire Department	SLR contacted Ms. Helen Fitzpatrick of the Seattle Fire Marshal's office to request a review of their records; however, the files were not readily available for review.

3.2.3 Building Department

Agency Name, Contact Information	Finding
City of Seattle Department of Planning and Development	Demolition permits for the three former houses at the *Site* indicated that the houses were demolished in 1981, 1982, and 1992. The north adjacent commercial property was a cabinet shop that installed two USTs in 1960 to store gasoline and paint thinner. This property was not included on the UST or LUST lists.

3.3 HISTORICAL RECORDS

3.3.1 Land Title Records/Deeds

Year	Owner
	Public records were not searched because the historical use of the *Site* appeared to be sufficiently documented by other reviewed sources.

3.3.2 Aerial Photographs

Year	Scale	Observations, *Site* and Adjoining Properties
1936	1"=800'	*Site:* two houses. North, east, and south: rural residential properties. West: undeveloped woodlands.
1946	1"=1,000'	*Site*: three houses. North, east, south, and west: rural residential properties.
1956	1"=1,000'	*Site*: same as 1946. North: houses and one large commercial building to the northeast of the *Site* (present-day Glastra Heating, Inc.). East: parking lot and large commercial buildings (present-day shopping center). South: a house and a parking lot. West: apartment complex.
1960 1969 1974	1"=1,000' 1"=1,500' 1"=1,500'	*Site*: same as 1956. North: same as 1956. East: same as 1956 but additional small commercial buildings added. South: same as 1956. House appears to be commercial in 1974. West: apartment complex and commercial buildings similar to present-day configuration.
1980	1"=1,500'	*Site*: by 1985, two of the houses were demolished and some

1985 1990	1"=1,500' 1"=1,000'	clearing was present in the center of the *Site*. North, east, and west: same as 1974. South: parking lot and strip mall.
1995 2000 2002	1"=2,000' 1"=2,000' 1"=2,000'	*Site*: remaining house demolished and there is a clearing at southeast corner of the *Site*. North, east, south, and west: same as 1990.

Aerial photograph research was conducted at the following location:

- Aero-Metric's offices located in Tukwila, Washington.

3.3.3 City Directories

Year	Street Address	Subject/ Adjacent Property	Listed Occupant
1920 1925 1930	North 130th Street 30th Ave NE	*Site* and adjacent	Either the street or the address ranges were not listed in the directories.
1935	12732 30th Ave NE 12742 30th Ave NE	*Site* *Site* or North	Residence Residence
1940	North 130th Street 30th Ave NE	*Site* and adjacent	Either the street or the address ranges were not listed in the directories.
1951	12701 30th Ave NE 12705 30th Ave NE 12732 30th Ave NE 12742 30th Ave NE 12730 30th Ave NE	Southwest West *Site* *Site* or North *Site*	King County Fire Department Library Residence Residence Residence
1955	12730 30th Ave NE 12714 30th Ave NE 12721 30th Ave NE 12722 30th Ave NE 12732 30th Ave NE 12733 30th Ave NE 12740 30th Ave NE 12745 30th Ave NE 12750 30th Ave NE	*Site* South Southwest South *Site* West *Site* Northwest North	Residence Residence King County Water Dist. Residence Residence Apartments Residence Residence Residence
1960	12705 30th Ave NE 12707 30th Ave NE 12721 30th Ave NE 12722 30th Ave NE 12729 30th Ave NE 12730 30th Ave NE 12731 30th Ave NE 12733-12739 30th Ave NE 12740 30th Ave NE 12743-12745 30th Ave NE 12750 30th Ave NE	Southwest Southwest Southwest South West *Site* West West *Site* Northwest North	City Fire Department City Building Dept. Lake City Sewer Dist. Vacant Apartments Residence Vacant Residence Residence Residence Residence

Year	Street Address	Subject/ Adjacent Property	Listed Occupant
1966	12705 30th Ave NE	Southwest	City Fire Department
	12707 30th Ave NE	Southwest	City Building Dept.
	12720 30th Ave NE	South	Doctor's office
	12721 30th Ave NE	Southwest	Lake City Sewer Dist.
	12722 30th Ave NE	South	Dentist office
	12729 30th Ave NE	West	Apartments
	12730 30th Ave NE	*Site*	Residence
	12731-12739 30th Ave NE	West	Residence
	12732 30th Ave NE	*Site*	Residence
	12740 30th Ave NE	*Site*	Residence
	12741 30th Ave NE	West	Residence
	12743-12745 30th Ave NE	Northwest	Residence
	12750 30th Ave NE	North	Residence
	3000-3017 NE 127th St	South	Commercial businesses including Lake City Paint and a post office.
	3020-3050 NE 127th St	East	A variety of stores including: Albertson's grocery store, barber shop, drug store, offices, and a clothing store.
1975	12705 30th Ave NE	Southwest	City Fire Department
	12707 30th Ave NE	Southwest	City Building Dept.
	12720 30th Ave NE	South	Doctor's office
	12721 30th Ave NE	Southwest	Lake City Sewer Dist.
	12722 30th Ave NE	South	Dentist office
	12729 30th Ave NE	West	Apartments
	12730 30th Ave NE	*Site*	Residence
	12731-12739 30th Ave NE	West	Residence
	12732 30th Ave NE	*Site*	Residence
	12740 30th Ave NE	*Site*	Residence
	12741 30th Ave NE	West	Residence
	12743-12745 30th Ave NE	Northwest	Residence
	12750 30th Ave NE	North	Residence
	3000-3017 NE 127th St	South	Commercial businesses including Lake City Paint and a post office.
	3020-3050 NE 127th St	East	A variety of stores including: a carpet store, barber shop, drug store, offices, and a beauty school.

Year	Street Address	Subject/ Adjacent Property	Listed Occupant
1980	12705 30th Ave NE	Southwest	City Fire Department
	12707 30th Ave NE	Southwest	City Building Dept.
	12720 30th Ave NE	South	Doctor's office
	12721 30th Ave NE	Southwest	Commercial Bank of Seattle
	12722 30th Ave NE	South	Not listed
	12729 30th Ave NE	West	Apartments
	12730 30th Ave NE	*Site*	Not listed
	12731-12739 30th Ave NE	West	Residence
	12732 30th Ave NE	*Site*	Residence
	12740 30th Ave NE	*Site*	Vacant
	12741 30th Ave NE	West	Residence
	12743-12745 30th Ave NE	Northwest	Residence
	12750 30th Ave NE	North	Residence
	3000-3017 NE 127th St	South	Commercial businesses including: Lake City Paint, a print shop, and restaurants.
	3020-3050 NE 127th St	East	A variety of stores including: QFC grocery store, a drug store, an auto supply store, Radio Shack.
1986	12705 30th Ave NE	Southwest	City Fire Department
	12707 30th Ave NE	Southwest	City Building Dept.
	12720 30th Ave NE	South	Vacant
	12721 30th Ave NE	Southwest	Bank and commercial offices
	12722 30th Ave NE	South	Not listed
	12729 30th Ave NE	West	Apartments
	12730 30th Ave NE	*Site*	Residence
	12731-12739 30th Ave NE	West	Residence
	12732 30th Ave NE	*Site*	Residence
	12740 30th Ave NE	*Site*	Not listed
	12741 30th Ave NE	West	Residence
	12743-12745 30th Ave NE	Northwest	Residence
	12750 30th Ave NE	North	Residence
	3000-3017 NE 127th St	South	Commercial businesses including: Lake City Paint, Sav On Discount Dry Cleaning and restaurants.
	3020-3050 NE 127th St	East	A variety of stores including: QFC grocery store, a drug store, an auto supply store, Radio Shack, and a print shop.

Year	Street Address	Subject/ Adjacent Property	Listed Occupant
1990	12705 30th Ave NE	Southwest	City Fire Department
	12707 30th Ave NE	Southwest	Lake City Community Service Center
	12720 30th Ave NE	South	Commercial offices
	12721 30th Ave NE	Southwest	Bank and commercial offices
	12722 30th Ave NE	South	Not listed
	12729 30th Ave NE	West	Apartments
	12730 30th Ave NE	*Site*	Vacant
	12731-12739 30th Ave NE	West	Residence
	12732 30th Ave NE	*Site*	Vacant
	12740 30th Ave NE	*Site*	Not listed
	12741 30th Ave NE	West	Residence
	12743-12745 30th Ave NE	Northwest	Residence
	12750 30th Ave NE	North	Residence
	3000-3017 NE 127th St	South	Commercial businesses including: Lake City Paint, Sav On Discount Dry Cleaning and restaurants.
	3020-3050 NE 127th St	East	A variety of stores including: QFC grocery store, a drug store, an auto supply store, Radio Shack, and a shoe store.
1996	12705 30th Ave NE	Southwest	Not listed
	12707 30th Ave NE	Southwest	Lake City Community Service Center
	12720 30th Ave NE	South	Commercial offices
	12721 30th Ave NE	Southwest	Bank and commercial offices
	12722 30th Ave NE	South	Not listed
	12729 30th Ave NE	West	Residence
	12730 30th Ave NE	*Site*	Not listed
	12731-12739 30th Ave NE	West	Residence
	12732 30th Ave NE	*Site*	Not listed
	12740 30th Ave NE	*Site*	Not listed
	12741 30th Ave NE	West	Residence
	12743-12745 30th Ave NE	Northwest	Not listed
	12750 30th Ave NE	North	Not listed
	3000-3019 NE 127th St	South	Commercial businesses including: Lake City Paint, Best Cleaners and restaurants.
	3020-3050 NE 127th St	East	A variety of stores including: QFC grocery store, a beauty salon, a drug store, an auto supply store, Radio Shack, and a shoe store.

Year	Street Address	Subject/ Adjacent Property	Listed Occupant
2005	12705 30th Ave NE	Southwest	Not listed
	12707 30th Ave NE	Southwest	North Helpline
	12720 30th Ave NE	South	Not listed
	12721 30th Ave NE	Southwest	Medical and commercial offices
	12722 30th Ave NE	South	Not listed
	12729 30th Ave NE	West	Residence
	12730 30th Ave NE	*Site*	Not listed
	12731-12739 30th Ave NE	West	Residence
	12732 30th Ave NE	*Site*	Not listed
	12740 30th Ave NE	*Site*	Not listed
	12741 30th Ave NE	West	Residence
	12743 30th Ave NE	Northwest	Residence
	12745 30th Ave NE	Northwest	Apartments
	12750 30th Ave NE	North	Not listed
	3000-3012 NE 127th St	South	Commercial businesses including: Best Custom Cleaners and restaurants.
	3020-3050 NE 127th St	East	A variety of stores including: QFC grocery store, CSK Auto Inc., and a shoe store.

Name of city directories and source:

- Polk's city directories and Cole's directories for Seattle, Washington.

3.3.4 Historical Fire Insurance Maps

Year	Occupant of *Site*/Adjoining Properties; Hazardous Material Storage
1930	Two houses are shown at the *Site*, which occupies the northwest portion of the block. Properties adjacent to the north, east, south, and west are vacant. A few houses are present to the northeast and a gas station is present at the southeast corner of the block.
1950	Three houses are shown at the *Site*. Properties adjacent to the north, south and west are residential. A cabinet shop is present adjacent to the north of the eastern portion of the *Site*. A fire station is present to the southwest of the *Site*. Stores are present further east and the gas station is still present at the southeast corner of the block.
1960	Three houses are shown at the *Site*. A house and the cabinet shop are present adjacent to the north the *Site*. A store, a house and a large shopping center are present to the east. A house and a store are present to the south. A house and apartment building are present to the west. Water district offices and the fire department are present to the southwest.

Source: Certified Sanborn Map Report provided by EDR.

3.3.5 Historical Topographic Maps

Historic topographic Maps were not reviewed for the *Site* because there was sufficient historic information from other sources.

3.3.6 Other Historical Sources

The following historical information was obtained from the Puget Sound Regional Archives office located in Bellevue, Washington.

At least three houses historically occupied the *Site*. One house was constructed at the address of 12732 30th Avenue NE in 1924, the second house was constructed at the address of 12740 30th Avenue NE in 1926, and the third house was constructed at the address of 12730 30th Avenue NE in 1942. None of these houses were listed as having oil heat. A north adjacent property, 12750 30th Ave NE, was listed as a foundry in 1940 and cabinet shop in 1949. A south adjacent house at 12722 30th Ave NE (constructed in 1946) was listed as having oil heat and was converted to a medical clinic in 1961. The fire station located at 12705 30th Ave NE (approximately 200 feet southwest of the *Site*) historically used a 500 gallon UST. An Atlantic Richfield gas station was present at 12705 Lake City Way, which is the southeast corner of the block (approximately 500 feet southeast of the *Site*). The station was constructed in 1926 and was listed as a Texaco station in 1941.

3.4 PHYSICAL SETTING

Topography:	The *Site* is at an elevation of 60 to 65 meters above mean sea level. The surface topography of the *Site* and vicinity slopes moderately toward the south and the southern end of the *Site* slopes west.
Soil/Bedrock Data:	The Site geology consists of fill material to 2.5 feet below ground surface underlain by Vashon lodgement till to a depth of at least 10 feet below ground surface.
Estimated Depth to Groundwater/ Direction of Gradient:	The depth to groundwater is deeper than 10 feet below ground surface based on the previous geotechnical test pits that extended to 10 feet below ground surface.

Sources of this information:

- USGS 7.5 Minute Topographic Map, Seattle North Quadrangle.
- Subsurface Exploration, Geologic Hazard, and Preliminary Geotechnical Engineering Report prepared by Associated Earth Sciences, Inc., dated December 19, 2005.

4.0 INTERVIEWS

4.1 FINDINGS FROM INTERVIEW WITH OWNER

Name, Title, Telephone Years Familiar with *Site*	Bryan Park, principal owner, (206) 369-6461, familiar with the *Site* since November 2005
Current Use of *Site*:	Currently being developed for multi-family housing.
Past Use(s) of *Site*:	Residential.
Current Use of Surrounding Properties:	Commercial and residential.
Past Use(s) of Surrounding Properties:	Similar to current use.
Current or Past Hazardous/ Petroleum Material Use, Storage, Disposal:	Not aware of any.
Current or Past Regulatory Action(s):	Not aware of any.
Past Releases of Hazardous/Petroleum Materials on the Property:	No.
Other Environmental Information (Permits, etc.):	No.

4.2 REQUIRED QUESTIONS

SLR interviewed the User and Owner regarding their awareness of any pending, threatened, or past incidences of the following:

	Owner	**User**
- Litigation Relevant to Hazardous Substances or Petroleum Products in, on, or From *Site*?	No	Unknown
- Administrative Proceedings Relevant to Hazardous Substances or Petroleum Products in, on, or From *Site*?	No	Unknown
- Notices From Any governmental entity regarding possible violations of environmental laws or possible liability relating to hazardous substances or petroleum products?	No	Unknown

4.3 FINDINGS FROM INTERVIEWS WITH OTHERS

SLR interviewed the following people likely to be knowledgeable of the environmental condition or history of the *Site*:

Name, Title	Telephone	Qualifications relevant to *Site* knowledge	Comments
Dan Reynolds, Owner of Wyser Construction	(425) 742-0898	*Site* redevelopment project excavation contractor	The depth of the excavation at the *Site* was up to approximately 8 feet below ground surface, and extended to the property boundaries. There was no evidence of contamination such as odors or staining observed during the excavation work. Approximately 8,000 cubic yards of the excavated soil was transported to the Unocal Edmonds Bulk Fuel Terminal in January 2007.

5.0 SUMMARY OF HISTORICAL *SITE* AND ADJOINING PROPERTY USE

The following summary of the historical uses of the *Site* and adjoining properties was compiled from the referenced materials and interviews detailed in Sections 2.0, 3.0 and 4.0.

5.1 *SITE* USE

Year	Summary of *Site* Use
1920s to 1990s	Two houses were constructed at the *Site* in 1924 and 1926 and a third house was constructed at the *Site* in 1942. Two of the houses were demolished in the early 1980s and the third house was demolished in the early 1990s.
1990s to January 2007	The *Site* was vacant. In January 2007, the *Site* was excavated in preparation for redevelopment.

5.2 SURROUNDING PROPERTY USE

Direction	Summary of Historical Adjoining Property Use
North	A few houses occupied the north adjacent property from the 1930s through at least 2002. A commercial building has occupied the area east of the houses and adjacent to the north of the *Site* as early as 1940. The commercial building was historically used as a foundry and cabinet shop, and more recently as a heating company. The commercial building has used USTs to store gasoline and paint thinner. An AST was observed at the time of the site visit at the southeast corner of the building. Apartments replaced the houses sometime after 2002.
South	A house was constructed on the south adjacent property in 1946 that was converted to medical offices in 1961. The house used oil heat. The clinic was replaced with the present-day parking lot and strip mall between 1975 and 1980.
East	The properties located adjacent to the east of the *Site* were occupied by rural residential developments from the 1930s through the 1940s. The present-day commercial buildings and parking lots replaced the houses in the 1950s.
West	The west adjacent property was undeveloped woodland in the 1930s and residential from the 1940s to the 1950s. The majority of the houses were replaced by an apartment complex in the 1950s. Commercial buildings and the fire station occupied the area southwest of the *Site* from the 1950s to present.

6.0 CONCLUSIONS

In May 2007, SLR performed a Phase I ESA of the Lake City Housing site located at 12730-13740 30th Ave NE, in Seattle, Washington (the "*Site*"). The purpose of the assessment was to identify any known or potential sources of contamination that could have impacted the shallow soil that was excavated at the *Site* in 2007, at depths of up to 8 feet below ground surface, and hauled to the Unocal Edmonds Bulk Fuel Terminal. The assessment was performed in conformance with the scope and limitations of ASTM Practice E 1527 to the extent that this practice could be used to fulfill the project objective.

Based on the findings of the Phase I assessment, there are no identified known sources of contamination that could have impacted the shallow soil that was removed from the *Site*. The only identified potential sources of contamination that could have impacted the excavated shallow soil are the historical and current operations at the commercial property adjacent to the northeastern part of the *Site* and a former heating oil tank at a former residence located adjacent to the southern boundary of the *Site*. However, based on previous soil sample analytical results from the December 2006 investigation, the lack of field evidence of contamination (e.g., staining and odors) in the excavated soil and the excavation sidewalls, the potential for impacts to the excavated soil, at depths above the groundwater table, is low. The commercial property adjacent to the northeastern part of the *Site* was listed as a foundry in the 1940s, a cabinet shop by 1949, and more recently as a heating company (Glastra Heating, Inc.). The type of foundry is unknown and the shallow soil sample analytical results from the investigation conducted by SLR in December 2006 showed that the soil contained metals concentrations below their respective MTCA Method A or Method B cleanup levels. Therefore, it does not appear that the previous foundry operations impacted the excavated soil. The commercial property historically used two USTs to store gasoline and paint thinner, and currently has a small AST (approximately 250 gallons in capacity) located at the southeast corner of the building. The current status of the USTs and the AST is unknown. The AST is located approximately 15 feet to the north of the northern boundary of the *Site*. The north sidewall of the soil excavation at the *Site* was exposed at the time of the *Site* reconnaissance and no visible staining or soil discoloration was observed. In addition, the excavation contractor, Wyser Construction, did not detect any evidence of contamination during the excavation activities. If the USTs were located adjacent to the property line, there may have been impacts to the shallow soil at the *Site* near the tanks; however, the lateral extents of any impacts would be limited since the excavation did not extend to the groundwater table.

A heating oil tank (unknown if UST or AST) was present from 1946 to approximately 1980 at a former residence and subsequent former medical clinic located adjacent to the southern boundary of the *Site*. If the tank was located adjacent to the property line, there may have been impacts to the shallow soil at the *Site* near the tank; however, the lateral extents of any impacts would be limited since the excavation did not extend to the groundwater table.

7.0 REFERENCES

AESI. 2005. *Subsurface Exploration, Geologic Hazard, and Preliminary Geotechnical Engineering Report, Lake City Senior Housing*. December 19.

SLR. 2007. *Soil Sampling Report, City of Seattle Parks Department, Vacant Lot at 30th Ave Ne and NE 127th St.* January 11.

APPENDIX A

STATEMENT OF LIMITATIONS

STATEMENT OF LIMITATIONS

The conclusions presented in this report are professional opinions based on data described in this report. These opinions have been arrived at in accordance with currently accepted environmental industry standards and practices applicable to the work described in this report. The opinions presented are subject to the following inherent limitations:

1. This report was prepared for the exclusive use of the entity referenced in Section 1.6. No other entity may rely on the information presented in the report without the expressed written consent of SLR.

2. This Phase I ESA report is subject to the terms and conditions in the Agreement for Subcontractor Services No. ARCADIS-BBLES-T2-SLR-Edmonds dated January 15, 2007. Any use of the Phase I report constitutes acceptance of the limits of SLR's liability specified in the contract. SLR's liability extends only to its client and not to any other parties who may obtain the Phase I report.

3. SLR derived the data in this report primarily from visual inspections, examination of records in the public domain, and interviews with individuals having information about the *Site*. The passage of time, manifestation of latent conditions, or occurrence of future events may require further study at the *Site*, analysis of the data, and reevaluation of the findings, observations, and conclusions in the report.

4. The data reported and the findings, observations, and conclusions expressed in the report are limited by the scope of work. The scope of work is presented in Section 1.4 and was agreed to by the client.

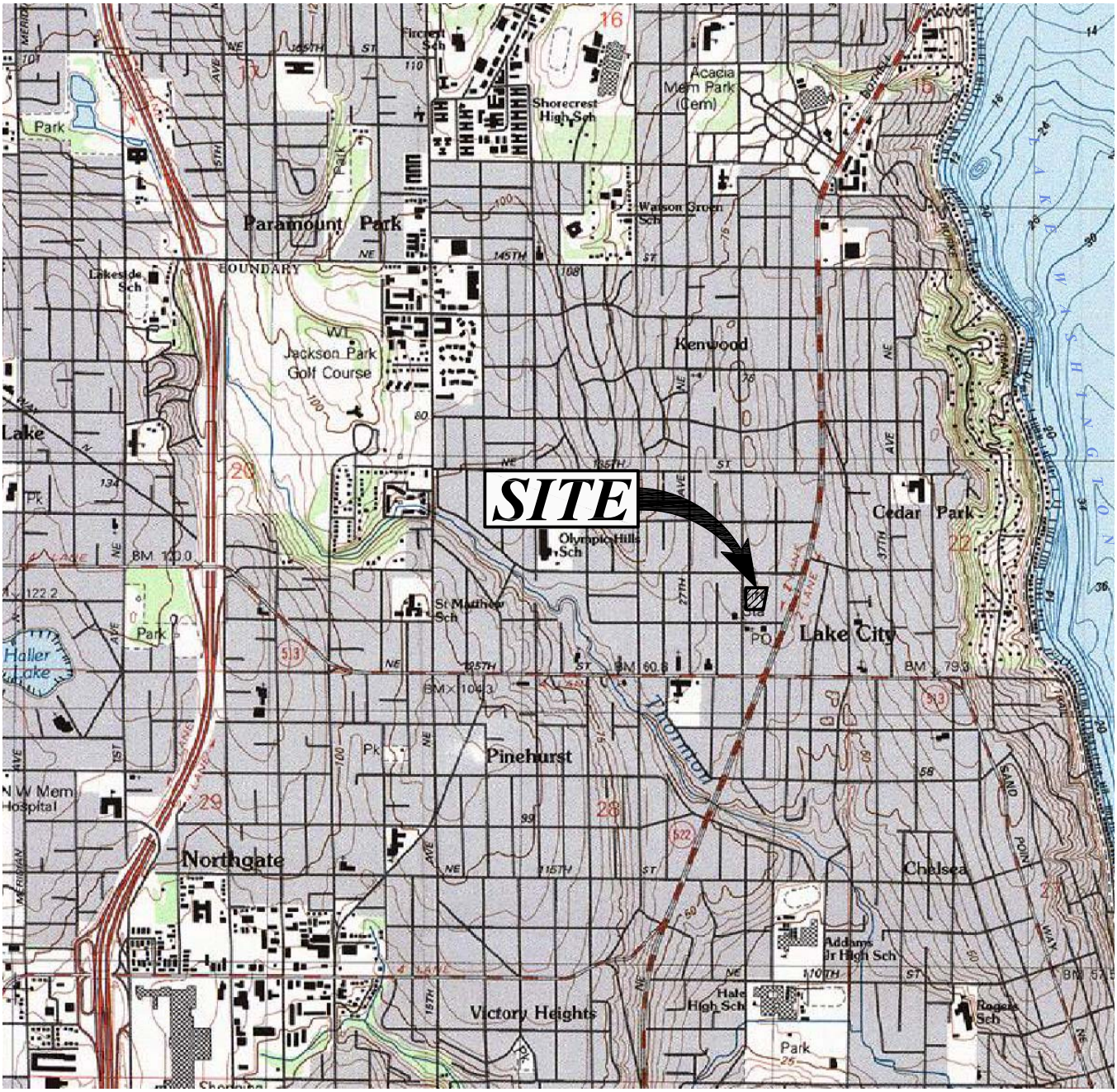
5. SLR's Phase I ESA reports present professional opinions and findings of a scientific and technical nature. The report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental laws, rules, regulations, or policies of federal, state, or local governmental agencies.

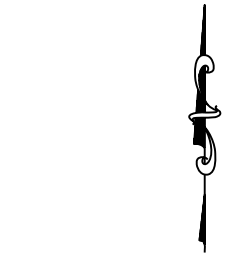
6. The conclusions presented in this report are professional opinions based on data described in this report. They are intended only for the purpose, *Site* location, and project indicated. This report is not a definitive study of contamination at the *Site* and should not be interpreted as such. An evaluation of subsurface soil and groundwater conditions was not performed as part of this investigation, unless indicated in Section 1.4. No sampling or chemical analyses of structural materials or other media was completed as part of this study unless explicitly stated in Section 1.4.

7. This report is based, in part, on unverified information supplied to SLR by third-party sources. While efforts have been made to substantiate this third-party information, SLR cannot guarantee its completeness or accuracy.

APPENDIX B

FIGURES





0 2000 4000

SCALE IN FEET

SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 05/07
DWN. BDT
APPR. _____
REVIS. _____
PROJECT NO.
001.0153.00004

FIGURE 1
12730 - 12740 30th AVE NE
SEATTLE, WASHINGTON

SITE LOCATION MAP

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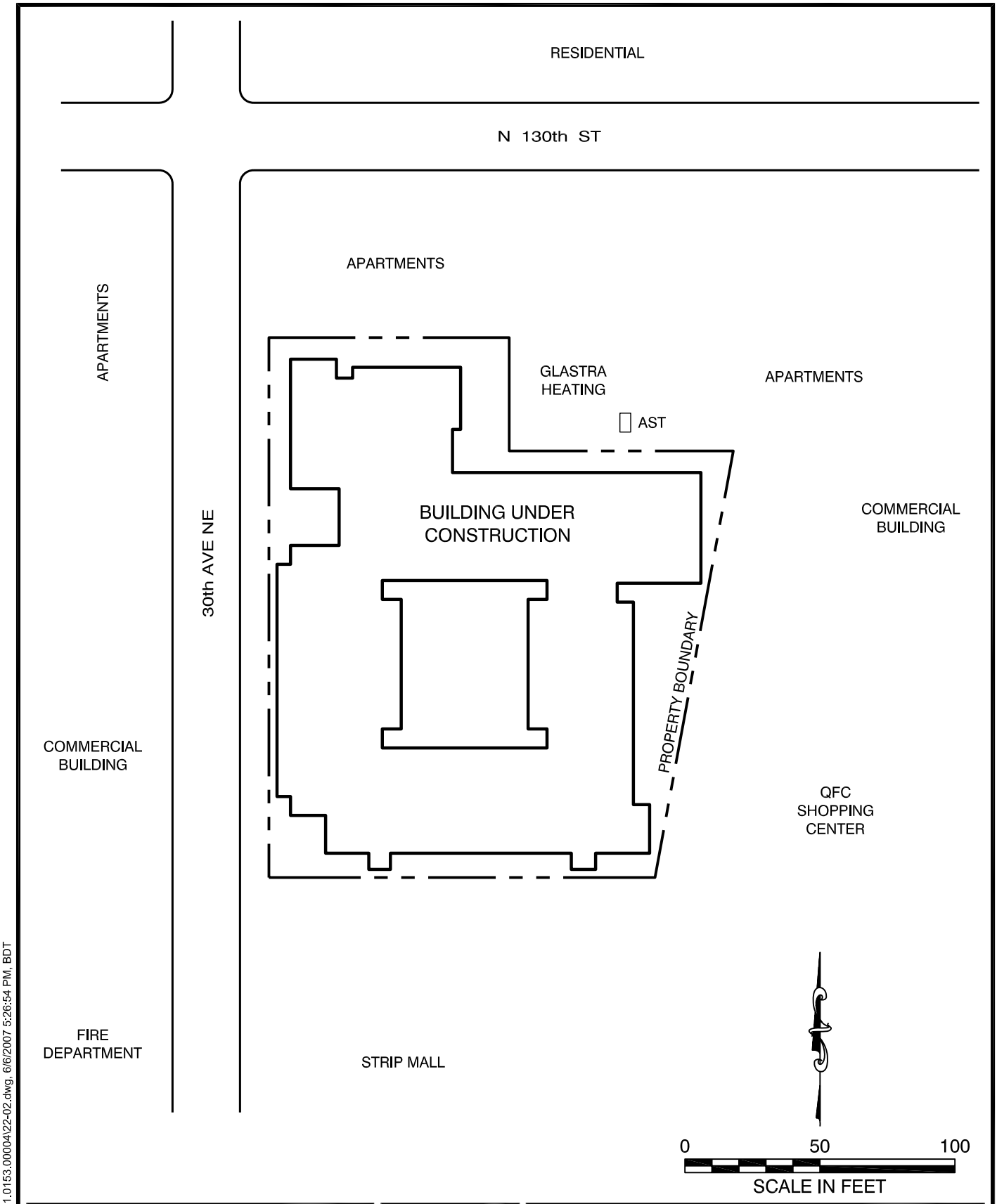

SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 06/07
DWN. BDT
APPR. _____
REVIS. _____
PROJECT NO.
001.0153.00004

FIGURE 2
12730 - 12740 30th AVE NE
SEATTLE, WASHINGTON

SITE PLAN AND ADJACENT PROPERTIES

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APPENDIX C

PHOTOGRAPHS

APPENDIX D

ENVIRONMENTAL REGULATORY AGENCY DATABASE REPORT

APPENDIX E

ENVIRONMENTAL PROFESSIONAL'S QUALIFICATIONS

Lake City Housing Site
12730-12740 30th Ave NE, Seattle, Washington

South to north view of Site (building under construction) and neighboring apartments in the background.

Southwest to northeast view of the Site.

Lake City Housing Site
12730-12740 30th Ave NE, Seattle, Washington

North to south view of the adjacent property (Glastra Heating, Inc) located to the northeast of the Site. The crane in the background is on the Site.

East to west view of the north end of the strip mall located adjacent to the southern boundary of the Site and the commercial building to the southwest of the Site.

Northeast to southwest view of strip mall located adjacent to the southern boundary of the Site.

North to south view of the shopping center located adjacent to the eastern boundary of the Site.

West to east view of the commercial building located adjacent to the eastern boundary of the Site, north of the shopping center.

West-northwest view of the north end of the Site (foreground) and the neighboring apartment buildings in the background.

The EDR Radius Map
with GeoCheck®

Lake City Senior Housing
12730-12740 30th Ave NE
Seattle, WA 98125

Inquiry Number: 1929756.2s

May 16, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

12730-12740 30TH AVE NE
SEATTLE, WA 98125

COORDINATES

Latitude (North):	47.722200 - 47° 43' 19.9''
Longitude (West):	122.295900 - 122° 17' 45.2''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	552805.6
UTM Y (Meters):	5285446.0
Elevation:	215 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	47122-F3 SEATTLE NORTH, WA
Most Recent Revision:	1983

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL	National Priority List
Proposed NPL	Proposed National Priority List Sites
Delisted NPL	National Priority List Deletions
NPL LIENS	Federal Superfund Liens
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP	CERCLIS No Further Remedial Action Planned
CORRACTS	Corrective Action Report
RCRA-TSDF	Resource Conservation and Recovery Act Information
RCRA-LQG	Resource Conservation and Recovery Act Information

EXECUTIVE SUMMARY

ERNS Emergency Response Notification System
HMIRS Hazardous Materials Information Reporting System
US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
US BROWNFIELDS A Listing of Brownfields Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
ODI Open Dump Inventory
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS Section 7 Tracking Systems
LUCIS Land Use Control Information System
DOT OPS Incident and Accident Data
ICIS Integrated Compliance Information System
HIST FTTS FIFRA/TSCA Tracking System Administrative Case Listing
US CDL Clandestine Drug Labs
RADINFO Radiation Information Database
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

HSL Hazardous Sites List
SWF/LF Solid Waste Facility Database
SWTIRE Solid Waste Tire Facilities
AST Aboveground Storage Tank Locations
SPILLS Reported Spills
INST CONTROL Institutional Control Site List
DRYCLEANERS Drycleaner List
BROWNFIELDS Brownfields Sites Listing
CDL Clandestine Drug Lab Contaminated Site List
NPDES Water Quality Permit System Data
AIRS (EMI) Washington Emissions Data System

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land
INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL RECORDS

RCRAInfo: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System(RCRIS). The database includes selective information on sites which generate, transport, store , treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month Large quantity generators generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/13/2006 has revealed that there are 13 RCRA-SQG sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
BEST CLEANERS SEATTLE	***3008 NE 127TH ST***	***0 - 1/8 S***	***A3***	***6***
PANOS PROPERTIES LLC LAKE CITY	***3000 NE 127TH ST***	***0 - 1/8 SSW***	***A5***	***9***
CAREZ AUTO REBUILD INC	***12715 28TH AVE NE***	***0 - 1/8 SW***	***B7***	***11***
CEDAR PARK AUTO REPAIR INC	***12709 28TH AVE NE***	***0 - 1/8 SW***	***B8***	***12***
DC ELECTRONIC INC	***12729 LAKE CITY WAY NE***	***0 - 1/8 SE***	***C11***	***13***
ROSSOE INC 13018 LAKE CITY WAY	***13018 LAKE CITY WAY NE***	***1/8 - 1/4 ENE***	***D21***	***21***
STETNER AUTO BODY INC	***13036 LAKE CITY WAY NE***	***1/8 - 1/4 ENE***	***D24***	***22***
NORTH COAST ENTERPRISES INC	***12750 33RD AVE NE***	***1/8 - 1/4 ESE***	***31***	***29***
BILL PIERRE FORD	***12531 - 30TH NE***	***1/8 - 1/4 S***	***G33***	***30***
SUNSHINE CLEANERS & LAUNDROMAT	***12525 1/2 LAKE CITY WAY***	***1/8 - 1/4 SSE***	***H40***	***34***
PUGET SOUND REFRIGERATION	***3132 NE 133RD ST***	***1/8 - 1/4 NNE***	***44***	***35***
WA UW APL ARTIC	***12550 27TH AVE NE***	***1/8 - 1/4 SW***	***45***	***37***
QWEST CORPORATION (W00128)	***12550 26TH AVE NE***	***1/8 - 1/4 WSW***	***47***	***38***

STATE AND LOCAL RECORDS

CSCSL: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Ecology's Confirmed & Suspected Contaminated Sites List.

A review of the CSCSL list, as provided by EDR, and dated 02/07/2007 has revealed that there are 6

CSCSL sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
CARL NORTH CO INC	***14061 LAKE CITY WAY NE***	***1/2 - 1 NNE***	***61***	***51***
AESQUIVEL PROPERTY	***14325 35TH AVE NE***	***1/2 - 1 NNE***	***62***	***54***
WINDSOR PARK ESTATES	3217 NE 145TH ST	1/2 - 1 N	63	56

Lower Elevation	Address	Dist / Dir	Map ID	Page
BEST CLEANERS SEATTLE	***3008 NE 127TH ST***	***0 - 1/8 S***	***A3***	***6***
LAKE CITY SITE	***3300 NE 125TH ST***	***1/4 - 1/2 SE***	***51***	***40***
BIGFOOT CARWASH	***11310 LAKE CITY WAY NE***	***1/2 - 1 SSW***	***64***	***59***

CSCSL NFA: The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead a No Further Action code is entered based upon the type of NFA determination the site received.

A review of the CSCSL NFA list, as provided by EDR, and dated 02/07/2007 has revealed that there are 3 CSCSL NFA sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
WILLIAM C SMITH	***12730 LAKE CITY WAY NE***	***0 - 1/8 SE***	***C12***	***14***
ROSSOE INC 13018 LAKE CITY WAY	13018 LAKE CITY WY NE	1/8 - 1/4 ENE	D23	22
B & P AUTO SALES	13055 LAKE CITY WAY	1/8 - 1/4 ENE	E25	24

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Ecology's Leaking Underground Storage Tanks Site List.

A review of the LUST list, as provided by EDR, and dated 03/08/2007 has revealed that there are 6 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
LAIDLAW TRANSIT, INC.	***13525 LAKE CITY WAY NE***	***1/4 - 1/2 NNE***	***M59***	***49***

Lower Elevation	Address	Dist / Dir	Map ID	Page
WILLIAM C SMITH	***12730 LAKE CITY WAY NE***	***0 - 1/8 SE***	***C12***	***14***
BILL PIERRE FORD	***12531 - 30TH NE***	***1/8 - 1/4 S***	***G33***	***30***
TENNY LINDA TOYOTA	***13355 LAKE CITY WAY NOR***	***1/4 - 1/2 NE***	***J52***	***42***
LAKE CITY SOC (W00128)	***12550 26TH AVE NE***	***1/4 - 1/2 SW***	***K54***	***45***
WATER MILL (KENDALL TRUST)	12303 LAKE CITY WAY NE	1/4 - 1/2 S	L57	48

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Ecology's Statewide UST Site/Tank Report.

A review of the UST list, as provided by EDR, and dated 03/08/2007 has revealed that there are 11 UST

sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
PUGET SOUND ROOFING CO., INC.	3121 NE 133	1/8 - 1/4 NNE	F30	29

Lower Elevation	Address	Dist / Dir	Map ID	Page
SEATTLE FIRE STATION 39/ CLOSE	12705 30TH AVE NE	0 - 1/8 SSW	A2	6
CEDAR PARK MOTORS INC	12709 28 NE	0 - 1/8 SW	B10	13
WILLIAM C SMITH	***12730 LAKE CITY WAY NE***	***0 - 1/8 SE***	***C12***	***14***
LAKE CITY CHEVRON	13001 LAKE CITY WAY NE	1/8 - 1/4 ENE	D14	16
UNOCAL 5476	13003 LAKE CITY WAY NE	1/8 - 1/4 ENE	D15	17
Q LUBE #1501	13015 LAKE CITY WAY NE	1/8 - 1/4 ENE	D19	20
JOHN MCLEOD	13055 LAKE CITY WAY	1/8 - 1/4 ENE	E27	26
HERTZ EQUIPMENT RENTALS (9782)	12558 LAKE CITY WAY NE	1/8 - 1/4 SSE	29	27
BILL PIERRE FORD	***12531 - 30TH NE***	***1/8 - 1/4 S***	***G33***	***30***
ENGINE SERVICE INC.	12524 NE 30TH	1/8 - 1/4 S	G36	33

MANIFEST: Hazardous waste manifest information.

A review of the WA MANIFEST list, as provided by EDR, and dated 06/12/2006 has revealed that there are 4 WA MANIFEST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
PANOS PROPERTIES LLC LAKE CITY	***3000 NE 127TH ST***	***0 - 1/8 SSW***	***A5***	***9***
STETNER AUTO BODY INC	***13036 LAKE CITY WAY NE***	***1/8 - 1/4 ENE***	***D24***	***22***
PUGET SOUND REFRIGERATION	***3132 NE 133RD ST***	***1/8 - 1/4 NNE***	***44***	***35***
QWEST CORPORATION (W00128)	***12550 26TH AVE NE***	***1/8 - 1/4 WSW***	***47***	***38***

ICR: These are remedial action reports Ecology has received from either the owner or operator of the site. These actions have been conducted without department oversight or approval and are not under an order or decree.

A review of the ICR list, as provided by EDR, and dated 12/01/2002 has revealed that there are 9 ICR sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
LAIDLAW TRANSIT INC.	13525 LAKE CITY WAY	1/4 - 1/2 NNE	M60	51

Lower Elevation	Address	Dist / Dir	Map ID	Page
UNOCAL #5476	13003 LAKE CITY WAY NE	1/8 - 1/4 ENE	D16	18
MONEY SAVERS PARTNERSHIP	13018 LAKE CITY WAY NE	1/8 - 1/4 ENE	D22	21
B & P AUTO SALES LOT	13055 LAKE CITY WAY	1/8 - 1/4 ENE	E26	24
BILL PIERRE FORD	***12531 - 30TH NE***	***1/8 - 1/4 S***	***G33***	***30***
LINDA TENNEY TOYOTA (TWO REPOR	13355 LAKE CITY WAY NE	1/4 - 1/2 NE	J53	45
US WEST	12550 26TH AVE. NE	1/4 - 1/2 SW	K55	47
WASTE MANAGEMENT	12305 LAKE CITY WAY NE	1/4 - 1/2 S	L56	47
WATER MILL (KENDALL TRUST)	***12303 LAKE CITY WAY NE***	***1/4 - 1/2 S***	***L58***	***48***

EXECUTIVE SUMMARY

VCP: Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

A review of the VCP list, as provided by EDR, and dated 02/07/2007 has revealed that there are 2 VCP sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
WILLIAM C SMITH	***12730 LAKE CITY WAY NE***	***0 - 1/8 SE***	***C13***	***16***
LAKE CITY SITE	***3300 NE 125TH ST***	***1/4 - 1/2 SE***	***51***	***40***

Inactive Drycleaners: A listing of inactive drycleaner facility locations.

A review of the Inactive Drycleaners list, as provided by EDR, and dated 06/12/2006 has revealed that there are 2 Inactive Drycleaners sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
BEST CLEANERS SEATTLE	***3008 NE 127TH ST***	***0 - 1/8 S***	***A3***	***6***
SUNSHINE CLEANERS & LAUNDROMAT	***12525 1/2 LAKE CITY WAY***	***1/8 - 1/4 SSE***	***H40***	***34***

EDR PROPRIETARY RECORDS

EDR Historical Auto Stations: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

A review of the EDR Historical Auto Stations list, as provided by EDR, has revealed that there are 12 EDR Historical Auto Stations sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
CAMPBE U AUTO REPAIR	3124 NE 133D ST	1/8 - 1/4 NNE	F42	34
BERGERON HARRY L	2608 NE 130TH ST	1/8 - 1/4 WNW	46	37

Lower Elevation	Address	Dist / Dir	Map ID	Page
SMYTHE L D CO	12740 28TH AVE NE	0 - 1/8 WSW	6	11
CEDAR PARK MOTOR CO	12709 28TH AVE NE	0 - 1/8 SW	B9	12
LAKE CITY UNION	13003 LAKE CITY WAY NE	1/8 - 1/4 ENE	D17	19
LAKE CITY UNION	13003 NE LAKE CITY WAY	1/8 - 1/4 ENE	D18	19
PRO LUBE	13015 LAKE CITY WAY NE	1/8 - 1/4 ENE	D20	20
PIERRE BILL MOTORS INC.	12531 30TH AVE NE	1/8 - 1/4 S	G32	30
LAKE CITY CHEVRON SERVICE	12527 30TH AVE NE	1/8 - 1/4 S	G34	32
ENGINE SERVICE	12524 30TH AVE NE	1/8 - 1/4 S	G35	32
ENGINE SERVICE	12523 30TH AVE NE	1/8 - 1/4 S	G37	33
AMERICAN TOWING	13317 NE LAKE CITY WAY	1/8 - 1/4 NE	I48	40

EXECUTIVE SUMMARY

EDR Historical Cleaners: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

A review of the EDR Historical Cleaners list, as provided by EDR, has revealed that there are 9 EDR Historical Cleaners sites within approximately 0.25 miles of the target property.

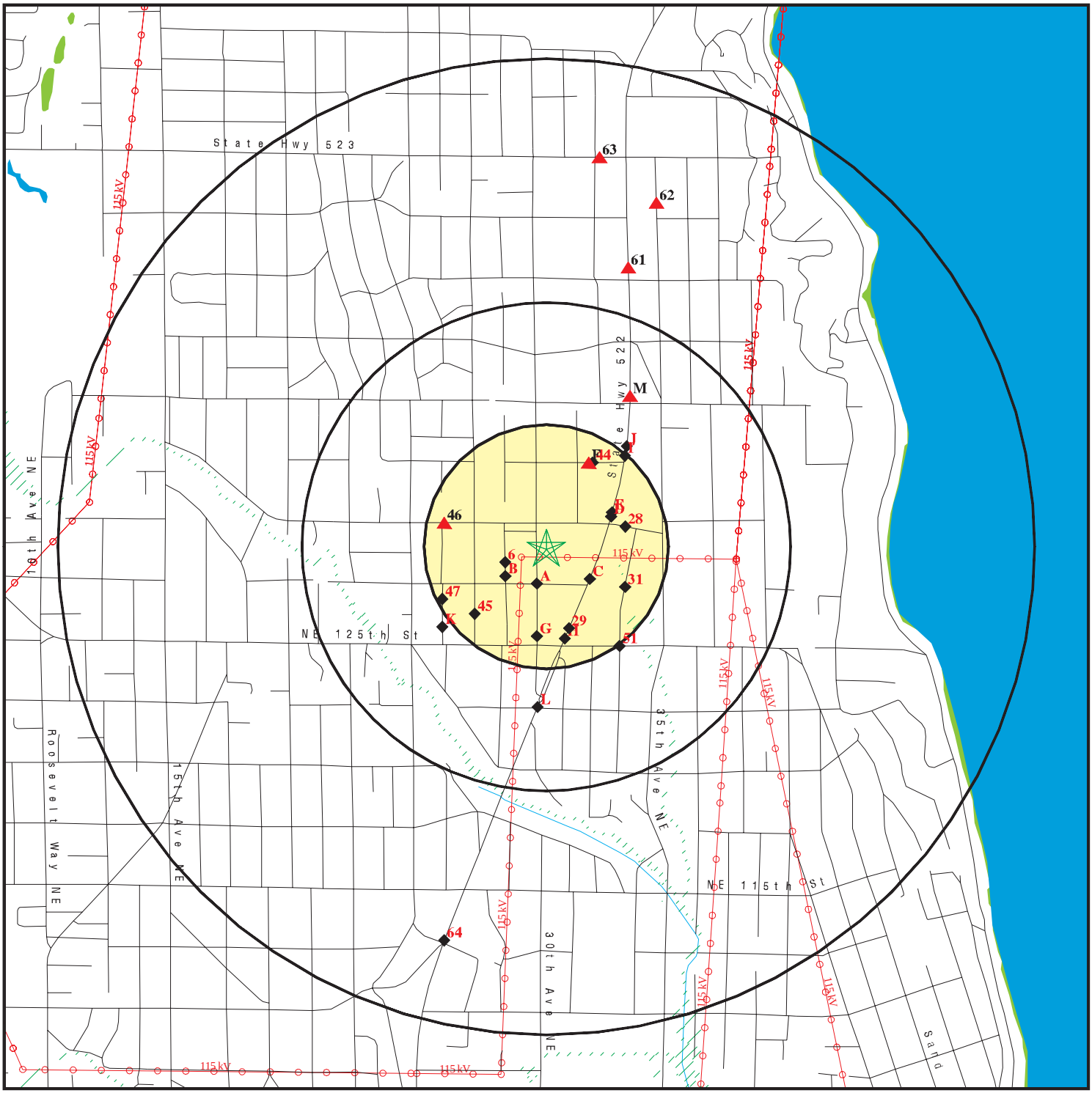
Lower Elevation	Address	Dist / Dir	Map ID	Page
LAKE CITY MAYTAG LAUNDRY	3010 NE 127TH ST	0 - 1/8 S	A1	6
SAV ON DISCOUNT DRY CLEANING	3008 NE 127TH ST	0 - 1/8 S	A4	8
PRICE CLEANERS	3304 NE 130TH ST	1/8 - 1/4 ENE	28	26
LAKE CITY SUNSHINE CENTER	12525 LAKE CITY WAY NE	1/8 - 1/4 SSE	H38	33
LAKE CITY SUNSHINE CENTER	12525 NE LAKE CITY WAY	1/8 - 1/4 SSE	H39	33
LAKE CITY SUNSHINE CENTER	12523 NE LAKE CITY WAY	1/8 - 1/4 S	H41	34
LAKE CITY QUICK WASH	12516 LAKE CITY WAY NE	1/8 - 1/4 S	H43	35
DRIVE IN LAUNDERETTE	13320 LAKE CITY WAY NE	1/8 - 1/4 NE	I49	40
KERR S DRIVE IN CLEANERS	13323 NE LAKE CITY WAY	1/8 - 1/4 NE	I50	40

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
MCMICKEN HEIGHTS	SWF/LF
RENTON JUNCTION (MONSTER ROAD)	SWF/LF
BOW LAKE ABANDONED LANDFILL	SWF/LF
CORLISS ABANDONED LANDFILL	SWF/LF
PUYALLUP/KIT CORNER ABANDONED LAND	SWF/LF
WASTE MOBILE COLLECTIONS	SWF/LF
TOLT BACKWASH SOLIDS LANDFILL	SWF/LF
PACIFIC CITY	SWF/LF
BOW LAKE	SWF/LF
AUBURN (M & R STREET SITE)	SWF/LF
AUBURN (ROTARY PARK SITE)	SWF/LF
CARTON & BORTH	SWF/LF
CORLISS LANDFILL	SWF/LF
EASTGATE ABANDONED LANDFILL	SWF/LF
ENUMCLAW	SWF/LF
FACTORIA PIT (SUNSET RAVINE PARK)	SWF/LF
H.H. OLESON	SWF/LF
HOUGHTON	SWF/LF
FRED'S AUTO	UST
NORTHPARK SHOPPING CENTER	ICR

OVERVIEW MAP - 1929756.2s

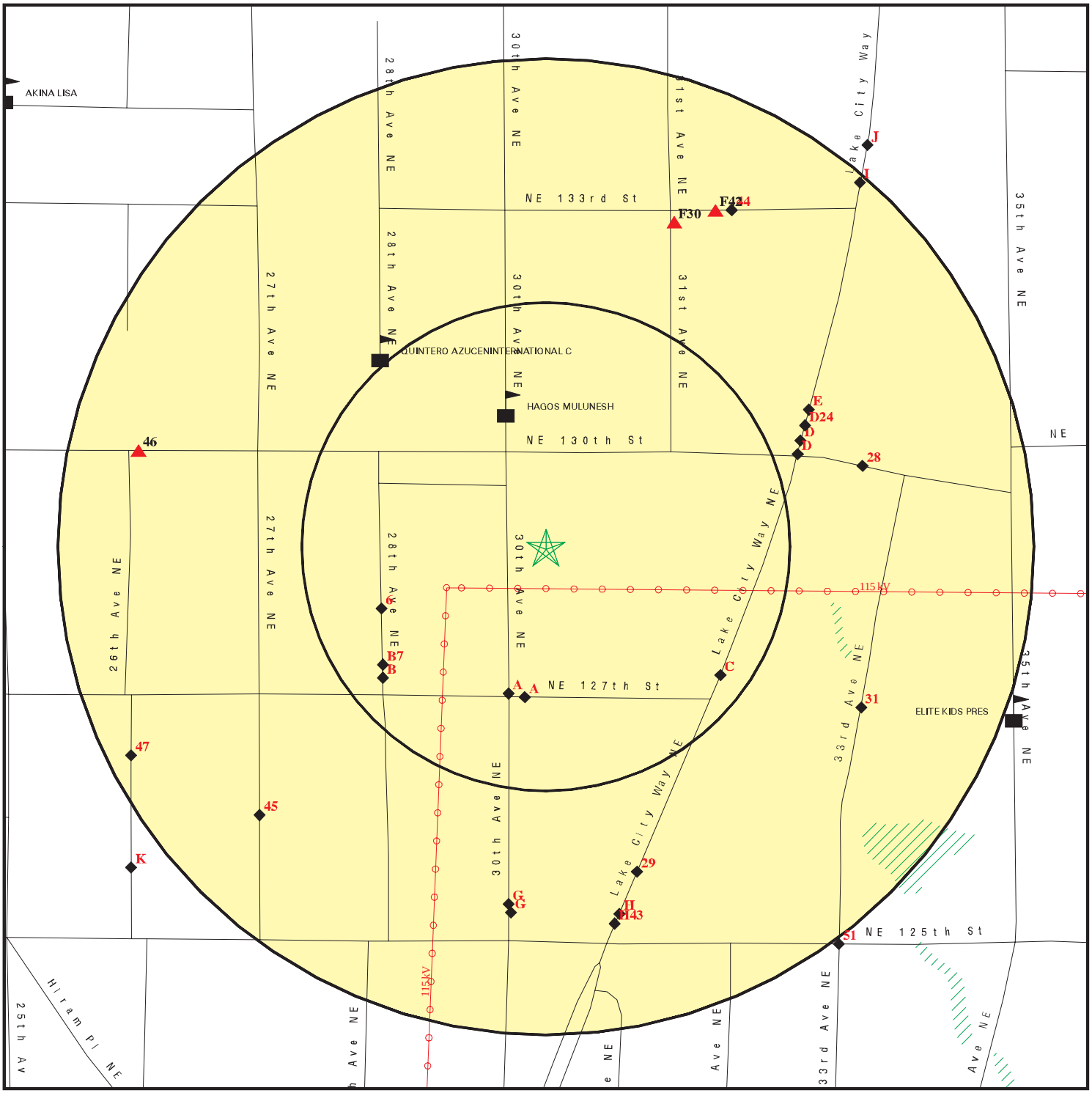


- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Lake City Senior Housing	CLIENT: SLR International Corporation
ADDRESS: 12730-12740 30th Ave NE Seattle WA 98125	CONTACT: Kim Saganski
LAT/LONG: 47.7222 / 122.2959	INQUIRY #: 1929756.2s DATE: May 16, 2007 5:45 pm

DETAIL MAP - 1929756.2s



0 1/16 1/8 1/4 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone

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ADDRESS: 12730-12740 30th Ave NE Seattle WA 98125	CONTACT: Kim Saganski
LAT/LONG: 47.7222 / 122.2959	INQUIRY #: 1929756.2s DATE: May 16, 2007 5:45 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	5	8	NR	NR	NR	13
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
CSCSL		1.000	1	0	1	4	NR	6
HSL		1.000	0	0	0	0	NR	0
CSCSL NFA		0.500	1	2	0	NR	NR	3
State Landfill		0.500	0	0	0	NR	NR	0
SWTIRE		0.500	0	0	0	NR	NR	0
LUST		0.500	1	1	4	NR	NR	6
UST		0.250	3	8	NR	NR	NR	11
AST		0.250	0	0	NR	NR	NR	0
MANIFEST		0.250	1	3	NR	NR	NR	4

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SPILLS		TP	NR	NR	NR	NR	NR	0
INST CONTROL		0.500	0	0	0	NR	NR	0
ICR		0.500	0	4	5	NR	NR	9
VCP		0.500	1	0	1	NR	NR	2
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
BROWNFIELDS		0.500	0	0	0	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
WA Air Emissions		TP	NR	NR	NR	NR	NR	0
Inactive Drycleaners		0.250	1	1	NR	NR	NR	2
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0
EDR Historical Auto Stations		0.250	2	10	NR	NR	NR	12
EDR Historical Cleaners		0.250	2	7	NR	NR	NR	9

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
South
< 1/8
408 ft.

Relative:
Lower

Actual:
202 ft.

LAKE CITY MAYTAG LAUNDRY — **EDR Historical Cleaners** — **1009341351**
3010 NE 127TH ST — **N/A**
SEATTLE, WA

Site 1 of 5 in cluster A

EDR Historical Cleaners:

Name:	LAKECITY MAYTAG
Year:	1986
Type:	LAUNDRIES SELF SERVE
Name:	LAKE CITY MAYTAG LAUNDRY
Year:	1990
Type:	LAUNDRIES SELF SERVE

A2
SSW
< 1/8
410 ft.

Relative:
Lower

Actual:
201 ft.

SEATTLE FIRE STATION 39/ CLOSED — **UST** — **U001125198**
12705 30TH AVE NE — **N/A**
SEATTLE, WA 98125

Site 2 of 5 in cluster A

UST:

Facility ID:	34868759
Site ID:	7893
Status:	**Removed**
Tank Name:	F39-1
Install Date:	1/1/1962 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Diesel
Ecology Region:	North Western
Tank ID:	43482
Compartment ID:	44096
Decimal Latitude:	47.720950000000002
Decimal Longitude:	-122.29745699999999

A3
South
< 1/8
410 ft.

Relative:
Lower

Actual:
202 ft.

BEST CLEANERS SEATTLE — **RCRA-SQG** — **1001490364**
3008 NE 127TH ST — **CSCSL** — **WAD144246998**
SEATTLE, WA 98125 — **FINDS**
Inactive Drycleaners

Site 3 of 5 in cluster A

RCRAInfo:

Owner:	YUNG LEE
	(206) 365-9919
EPA ID:	WAD144246998
Contact:	Not reported
Classification:	Conditionally Exempt Small Quantity Generator
TSDF Activities:	Not reported

BEST CLEANERS SEATTLE (Continued) **1001490364**

Violation Status: No violations found

CSCSL:

Facility ID:	63697354
warm_bin_n:	Not reported
Prog plan code:	Not reported
Latitude:	47.721069999999997
Longitude:	-122.2959
Lat/Long:	47.721069999999997 / -122.2959
Lat/Long (dms):	47 43 16.359999999999999 / 122 17 46.079999999999998
Media ID:	8254
Media Type Desc:	Soil
Media Status Desc:	Confirmed
Affected Media:	Soil
Affected Media Status:	C
Pesticides:	Not reported
Petroleum Products:	Not reported
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	C
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Independent Remedial Action
Independent Site Status (independent cleanup):	Independent Site Assessment of Interim Remedial Action Report received

Facility ID:	63697354
warm_bin_n:	Not reported
Prog plan code:	Not reported
Latitude:	47.721069999999997
Longitude:	-122.2959
Lat/Long:	47.721069999999997 / -122.2959
Lat/Long (dms):	47 43 16.359999999999999 / 122 17 46.079999999999998
Media ID:	8253
Media Type Desc:	Groundwater
Media Status Desc:	Confirmed
Affected Media:	Ground Water
Affected Media Status:	C
Pesticides:	Not reported
Petroleum Products:	Not reported

BEST CLEANERS SEATTLE (Continued) **1001490364**

Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	C
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Independent Remedial Action
Independent Site Status (independent cleanup):	Independent Site Assessment of Interim Remedial Action Report received

FINDS:

Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

WA-DOEFSIS (Washington - Department Of Ecology Facility / Site Identification System) is the Department of Ecology's Facility/Site identification system that provides a means to query and display data maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

A4 **SAV ON DISCOUNT DRY CLEANING** **EDR Historical Cleaners** **1009341330**
South **3008 NE 127TH ST** **N/A**
< 1/8 **SEATTLE, WA**
410 ft.

Site 4 of 5 in cluster A

Relative:
Lower

Actual:
202 ft.

EDR Historical Cleaners:

Name:	SAV ON DISCOUNT DRY CLEANING
Year:	1986
Type:	CLEANERS AND DYERS

SAV ON DISCOUNT DRY CLEANING (Continued) **1009341330**

Name: SAV ON DISCOUNT DRY CLEANING
Year: 1990
Type: CLEANERS AND DYERS

A5
SSW
< 1/8
419 ft.

Relative:
Lower

Actual:
201 ft.

PANOS PROPERTIES LLC LAKE CITY PLAZA **RCRA-SQG** **1005445218**
3000 NE 127TH ST **FINDS** **WAH000014795**
SEATTLE, WA 98125 **WA MANIFEST**

Site 5 of 5 in cluster A

RCRAInfo:
Owner: PANOS PROPERTIES LLC
206527-3565
EPA ID: WAH000014795

Contact: LYNN MANOLOPOULOS
(425)646-6100

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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WA-DOEFSIS (Washington - Department Of Ecology Facility / Site Identification System) is the Department of Ecology's Facility/Site identification system that provides a means to query and display data maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

WA MANIFEST:
Facility Site ID Number: 27656783
Permit by Rule: No
Treatment by Generator: No
Mixed radioactive waste: No
Importer of hazardous waste: No
Immediate recycler: No
Treatment/Storage/Disposal/Recycling Facility: No
Generator of dangerous fuel waste: No
Generator marketing to burner: No
"Other marketers (i.e., blender, distributor, etc.)": No
Utility boiler burner: No
Industry boiler burner: No
Industrial Furnace: No

PANOS PROPERTIES LLC LAKE CITY PLAZA (Continued) **1005445218**

Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAH000014795
Facility Address 2:	Not reported
TAX REG NBR:	601984311
NAICS CD:	53112
BUSINESS TYPE:	retail shopping center
MAIL NAME:	Panos Properties LLC
MAIL ADDR LINE1:	6850 E GREENLAKE WAY N
MAIL ADDR LINE2:	STE 201
MAIL CITY,ST,ZIP:	SEATTLE, WA 98115-5412
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Panos Properties LLC
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	6850 E GREENLAKE WAY N
LEGAL ADDR LINE2:	STE 201
LEGAL CITY,ST,ZIP:	SEATTLE, WA 98115-5412
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	206527-3565
LEGAL EFFECTIVE DATE:	1/1/1996
LAND ORG NAME:	Panos Properties LLC
LAND ORG TYPE:	Private
LAND PERSON NAME:	Not reported
LAND ADDR LINE1:	6850 E GREENLAKE WAY N
LAND ADDR LINE2:	STE 201
LAND CITY,ST,ZIP:	SEATTLE, WA 98115-5412
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(206)527-3565
OPERATOR ORG NAME:	Panos Properties LLC
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	6850 E GREENLAKE WAY N
OPERATOR ADDR LINE2:	STE 201
OPERATOR CITY,ST,ZIP:	SEATTLE, WA 98115-5412
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(206)527-3565
OPERATOR EFFECTIVE DATE:	1/1/1996
SITE CONTACT NAME:	Lynn Manolopoulos
SITE CONTACT ADDR LINE1:	777 108th Av NE
SITE CONTACT ADDR LINE2:	#2300
SITE CONTACT ZIP:	BELLEVUE, WA 98004-5149
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(425)646-6100
SITE CONTACT EMAIL:	lynnmanolopoulos@dwt.com
FORM CONTACT NAME:	Lynn Manolopoulos
FORM CONTACT ADDR LINE1:	777 108th Av NE
FORM CONTACT ADDR LINE2:	#2300

PANOS PROPERTIES LLC LAKE CITY PLAZA (Continued) **1005445218**

FORM CONTACT CITY,ST,ZIP: BELLEVUE, WA 98004-5149
FORM CONTACT COUNTRY: UNITED STATES
FORM CONTACT PHONE NBR: (425)646-6100
FORM CONTACT EMAIL: lynnmanolopoulos@dwt.com
GEN STATUS CD: XQG
MONTHLY GENERATION: No
BATCH GENERATION: No
ONE TIME GENERATION: No
TRANSPORTS OWN WASTE: No
TRANSPORTS OTHRS WASTE: No
RECYCLER ONSITE: No
TRANSFER FACILITY: No
OTHER EXEMPTION: Not reported
UW BATTERY GEN: No
USED OIL TRANSPORTER: No
USED OIL TRANSFER FACLTY: No
USED OIL PROCESSOR: No
USED OIL REREFINER: No
USED OIL FUEL MRKTR DIRECTS SHPMNTS: No
USED OIL FUEL MRKTR MEETS SPECS: No

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6 **SMYTHE L D CO** **EDR Historical Auto Stations** **1009355438**
WSW **12740 28TH AVE NE** **N/A**
< 1/8 **SEATTLE, WA**
475 ft.

Relative: Lower

Actual: 200 ft.

EDR Historical Auto Stations:
Name: SMYTHE L D CO
Year: 1980
Type: AUTOMOBILE REPAIRING

B7 **CAREZ AUTO REBUILD INC** **RCRA-SQG** **1004793416**
SW **12715 28TH AVE NE** **FINDS** **WAD027417351**
< 1/8 **SEATTLE, WA 98125**
544 ft.

Site 1 of 4 in cluster B

Relative: Lower

Actual: 199 ft.

RCRAInfo:
Owner: HAYMOND CAREZ
(425) 485-3900
EPA ID: WAD027417351

Contact: Not reported

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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CAREZ AUTO REBUILD INC (Continued) **1004793416**

corrective action activities required under RCRA.

B8 **CEDAR PARK AUTO REPAIR INC** **RCRA-SQG** **1000658898**
SW **12709 28TH AVE NE** **FINDS** **WAD988485553**
< 1/8 **SEATTLE, WA 98125**
566 ft.

Site 2 of 4 in cluster B

Relative: Lower

Actual: 199 ft.

RCRAInfo:
Owner: PIERRE ENTERPRISE INC
(206)361-5543
EPA ID: WAD988485553

Contact: Not reported

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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B9 **CEDAR PARK MOTOR CO** **EDR Historical Auto Stations** **1009355428**
SW **12709 28TH AVE NE** **N/A**
< 1/8 **SEATTLE, WA**
572 ft.

Site 3 of 4 in cluster B

Relative: Lower

Actual: 199 ft.

EDR Historical Auto Stations:
Name: CEDAR PARK MOTOR CO
Year: 1966
Type: AUTOMOBILE REPAIRING

Name: CEDAR PARK MOTOR CO
Year: 1970
Type: AUTOMOBILE REPAIRING

CEDAR PARK MOTOR CO (Continued) **1009355428**

Name: CEDAR PARK MOTOR CO
Year: 1975
Type: AUTOMOBILE REPAIRING

Name: CEDAR PARK MOTOR CO
Year: 1980
Type: AUTOMOBILE REPAIRING

Name: CEDAR PARK MOTOR CO
Year: 1986
Type: AUTOMOBILE REPAIRING

Name: CEDAR PARK MOTOR CO
Year: 1990
Type: AUTOMOBILE REPAIRING

B10 **CEDAR PARK MOTORS INC** **UST** **U003028095**
SW **12709 28 NE** **N/A**
< 1/8 **SEATTLE, WA 98125**
577 ft.

Site 4 of 4 in cluster B

Relative:
Lower

Actual:
198 ft.

UST:
Facility ID: 31435322
Site ID: 730
Status: Removed
Tank Name: 1
Install Date: 12/31/1964 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 32901
Compartment ID: 33381
Decimal Latitude: 47.720979999999997
Decimal Longitude: -122.299187

C11 **DC ELECTRONIC INC** **RCRA-SQG** **1000111906**
SE **12729 LAKE CITY WAY NE** **FINDS** **WAD048678155**
< 1/8 **SEATTLE, WA 98105**
586 ft.

Site 1 of 3 in cluster C

Relative:
Lower

Actual:
202 ft.

RCRAInfo:
Owner: DC ELECTRONIC INC
EPA ID: WAD048678155
Contact: R FARRELLY
(206) 365-7500
Classification: Small Quantity Generator
TSDF Activities: Not reported

DC ELECTRONIC INC (Continued) **1000111906**

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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C12 **WILLIAM C SMITH** **LUST U000592568**
SE **12730 LAKE CITY WAY NE** **UST N/A**
< 1/8 **SEATTLE, WA 98125** **CSCSL NFA**
586 ft.

Site 2 of 3 in cluster C

Relative: Lower

Actual: 202 ft.

LUST:

FS ID:	91169457
Facility ID:	8143
Release ID:	543856
Alternate Name:	SMITH, WILLIAM C PROPERTY
Release Notification Date:	6/29/2000 00:00:00
Release Status Date:	6/28/2000 00:00:00
Facility Status:	Cleanup Started
Affected Media:	Soil
Site Response Unit Code:	NW
Lat/Long:	47.721119999999999 / -122.295087

FS ID:	91169457
Facility ID:	8143
Release ID:	543856
Alternate Name:	SMITH, WILLIAM C PROPERTY
Release Notification Date:	6/29/2000 00:00:00
Release Status Date:	9/29/2006 00:00:00
Facility Status:	Reported Cleaned Up
Affected Media:	Soil
Site Response Unit Code:	NW
Lat/Long:	47.721119999999999 / -122.295087

UST:

Facility ID:	91169457
Site ID:	8143
Status:	**Removed**
Tank Name:	3
Install Date:	12/31/1964 00:00:00
Capacity:	1,101 to 2,000 Gallons
Compartment #:	1
Substance:	Unleaded Gasoline
Ecology Region:	North Western
Tank ID:	32382
Compartment ID:	32850
Decimal Latitude:	47.721119999999999
Decimal Longitude:	-122.295087

WILLIAM C SMITH (Continued) **U000592568**

Facility ID: 91169457
Site ID: 8143
Status: **Removed**
Tank Name: 1
Install Date: 12/31/1964 00:00:00
Capacity: 1,101 to 2,000 Gallons
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 32503
Compartment ID: 32973
Decimal Latitude: 47.721119999999999
Decimal Longitude: -122.295087

Facility ID: 91169457
Site ID: 8143
Status: **Removed**
Tank Name: 2
Install Date: 12/31/1964 00:00:00
Capacity: 10,000 to 19,999 Gallons
Compartment #: 1
Substance: Heating Fuel
Ecology Region: North Western
Tank ID: 32643
Compartment ID: 33116
Decimal Latitude: 47.721119999999999
Decimal Longitude: -122.295087

Facility ID: 91169457
Site ID: 8143
Status: **Removed**
Tank Name: 4
Install Date: 12/31/1964 00:00:00
Capacity: 1,101 to 2,000 Gallons
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 32578
Compartment ID: 33048
Decimal Latitude: 47.721119999999999
Decimal Longitude: -122.295087

CSCSL NFA:
Facility/Site Id: 91169457
Ecology Status: Independent Remedial Action
Program Plan Code: 4
Independent Status Code: Final Independant RA Report received
WARM Bin Number: Not reported
NFA Code: Restrictive Convenant, Institutional Controls
NFA Date: 10/23/2001 00:00:00
Latitude: 47.721119999999999
Longitude: -122.295087

C13
SE
< 1/8
586 ft.

Relative:
Lower

Actual:
202 ft.

WILLIAM C SMITH
12730 LAKE CITY WAY NE
SEATTLE, WA 98125

Site 3 of 3 in cluster C

FINDS **1007063275**
VCP **110015398194**

FINDS:
Other Pertinent Environmental Activity Identified at Site

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VCP:

Facility ID:	91169457
Ecology Status:	Independent Remedial Action
WARM BIN #:	Not reported
NFA Code:	Restrictive Covenant, Institutional Controls
Program Plan:	4

D14
ENE
1/8-1/4
721 ft.

Relative:
Lower

Actual:
196 ft.

LAKE CITY CHEVRON
13001 LAKE CITY WAY NE
SEATTLE, WA 98125

Site 1 of 11 in cluster D

UST **U003152673**
N/A

UST:

Facility ID:	62977227
Site ID:	387930
Status:	**Operational**
Tank Name:	1
Install Date:	4/15/1996 00:00:00
Capacity:	Not reported
Compartment #:	1
Substance:	Unleaded Gasoline
Ecology Region:	North Western
Tank ID:	387935
Compartment ID:	511005
Decimal Latitude:	47.723179999999999
Decimal Longitude:	-122.293887

Facility ID:	62977227
Site ID:	387930
Status:	**Operational**
Tank Name:	2
Install Date:	4/15/1996 00:00:00
Capacity:	Not reported
Compartment #:	1
Substance:	Unleaded Gasoline
Ecology Region:	North Western
Tank ID:	387936
Compartment ID:	511006
Decimal Latitude:	47.723179999999999

LAKE CITY CHEVRON (Continued) **U003152673**

Decimal Longitude: -122.293887

Facility ID: 62977227
Site ID: 387930
Status: **Operational**
Tank Name: 2
Install Date: 4/15/1996 00:00:00
Capacity: Not reported
Compartment #: 2
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 387936
Compartment ID: 511007
Decimal Latitude: 47.723179999999999
Decimal Longitude: -122.293887

D15 **UNOCAL 5476** **UST** **U001125463**
ENE **13003 LAKE CITY WAY NE** **N/A**
1/8-1/4 **SEATTLE, WA 98125**
725 ft.

Site 2 of 11 in cluster D

Relative:
Lower

Actual:
196 ft.

UST:
Facility ID: 37222489
Site ID: 8455
Status: **Removed**
Tank Name: 4
Install Date: 12/31/1964 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 43171
Compartment ID: 43782
Decimal Latitude: 47.723190000000002
Decimal Longitude: -122.293887

Facility ID: 37222489
Site ID: 8455
Status: **Removed**
Tank Name: 2
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 43224
Compartment ID: 43835
Decimal Latitude: 47.723190000000002
Decimal Longitude: -122.293887

Facility ID: 37222489
Site ID: 8455
Status: **Removed**
Tank Name: 1
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1

UNOCAL 5476 (Continued) **U001125463**

Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 43275
Compartment ID: 43886
Decimal Latitude: 47.723190000000002
Decimal Longitude: -122.293887

D16 **UNOCAL #5476** **ICR** **S103510482**
ENE **13003 LAKE CITY WAY NE** **N/A**
1/8-1/4 **SEATTLE, WA 98125**
725 ft.

Site 3 of 11 in cluster D

Relative:
Lower

Actual:
196 ft.

ICR:

Date Ecology Received Report: 01/04/1993
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 92-45
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 03/17/1993
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Final cleanup report
Site Register Issue: 92-50
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 12/07/1992
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 92-46
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 05/08/1996
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-31
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

UNOCAL #5476 (Continued) **S103510482**

Date Ecology Received Report:	04/29/1996
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	94-31
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	04/17/1996
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	94-31
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

D17 **LAKE CITY UNION** **EDR Historical Auto Stations** **1009355600**
ENE **13003 LAKE CITY WAY NE** **N/A**
1/8-1/4 **SEATTLE, WA**
725 ft.

Site 4 of 11 in cluster D

Relative:
Lower

Actual:
196 ft.

EDR Historical Auto Stations:

Name:	LAKE CITY UNION
Year:	1970
Type:	GASOLINE STATIONS

Name:	LAKE CITY UNION
Year:	1986
Type:	GASOLINE STATIONS

Name:	LAKE CITY UNION
Year:	1990
Type:	GASOLINE STATIONS

D18 **LAKE CITY UNION** **EDR Historical Auto Stations** **1009355601**
ENE **13003 NE LAKE CITY WAY** **N/A**
1/8-1/4 **SEATTLE, WA**
725 ft.

Site 5 of 11 in cluster D

Relative:
Lower

Actual:
196 ft.

EDR Historical Auto Stations:

Name:	LAKE CITY UNION
Year:	1975
Type:	GASOLINE STATIONS

Name:	LAKE CITY UNION
Year:	1980
Type:	GASOLINE STATIONS

D19
ENE
1/8-1/4
742 ft.

Relative:
Lower

Actual:
196 ft.

Q LUBE #1501
13015 LAKE CITY WAY NE
SEATTLE, WA 98125

Database(s): **UST**
EDR ID Number: **U003024931**
EPA ID Number: **N/A**

Site 6 of 11 in cluster D

UST:

Facility ID:	44219436
Site ID:	100731
Status:	**Removed**
Tank Name:	3
Install Date:	7/20/1987 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Used Oil/Waste Oil
Ecology Region:	North Western
Tank ID:	24628
Compartment ID:	24963
Decimal Latitude:	47.723239999999997
Decimal Longitude:	-122.293887

Facility ID:	44219436
Site ID:	100731
Status:	**Removed**
Tank Name:	1
Install Date:	7/20/1987 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Motor Oil
Ecology Region:	North Western
Tank ID:	24689
Compartment ID:	25025
Decimal Latitude:	47.723239999999997
Decimal Longitude:	-122.293887

Facility ID:	44219436
Site ID:	100731
Status:	**Removed**
Tank Name:	2
Install Date:	7/20/1987 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Motor Oil
Ecology Region:	North Western
Tank ID:	24495
Compartment ID:	24829
Decimal Latitude:	47.723239999999997
Decimal Longitude:	-122.293887

D20
ENE
1/8-1/4
742 ft.

Relative:
Lower

Actual:
196 ft.

PRO LUBE
13015 LAKE CITY WAY NE
SEATTLE, WA

Database(s): **EDR Historical Auto Stations**
EDR ID Number: **1009355645**
EPA ID Number: **N/A**

Site 7 of 11 in cluster D

EDR Historical Auto Stations:

Name:	PRO LUBE
Year:	1990
Type:	AUTOMOBILE REPAIRING

D21
ENE
1/8-1/4
745 ft.

Relative:
Lower

Actual:
196 ft.

ROSSOE INC 13018 LAKE CITY WAY
13018 LAKE CITY WAY NE
SEATTLE, WA 98125

Site 8 of 11 in cluster D

RCRA-SQG
FINDS

1000383688
WAD000813030

RCRAInfo:
Owner: ROSSOE INC
EPA ID: WAD000813030
Contact: RON GLATZ
(206) 725-7555
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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D22
ENE
1/8-1/4
745 ft.

Relative:
Lower

Actual:
196 ft.

MONEY SAVERS PARTNERSHIP
13018 LAKE CITY WAY NE
SEATTLE, WA 98125

Site 9 of 11 in cluster D

ICR

S103508304
N/A

ICR:
Date Ecology Received Report: 06/29/1990
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Final cleanup report
Site Register Issue: 90-06
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

D23
ENE
1/8-1/4
745 ft.

Relative:
Lower

Actual:
196 ft.

ROSSOE INC 13018 LAKE CITY WAY
13018 LAKE CITY WY NE
SEATTLE, WA 98125

CSCSL NFA

S104971703
N/A

Site 10 of 11 in cluster D

CSCSL NFA:

Facility/Site Id:	2499
Ecology Status:	Independent Remedial Action
Program Plan Code:	3
Independent Status Code:	Final Independant RA Report received
WARM Bin Number:	Not reported
NFA Code:	NFA after Assesment IRAP or VCP
NFA Date:	7/14/1994 00:00:00
Latitude:	47.72325
Longitude:	-122.293897

D24
ENE
1/8-1/4
774 ft.

Relative:
Lower

Actual:
196 ft.

STETNER AUTO BODY INC
13036 LAKE CITY WAY NE
SEATTLE, WA 98125

RCRA-SQG
FINDS
WA MANIFEST

1000415153
WAD980974646

Site 11 of 11 in cluster D

RCRAInfo:

Owner:	DAVID STETNER
	(206)362-8870
EPA ID:	WAD980974646
Contact:	Not reported
Classification:	Conditionally Exempt Small Quantity Generator
TSDF Activities:	Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

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WA MANIFEST:

Facility Site ID Number:	45113131
Permit by Rule:	No
Treatment by Generator:	No

STETNER AUTO BODY INC (Continued) **1000415153**

Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
"Other marketers (i.e., blender, distributor, etc.)":	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAD980974646
Facility Address 2:	Not reported
TAX REG NBR:	600365052
NAICS CD:	811121
BUSINESS TYPE:	Not reported
MAIL NAME:	Stetner Auto Body Inc
MAIL ADDR LINE1:	13036 LAKE CITY WAY NE
MAIL CITY,ST,ZIP:	SEATTLE, WA 98125-4429
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Stetner Auto Body Inc
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	13036 LAKE CITY WAY NE
LEGAL CITY,ST,ZIP:	SEATTLE, WA 98125-4429
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(206)362-8870
LEGAL EFFECTIVE DATE:	4/1/1971
LAND ORG NAME:	Not reported
LAND ORG TYPE:	Private
LAND PERSON NAME:	David Stetner
LAND ADDR LINE1:	13036 LAKE CITY WAY NE
LAND CITY,ST,ZIP:	SEATTLE, WA 98125-4429
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(206)362-8870
OPERATOR ORG NAME:	Not reported
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	13036 LAKE CITY WAY NE
OPERATOR CITY,ST,ZIP:	SEATTLE, WA 98125-4429
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(206)362-8870
OPERATOR EFFECTIVE DATE:	4/24/1997
SITE CONTACT NAME:	Kurt Stetner
SITE CONTACT ADDR LINE1:	13036 LAKE CITY WAY NE
SITE CONTACT ZIP:	SEATTLE, WA 98125-4429
SITE CONTACT COUNTRY:	UNITED STATES

STETNER AUTO BODY INC (Continued) **1000415153**

SITE CONTACT PHONE NBR:	206362-8870
SITE CONTACT EMAIL:	Not reported
FORM CONTACT NAME:	Kurt Stetner
FORM CONTACT ADDR LINE1:	13036 LAKE CITY WAY NE
FORM CONTACT CITY,ST,ZIP:	SEATTLE, WA 98125-4429
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	206362-8870
FORM CONTACT EMAIL:	Stetnerautobody@hotmail.com
GEN STATUS CD:	SQG
MONTHLY GENERATION:	Yes
BATCH GENERATION:	No
ONE TIME GENERATION:	No
TRANSPORTS OWN WASTE:	No
TRANSPORTS OTHRS WASTE:	No
RECYCLER ONSITE:	No
TRANSFER FACILITY:	No
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	No
USED OIL TRANSPORTER:	No
USED OIL TRANSFER FACLTY:	No
USED OIL PROCESSOR:	No
USED OIL REREFINER:	No
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	No
USED OIL FUEL MRKTR MEETS SPECS:	No

E25 **B & P AUTO SALES** **CSCSL NFA** **S104971560**
ENE **13055 LAKE CITY WAY** **N/A**
1/8-1/4 **SEATTLE, WA 98125**
802 ft.

Site 1 of 3 in cluster E

Relative:
Lower

Actual:
196 ft.

CSCSL NFA:

Facility/Site Id:	66364984
Ecology Status:	Independent Remedial Action
Program Plan Code:	3
Independent Status Code:	Final Independant RA Report received
WARM Bin Number:	Not reported
NFA Code:	NFA after Assesment IRAP or VCP
NFA Date:	10/2/1996 00:00:00
Latitude:	47.724463
Longitude:	-122.293008

E26 **B & P AUTO SALES LOT** **ICR** **S103502914**
ENE **13055 LAKE CITY WAY** **N/A**
1/8-1/4 **SEATTLE, WA 98125**
802 ft.

Site 2 of 3 in cluster E

Relative:
Lower

Actual:
196 ft.

ICR:

Date Ecology Received Report:	05/07/1996
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	95-05

B & P AUTO SALES LOT (Continued) **S103502914**

County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported
Date Ecology Received Report:	09/12/1996
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	95-05
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported
Date Ecology Received Report:	01/10/1996
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	95-05
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported
Date Ecology Received Report:	07/26/1994
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	93-33
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported
Date Ecology Received Report:	07/26/1994
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-33
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

E27
ENE
1/8-1/4
802 ft.

Relative:
Lower

Actual:
196 ft.

JOHN MCLEOD — **UST** — **U001778088**
13055 LAKE CITY WAY — **N/A**
SEATTLE, WA 98062

Site 3 of 3 in cluster E

UST:

Facility ID:	66364984
Site ID:	102126
Status:	**Closed in Place**
Tank Name:	2
Install Date:	12/31/1964 00:00:00
Capacity:	Not reported
Compartment #:	1
Substance:	Leaded Gasoline
Ecology Region:	North Western
Tank ID:	33454
Compartment ID:	33947
Decimal Latitude:	47.724463
Decimal Longitude:	-122.293008

Facility ID:	66364984
Site ID:	102126
Status:	**Removed**
Tank Name:	3
Install Date:	12/31/1964 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Used Oil/Waste Oil
Ecology Region:	North Western
Tank ID:	33648
Compartment ID:	34143
Decimal Latitude:	47.724463
Decimal Longitude:	-122.293008

Facility ID:	66364984
Site ID:	102126
Status:	**Closed in Place**
Tank Name:	1
Install Date:	12/31/1964 00:00:00
Capacity:	Not reported
Compartment #:	1
Substance:	Leaded Gasoline
Ecology Region:	North Western
Tank ID:	33523
Compartment ID:	34016
Decimal Latitude:	47.724463
Decimal Longitude:	-122.293008

28
ENE
1/8-1/4
884 ft.

Relative:
Lower

Actual:
196 ft.

PRICE CLEANERS — **EDR Historical Cleaners** — **1009342286**
3304 NE 130TH ST — **N/A**
SEATTLE, WA

EDR Historical Cleaners:

Name:	PRICE CLEANERS
Year:	1966
Type:	CLEANERS AND DYERS
Name:	PRICE CLEANERS

PRICE CLEANERS (Continued) **1009342286**

Year: 1970
Type: CLEANERS AND DYERS

---

29 **HERTZ EQUIPMENT RENTALS (9782)** **UST** **U003028449**
SSE **12558 LAKE CITY WAY NE** **N/A**
1/8-1/4 **SEATTLE, WA 98125**
913 ft.

Relative:
Lower

Actual:
198 ft.

UST:
Facility ID: 16879676
Site ID: 8313
Status: **Removed**
Tank Name: 3
Install Date: 1/15/1980 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 12132
Compartment ID: 12321
Decimal Latitude: 47.719589999999997
Decimal Longitude: -122.29597699999999

Facility ID: 16879676
Site ID: 8313
Status: **Operational**
Tank Name: 5 SPLIT
Install Date: 2/14/1992 00:00:00
Capacity: 1,101 to 2,000 Gallons
Compartment #: 1
Substance: Kerosene
Ecology Region: North Western
Tank ID: 43117
Compartment ID: 43727
Decimal Latitude: 47.719589999999997
Decimal Longitude: -122.29597699999999

Facility ID: 16879676
Site ID: 8313
Status: **Removed**
Tank Name: 1
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Kerosene
Ecology Region: North Western
Tank ID: 12189
Compartment ID: 12378
Decimal Latitude: 47.719589999999997
Decimal Longitude: -122.29597699999999

Facility ID: 16879676
Site ID: 8313
Status: **Operational**
Tank Name: 5 SPLIT
Install Date: 2/14/1992 00:00:00
Capacity: 1,101 to 2,000 Gallons
Compartment #: 2

HERTZ EQUIPMENT RENTALS (9782) (Continued) **U003028449**

Substance:	Unleaded Gasoline
Ecology Region:	North Western
Tank ID:	43117
Compartment ID:	43728
Decimal Latitude:	47.719589999999997
Decimal Longitude:	-122.29597699999999

Facility ID:	16879676
Site ID:	8313
Status:	**Removed**
Tank Name:	2
Install Date:	2/14/1992 00:00:00
Capacity:	Not reported
Compartment #:	1
Substance:	Kerosene
Ecology Region:	North Western
Tank ID:	12370
Compartment ID:	12560
Decimal Latitude:	47.719589999999997
Decimal Longitude:	-122.29597699999999

Facility ID:	16879676
Site ID:	8313
Status:	**Closed in Place**
Tank Name:	4
Install Date:	1/15/1980 00:00:00
Capacity:	5,000 to 9,999 Gallons
Compartment #:	1
Substance:	Diesel
Ecology Region:	North Western
Tank ID:	12289
Compartment ID:	12479
Decimal Latitude:	47.719589999999997
Decimal Longitude:	-122.29597699999999

Facility ID:	16879676
Site ID:	8313
Status:	**Removed**
Tank Name:	2
Install Date:	2/14/1992 00:00:00
Capacity:	Not reported
Compartment #:	2
Substance:	Not reported
Ecology Region:	North Western
Tank ID:	12370
Compartment ID:	12561
Decimal Latitude:	47.719589999999997
Decimal Longitude:	-122.29597699999999

F30
NNE
1/8-1/4
944 ft.

Relative:
Higher

Actual:
222 ft.

PUGET SOUND ROOFING CO., INC.
3121 NE 133
SEATTLE, WA 98125

Site 1 of 2 in cluster F

UST **U000800002**
N/A

UST:

Facility ID:	84978511
Site ID:	6463
Status:	**Unknown**
Tank Name:	1
Install Date:	12/31/1964 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Unleaded Gasoline
Ecology Region:	North Western
Tank ID:	19203
Compartment ID:	19486
Decimal Latitude:	47.724400000000003
Decimal Longitude:	-122.295997

Facility ID:	84978511
Site ID:	6463
Status:	**Unknown**
Tank Name:	2
Install Date:	12/31/1964 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Not reported
Ecology Region:	North Western
Tank ID:	18964
Compartment ID:	19245
Decimal Latitude:	47.724400000000003
Decimal Longitude:	-122.295997

31
ESE
1/8-1/4
957 ft.

Relative:
Lower

Actual:
182 ft.

NORTH COAST ENTERPRISES INC
12750 33RD AVE NE
SEATTLE, WA 98125

RCRA-SQG **1001490526**
FINDS **WAD988469771**

RCRAInfo:

Owner:	NORTH COAST ENTERPRISES INC (206) 364-5300
EPA ID:	WAD988469771
Contact:	Not reported
Classification:	Conditionally Exempt Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

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NORTH COAST ENTERPRISES INC (Continued) **1001490526**

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G32 **PIERRE BILL MOTORS INC.** **EDR Historical Auto Stations** **1009355319**
South **12531 30TH AVE NE** **N/A**
1/8-1/4 **SEATTLE, WA**
971 ft.

Site 1 of 6 in cluster G

Relative:
Lower

EDR Historical Auto Stations:
Name: PIERRE BILL MOTORS INC.
Actual: Year: 1951
195 ft. Type: AUTOMOBILE REPAIRING

G33 **BILL PIERRE FORD** **RCRA-SQG** **1000274772**
South **12531 - 30TH NE** **FINDS** **WAD980979108**
1/8-1/4 **SEATTLE, WA 98125** **LUST**
971 ft. **UST**
ICR

Site 2 of 6 in cluster G

Relative:
Lower

RCRAInfo:
Owner: PIERRE ENTERPRISE INC
Actual: (206)361-5543
195 ft. EPA ID: WAD980979108

Contact: Not reported

Classification: Conditionally Exempt Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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BILL PIERRE FORD (Continued) **1000274772**

LUST:
FS ID: 56569795
Facility ID: 6457
Release ID: 3256
Alternate Name: BILL PIERRE FORD SRVC CTR
Release Notification Date: 4/15/1992 00:00:00
Release Status Date: 6/1/1995 00:00:00
Facility Status: Reported Cleaned Up
Affected Media: Soil
Site Response Unit Code: NW
Lat/Long: 47.719619999999999 / -122.29627000000001

FS ID: 56569795
Facility ID: 6457
Release ID: 3256
Alternate Name: BILL PIERRE FORD SRVC CTR
Release Notification Date: 4/15/1992 00:00:00
Release Status Date: 4/15/1992 00:00:00
Facility Status: Cleanup Started
Affected Media: Soil
Site Response Unit Code: NW
Lat/Long: 47.719619999999999 / -122.29627000000001

UST:
Facility ID: 56569795
Site ID: 6457
Status: Removed
Tank Name: 1
Install Date: 12/31/1964 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 4788
Compartment ID: 4883
Decimal Latitude: 47.719619999999999
Decimal Longitude: -122.29627000000001

Facility ID: 56569795
Site ID: 6457
Status: Removed
Tank Name: 2
Install Date: 12/31/1964 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 4728
Compartment ID: 4822
Decimal Latitude: 47.719619999999999
Decimal Longitude: -122.29627000000001

ICR:
Date Ecology Received Report: 01/07/1993
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil

BILL PIERRE FORD (Continued) **1000274772**

Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	92-47
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

G34 **LAKE CITY CHEVRON SERVICE** **EDR Historical Auto Stations** **1009355317**
South **12527 30TH AVE NE** **N/A**
1/8-1/4 **SEATTLE, WA**
984 ft.

Site 3 of 6 in cluster G

Relative:
Lower

EDR Historical Auto Stations:

Name:	HALL S A ILL CHEVRON SERVICE
Year:	1966
Type:	GASOLINE STATIONS
Name:	LAKE CITY CHEVRON SERVICE
Year:	1970
Type:	GASOLINE STATIONS

Actual:
195 ft.

G35 **ENGINE SERVICE** **EDR Historical Auto Stations** **1009355313**
South **12524 30TH AVE NE** **N/A**
1/8-1/4 **SEATTLE, WA**
991 ft.

Site 4 of 6 in cluster G

Relative:
Lower

EDR Historical Auto Stations:

Name:	CAREZ AUTO REBUILD
Year:	1960
Type:	AUTOMOBILE REPAIRING
Name:	ELECTRO CHEK AUTO REPAIR CENTER
Year:	1970
Type:	AUTOMOBILE REPAIRING
Name:	ELECTRO CHEK AUTO DIAGNOSTIC CENTER
Year:	1975
Type:	AUTOMOBILE REPAIRING
Name:	ENGINE SERVICE
Year:	1990
Type:	AUTOMOBILE REPAIRING

Actual:
195 ft.

G36 **ENGINE SERVICE INC.** **UST** **U001122149**
South **12524 NE 30TH** **N/A**
1/8-1/4 **SEATTLE, WA 98125**
994 ft.

Site 5 of 6 in cluster G

Relative:
Lower

UST:

Facility ID:	8698777
Site ID:	761
Status:	**Removed**
Tank Name:	1
Install Date:	12/31/1964 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Used Oil/Waste Oil
Ecology Region:	North Western
Tank ID:	8150
Compartment ID:	8292
Decimal Latitude:	47.637070999999999
Decimal Longitude:	-122.17381399999999

Actual:
195 ft.

G37 **ENGINE SERVICE** **EDR Historical Auto Stations** **1009355312**
South **12523 30TH AVE NE** **N/A**
1/8-1/4 **SEATTLE, WA**
997 ft.

Site 6 of 6 in cluster G

Relative:
Lower

EDR Historical Auto Stations:

Name:	ENGINE SERVICE
Year:	1986
Type:	AUTOMOBILE REPAIRING

Actual:
195 ft.

H38 **LAKE CITY SUNSHINE CENTER** **EDR Historical Cleaners** **1009335100**
SSE **12525 LAKE CITY WAY NE** **N/A**
1/8-1/4 **SEATTLE, WA**
1012 ft.

Site 1 of 5 in cluster H

Relative:
Lower

EDR Historical Cleaners:

Name:	LAKE CITY SUNSHINE CENTER
Year:	1990
Type:	LAUNDRIES SELF SERVE

Actual:
195 ft.

H39 **LAKE CITY SUNSHINE CENTER** **EDR Historical Cleaners** **1009335102**
SSE **12525 NE LAKE CITY WAY** **N/A**
1/8-1/4 **SEATTLE, WA**
1012 ft.

Site 2 of 5 in cluster H

Relative:
Lower

EDR Historical Cleaners:

Name:	LAKE CITY SUNSHINE CENTER
Year:	1980
Type:	LAUNDRIES SELF SERVE

Actual:
195 ft.

H40
SSE
1/8-1/4
1012 ft.

SUNSHINE CLEANERS & LAUNDROMAT
12525 1/2 LAKE CITY WAY NE
SEATTLE, WA 98125

RCRA-SQG
FINDS
Inactive Drycleaners

1004794010
WAD988482907

Site 3 of 5 in cluster H

Relative:
Lower

Actual:
195 ft.

RCRAInfo:
Owner: TONY QUACH
(206)365-0218
EPA ID: WAD988482907
Contact: Not reported
Classification: Small Quantity Generator
TSDF Activities: Not reported
Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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H41
South
1/8-1/4
1018 ft.

LAKE CITY SUNSHINE CENTER
12523 NE LAKE CITY WAY
SEATTLE, WA

EDR Historical Cleaners

1009335098
N/A

Site 4 of 5 in cluster H

Relative:
Lower

Actual:
195 ft.

EDR Historical Cleaners:
Name: LAKE CITY SUNSHINE CENTER
Year: 1975
Type: LAUNDRIES SELF SERVE

F42
NNE
1/8-1/4
1019 ft.

CAMPBE U AUTO REPAIR
3124 NE 133D ST
SEATTLE, WA

EDR Historical Auto Stations

1009368022
N/A

Site 2 of 2 in cluster F

Relative:
Equal

Actual:
215 ft.

EDR Historical Auto Stations:
Name: CAMPBE U AUTO REPAIR
Year: 1975
Type: AUTOMOBILE REPAIRING

H43
South
1/8-1/4
1035 ft.

Relative:
Lower

Actual:
195 ft.

LAKE CITY QUICK WASH
12516 LAKE CITY WAY NE
SEATTLE, WA

Site 5 of 5 in cluster H

EDR Historical Cleaners **1009335096**
N/A

EDR Historical Cleaners:
Name: LAKE CITY QUICK WASH
Year: 1970
Type: LAUNDRIES SELF SERVE

44
NNE
1/8-1/4
1040 ft.

Relative:
Lower

Actual:
213 ft.

PUGET SOUND REFRIGERATION
3132 NE 133RD ST
SEATTLE, WA 98125

RCRA-SQG **1000891947**
FINDS **WA0000230540**
WA MANIFEST

RCRAInfo:
Owner: PUGET SOUND REFRIGERATION
(206)367-2500
EPA ID: WA0000230540
Contact: Not reported
Classification: Small Quantity Generator
TSDF Activities: Not reported
Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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WA MANIFEST:
Facility Site ID Number: 66915694
Permit by Rule: No
Treatment by Generator: No
Mixed radioactive waste: No
Importer of hazardous waste: No
Immediate recycler: No
Treatment/Storage/Disposal/Recycling Facility: No
Generator of dangerous fuel waste: No
Generator marketing to burner: No
"Other marketers (i.e., blender, distributor, etc.)": No

PUGET SOUND REFRIGERATION (Continued) **1000891947**

Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WA0000230540
Facility Address 2:	Not reported
TAX REG NBR:	600122060
NAICS CD:	23821
BUSINESS TYPE:	AVAC Mechanical Services
MAIL NAME:	Puget Sound Refrigeration
MAIL ADDR LINE1:	PO Box 27073
MAIL CITY,ST,ZIP:	SEATTLE, WA 98165-1473
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Puget Sound Refrigeration
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	3132 NE 133RD ST
LEGAL CITY,ST,ZIP:	SEATTLE, WA 98125-4499
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(206)367-2500
LEGAL EFFECTIVE DATE:	1/1/2004
LAND ORG NAME:	Not reported
LAND ORG TYPE:	Private
LAND PERSON NAME:	Jerry Rochford
LAND ADDR LINE1:	3132 NE 133rd St
LAND CITY,ST,ZIP:	SEATTLE, WA 98125
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(206)367-2500
OPERATOR ORG NAME:	Puget Sound Refrigeration
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	3132 NE 133rd St
OPERATOR CITY,ST,ZIP:	Seattle, WA 98125-1473
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	000-000-0000
OPERATOR EFFECTIVE DATE:	Not reported
SITE CONTACT NAME:	Jackie King
SITE CONTACT ADDR LINE1:	3132 NE 133rd St
SITE CONTACT ZIP:	SEATTLE, WA 98125
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(206)367-2500
SITE CONTACT EMAIL:	jackie.king@psref.com
FORM CONTACT NAME:	Jackie King
FORM CONTACT ADDR LINE1:	3132 NE 133rd St
FORM CONTACT CITY,ST,ZIP:	SEATTLE, WA 98125
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(206)367-2500

PUGET SOUND REFRIGERATION (Continued) **1000891947**

FORM CONTACT EMAIL:	jackie.king@psref.com
GEN STATUS CD:	XQG
MONTHLY GENERATION:	No
BATCH GENERATION:	No
ONE TIME GENERATION:	No
TRANSPORTS OWN WASTE:	No
TRANSPORTS OTHRS WASTE:	No
RECYCLER ONSITE:	No
TRANSFER FACILITY:	No
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	No
USED OIL TRANSPORTER:	No
USED OIL TRANSFER FACLTY:	No
USED OIL PROCESSOR:	No
USED OIL REREFINER:	No
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	No
USED OIL FUEL MRKTR MEETS SPECS:	No

45
SW
1/8-1/4
1062 ft.

Relative:
Lower

Actual:
202 ft.

WA UW APL ARTIC **RCRA-SQG 1000878343**
12550 27TH AVE NE **FINDS WA0000026591**
SEATTLE, WA 98125

RCRAInfo:

Owner:	WA UW
EPA ID:	WA0000026591
Contact:	WENDY PHIPPEN (206) 685-2848
Classification:	Small Quantity Generator
TSDF Activities:	Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

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46
WNW
1/8-1/4
1132 ft.

Relative:
Higher

Actual:
229 ft.

BERGERON HARRY L **EDR Historical Auto Stations 1009365256**
2608 NE 130TH ST **N/A**
SEATTLE, WA

EDR Historical Auto Stations:

Name:	BERGERON HARRY L
Year:	1966
Type:	AUTOMOBILE REPAIRING

47 WSW 1/8-1/4 1256 ft. **QWEST CORPORATION (W00128)** **RCRA-SQG 1001969501**
12550 26TH AVE NE **FINDS WAD980984595**
SEATTLE, WA 98125 **WA MANIFEST**

Relative: Lower

Actual: 208 ft.

RCRAInfo:
Owner: QWEST CORP
(303)793-6500
EPA ID: WAD980984595
Contact: Not reported
Classification: Small Quantity Generator
TSDF Activities: Not reported
Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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WA MANIFEST:

Facility Site ID Number:	89577593
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
"Other marketers (i.e., blender, distributor, etc.)":	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No

QWEST CORPORATION (W00128) (Continued) **1001969501**

Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAD980984595
Facility Address 2:	Not reported
TAX REG NBR:	601295793
NAICS CD:	51711
BUSINESS TYPE:	Telecommunications
MAIL NAME:	Qwest Corporation
MAIL ADDR LINE1:	1600 SEVENTH AVE RM 2708
MAIL CITY,ST,ZIP:	SEATTLE, WA 98191
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Qwest Corporation
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	1801 California Street
LEGAL ADDR LINE2:	Room 1160
LEGAL CITY,ST,ZIP:	Denver, CO 80202
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(303) 992-7090
LEGAL EFFECTIVE DATE:	7/1/2000
LAND ORG NAME:	Qwest Corporation
LAND ORG TYPE:	Private
LAND PERSON NAME:	Not reported
LAND ADDR LINE1:	1801 California Street
LAND ADDR LINE2:	Room 1160
LAND CITY,ST,ZIP:	Denver, CO 80202
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(303) 992-7090
OPERATOR ORG NAME:	Qwest Corporation
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	1801 Califonia Street
OPERATOR ADDR LINE2:	Room 1160
OPERATOR CITY,ST,ZIP:	Denver, CO 80202
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(303) 992-7090
OPERATOR EFFECTIVE DATE:	3/17/1997
SITE CONTACT NAME:	Thomas J Pitts
SITE CONTACT ADDR LINE1:	1600 SEVENTH AVE RM 2206
SITE CONTACT ZIP:	SEATTLE, WA 98191
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(206) 346-7532
SITE CONTACT EMAIL:	thomas.pitts@qwest.com
FORM CONTACT NAME:	Thomas J Pitts
FORM CONTACT ADDR LINE1:	1600 SEVENTH AVE RM 2206
FORM CONTACT CITY,ST,ZIP:	SEATTLE, WA 98191
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(206) 346-7532
FORM CONTACT EMAIL:	thomas.pitts@qwest.com
GEN STATUS CD:	SQG
MONTHLY GENERATION:	No
BATCH GENERATION:	Yes
ONE TIME GENERATION:	No
TRANSPORTS OWN WASTE:	No
TRANSPORTS OTHRS WASTE:	No
RECYCLER ONSITE:	No

QWEST CORPORATION (W00128) (Continued) **1001969501**

TRANSFER FACILITY: No
OTHER EXEMPTION: Not reported
UW BATTERY GEN: No
USED OIL TRANSPORTER: No
USED OIL TRANSFER FACLTY: No
USED OIL PROCESSOR: No
USED OIL REREFINER: No
USED OIL FUEL MRKTR DIRECTS SHPMNTS: No
USED OIL FUEL MRKTR MEETS SPECS: No

I48 **AMERICAN TOWING** **EDR Historical Auto Stations** **1009356194**
NE **13317 NE LAKE CITY WAY** **N/A**
1/8-1/4 **SEATTLE, WA**
1284 ft.

Site 1 of 3 in cluster I

Relative:
Lower

EDR Historical Auto Stations:
Name: AMERICAN TOWING
Actual: Year: 1975
209 ft. Type: AUTOMOBILE REPAIRING

I49 **DRIVE IN LAUNDERETTE** **EDR Historical Cleaners** **1009335550**
NE **13320 LAKE CITY WAY NE** **N/A**
1/8-1/4 **SEATTLE, WA**
1295 ft.

Site 2 of 3 in cluster I

Relative:
Lower

EDR Historical Cleaners:
Name: DRIVE IN LAUNDERETTE
Actual: Year: 1970
209 ft. Type: LAUNDRIES SELF SERVE

I50 **KERR S DRIVE IN CLEANERS** **EDR Historical Cleaners** **1009335552**
NE **13323 NE LAKE CITY WAY** **N/A**
1/8-1/4 **SEATTLE, WA**
1301 ft.

Site 3 of 3 in cluster I

Relative:
Lower

EDR Historical Cleaners:
Name: KERR S DRIVE IN CLEANERS
Actual: Year: 1975
209 ft. Type: CLEANERS AND DYERS

---

51 **LAKE CITY SITE** **CSCSL** **1007076502**
SE **3300 NE 125TH ST** **FINDS** **110015531584**
1/4-1/2 **SEATTLE, WA 98125** **VCP**
1334 ft.

Relative:
Lower

CSCSL:
Facility ID: 9421468
warm_bin_n: Not reported
Actual: Prog plan code: 4
180 ft. Latitude: 47.719250000000002

LAKE CITY SITE (Continued) **1007076502**

Longitude:	-122.292694
Lat/Long:	47.719250000000002 / -122.292694
Lat/Long (dms):	47 43 9.3000000000000007 / 122 17 33.700000000000003
Media ID:	9415
Media Type Desc:	Soil
Media Status Desc:	Confirmed
Affected Media:	Soil
Affected Media Status:	C
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Independent Remedial Action
Independent Site Status (independent cleanup):	Final Independent Remedial Action Report received

Facility ID:	9421468
warm_bin_n:	Not reported
Prog plan code:	4
Latitude:	47.719250000000002
Longitude:	-122.292694
Lat/Long:	47.719250000000002 / -122.292694
Lat/Long (dms):	47 43 9.3000000000000007 / 122 17 33.700000000000003
Media ID:	9416
Media Type Desc:	Groundwater
Media Status Desc:	Confirmed
Affected Media:	Ground Water
Affected Media Status:	C
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported

LAKE CITY SITE (Continued) **1007076502**

MTBE Code: Not reported
UXO Code: Not reported
Dioxin: Not reported
Non-Halogenated Solvents: Not reported
Base/Neutral/Acid Organics: Not reported
Halogenated Organic Compounds: Not reported
EPA Priority Pollutants - Metals and Cyanide: Not reported
Metals - Other non-priority pollutant medals: Not reported
Polychlorinated biPhenyls (PCBs): Not reported
Polynuclear Aromatic Hydrocarbons (PAH): Not reported
Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported
Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Independent Remedial Action
Independent Site Status (independent cleanup): Final Independent Remedial Action Report received

FINDS:
Other Pertinent Environmental Activity Identified at Site

WA-DOEFSIS (Washington - Department Of Ecology Facility / Site Identification System) is the Department of Ecology's Facility/Site identification system that provides a means to query and display data maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

VCP:
Facility ID: 9421468
Ecology Status: Independent Remedial Action
WARM BIN #: Not reported
NFA Code: Not reported
Program Plan: 4

Facility ID: 9421468
Ecology Status: Independent Remedial Action
WARM BIN #: Not reported
NFA Code: Not reported
Program Plan: 4

J52 **TENNY LINDA TOYOTA** **RCRA-SQG** **1000314779**
NE **13355 LAKE CITY WAY NORTHEAST** **FINDS** **WAD027477355**
1/4-1/2 **SEATTLE, WA 98125** **LUST**
1392 ft. **UST**

Site 1 of 2 in cluster J

Relative:
Lower

Actual:
210 ft.

TENNY LINDA TOYOTA (Continued) **1000314779**

RCRAInfo:
Owner: LINDA TENNEY
(206)367-0080
EPA ID: WAD027477355

Contact: Not reported

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and its Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

WA-DOEFSIS (Washington - Department Of Ecology Facility / Site Identification System) is the Department of Ecology's Facility/Site identification system that provides a means to query and display data maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

LUST:
FS ID: 58375689
Facility ID: 11453
Release ID: 318708
Alternate Name: TENNEY TOYOTA
Release Notification Date: 8/7/1995 00:00:00
Release Status Date: 1/29/1996 00:00:00
Facility Status: Reported Cleaned Up

TENNY LINDA TOYOTA (Continued) **1000314779**

Affected Media: Soil
Site Response Unit Code: NW
Lat/Long: 47.725110000000001 / -122.29261

FS ID: 58375689
Facility ID: 11453
Release ID: 318708
Alternate Name: TENNEY TOYOTA
Release Notification Date: 8/7/1995 00:00:00
Release Status Date: 11/2/1995 12:16:59.96
Facility Status: Cleanup Started
Affected Media: Soil
Site Response Unit Code: NW
Lat/Long: 47.725110000000001 / -122.29261

UST:
Facility ID: 58375689
Site ID: 11453
Status: **Removed**
Tank Name: 4
Install Date: 11/1/1976 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 40397
Compartment ID: 40967
Decimal Latitude: 47.725110000000001
Decimal Longitude: -122.29261

Facility ID: 58375689
Site ID: 11453
Status: **Removed**
Tank Name: 1
Install Date: 1/1/1976 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 40496
Compartment ID: 41067
Decimal Latitude: 47.725110000000001
Decimal Longitude: -122.29261

Facility ID: 58375689
Site ID: 11453
Status: **Removed**
Tank Name: 2
Install Date: 11/1/1976 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Not reported
Ecology Region: North Western
Tank ID: 40453
Compartment ID: 41023
Decimal Latitude: 47.725110000000001
Decimal Longitude: -122.29261

TENNY LINDA TOYOTA (Continued) **1000314779**

Facility ID: 58375689
Site ID: 11453
Status: Removed
Tank Name: 3
Install Date: 11/1/1976 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Not reported
Ecology Region: North Western
Tank ID: 40577
Compartment ID: 41149
Decimal Latitude: 47.725110000000001
Decimal Longitude: -122.29261

J53 **LINDA TENNEY TOYOTA (TWO REPORTS)** **ICR** **S103508102**
NE **13355 LAKE CITY WAY NE** **N/A**
1/4-1/2 **SEATTLE, WA 98125**
1392 ft.

Site 2 of 2 in cluster J

Relative: Lower

Actual: 210 ft.

ICR:
Date Ecology Received Report: 09/14/1995
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Unknown
Region: North Western
Type of Report Ecology Received: Final cleanup report
Site Register Issue: 94-08
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

K54 **LAKE CITY SOC (W00128)** **LUST** **U000923345**
SW **12550 26TH AVE NE** **UST** **N/A**
1/4-1/2 **SEATTLE, WA 98125**
1418 ft.

Site 1 of 2 in cluster K

Relative: Lower

Actual: 205 ft.

LUST:
FS ID: 89577593
Facility ID: 9972
Release ID: 4606
Alternate Name: US WEST LAKE CITY SOC 070128
Release Notification Date: 6/21/1993 00:00:00
Release Status Date: 6/21/1993 00:00:00
Facility Status: Cleanup Started
Affected Media: Soil
Site Response Unit Code: NW
Lat/Long: 47.7196 / -122.30148699999999

FS ID: 89577593
Facility ID: 9972
Release ID: 4606
Alternate Name: US WEST LAKE CITY SOC 070128
Release Notification Date: 6/21/1993 00:00:00
Release Status Date: 6/1/1995 00:00:00

LAKE CITY SOC (W00128) (Continued) **U000923345**

Facility Status: Reported Cleaned Up
Affected Media: Soil
Site Response Unit Code: NW
Lat/Long: 47.7196 / -122.30148699999999

UST:

Facility ID: 89577593
Site ID: 9972
Status: **Removed**
Tank Name: 1AUTOMOTIVE
Install Date: 12/1/1969 00:00:00
Capacity: 10,000 to 19,999 Gallons
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 35277
Compartment ID: 35781
Decimal Latitude: 47.7196
Decimal Longitude: -122.30148699999999

Facility ID: 89577593
Site ID: 9972
Status: **Removed**
Tank Name: 2M
Install Date: 12/31/1964 00:00:00
Capacity: 5,000 to 9,999 Gallons
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 471778
Compartment ID: 471779
Decimal Latitude: 47.7196
Decimal Longitude: -122.30148699999999

Facility ID: 89577593
Site ID: 9972
Status: **Removed**
Tank Name: 2AUTOMOTIVE
Install Date: 12/1/1969 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 39818
Compartment ID: 40376
Decimal Latitude: 47.7196
Decimal Longitude: -122.30148699999999

Facility ID: 89577593
Site ID: 9972
Status: **Operational**
Tank Name: 98-AUTO
Install Date: 8/10/1998 00:00:00
Capacity: 5,000 to 9,999 Gallons
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western

LAKE CITY SOC (W00128) (Continued) **U000923345**

Tank ID: 474889
Compartment ID: 474999
Decimal Latitude: 47.7196
Decimal Longitude: -122.30148699999999

K55 **US WEST** **ICR** **1001819429**
SW **12550 26TH AVE. NE** **N/A**
1/4-1/2 **SEATTLE, WA 98125**
1418 ft.

Site 2 of 2 in cluster K

Relative:
Lower

Actual:
205 ft.

ICR:

Date Ecology Received Report:	01/18/1994
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	93-35
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

Date Ecology Received Report:	06/21/1993
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-07
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

L56 **WASTE MANAGEMENT** **ICR** **S103511120**
South **12305 LAKE CITY WAY NE** **N/A**
1/4-1/2 **SEATTLE, WA 98125**
1737 ft.

Site 1 of 3 in cluster L

Relative:
Lower

Actual:
186 ft.

ICR:

Date Ecology Received Report:	01/22/1993
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Groundwater, Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	92-45
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

L57
South
1/4-1/2
1742 ft.

Relative:
Lower

Actual:
186 ft.

WATER MILL (KENDALL TRUST)
12303 LAKE CITY WAY NE
SEATTLE, WA 98125

Site 2 of 3 in cluster L

LUST **S101150705**
N/A

LUST:

FS ID:	51575311
Facility ID:	200463
Release ID:	2152
Alternate Name:	WATER MILL
Release Notification Date:	11/14/1990 00:00:00
Release Status Date:	5/21/1995 00:00:00
Facility Status:	Awaiting Cleanup
Affected Media:	Soil
Site Response Unit Code:	NW
Lat/Long:	47.717280000000002 / -122.297437

L58
South
1/4-1/2
1742 ft.

Relative:
Lower

Actual:
186 ft.

WATER MILL (KENDALL TRUST)
12303 LAKE CITY WAY NE
SEATTLE, WA 98125

Site 3 of 3 in cluster L

UST **U003665838**
ICR **N/A**

UST:

Facility ID:	51575311
Site ID:	200463
Status:	**Removed**
Tank Name:	2
Install Date:	1/1/1964 00:00:00
Capacity:	10,000 to 19,999 Gallons
Compartment #:	1
Substance:	Not reported
Ecology Region:	North Western
Tank ID:	511431
Compartment ID:	511432
Decimal Latitude:	47.717280000000002
Decimal Longitude:	-122.297437

Facility ID:	51575311
Site ID:	200463
Status:	**Removed**
Tank Name:	4
Install Date:	1/1/1900 00:00:00
Capacity:	Not reported
Compartment #:	1
Substance:	Not reported
Ecology Region:	North Western
Tank ID:	511441
Compartment ID:	511442
Decimal Latitude:	47.717280000000002
Decimal Longitude:	-122.297437

Facility ID:	51575311
Site ID:	200463
Status:	**Removed**
Tank Name:	5
Install Date:	1/1/1900 00:00:00
Capacity:	Not reported
Compartment #:	1

WATER MILL (KENDALL TRUST) (Continued) **U003665838**

Substance: Not reported
Ecology Region: North Western
Tank ID: 511446
Compartment ID: 511447
Decimal Latitude: 47.717280000000002
Decimal Longitude: -122.297437

Facility ID: 51575311
Site ID: 200463
Status: **Removed**
Tank Name: 3
Install Date: 1/1/1900 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Not reported
Ecology Region: North Western
Tank ID: 511436
Compartment ID: 511437
Decimal Latitude: 47.717280000000002
Decimal Longitude: -122.297437

Facility ID: 51575311
Site ID: 200463
Status: **Removed**
Tank Name: 1
Install Date: 1/1/1900 00:00:00
Capacity: 10,000 to 19,999 Gallons
Compartment #: 1
Substance: Not reported
Ecology Region: North Western
Tank ID: 511426
Compartment ID: 511427
Decimal Latitude: 47.717280000000002
Decimal Longitude: -122.297437

ICR:
Date Ecology Received Report: 09/07/2000
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-29
County Code: 17.00000
Contact: Not reported
Report Title: Results of Soil Sampling

M59 **LAIDLAW TRANSIT, INC.** **LUST** **U003025141**
NNE **13525 LAKE CITY WAY NE** **UST** **N/A**
1/4-1/2 **SEATTLE, WA 98125**
1868 ft.

Site 1 of 2 in cluster M

Relative:
Higher

LUST:
FS ID: 81442995
Actual: Facility ID: 101414
228 ft. Release ID: 2738

LAIDLAW TRANSIT, INC. (Continued) **U003025141**

Alternate Name: LAIDLAW TRANSIT
Release Notification Date: 11/6/1991 00:00:00
Release Status Date: 12/11/2000 00:00:00
Facility Status: Reported Cleaned Up
Affected Media: Soil
Site Response Unit Code: NW
Lat/Long: 47.726489999999998 / -122.29207

FS ID: 81442995
Facility ID: 101414
Release ID: 2738
Alternate Name: LAIDLAW TRANSIT
Release Notification Date: 11/6/1991 00:00:00
Release Status Date: 6/1/1995 00:00:00
Facility Status: Cleanup Started
Affected Media: Soil
Site Response Unit Code: NW
Lat/Long: 47.726489999999998 / -122.29207

UST:
Facility ID: 81442995
Site ID: 101414
Status: Operational
Tank Name: 1
Install Date: 12/15/1991 00:00:00
Capacity: 10,000 to 19,999 Gallons
Compartment #: 1
Substance: Diesel
Ecology Region: North Western
Tank ID: 43954
Compartment ID: 44571
Decimal Latitude: 47.726489999999998
Decimal Longitude: -122.29207

Facility ID: 81442995
Site ID: 101414
Status: Removed
Tank Name: 2-500
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 603
Compartment ID: 617
Decimal Latitude: 47.726489999999998
Decimal Longitude: -122.29207

Facility ID: 81442995
Site ID: 101414
Status: Removed
Tank Name: 3-500
Install Date: 12/31/1964 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Not reported
Ecology Region: North Western

LAIDLAW TRANSIT, INC. (Continued) **U003025141**

Tank ID: 41859
Compartment ID: 42447
Decimal Latitude: 47.726489999999998
Decimal Longitude: -122.29207

Facility ID: 81442995
Site ID: 101414
Status: Removed
Tank Name: 1-15000
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Not reported
Ecology Region: North Western
Tank ID: 42428
Compartment ID: 43025
Decimal Latitude: 47.726489999999998
Decimal Longitude: -122.29207

M60 **LAIDLAW TRANSIT INC.** **ICR** **S103508035**
NNE **13525 LAKE CITY WAY** **N/A**
1/4-1/2 **SEATTLE, WA 98125**
1868 ft.

Site 2 of 2 in cluster M

Relative: Higher

Actual: 228 ft.

ICR:
Date Ecology Received Report: / /
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 92-40
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

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61 **CARL NORTH CO INC** **RCRA-SQG** **1000659906**
NNE **14061 LAKE CITY WAY NE** **CSCSL** **WAD988495842**
1/2-1 **SEATTLE, WA 98125** **FINDS**
3150 ft. **LUST**
VCP

Relative: Higher

Actual: 243 ft.

RCRAInfo:
Owner: CARL NORTH CO INC
EPA ID: WAD988495842
Contact: JEFF BRADY
(206) 364-7500
Classification: Small Quantity Generator
TSDF Activities: Not reported

CARL NORTH CO INC (Continued) **1000659906**

Violation Status: No violations found

CSCSL:

Facility ID:	86974736
warm_bin_n:	Not reported
Prog plan code:	4
Latitude:	47.730370000000001
Longitude:	-122.2925
Lat/Long:	47.730370000000001 / -122.2925
Lat/Long (dms):	47 43 49.332000000000001 / 122 17 33
Media ID:	7059
Media Type Desc:	Groundwater
Media Status Desc:	Confirmed
Affected Media:	Ground Water
Affected Media Status:	C
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Independent Remedial Action
Independent Site Status (independent cleanup):	Final Independent Remedial Action Report received

Facility ID:	86974736
warm_bin_n:	Not reported
Prog plan code:	4
Latitude:	47.730370000000001
Longitude:	-122.2925
Lat/Long:	47.730370000000001 / -122.2925
Lat/Long (dms):	47 43 49.332000000000001 / 122 17 33
Media ID:	7060
Media Type Desc:	Soil
Media Status Desc:	Confirmed
Affected Media:	Soil
Affected Media Status:	C
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels

CARL NORTH CO INC (Continued) **1000659906**

Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Independent Remedial Action
Independent Site Status (independent cleanup):	Final Independent Remedial Action Report received

FINDS:

Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

WA-DOEFSIS (Washington - Department Of Ecology Facility / Site Identification System) is the Department of Ecology's Facility/Site identification system that provides a means to query and display data maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

LUST:

FS ID:	38764396
Facility ID:	4373
Release ID:	5321
Alternate Name:	CARL NORTH CO
Release Notification Date:	2/8/1994 00:00:00
Release Status Date:	6/1/1995 00:00:00
Facility Status:	Cleanup Started
Affected Media:	Soil

CARL NORTH CO INC (Continued) **1000659906**

Site Response Unit Code: NW
Lat/Long: 47.731540000000003 / -122.29384899999999

FS ID: 38764396
Facility ID: 4373
Release ID: 5321
Alternate Name: CARL NORTH CO
Release Notification Date: 2/8/1994 00:00:00
Release Status Date: 9/28/2006 00:00:00
Facility Status: Reported Cleaned Up
Affected Media: Soil
Site Response Unit Code: NW
Lat/Long: 47.731540000000003 / -122.29384899999999

VCP:
Facility ID: 86974736
Ecology Status: Independent Remedial Action
WARM BIN #: Not reported
NFA Code: Not reported
Program Plan: 4

Facility ID: 86974736
Ecology Status: Independent Remedial Action
WARM BIN #: Not reported
NFA Code: Not reported
Program Plan: 4

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62 **AESQUIVEL PROPERTY** **CSCSL** **1007677472**
NNE **14325 35TH AVE NE** **FINDS** **110017944974**
1/2-1 **SEATTLE, WA 98125** **BROWNFIELDS**
3910 ft.

Relative: Higher

Actual: 271 ft.

CSCSL:
Facility ID: 1202016
warm_bin_n: 4
Prog plan code: Not reported
Latitude: 47.732222
Longitude: -122.291389
Lat/Long: 47.732222 / -122.291389
Lat/Long (dms): 47 43 55.999200000000499 / 122 17 29.0003999999828
Media ID: 11068
Media Type Desc: Groundwater
Media Status Desc: Suspected
Affected Media: Ground Water
Affected Media Status: S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides: Not reported
Petroleum Products: Suspected to be present
Phenolic Compounds: Not reported
Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Responsible Unit: Northwest Region
Arsenic Code: Not reported
MTBE Code: Not reported

AESQUIVEL PROPERTY (Continued) **1007677472**

UXO Code: Not reported
Dioxin: Not reported
Non-Halogenated Solvents: Not reported
Base/Neutral/Acid Organics: Not reported
Halogenated Organic Compounds: Not reported
EPA Priority Pollutants - Metals and Cyanide: Not reported
Metals - Other non-priority pollutant medals: Not reported
Polychlorinated biPhenyls (PCBs): Not reported
Polynuclear Aromatic Hydrocarbons (PAH): Suspected to be present
Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported
Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Ranked, Awaiting Remedial Action (RA)
Independent Site Status (independent cleanup): Not reported

Facility ID: 1202016
warm_bin_n: 4
Prog plan code: Not reported
Latitude: 47.732222
Longitude: -122.291389
Lat/Long: 47.732222 / -122.291389
Lat/Long (dms): 47 43 55.999200000000499 / 122 17 29.0003999999828
Media ID: 10613
Media Type Desc: Soil
Media Status Desc: Confirmed
Affected Media: Soil
Affected Media Status: C
Pesticides: Not reported
Petroleum Products: Confirmed above MTCA cleanup levels
Phenolic Compounds: Not reported
Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Responsible Unit: Northwest Region
Arsenic Code: Not reported
MTBE Code: Not reported
UXO Code: Not reported
Dioxin: Not reported
Non-Halogenated Solvents: Not reported
Base/Neutral/Acid Organics: Not reported
Halogenated Organic Compounds: Not reported
EPA Priority Pollutants - Metals and Cyanide: Not reported
Metals - Other non-priority pollutant medals: Not reported
Polychlorinated biPhenyls (PCBs): Not reported
Polynuclear Aromatic Hydrocarbons (PAH): Confirmed above MTCA cleanup levels
Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported
Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Ranked, Awaiting Remedial Action (RA)
Independent Site Status (independent cleanup): Not reported

AESQUIVEL PROPERTY (Continued) **1007677472**

FINDS:
Other Pertinent Environmental Activity Identified at Site

WA-DOEFSIS (Washington - Department Of Ecology Facility / Site Identification System) is the Department of Ecology's Facility/Site identification system that provides a means to query and display data maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

BROWNFIELDS:
Facilty ID: 1202016
Site Stat Code: 2

Facilty ID: 1202016
Site Stat Code: 2

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63 **WINDSOR PARK ESTATES** **CSCSL** **S100079923**
North **3217 NE 145TH ST** **N/A**
1/2-1 **SEATTLE, WA 98155**
4255 ft.

Relative:
Higher

Actual:
236 ft.

CSCSL:

Facility ID:	2267
warm_bin_n:	Not reported
Prog plan code:	4
Latitude:	47.733510000000003
Longitude:	-122.29391
Lat/Long:	47.733510000000003 / -122.29391
Lat/Long (dms):	47 44 0.64000000000000001 / 122 17 38.079999999999998
Media ID:	6899
Media Type Desc:	Groundwater
Media Status Desc:	Confirmed
Affected Media:	Ground Water
Affected Media Status:	C
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported

WINDSOR PARK ESTATES (Continued) **S100079923**

Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported
Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Independent Remedial Action
Independent Site Status (independent cleanup): Independent Site Assessment of Interim Remedial Action Report received

Facility ID: 2267
warm_bin_n: Not reported
Prog plan code: 4
Latitude: 47.733510000000003
Longitude: -122.29391
Lat/Long: 47.733510000000003 / -122.29391
Lat/Long (dms): 47 44 0.64000000000000001 / 122 17 38.079999999999998
Media ID: 6900
Media Type Desc: Soil
Media Status Desc: Confirmed
Affected Media: Soil
Affected Media Status: C
Pesticides: Not reported
Petroleum Products: Confirmed above MTCA cleanup levels
Phenolic Compounds: Not reported
Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Responsible Unit: Northwest Region
Arsenic Code: Not reported
MTBE Code: Not reported
UXO Code: Not reported
Dioxin: Not reported
Non-Halogenated Solvents: Not reported
Base/Neutral/Acid Organics: Not reported
Halogenated Organic Compounds: Not reported
EPA Priority Pollutants - Metals and Cyanide: Not reported
Metals - Other non-priority pollutant medals: Not reported
Polychlorinated biPhenyls (PCBs): Not reported
Polynuclear Aromatic Hydrocarbons (PAH): Not reported
Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported
Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Independent Remedial Action
Independent Site Status (independent cleanup): Independent Site Assessment of Interim Remedial Action Report received

Facility ID: 2267
warm_bin_n: Not reported
Prog plan code: 4
Latitude: 47.733510000000003
Longitude: -122.29391
Lat/Long: 47.733510000000003 / -122.29391
Lat/Long (dms): 47 44 0.64000000000000001 / 122 17 38.079999999999998
Media ID: 3028

WINDSOR PARK ESTATES (Continued) **S100079923**

Media Type Desc: Surface Water
Media Status Desc: Suspected
Affected Media: Surface Water
Affected Media Status: S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides: Not reported
Petroleum Products: Suspected to be present
Phenolic Compounds: Not reported
Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Responsible Unit: Northwest Region
Arsenic Code: Not reported
MTBE Code: Not reported
UXO Code: Not reported
Dioxin: Not reported
Non-Halogenated Solvents: Suspected to be present
Base/Neutral/Acid Organics: Not reported
Halogenated Organic Compounds: S
EPA Priority Pollutants - Metals and Cyanide: Not reported
Metals - Other non-priority pollutant medals: Not reported
Polychlorinated biPhenyls (PCBs): Not reported
Polynuclear Aromatic Hydrocarbons (PAH): Not reported
Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported
Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Independent Remedial Action
Independent Site Status (independent cleanup): Independent Site Assessment of Interim Remedial Action Report received

Facility ID: 2267
warm_bin_n: Not reported
Prog plan code: 4
Latitude: 47.733510000000003
Longitude: -122.29391
Lat/Long: 47.733510000000003 / -122.29391
Lat/Long (dms): 47 44 0.64000000000000001 / 122 17 38.079999999999998
Media ID: 3029
Media Type Desc: Sediment
Media Status Desc: Suspected
Affected Media: Sediments
Affected Media Status: S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides: Not reported
Petroleum Products: Suspected to be present
Phenolic Compounds: Not reported
Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Responsible Unit: Northwest Region
Arsenic Code: Not reported

WINDSOR PARK ESTATES (Continued) **S100079923**

MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Suspected to be present
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	S
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Independent Remedial Action
Independent Site Status (independent cleanup):	Independent Site Assessment of Interim Remedial Action Report received

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64 **BIGFOOT CARWASH** **CSCSL** **1007078074**
SSW **11310 LAKE CITY WAY NE** **FINDS** **110015547586**
1/2-1 **SEATTLE, WA 98115** **VCP**
4397 ft.

Relative:
Lower

Actual:
174 ft.

CSCSL:

Facility ID:	5399684
warm_bin_n:	Not reported
Prog plan code:	4
Latitude:	47.710279999999997
Longitude:	-122.301462
Lat/Long:	47.710279999999997 / -122.301462
Lat/Long (dms):	47 42 37 / 122 18 5.2599999999999998
Media ID:	10851
Media Type Desc:	Soil
Media Status Desc:	Confirmed
Affected Media:	Soil
Affected Media Status:	C
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Confirmed above MTCA cleanup levels
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Confirmed above MTCA cleanup levels
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported

BIGFOOT CARWASH (Continued) **1007078074**

Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Independent Remedial Action
Independent Site Status (independent cleanup): Final Independent Remedial Action Report received

Facility ID: 5399684
warm_bin_n: Not reported
Prog plan code: 4
Latitude: 47.710279999999997
Longitude: -122.301462
Lat/Long: 47.710279999999997 / -122.301462
Lat/Long (dms): 47 42 37 / 122 18 5.2599999999999998
Media ID: 10852
Media Type Desc: Groundwater
Media Status Desc: Below Cleanup Level
Affected Media: Ground Water
Affected Media Status: B (Below) - The presence of hazardous substances below MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum products). The B code may only be applied following completion of analytical work in conjunction with a Site Hazard Assessment (SHA) or Remedial Investigation/Feasibility Study (RI/FS)
Pesticides: Not reported
Petroleum Products: Below MTCA cleanup levels
Phenolic Compounds: Not reported
Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Responsible Unit: Northwest Region
Arsenic Code: Not reported
MTBE Code: Not reported
UXO Code: Not reported
Dioxin: Not reported
Non-Halogenated Solvents: Below MTCA cleanup levels
Base/Neutral/Acid Organics: Not reported
Halogenated Organic Compounds: Not reported
EPA Priority Pollutants - Metals and Cyanide: Below MTCA cleanup levels
Metals - Other non-priority pollutant medals: Not reported
Polychlorinated biPhenyls (PCBs): Not reported
Polynuclear Aromatic Hydrocarbons (PAH): Not reported
Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported
Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Independent Remedial Action
Independent Site Status (independent cleanup): Final Independent Remedial Action Report received

FINDS:
Other Pertinent Environmental Activity Identified at Site

WA-DOEFSIS (Washington - Department Of Ecology Facility / Site Identification System) is the Department of Ecology's Facility/Site

BIGFOOT CARWASH (Continued) **1007078074**

identification system that provides a means to query and display data maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

VCP:

Facility ID:	5399684
Ecology Status:	Independent Remedial Action
WARM BIN #:	Not reported
NFA Code:	Not reported
Program Plan:	4

Facility ID:	5399684
Ecology Status:	Independent Remedial Action
WARM BIN #:	Not reported
NFA Code:	Not reported
Program Plan:	4

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SEATTLE	S105063527	NORTHPARK SHOPPING CENTER	NE 145TH ST. AND 15TH AVE. NE	98125	ICR
SEATTLE	U003765313	FRED'S AUTO	5450 GLACIER HWY	98125	UST
KING COUNTY	S105806023	MCMICKEN HEIGHTS	BETWEEN THE S. 175TH ST. DEAD-		SWF/LF
KING COUNTY	S105806029	RENTON JUNCTION (MONSTER ROAD)	BETWEEN MONSTER ROAD AND THE G		SWF/LF
KING COUNTY	S105806034	BOW LAKE ABANDONED LANDFILL	IMMEDIATELY EAST OF I-5, ACROS		SWF/LF
KING COUNTY	S105806035	CORLISS ABANDONED LANDFILL	IMMEDIATELY WEST OF I-5 BETWEE		SWF/LF
KING COUNTY	S105806037	PUYALLUP/KIT CORNER ABANDONED LAND	IMMEDIATELY EAST OF I-5 JUST S		SWF/LF
KING COUNTY	S108107942	WASTE MOBILE COLLECTIONS	MOVES LOCATIONS (SEE COMMENT F		SWF/LF
KING COUNTY	S108107837	TOLT BACKWASH SOLIDS LANDFILL	39025 NE NORTH FORK RD		SWF/LF
KING COUNTY	S105806025	PACIFIC CITY	SOUTH OF 3RD AVE. S.E. AT THE		SWF/LF
KING COUNTY	S105806013	BOW LAKE	NORTHEAST OF S. 188TH ST. AND		SWF/LF
KING COUNTY	S105806011	AUBURN (M & R STREET SITE)	NORTHWEST OF R STREET AND 25TH		SWF/LF
KING COUNTY	S105806012	AUBURN (ROTARY PARK SITE)	NORTHWEST OF 27TH STREET S.E.		SWF/LF
KING COUNTY	S105806014	CARTON & BORTH	NORTHWEST OF 71ST AVE. N.E. AN		SWF/LF
KING COUNTY	S105806015	CORLISS LANDFILL	NORTHEAST OF CORLISS AVE. N. A		SWF/LF
KING COUNTY	S105806016	EASTGATE ABANDONED LANDFILL	NORTHEAST OF 156TH AVE. S.E. A		SWF/LF
KING COUNTY	S105806017	ENUMCLAW	SOUTHEAST OF 284TH AVE. S.E. A		SWF/LF
KING COUNTY	S105806018	FACTORIA PIT (SUNSET RAVINE PARK)	NORTHWEST OF 135TH AVE S.E. AN		SWF/LF
KING COUNTY	S105806020	H.H. OLESON	NORTHEAST OF N.E. 172ND ST. AN		SWF/LF
KING COUNTY	S105806021	HOUGHTON	NORTHWEST OF N.E. 60TH ST. AND		SWF/LF

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 01/25/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 09/27/2006
Date Data Arrived at EDR: 11/01/2006
Date Made Active in Reports: 11/22/2006
Number of Days to Update: 21

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/28/2006
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 03/26/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/27/2007
Date Data Arrived at EDR: 03/21/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 37

Source: EPA
Telephone: 703-603-8960
Last EDR Contact: 03/21/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/20/2006
Date Data Arrived at EDR: 01/29/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 29

Source: EPA
Telephone: 703-603-8960
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/14/2007
Date Data Arrived at EDR: 03/20/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 38

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/05/2007
Next Scheduled EDR Contact: 06/04/2007
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 05/16/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 01/24/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 47

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/24/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 04/17/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 27

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/17/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/24/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/24/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 05/11/2007
Next Scheduled EDR Contact: 08/06/2007
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 09/20/2006
Date Made Active in Reports: 11/22/2006
Number of Days to Update: 63

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 01/29/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/12/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 08/23/2006
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 35

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/23/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/27/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/27/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/08/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 82

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 03/20/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 04/27/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 04/16/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 02/26/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 02/26/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 45

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/12/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Annually

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 02/14/2007
Date Data Arrived at EDR: 02/28/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 41

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/28/2007
Next Scheduled EDR Contact: 05/28/2007
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 03/26/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Varies

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/21/2007
Date Data Arrived at EDR: 04/03/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 41

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 04/16/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/30/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 01/08/2007
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 3

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/11/2007
Next Scheduled EDR Contact: 06/25/2007
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: No Update Planned

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/17/2006
Date Data Arrived at EDR: 11/29/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 43

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 05/11/2007
Next Scheduled EDR Contact: 08/06/2007
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/11/2007
Date Data Arrived at EDR: 01/26/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 32

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/06/2007
Date Data Arrived at EDR: 03/28/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 47

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/28/2007
Next Scheduled EDR Contact: 06/25/2007
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 01/18/2007
Date Data Arrived at EDR: 01/23/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 35

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 05/14/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 03/05/2007
Next Scheduled EDR Contact: 06/04/2007
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/06/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

CSCSL: Confirmed & Suspected Contaminated Sites List

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 02/07/2007
Date Data Arrived at EDR: 02/15/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 02/15/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Semi-Annually

HSL: Hazardous Sites List

The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

Date of Government Version: 02/21/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 23

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 03/07/2007
Next Scheduled EDR Contact: 06/04/2007
Data Release Frequency: Semi-Annually

CSCSL NFA: Confirmed & Contaminated Sites - No Further Action

The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead, a No Further Action code is entered based upon the type of NFA determination the site received.

Date of Government Version: 02/07/2007
Date Data Arrived at EDR: 02/15/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 02/15/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Semi-Annually

SWF/LF: Solid Waste Facility Database

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 01/17/2007
Date Data Arrived at EDR: 01/18/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 40

Source: Department of Ecology
Telephone: 360-407-6132
Last EDR Contact: 05/04/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Annually

SWTIRE: Solid Waste Tire Facilities

This study identified sites statewide with unauthorized accumulations of scrap tires.

Date of Government Version: 11/01/2005
Date Data Arrived at EDR: 03/16/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 28

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 04/06/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Varies

LUST: Leaking Underground Storage Tanks Site List

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 03/08/2007
Date Data Arrived at EDR: 03/16/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 34

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 03/16/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Quarterly

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 03/08/2007
Date Data Arrived at EDR: 03/16/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 28

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 03/16/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Locations

A listing of aboveground storage tank locations regulated by the Department of Ecology's Spill Prevention, Preparedness and Response Program.

Date of Government Version: 09/06/2006
Date Data Arrived at EDR: 09/08/2006
Date Made Active in Reports: 10/12/2006
Number of Days to Update: 34

Source: Department of Ecology
Telephone: 360-407-7562
Last EDR Contact: 02/26/2007
Next Scheduled EDR Contact: 05/28/2007
Data Release Frequency: Varies

MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 06/12/2006
Date Data Arrived at EDR: 11/27/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 45
Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 05/14/2007
Next Scheduled EDR Contact: 08/13/2007
Data Release Frequency: Annually

SPILLS: Reported Spills
Spills reported to the Spill Prevention, Preparedness and Response Division.

Date of Government Version: 04/03/2007
Date Data Arrived at EDR: 04/05/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 32
Source: Department of Ecology
Telephone: 360-407-6950
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Semi-Annually

INST CONTROL: Institutional Control Site List
Sites that have institutional controls.

Date of Government Version: 03/06/2007
Date Data Arrived at EDR: 03/07/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 43
Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 03/05/2007
Next Scheduled EDR Contact: 06/04/2007
Data Release Frequency: Varies

ICR: Independent Cleanup Reports
These are remedial action reports Ecology has received from either the owner or operator of the sites. These actions have been conducted without department oversight or approval and are not under an order or decree. This database is no longer updated by the Department of Ecology.

Date of Government Version: 12/01/2002
Date Data Arrived at EDR: 01/03/2003
Date Made Active in Reports: 01/22/2003
Number of Days to Update: 19
Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 05/15/2007
Next Scheduled EDR Contact: 08/13/2007
Data Release Frequency: No Update Planned

VCP: Voluntary Cleanup Program Sites
Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

Date of Government Version: 02/07/2007
Date Data Arrived at EDR: 02/15/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 12
Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 02/15/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner List
A listing of registered drycleaners who registered with the Department of Ecology (using the SIC code of 7215 and 7216) as hazardous waste generators.

Date of Government Version: 06/12/2006
Date Data Arrived at EDR: 11/27/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 45
Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 05/14/2007
Next Scheduled EDR Contact: 08/13/2007
Data Release Frequency: Varies

BROWNFIELDS: Brownfields Sites Listing
A listing of brownfields sites included in the Confirmed & Suspected Sites Listing. Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Date of Government Version: 02/07/2007
Date Data Arrived at EDR: 02/15/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-725-4030
Last EDR Contact: 02/15/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Varies

CDL: Clandestine Drug Lab Contaminated Site List

Illegal methamphetamine labs use hazardous chemicals that create public health hazards. Chemicals and residues can cause burns, respiratory and neurological damage, and death. Biological hazards associated with intravenous needles, feces, and blood also pose health risks.

Date of Government Version: 02/08/2007
Date Data Arrived at EDR: 03/29/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 21

Source: Department of Health
Telephone: 360-236-3380
Last EDR Contact: 12/08/2006
Next Scheduled EDR Contact: 03/05/2007
Data Release Frequency: Varies

NPDES: Water Quality Permit System Data

A listing of permitted wastewater facilities.

Date of Government Version: 02/01/2007
Date Data Arrived at EDR: 02/15/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-407-6073
Last EDR Contact: 02/15/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Quarterly

AIRS (EMI): Washington Emissions Data System

Emissions inventory data.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 01/17/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 41

Source: Department of Ecology
Telephone: 360-407-6040
Last EDR Contact: 04/16/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Annually

INACTIVE DRYCLEANERS: Inactive Drycleaners

A listing of inactive drycleaner facility locations.

Date of Government Version: 06/12/2006
Date Data Arrived at EDR: 11/27/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 45

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 05/14/2007
Next Scheduled EDR Contact: 08/13/2007
Data Release Frequency: Annually

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 05/11/2007
Next Scheduled EDR Contact: 08/06/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 02/19/2007
Date Data Arrived at EDR: 02/27/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 36

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/30/2007
Date Data Arrived at EDR: 03/30/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 28

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/06/2006
Date Data Arrived at EDR: 10/04/2006
Date Made Active in Reports: 11/08/2006
Number of Days to Update: 35

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Minnesota, Mississippi and North Carolina.

Date of Government Version: 03/20/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 28

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 34

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 02/21/2007
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 34

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

Date of Government Version: 03/20/2007
Date Data Arrived at EDR: 04/16/2007
Date Made Active in Reports: 05/14/2007
Number of Days to Update: 28

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 09/06/2006
Date Data Arrived at EDR: 10/04/2006
Date Made Active in Reports: 11/08/2006
Number of Days to Update: 35

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 01/11/2007
Date Data Arrived at EDR: 01/12/2007
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 17

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 02/19/2007
Date Data Arrived at EDR: 02/27/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 36

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

KING COUNTY:

Abandoned Landfill Study in King County

The King County Abandoned Landfill Survey was conducted from October through December 1984 by the Health Department's Environmental Health Division at the request of the King County Council. The primary objective of the survey was to determine if any public health problems existed at the predetermined 24 sites.

Date of Government Version: 04/30/1985
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle-King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

KITSAP COUNTY:

Water Wells in Kitsap County

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

SEATTLE COUNTY:

Abandoned Landfill Study in the City of Seattle

The Seattle Abandoned Landfill Survey was conducted in June and July of 1984 by the Health Department's Environmental Health Division at the request of the Mayor's Office. The primary objective of the survey was to determine if any public health problems existed at the predetermined 12 sites.

Date of Government Version: 07/30/1984
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle - King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE/KING COUNTY:

Seattle - King County Abandoned Landfill Toxicity / Hazard Assessment Project

This report presents the Seattle-King County Health Department's follow-up investigation of two city owned and four county owned abandoned landfills which was conducted from February to December 1986.

Date of Government Version: 12/31/1986
Date Data Arrived at EDR: 08/18/1995
Date Made Active in Reports: 09/20/1995
Number of Days to Update: 33

Source: Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 08/14/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SNOHOMISH COUNTY:

Solid Waste Sites of Record at Snohomish Health District

Solid waste disposal and/or utilization sites in Snohomish County.

Date of Government Version: 08/07/2006
Date Data Arrived at EDR: 11/13/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 17

Source: Snohomish Health District
Telephone: 206-339-5250
Last EDR Contact: 04/25/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Semi-Annually

TACOMA/PIERCE COUNTY:

Closed Landfill Survey

Following numerous requests for information about closed dumpsites and landfills in Pierce County, the Tacoma-Pierce County Health Department decided to conduct a study on the matter. The aim of the study was to evaluate public health risks associated with the closed dumpsites and landfills, and to determine the need, if any, for further investigations of a more detailed nature. The sites represent all of the known dumpsites and landfills closed after 1950.

Date of Government Version: 09/01/2002
Date Data Arrived at EDR: 03/24/2003
Date Made Active in Reports: 05/14/2003
Number of Days to Update: 51

Source: Tacoma-Pierce County Health Department
Telephone: 206-591-6500
Last EDR Contact: 03/19/2003
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/17/2006
Date Made Active in Reports: 04/07/2006
Number of Days to Update: 49

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 03/16/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/26/2006
Date Data Arrived at EDR: 11/29/2006
Date Made Active in Reports: 01/05/2007
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 03/02/2007
Next Scheduled EDR Contact: 05/28/2007
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 81

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/16/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 05/02/2006
Number of Days to Update: 46

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 04/24/2007
Next Scheduled EDR Contact: 07/09/2007
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data

Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Daycare Center Listing
Source: Department of Social & Health Services
Telephone: 253-383-1735

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

LAKE CITY SENIOR HOUSING
12730-12740 30TH AVE NE
SEATTLE, WA 98125

TARGET PROPERTY COORDINATES

Latitude (North):	47.72220 - 47° 43' 19.9''
Longitude (West):	122.2959 - 122° 17' 45.2''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	552805.6
UTM Y (Meters):	5285446.0
Elevation:	215 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	47122-F3 SEATTLE NORTH, WA
Most Recent Revision:	1983

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

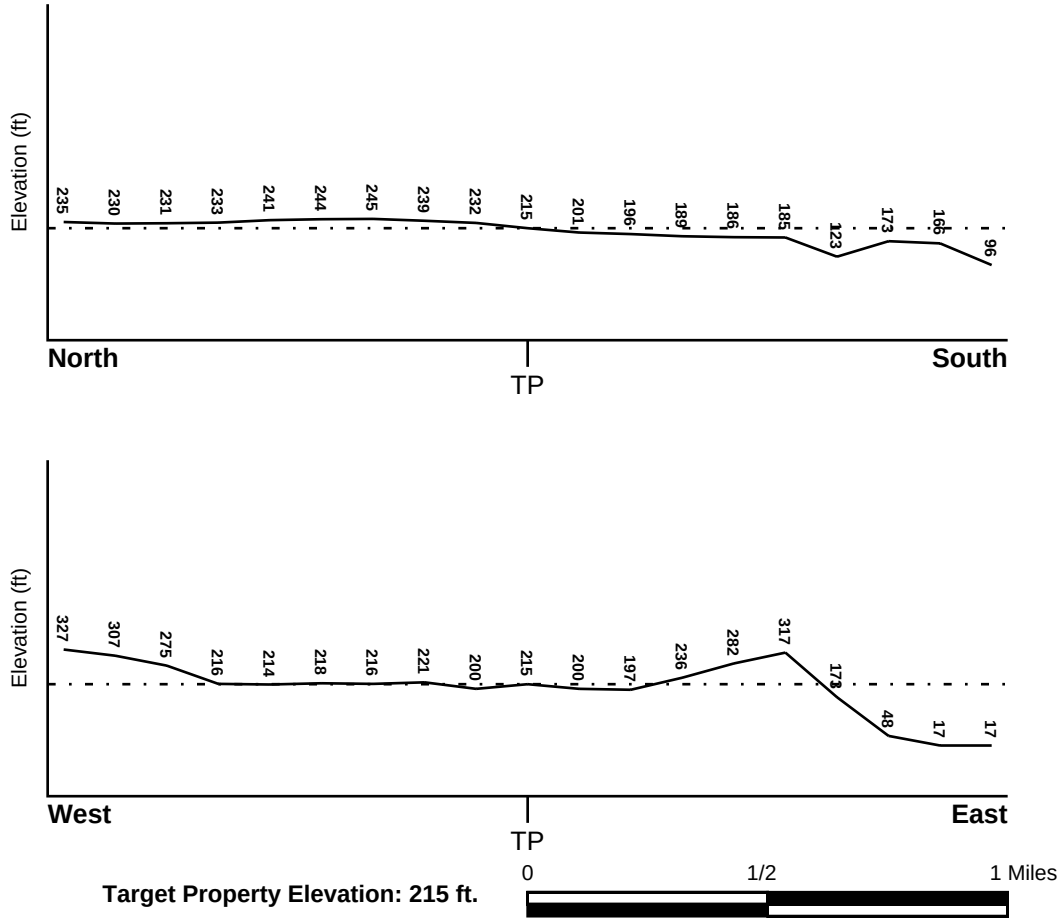
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SSE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
KING, WA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 53033C0331F

Additional Panels in search area:
53033C0332F
53033C0327F
53033C0333F
53033C0334F
53033C0329F

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
SEATTLE NORTH	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
3	1/2 - 1 Mile NNE	W
4	1/2 - 1 Mile WSW	NW

For additional site information, refer to Physical Setting Source Map Findings.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	ALDERWOOD
Soil Surface Texture:	gravelly - sandy loam
Hydrologic Group:	Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
Soil Drainage Class:	Moderately well drained. Soils have a layer of low hydraulic conductivity, wet state high in the profile. Depth to water table is 3 to 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	MODERATE
Depth to Bedrock Min:	> 60 inches
Depth to Bedrock Max:	> 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	7 inches	gravelly - sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 6.00 Min: 2.00	Max: 6.50 Min: 5.10
2	7 inches	35 inches	very gravelly - loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 6.00 Min: 2.00	Max: 6.50 Min: 5.10
3	35 inches	39 inches	cemented	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam
very gravelly - sandy loam

Surficial Soil Types: silt loam
very gravelly - sandy loam

Shallow Soil Types: very gravelly - loam

Deeper Soil Types: very gravelly - coarse sand
stratified
very gravelly - loamy sand
very gravelly - sand

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS3279572	1/2 - 1 Mile SSE
2	USGS3279638	1/2 - 1 Mile WSW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

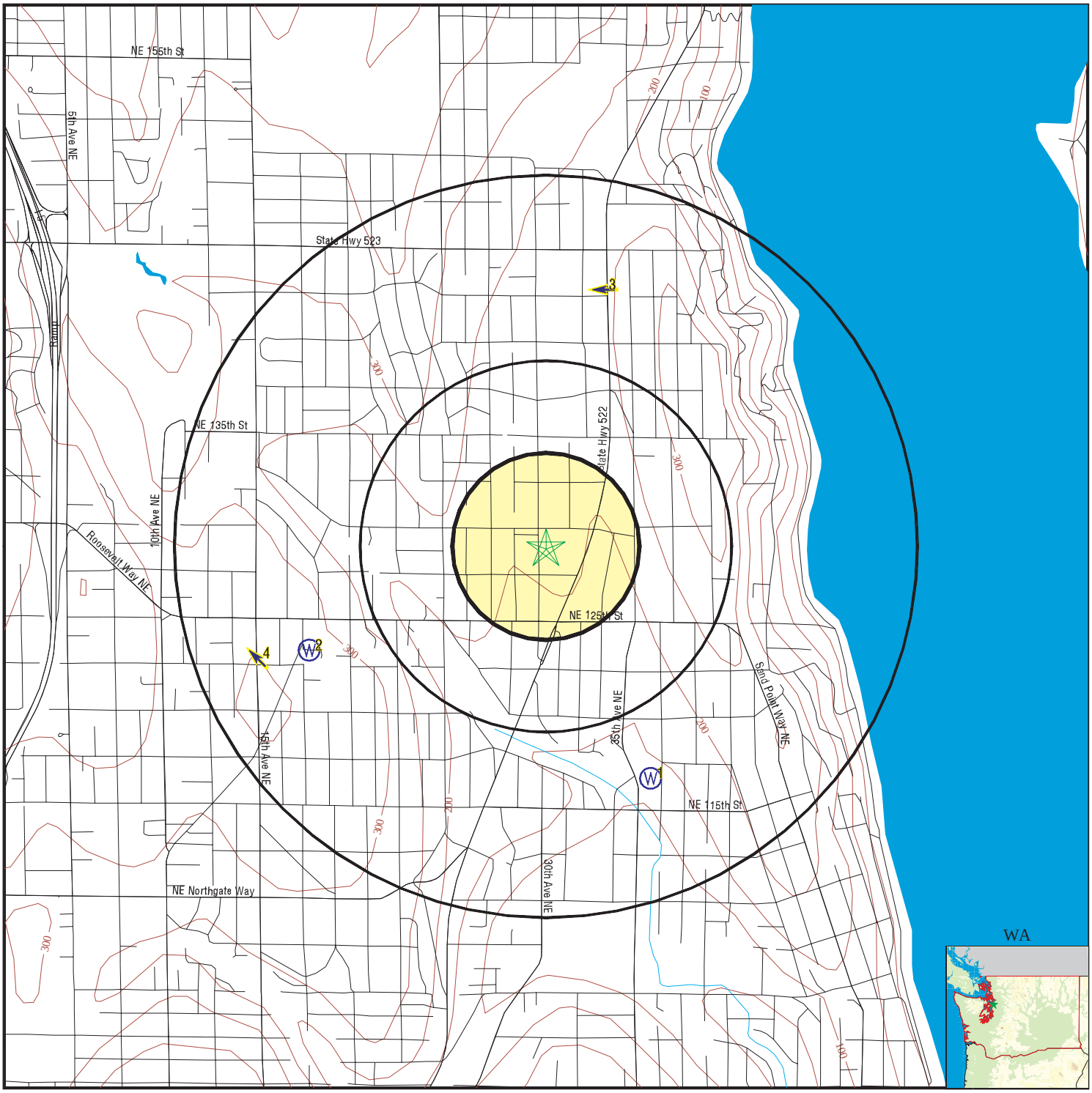
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 1929756.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data

SITE NAME:	Lake City Senior Housing	CLIENT:	SLR International Corporation
ADDRESS:	12730-12740 30th Ave NE Seattle WA 98125	CONTACT:	Kim Saganski
		INQUIRY #:	1929756.2s
LAT/LONG:	47.7222 / 122.2959	DATE:	May 16, 2007 5:45 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SSE
1/2 - 1 Mile
Lower

FED USGS **USGS3279572**

Agency cd:	USGS	Site no:	474248122171901
Site name:	26N/04E-30F01		
Latitude:	474248		
Longitude:	1221719	Dec lat:	47.71315362
Dec lon:	-122.28984863	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	033
Country:	US	Land net:	SE NW S30 T26N R04E W
Location map:	SEATTLE NORTH	Map scale:	24000
Altitude:	400		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	3		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Lake Washington. Washington. Area = 619 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19010101
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	185	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1957-02-28	Ground water data end date:	1957-02-28
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1957-02-28	55	

2
WSW
1/2 - 1 Mile
Higher

FED USGS **USGS3279638**

Agency cd:	USGS	Site no:	474306122183001
Site name:	26N/04E-28D01		
Latitude:	474306		
Longitude:	1221830	Dec lat:	47.7181535
Dec lon:	-122.30957158	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	033
Country:	US	Land net:	NW NW S28 T26N R04E W
Location map:	SEATTLE NORTH	Map scale:	24000
Altitude:	300		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	3		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Lake Washington. Washington. Area = 619 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19010101
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	40	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1953-09-04	Ground water data end date:	1953-09-04
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1953-09-04	31	

3
NNE
1/2 - 1 Mile
Higher

Site ID:	3691
Groundwater Flow:	W
Shallowest Water Table Depth:	5.5
Deepest Water Table Depth:	8.5
Average Water Table Depth:	Not Reported
Date:	07/07/1992

AQUIFLOW **61127**

4
WSW
1/2 - 1 Mile
Higher

Site ID:	4929
Groundwater Flow:	NW
Shallowest Water Table Depth:	42.5
Deepest Water Table Depth:	43.5
Average Water Table Depth:	Not Reported
Date:	10/09/1992

AQUIFLOW **41987**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for KING County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 98125

Number of sites tested: 7

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.100 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	0.957 pCi/L	86%	14%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Wells
Source: Department of Health
Telephone: 360-236-3148
Group A and B well locations.

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

STREET AND ADDRESS INFORMATION

KIM A. SAGANSKI, L.G.

SENIOR GEOLOGIST

Ms. Saganski has over 10 years of experience in conducting subsurface investigations and Phase 1 Environmental Site Assessments (ESAs) in accordance with American Society for Testing and Materials (ASTM) and/or client-based specifications. Ms. Saganski is also experienced with soil and groundwater remediation and risk assessments.

She has managed and conducted more than 100 Phase I ESAs at a variety of commercial retail properties, apartment buildings, industrial, and manufacturing facilities, and large undeveloped parcels. Responsibilities have included regulatory records reviews, site investigations, personnel interviews, evaluation of aerial photographs and historical maps, technical writing, and developing scopes of work for further evaluation, if needed.

Ms. Saganski has managed subsurface investigations that include characterization of soil and groundwater and interpretation of chemical analytical results. Field experience includes monitoring well installation, geotechnical soil sampling, environmental soil sampling, groundwater sampling, sediment sampling, well elevation surveys, geological logging of test pits, and remediation system installation, operation, maintenance, and evaluation.

SELECTED TECHNICAL EXPERIENCE

Phase I Environmental Site Assessments

- Conducted a due diligence assessment of a hydroelectric power plant, which included the dam facilities, 10 miles of canals and underground conveyance piping, a former lumber mill, landfills, nearby gasoline stations, nearby agricultural chemical use, electrical substations, and the power plant. The assessment was conducted for as part of the property transfer.

- Conducted historical and regulatory research, and site investigation for a Phase I/II environmental assessment of a lumber mill “company town” (established in the mid-1800s) on the Olympic Peninsula in western Washington. Evaluated the town’s drinking water source and wastewater treatment plant. Environmental issues identified in this assessment were related to the presence of historical landfills, the presence of gasoline, diesel, and heating oil containing underground and aboveground storage tanks, and the potential presence of asbestos-containing building materials. Historical research identified the previously unknown presence of an underground storage tank prior to road improvement excavation activities.

- Performed a Phase I environmental site assessment and determined the scope of work for the Phase II assessment of a lumber mill located within the NPL region of Commencement Bay in Tacoma, Washington. Environmental issues identified at this site were related to PCBs from electrical transformers, as well as potential petroleum hydrocarbon contaminated soil and groundwater associated with the historical presence of underground and aboveground storage tanks. This Phase I report was later referenced by lawyers in the property owner's defense from becoming a potentially responsible party of the Commencement Bay NPL site.

- Managed the Phase I environmental assessment on the Moses Coulee project for The Nature Conservancy. Worked with Nature Conservancy personnel in identifying areas of concern on a 3,500-acre parcel of land in eastern Washington. Historical research involved reviewing Army files regarding a former long-range bombing field on an adjacent property. Conducted interviews with Department of Transportation personnel and other government agencies regarding historical gravel pits on and near the property. Authored phase I environmental assessment report. The Nature Conservancy recently acquired the Moses Coulee property.

- Conducted numerous Phase I environmental site assessments on a variety of properties including undeveloped parcels, industrial properties, residential properties, commercial retail properties, malls, gasoline stations, lumber mills, restaurants, apartment complexes, and office parks. The properties were located in Washington, Alaska, California, Vermont, New Hampshire, Pennsylvania, Texas, and New Jersey.

- Conducted transaction screen environmental site assessments of numerous parcels owned by a large, regional utility company in western Washington. This work involved reviewing client property files interviewing real estate personnel, and conducting site visits at properties ranging from ¼ acre to approximately 30 acres. These projects were conducted in accordance with ASTM and client-specified standards.

- Performed in-depth historical research and determined the local geology/hydrogeology for a site characterization investigation pertaining to a chemical storage and distribution facility located in Philadelphia, Pennsylvania. The project involved defining three separate aquifers in the subject area. Authored the work plan and assisted in the preparation of the sampling plan for use in the investigation.

- Conducted numerous transaction screen records reviews for a client on a nationwide basis. These projects involved historical research, regulatory records reviews, and technical report writing.

- Conducted Phase I environmental site assessment at a commercial/industrial site that lies within federal superfund site in the port industrial tideflats of Tacoma. Environmental issues identified in this assessment were associated with oils removed from nuclear submarine parts, potential asbestos materials in the submarine parts, spray painting and sandblasting activities, and potential petroleum hydrocarbon contamination related to automobile and truck maintenance.

- Performed a Phase I environmental site assessment on 70 acres of state park land in New Jersey. The assessment revealed that the land had historically been mined for iron and several test pits and mines were identified on the property.

- Performed a Phase I ESA on a commercial property located in Kelso, Washington. Identified the potential presence of an old underground storage tank on the site associated with a former

service station. During a follow-up subsurface investigation, an underground storage tank was encountered on-site and ultimately closed.

Phase II ESAs/Site Characterizations

- Conducted a subsurface soil investigation at an industrial facility located in Tukwila, Washington. The results of the subsurface investigation indicated that remediation of petroleum-contaminated soil at the site was not feasible due to subsurface soil characteristics and the proximity of the contamination with respect to site structures. Prepared a Site Characterization/Closure Report documenting the site evaluation and received a No Further Action determination with a restrictive covenant through negotiations with the Washington State Department of Ecology.

- Managed a project for a former brick fabrication plant located in Forest Grove, Oregon. The project involved characterization and evaluation of subsurface soil, groundwater, sediment, and surface water conditions at the site. The results of the site characterization work indicated that subsurface soil and groundwater have been impacted by petroleum hydrocarbon releases from former power plant operations at an adjacent property. Conducted a risk assessment and prepared a Risk-Based Corrective Action Plan, which provided sufficient data to request a No Further Action (NFA) determination from the Department of Environmental Quality for the site.

- Managed a remediation project at a former lumber mill site located in Kent, Washington. The project involved reviewing extensive data gathered by other environmental consultants, conducting a supplemental subsurface investigation, and working with an engineer and construction contractors to design, construct, operate, monitor and maintain an air sparge/soil vapor and groundwater extraction system to cleanup contaminated groundwater. The cleanup objectives have been met.

- Managed site characterization and remediation projects at several properties owned by a local petroleum distribution company including retail gasoline and diesel truck stops. Remediation technologies have included excavation and on-site aeration of contaminated soil, air sparge and soil vapor extraction systems to cleanup groundwater, and monitoring natural attenuation in groundwater.

- Prepared a work plan to conduct a subsurface investigation at a Chevron Station located in Salem, Oregon. The plan was submitted to Oregon Department of Environmental Quality (DEQ) in accordance with the program for Risk Based Decision Making for the Remediation of Petroleum Contaminated Sites, OAR 340-122-0205 through 340-122-0360. Conducted the subsurface investigation and successfully determined the magnitude and lateral and vertical extent of releases of total petroleum hydrocarbons (TPH) associated with the historic use of aboveground fuel storage tanks. The data collected was sufficient to conduct a risk assessment and request an NFA determination from DEQ.

- Conducted the site characterization/risk assessment work and submitted a Draft Corrective Action Plan (CAP) for the remediation of benzene and naphthalene dissolved in groundwater and removal of light non-aqueous phase liquid (LNAPL) from groundwater at the Stafford Oil Chevron station in Molalla, Oregon. The CAP was prepared in accordance with the Oregon Department of Environmental Quality (DEQ) program for Risk Based Decision Making for the Remediation of Petroleum Contaminated Sites, OAR 340-122-0205 through 340-122-0360. The selected corrective action included installation of an air sparge/soil vapor extraction system, indoor air monitoring, and groundwater monitoring.

- Managed a Phase I/II environmental site assessment on a commercial property located in Renton, Washington. The Phase I assessment confirmed the former presence of a gasoline station on the site. The project involved the installation of a monitoring well system, an elevation survey of the wells to determine groundwater flow direction, sampling of the groundwater for petroleum hydrocarbon contamination, interpretation of analytical data, and preparation of a report detailing the findings and conclusions.

- Managed the Phase II environmental assessment project at a former gasoline station in Bainbridge, Washington. This project involved determination of the number and location of underground storage tanks on the site and an environmental investigation of the soil and groundwater conditions around the underground tanks. A geotechnical evaluation of the site for shoring design of the proposed underground storage tank excavation was performed concurrent with the environmental investigation.

- Conducted a subsurface environmental investigation on a heavy equipment sales and service facility located in Bothell, Washington. The investigation focused on a drainage sump, an oil/water separator, aboveground storage tanks, and the former presence of underground storage tanks. Potential surface soil contamination was also investigated in a concrete form production area. Contaminated soils encountered at this site were excavated and transported off-site for disposal.

- Performed a comprehensive environmental site characterization of forestland owned by the Tulalip Tribe. The Army and an aerospace research facility historically leased the property. The purpose of the project was to characterize and remediate groundwater and soil contamination prior to returning the property to the tribe. Responsibilities included: coordinating road construction with a concerted effort toward conserving trees, managing drilling crews during installation of groundwater monitoring wells, conducting soil and groundwater characterization sampling, and producing documentation for site evaluation.

- Conducted surface water quality monitoring and chemical characterization of sediments during a well-publicized underwater capping operation on the Willamette River in Portland Oregon. Communicated with Port of Portland officials during the month-long operation. Worked closely with Department of Fish and Wildlife and Department of Environmental Quality. Managed fieldwork that involved coordinating work schedules, training field staff, and

maintaining open communication. The purpose of this project was to protect water quality and aquatic life in the lagoon.

- Conducted an extensive hydrogeologic study on a 200+ acre industrial facility in Ellensburg, Washington for the purpose of decommissioning stormwater detention ponds in accordance with state and federal regulations. The project also included environmental characterization associated with facility operations and an historic city landfill on the property. The purpose of this ongoing project was to remediate the land for possible future development.

- A member of the field team conducting Phase II engineering (Brownfields project) of a state Superfund site in El Paso, Texas. Responsibilities included geotechnical soil sampling and general field support. This site was historically a metal plating facility and has heavy metal contaminated soil. The engineering services supported the design of a cap and construction of a new warehouse.

- Conducted Phase II soil sampling and supervised magnetic surveying of a former military base located in Washington to locate underground storage tanks and sumps. Responsibilities included interpretation of laboratory data and report production.

- Conducted a Phase I/II ESA on a former gasoline station site located in New Hampshire. Environmental issues identified at this site were associated with the presence of hydraulic lifts and a waste oil catch basin inside the building, and the undocumented removal of underground storage tanks. Soil borings were advanced at the site for the purpose of sampling soil and groundwater. The hydraulic lifts, waste oil catch basin, and associated contaminated materials were removed and hauled offsite for disposal. This assessment was performed for a property transfer, which was subsequently successful.

- Conducted subsurface environmental investigation of three different sites for a PVC pipe manufacturing company in California. Responsibilities included oversight during well installation and decommissioning, and sampling of groundwater and soils. Produced a report detailing the results of the sampling task.

EDUCATION

B.S., Geological Sciences, University of Washington, 1994

PROFESSIONAL CERTIFICATIONS/REGISTRATIONS

Washington State Licensed Geologist
Certified Hazardous Waste Site Supervisor
40-Hour Health and Safety Training for Hazardous Waste Operations

MICHAEL D. STATON, R.G.

PRINCIPAL GEOLOGIST/WASHINGTON OPERATIONS MANAGER

Mr. Staton has over 18 years of experience in environmental consulting with technical emphasis on remedial investigations, hydrogeology, feasibility studies and site remediation. He specializes in the design, installation, operation and maintenance, and performance evaluation of in-situ and aboveground systems to remediate soil and groundwater. Mr. Staton has managed a wide range of environmental projects in the western and central United States involving the investigation and remediation of contaminants such as chlorinated solvents, metals, pesticides, petroleum hydrocarbons, nitrates, dioxins/furans, phenols, and polychlorinated biphenyls in soil and groundwater. He has developed several innovative techniques for site remediation and is the co-inventor of a patented, automatic-draining, condensate collector used in soil vapor extraction systems (U.S. Patent #5372621).

SELECTED TECHNICAL EXPERIENCE

- **Technical Support, Arbitration Hearing, Seattle, Washington.** Assisted the client in preparation for an arbitration hearing concerning the scope of work and financial responsibility to remediate subsurface contamination at a gas station site in Seattle, Washington. The work consisted of reviewing the opposing party's recommended scope of work and evaluating if the scope was appropriate for the site and contaminant conditions. The opposing party was proposing to remediate the soil and groundwater to MTCA Method A cleanup levels, which would cost more than $9,000,000. Identified weaknesses in the opposing party's approach, calculated site-specific, risk-based MTCA Method B cleanup levels for the impacted soil and groundwater, and developed two remediation alternatives to meet those cleanup levels. The estimated remediation costs to meet the Method B cleanup levels ranged from approximately $1,400,000 to $3,500,000.

- **Remedial Investigation and Site Remediation, Agriculture Chemical Storage Facility, Pasco, Washington.** Managed two remedial investigations at an agriculture chemical storage and distribution facility in Pasco, Washington. The initial investigation consisted of drilling and sampling 34 soil borings, installing 3 monitoring wells, excavating and sampling 3 test pits, collecting groundwater samples, and preparing a report. Prepared a technical report in accordance with an MTCA agreed order that summarized the many investigations and remedial actions that had been conducted at the site, identified the contaminants of concern for soil and groundwater, presented a baseline risk evaluation and site conceptual model, and described preliminary site remedial action objectives. Conducted a Phase II investigation that consisted of drilling and sampling 11 soil borings, installing 6 shallow and 3 deep monitoring wells, conducting quarterly groundwater sampling, collecting surface water samples from a neighboring stream, re-evaluating the contaminants of concern and the site conceptual model, and preparing a report. Performed a feasibility study that included identifying and screening several soil and groundwater remediation technologies, developing and evaluating five cleanup action alternatives, and recommending an alternative. Negotiated a cleanup action plan with the Department of Ecology (Ecology), and the site remediation (soil excavation, capping, and monitored natural attenuation) was conducted under a MTCA consent decree.

- **Remedial Investigation/Feasibility Study, Former Bulk Fuel Terminal, Edmonds, Washington**. Managed an RI/FS at a 47-acre, former bulk fuel terminal in Edmonds, Washington, that was conducted in accordance with a MTCA agreed order. Negotiated a focused scope of work for soil, groundwater, surface water and sediment sampling to address remaining data gaps, and directed the investigation activities. Prior to the completion of the FS, several interim actions were conducted at the site to reduce the threat to human health and the environment, and to allow for the sale and redevelopment of a 22-acre portion of the site. The interim actions included the excavation and off site disposal of over 150,000 tons of TPH- and metals-impacted soil, and the recovery of over 200,000 gallons of free product and impacted groundwater. Due to the success of the interim actions at remediating the soil and groundwater, we were able to apply risk-based remediation levels that were significantly greater than the cleanup levels that were proposed by Ecology.

- **Due Diligence Support, 13-Mile-Long Parcel, Buckley/Sumner, Washington.** Provided environmental services in support of a prospective purchaser's due diligence evaluation of water rights and other assets within a 13-mile-long stretch of parcels (the Conveyance Area) in Buckley and Sumner, Washington. The assets included a diversion dam on the White River, a surface water transport system (flowline) that runs from the dam to a downstream location on the White River, the properties located along the flowline, and a power plant and related structures. The flowline consisted of a flume, several settling basins and canals, two underground piped sections, and Lake Tapps. The due diligence efforts focused on establishing the environmental conditions within and adjacent to the Conveyance Area. The work initially consisted of reviewing project documents; reviewing local, state, and federal records/databases; conducting site visits; and interviewing current and former site personnel to identify and evaluate any recognized environmental conditions (RECs) within and near the Conveyance Area. After completing the initial assessment, several data gaps were identified and investigation activities were conducted to resolve the data gaps. The investigation consisted of drilling and sampling 42 soil borings, installing and sampling 7 temporary groundwater monitoring wells, and collecting 7 surface soil samples, 8 sediment samples, and 8 surface water samples. Based on the investigation results, several areas of contamination were encountered within or near the Conveyance Area, including two areas that were previously unidentified. The due diligence findings were used by the client to effectively minimize their environmental liabilities prior to purchasing the water rights and assets.

- **Litigation Support, Former Bulk Fuel Terminal and Asphalt Plant, Edmonds, Washington.** Provided technical support in the client's preparation for litigation pertaining to subsurface contamination at a former bulk fuel terminal and asphalt plant. The work consisted of reviewing the previous environmental reports, evaluating the previous remediation activities that were completed at the site, developing MTCA Method B risk-based soil and groundwater cleanup levels, and estimating the cost to remediate the site to the Method B cleanup levels. We also observed additional soil excavation activities that were conducted by the opposing party to remove Bunker C-impacted soil, and documented that most of the excavated soil should have been used as

backfill rather than hauled off site for disposal. Based in part to our work and field observations, the case settled prior to going to court, and our client paid less than they had anticipated.

- **Remedial Investigation and Remedial Action Plan, Agriculture Chemical Storage Facility, Caldwell, Idaho.** Managed a remedial investigation and negotiated a remedial action plan at an agriculture chemical storage and distribution facility in Caldwell, Idaho. The work, which was conducted under a consent order, initially consisted of the development and negotiation of a focused scope of work with the Idaho Department of Environmental Quality (IDEQ). The work included the drilling and sampling of over 30 soil borings, the installation of over 10 groundwater monitoring wells, and groundwater monitoring. After it was discovered that the groundwater contamination extended off site, an off site assessment was conducted that included a potential receptor survey, collecting a water sample from a neighboring water supply well, and collecting groundwater samples from over 10 temporary wells. The remedial action plan consisted of developing and negotiating cleanup levels for contaminants of concern and a remedial action (localized excavation, capping, and groundwater monitoring) that were approved by the IDEQ. Currently designing the remediation activities and the construction of an evaporation pond for the site storm water.

- **Technical Support for Cost Recovery Action, Former Gas Station, Seattle, Washington.** Provided technical support in a cost recovery action against a previous owner of a gas station in Seattle, Washington. The work consisted of reviewing the previous environmental reports, conducting a subsurface investigation to assess the age and current extent of the contamination, and estimating the costs to remediate the contamination. The results of the assessment showed that the contaminant release occurred during the previous ownership, and our client received over $160,000 to cover the investigation and remediation costs. After the settlement, the work consisted of excavating and off-site recycling of 300 tons of impacted soil, extracting over 1,600 gallons of impacted groundwater from the excavation, and groundwater monitoring.

- **Remedial Investigations, Bulk Fuel Farm and Aircraft Maintenance Hangars, SeaTac International Airport, Washington.** Managed remedial investigations at a bulk fuel farm and associated closed and abandoned hydrant line systems, and at two aircraft maintenance hangars at SeaTac International Airport. The investigations consisted of preparing work plans and negotiating scopes of work with the Port of Seattle and the Department of Ecology. In addition, the project included extensive permitting and coordination for work in the airport operations area; drilling and sampling a total of 130 soil borings; installing several groundwater monitoring wells; sampling groundwater from wells and temporary wellpoints; evaluating the direct contact and protection of groundwater risks associated with the TPH-impacted soil, and preparing reports. Based on the results of the risk analyses, soil cleanup levels of up to 13,500 milligrams per kilogram TPH have been proposed for the sites.

- **Remediation of Petroleum-Impacted Soil, Bulk Fuel Farm, Spokane International Airport, Washington.** Managed the remediation of petroleum hydrocarbon-impacted soil and groundwater at a former bulk fuel farm at Spokane International Airport. The

work initially consisted of performing a risk evaluation of the impacted soil in accordance with the Department of Ecology's Interim TPH Policy; monitoring groundwater conditions in perched and deep monitoring wells; and negotiating a cleanup action plan with Ecology. Successfully negotiated perched groundwater cleanup levels based on protection of surface water and installed a surface water compliance well approximately 500 feet downgradient of the groundwater plume. To recover free product (Jet A fuel) from the groundwater and remove the soil that contained total petroleum hydrocarbon concentrations greater than 4,310 mg/kg (risk-based cleanup action level), the remediation work consisted of excavating approximately 15,000 tons of soil, hauling over 9,600 tons of impacted soil off site for thermal treatment, pumping over 20,000 gallons of free product and impacted groundwater from one of the excavations, and backfilling the excavations with "clean" excavated soil and the thermally treated soil. After completing the remediation work and one year of groundwater monitoring, the Department of Ecology issued a "no further action" status for the site.

- **Technical Support for Cost Recovery Action, Gas Station, Bellevue, Washington.** Provided technical support in a cost recovery action against a previous tenant of a former gasoline service station in Bellevue, Washington. The work consisted of reviewing the previous environmental reports and invoices; assessing the appropriateness of the previous work and costs; and evaluating the age of the contaminant release. The purpose of the work was to determine if any of the site soil and groundwater contamination was due to a release that may have occurred when the previous operated the sties (1982 to 1989). Directed the sampling of groundwater from site wells to allow a laboratory to conduct forensics analysis of the groundwater contamination. Based on the results of the forensics analysis and our evaluation of the previous soil and groundwater sample analytical data, we determined that at least a portion of the contamination was released from 1982 to 1989. The results of the evaluation were used in a cost recovery mediation that resulted in our client receiving over $140,000.

- **Design of Recovery/Treatment System, Naval Air Station, Adak, Alaska**. Managed a team that designed a groundwater and free product (jet fuel JP-5) recovery/treatment system at the Naval Air Station in Adak, Alaska. The recovery system included 26 recovery wells within 6 separate plumes. The water and product was pumped into 6 heated product collection enclosures that each contained an oil/water separator tank, a product storage tank, and a water transfer system. The water was then pumped through several miles of underground piping to a dissolved air flotation (DAF) unit for treatment. The total pumping rate of the system was greater than 250 gallons per minute. The system also included remote monitoring by a programmable logic controller. The design package included a total of 23 drawings, written design specifications, and an operation and maintenance plan. The project team received a Certificate of Appreciation from the Department of the Navy recognizing the quality of this work.

- **Groundwater Study, SeaTac International Airport, Seattle, Washington.** Manager and hydrogeologist of a team conducting peer review of the Port of Seattle's groundwater study at SeaTac International Airport. The purpose of the groundwater study, which was conducted in accordance with a MTCA agreed order, is to provide a more comprehensive understanding of the fate and transport of groundwater contamination beneath the airport. Phase I of the groundwater study consists of creating an extensive database containing hydrogeologic conditions and groundwater receptor locations within a 10-mile radius of the airport, and environmental investigation results within a 1-mile radius of the airport. The database is currently being used to model contaminant fate and transport beneath the airport. The objectives of peer review work are to ensure that the terms of the agreed order are met but not exceeded, to identify areas where significant cost savings can be realized, and to review and provide comment on the database and modeling results.

- **Decommissioning of Bulk Fuel Farm, SeaTac International Airport, Seattle, Washington.** Managed a team that designed the scope of work, obtained the permits, prepared the contractor bid plans and specifications, and conducted contractor oversight for decommissioning of a bulk fuel farm and associated fuel hydrant line system at SeaTac International Airport. The decommissioning activities included demolishing and disposing the aboveground components of the fuel farm (e.g., electrical control shed, fuel filter sheds, and aboveground pumps and piping), removing and disposing fourteen 30,000-gallon underground Jet A fuel storage tanks, backfilling the excavation, capping the site surface with asphalt, and inerting and capping the underground hydrant lines. The project also included designing, installing, and operating an in-situ bioventing system to remediate the backfilled petroleum hydrocarbon-impacted soil and the impacted soil outside of the tank excavation area. Within 5 months of system operation, the hydrocarbon concentrations in the soil were reduced to below risk-based cleanup levels.

- **Groundwater and Free Product Recovery/Treatment System, Bulk Fuel Terminal, Tacoma, Washington**. Managed the operation and maintenance of a groundwater and free product (gasoline and diesel) recovery/treatment system and a soil vapor extraction system at a bulk fuel terminal in Tacoma, Washington. The work was conducted in accordance with a MTCA consent decree. The work initially consisted of evaluating the performance of the existing systems, negotiating system modifications and reductions in all of the sampling programs with the Department of Ecology, designing and installing cost effective modifications to components of the systems, and obtaining permission to deactivate the vapor treatment system. Obtained a sanitary sewer discharge permit to eliminate the high costs associated with NPDES discharge monitoring, and designed and directed the installation of system discharge piping and the connection to a sewer main. Based on the system modifications, the total groundwater and product pumping rates from 25 recovery wells significantly increased and the project costs decreased by approximately $50,000 per year. The work also consisted of designing and expansion to the remediation system to address a previous release area.

- **Groundwater Monitoring Study and Analysis, PLP Group**. Assisted a multiple party group in negotiating a financial settlement for remediation of a previous property owner's 17,740-gallon release of ethanol blend product at an active bulk fuel terminal. The work initially consisted of two years of quarterly groundwater monitoring to evaluate the impacts of the release and the migration of the main contaminant of concern (benzene), and an extensive records review to document and evaluate the site conditions before and after the release. The impacts from the ethanol blend release were difficult to determine due to the presence of soil and groundwater contamination at the site prior to the release. The impacts from the ethanol blend release were difficult to determine due to the presence of soil and groundwater contamination at the site prior to the release. Prepared a report that summarized the results of our evaluation of the soil and groundwater impacts from the release, and also conducted a feasibility study to evaluate several remediation alternatives and the costs to obtain project closure. The report and estimated cost to obtain project closure (based on the selected remediation alternative) were critical components to the successful settlement negotiations.

- **Soil Remediation, SeaTac International Airport, Seattle, Washington.** Managed the design, installation, and operation and maintenance of a dual-phase extraction system to remediate solvent- and hydrocarbon-impacted soil and groundwater at a former solvent and petroleum storage area at SeaTac International Airport. The system consisted of a 10-horsepower, liquid-ring pump that extracted free product (mineral spirits), groundwater, and soil vapors from two recovery wells. The extracted water and product were pumped into a storage tank, and the extracted vapors were treated by two carbon-filled canisters prior to emission. After five months of operation, the system was deactivated because the recoverable free product was removed and the hydrocarbon and solvent concentrations in the extracted vapors had decreased to asymptotic conditions. The system recovered a total of approximately 3,500 gallons of free product and groundwater, and a total of approximately 7,770 pounds (1,160 gallons) of volatile organic compounds in the vapor phase.

- **Due Diligence Support, Aircraft Part Manufacturer, Kent, Washington.** Provided environmental services in support of a prospective purchaser's due diligence evaluation of a former aircraft parts manufacturing facility in Kent, Washington. The work initially consisted of reviewing the previous environmental reports, identifying investigation data gaps, and recommending additional investigation activities to address the data gaps. After the seller conducted the recommended activities, the work consisted of reviewing the sample analytical results and evaluating the accuracy of risk-based MTCA Method C soil cleanup levels that were calculated by the seller's consultant. Assisted the client in the negotiation of an indemnification agreement.

- **Remedial Investigation and Feasibility Study, Former Service Station, Longview Washington.** Provided technical support to a property owner in negotiations with a previous tenant regarding future remedial actions at a former gasoline service station in Longview, Washington. The client is currently unable to sell the site due to the presence of soil and groundwater contamination. The work consisted of reviewing the previous environmental reports, identifying investigation data gaps, and recommending

additional investigation activities to address the data gaps. Due to the previous owner's unwillingness to conduct the recommended actions, we conducted the investigation activities and completed a feasibility study, and received reimbursement from the client's insurance company. The investigation consisted of the drilling and sampling of over 30 soil borings, and installation and sampling of 14 shallow and deep groundwater monitoring wells.

EDUCATION

M.B.A. (Executive Program), University of Washington, 2005
M.S., Geology, Kansas University, 1987
B.S., Geology, University Puget Sound, 1984

REGISTRATIONS/CERTIFICATIONS/

Licensed Geologist, Washington, 2002
Registered Geologist, Oregon, 1995
Professional Geologist, Wyoming, 1992
Registered UST Site Assessor, Washington, 1995

BOARD MEMBERSHIPS

Kansas University Geology Associates Advisory Board (2005 – present)
Northwest Environmental Education Council (2006 – present)

PUBLICATIONS

"Groundwater vs. Surface Water Influences on Sediment Toxicity and Geochemistry in a Puget Sound Estuary." With L. Williams and L. Jacobs. Procedings of the Annual Conference of Society of Environmental Toxicology and Chemistry. 2005.

"In-situ Remediation of Petroleum Hydrocarbons." With R.S. Reis. Proceedings of the American Society of Civil Engineers North American Water and Environment Congress. 1996.

"Design of Free Product Recovery System for JP-5 at NAS Adak, Alaska." With R.S. Reis and H. Small. Proceedings of the USEPA Superfund XV Conference. 1994.

"Vacuum Enhanced Recovery of Semi-volatile LNAPLs." With A. Udaloy. Proceedings of EMCON Industrial Conference. 1994.

"Vacuum Enhanced Recovery of Semi-volatile LNAPLs." Proceedings of the 8th National Outdoor Action Conference, National Ground Water Association. 1994.

"Vacuum Enhanced Recovery of Semi-volatile LNAPLs." Proceedings of Alternative Corrective Action Technologies, USEPA Training Class. 1994.

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

Cambridge Housing Site
13000 Linden Avenue
Seattle, Washington

SLR Project #001.0274.00001

Prepared for:
Chevron Environmental Management Company
P.O. Box 399
Edmonds, Washington 98020

Prepared by:
Kim A. Saganski
Senior Project Geologist
SLR International Corp

Reviewed by:
Michael D. Staton
Principal Geologist
SLR International Corp

Date:
June 14, 2007

EXECUTIVE SUMMARY

SLR International Corp (SLR) is pleased to present this Phase I Environmental Site Assessment (ESA) report. Presented below is an overview of the project, including a summary of our significant findings:

Property Name ("*Site*"):	Cambridge Housing Site
***Site* Address (or Other Physical Location Description):**	13000 Linden Avenue North, Seattle, Washington
***Site* and Area Description:**	A large multi-family housing construction project began at the *Site* in 2006 and construction is still in progress. Surrounding land use is a mix of commercial and residential with commercial buildings located adjacent to the site and residential developments in the surrounding area.
Observed Current *Site* Use/Operations:	Multi-family housing structure under construction.

Year	Summary of *Site* History
Prior to 1930s	The *Site* and surrounding area were undeveloped and wooded.
1930s and 1940s	The southern and central portions of the *Site* were undeveloped and wooded. A few buildings associated with an automobile race track occupied the northern portion of the *Site*. The use of these buildings is unknown; however, they may have been concession stands and/or maintenance garages.
1950s and 1960s	The woodlands on the southern and central portions of the *Site* were cleared and the race track buildings located on the northern portion of the *Site* had been removed by the early 1960s.
1970s to 2005	A former cinema/theater building was present on the northwest corner of the *Site* and the rest of the *Site* was developed as a parking lot.
2005 to Present	The *Site* is being redeveloped as a multi-family residential development. The cinema building and parking lot were removed as part of the redevelopment activities.

Conclusions
In May 2007, SLR performed a Phase I ESA of the Cambridge Housing Site located at 13000 Linden Avenue in Seattle, Washington (the "*Site*"). The purpose of the assessment was to identify any known or potential sources of contamination that could have impacted the shallow soil that was excavated at the *Site* in 2005 and 2006, at depths up to 8 feet below ground surface, and hauled to the Unocal Edmonds Bulk Fuel Terminal. The assessment was performed in conformance with the scope and limitations of ASTM Practice E 1527 to the extent that this practice could be used to fulfill the project objective. The results of the assessment revealed that the only identified known source of contamination that could have impacted the excavated soil was asphalt pavement that was ground up during the excavation and mixed with the soil that was transported off site. The only identified potential source of contamination that could have impacted the excavated soil was any unknown source(s) associated with the former automobile race track buildings that were located in the northern portion of the *Site* prior to the mid-1960s.

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APPENDICES

1.0 INTRODUCTION

1.1 PROPERTY NAME AND LOCATION

Property Name (*"Site"*):	Cambridge Housing Site
***Site* Street Address (or Other Physical Location Description):**	13000 Linden Avenue North, Seattle, Washington

Figure 1 in Appendix B presents a map showing the location of the *Site* and the general vicinity within an approximate 1-mile radius.

1.2 CLIENT AND *SITE* OWNER INFORMATION

Client ("User"):	Chevron Environmental Management Company
***Site* Owner ("Owner"):**	Bitter Lake Village Associates (1) and (2) Limited Partnerships
Date Project Authorized:	May 10, 2007

1.3 OBJECTIVE

The objective of this Phase I Environmental Site Assessment (ESA) was to identify any known or potential sources of contamination that could have impacted the shallow soil that was excavated at the *Site* in 2005 and 2006, at depths up to 8 feet below ground surface, and hauled to the Unocal Edmonds Bulk Fuel Terminal. The excavation only removed soil that occurred at depths above the groundwater table; therefore, the potential for off-site impacts to the excavated soil is limited. The potential sources considered in this Phase I ESA are historic site use and/or historic operations on adjacent properties. This Phase I ESA only takes into account the historic activities prior to April 2006 when all of the excavated soil had been removed from the *Site*.

1.4 SCOPE OF WORK, SIGNIFICANT ASSUMPTIONS, TERMS AND CONDITIONS

The scope of work, significant assumptions, and terms and conditions applicable to this Phase I ESA are identified in the following documents:
Soil investigation using the methodologies of ASTM Designation E 1527-05.
Statement of Limitations presented in Appendix A of this report.

Unless specifically addressed within the body of this report, the assessment of the following items, identified as "non-scope items" in the ASTM Practice, were not included in the scope of work of this assessment:

- Radon
- Asbestos-containing materials
- Lead-based paint
- Lead in drinking water
- Wetlands
- Endangered species
- Cultural, historical, and ecological resources

1.5 DATA GAPS AND/OR RESTRICTIONS

Data Gaps In, or Deletions From, the Above-Referenced Scope of	None.

Work:	
Weather-Related Restrictions:	None.
Facility Access Restrictions:	The facility was not entered.
In the opinion of the Environmental Professional, do the identified data gaps or restrictions prevent the development of conclusions regarding the presence of contamination on the *Site*?	No.

1.6 RELIANCE

This report was prepared for the exclusive use of the following:
• Chevron Environmental Management Company

No other entity may rely on the information presented in the report without the expressed written consent of SLR. Any use of this Phase I ESA report constitutes acceptance of the terms and conditions under which it was prepared. SLR's liability extends only to its client and not to any other parties who may obtain the Phase I ESA report.

1.7 USER PROVIDED INFORMATION

Prior to initiating the site reconnaissance, SLR requested the following information from the User of this Phase I ESA report:

Reason Why the User Wants to Have the Phase I ESA Performed:	To identify any known or potential sources of the semi-volatile petroleum hydrocarbons that were present in the excavated soil from the *Site*, and also to identify any potential or known sources of other types of contamination that may be present in the soil.

1.8 PROVIDED DOCUMENTS

The following documents were provided to SLR for review:

Document	Source	Brief Description
Subsurface Exploration, Geologic Hazard, and Preliminary Geotechnical Engineering Report	Prepared by Associated Earth Sciences, Inc. (AESI), dated January 11, 2005.	The report documents a geotechnical evaluation of the site. Based on SLR's experience with these types of investigations, when contaminated soil is observed in the soil samples, this information is included in the report. The report did not indicate that contamination was present in the four soil samples collected from the *Site*.
Results of Sampling of Imported Soil, Unocal Edmonds Bulk Fuel Terminal and *Results of Additional Sampling of Imported Soil, Unocal Edmonds Bulk Fuel Terminal*	Prepared by SLR, dated September 6, 2006 and January 19, 2007, respectively.	These reports document the results of soil sampling and analysis conducted on the 14,000 cubic yards of soil excavated from the *Site* and stockpiled at the Unocal Edmonds Bulk Fuel Terminal. A total of 94 samples were collected and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B, for gasoline-range organics (GRO) by Ecology Method NWTPH-Gx, and for diesel-range organics (DRO) and heavy-oil-range organics (HO) by Ecology Method NWTPH-Dx (after

		silica gel/sulfuric acid cleanup). In addition, 54 of the samples were analyzed for arsenic by EPA Method 6020.
Document	**Source**	**Brief Description**
		Arsenic was detected in all of the 54 analyzed samples at concentrations ranging from 1.35 to 3.41 milligrams per kilogram (mg/kg) (likely background conditions). DRO was detected in 38 of the 94 samples at concentrations ranging from 3.2 to 110 mg/kg; however, the laboratory noted that most of the detected DRO concentrations were primarily due to overlap from heavy oil-range hydrocarbons. HO was detected in 83 of the samples at concentrations ranging from 11 to 1,500 mg/kg. GRO and BTEX were not detected in any of the samples at concentrations above the method reporting limits (MRLs). All of the detected concentrations were below the Department of Ecology's Model Toxics Control Act (MTCA) Method A cleanup levels.

2.0 *SITE* AND SURROUNDING AREA RECONNAISSANCE

A site reconnaissance was conducted by Ms. Kim Saganski of SLR International Corp on May 10, 2007.

2.1 METHODOLOGY

SLR utilized the following methodology to observe the *Site*:
• Observed current *Site* and surrounding land use.

2.2 GENERAL DESCRIPTION

***Site* and Area Description:**	A large multi-family housing construction project began at the *Site* in 2006 and construction is still in progress. Surrounding land use is a mix of commercial and residential with commercial buildings located adjacent to the site and residential developments in the surrounding area.
Structures, Roads, Other Improvements:	The *Site* is currently under construction and appears to be approximately 75 percent complete. The footprint of the 7-story building under construction extends within 10 feet of the property boundaries.
***Site* Size (acres):**	3.25 acres.
Estimated % of *Site* Covered by Buildings and/or Pavement:	95 percent.
Observed Current *Site* Use/Operations:	Multi-family housing under construction.
Evidence of Past *Site* Use(s):	None.

Figure 2 in Appendix B presents a site plan. Photographs of the *Site* are provided in Appendix C.

2.3 HAZARDOUS SUBSTANCES AND PETROLEUM PRODUCTS

SLR made the following visual and/or physical observations during the site reconnaissance and/or identified the presence of the following during the interview or records review portions of the assessment:

Observation	Description
Hazardous Substances and Petroleum Products:	None observed.
Drums (≥ 5 gallons):	None observed.
Strong, Pungent, or Noxious Odors:	None detected.
Pools of Liquid:	None observed.
Unidentified Substance Containers:	None observed.
PCB-Containing Equipment:	None observed.

2.4 INTERIOR OBSERVATIONS

SLR did not enter the building that was under construction during the site reconnaissance.

2.5 EXTERIOR OBSERVATIONS

SLR did not observe evidence of contamination around the perimeter of the *Site* during the site reconnaissance that would indicate a potential for impacts to shallow *Site* soil prior to the 2006 redevelopment.

2.6 UNDERGROUND STORAGE TANKS/STRUCTURES

Existing USTs:	No visible evidence (fill pipes, vent pipes, dispensers, surface patches), which would indicate the presence of USTs, was discovered during the site reconnaissance.
Former USTs:	No visible evidence (fill pipes, vent pipes, dispensers, surface patches), or other evidence of the former presence of USTs was discovered during this Phase I ESA.

2.7 ABOVEGROUND STORAGE TANKS

Existing ASTs:	No ASTs were observed during the *Site* reconnaissance.
Former ASTs:	No evidence of the former presence of ASTs was discovered during this Phase I ESA.

2.8 ADJOINING PROPERTIES

2.8.1 Current Uses of Adjoining Properties

North:	Rite Aid Shopping Center which contains the following businesses: Grocery Outlet, Ross (clothing store), Dollar (thrift store), Bally Fitness, Midas (auto repair), and restaurants.
South:	Commercial offices, some vacant.
East:	Restaurants and Olympic Lincoln Mercury Dealership/Service.
West:	Bitter Lake Park and community center.

2.8.2 Evidence of Past Uses of Adjoining Properties

North:	None observed.
South:	Vacant offices were previously occupied by a court reporting training center.
East:	None observed.
West:	None observed.

2.8.3 Pits, Ponds or Lagoons on Adjoining Properties

North:	None observed.
South:	None observed.
East:	None observed.
West:	Bitter Lake is located approximately 700 feet west of the *Site*.

2.9 OBSERVED PHYSICAL SETTING

Topography of the *Site* and Surrounding Area:	The *Site* slopes gently towards the east. Linden Avenue is higher than properties on both the west side of the road and on the east side of the road to north of the *Site*. Properties adjacent to the north of the west end of the site are lower than the *Site* and at the east end of the *Site* are at an equal elevation. Properties to the south of the site are at approximately the same elevation as the *Site*.

3.0 RECORDS REVIEW

3.1 FEDERAL/STATE ENVIRONMENTAL RECORDS

A regulatory agency database search report was obtained from a third-party environmental database search firm. A complete copy of the database, including the date the report was prepared, the date the information was last updated, and the definition of databases searched, is provided in Appendix D.

Environmental Agency Lists, Search Distance, Listings

Agency List/Database	Search Radius	Number of Listed Sites
Federal NPL	1.0 mile	0
Federal CERCLIS List	0.5 mile	0
Federal CERCLIS NFRAP	*Site*/ Adjoining Property	0
Federal RCRA CORRACTS	1.0 mile	0
Federal RCRA Non-CORRACTS TSD	0.5 mile	0
Federal RCRA Generators	*Site*/ Adjoining Property	12
Federal ERNS	*Site*	0
State-Equivalent NPL (CSCSL)	1.0 mile	6
State-Equivalent CERCLIS (ICR)	0.5 mile	9
State Solid Waste Facilities	0.5 mile	0
State UST Sites	*Site*/ Adjoining Property	8
State LUST Sites	0.5 mile	5

3.1.1 Listings for *Site*

The *Site* was not identified in the environmental database report.

3.1.2 Listings for Nearby Sites with Potential to Impact *Site*

SLR evaluated data presented in the environmental agency database search report. Based on distance from the *Site*, topographic position, nature of the recorded incident, and listed regulatory status, the following listed facilities were considered to be of potential environmental concern regarding the *Site*. Each of the facilities listed below was further evaluated as to whether it has a potential to impact the *Site*, and the rationale is provided below.

Listed Facility Name/Address	**Database Listing**	**Distance/Direction from *Site***	**Potential Impact? (Yes or No)**
Olympic Lincoln Mercury/13001 Aurora Ave N	UST	Adjacent/West	No
The UST was removed and the facility is not listed as a LUST site. This indicates that a release has not occurred from the UST.			

The remaining facilities listed as CSCS, ICR, and LUST sites in the EDR report are not located adjacent to the *Site*; therefore, none of these remaining facilities have a potential to impact the shallow soil that was excavated from the *Site*. In the case where a facility is only listed as a UST or RCRA Generator site, contamination has not been identified on the facility.

3.2 LOCAL/REGIONAL ENVIRONMENTAL RECORDS

SLR checked the following sources to obtain information pertaining to *Site* use and/or indicative of potential concerns in connection with the *Site*:

3.2.1 Health Department/Environmental Division

Agency Name, Contact Information	Finding
King County Health Department	SLR requested environmental records pertaining to the *Site* from the health department. However, no records were found by health department personnel.

3.2.2 Fire Department

Agency Name, Contact Information	Finding
Seattle Fire Department	Fire department records regarding the *Site* were not readily accessible for review.

3.2.3 Building Department

Agency Name, Contact Information	Finding
City of Seattle Department of Planning and Development	Building plan and permit records reviewed indicated that a theater was constructed on the *Site* in 1973 and redevelopment plans were submitted in 2005 for the current construction project.

3.3 HISTORICAL RECORDS

3.3.1 Land Title Records/Deeds

Year	Owner
	Public records were not searched because the historical use of the *Site* appeared to be sufficiently documented by other reviewed sources.

3.3.2 Aerial Photographs

Year	Scale	Observations, *Site* and Adjoining Properties
1936 1946	1"=800' 1"=1,000'	*Site:* undeveloped woodlands in the southern and central portion of the *Site* and buildings on the northern portion of the site associated with an automobile race track that is located north and northeast of the *Site*. North: race track and associated buildings. East: undeveloped woodlands. South: rural residential properties. West: Bitter Lake park.
1956 1960	1"=1,000' 1"=1,000'	*Site*: woodlands have been cleared, race track buildings are present on the northern portion of the *Site* but configurations of

		buildings appear different than in 1936 and 1946 photographs. North: race track and associated buildings. East: cleared for development. South: residential properties. West: Bitter Lake park.
1969	1"=1,500'	*Site*: Vacant, race track buildings are gone. North: large commercial building (Rite Aid Shopping Center) replaced race track. East: car dealership buildings and restaurant. South: residential properties. West: Bitter Lake park.
1974	1"=1,500'	*Site*: theater building in northwest corner and the rest of the *Site* is a parking lot. North: large commercial building (Rite Aid Shopping Center). East: car dealership buildings and restaurant. South: residential properties. West: Bitter Lake park.
1980 1985 1990 1995 2000	1"=1,500' 1"=1,500' 1"=1,000' 1"=2,000' 1"=2,000'	*Site*: theater building and parking lot. North: large commercial building (Rite Aid Shopping Center). East: car dealership buildings and restaurant. South: residential and commercial properties. West: Bitter Lake park.

Aerial photograph research was conducted at the following location:

- Aero-Metric's offices located in Tukwila, Washington.

3.3.3 City Directories

Year	Street Address	Subject/ Adjacent Property	Listed Occupant
1940 1945 1951 1955 1960 1966	North 130th Street and Linden Ave N	*Site* and Adjacent Properties	Either the street or the address range was not listed in the directories.
1971-72 1976 1981 1985	930 130th Street West side of Linden Ave N South side of 130th Street	Adjacent E Nearby W Nearby S	Farrell's ice cream parlor. Apartments. Commercial offices.
1991	930 130th Street West side of Linden Ave N South side of 130th Street	Adjacent E Nearby W Nearby S	Restaurant. Apartments. Commercial offices.

Name of city directories and source:

- Polk's city directories for Seattle, Washington.

3.3.4 Historical Fire Insurance Maps

Sanborn Fire Insurance Maps do not cover the *Site* area.

3.3.5 Historical Topographic Maps

Year	Scale	Observations
1897	1:125,000	The *Site* and surrounding area are undeveloped.
1909	1:62,500	The *Site* and surrounding area are undeveloped. The Seattle-Everett Interurban railroad runs between the *Site* and Bitter Lake.
1949	1:24,000	The southern and central portions of the *Site* are undeveloped. 130th Street is present. One of the Aurora Stadium buildings may occupy the northern portion of the *Site*. The Aurora Stadium grandstands and race track are present to the north and northeast of the *Site*. The east adjacent property is undeveloped. The properties to the south across 130th Street have small structures that are likely residential. A large building is present on the west side of Linden Ave and the area is labeled "Playland" which was an amusement park built around Bitter Lake.
1968	1:24,000	No structures on the *Site*. A structure like the present-day large commercial building is present adjacent to the north of the *Site* replacing the race track and stadium buildings. Several commercial-size buildings are present adjacent to the east of the *Site* (similar to present-day structures). Areas to the south and west of the *Site* are similar to the previous map.
1983	1:25,000	One structure occupies the northwest corner of the *Site* (former theater building). The north adjacent property appears the same as the previous map. Buildings adjacent to the east of the site are similar to present-day. Commercial buildings replaced the previous residential buildings to the south. The previous large building at Bitter Lake park to the west is not shown.

Name of maps and source:

- USGS Quadrangle maps for Seattle, Washington, EDR.

3.3.6 Other Historical Sources

The following historical information was obtained from the Puget Sound Regional Archives office located in Bellevue, Washington.

The Aurora Stadium Speedway occupied the north adjacent property from 1930 through the 1950s. The Gov. Mart Bazar store was constructed on the north adjacent property in 1964. Olympic Mercury was constructed on the east adjacent property in 1967. Farrell's ice cream parlor was constructed on the east adjacent property next to Olympic Mercury in 1968. The Aurora Cinema was constructed on the site in 1972.

3.4 PHYSICAL SETTING

Topography:	The *Site* is at an elevation of approximately 115 meters above mean sea level. The current surface topography is a gentle slope toward the east.

Soil/Bedrock Data:	The geology consists of Vashon till or advance outwash deposits characterized as sand with gravel with varying amounts of silt.
Estimated Depth to Groundwater/ Direction of Gradient:	The depth to groundwater is deeper than 18 feet below ground surface based on the boring log information provided in the geotechnical report for the *Site* (AESI, 2005).

Sources of this information:

- USGS 7.5 Minute Topographic Map, Seattle Quadrangle, 1983.
- Subsurface Exploration, Geologic Hazard, and Preliminary Geotechnical Engineering Report prepared by Associated Earth Sciences, Inc., dated January 11, 2005.
- Interview with Dan Reynolds of Wyser Construction, *Site* redevelopment excavation contractor.

4.0 INTERVIEWS

4.1 FINDINGS FROM INTERVIEW WITH OWNER

Name, Title, Telephone Years Familiar with *Site*	Bryan Park, principal owner, Bitter Lake Village Associates (1) and (2) Limited Partnership, (206) 369-6461, familiar with the *Site* since November 2004.
Current Use of *Site*:	Multi-family housing under construction
Past Use(s) of *Site*:	A cinema and parking lot. A race track was located north of the *Site* and maybe partly on the *Site*.
Current Use of Surrounding Properties:	Shopping center, car sales and service, restaurants and a park.
Past Use(s) of Surrounding Properties:	Similar to the current use.
Current or Past Hazardous/ Petroleum Material Use, Storage, Disposal:	Not aware of any.
Current or Past Regulatory Action(s):	Not aware of any.
Past Releases of Hazardous/Petroleum Materials on the Property:	Not aware of any.
Other Environmental Information (Permits, etc.):	None.

4.2 REQUIRED QUESTIONS

SLR interviewed the User and Owner regarding their awareness of any pending, threatened, or past incidences of the following:

	Owner	**User**
- Litigation Relevant to Hazardous Substances or Petroleum Products in, on, or From *Site*?	No	Unknown
- Administrative Proceedings Relevant to Hazardous Substances or Petroleum Products in, on, or From *Site*?	No	Unknown
- Notices From Any governmental entity regarding possible violations of environmental laws or possible liability relating to hazardous substances or petroleum products?	No	Unknown

SLR did not interview a Key Site Manager because there is no current manager of the *Site*.

4.3 FINDINGS FROM INTERVIEWS WITH OTHERS

SLR interviewed the following people likely to be knowledgeable of the environmental condition or history of the *Site*:

Name, Title	Telephone	Qualifications relevant to *Site* knowledge	Comments
Dan Reynolds, Owner of Wyser Construction	(425) 742-0898	*Site* redevelopment project excavation contractor	The depth of the excavation at the *Site* ranged from approximately 4 to 8 feet below ground surface and totaled an estimated 14,000 cubic yards. There was no evidence of contamination such as odors or staining observed during the excavation work. The surface pavement and an old layer of asphalt that was encountered at a depth of approximately 2 feet below ground surface were ground up during the excavation and mixed with the soil that was transported off site. All of the excavated soil was transported to the Unocal Edmonds Bulk Fuel Terminal.

5.0 SUMMARY OF HISTORICAL *SITE* AND ADJOINING PROPERTY USE

The following summary of the historical uses of the *Site* and adjoining properties was compiled from the referenced materials and interviews detailed in Sections 2.0, 3.0 and 4.0.

5.1 *SITE* USE

Year	Summary of *Site* Use
Prior to 1930s	The *Site* and surrounding area were undeveloped and wooded.
1930s and 1940s	The southern and central portions of the *Site* were undeveloped and wooded. A few buildings associated with an automobile race track occupied the northern portion of the *Site*. The use of these buildings is unknown; however, they may have been concession stands and/or maintenance garages.
1950s and 1960s	The woodlands on the southern and central portions of the *Site* were cleared and the race track buildings located on the northern portion of the *Site* had been removed by the early 1960s.
1970s to 2005	A former cinema/theater building was present on the northwest corner of the *Site* and the rest of the *Site* was developed as a parking lot.
2005 to Present	The *Site* is being redeveloped as a multi-family residential development. The cinema building and parking lot were removed as part of the redevelopment activities.

5.2 SURROUNDING PROPERTY USE

Direction	Summary of Historical Adjoining Property Use
North	Undeveloped prior to the 1930s. The Aurora Speedway occupied the north and northeast adjacent properties from the 1930s through the 1950s. The Gov. Mart store building replaced the speedway in 1964 and appears to be the present-day Rite Aid shopping center.
South	Undeveloped prior to the 1930s. Rural residential from the 1930s through the 1940s and residential from the 1950s through the 1960s. Commercial offices replaced most of the residences in the 1970s and this is the current land use.
East	Undeveloped prior to the 1930s. Occupied by woodlands in the 1930s and 1940s. Cleared in the 1950s and 1960s. Developed as the present-day car dealership and the present-day restaurant in the 1960s.
West	Undeveloped prior to the 1930s. After the 1930s the area around Bitter Lake was used as a park. An amusement park occupied the area through the 1950s and was replaced with the present-day community park.

6.0 CONCLUSIONS

In May 2007, SLR performed a Phase I ESA of the Cambridge Housing Site located at 13000 Linden Avenue in Seattle, Washington (the "*Site*"). The purpose of the assessment was to identify any known or potential sources of contamination that could have impacted the shallow soil that was excavated at the *Site* in 2005 and 2006, at depths of up to 8 feet below ground surface, and hauled to the Unocal Edmonds Bulk Fuel Terminal. The assessment was performed in conformance with the scope and limitations of ASTM Practice E 1527 to the extent that this practice could be used to fulfill the project objective.

Based on the findings of the Phase I assessment, the only known source of the semi-volatile petroleum hydrocarbons that were detected in the excavated soil was the asphalt pavement at the *Site* that was ground-up and mixed into the soil prior to transport to the Unocal Edmonds Bulk Fuel Terminal. There were no identified known sources of other types of contamination at the *Site* or adjacent to the *Site* that could have impacted the shallow soil that was excavated.

The only identified potential sources of contamination that could have impacted the shallow soil beneath the *Site* are any unknown sources associated with the former race track buildings that were located in the northern portion of the *Site* prior to the mid-1960s. The use of these buildings is not known; however, they could have been used for automotive maintenance. Automotive maintenance may have involved changing fluids such as motor oil or engine coolant which could have been spilled or drained on the ground in this area of the *Site*. The *Site* and the neighboring race track were not listed in any of the regulatory programs regarding spills, releases, or use of storage tanks. It should be noted that the area of the 141,570-square-foot *Site* that was occupied by these buildings was only approximately 800 square feet; therefore, any excavated soil that was impacted from this area would have been a minor amount in comparison to the total area of the *Site* and the volume of soil removed (14,000 cubic yards).

Additional potential sources of contamination are spills at the former race track to the north of the *Site* and the former UST at the Olympic Lincoln Mercury dealership to the east of the *Site;* however, since the excavated soil was removed at depths of approximately 10 feet above the groundwater table, any potential impacts to the shallow soil from releases at a neighboring would be minimal. Furthermore, the race track was not listed in any of the regulatory programs regarding spills, releases, or use of storage tanks, and the Olympic Lincoln Mercury dealership was not listed as having a release from the former UST, which was removed.

7.0 REFERENCES

AESI. 2005. *Subsurface Exploration, Geologic Hazard, and Preliminary Geotechnical Engineering Report, Bitter Lake Site*. January 11.

SLR. 2006. *Results of Sampling of Imported Soil, Unocal Edmonds Bulk Fuel Terminal*. September 6.

SLR. 2007. *Results of Additional Sampling of Imported Soil, Unocal Edmonds Bulk Fuel Terminal*. January 19.

APPENDIX A

STATEMENT OF LIMITATIONS

STATEMENT OF LIMITATIONS

The conclusions presented in this report are professional opinions based on data described in this report. These opinions have been arrived at in accordance with currently accepted environmental industry standards and practices applicable to the work described in this report. The opinions presented are subject to the following inherent limitations:

1. This report was prepared for the exclusive use of the entity referenced in Section 1.6. No other entity may rely on the information presented in the report without the expressed written consent of SLR.

2. This Phase I ESA report is subject to the terms and conditions in the Agreement for Subcontractor Services No. ARCADIS-BBLES-T2-SLR-Edmonds dated January 15, 2007. Any use of the Phase I report constitutes acceptance of the limits of SLR's liability specified in the contract. SLR's liability extends only to its client and not to any other parties who may obtain the Phase I report.

3. SLR derived the data in this report primarily from visual inspections, examination of records in the public domain, and interviews with individuals having information about the *Site*. The passage of time, manifestation of latent conditions, or occurrence of future events may require further study at the *Site*, analysis of the data, and reevaluation of the findings, observations, and conclusions in the report.

4. The data reported and the findings, observations, and conclusions expressed in the report are limited by the scope of work. The scope of work is presented in Section 1.4 and was agreed to by the client.

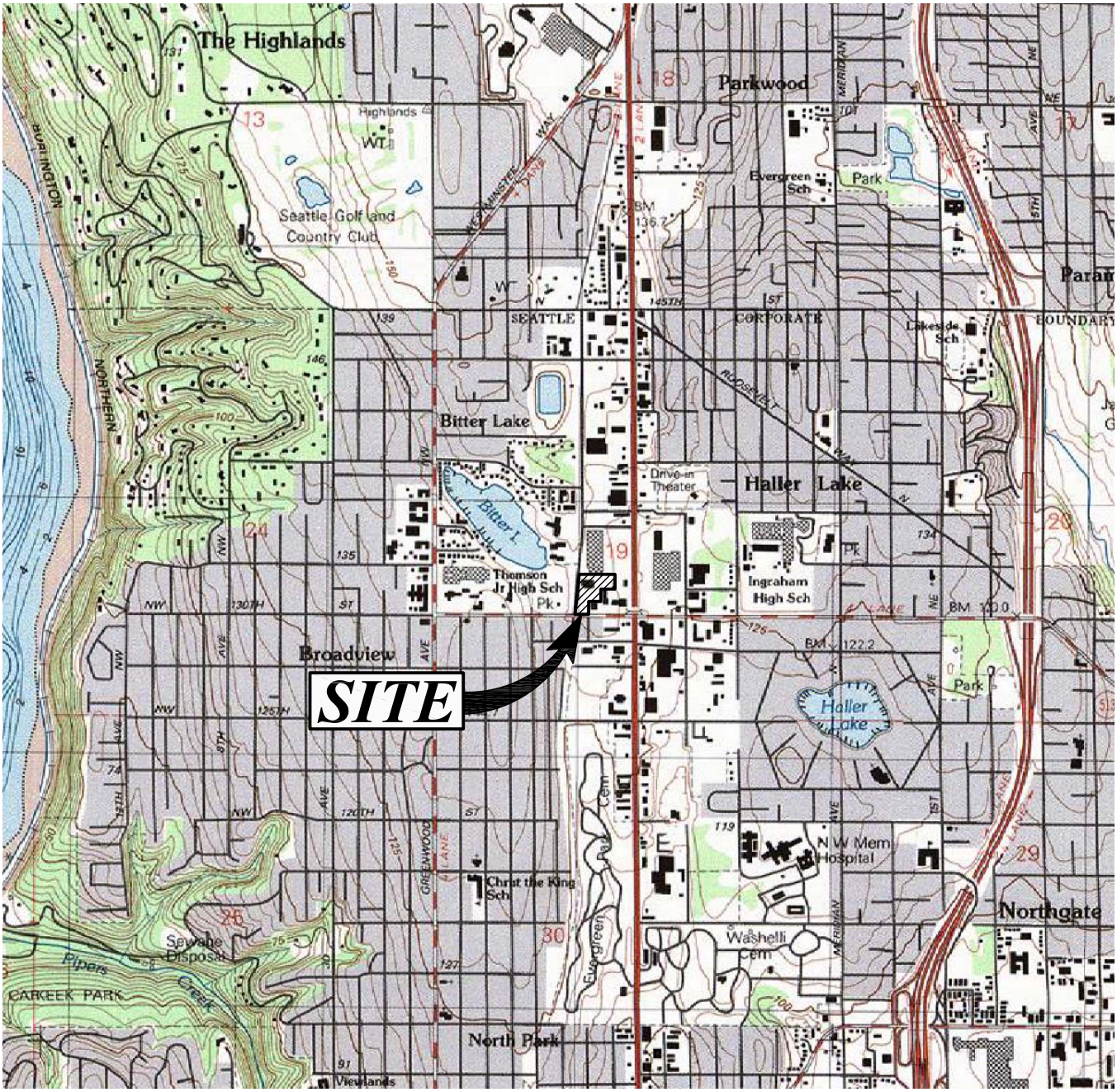
5. SLR's Phase I ESA reports present professional opinions and findings of a scientific and technical nature. The report shall not be construed to offer legal opinion or representations as to the requirements of, nor compliance with, environmental laws, rules, regulations, or policies of federal, state, or local governmental agencies.

6. The conclusions presented in this report are professional opinions based on data described in this report. They are intended only for the purpose, *Site* location, and project indicated. This report is not a definitive study of contamination at the *Site* and should not be interpreted as such. An evaluation of subsurface soil and groundwater conditions was not performed as part of this investigation, unless indicated in Section 1.4. No sampling or chemical analyses of structural materials or other media was completed as part of this study unless explicitly stated in Section 1.4.

7. This report is based, in part, on unverified information supplied to SLR by third-party sources. While efforts have been made to substantiate this third-party information, SLR cannot guarantee its completeness or accuracy.

APPENDIX B

FIGURES



0 2000 4000

SCALE IN FEET

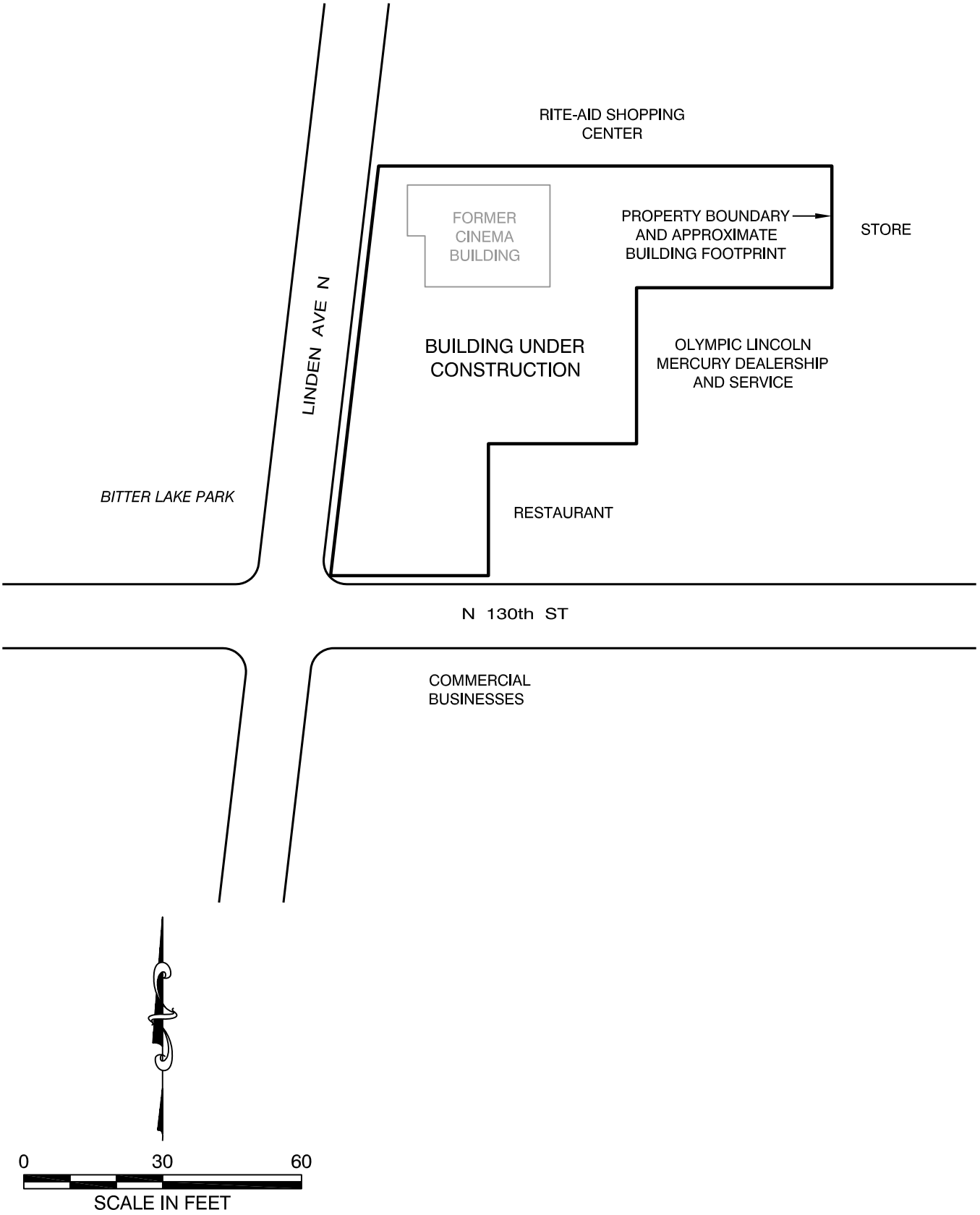
SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 06/07
DWN. BDT
APPR. _____
REVIS. _____
PROJECT NO.
001.0153.00004

FIGURE 1
CAMBRIDGE MULTI-FAMILY HOUSING
13000 LINDEN AVE N
SEATTLE, WASHINGTON

SITE LOCATION MAP

C:\DRIVE_E\Clients\SLR\001\001.0153.00004\21-01.dwg, 6/3/2007 8:31:07 AM, BDT



SLR
SLR International Corp
22122 20th AVE SE
BLDG. H, SUITE 150
BOTHELL, WA 98021
T: 425-402-8800
F: 425-402-8488

DATE 05/07
DWN. BDT
APPR. _____
REVIS. _____
PROJECT NO.
001.0153.00004

FIGURE 2
CAMBRIDGE SENIOR HOUSING
13000 LINDEN AVE N
SEATTLE, WASHINGTON

SITE PLAN AND ADJACENT PROPERTIES

APPENDIX C

PHOTOGRAPHS

APPENDIX D

ENVIRONMENTAL REGULATORY AGENCY DATABASE REPORT

APPENDIX E

ENVIRONMENTAL PROFESSIONAL'S QUALIFICATIONS

Cambridge Housing Site
13000 Linden Ave N., Seattle, Washington

East to west view of a restaurant (foreground) and the southern portion of the Site (building under construction in background).

South to north view of Olympic Lincoln Mercury auto service shops in the foreground and northeast portion of the Site (building under construction in background).

East-northeast view of southern part of Olympic Lincoln Mercury dealership to the east of the Site.

East to west view of commercial properties and residential apartments located to the south and east of the Site.

Southwest to northeast view of shopping center building located to the north of the Site.

West to east view of north side of the Site (building under construction), and a shopping center and restaurant (background) to the north of the Site.

West-southwest view of Bitter Lake Park to the west of the Site.

The EDR Radius Map
with GeoCheck®

Cambridge Senior Housing
13000 Linden Ave N
Seattle, WA 98133

Inquiry Number: 1925024.2s

May 10, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

13000 LINDEN AVE N
SEATTLE, WA 98133

COORDINATES

Latitude (North):	47.723700 - 47° 43' 25.3''
Longitude (West):	122.347600 - 122° 20' 51.4''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	548926.8
UTM Y (Meters):	5285578.5
Elevation:	450 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	47122-F3 SEATTLE NORTH, WA
Most Recent Revision:	1983

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL	National Priority List
Proposed NPL	Proposed National Priority List Sites
Delisted NPL	National Priority List Deletions
NPL LIENS	Federal Superfund Liens
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP	CERCLIS No Further Remedial Action Planned
CORRACTS	Corrective Action Report
RCRA-TSDF	Resource Conservation and Recovery Act Information
RCRA-LQG	Resource Conservation and Recovery Act Information

EXECUTIVE SUMMARY

ERNS Emergency Response Notification System
HMIRS Hazardous Materials Information Reporting System
US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
US BROWNFIELDS A Listing of Brownfields Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
ODI Open Dump Inventory
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS Section 7 Tracking Systems
LUCIS Land Use Control Information System
DOT OPS Incident and Accident Data
ICIS Integrated Compliance Information System
HIST FTTS FIFRA/TSCA Tracking System Administrative Case Listing
US CDL Clandestine Drug Labs
RADINFO Radiation Information Database
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

HSL Hazardous Sites List
SWF/LF Solid Waste Facility Database
SWTIRE Solid Waste Tire Facilities
AST Aboveground Storage Tank Locations
SPILLS Reported Spills
INST CONTROL Institutional Control Site List
DRYCLEANERS Drycleaner List
BROWNFIELDS Brownfields Sites Listing
CDL Clandestine Drug Lab Contaminated Site List
NPDES Water Quality Permit System Data
AIRS (EMI) Washington Emissions Data System
Inactive Drycleaners Inactive Drycleaners

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land
INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL RECORDS

RCRAInfo: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System(RCRIS). The database includes selective information on sites which generate, transport, store , treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month Large quantity generators generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/13/2006 has revealed that there are 12 RCRA-SQG sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
NEW BEGINNINGS OF NORTHWEST	***600 N 130TH***	***1/8 - 1/4 W***	***31***	***29***
RP 2000 LLC DBA RAINIER PRECIS	13500 LINDEN AVE N	1/8 - 1/4 N	37	31

Lower Elevation	Address	Dist / Dir	Map ID	Page
PEEL & ASSOCIATES INC	***927 N 128TH ST***	***0 - 1/8 SSE***	***3***	***6***
OLYMPIC LINCOLN MERCURY	***13001 AURORA AVE N***	***1/8 - 1/4 ESE***	***B10***	***10***
PENSKE AUTO CTR SEATTLE	***13200 AURORA AVE N SHOP***	***1/8 - 1/4 ENE***	***C12***	***11***
KMART 3443	***13200 AURORA AVE N***	***1/8 - 1/4 ENE***	***C13***	***12***
MIDAS AUTO SYSTEMS EXPERTS NOR	***13201 AURORA AVE N***	***1/8 - 1/4 ENE***	***C15***	***13***
130TH AURORA SHOPPING CTR	***13258 AURORA AVE N***	***1/8 - 1/4 NE***	***E22***	***16***
WARREN WESTLUND BUICK GMC INC	***12800 AURORA AVE N***	***1/8 - 1/4 SE***	***D25***	***17***
RED HEAD STEERING GEARS	***900 N 127TH***	***1/8 - 1/4 S***	***26***	***20***
LEES AUTOMOTIVE	***13281 AURORA AVE N***	***1/8 - 1/4 NE***	***E29***	***24***
ARA COLLISION	***946 N 127TH***	***1/8 - 1/4 SSE***	***30***	***27***

STATE AND LOCAL RECORDS

CSCSL: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Ecology's Confirmed & Suspected Contaminated Sites List.

A review of the CSCSL list, as provided by EDR, and dated 02/07/2007 has revealed that there are 6

CSCSL sites within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
LAURELHURST OIL CO	***14330 LINDEN AV N***	***1/2 - 1 N***	***54***	***55***
MAGIC CLEANERS & LAUNDRY	***14701 AURORA AVE N***	***1/2 - 1 N***	***55***	***57***
PINEHURST AUTO SALES	***14929 WESTMINSTER WAY N***	***1/2 - 1 NNW***	***57***	***61***

Lower Elevation	Address	Dist / Dir	Map ID	Page
SEATTLE SOL WST UTILITY AURORA	***12600 STONE AVE N***	***1/4 - 1/2 SE***	***J47***	***40***
HALLER LAKE LANDFILL	N 125TH ST	1/2 - 1 ESE	53	51
KJORSVIK PROPERTY	14038 SUNNYSIDE AVE N	1/2 - 1 ENE	56	59

CSCSL NFA: The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead a No Further Action code is entered based upon the type of NFA determination the site received.

A review of the CSCSL NFA list, as provided by EDR, and dated 02/07/2007 has revealed that there are 4 CSCSL NFA sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WA BOTTING CO	***13549 AURORA AVE N***	***1/4 - 1/2 NNE***	***G39***	***32***
TOWN & COUNTRY AMC JEEP	***13733 AURORA AVE N***	***1/4 - 1/2 NNE***	***K49***	***44***

Lower Elevation	Address	Dist / Dir	Map ID	Page
LOWES HIW 252	12525 AURORA AVE N	1/4 - 1/2 SSE	H42	36
RICKS AUTO WRECKING	12621 STONE AV N	1/4 - 1/2 SE	J46	39

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Ecology's Leaking Underground Storage Tanks Site List.

A review of the LUST list, as provided by EDR, and dated 03/08/2007 has revealed that there are 5 LUST sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
UNOCAL 6947	***1100 N 130TH STREET***	***1/8 - 1/4 ESE***	***B9***	***9***
NORTH OPERATING BASE	***13330 STONE AV N***	***1/4 - 1/2 ENE***	***40***	***33***
FIRESTONE TIRE RUBBER CO SEATT	***12553 AURORA AVE N***	***1/4 - 1/2 SSE***	***H41***	***34***
COCHRAN ELECTRIC	12500 AURORA AVE N.	1/4 - 1/2 SSE	I44	39
CITY OF SEATTLE	***12645 ASHWORTH AVE N***	***1/4 - 1/2 ESE***	***50***	***47***

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Ecology's Statewide UST Site/Tank Report.

A review of the UST list, as provided by EDR, and dated 03/08/2007 has revealed that there are 8 UST

sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
EDWARDS AUTOMOTIVE SERVICE, IN	950 N 128TH	0 - 1/8 S	A1	6
OLYMPIC LINCOLN MERCURY	13001 AURORA AVE N	1/8 - 1/4 ESE	B6	8
UNOCAL 6947	***1100 N 130TH STREET***	***1/8 - 1/4 ESE***	***B9***	***9***
KMART 3443	***13200 AURORA AVE N***	***1/8 - 1/4 ENE***	***C13***	***12***
10MQE	12815 AURORA AVE N	1/8 - 1/4 SE	D20	14
WARREN WESTLUND BUICK GMC INC	***12800 AURORA AVE N***	***1/8 - 1/4 SE***	***D25***	***17***
ARCO SERVICE STATION	13281 AURORA AVE N	1/8 - 1/4 NE	E28	23
OSBERG CONSTRUCTION COMPANY	1132 NORTH 128TH STREET	1/8 - 1/4 ESE	32	29

MANIFEST: Hazardous waste manifest information.

A review of the WA MANIFEST list, as provided by EDR, and dated 06/12/2006 has revealed that there are 4 WA MANIFEST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
WARREN WESTLUND BUICK GMC INC	***12800 AURORA AVE N***	***1/8 - 1/4 SE***	***D25***	***17***
RED HEAD STEERING GEARS	***900 N 127TH***	***1/8 - 1/4 S***	***26***	***20***
LEES AUTOMOTIVE	***13281 AURORA AVE N***	***1/8 - 1/4 NE***	***E29***	***24***
ARA COLLISION	***946 N 127TH***	***1/8 - 1/4 SSE***	***30***	***27***

ICR: These are remedial action reports Ecology has received from either the owner or operator of the site. These actions have been conducted without department oversight or approval and are not under an order or decree.

A review of the ICR list, as provided by EDR, and dated 12/01/2002 has revealed that there are 9 ICR sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
W.A. BOTTING COMPANY	13549 AURORA AVE. N.	1/4 - 1/2 NNE	G38	31
NORTH SEATTLE CHRYSLER PLYMOUT	13711/13733 AURORA AVE.	1/4 - 1/2 NNE	K48	43
BROADVIEW SVC STA	***12258 GREENWOOD AVE N***	***1/4 - 1/2 SW***	***52***	***50***

Lower Elevation	Address	Dist / Dir	Map ID	Page
UNOCAL #6947	1100 N. 130TH ST.	1/8 - 1/4 ESE	B7	8
FIRESTONE TIRE RUBBER CO SEATT	***12553 AURORA AVE N***	***1/4 - 1/2 SSE***	***H41***	***34***
LOWES HIW 252	***12525 AURORA AVE N***	***1/4 - 1/2 SSE***	***H43***	***36***
COCHRAN ELECTRIC	12500 AURORA AVE. N.	1/4 - 1/2 SSE	I45	39
CITY OF SEATTLE	***12645 ASHWORTH AVE N***	***1/4 - 1/2 ESE***	***50***	***47***
LINCOLN'S AUTO WRECKING	12220 AURORA AVE.	1/4 - 1/2 SSE	51	50

VCP: Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

A review of the VCP list, as provided by EDR, and dated 02/07/2007 has revealed that there is 1 VCP site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
WA BOTTING CO	***13549 AURORA AVE N***	***1/4 - 1/2 NNE***	***G39***	***32***

EXECUTIVE SUMMARY

EDR PROPRIETARY RECORDS

EDR Historical Auto Stations: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

A review of the EDR Historical Auto Stations list, as provided by EDR, has revealed that there are 15 EDR Historical Auto Stations sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
EDWARDS AUTOMOTIVE SERVICE INC	950 N 128TH ST	0 - 1/8 S	A2	6
AURORA EAGLE	13008 AURORA AVE	1/8 - 1/4 ESE	B4	7
OLYMPIC LINCOLN MERCURY INC	13001 N AURORA AVE	1/8 - 1/4 ESE	B5	7
UNION GAS STATION	1100 N 130TH ST	1/8 - 1/4 ESE	B8	8
HEALEY S BUD MOBIL SERVICE	12915 AURORA AVE N	1/8 - 1/4 ESE	11	11
BAXALR SERVICE CENTER	13201 AURORA AVE N	1/8 - 1/4 ENE	C16	14
TRAILER CITY SERVICE STATION	13222 AURORA AVE	1/8 - 1/4 ENE	C17	14
TRAILER CITY SERVICE	13222 AURORA AVE N	1/8 - 1/4 ENE	C18	14
HAYWARD LEONARD E	13224 AURORA AVE	1/8 - 1/4 ENE	C19	14
AURORA SERVICE CENTER	12815 AURORA AVE N	1/8 - 1/4 SE	D21	16
LEE S AUTOMOTIVE	13281 AURORA AVE N	1/8 - 1/4 NE	E27	23
BOB S AUTO REPAIR	12710 AURORA AVE	1/8 - 1/4 SE	F33	30
NORTH END AUTOMOTIVE	12710 AURORA AVE N	1/8 - 1/4 SE	F34	30
MUFFLER TOWN	12700 AURORA AVE N	1/8 - 1/4 SE	F35	30
MUFFLER CITY	12700 AURORA AVE	1/8 - 1/4 SE	F36	31

EDR Historical Cleaners: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

A review of the EDR Historical Cleaners list, as provided by EDR, has revealed that there are 3 EDR Historical Cleaners sites within approximately 0.25 miles of the target property.

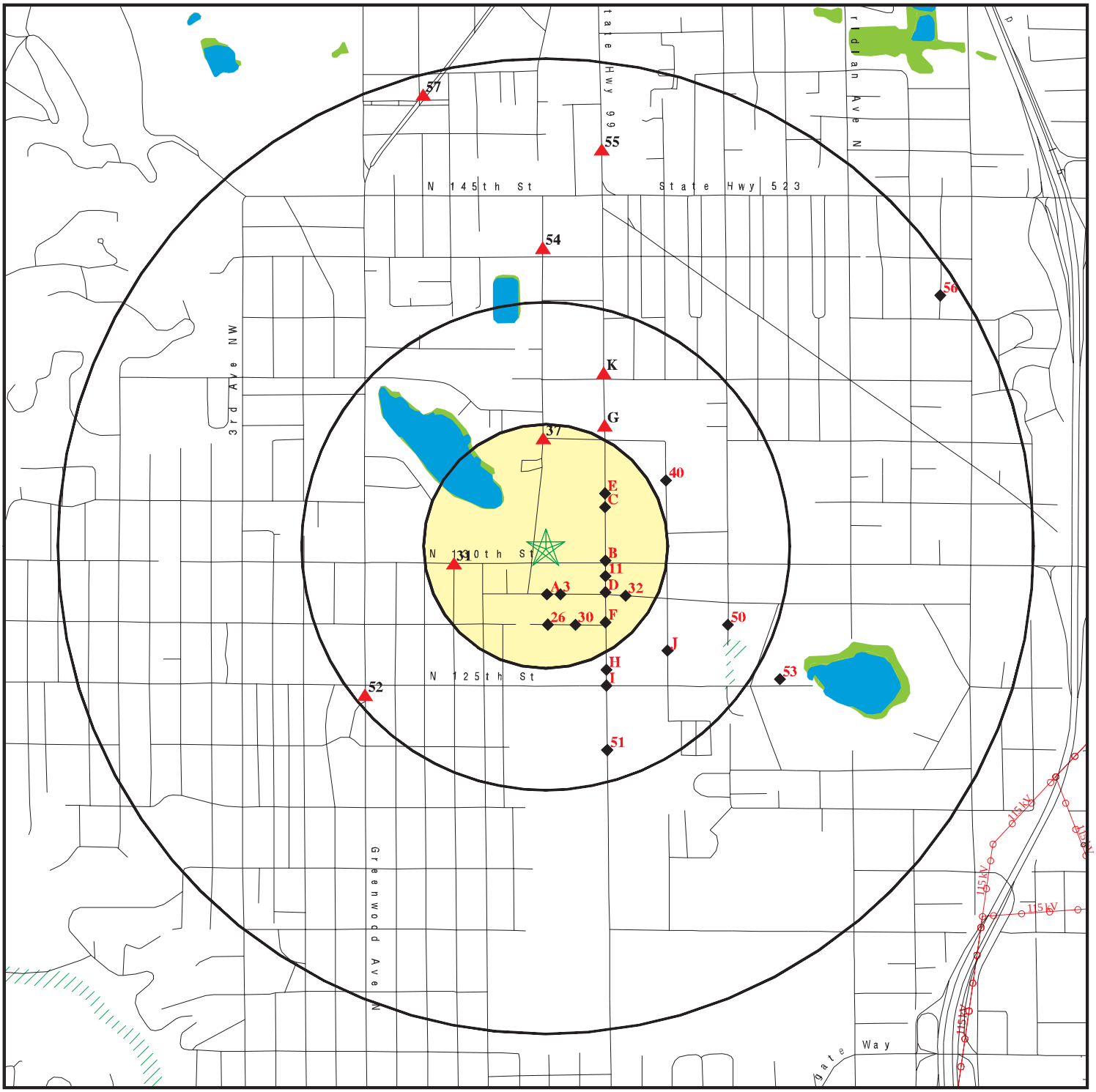
Lower Elevation	Address	Dist / Dir	Map ID	Page
WHITE FRONT CLEANERS	13200 AURORA AVE N	1/8 - 1/4 ENE	C14	13
AURORA CLEANING CENTER	13260 AURORA AVE N	1/8 - 1/4 NE	E23	16
AURORA CLEANING CENTER	13260 AURORA AVE	1/8 - 1/4 NE	E24	17

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
KING CO - HALLER LK LDFL	CERC-NFRAP
MCMICKEN HEIGHTS	SWF/LF
RENTON JUNCTION (MONSTER ROAD)	SWF/LF
BOW LAKE ABANDONED LANDFILL	SWF/LF
CORLISS ABANDONED LANDFILL	SWF/LF
PUYALLUP/KIT CORNER ABANDONED LAND	SWF/LF
WASTE MOBILE COLLECTIONS	SWF/LF
TOLT BACKWASH SOLIDS LANDFILL	SWF/LF
AUBURN (M & R STREET SITE)	SWF/LF
AUBURN (ROTARY PARK SITE)	SWF/LF
BOW LAKE	SWF/LF
CARTON & BORTH	SWF/LF
CORLISS LANDFILL	SWF/LF
EASTGATE ABANDONED LANDFILL	SWF/LF
ENUMCLAW	SWF/LF
FACTORIA PIT (SUNSET RAVINE PARK)	SWF/LF
H.H. OLESON	SWF/LF
HOUGHTON	SWF/LF
KENT ABANDONED LANDFILL (MILL CREE	SWF/LF
RICKS AUTO WRECKING	UST

OVERVIEW MAP - 1925024.2s

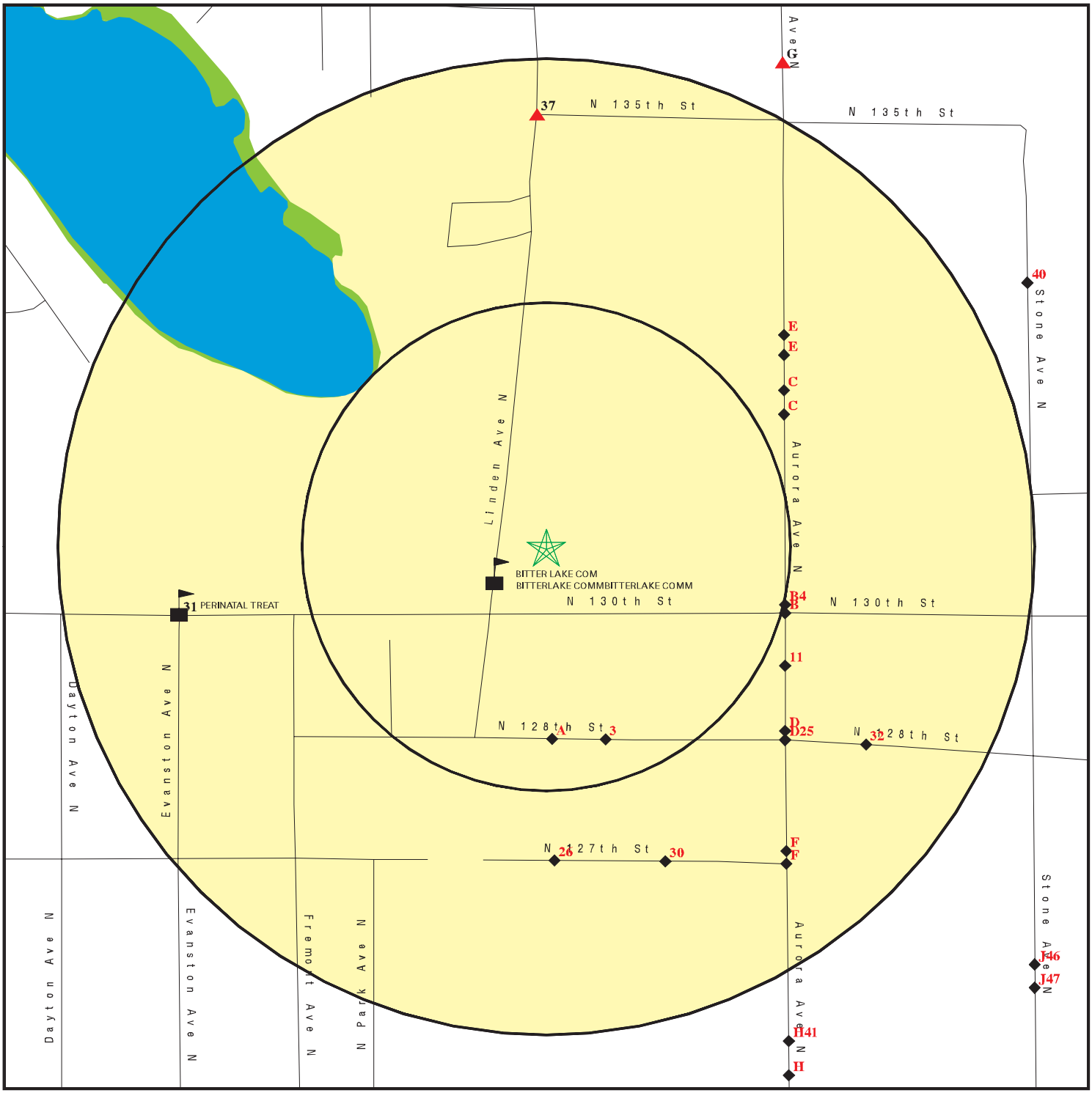


- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Cambridge Senior Housing	CLIENT: SLR International Corporation
ADDRESS: 13000 Linden Ave N Seattle WA 98133	CONTACT: Kim Saganski
LAT/LONG: 47.7237 / 122.3476	INQUIRY #: 1925024.2s DATE: May 10, 2007 3:56 pm

DETAIL MAP - 1925024.2s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

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SITE NAME: Cambridge Senior Housing ADDRESS: 13000 Linden Ave N Seattle WA 98133 LAT/LONG: 47.7237 / 122.3476	CLIENT: SLR International Corporation CONTACT: Kim Saganski INQUIRY #: 1925024.2s DATE: May 10, 2007 3:56 pm

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	1	11	NR	NR	NR	12
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
CSCSL		1.000	0	0	1	5	NR	6
HSL		1.000	0	0	0	0	NR	0
CSCSL NFA		0.500	0	0	4	NR	NR	4
State Landfill		0.500	0	0	0	NR	NR	0
SWTIRE		0.500	0	0	0	NR	NR	0
LUST		0.500	0	1	4	NR	NR	5
UST		0.250	1	7	NR	NR	NR	8
AST		0.250	0	0	NR	NR	NR	0
MANIFEST		0.250	0	4	NR	NR	NR	4

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SPILLS		TP	NR	NR	NR	NR	NR	0
INST CONTROL		0.500	0	0	0	NR	NR	0
ICR		0.500	0	1	8	NR	NR	9
VCP		0.500	0	0	1	NR	NR	1
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
BROWNFIELDS		0.500	0	0	0	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
WA Air Emissions		TP	NR	NR	NR	NR	NR	0
Inactive Drycleaners		0.250	0	0	NR	NR	NR	0
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0
EDR Historical Auto Stations		0.250	1	14	NR	NR	NR	15
EDR Historical Cleaners		0.250	0	3	NR	NR	NR	3

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1
South
< 1/8
519 ft.

Relative:
Lower

Actual:
444 ft.

EDWARDS AUTOMOTIVE SERVICE, INC. — **UST** — **U003026066**
950 N 128TH — **N/A**
SEATTLE, WA 98133

Site 1 of 2 in cluster A

UST:

Facility ID:	1273467
Site ID:	1673
Status:	**Closed in Place**
Tank Name:	1
Install Date:	6/15/1975 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Used Oil/Waste Oil
Ecology Region:	North Western
Tank ID:	28934
Compartment ID:	29337
Decimal Latitude:	47.722158999999998
Decimal Longitude:	-122.348669

A2
South
< 1/8
519 ft.

Relative:
Lower

Actual:
444 ft.

EDWARDS AUTOMOTIVE SERVICE INC — **EDR Historical Auto Stations** — **1009385904**
950 N 128TH ST — **N/A**
SEATTLE, WA

Site 2 of 2 in cluster A

EDR Historical Auto Stations:

Name:	EDWARDS AUTOMOTIVE
Year:	1970
Type:	AUTOMOBILE REPAIRING
Name:	EDWARDS AUTOMOTIVE
Year:	1975
Type:	AUTOMOBILE REPAIRING
Name:	EDWARDS AUTOMOTIVE
Year:	1980
Type:	AUTOMOBILE REPAIRING
Name:	EDWARDS AUTOMOTIVE SERVICE INC
Year:	1986
Type:	AUTOMOBILE REPAIRING
Name:	EDWARDS AUTOMOTIVE SERVICE INC
Year:	1990
Type:	AUTOMOBILE REPAIRING

3
SSE
< 1/8
545 ft.

Relative:
Lower

Actual:
446 ft.

PEEL & ASSOCIATES INC — **RCRA-SQG** — **1004794554**
927 N 128TH ST — **FINDS** — **WAD988517470**
SEATTLE, WA 98133

PEEL & ASSOCIATES INC (Continued) **1004794554**

RCRAInfo:
Owner: PEEL & ASSOCIATES INC
(206)362-2323
EPA ID: WAD988517470
Contact: KEN JONES
(206)362-2323
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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B4
ESE
1/8-1/4
666 ft.
Relative: Lower
Actual: 433 ft.

AURORA EAGLE **EDR Historical Auto Stations** **1009355603**
13008 AURORA AVE **N/A**
SEATTLE, WA

Site 1 of 7 in cluster B

EDR Historical Auto Stations:
Name: AURORA EAGLE
Year: 1960
Type: GASOLINE STATIONS

B5
ESE
1/8-1/4
671 ft.
Relative: Lower
Actual: 434 ft.

OLYMPIC LINCOLN MERCURY INC **EDR Historical Auto Stations** **1009355598**
13001 N AURORA AVE **N/A**
SEATTLE, WA

Site 2 of 7 in cluster B

EDR Historical Auto Stations:
Name: OLYMPIC MERCURY INC
Year: 1970
Type: AUTOMOBILE REPAIRING

Name: OLYMPIC LINCOLN MERCURY INC
Year: 1975
Type: AUTOMOBILE REPAIRING

B6 **OLYMPIC LINCOLN MERCURY** **UST** **1000302384**
ESE **13001 AURORA AVE N** **N/A**
1/8-1/4 **SEATTLE, WA 98133**
671 ft.

Site 3 of 7 in cluster B

Relative:
Lower

UST:
Facility ID: 12531591
Site ID: 14
Status: **Removed**
Tank Name: 1.
Install Date: 12/31/1964 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Not reported
Ecology Region: North Western
Tank ID: 10872
Compartment ID: 11046
Decimal Latitude: 47.723599999999998
Decimal Longitude: -122.34511000000001

Actual:
434 ft.

B7 **UNOCAL #6947** **ICR** **S104488001**
ESE **1100 N. 130TH ST.** **N/A**
1/8-1/4 **SEATTLE, WA 98133**
671 ft.

Site 4 of 7 in cluster B

Relative:
Lower

ICR:
Date Ecology Received Report: 05/28/1992
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Final cleanup report
Site Register Issue: 92-28
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

Actual:
434 ft.

B8 **UNION GAS STATION** **EDR Historical Auto Stations** **1009352995**
ESE **1100 N 130TH ST** **N/A**
1/8-1/4 **SEATTLE, WA**
671 ft.

Site 5 of 7 in cluster B

Relative:
Lower

EDR Historical Auto Stations:
Name: SEATTLE MANAGEMENT CORP
Year: 1970
Type: GASOLINE STATIONS

Name: WHITE FRONT SERVICE STA
Year: 1970
Type: GASOLINE STATIONS

Name: DIGAS SERVICE STE
Year: 1975
Type: GASOLINE STATIONS

Actual:
434 ft.

UNION GAS STATION (Continued) **1009352995**

Name: DIGAU CO OF DELAWARE
Year: 1975
Type: GASOLINE STATIONS

Name: DIGAS GAS
Year: 1980
Type: GASOLINE STATIONS

Name: UNION GAS STATION
Year: 1986
Type: GASOLINE STATIONS

Name: UNION GAS STATION
Year: 1990
Type: GASOLINE STATIONS

B9 **UNOCAL 6947** **LUST U001124849**
ESE **1100 N 130TH STREET** **UST N/A**
1/8-1/4 **SEATTLE, WA 98133**
671 ft.

Site 6 of 7 in cluster B

Relative:
Lower

Actual:
434 ft.

LUST:
FS ID: 45997687
Facility ID: 7150
Release ID: 2736
Alternate Name: UNOCAL STATION # 6947
Release Notification Date: 12/5/1991 00:00:00
Release Status Date: 6/1/1995 00:00:00
Facility Status: Reported Cleaned Up
Affected Media: Soil
Site Response Unit Code: NW
Lat/Long: 47.723129 / -122.346259

FS ID: 45997687
Facility ID: 7150
Release ID: 2736
Alternate Name: UNOCAL STATION # 6947
Release Notification Date: 12/5/1991 00:00:00
Release Status Date: 12/5/1991 00:00:00
Facility Status: Cleanup Started
Affected Media: Soil
Site Response Unit Code: NW
Lat/Long: 47.723129 / -122.346259

UST:
Facility ID: 45997687
Site ID: 7150
Status: Removed
Tank Name: 1
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 23749
Compartment ID: 24079

UNOCAL 6947 (Continued) **U001124849**

Decimal Latitude: 47.723129
Decimal Longitude: -122.346259

Facility ID: 45997687
Site ID: 7150
Status: Removed
Tank Name: 3
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 23662
Compartment ID: 23992
Decimal Latitude: 47.723129
Decimal Longitude: -122.346259

Facility ID: 45997687
Site ID: 7150
Status: Removed
Tank Name: 2
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 23469
Compartment ID: 23794
Decimal Latitude: 47.723129
Decimal Longitude: -122.346259

B10 **OLYMPIC LINCOLN MERCURY** **RCRA-SQG** **1004793489**
ESE **13001 AURORA AVE N** **FINDS** **WAD048682082**
1/8-1/4 **SEATTLE, WA 98133**
671 ft.

Site 7 of 7 in cluster B

Relative: Lower

Actual: 434 ft.

RCRAInfo:
Owner: OLYMPIC LINCOLN MERCURY
EPA ID: WAD048682082
Contact: JESS COOK
(206) 364-8500
Classification: Conditionally Exempt Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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OLYMPIC LINCOLN MERCURY (Continued) **1004793489**

WA-DOEFSIS (Washington - Department Of Ecology Facility / Site Identification System) is the Department of Ecology's Facility/Site identification system that provides a means to query and display data maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

11
ESE
1/8-1/4
722 ft.

HEALEY S BUD MOBIL SERVICE **EDR Historical Auto Stations** **1009355526**
12915 AURORA AVE N **N/A**
SEATTLE, WA

Relative:
Lower

Actual:
437 ft.

EDR Historical Auto Stations:

Name:	JACK S MOBIL SERVICE CENTER
Year:	1970
Type:	GASOLINE STATIONS
Name:	HEALEY S BUD MOBIL SERVICE
Year:	1975
Type:	GASOLINE STATIONS

C12
ENE
1/8-1/4
737 ft.

PENSKE AUTO CTR SEATTLE **RCRA-SQG** **1001491287**
13200 AURORA AVE N SHOP ONLY **FINDS** **WAR000006841**
SEATTLE, WA 98133

Site 1 of 8 in cluster C

Relative:
Lower

Actual:
432 ft.

RCRAInfo:

Owner:	KMART CORP (810)643-1000
EPA ID:	WAR000006841
Contact:	MICHAEL SCHMIDT (810)643-2973
Classification:	Conditionally Exempt Small Quantity Generator
TSDF Activities:	Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

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PENSKE AUTO CTR SEATTLE (Continued) **1001491287**

maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

C13 **KMART 3443** **RCRA-SQG** **1000660117**
ENE **13200 AURORA AVE N** **FINDS** **WAD988497988**
1/8-1/4 **SEATTLE, WA 98133** **UST**
737 ft.

Site 2 of 8 in cluster C

Relative:
Lower

Actual:
432 ft.

RCRAInfo:
Owner: KMART CORP
(248)637-6544
EPA ID: WAD988497988
Contact: Not reported
Classification: Small Quantity Generator
TSDF Activities: Not reported
Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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UST:
Facility ID: 24556582
Site ID: 10513
Status: Removed
Tank Name: 1
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 43654

KMART 3443 (Continued) **1000660117**

Compartment ID: 44270
Decimal Latitude: 47.724558999999999
Decimal Longitude: -122.346329

C14 **WHITE FRONT CLEANERS** **EDR Historical Cleaners** **1009335481**
ENE **13200 AURORA AVE N** **N/A**
1/8-1/4 **SEATTLE, WA**
737 ft.

Site 3 of 8 in cluster C

Relative:
Lower

EDR Historical Cleaners:
Name: WHITE FRONT CLEANERS
Actual: Year: 1970
432 ft. Type: CLEANERS AND DYERS

C15 **MIDAS AUTO SYSTEMS EXPERTS NORTH SEATTLE** **RCRA-SQG** **1004795110**
ENE **13201 AURORA AVE N** **FINDS** **WAR000009506**
1/8-1/4 **SEATTLE, WA 98133**
737 ft.

Site 4 of 8 in cluster C

Relative:
Lower

RCRAInfo:
Owner: SILENCE INC
Actual: (425)771-5036
432 ft. EPA ID: WAR000009506

Contact: Not reported

Classification: Conditionally Exempt Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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C16 **BAXALR SERVICE CENTER** **EDR Historical Auto Stations** **1009356039**
ENE **13201 AURORA AVE N** **N/A**
1/8-1/4 **SEATTLE, WA**
737 ft.

Site 5 of 8 in cluster C

Relative:
Lower

EDR Historical Auto Stations:
Name: BAXALR SERVICE CENTER
Actual: Year: 1975
432 ft. Type: GASOLINE STATIONS

C17 **TRAILER CITY SERVICE STATION** **EDR Historical Auto Stations** **1009356087**
ENE **13222 AURORA AVE** **N/A**
1/8-1/4 **SEATTLE, WA**
767 ft.

Site 6 of 8 in cluster C

Relative:
Lower

EDR Historical Auto Stations:
Name: TRAILER CITY SERVICE STATION
Actual: Year: 1955
432 ft. Type: GAS STATIONS

C18 **TRAILER CITY SERVICE** **EDR Historical Auto Stations** **1009356088**
ENE **13222 AURORA AVE N** **N/A**
1/8-1/4 **SEATTLE, WA**
767 ft.

Site 7 of 8 in cluster C

Relative:
Lower

EDR Historical Auto Stations:
Name: TRAILER CITY SERVICE
Actual: Year: 1966
432 ft. Type: GASOLINE STATIONS

C19 **HAYWARD LEONARD E** **EDR Historical Auto Stations** **1009356089**
ENE **13224 AURORA AVE** **N/A**
1/8-1/4 **SEATTLE, WA**
770 ft.

Site 8 of 8 in cluster C

Relative:
Lower

EDR Historical Auto Stations:
Name: HAYWARD LEONARD E
Actual: Year: 1935
432 ft. Type: GASOLINE AND OIL SERVICE STATIONS

D20 **10MQE** **UST** **U001126219**
SE **12815 AURORA AVE N** **N/A**
1/8-1/4 **SEATTLE, WA 98133**
816 ft.

Site 1 of 3 in cluster D

Relative:
Lower

UST:
Facility ID: 49631127
Actual: Site ID: 10135
435 ft. **Status:** **Removed**
Tank Name: 1

10MQE (Continued) **U001126219**

Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Leaded Gasoline
Ecology Region: North Western
Tank ID: 7339
Compartment ID: 7471
Decimal Latitude: 47.722349000000001
Decimal Longitude: -122.346329

Facility ID: 49631127
Site ID: 10135
Status: **Removed**
Tank Name: 4
Install Date: 12/31/1964 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 7235
Compartment ID: 7364
Decimal Latitude: 47.722349000000001
Decimal Longitude: -122.346329

Facility ID: 49631127
Site ID: 10135
Status: **Removed**
Tank Name: 3
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 7350
Compartment ID: 7483
Decimal Latitude: 47.722349000000001
Decimal Longitude: -122.346329

Facility ID: 49631127
Site ID: 10135
Status: **Removed**
Tank Name: 2
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 7280
Compartment ID: 7409
Decimal Latitude: 47.722349000000001
Decimal Longitude: -122.346329

D21
SE
1/8-1/4
816 ft.

Relative:
Lower

Actual:
435 ft.

AURORA SERVICE CENTER
12815 AURORA AVE N
SEATTLE, WA

Database(s): EDR Historical Auto Stations
EDR ID Number: 1009355484
EPA ID Number: N/A

Site 2 of 3 in cluster D

EDR Historical Auto Stations:

Name:	AURORA SERVICE CENTER
Year:	1980
Type:	GASOLINE STATIONS

Name:	AURORA SERVICE CENTER
Year:	1986
Type:	GASOLINE STATIONS

E22
NE
1/8-1/4
824 ft.

Relative:
Lower

Actual:
432 ft.

130TH AURORA SHOPPING CTR
13258 AURORA AVE N
SEATTLE, WA 98133

Database(s): RCRA-SQG, FINDS
EDR ID Number: 1000993129
EPA ID Number: WAR000001610

Site 1 of 6 in cluster E

RCRAInfo:

Owner:	WA ECY
EPA ID:	WAR000001610
Contact:	Not reported
Classification:	Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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E23
NE
1/8-1/4
827 ft.

Relative:
Lower

Actual:
432 ft.

AURORA CLEANING CENTER
13260 AURORA AVE N
SEATTLE, WA

Database(s): EDR Historical Cleaners
EDR ID Number: 1009335514
EPA ID Number: N/A

Site 2 of 6 in cluster E

EDR Historical Cleaners:

Name:	AURORA WASH AND DRY CLEAN
Year:	1970
Type:	LAUNDRIES

Name:	AURORA CLEANING CENTER
Year:	1980
Type:	LAUNDRIES SELF SERVE

E24
NE
1/8-1/4
827 ft.

Relative:
Lower

Actual:
432 ft.

AURORA CLEANING CENTER
13260 AURORA AVE
SEATTLE, WA

Database(s): **EDR Historical Cleaners**
EDR ID Number: **1009335513**
EPA ID Number: **N/A**

Site 3 of 6 in cluster E

EDR Historical Cleaners:

Name:	AURORA CLEANING CENTER
Year:	1986
Type:	LAUNDRIES SELF SERVE
Name:	AURORA CLEANING CENTER
Year:	1990
Type:	LAUNDRIES SELF SERVE

D25
SE
1/8-1/4
832 ft.

Relative:
Lower

Actual:
435 ft.

WARREN WESTLUND BUICK GMC INC
12800 AURORA AVE N
SEATTLE, WA 98133

Database(s): **RCRA-SQG, FINDS, UST, WA MANIFEST**
EDR ID Number: **1000356027**
EPA ID Number: **WAD981761091**

Site 3 of 3 in cluster D

RCRAInfo:

Owner:	JOHN MURPHY
	(206)361-2150
EPA ID:	WAD981761091
Contact:	Not reported
Classification:	Conditionally Exempt Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

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UST:

Facility ID:	39323828
Site ID:	10656
Status:	**Removed**
Tank Name:	3
Install Date:	12/31/1964 00:00:00

WARREN WESTLUND BUICK GMC INC (Continued) **1000356027**

Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Not reported
Ecology Region: North Western
Tank ID: 17837
Compartment ID: 18101
Decimal Latitude: 47.722520000000003
Decimal Longitude: -122.34508

Facility ID: 39323828
Site ID: 10656
Status: **Removed**
Tank Name: 4
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 17585
Compartment ID: 17841
Decimal Latitude: 47.722520000000003
Decimal Longitude: -122.34508

Facility ID: 39323828
Site ID: 10656
Status: **Removed**
Tank Name: 2
Install Date: 12/31/1964 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Not reported
Ecology Region: North Western
Tank ID: 17686
Compartment ID: 17950
Decimal Latitude: 47.722520000000003
Decimal Longitude: -122.34508

Facility ID: 39323828
Site ID: 10656
Status: **Removed**
Tank Name: 1
Install Date: 12/31/1964 00:00:00
Capacity: 111 TO 1,100 Gallons
Compartment #: 1
Substance: Not reported
Ecology Region: North Western
Tank ID: 17787
Compartment ID: 18051
Decimal Latitude: 47.722520000000003
Decimal Longitude: -122.34508

Facility ID: 39323828
Site ID: 10656
Status: **Removed**
Tank Name: 5
Install Date: 12/31/1964 00:00:00
Capacity: Not reported

WARREN WESTLUND BUICK GMC INC (Continued) **1000356027**

Compartment #: 1
Substance: Not reported
Ecology Region: North Western
Tank ID: 17722
Compartment ID: 17986
Decimal Latitude: 47.722520000000003
Decimal Longitude: -122.34508

WA MANIFEST:
Facility Site ID Number: 39323828
Permit by Rule: No
Treatment by Generator: No
Mixed radioactive waste: No
Importer of hazardous waste: No
Immediate recycler: No
Treatment/Storage/Disposal/Recycling Facility: No
Generator of dangerous fuel waste: No
Generator marketing to burner: No
"Other marketers (i.e., blender, distributor, etc.)": No
Utility boiler burner: No
Industry boiler burner: No
Industrial Furnace: No
Smelter defferal: No
Universal waste - batteries - generate: No
Universal waste - thermostats - generate: No
Universal waste - mercury - generate: No
Universal waste - lamps - generate: No
Universal waste - batteries - accumulate: No
Universal waste - thermostats - accumulate: No
Universal waste - mercury - accumulate: No
Universal waste - lamps - accumulate: No
Destination Facility for Universal Waste: No
Off-specification used oil burner - utility boiler: No
Off-specification used oil burner - industrial boiler: No
Off-specification used oil burner - industrial furnace: No
EPA ID: WAD981761091
Facility Address 2: Not reported
TAX REG NBR: 600083115
NAICS CD: 44111
BUSINESS TYPE: Not reported
MAIL NAME: Warren Westlund Buick GMC Inc
MAIL ADDR LINE1: 12800 AURORA AVE N
MAIL CITY,ST,ZIP: SEATTLE, WA 98133-7518
MAIL COUNTRY: UNITED STATES
LEGAL ORG NAME: Warren Westlund Buick Gmc Inc
LEGAL ORG TYPE: Private
LEGAL ADDR LINE1: 12800 AURORA AVE N
LEGAL CITY,ST,ZIP: SEATTLE, WA 98133-7518
LEGAL COUNTRY: UNITED STATES
LEGAL PHONE NBR: (206)361-2150
LEGAL EFFECTIVE DATE: 3/5/2001
LAND ORG NAME: Not reported
LAND ORG TYPE: Private
LAND PERSON NAME: Pauline Westlund
LAND ADDR LINE1: 12800 AURORA AVE N
LAND CITY,ST,ZIP: SEATTLE, WA 98133-7518
LAND COUNTRY: UNITED STATES

WARREN WESTLUND BUICK GMC INC (Continued) **1000356027**

LAND PHONE NBR:	(206)361-2150
OPERATOR ORG NAME:	Not reported
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	12800 AURORA AVE N
OPERATOR CITY,ST,ZIP:	SEATTLE, WA 98133-7518
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(206)361-2150
OPERATOR EFFECTIVE DATE:	9/6/1996
SITE CONTACT NAME:	Doug Carmichael
SITE CONTACT ADDR LINE1:	12800 Aurora Ave N
SITE CONTACT ZIP:	SEATTLE, WA 98133-7518
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(206)361-2150
SITE CONTACT EMAIL:	Not reported
FORM CONTACT NAME:	Doug Carmichael
FORM CONTACT ADDR LINE1:	12800 Aurora Ave N
FORM CONTACT CITY,ST,ZIP:	SEATTLE, WA 98133-7518
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(206)361-2150
FORM CONTACT EMAIL:	Not reported
GEN STATUS CD:	SQG
MONTHLY GENERATION:	No
BATCH GENERATION:	Yes
ONE TIME GENERATION:	No
TRANSPORTS OWN WASTE:	No
TRANSPORTS OTHRS WASTE:	No
RECYCLER ONSITE:	Yes
TRANSFER FACILITY:	No
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	No
USED OIL TRANSPORTER:	No
USED OIL TRANSFER FACLTY:	No
USED OIL PROCESSOR:	No
USED OIL REREFINER:	No
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	No
USED OIL FUEL MRKTR MEETS SPECS:	No

26
South
1/8-1/4
848 ft.

RED HEAD STEERING GEARS
900 N 127TH
SEATTLE, WA 98133

RCRA-SQG **1001203990**
FINDS **WAH000001263**
WA MANIFEST

Relative:
Lower

Actual:
437 ft.

RCRAInfo:

Owner:	RED HEAD STEERING GEARS (206)364-3333
EPA ID:	WAH000001263
Contact:	TOM FOSTER (206)364-3333
Classification:	Conditionally Exempt Small Quantity Generator
TSDF Activities:	Not reported

RED HEAD STEERING GEARS (Continued) **1001203990**

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

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WA MANIFEST:

Facility Site ID Number:	86523881
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
"Other marketers (i.e., blender, distributor, etc.)":	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAH000001263
Facility Address 2:	Not reported
TAX REG NBR:	600557763
NAICS CD:	811198
BUSINESS TYPE:	Not reported
MAIL NAME:	Red-Head Steering Gears Inc.

RED HEAD STEERING GEARS (Continued) **1001203990**

MAIL ADDR LINE1:	900 N 127TH ST
MAIL CITY,ST,ZIP:	SEATTLE, WA 98133-8031
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Red Head Steering Gears
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	900 N 127TH ST
LEGAL CITY,ST,ZIP:	SEATTLE, WA 98133-8031
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(206)364-3333
LEGAL EFFECTIVE DATE:	4/1/1997
LAND ORG NAME:	Red-Head Steering Gears Inc.
LAND ORG TYPE:	Private
LAND PERSON NAME:	Harvey Foster
LAND ADDR LINE1:	900 N 127TH ST
LAND CITY,ST,ZIP:	SEATTLE, WA 98133-8031
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(206)364-3333
OPERATOR ORG NAME:	Red-Head Steering Gears Inc.
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	900 N 127TH ST
OPERATOR CITY,ST,ZIP:	SEATTLE, WA 98133-8031
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(206)364-3333
OPERATOR EFFECTIVE DATE:	4/1/1997
SITE CONTACT NAME:	Harvey Foster
SITE CONTACT ADDR LINE1:	900 N 127TH ST
SITE CONTACT ZIP:	SEATTLE, WA 98133-8031
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(206)364-3333
SITE CONTACT EMAIL:	Not reported
FORM CONTACT NAME:	Jane Foster
FORM CONTACT ADDR LINE1:	900 N 127TH ST
FORM CONTACT CITY,ST,ZIP:	SEATTLE, WA 98133-8031
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(206)364-3333
FORM CONTACT EMAIL:	foster.jane@comcast.net
GEN STATUS CD:	SQG
MONTHLY GENERATION:	No
BATCH GENERATION:	No
ONE TIME GENERATION:	No
TRANSPORTS OWN WASTE:	No
TRANSPORTS OTHRS WASTE:	No
RECYCLER ONSITE:	No
TRANSFER FACILITY:	No
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	No
USED OIL TRANSPORTER:	No
USED OIL TRANSFER FACLTY:	No
USED OIL PROCESSOR:	No
USED OIL REREFINER:	No
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	No
USED OIL FUEL MRKTR MEETS SPECS:	No

E27
NE
1/8-1/4
862 ft.

Relative:
Lower

Actual:
432 ft.

LEE S AUTOMOTIVE
13281 AURORA AVE N
SEATTLE, WA

Database(s): **EDR Historical Auto Stations**

EDR ID Number: **1009356145**
EPA ID Number: **N/A**

Site 4 of 6 in cluster E

EDR Historical Auto Stations:

Name:	HE CLIF S TIRE AND AUTO CENTER
Year:	1980
Type:	AUTOMOBILE REPAIRING
Name:	U S A PETROLEUM
Year:	1980
Type:	GASOLINE STATIONS
Name:	LEE S AUTOMOTIVE
Year:	1986
Type:	AUTOMOBILE REPAIRING
Name:	ARCO
Year:	1986
Type:	GASOLINE STATIONS
Name:	ARCO
Year:	1990
Type:	GASOLINE STATIONS
Name:	LEE S AUTOMOTIVE
Year:	1990
Type:	AUTOMOBILE REPAIRING

E28
NE
1/8-1/4
862 ft.

Relative:
Lower

Actual:
432 ft.

ARCO SERVICE STATION
13281 AURORA AVE N
SEATTLE, WA 98133

Database(s): **UST**

EDR ID Number: **U003027403**
EPA ID Number: **N/A**

Site 5 of 6 in cluster E

UST:

Facility ID:	8161439
Site ID:	5566
Status:	**Removed**
Tank Name:	3.
Install Date:	1/1/1975 00:00:00
Capacity:	10,000 to 19,999 Gallons
Compartment #:	1
Substance:	Unleaded Gasoline
Ecology Region:	North Western
Tank ID:	9589
Compartment ID:	9746
Decimal Latitude:	47.725088999999997
Decimal Longitude:	-122.346329
Facility ID:	8161439
Site ID:	5566
Status:	**Closed in Place**
Tank Name:	W/O
Install Date:	1/1/1900 00:00:00
Capacity:	Not reported
Compartment #:	1
Substance:	Used Oil/Waste Oil

ARCO SERVICE STATION (Continued) **U003027403**

Ecology Region: North Western
Tank ID: 562898
Compartment ID: 562899
Decimal Latitude: 47.725088999999997
Decimal Longitude: -122.346329

Facility ID: 8161439
Site ID: 5566
Status: **Removed**
Tank Name: 1.
Install Date: 1/1/1975 00:00:00
Capacity: 20,000 to 29,999 Gallons
Compartment #: 1
Substance: Leaded Gasoline
Ecology Region: North Western
Tank ID: 11860
Compartment ID: 12048
Decimal Latitude: 47.725088999999997
Decimal Longitude: -122.346329

Facility ID: 8161439
Site ID: 5566
Status: **Removed**
Tank Name: 2.
Install Date: 1/1/1975 00:00:00
Capacity: 20,000 to 29,999 Gallons
Compartment #: 1
Substance: Leaded Gasoline
Ecology Region: North Western
Tank ID: 6301
Compartment ID: 6410
Decimal Latitude: 47.725088999999997
Decimal Longitude: -122.346329

E29 **LEES AUTOMOTIVE** **RCRA-SQG** **1004794423**
NE **13281 AURORA AVE N** **FINDS** **WAD988513685**
1/8-1/4 **SEATTLE, WA 98133** **WA MANIFEST**
862 ft.

Site 6 of 6 in cluster E

Relative:
Lower

Actual:
432 ft.

RCRAInfo:
Owner: LEES AUTOMOTIVE
(206) 362-4449
EPA ID: WAD988513685

Contact: Not reported

Classification: Conditionally Exempt Small Quantity Generator
TSDF Activities: Not reported

LEES AUTOMOTIVE (Continued) **1004794423**

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

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WA MANIFEST:

Facility Site ID Number:	8161439
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
"Other marketers (i.e., blender, distributor, etc.)":	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAD988513685
Facility Address 2:	Not reported
TAX REG NBR:	600442845
NAICS CD:	811111
BUSINESS TYPE:	Auto Service
MAIL NAME:	Lees Automotive

LEES AUTOMOTIVE (Continued) **1004794423**

MAIL ADDR LINE1:	13281 AURORA AVE N
MAIL CITY,ST,ZIP:	SEATTLE, WA 98133-7508
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Lees Automotive
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	13281 AURORA AVE N
LEGAL CITY,ST,ZIP:	SEATTLE, WA 98133
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	2063624449
LEGAL EFFECTIVE DATE:	11/6/1992
LAND ORG NAME:	Schreiber Investment
LAND ORG TYPE:	Private
LAND PERSON NAME:	Not reported
LAND ADDR LINE1:	6318 57TH AVE S
LAND CITY,ST,ZIP:	SEATTLE, WA 98118-3021
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(206)725-4875
OPERATOR ORG NAME:	Not reported
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	13281 AURORA AVE N
OPERATOR CITY,ST,ZIP:	SEATTLE, WA 98133-7508
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(206)362-4449
OPERATOR EFFECTIVE DATE:	8/13/1996
SITE CONTACT NAME:	Thomas Lee
SITE CONTACT ADDR LINE1:	13281 AURORA AVE N
SITE CONTACT ZIP:	SEATTLE, WA 98133-7508
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(206)362-4449
SITE CONTACT EMAIL:	Not reported
FORM CONTACT NAME:	Thomas Lee
FORM CONTACT ADDR LINE1:	13281 AURORA AVE N
FORM CONTACT CITY,ST,ZIP:	SEATTLE, WA 98133-7508
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(206)362-4449
FORM CONTACT EMAIL:	info@leesautomotive.com
GEN STATUS CD:	XQG
MONTHLY GENERATION:	No
BATCH GENERATION:	Yes
ONE TIME GENERATION:	No
TRANSPORTS OWN WASTE:	No
TRANSPORTS OTHRS WASTE:	No
RECYCLER ONSITE:	No
TRANSFER FACILITY:	No
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	No
USED OIL TRANSPORTER:	No
USED OIL TRANSFER FACLTY:	No
USED OIL PROCESSOR:	No
USED OIL REREFINER:	No
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	No
USED OIL FUEL MRKTR MEETS SPECS:	No

30 SSE 1/8-1/4 910 ft. **ARA COLLISION**
946 N 127TH
SEATTLE, WA 98133

Database(s): **RCRA-SQG, FINDS, WA MANIFEST**
EDR ID Number: **1001969628**
EPA ID Number: **WAH000009878**

Relative: Lower

Actual: 435 ft.

RCRAInfo:
Owner: ARA COLLISION
(206)365-2053
EPA ID: WAH000009878
Contact: ALAN KALLA
(206)365-2053
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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WA MANIFEST:

Facility Site ID Number:	96253777
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
"Other marketers (i.e., blender, distributor, etc.)":	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No

ARA COLLISION (Continued) **1001969628**

Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAH000009878
Facility Address 2:	Not reported
TAX REG NBR:	601605723
NAICS CD:	811121
BUSINESS TYPE:	Not reported
MAIL NAME:	ARA Collision
MAIL ADDR LINE1:	946 N 127th
MAIL CITY,ST,ZIP:	SEATTLE, WA 98133
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	ARA Collision
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	946 N 127th
LEGAL CITY,ST,ZIP:	SEATTLE, WA 98133
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(206)365-2053
LEGAL EFFECTIVE DATE:	10/14/1999
LAND ORG NAME:	Not reported
LAND ORG TYPE:	Private
LAND PERSON NAME:	Frank Besancon
LAND ADDR LINE1:	2126 Breezy Pt Rd S
LAND CITY,ST,ZIP:	CAMANO ISLAND, WA 98292
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	000-000-0000
OPERATOR ORG NAME:	ARA Collision
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	946 N 127th
OPERATOR CITY,ST,ZIP:	SEATTLE, WA 98133
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(206)365-2053
OPERATOR EFFECTIVE DATE:	10/18/1999
SITE CONTACT NAME:	RONALD LEYDA
SITE CONTACT ADDR LINE1:	946 N 127th
SITE CONTACT ZIP:	SEATTLE, WA 98133
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(206)365-2053
SITE CONTACT EMAIL:	ARACOLLISION@EATHLINK.NET
FORM CONTACT NAME:	Alan Kalla
FORM CONTACT ADDR LINE1:	946 N 127th
FORM CONTACT CITY,ST,ZIP:	SEATTLE, WA 98133
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(206)365-2053
FORM CONTACT EMAIL:	ARACOLLISION@EARTHLINK.NET
GEN STATUS CD:	SQG
MONTHLY GENERATION:	No
BATCH GENERATION:	No
ONE TIME GENERATION:	No
TRANSPORTS OWN WASTE:	No
TRANSPORTS OTHRS WASTE:	No
RECYCLER ONSITE:	No
TRANSFER FACILITY:	No
OTHER EXEMPTION:	Not reported

ARA COLLISION (Continued) **1001969628**

UW BATTERY GEN: No
USED OIL TRANSPORTER: No
USED OIL TRANSFER FACLTY: No
USED OIL PROCESSOR: No
USED OIL REREFINER: No
USED OIL FUEL MRKTR DIRECTS SHPMNTS: No
USED OIL FUEL MRKTR MEETS SPECS: No

31
West
1/8-1/4
1008 ft.

Relative:
Higher

Actual:
478 ft.

NEW BEGINNINGS OF NORTHWEST **RCRA-SQG** **1000350696**
600 N 130TH **FINDS** **WAD988473385**
SEATTLE, WA 98133

RCRAInfo:
Owner: NEW BEGINNINGS OF NORTHWEST
EPA ID: WAD988473385
Contact: JOHN SYVERSON
(206) 362-6000
Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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32
ESE
1/8-1/4
1018 ft.

Relative:
Lower

Actual:
426 ft.

OSBERG CONSTRUCTION COMPANY **UST** **U003026015**
1132 NORTH 128TH STREET **N/A**
SEATTLE, WA 98133

UST:
Facility ID: 72676115
Site ID: 1530
Status: Removed
Tank Name: 1
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Not reported
Ecology Region: North Western
Tank ID: 38595
Compartment ID: 39134
Decimal Latitude: 47.722248999999998
Decimal Longitude: -122.34581900000001

OSBERG CONSTRUCTION COMPANY (Continued) **U003026015**

Facility ID: 72676115
Site ID: 1530
Status: Removed
Tank Name: 2
Install Date: 12/31/1964 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 38686
Compartment ID: 39225
Decimal Latitude: 47.722248999999998
Decimal Longitude: -122.34581900000001

F33 **BOB S AUTO REPAIR** **EDR Historical Auto Stations** **1009355430**
SE **12710 AURORA AVE** **N/A**
1/8-1/4 **SEATTLE, WA**
1048 ft.

Site 1 of 4 in cluster F

Relative: Lower

EDR Historical Auto Stations:
Name: BOB S AUTO REPAIR
Actual: 426 ft. Year: 1960
Type: AUTOMOBILE REPAIRING

F34 **NORTH END AUTOMOTIVE** **EDR Historical Auto Stations** **1009355431**
SE **12710 AURORA AVE N** **N/A**
1/8-1/4 **SEATTLE, WA**
1048 ft.

Site 2 of 4 in cluster F

Relative: Lower

EDR Historical Auto Stations:
Name: NORTH END AUTOMOTIVE
Actual: 426 ft. Year: 1966
Type: AUTOMOBILE REPAIRING

F35 **MUFFLER TOWN** **EDR Historical Auto Stations** **1009355422**
SE **12700 AURORA AVE N** **N/A**
1/8-1/4 **SEATTLE, WA**
1076 ft.

Site 3 of 4 in cluster F

Relative: Lower

EDR Historical Auto Stations:
Name: MUFFLER CITY
Actual: 425 ft. Year: 1966
Type: AUTOMOBILE REPAIRING

Name: MUFFLER CITY
Year: 1970
Type: AUTOMOBILE REPAIRING

Name: MUFFLER TOWN
Year: 1975
Type: AUTOMOBILE REPAIRING

MUFFLER TOWN (Continued) **1009355422**

Name: MUFFLER TOWN
Year: 1980
Type: AUTOMOBILE REPAIRING

F36
SE
1/8-1/4
1076 ft.

Relative:
Lower

Actual:
425 ft.

MUFFLER CITY **EDR Historical Auto Stations** **1009355421**
12700 AURORA AVE **N/A**
SEATTLE, WA

Site 4 of 4 in cluster F

EDR Historical Auto Stations:
Name: MUFFLER CITY
Year: 1960
Type: AUTOMOBILE REPAIRING

37
North
1/8-1/4
1170 ft.

Relative:
Higher

Actual:
467 ft.

RP 2000 LLC DBA RAINIER PRECISION **RCRA-SQG** **1007265377**
13500 LINDEN AVE N **WAH000020065**
SEATTLE, WA 98133

RCRAInfo:
Owner: RAINIER PRECISION
(206) 624-8258
EPA ID: WAH000020065
Contact: WENDY SPECK
(206) 624-8258
Classification: Conditionally Exempt Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

G38
NNE
1/4-1/2
1458 ft.

Relative:
Higher

Actual:
452 ft.

W.A. BOTTING COMPANY **ICR** **S104488037**
13549 AURORA AVE. N. **N/A**
SEATTLE, WA 98133

Site 1 of 2 in cluster G

ICR:

Date Ecology Received Report:	07/30/1990
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	90-09
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

G39
NNE
1/4-1/2
1458 ft.

Relative:
Higher

Actual:
452 ft.

WA BOTTING CO
13549 AURORA AVE N
SEATTLE, WA 98133

Site 2 of 2 in cluster G

RCRA-SQG
FINDS
CSCSL NFA
VCP

1001226255
WAH000002188

RCRAInfo:
Owner: CAROL BOTTING
(602)924-6939
EPA ID: WAH000002188

Contact: Not reported

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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CSCSL NFA:
Facility/Site Id: 37561131
Ecology Status: Independent Remedial Action
Program Plan Code: 4
Independent Status Code: Final Independant RA Report received
WARM Bin Number: Not reported
NFA Code: NFA after Assesment IRAP or VCP
NFA Date: 11/30/1999 00:00:00
Latitude: 47.727209999999999
Longitude: -122.34681999999999

VCP:
Facility ID: 37561131
Ecology Status: Independent Remedial Action
WARM BIN #: Not reported
NFA Code: NFA after assessment, IRAP, or VCP
Program Plan: 4

40
ENE
1/4-1/2
1484 ft.

NORTH OPERATING BASE
13330 STONE AV N
SEATTLE, WA 98133

LUST **U001126116**
UST **N/A**

Relative:
Lower

Actual:
426 ft.

LUST:

FS ID:	43739373
Facility ID:	9903
Release ID:	324046
Alternate Name:	WASHINGTON NATURAL GAS N OPERATING BASE
Release Notification Date:	10/19/1995 00:00:00
Release Status Date:	11/20/1995 10:53:47.73
Facility Status:	Cleanup Started
Affected Media:	Soil
Site Response Unit Code:	NW
Lat/Long:	47.725489000000003 / -122.34313

FS ID:	43739373
Facility ID:	9903
Release ID:	324046
Alternate Name:	WASHINGTON NATURAL GAS N OPERATING BASE
Release Notification Date:	10/19/1995 00:00:00
Release Status Date:	8/23/2002 00:00:00
Facility Status:	Reported Cleaned Up
Affected Media:	Soil
Site Response Unit Code:	NW
Lat/Long:	47.725489000000003 / -122.34313

UST:

Facility ID:	43739373
Site ID:	9903
Status:	**Removed**
Tank Name:	GAS 1
Install Date:	1/1/1984 00:00:00
Capacity:	Not reported
Compartment #:	1
Substance:	Unleaded Gasoline
Ecology Region:	North Western
Tank ID:	24420
Compartment ID:	24754
Decimal Latitude:	47.725489000000003
Decimal Longitude:	-122.34313

Facility ID:	43739373
Site ID:	9903
Status:	**Removed**
Tank Name:	DIESEL 1
Install Date:	1/1/1984 00:00:00
Capacity:	10,000 to 19,999 Gallons
Compartment #:	1
Substance:	Diesel
Ecology Region:	North Western
Tank ID:	33480
Compartment ID:	33973
Decimal Latitude:	47.725489000000003
Decimal Longitude:	-122.34313

Facility ID:	43739373
Site ID:	9903

NORTH OPERATING BASE (Continued) **U001126116**

Status:	**Removed**
Tank Name:	WASTE 1
Install Date:	1/1/1984 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Used Oil/Waste Oil
Ecology Region:	North Western
Tank ID:	19445
Compartment ID:	19730
Decimal Latitude:	47.725489000000003
Decimal Longitude:	-122.34313

Facility ID:	43739373
Site ID:	9903
Status:	**Removed**
Tank Name:	GAS 2
Install Date:	1/1/1984 00:00:00
Capacity:	10,000 to 19,999 Gallons
Compartment #:	1
Substance:	Unleaded Gasoline
Ecology Region:	North Western
Tank ID:	24727
Compartment ID:	25063
Decimal Latitude:	47.725489000000003
Decimal Longitude:	-122.34313

H41 **FIRESTONE TIRE RUBBER CO SEATTLE** **RCRA-SQG** **1000223103**
SSE **12553 AURORA AVE N** **FINDS** **WAD150020311**
1/4-1/2 **SEATTLE, WA 98133** **LUST**
1489 ft. **UST**
ICR

Site 1 of 3 in cluster H

Relative:
Lower

Actual:
418 ft.

RCRAInfo:

Owner:	FIRESTONE TIRE & RUBBER CO
EPA ID:	WAD150020311
Contact:	DICK MCMANUS (253) 539-1550
Classification:	Small Quantity Generator
TSDF Activities:	Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

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FIRESTONE TIRE RUBBER CO SEATTLE (Continued) **1000223103**

interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

LUST:

FS ID:	62128547
Facility ID:	590
Release ID:	383893
Alternate Name:	FIRESTONE STORE 31C7
Release Notification Date:	7/16/1996 00:00:00
Release Status Date:	10/9/1996 00:00:00
Facility Status:	Reported Cleaned Up
Affected Media:	Soil
Site Response Unit Code:	NW
Lat/Long:	47.72025 / -122.34508

FS ID:	62128547
Facility ID:	590
Release ID:	383893
Alternate Name:	FIRESTONE STORE 31C7
Release Notification Date:	7/16/1996 00:00:00
Release Status Date:	7/16/1996 00:00:00
Facility Status:	Cleanup Started
Affected Media:	Soil
Site Response Unit Code:	NW
Lat/Long:	47.72025 / -122.34508

UST:

Facility ID:	62128547
Site ID:	590
Status:	**Removed**
Tank Name:	1
Install Date:	1/1/1982 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Used Oil/Waste Oil
Ecology Region:	North Western
Tank ID:	28461
Compartment ID:	28857
Decimal Latitude:	47.72025
Decimal Longitude:	-122.34508

ICR:

Date Ecology Received Report:	10/25/1996
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	94-53
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

H42
SSE
1/4-1/2
1573 ft.

Relative:
Lower

Actual:
417 ft.

LOWES HIW 252
12525 AURORA AVE N
SEATTLE, WA 98133

CSCSL NFA **S104971690**
N/A

Site 2 of 3 in cluster H

CSCSL NFA:

Facility/Site Id:	52995388
Ecology Status:	Independent Remedial Action
Program Plan Code:	3
Independent Status Code:	Final Independant RA Report received
WARM Bin Number:	Not reported
NFA Code:	NFA after Assesment IRAP or VCP
NFA Date:	12/30/1997 00:00:00
Latitude:	47.719738999999997
Longitude:	-122.346289

H43
SSE
1/4-1/2
1573 ft.

Relative:
Lower

Actual:
417 ft.

LOWES HIW 252
12525 AURORA AVE N
SEATTLE, WA 98133

RCRA-SQG **1001805454**
FINDS **WAH000000372**
WA MANIFEST
ICR

Site 3 of 3 in cluster H

RCRAInfo:

Owner:	LOWES HIW INC
	(336)658-4095
EPA ID:	WAH000000372
Contact:	Not reported
Classification:	Conditionally Exempt Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

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WA MANIFEST:

Facility Site ID Number:	52995388
Permit by Rule:	No
Treatment by Generator:	No

LOWES HIW 252 (Continued) **1001805454**

Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
"Other marketers (i.e., blender, distributor, etc.)":	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAH000000372
Facility Address 2:	Not reported
TAX REG NBR:	601213703
NAICS CD:	44413
BUSINESS TYPE:	Not reported
MAIL NAME:	Lowes HIW INc.
MAIL ADDR LINE1:	8015 West Kenton Circle Ste 130
MAIL CITY,ST,ZIP:	Huntersville, NC 28078
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Lowes HIW Inc
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	8015 West Kenton Circle Ste 130
LEGAL CITY,ST,ZIP:	Huntersville, NC 28078
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(704)758-6005
LEGAL EFFECTIVE DATE:	7/29/2000
LAND ORG NAME:	Lowes HIW Inc
LAND ORG TYPE:	Private
LAND PERSON NAME:	Not reported
LAND ADDR LINE1:	8015 West Kenton Circle Ste 130
LAND CITY,ST,ZIP:	Huntersville, NC 28078
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(704)758-6005
OPERATOR ORG NAME:	Lowes HIW Inc.
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	12525 Aurora Ave N
OPERATOR CITY,ST,ZIP:	SEATTLE, WA 98133
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(206)366-0365
OPERATOR EFFECTIVE DATE:	Not reported
SITE CONTACT NAME:	Brian Nordquist
SITE CONTACT ADDR LINE1:	12525 Aurora Ave N
SITE CONTACT ZIP:	SEATTLE, WA 98133
SITE CONTACT COUNTRY:	UNITED STATES

LOWES HIW 252 (Continued) **1001805454**

SITE CONTACT PHONE NBR: (206)366-0365
SITE CONTACT EMAIL: Not reported
FORM CONTACT NAME: Damon Chappell
FORM CONTACT ADDR LINE1: 8015 West Kenton Circle Ste 130
FORM CONTACT CITY,ST,ZIP: Huntersville, NC 28078
FORM CONTACT COUNTRY: UNITED STATES
FORM CONTACT PHONE NBR: (704)758-6005
FORM CONTACT EMAIL: damon.m.chappell@lowes.com
GEN STATUS CD: SQG
MONTHLY GENERATION: No
BATCH GENERATION: No
ONE TIME GENERATION: No
TRANSPORTS OWN WASTE: No
TRANSPORTS OTHRS WASTE: No
RECYCLER ONSITE: No
TRANSFER FACILITY: No
OTHER EXEMPTION: Not reported
UW BATTERY GEN: No
USED OIL TRANSPORTER: No
USED OIL TRANSFER FACLTY: No
USED OIL PROCESSOR: No
USED OIL REREFINER: No
USED OIL FUEL MRKTR DIRECTS SHPMNTS: No
USED OIL FUEL MRKTR MEETS SPECS: No

ICR:
Date Ecology Received Report: 08/13/1997
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 95-18
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 08/13/1997
Contaminants Found at Site: Petroleum products
Media Contaminated: Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Final cleanup report
Site Register Issue: 95-18
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

I44
SSE
1/4-1/2
1644 ft.

Relative:
Lower

Actual:
416 ft.

COCHRAN ELECTRIC
12500 AURORA AVE N.
SEATTLE, WA 98133

LUST **1000838114**
N/A

Site 1 of 2 in cluster I

LUST:

FS ID:	22342238
Facility ID:	3885
Release ID:	301124
Alternate Name:	COCHRAN ELECTRIC
Release Notification Date:	5/25/1995 00:00:00
Release Status Date:	7/7/1995 00:00:00
Facility Status:	Reported Cleaned Up
Affected Media:	Soil
Site Response Unit Code:	NW
Lat/Long:	47.719518999999998 / -122.346279

FS ID:	22342238
Facility ID:	3885
Release ID:	301124
Alternate Name:	COCHRAN ELECTRIC
Release Notification Date:	5/25/1995 00:00:00
Release Status Date:	6/15/1995 00:00:00
Facility Status:	Cleanup Started
Affected Media:	Soil
Site Response Unit Code:	NW
Lat/Long:	47.719518999999998 / -122.346279

I45
SSE
1/4-1/2
1644 ft.

Relative:
Lower

Actual:
416 ft.

COCHRAN ELECTRIC
12500 AURORA AVE. N.
SEATTLE, WA 98133

ICR **1001806782**
N/A

Site 2 of 2 in cluster I

ICR:

Date Ecology Received Report:	08/07/1998
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank
Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	98-06
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

J46
SE
1/4-1/2
1738 ft.

Relative:
Lower

Actual:
396 ft.

RICKS AUTO WRECKING
12621 STONE AV N
SEATTLE, WA 98133

CSCSL NFA **S104971756**
N/A

Site 1 of 2 in cluster J

CSCSL NFA:

Facility/Site Id:	2342
Ecology Status:	Independent Remedial Action
Program Plan Code:	3
Independent Status Code:	Final Independant RA Report received

RICKS AUTO WRECKING (Continued) **S104971756**

WARM Bin Number:	Not reported
NFA Code:	NFA after Assesment IRAP or VCP
NFA Date:	4/26/1995 00:00:00
Latitude:	47.719752999999997
Longitude:	-122.343461

J47 **SEATTLE SOL WST UTILITY AURORA HAZ SITE** **RCRA-SQG** **1000839006**
SE **12600 STONE AVE N** **CSCSL** **WAD988518262**
1/4-1/2 **SEATTLE, WA 98133** **FINDS**
1779 ft. **WA MANIFEST**

Site 2 of 2 in cluster J

Relative:
Lower

Actual:
396 ft.

RCRAInfo:

Owner:	SEATTLE CITY PUBLIC UTILITIES
	(206)684-7666
EPA ID:	WAD988518262
Contact:	LEEANNE WOODEN
	(206)684-7487
Classification:	Small Quantity Generator
TSDF Activities:	Not reported

Violation Status: No violations found

CSCSL:

Facility ID:	5951236
warm_bin_n:	Not reported
Prog plan code:	Not reported
Latitude:	47.720669999999998
Longitude:	-122.34217
Lat/Long:	47.720669999999998 / -122.34217
Lat/Long (dms):	47 43 14.412000000000001 / 122 20 31.812000000000001
Media ID:	9364
Media Type Desc:	Soil
Media Status Desc:	Confirmed
Affected Media:	Soil
Affected Media Status:	C
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported

Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported

SEATTLE SOL WST UTILITY AURORA HAZ SITE (Continued) **1000839006**

Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Remedial Action in progress
Independent Site Status (independent cleanup): Not reported

Facility ID: 5951236
warm_bin_n: Not reported
Prog plan code: Not reported
Latitude: 47.720669999999998
Longitude: -122.34217
Lat/Long: 47.720669999999998 / -122.34217
Lat/Long (dms): 47 43 14.412000000000001 / 122 20 31.812000000000001
Media ID: 9363
Media Type Desc: Groundwater
Media Status Desc: Suspected
Affected Media: Ground Water
Affected Media Status: S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides: Not reported
Petroleum Products: Suspected to be present
Phenolic Compounds: Not reported
Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Responsible Unit: Northwest Region
Arsenic Code: Not reported
MTBE Code: Not reported
UXO Code: Not reported
Dioxin: Not reported
Non-Halogenated Solvents: Not reported
Base/Neutral/Acid Organics: Not reported
Halogenated Organic Compounds: Not reported
EPA Priority Pollutants - Metals and Cyanide: Not reported
Metals - Other non-priority pollutant medals: Not reported
Polychlorinated biPhenyls (PCBs): Not reported
Polynuclear Aromatic Hydrocarbons (PAH): Not reported
Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported
Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Remedial Action in progress
Independent Site Status (independent cleanup): Not reported

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and

SEATTLE SOL WST UTILITY AURORA HAZ SITE (Continued) **1000839006**

corrective action activities required under RCRA.

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WA MANIFEST:

Facility Site ID Number:	5951236
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No
Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
"Other marketers (i.e., blender, distributor, etc.)":	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAD988518262
Facility Address 2:	Not reported
TAX REG NBR:	Not reported
NAICS CD:	22132
BUSINESS TYPE:	Household Haz Waste Colle
MAIL NAME:	Seattle City Public Utilities
MAIL ADDR LINE1:	8100 2nd Ave S
MAIL CITY,ST,ZIP:	SEATTLE, WA 98108
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Seattle City Public Utilities
LEGAL ORG TYPE:	Municipal
LEGAL ADDR LINE1:	PO Box 34018
LEGAL CITY,ST,ZIP:	SEATTLE, WA 98124-4018
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(206)684-7447
LEGAL EFFECTIVE DATE:	12/31/2002
LAND ORG NAME:	Seattle City

SEATTLE SOL WST UTILITY AURORA HAZ SITE (Continued) **1000839006**

LAND ORG TYPE:	Municipal
LAND PERSON NAME:	Not reported
LAND ADDR LINE1:	PO Box 34018
LAND CITY,ST,ZIP:	SEATTLE, WA 98124-4018
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(206)684-7447
OPERATOR ORG NAME:	Seattle Public Utilities
OPERATOR ORG TYPE:	Municipal
OPERATOR ADDR LINE1:	8100 2nd Ave S
OPERATOR CITY,ST,ZIP:	SEATTLE, WA 98108
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(206)684-5832
OPERATOR EFFECTIVE DATE:	12/31/2002
SITE CONTACT NAME:	James Talbot
SITE CONTACT ADDR LINE1:	8100 2ND AVE S
SITE CONTACT ZIP:	SEATTLE, WA 98108-4205
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	(206)684-7485
SITE CONTACT EMAIL:	james.talbot@seattle.gov
FORM CONTACT NAME:	James Talbot
FORM CONTACT ADDR LINE1:	8100 2nd Ave S
FORM CONTACT CITY,ST,ZIP:	SEATTLE, WA 98108
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	(206)684-7485
FORM CONTACT EMAIL:	james.talbot@seattle.gov
GEN STATUS CD:	XQG
MONTHLY GENERATION:	No
BATCH GENERATION:	No
ONE TIME GENERATION:	No
TRANSPORTS OWN WASTE:	No
TRANSPORTS OTHRS WASTE:	No
RECYCLER ONSITE:	No
TRANSFER FACILITY:	No
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	No
USED OIL TRANSPORTER:	No
USED OIL TRANSFER FACLTY:	No
USED OIL PROCESSOR:	No
USED OIL REREFINER:	No
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	No
USED OIL FUEL MRKTR MEETS SPECS:	No

K48 **NORTH SEATTLE CHRYSLER PLYMOUTH** **ICR** **S103508412**
NNE **13711/13733 AURORA AVE. N.** **N/A**
1/4-1/2 **SEATTLE, WA 98133**
1935 ft.

Site 1 of 2 in cluster K

Relative:
Higher

Actual:
466 ft.

ICR:

Date Ecology Received Report:	05/22/1995
Contaminants Found at Site:	Petroleum products, VOA's
Media Contaminated:	Soil
Waste Management:	Not reported
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	93-51
County Code:	17.00000
Contact:	Not reported

NORTH SEATTLE CHRYSLER PLYMOUTH (Continued) **S103508412**

Report Title: Not reported

Date Ecology Received Report: 05/22/1995
Contaminants Found at Site: Petroleum products, Halogenated organic compounds, Phenolic compounds
Media Contaminated: Soil
Waste Management: Spill
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-43
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 08/08/1996
Contaminants Found at Site: Petroleum products, Halogenated organic compounds, Phenolic compounds
Media Contaminated: Soil
Waste Management: Spill
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-43
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

Date Ecology Received Report: 04/01/1996
Contaminants Found at Site: Petroleum products, Halogenated organic compounds, Phenolic compounds
Media Contaminated: Soil
Waste Management: Spill
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 94-43
County Code: 17.00000
Contact: Not reported
Report Title: Not reported

K49 **TOWN & COUNTRY AMC JEEP** **RCRA-SQG 1000406762**
NNE **13733 AURORA AVE N** **FINDS WAD057310021**
1/4-1/2 **SEATTLE, WA 98133** **UST**
1982 ft. **CSCSL NFA**
Site 2 of 2 in cluster K **WA MANIFEST**

Relative:
Higher

Actual:
468 ft.

RCRAInfo:
Owner: RUSS MCDUFFIE
(206)365-3530
EPA ID: WAD057310021

Contact: Not reported

Classification: Small Quantity Generator
TSDF Activities: Not reported

TOWN & COUNTRY AMC JEEP (Continued) **1000406762**

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

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UST:

Facility ID:	27677726
Site ID:	6347
Status:	**Removed**
Tank Name:	1
Install Date:	12/31/1964 00:00:00
Capacity:	111 TO 1,100 Gallons
Compartment #:	1
Substance:	Used Oil/Waste Oil
Ecology Region:	North Western
Tank ID:	6874
Compartment ID:	6995
Decimal Latitude:	47.728709000000002
Decimal Longitude:	-122.346329

CSCSL NFA:

Facility/Site Id:	27677726
Ecology Status:	Independent Remedial Action
Program Plan Code:	3
Independent Status Code:	Final Independant RA Report received
WARM Bin Number:	Not reported
NFA Code:	NFA after Assesment IRAP or VCP
NFA Date:	3/26/1999 00:00:00
Latitude:	47.728709000000002
Longitude:	-122.346329

WA MANIFEST:

Facility Site ID Number:	27677726
Permit by Rule:	No
Treatment by Generator:	No
Mixed radioactive waste:	No
Importer of hazardous waste:	No

TOWN & COUNTRY AMC JEEP (Continued) **1000406762**

Immediate recycler:	No
Treatment/Storage/Disposal/Recycling Facility:	No
Generator of dangerous fuel waste:	No
Generator marketing to burner:	No
"Other marketers (i.e., blender, distributor, etc.)":	No
Utility boiler burner:	No
Industry boiler burner:	No
Industrial Furnace:	No
Smelter defferal:	No
Universal waste - batteries - generate:	No
Universal waste - thermostats - generate:	No
Universal waste - mercury - generate:	No
Universal waste - lamps - generate:	No
Universal waste - batteries - accumulate:	No
Universal waste - thermostats - accumulate:	No
Universal waste - mercury - accumulate:	No
Universal waste - lamps - accumulate:	No
Destination Facility for Universal Waste:	No
Off-specification used oil burner - utility boiler:	No
Off-specification used oil burner - industrial boiler:	No
Off-specification used oil burner - industrial furnace:	No
EPA ID:	WAD057310021
Facility Address 2:	Not reported
TAX REG NBR:	601968764
NAICS CD:	44111
BUSINESS TYPE:	Not reported
MAIL NAME:	Town & Country AMC Jeep
MAIL ADDR LINE1:	PO Box 77430
MAIL CITY,ST,ZIP:	SEATTLE, WA 98177-0430
MAIL COUNTRY:	UNITED STATES
LEGAL ORG NAME:	Auto Nation USA Inc
LEGAL ORG TYPE:	Private
LEGAL ADDR LINE1:	PO Box 77430
LEGAL CITY,ST,ZIP:	SEATTLE, WA 98177-0430
LEGAL COUNTRY:	UNITED STATES
LEGAL PHONE NBR:	(206)365-3530
LEGAL EFFECTIVE DATE:	6/1/1999
LAND ORG NAME:	Not reported
LAND ORG TYPE:	Private
LAND PERSON NAME:	Marian Smith
LAND ADDR LINE1:	13733 AURORA AVE N
LAND CITY,ST,ZIP:	SEATTLE, WA 98133-6912
LAND COUNTRY:	UNITED STATES
LAND PHONE NBR:	(206)365-3530
OPERATOR ORG NAME:	Not reported
OPERATOR ORG TYPE:	Private
OPERATOR ADDR LINE1:	13733 AURORA AVE N
OPERATOR CITY,ST,ZIP:	SEATTLE, WA 98133-6912
OPERATOR COUNTRY:	UNITED STATES
OPERATOR PHONE NBR:	(206)365-3530
OPERATOR EFFECTIVE DATE:	8/28/1996
SITE CONTACT NAME:	Russ Mcduffie
SITE CONTACT ADDR LINE1:	13733 AURORA AVE N
SITE CONTACT ZIP:	SEATTLE, WA 98133-6912
SITE CONTACT COUNTRY:	UNITED STATES
SITE CONTACT PHONE NBR:	206365-3530
SITE CONTACT EMAIL:	mcduffier@autonation.com

TOWN & COUNTRY AMC JEEP (Continued) **1000406762**

FORM CONTACT NAME:	Russ Mcduffie
FORM CONTACT ADDR LINE1:	13733 AURORA AVE N
FORM CONTACT CITY,ST,ZIP:	SEATTLE, WA 98133-6912
FORM CONTACT COUNTRY:	UNITED STATES
FORM CONTACT PHONE NBR:	206365-3530
FORM CONTACT EMAIL:	mcduffier@autonation.com
GEN STATUS CD:	SQG
MONTHLY GENERATION:	No
BATCH GENERATION:	No
ONE TIME GENERATION:	No
TRANSPORTS OWN WASTE:	No
TRANSPORTS OTHRS WASTE:	No
RECYCLER ONSITE:	No
TRANSFER FACILITY:	No
OTHER EXEMPTION:	Not reported
UW BATTERY GEN:	No
USED OIL TRANSPORTER:	No
USED OIL TRANSFER FACLTY:	No
USED OIL PROCESSOR:	No
USED OIL REREFINER:	No
USED OIL FUEL MRKTR DIRECTS SHPMNTS:	No
USED OIL FUEL MRKTR MEETS SPECS:	No

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50 **CITY OF SEATTLE** **LUST** **U001125217**
ESE **12645 ASHWORTH AVE N** **UST** **N/A**
1/4-1/2 **SEATTLE, WA 98133** **ICR**
2150 ft.

Relative:
Lower

Actual:
396 ft.

LUST:

FS ID:	17831932
Facility ID:	7929
Release ID:	546773
Alternate Name:	SEATTLE CITY OF - HALLER LAKE SHOP COMPLEX
Release Notification Date:	2/18/2000 00:00:00
Release Status Date:	9/18/1999 00:00:00
Facility Status:	Cleanup Started
Affected Media:	Soil
Site Response Unit Code:	NW
Lat/Long:	47.721259000000003 / -122.340799

FS ID:	17831932
Facility ID:	7929
Release ID:	546773
Alternate Name:	SEATTLE CITY OF - HALLER LAKE SHOP COMPLEX
Release Notification Date:	2/18/2000 00:00:00
Release Status Date:	9/18/1999 00:00:00
Facility Status:	Cleanup Started
Affected Media:	Ground Water
Site Response Unit Code:	NW
Lat/Long:	47.721259000000003 / -122.340799

UST:

Facility ID:	17831932
Site ID:	7929
Status:	**Removed**
Tank Name:	A10-3
Install Date:	1/1/1974 00:00:00

CITY OF SEATTLE (Continued) **U001125217**

Capacity: 1,101 to 2,000 Gallons
Compartment #: 1
Substance: Motor Oil
Ecology Region: North Western
Tank ID: 813
Compartment ID: 829
Decimal Latitude: 47.721259000000003
Decimal Longitude: -122.340799

Facility ID: 17831932
Site ID: 7929
Status: **Operational**
Tank Name: HL-1
Install Date: 5/1/1996 00:00:00
Capacity: 20,000 to 29,999 Gallons
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 439809
Compartment ID: 441569
Decimal Latitude: 47.721259000000003
Decimal Longitude: -122.340799

Facility ID: 17831932
Site ID: 7929
Status: **Closed in Place**
Tank Name: A10-4
Install Date: 1/1/1955 00:00:00
Capacity: Not reported
Compartment #: 1
Substance: Used Oil/Waste Oil
Ecology Region: North Western
Tank ID: 735
Compartment ID: 749
Decimal Latitude: 47.721259000000003
Decimal Longitude: -122.340799

Facility ID: 17831932
Site ID: 7929
Status: **Removed**
Tank Name: A10-1
Install Date: 1/1/1974 00:00:00
Capacity: 10,000 to 19,999 Gallons
Compartment #: 1
Substance: Unleaded Gasoline
Ecology Region: North Western
Tank ID: 870
Compartment ID: 887
Decimal Latitude: 47.721259000000003
Decimal Longitude: -122.340799

Facility ID: 17831932
Site ID: 7929
Status: **Removed**
Tank Name: A10-2
Install Date: 1/1/1974 00:00:00
Capacity: 10,000 to 19,999 Gallons

CITY OF SEATTLE (Continued) **U001125217**

Compartment #: 1
Substance: Diesel
Ecology Region: North Western
Tank ID: 777
Compartment ID: 791
Decimal Latitude: 47.721259000000003
Decimal Longitude: -122.340799

Facility ID: 17831932
Site ID: 7929
Status: Operational
Tank Name: HL-2
Install Date: 5/1/1996 00:00:00
Capacity: 20,000 to 29,999 Gallons
Compartment #: 1
Substance: Diesel
Ecology Region: North Western
Tank ID: 439810
Compartment ID: 441581
Decimal Latitude: 47.721259000000003
Decimal Longitude: -122.340799

ICR:
Date Ecology Received Report: 09/07/2000
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-28
County Code: 17.00000
Contact: Not reported
Report Title: Haller Lake Maint. Facility - Site Assessment and Characterization

Date Ecology Received Report: 09/07/2000
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-29
County Code: 17.00000
Contact: Not reported
Report Title: Haller Lake Field Sampling

Date Ecology Received Report: 02/23/2000
Contaminants Found at Site: Petroleum products
Media Contaminated: Groundwater, Soil
Waste Management: Tank
Region: North Western
Type of Report Ecology Received: Interim cleanup report
Site Register Issue: 98-43
County Code: 17.00000
Contact: Not reported
Report Title: Site Discovery For Hydraulic System

51
SSE
1/4-1/2
2305 ft.

LINCOLN'S AUTO WRECKING
12220 AURORA AVE.
SEATTLE, WA 98133

ICR

S104487026
N/A

Relative:
Lower

Actual:
413 ft.

ICR:

Date Ecology Received Report:	02/12/1993
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Not reported
Region:	North Western
Type of Report Ecology Received:	Interim cleanup report
Site Register Issue:	92-44
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

52
SW
1/4-1/2
2528 ft.

BROADVIEW SVC STA
12258 GREENWOOD AVE N
SEATTLE, WA 98133

RCRA-SQG
FINDS
ICR

1000249246
WAD027414796

Relative:
Higher

Actual:
469 ft.

RCRAInfo:

Owner:	BROADVIEW SVC STA
EPA ID:	WAD027414796
Contact:	WILLARD DANIELS (206) 362-0691
Classification:	Small Quantity Generator
TSDF Activities:	Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

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ICR:

Date Ecology Received Report:	02/13/1992
Contaminants Found at Site:	Petroleum products
Media Contaminated:	Soil
Waste Management:	Tank

BROADVIEW SVC STA (Continued) **1000249246**

Region:	North Western
Type of Report Ecology Received:	Final cleanup report
Site Register Issue:	92-19
County Code:	17.00000
Contact:	Not reported
Report Title:	Not reported

---

53 **HALLER LAKE LANDFILL** **CSCSL** **S100079803**
ESE **N 125TH ST** **N/A**
1/2-1 **SEATTLE, WA 98133**
2917 ft.

Relative:
Lower

Actual:
393 ft.

CSCSL:

Facility ID:	2126
warm_bin_n:	Not reported
Prog plan code:	Not reported
Latitude:	47.719610000000003
Longitude:	-122.34448999999999
Lat/Long:	47.719610000000003 / -122.34448999999999
Lat/Long (dms):	47 43 10.6 / 122 20 40.160000000000004
Media ID:	2717
Media Type Desc:	Groundwater
Media Status Desc:	Suspected
Affected Media:	Ground Water
Affected Media Status:	S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides:	Not reported
Petroleum Products:	Not reported
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported

Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Suspected to be present
Conventional Contaminants, Inorganic:	Suspected to be present
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Awaiting Site Hazard Assessment (SHA)
Independent Site Status (independent cleanup):	Not reported

Facility ID:	2126
warm_bin_n:	Not reported
Prog plan code:	Not reported

HALLER LAKE LANDFILL (Continued) **S100079803**

Latitude:	47.719610000000003
Longitude:	-122.34448999999999
Lat/Long:	47.719610000000003 / -122.34448999999999
Lat/Long (dms):	47 43 10.6 / 122 20 40.160000000000004
Media ID:	2718
Media Type Desc:	Surface Water
Media Status Desc:	Suspected
Affected Media:	Surface Water
Affected Media Status:	S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides:	Not reported
Petroleum Products:	Not reported
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Suspected to be present
Conventional Contaminants, Inorganic:	Suspected to be present
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Awaiting Site Hazard Assessment (SHA)
Independent Site Status (independent cleanup):	Not reported

Facility ID:	2126
warm_bin_n:	Not reported
Prog plan code:	Not reported
Latitude:	47.719610000000003
Longitude:	-122.34448999999999
Lat/Long:	47.719610000000003 / -122.34448999999999
Lat/Long (dms):	47 43 10.6 / 122 20 40.160000000000004
Media ID:	2719
Media Type Desc:	Air
Media Status Desc:	Suspected
Affected Media:	Air
Affected Media Status:	S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides:	Not reported
Petroleum Products:	Not reported
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported

HALLER LAKE LANDFILL (Continued) **S100079803**

Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Responsible Unit: Northwest Region
Arsenic Code: Not reported
MTBE Code: Not reported
UXO Code: Not reported
Dioxin: Not reported
Non-Halogenated Solvents: Not reported
Base/Neutral/Acid Organics: Not reported
Halogenated Organic Compounds: Not reported
EPA Priority Pollutants - Metals and Cyanide: Not reported
Metals - Other non-priority pollutant medals: Not reported
Polychlorinated biPhenyls (PCBs): Not reported
Polynuclear Aromatic Hydrocarbons (PAH): Not reported
Conventional Contaminants, Organic: Suspected to be present
Conventional Contaminants, Inorganic: Suspected to be present
Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Awaiting Site Hazard Assessment (SHA)
Independent Site Status (independent cleanup): Not reported

Facility ID: 2126
warm_bin_n: Not reported
Prog plan code: Not reported
Latitude: 47.719610000000003
Longitude: -122.34448999999999
Lat/Long: 47.719610000000003 / -122.34448999999999
Lat/Long (dms): 47 43 10.6 / 122 20 40.160000000000004
Media ID: 2720
Media Type Desc: Soil
Media Status Desc: Suspected
Affected Media: Soil
Affected Media Status: S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides: Not reported
Petroleum Products: Not reported
Phenolic Compounds: Not reported
Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Responsible Unit: Northwest Region
Arsenic Code: Not reported
MTBE Code: Not reported
UXO Code: Not reported
Dioxin: Not reported
Non-Halogenated Solvents: Not reported
Base/Neutral/Acid Organics: Not reported
Halogenated Organic Compounds: Not reported
EPA Priority Pollutants - Metals and Cyanide: Not reported
Metals - Other non-priority pollutant medals: Not reported
Polychlorinated biPhenyls (PCBs): Not reported
Polynuclear Aromatic Hydrocarbons (PAH): Not reported

HALLER LAKE LANDFILL (Continued) **S100079803**

Conventional Contaminants, Organic:	Suspected to be present
Conventional Contaminants, Inorganic:	Suspected to be present
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Awaiting Site Hazard Assessment (SHA)
Independent Site Status (independent cleanup):	Not reported

Facility ID:	2126
warm_bin_n:	Not reported
Prog plan code:	Not reported
Latitude:	47.719610000000003
Longitude:	-122.34448999999999
Lat/Long:	47.719610000000003 / -122.34448999999999
Lat/Long (dms):	47 43 10.6 / 122 20 40.160000000000004
Media ID:	2721
Media Type Desc:	Drinking Water
Media Status Desc:	Suspected
Affected Media:	Drinking Water
Affected Media Status:	S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides:	Not reported
Petroleum Products:	Not reported
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Suspected to be present
Conventional Contaminants, Inorganic:	Suspected to be present
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Awaiting Site Hazard Assessment (SHA)
Independent Site Status (independent cleanup):	Not reported

54
North
1/2-1
3234 ft.

LAURELHURST OIL CO
14330 LINDEN AV N
SEATTLE, WA 98133

CSCSL
FINDS
BROWNFIELDS

1007080579
110015572995

Relative:
Higher

Actual:
477 ft.

CSCSL:

Facility ID:	2265
warm_bin_n:	4
Prog plan code:	Not reported
Latitude:	47.732700000000001
Longitude:	-122.34712
Lat/Long:	47.732700000000001 / -122.34712
Lat/Long (dms):	47 43 57.719999999999999 / 122 20 49.630000000000003
Media ID:	3020
Media Type Desc:	Soil
Media Status Desc:	Confirmed
Affected Media:	Soil
Affected Media Status:	C
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Ranked, Awaiting Remedial Action (RA)
Independent Site Status (independent cleanup):	Not reported

Facility ID:	2265
warm_bin_n:	4
Prog plan code:	Not reported
Latitude:	47.732700000000001
Longitude:	-122.34712
Lat/Long:	47.732700000000001 / -122.34712
Lat/Long (dms):	47 43 57.719999999999999 / 122 20 49.630000000000003
Media ID:	3021
Media Type Desc:	Groundwater
Media Status Desc:	Suspected
Affected Media:	Ground Water
Affected Media Status:	S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants

LAURELHURST OIL CO (Continued) **1007080579**

are suspected to be present at the site
Pesticides: Not reported
Petroleum Products: Suspected to be present
Phenolic Compounds: Not reported
Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Responsible Unit: Northwest Region
Arsenic Code: Not reported
MTBE Code: Not reported
UXO Code: Not reported
Dioxin: Not reported
Non-Halogenated Solvents: Not reported
Base/Neutral/Acid Organics: Not reported
Halogenated Organic Compounds: Not reported
EPA Priority Pollutants - Metals and Cyanide: Not reported
Metals - Other non-priority pollutant medals: Not reported
Polychlorinated biPhenyls (PCBs): Not reported
Polynuclear Aromatic Hydrocarbons (PAH): Not reported
Conventional Contaminants, Organic: Not reported
Conventional Contaminants, Inorganic: Not reported
Tibutyl Tin Contaminant Group: Not reported
Bioassay/Benthic Failures Contaminant Group: Not reported
Wood Debris Contaminant Group: Not reported
Other Deleterious Substance Group: Not reported
Ecology Site Status (MTCA cleanup process): Ranked, Awaiting Remedial Action (RA)
Independent Site Status (independent cleanup): Not reported

Facility ID: 2265
warm_bin_n: 4
Prog plan code: Not reported
Latitude: 47.732700000000001
Longitude: -122.34712
Lat/Long: 47.732700000000001 / -122.34712
Lat/Long (dms): 47 43 57.719999999999999 / 122 20 49.630000000000003
Media ID: 3022
Media Type Desc: Surface Water
Media Status Desc: Suspected
Affected Media: Surface Water
Affected Media Status: S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides: Not reported
Petroleum Products: Suspected to be present
Phenolic Compounds: Not reported
Reactive Wastes: Not reported
Corrosive Wastes: Not reported
Radioactive Wastes: Not reported
Asbestos: Not reported
Responsible Unit: Northwest Region
Arsenic Code: Not reported
MTBE Code: Not reported
UXO Code: Not reported
Dioxin: Not reported
Non-Halogenated Solvents: Not reported
Base/Neutral/Acid Organics: Not reported

LAURELHURST OIL CO (Continued) **1007080579**

Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Ranked, Awaiting Remedial Action (RA)
Independent Site Status (independent cleanup):	Not reported

FINDS:
Other Pertinent Environmental Activity Identified at Site

WA-DOEFSIS (Washington - Department Of Ecology Facility / Site Identification System) is the Department of Ecology's Facility/Site identification system that provides a means to query and display data maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

BROWNFIELDS:

Facilty ID:	2265
Site Stat Code:	2
Facilty ID:	2265
Site Stat Code:	2
Facilty ID:	2265
Site Stat Code:	2

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55 **MAGIC CLEANERS & LAUNDRY** **RCRA-SQG** **1000878287**
North **14701 AURORA AVE N** **CSCSL** **WA0000001339**
1/2-1 **SEATTLE, WA 98133** **FINDS**
4338 ft. **VCP**
Inactive Drycleaners

Relative:
Higher

Actual:
473 ft.

RCRAInfo:

Owner:	JB CORP OF WA
	(206) 417-0426
EPA ID:	WA0000001339
Contact:	Not reported
Classification:	Conditionally Exempt Small Quantity Generator
TSDF Activities:	Not reported

MAGIC CLEANERS & LAUNDRY (Continued) **1000878287**

Violation Status: No violations found

CSCSL:

Facility ID:	23642224
warm_bin_n:	Not reported
Prog plan code:	4
Latitude:	47.735419999999998
Longitude:	-122.34528
Lat/Long:	47.735419999999998 / -122.34528
Lat/Long (dms):	47 44 7.5119999999999996 / 122 20 43.008000000000003
Media ID:	8369
Media Type Desc:	Soil
Media Status Desc:	Below Cleanup Level
Affected Media:	Soil
Affected Media Status:	B (Below) - The presence of hazardous substances below MTCA cleanup levels has been confirmed by laboratory analysis (or field determination in the case of petroleum products). The B code may only be applied following completion of analytical work in conjunction with a Site Hazard Assessment (SHA) or Remedial Investigation/Feasibility Study (RI/FS)
Pesticides:	Not reported
Petroleum Products:	Below MTCA cleanup levels
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported

Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Independent Remedial Action
Independent Site Status (independent cleanup):	Final Independent Remedial Action Report received

FINDS:

Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and

MAGIC CLEANERS & LAUNDRY (Continued) **1000878287**

corrective action activities required under RCRA.

WA-DOEFSIS (Washington - Department Of Ecology Facility / Site Identification System) is the Department of Ecology's Facility/Site identification system that provides a means to query and display data maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

VCP:

Facility ID:	23642224
Ecology Status:	Independent Remedial Action
WARM BIN #:	Not reported
NFA Code:	Not reported
Program Plan:	4

56
ENE
1/2-1
5063 ft.

KJORSVIK PROPERTY **CSCSL** **S107747480**
14038 SUNNYSIDE AVE N **N/A**
SEATTLE, WA 98133

Relative:
Lower

Actual:
447 ft.

CSCSL:

Facility ID:	7899009
warm_bin_n:	Not reported
Prog plan code:	Not reported
Latitude:	47.731619000000002
Longitude:	-122.32980000000001
Lat/Long:	47.731619000000002 / -122.32980000000001
Lat/Long (dms):	47 43 53.828400000007299 / 122 19 47.280000000021097
Media ID:	12270
Media Type Desc:	Soil
Media Status Desc:	Suspected
Affected Media:	Soil
Affected Media Status:	S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides:	Not reported
Petroleum Products:	Suspected to be present
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Suspected to be present
Metals - Other non-priority pollutant medals:	Suspected to be present

KJORSVIK PROPERTY (Continued) **S107747480**

Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Suspected to be present
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Awaiting Site Hazard Assessment (SHA)
Independent Site Status (independent cleanup):	Not reported

Facility ID:	7899009
warm_bin_n:	Not reported
Prog plan code:	Not reported
Latitude:	47.731619000000002
Longitude:	-122.32980000000001
Lat/Long:	47.731619000000002 / -122.32980000000001
Lat/Long (dms):	47 43 53.828400000007299 / 122 19 47.280000000021097
Media ID:	12269
Media Type Desc:	Surface Water
Media Status Desc:	Suspected
Affected Media:	Surface Water
Affected Media Status:	S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants are suspected to be present at the site
Pesticides:	Not reported
Petroleum Products:	Suspected to be present
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported

Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	Not reported
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Awaiting Site Hazard Assessment (SHA)
Independent Site Status (independent cleanup):	Not reported

57
NNW
1/2-1
5067 ft.

PINEHURST AUTO SALES
14929 WESTMINSTER WAY N
SEATTLE, WA 98133

CSCSL **1007073877**
FINDS **110015505130**

Relative:
Higher

Actual:
509 ft.

CSCSL:

Facility ID:	24612176
warm_bin_n:	Not reported
Prog plan code:	Not reported
Latitude:	47.736798999999998
Longitude:	-122.35422
Lat/Long:	47.736798999999998 / -122.35422
Lat/Long (dms):	47 44 12.470000000000001 / 122 21 15.19
Media ID:	10331
Media Type Desc:	Soil
Media Status Desc:	Confirmed
Affected Media:	Soil
Affected Media Status:	C
Pesticides:	Not reported
Petroleum Products:	Confirmed above MTCA cleanup levels
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported
Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	S
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Independent Remedial Action
Independent Site Status (independent cleanup):	Independent Site Assessment of Interim Remedial Action Report received

Facility ID:	24612176
warm_bin_n:	Not reported
Prog plan code:	Not reported
Latitude:	47.736798999999998
Longitude:	-122.35422
Lat/Long:	47.736798999999998 / -122.35422
Lat/Long (dms):	47 44 12.470000000000001 / 122 21 15.19
Media ID:	10330
Media Type Desc:	Groundwater
Media Status Desc:	Suspected
Affected Media:	Ground Water
Affected Media Status:	S (Suspected) - Due to preliminary investigations or the nature of business operations or manufacturing processes, certain contaminants

PINEHURST AUTO SALES (Continued) **1007073877**

are suspected to be present at the site

Pesticides:	Not reported
Petroleum Products:	Not reported
Phenolic Compounds:	Not reported
Reactive Wastes:	Not reported
Corrosive Wastes:	Not reported
Radioactive Wastes:	Not reported
Asbestos:	Not reported
Responsible Unit:	Northwest Region
Arsenic Code:	Not reported
MTBE Code:	Not reported
UXO Code:	Not reported
Dioxin:	Not reported

Non-Halogenated Solvents:	Not reported
Base/Neutral/Acid Organics:	Not reported
Halogenated Organic Compounds:	S
EPA Priority Pollutants - Metals and Cyanide:	Not reported
Metals - Other non-priority pollutant medals:	Not reported
Polychlorinated biPhenyls (PCBs):	Not reported
Polynuclear Aromatic Hydrocarbons (PAH):	Not reported
Conventional Contaminants, Organic:	Not reported
Conventional Contaminants, Inorganic:	Not reported
Tibutyl Tin Contaminant Group:	Not reported
Bioassay/Benthic Failures Contaminant Group:	Not reported
Wood Debris Contaminant Group:	Not reported
Other Deleterious Substance Group:	Not reported
Ecology Site Status (MTCA cleanup process):	Independent Remedial Action
Independent Site Status (independent cleanup):	Independent Site Assessment of Interim Remedial Action Report received

FINDS:

Other Pertinent Environmental Activity Identified at Site

WA-DOEFSIS (Washington - Department Of Ecology Facility / Site Identification System) is the Department of Ecology's Facility/Site identification system that provides a means to query and display data maintained by the Department of Ecology. This system contains key information for each facility/site that is currently, or has been, of interest to the departments Air Quality, Dam Safety, Hazardous Waste, Toxics Cleanup, and Water Quality Programs.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
SEATTLE	1003880414	KING CO - HALLER LK LDFL	N 125TH ST E OF AURORA AV	98133	CERC-NFRAP
SEATTLE	U003353841	RICKS AUTO WRECKING	12521 STONE AVE N	98133	UST
KING COUNTY	S105806023	MCMICKEN HEIGHTS	BETWEEN THE S. 175TH ST. DEAD-		SWF/LF
KING COUNTY	S105806029	RENTON JUNCTION (MONSTER ROAD)	BETWEEN MONSTER ROAD AND THE G		SWF/LF
KING COUNTY	S105806034	BOW LAKE ABANDONED LANDFILL	IMMEDIATELY EAST OF I-5, ACROS		SWF/LF
KING COUNTY	S105806035	CORLISS ABANDONED LANDFILL	IMMEDIATELY WEST OF I-5 BETWEE		SWF/LF
KING COUNTY	S105806037	PUYALLUP/KIT CORNER ABANDONED LAND	IMMEDIATELY EAST OF I-5 JUST S		SWF/LF
KING COUNTY	S108107942	WASTE MOBILE COLLECTIONS	MOVES LOCATIONS (SEE COMMENT F		SWF/LF
KING COUNTY	S108107837	TOLT BACKWASH SOLIDS LANDFILL	39025 NE NORTH FORK RD		SWF/LF
KING COUNTY	S105806011	AUBURN (M & R STREET SITE)	NORTHWEST OF R STREET AND 25TH		SWF/LF
KING COUNTY	S105806012	AUBURN (ROTARY PARK SITE)	NORTHWEST OF 27TH STREET S.E.		SWF/LF
KING COUNTY	S105806013	BOW LAKE	NORTHEAST OF S. 188TH ST. AND		SWF/LF
KING COUNTY	S105806014	CARTON & BORTH	NORTHWEST OF 71ST AVE. N.E. AN		SWF/LF
KING COUNTY	S105806015	CORLISS LANDFILL	NORTHEAST OF CORLISS AVE. N. A		SWF/LF
KING COUNTY	S105806016	EASTGATE ABANDONED LANDFILL	NORTHEAST OF 156TH AVE. S.E. A		SWF/LF
KING COUNTY	S105806017	ENUMCLAW	SOUTHEAST OF 284TH AVE. S.E. A		SWF/LF
KING COUNTY	S105806018	FACTORIA PIT (SUNSET RAVINE PARK)	NORTHWEST OF 135TH AVE S.E. AN		SWF/LF
KING COUNTY	S105806020	H.H. OLESON	NORTHEAST OF N.E. 172ND ST. AN		SWF/LF
KING COUNTY	S105806021	HOUGHTON	NORTHWEST OF N.E. 60TH ST. AND		SWF/LF
KING COUNTY	S105806022	KENT ABANDONED LANDFILL (MILL CREE	NORTHEAST OF MAPLE ST. AND TIL		SWF/LF

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 01/25/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 09/27/2006
Date Data Arrived at EDR: 11/01/2006
Date Made Active in Reports: 11/22/2006
Number of Days to Update: 21

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/28/2006
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 03/26/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/27/2007
Date Data Arrived at EDR: 03/21/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 37

Source: EPA
Telephone: 703-603-8960
Last EDR Contact: 03/21/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/20/2006
Date Data Arrived at EDR: 01/29/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 29

Source: EPA
Telephone: 703-603-8960
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/14/2007
Date Data Arrived at EDR: 03/20/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 38

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/05/2007
Next Scheduled EDR Contact: 06/04/2007
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 05/04/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 01/24/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 47

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/24/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 11/28/2006
Date Data Arrived at EDR: 01/17/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 41

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/17/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/24/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/24/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 02/08/2007
Next Scheduled EDR Contact: 05/07/2007
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 09/20/2006
Date Made Active in Reports: 11/22/2006
Number of Days to Update: 63

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 01/29/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/12/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 08/23/2006
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 35

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/23/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/27/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/27/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/08/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 82

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 03/20/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 04/27/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 04/16/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 02/26/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 02/26/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 45

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/12/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Annually

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 03/26/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 02/14/2007
Date Data Arrived at EDR: 02/28/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 41

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/28/2007
Next Scheduled EDR Contact: 05/28/2007
Data Release Frequency: Varies

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/30/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 01/08/2007
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 3

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 04/27/2007
Next Scheduled EDR Contact: 06/25/2007
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: No Update Planned

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/06/2006
Date Data Arrived at EDR: 02/02/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 04/16/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/17/2006
Date Data Arrived at EDR: 11/29/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 43

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 03/02/2007
Next Scheduled EDR Contact: 05/07/2007
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/11/2007
Date Data Arrived at EDR: 01/26/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 32

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/15/2006
Date Data Arrived at EDR: 12/28/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 32

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/28/2007
Next Scheduled EDR Contact: 06/25/2007
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 01/18/2007
Date Data Arrived at EDR: 01/23/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 35

Source: EPA
Telephone: (206) 553-1200
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 03/05/2007
Next Scheduled EDR Contact: 06/04/2007
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/06/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

CSCSL: Confirmed & Suspected Contaminated Sites List

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 02/07/2007
Date Data Arrived at EDR: 02/15/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 02/15/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Semi-Annually

HSL: Hazardous Sites List

The Hazardous Sites List is a subset of the CSCSL Report. It includes sites which have been assessed and ranked using the Washington Ranking Method (WARM).

Date of Government Version: 02/21/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 23

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 03/07/2007
Next Scheduled EDR Contact: 06/04/2007
Data Release Frequency: Semi-Annually

CSCSL NFA: Confirmed & Contaminated Sites - No Further Action

The data set contains information about sites previously on the Confirmed and Suspected Contaminated Sites list that have received a No Further Action (NFA) determination. Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead, a No Further Action code is entered based upon the type of NFA determination the site received.

Date of Government Version: 02/07/2007
Date Data Arrived at EDR: 02/15/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 02/15/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SWF/LF: Solid Waste Facility Database

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 01/17/2007
Date Data Arrived at EDR: 01/18/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 40

Source: Department of Ecology
Telephone: 360-407-6132
Last EDR Contact: 05/04/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Annually

SWTIRE: Solid Waste Tire Facilities

This study identified sites statewide with unauthorized accumulations of scrap tires.

Date of Government Version: 11/01/2005
Date Data Arrived at EDR: 03/16/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 28

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 04/06/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Varies

LUST: Leaking Underground Storage Tanks Site List

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 03/08/2007
Date Data Arrived at EDR: 03/16/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 34

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 03/16/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Quarterly

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 03/08/2007
Date Data Arrived at EDR: 03/16/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 28

Source: Department of Ecology
Telephone: 360-407-7183
Last EDR Contact: 03/16/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Quarterly

AST: Aboveground Storage Tank Locations

A listing of aboveground storage tank locations regulated by the Department of Ecology's Spill Prevention, Preparedness and Response Program.

Date of Government Version: 09/06/2006
Date Data Arrived at EDR: 09/08/2006
Date Made Active in Reports: 10/12/2006
Number of Days to Update: 34

Source: Department of Ecology
Telephone: 360-407-7562
Last EDR Contact: 02/26/2007
Next Scheduled EDR Contact: 05/28/2007
Data Release Frequency: Varies

MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 06/12/2006
Date Data Arrived at EDR: 11/27/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 45

Source: Department of Ecology
Telephone: N/A
Last EDR Contact: 02/12/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: Reported Spills
Spills reported to the Spill Prevention, Preparedness and Response Division.

Date of Government Version: 04/03/2007
Date Data Arrived at EDR: 04/05/2007
Date Made Active in Reports: 05/07/2007
Number of Days to Update: 32

Source: Department of Ecology
Telephone: 360-407-6950
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Semi-Annually

INST CONTROL: Institutional Control Site List
Sites that have institutional controls.

Date of Government Version: 03/06/2007
Date Data Arrived at EDR: 03/07/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 43

Source: Department of Ecology
Telephone: 360-407-7170
Last EDR Contact: 03/05/2007
Next Scheduled EDR Contact: 06/04/2007
Data Release Frequency: Varies

ICR: Independent Cleanup Reports
These are remedial action reports Ecology has received from either the owner or operator of the sites. These actions have been conducted without department oversight or approval and are not under an order or decree. This database is no longer updated by the Department of Ecology.

Date of Government Version: 12/01/2002
Date Data Arrived at EDR: 01/03/2003
Date Made Active in Reports: 01/22/2003
Number of Days to Update: 19

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 02/13/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: No Update Planned

VCP: Voluntary Cleanup Program Sites
Sites that have entered either the Voluntary Cleanup Program or its predecessor Independent Remedial Action Program.

Date of Government Version: 02/07/2007
Date Data Arrived at EDR: 02/15/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-407-7200
Last EDR Contact: 02/15/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner List
A listing of registered drycleaners who registered with the Department of Ecology (using the SIC code of 7215 and 7216) as hazardous waste generators.

Date of Government Version: 06/12/2006
Date Data Arrived at EDR: 11/27/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 45

Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 02/12/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Varies

BROWNFIELDS: Brownfields Sites Listing
A listing of brownfields sites included in the Confirmed & Suspected Sites Listing. Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Date of Government Version: 02/07/2007
Date Data Arrived at EDR: 02/15/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 12

Source: Department of Ecology
Telephone: 360-725-4030
Last EDR Contact: 02/15/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Varies

CDL: Clandestine Drug Lab Contaminated Site List
Illegal methamphetamine labs use hazardous chemicals that create public health hazards. Chemicals and residues can cause burns, respiratory and neurological damage, and death. Biological hazards associated with intravenous needles, feces, and blood also pose health risks.

Date of Government Version: 02/08/2007
Date Data Arrived at EDR: 03/29/2007
Date Made Active in Reports: 04/19/2007
Number of Days to Update: 21
Source: Department of Health
Telephone: 360-236-3380
Last EDR Contact: 12/08/2006
Next Scheduled EDR Contact: 03/05/2007
Data Release Frequency: Varies

NPDES: Water Quality Permit System Data
A listing of permitted wastewater facilities.

Date of Government Version: 02/01/2007
Date Data Arrived at EDR: 02/15/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 12
Source: Department of Ecology
Telephone: 360-407-6073
Last EDR Contact: 02/15/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Quarterly

AIRS (EMI): Washington Emissions Data System
Emissions inventory data.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 01/17/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 41
Source: Department of Ecology
Telephone: 360-407-6040
Last EDR Contact: 04/16/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Annually

INACTIVE DRYCLEANERS: Inactive Drycleaners
A listing of inactive drycleaner facility locations.

Date of Government Version: 06/12/2006
Date Data Arrived at EDR: 11/27/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 45
Source: Department of Ecology
Telephone: 360-407-6732
Last EDR Contact: 02/12/2007
Next Scheduled EDR Contact: 05/14/2007
Data Release Frequency: Annually

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 02/08/2007
Next Scheduled EDR Contact: 05/07/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 02/19/2007
Date Data Arrived at EDR: 02/27/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 36
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/30/2007
Date Data Arrived at EDR: 03/30/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 28

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/06/2006
Date Data Arrived at EDR: 10/04/2006
Date Made Active in Reports: 11/08/2006
Number of Days to Update: 35

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Minnesota, Mississippi and North Carolina.

Date of Government Version: 08/24/2006
Date Data Arrived at EDR: 09/11/2006
Date Made Active in Reports: 11/08/2006
Number of Days to Update: 58

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 34

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 02/21/2007
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 34

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

Date of Government Version: 08/24/2006
Date Data Arrived at EDR: 09/11/2006
Date Made Active in Reports: 11/08/2006
Number of Days to Update: 58

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 09/06/2006
Date Data Arrived at EDR: 10/04/2006
Date Made Active in Reports: 11/08/2006
Number of Days to Update: 35

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 01/11/2007
Date Data Arrived at EDR: 01/12/2007
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 17

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 02/19/2007
Date Data Arrived at EDR: 02/27/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 36

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Historical Auto Stations: EDR Proprietary Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Historical Cleaners: EDR Proprietary Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

KING COUNTY:

Abandoned Landfill Study in King County

The King County Abandoned Landfill Survey was conducted from October through December 1984 by the Health Department's Environmental Health Division at the request of the King County Council. The primary objective of the survey was to determine if any public health problems existed at the predetermined 24 sites.

Date of Government Version: 04/30/1985
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle-King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

KITSAP COUNTY:

Water Wells in Kitsap County

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: N/A

SEATTLE COUNTY:

Abandoned Landfill Study in the City of Seattle

The Seattle Abandoned Landfill Survey was conducted in June and July of 1984 by the Health Department's Environmental Health Division at the request of the Mayor's Office. The primary objective of the survey was to determine if any public health problems existed at the predetermined 12 sites.

Date of Government Version: 07/30/1984
Date Data Arrived at EDR: 11/07/1994
Date Made Active in Reports: N/A
Number of Days to Update: 0

Source: Seattle - King County Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 10/21/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SEATTLE/KING COUNTY:

Seattle - King County Abandoned Landfill Toxicity / Hazard Assessment Project

This report presents the Seattle-King County Health Department's follow-up investigation of two city owned and four county owned abandoned landfills which was conducted from February to December 1986.

Date of Government Version: 12/31/1986
Date Data Arrived at EDR: 08/18/1995
Date Made Active in Reports: 09/20/1995
Number of Days to Update: 33

Source: Department of Public Health
Telephone: 206-296-4785
Last EDR Contact: 08/14/1995
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SNOHOMISH COUNTY:

Solid Waste Sites of Record at Snohomish Health District

Solid waste disposal and/or utilization sites in Snohomish County.

Date of Government Version: 08/07/2006
Date Data Arrived at EDR: 11/13/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 17

Source: Snohomish Health District
Telephone: 206-339-5250
Last EDR Contact: 04/25/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Semi-Annually

TACOMA/PIERCE COUNTY:

Closed Landfill Survey

Following numerous requests for information about closed dumpsites and landfills in Pierce County, the Tacoma-Pierce County Health Department decided to conduct a study on the matter. The aim of the study was to evaluate public health risks associated with the closed dumpsites and landfills, and to determine the need, if any, for further investigations of a more detailed nature. The sites represent all of the known dumpsites and landfills closed after 1950.

Date of Government Version: 09/01/2002
Date Data Arrived at EDR: 03/24/2003
Date Made Active in Reports: 05/14/2003
Number of Days to Update: 51

Source: Tacoma-Pierce County Health Department
Telephone: 206-591-6500
Last EDR Contact: 03/19/2003
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/17/2006
Date Made Active in Reports: 04/07/2006
Number of Days to Update: 49

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 03/16/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/26/2006
Date Data Arrived at EDR: 11/29/2006
Date Made Active in Reports: 01/05/2007
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 03/02/2007
Next Scheduled EDR Contact: 05/28/2007
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 81

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/16/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Annually

WI MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 05/02/2006
Number of Days to Update: 46

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 04/24/2007
Next Scheduled EDR Contact: 07/09/2007
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data

Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Daycare Center Listing
Source: Department of Social & Health Services
Telephone: 253-383-1735

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

STREET AND ADDRESS INFORMATION

GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

CAMBRIDGE SENIOR HOUSING
13000 LINDEN AVE N
SEATTLE, WA 98133

TARGET PROPERTY COORDINATES

Latitude (North):	47.72370 - 47° 43' 25.3''
Longitude (West):	122.3476 - 122° 20' 51.4''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	548926.8
UTM Y (Meters):	5285578.5
Elevation:	450 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	47122-F3 SEATTLE NORTH, WA
Most Recent Revision:	1983

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

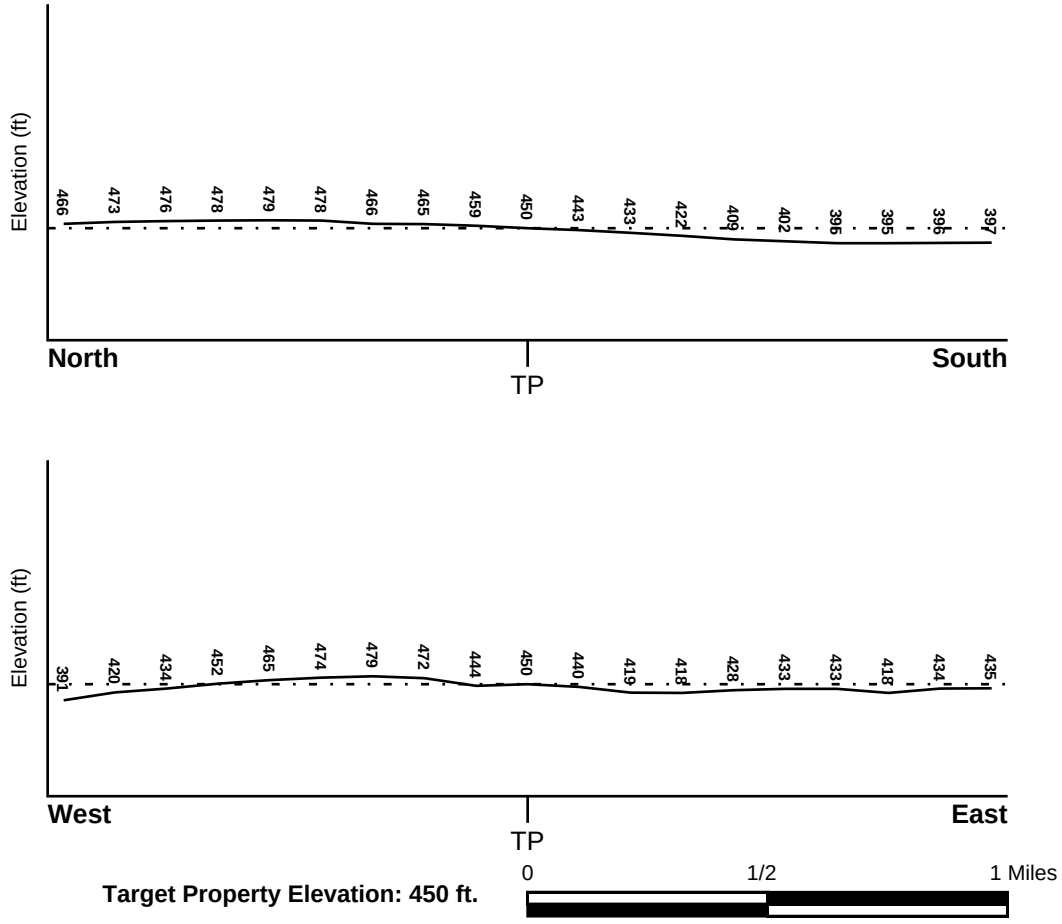
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General ESE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
KING, WA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 53033C0330F

Additional Panels in search area: 53033C0327F
53033C0329F

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
SEATTLE NORTH	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
3	1/2 - 1 Mile ENE	E

For additional site information, refer to Physical Setting Source Map Findings.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	ALDERWOOD
Soil Surface Texture:	gravelly - sandy loam
Hydrologic Group:	Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
Soil Drainage Class:	Moderately well drained. Soils have a layer of low hydraulic conductivity, wet state high in the profile. Depth to water table is 3 to 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	MODERATE
Depth to Bedrock Min:	> 60 inches
Depth to Bedrock Max:	> 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	7 inches	gravelly - sandy loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 6.00 Min: 2.00	Max: 6.50 Min: 5.10
2	7 inches	35 inches	very gravelly - loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 6.00 Min: 2.00	Max: 6.50 Min: 5.10
3	35 inches	39 inches	cemented	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam
very gravelly - sandy loam

Surficial Soil Types: silt loam
very gravelly - sandy loam

Shallow Soil Types: very gravelly - loam

Deeper Soil Types: very gravelly - coarse sand
stratified
very gravelly - loamy sand
very gravelly - sand

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS3279636	1/4 - 1/2 Mile South
A2	USGS3279612	1/4 - 1/2 Mile South
4	USGS3279564	1/2 - 1 Mile SSE
B5	USGS3279538	1/2 - 1 Mile SSE
B6	USGS3279486	1/2 - 1 Mile SSE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

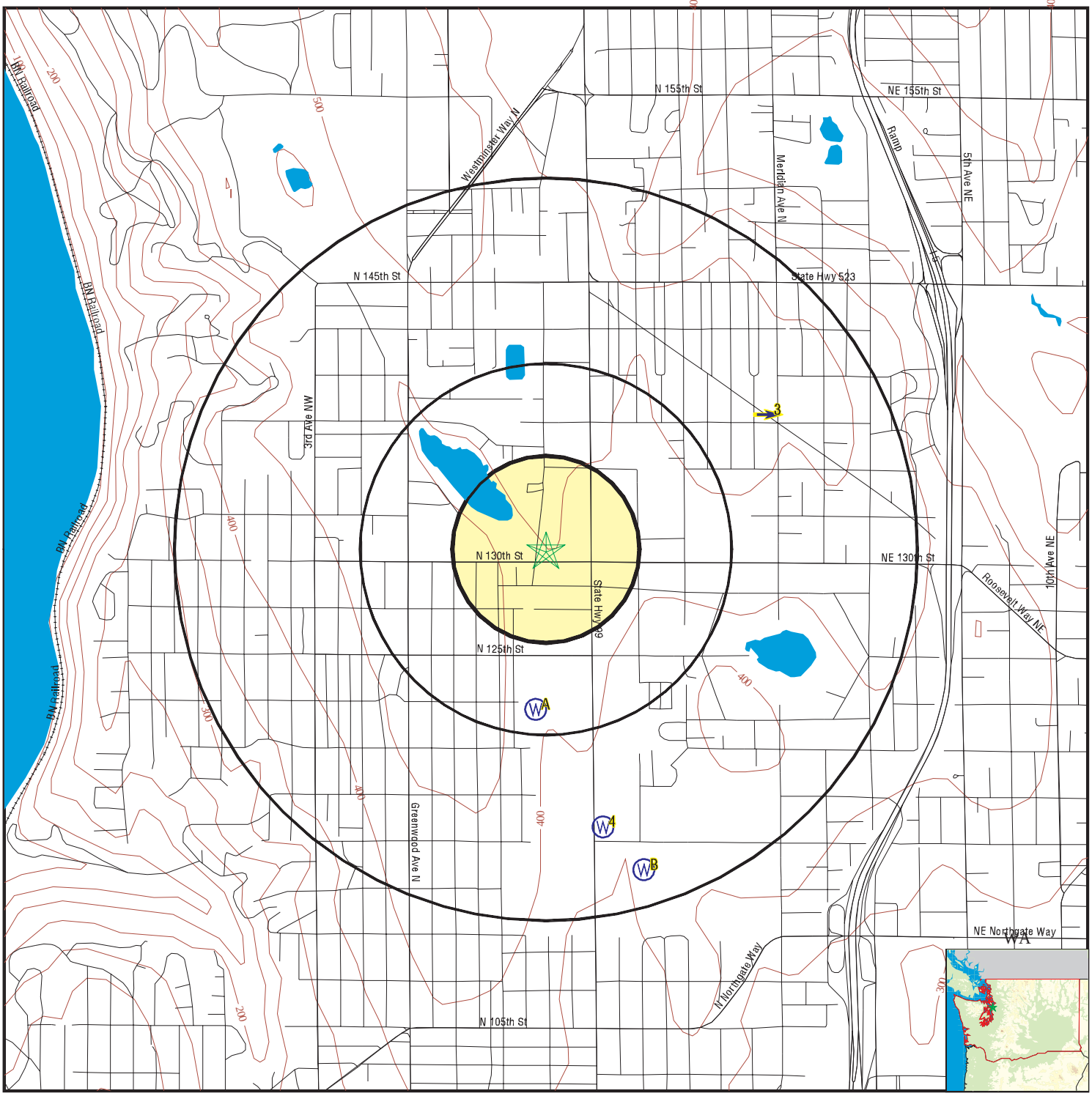
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 1925024.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data

SITE NAME: Cambridge Senior Housing	CLIENT: SLR International Corporation
ADDRESS: 13000 Linden Ave N Seattle WA 98133	CONTACT: Kim Saganski
LAT/LONG: 47.7237 / 122.3476	INQUIRY #: 1925024.2s DATE: May 10, 2007 3:56 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
South
1/4 - 1/2 Mile
Lower

FED USGS **USGS3279636**

Agency cd:	USGS	Site no:	474305122305001
Site name:	26N/04E-30C01		
Latitude:	474305		
Longitude:	1222050	Dec lat:	47.71787553
Dec lon:	-122.34846178	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	033
Country:	US	Land net:	NE NW S30 T26N R04E W
Location map:	SEATTLE NORTH	Map scale:	24000
Altitude:	400		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	3		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Lake Washington. Washington. Area = 619 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19471118
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	188	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1947-11-18	Ground water data end date:	1947-11-18
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1947-11-18	82	

A2
South
1/4 - 1/2 Mile
Lower

FED USGS **USGS3279612**

Agency cd:	USGS	Site no:	474302122204801
Site name:	26N/04E-30C02		
Latitude:	474302		
Longitude:	1222048	Dec lat:	47.7170422
Dec lon:	-122.34790619	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	033
Country:	US	Land net:	NE NW S30 T26N R04E W
Location map:	SEATTLE NORTH	Map scale:	24000
Altitude:	395		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Lake Washington. Washington. Area = 619 sq.mi.		
Topographic:	Undulating		
Site type:	Ground-water other than Spring	Date construction:	19470916
Date inventoried:	19530904	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	185	Hole depth:	300
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1947-09-16	Ground water data end date:	1947-09-16
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1947-09-16	82	

3
ENE
1/2 - 1 Mile
Higher

Site ID:	369895
Groundwater Flow:	E
Shallowest Water Table Depth:	4
Deepest Water Table Depth:	5
Average Water Table Depth:	Not Reported
Date:	09/1996

AQUIFLOW **61333**

4
SSE
1/2 - 1 Mile
Lower

FED USGS **USGS3279564**

Agency cd:	USGS	Site no:	474247122203501
Site name:	26N/04E-30G01		
Latitude:	474247		
Longitude:	1222035	Dec lat:	47.71287557
Dec lon:	-122.3442949	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	033
Country:	US	Land net:	SW NE S30 T26N R04E W
Location map:	SEATTLE NORTH	Map scale:	24000
Altitude:	360		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	3		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Lake Washington. Washington. Area = 619 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19590601
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	169	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1959-06-01	Ground water data end date:	1959-06-01
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1959-06-01	24	

B5
SSE
1/2 - 1 Mile
Lower

FED USGS USGS3279538

Agency cd:	USGS	Site no:	474242122202701
Site name:	26N/04E-30K02		
Latitude:	474242		
Longitude:	1222027	Dec lat:	47.7114867
Dec lon:	-122.34207259	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	033
Country:	US	Land net:	NW SE S30 T26N R04E W
Location map:	SEATTLE NORTH	Map scale:	24000
Altitude:	360		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	3		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Lake Washington. Washington. Area = 619 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19010101
Date inventoried:	Not Reported	Mean greenwich time offset:	PST

Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	63	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1953-09-04	Ground water data end date:	1953-09-04
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1953-09-04	56	

B6
SSE **FED USGS USGS3279486**
1/2 - 1 Mile
Lower

Agency cd:	USGS	Site no:	474234122203501
Site name:	26N/04E-30K01		
Latitude:	474240		
Longitude:	1222026	Dec lat:	47.71093115
Dec lon:	-122.34179479	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	53
State:	53	County:	033
Country:	US	Land net:	NW SE S30 T26N R04E W
Location map:	SEATTLE NORTH	Map scale:	24000
Altitude:	360		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	3		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Lake Washington. Washington. Area = 619 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19270101
Date inventoried:	Not Reported	Mean greenwich time offset:	PST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	240	Hole depth:	Not Reported
Source of depth data:	other		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	1954-02-25
Water quality data end date:	1954-02-25	Water quality data count:	1
Ground water data begin date:	1927-01-01	Ground water data end date:	1927-01-01
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1927-01-01	24	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for KING County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 98133

Number of sites tested: 3

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.633 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	0.750 pCi/L	100%	0%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Wells
Source: Department of Health
Telephone: 360-236-3148
Group A and B well locations.

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

STREET AND ADDRESS INFORMATION

Fax To: SLR International Corporation
Contact: Kim Saganski
Fax : 425-402-8800
Date: 05/10/2007

Fax From: Matt Bruns
EDR
Phone: 1-800-352-0050

EDR PUR-IQ® Report

"the intelligent way to conduct historical research"

for
Cambridge Senior Housing
13000 Linden Ave N
Seattle, WA 98133
Lat./Long. 47.72370 / 122.34760
EDR Inquiry # 1925024.2s

The EDR PUR-IQ report facilitates historical research planning required to complete the Phase I ESA process. The report identifies the *likelihood* of prior use coverage by searching proprietary EDR-Prior Use Reports® comprising nationwide information on: city directories, fire insurance maps, aerial photographs, historical topographic maps, flood maps and National Wetland Inventory maps.

Potential for EDR Historical (Prior Use) Coverage - Coverage in the following historical information sources may be used as a guide to develop your historical research strategy:

1. City Directory: Coverage exists for portions of SEATTLE, WA for 1962, 1964-1970, 1972-1979, 1981, 1983, 1986, 1988

2. Fire Insurance Map: When you order online any EDR Package or the EDR Radius Map with EDR Sanborn Map Search/Print, you receive site specific Sanborn Map coverage information at no charge.

3. Aerial Photograph: Coverage exists for portions of King County for 1951, 1952, 1954, 1965, 1977, 1978, 1985, 1990, 1991 Shipping time 3-5 business days.

4. Topographic Map: The USGS 7.5 min. quad topo sheet(s) associated with this site:

Historical: Coverage exists for King County

Current: Target Property: TP | 1983 | 47122-F3 Seattle North, WA

EDR's network of professional researchers, located throughout the United States, accesses the most extensive national collections of city directory, fire insurance maps, aerial photographs and historical topographic map resources available for Seattle, WA. These collections may be located in multiple libraries throughout the country. To ensure maximum coverage, EDR will often assign researchers at these multiple locations on your behalf. Please call or fax your EDR representative to authorize a search.

EDR - HISTORICAL SOURCE(S) ORDER FORM

SLR International Corporation
Kim Saganski
Account # 7012677

Cambridge Senior Housing
13000 Linden Ave N
Seattle, WA 98133
King County
Lat./Long. 47.72370 / 122.34760
EDR Inquiry # 1925024.2s

Should you wish to change or add to your order, fax this form to your EDR account executive:

Matt Bruns
Ph: 1-800-352-0050 Fax: 1-800-231-6802

Reports

___ EDR Sanborn Map® Search/Print

___ EDR Fire Insurance Map Abstract

___ EDR Multi-Tenant Retail Facility® Report

___ EDR City Directory Abstract

___ EDR Aerial Photo Decade Package

___ USGS Aerial 5 Package

___ USGS Aerial 3 Package

___ EDR Historical Topographic Maps

___ Paper Current USGS Topo (7.5 min.)

___ Environmental Lien Search

___ Chain of Title Search

___ NJ MacRaes Industrial Directory Report

___ EDR Telephone Interview

Shipping:

___ Email
___ Express, Next Day Delivery — RUSH SERVICE IS AVAILABLE
___ Express, Second Day Delivery
___ Express, Next day Delivery — Customer Account — Acct # _____
___ Express, Second Day Delivery — Customer Account — Acct # _____
___ U.S. Mail

Thank you

KIM A. SAGANSKI, L.G.

SENIOR GEOLOGIST

Ms. Saganski has over 10 years of experience in conducting subsurface investigations and Phase 1 Environmental Site Assessments (ESAs) in accordance with American Society for Testing and Materials (ASTM) and/or client-based specifications. Ms. Saganski is also experienced with soil and groundwater remediation and risk assessments.

She has managed and conducted more than 100 Phase I ESAs at a variety of commercial retail properties, apartment buildings, industrial, and manufacturing facilities, and large undeveloped parcels. Responsibilities have included regulatory records reviews, site investigations, personnel interviews, evaluation of aerial photographs and historical maps, technical writing, and developing scopes of work for further evaluation, if needed.

Ms. Saganski has managed subsurface investigations that include characterization of soil and groundwater and interpretation of chemical analytical results. Field experience includes monitoring well installation, geotechnical soil sampling, environmental soil sampling, groundwater sampling, sediment sampling, well elevation surveys, geological logging of test pits, and remediation system installation, operation, maintenance, and evaluation.

SELECTED TECHNICAL EXPERIENCE

Phase I Environmental Site Assessments

- Conducted a due diligence assessment of a hydroelectric power plant, which included the dam facilities, 10 miles of canals and underground conveyance piping, a former lumber mill, landfills, nearby gasoline stations, nearby agricultural chemical use, electrical substations, and the power plant. The assessment was conducted for as part of the property transfer.

- Conducted historical and regulatory research, and site investigation for a Phase I/II environmental assessment of a lumber mill “company town” (established in the mid-1800s) on the Olympic Peninsula in western Washington. Evaluated the town’s drinking water source and wastewater treatment plant. Environmental issues identified in this assessment were related to the presence of historical landfills, the presence of gasoline, diesel, and heating oil containing underground and aboveground storage tanks, and the potential presence of asbestos-containing building materials. Historical research identified the previously unknown presence of an underground storage tank prior to road improvement excavation activities.

- Performed a Phase I environmental site assessment and determined the scope of work for the Phase II assessment of a lumber mill located within the NPL region of Commencement Bay in Tacoma, Washington. Environmental issues identified at this site were related to PCBs from electrical transformers, as well as potential petroleum hydrocarbon contaminated soil and groundwater associated with the historical presence of underground and aboveground storage tanks. This Phase I report was later referenced by lawyers in the property owner's defense from becoming a potentially responsible party of the Commencement Bay NPL site.

- Managed the Phase I environmental assessment on the Moses Coulee project for The Nature Conservancy. Worked with Nature Conservancy personnel in identifying areas of concern on a 3,500-acre parcel of land in eastern Washington. Historical research involved reviewing Army files regarding a former long-range bombing field on an adjacent property. Conducted interviews with Department of Transportation personnel and other government agencies regarding historical gravel pits on and near the property. Authored phase I environmental assessment report. The Nature Conservancy recently acquired the Moses Coulee property.

- Conducted numerous Phase I environmental site assessments on a variety of properties including undeveloped parcels, industrial properties, residential properties, commercial retail properties, malls, gasoline stations, lumber mills, restaurants, apartment complexes, and office parks. The properties were located in Washington, Alaska, California, Vermont, New Hampshire, Pennsylvania, Texas, and New Jersey.

- Conducted transaction screen environmental site assessments of numerous parcels owned by a large, regional utility company in western Washington. This work involved reviewing client property files interviewing real estate personnel, and conducting site visits at properties ranging from ¼ acre to approximately 30 acres. These projects were conducted in accordance with ASTM and client-specified standards.

- Performed in-depth historical research and determined the local geology/hydrogeology for a site characterization investigation pertaining to a chemical storage and distribution facility located in Philadelphia, Pennsylvania. The project involved defining three separate aquifers in the subject area. Authored the work plan and assisted in the preparation of the sampling plan for use in the investigation.

- Conducted numerous transaction screen records reviews for a client on a nationwide basis. These projects involved historical research, regulatory records reviews, and technical report writing.

- Conducted Phase I environmental site assessment at a commercial/industrial site that lies within federal superfund site in the port industrial tideflats of Tacoma. Environmental issues identified in this assessment were associated with oils removed from nuclear submarine parts, potential asbestos materials in the submarine parts, spray painting and sandblasting activities, and potential petroleum hydrocarbon contamination related to automobile and truck maintenance.

- Performed a Phase I environmental site assessment on 70 acres of state park land in New Jersey. The assessment revealed that the land had historically been mined for iron and several test pits and mines were identified on the property.

- Performed a Phase I ESA on a commercial property located in Kelso, Washington. Identified the potential presence of an old underground storage tank on the site associated with a former

service station. During a follow-up subsurface investigation, an underground storage tank was encountered on-site and ultimately closed.

Phase II ESAs/Site Characterizations

- Conducted a subsurface soil investigation at an industrial facility located in Tukwila, Washington. The results of the subsurface investigation indicated that remediation of petroleum-contaminated soil at the site was not feasible due to subsurface soil characteristics and the proximity of the contamination with respect to site structures. Prepared a Site Characterization/Closure Report documenting the site evaluation and received a No Further Action determination with a restrictive covenant through negotiations with the Washington State Department of Ecology.

- Managed a project for a former brick fabrication plant located in Forest Grove, Oregon. The project involved characterization and evaluation of subsurface soil, groundwater, sediment, and surface water conditions at the site. The results of the site characterization work indicated that subsurface soil and groundwater have been impacted by petroleum hydrocarbon releases from former power plant operations at an adjacent property. Conducted a risk assessment and prepared a Risk-Based Corrective Action Plan, which provided sufficient data to request a No Further Action (NFA) determination from the Department of Environmental Quality for the site.

- Managed a remediation project at a former lumber mill site located in Kent, Washington. The project involved reviewing extensive data gathered by other environmental consultants, conducting a supplemental subsurface investigation, and working with an engineer and construction contractors to design, construct, operate, monitor and maintain an air sparge/soil vapor and groundwater extraction system to cleanup contaminated groundwater. The cleanup objectives have been met.

- Managed site characterization and remediation projects at several properties owned by a local petroleum distribution company including retail gasoline and diesel truck stops. Remediation technologies have included excavation and on-site aeration of contaminated soil, air sparge and soil vapor extraction systems to cleanup groundwater, and monitoring natural attenuation in groundwater.

- Prepared a work plan to conduct a subsurface investigation at a Chevron Station located in Salem, Oregon. The plan was submitted to Oregon Department of Environmental Quality (DEQ) in accordance with the program for Risk Based Decision Making for the Remediation of Petroleum Contaminated Sites, OAR 340-122-0205 through 340-122-0360. Conducted the subsurface investigation and successfully determined the magnitude and lateral and vertical extent of releases of total petroleum hydrocarbons (TPH) associated with the historic use of aboveground fuel storage tanks. The data collected was sufficient to conduct a risk assessment and request an NFA determination from DEQ.

- Conducted the site characterization/risk assessment work and submitted a Draft Corrective Action Plan (CAP) for the remediation of benzene and naphthalene dissolved in groundwater and removal of light non-aqueous phase liquid (LNAPL) from groundwater at the Stafford Oil Chevron station in Molalla, Oregon. The CAP was prepared in accordance with the Oregon Department of Environmental Quality (DEQ) program for Risk Based Decision Making for the Remediation of Petroleum Contaminated Sites, OAR 340-122-0205 through 340-122-0360. The selected corrective action included installation of an air sparge/soil vapor extraction system, indoor air monitoring, and groundwater monitoring.

- Managed a Phase I/II environmental site assessment on a commercial property located in Renton, Washington. The Phase I assessment confirmed the former presence of a gasoline station on the site. The project involved the installation of a monitoring well system, an elevation survey of the wells to determine groundwater flow direction, sampling of the groundwater for petroleum hydrocarbon contamination, interpretation of analytical data, and preparation of a report detailing the findings and conclusions.

- Managed the Phase II environmental assessment project at a former gasoline station in Bainbridge, Washington. This project involved determination of the number and location of underground storage tanks on the site and an environmental investigation of the soil and groundwater conditions around the underground tanks. A geotechnical evaluation of the site for shoring design of the proposed underground storage tank excavation was performed concurrent with the environmental investigation.

- Conducted a subsurface environmental investigation on a heavy equipment sales and service facility located in Bothell, Washington. The investigation focused on a drainage sump, an oil/water separator, aboveground storage tanks, and the former presence of underground storage tanks. Potential surface soil contamination was also investigated in a concrete form production area. Contaminated soils encountered at this site were excavated and transported off-site for disposal.

- Performed a comprehensive environmental site characterization of forestland owned by the Tulalip Tribe. The Army and an aerospace research facility historically leased the property. The purpose of the project was to characterize and remediate groundwater and soil contamination prior to returning the property to the tribe. Responsibilities included: coordinating road construction with a concerted effort toward conserving trees, managing drilling crews during installation of groundwater monitoring wells, conducting soil and groundwater characterization sampling, and producing documentation for site evaluation.

- Conducted surface water quality monitoring and chemical characterization of sediments during a well-publicized underwater capping operation on the Willamette River in Portland Oregon. Communicated with Port of Portland officials during the month-long operation. Worked closely with Department of Fish and Wildlife and Department of Environmental Quality. Managed fieldwork that involved coordinating work schedules, training field staff, and

maintaining open communication. The purpose of this project was to protect water quality and aquatic life in the lagoon.

- Conducted an extensive hydrogeologic study on a 200+ acre industrial facility in Ellensburg, Washington for the purpose of decommissioning stormwater detention ponds in accordance with state and federal regulations. The project also included environmental characterization associated with facility operations and an historic city landfill on the property. The purpose of this ongoing project was to remediate the land for possible future development.

- A member of the field team conducting Phase II engineering (Brownfields project) of a state Superfund site in El Paso, Texas. Responsibilities included geotechnical soil sampling and general field support. This site was historically a metal plating facility and has heavy metal contaminated soil. The engineering services supported the design of a cap and construction of a new warehouse.

- Conducted Phase II soil sampling and supervised magnetic surveying of a former military base located in Washington to locate underground storage tanks and sumps. Responsibilities included interpretation of laboratory data and report production.

- Conducted a Phase I/II ESA on a former gasoline station site located in New Hampshire. Environmental issues identified at this site were associated with the presence of hydraulic lifts and a waste oil catch basin inside the building, and the undocumented removal of underground storage tanks. Soil borings were advanced at the site for the purpose of sampling soil and groundwater. The hydraulic lifts, waste oil catch basin, and associated contaminated materials were removed and hauled offsite for disposal. This assessment was performed for a property transfer, which was subsequently successful.

- Conducted subsurface environmental investigation of three different sites for a PVC pipe manufacturing company in California. Responsibilities included oversight during well installation and decommissioning, and sampling of groundwater and soils. Produced a report detailing the results of the sampling task.

EDUCATION

B.S., Geological Sciences, University of Washington, 1994

PROFESSIONAL CERTIFICATIONS/REGISTRATIONS

Washington State Licensed Geologist
Certified Hazardous Waste Site Supervisor
40-Hour Health and Safety Training for Hazardous Waste Operations

MICHAEL D. STATON, R.G.

PRINCIPAL GEOLOGIST/WASHINGTON OPERATIONS MANAGER

Mr. Staton has over 18 years of experience in environmental consulting with technical emphasis on remedial investigations, hydrogeology, feasibility studies and site remediation. He specializes in the design, installation, operation and maintenance, and performance evaluation of in-situ and aboveground systems to remediate soil and groundwater. Mr. Staton has managed a wide range of environmental projects in the western and central United States involving the investigation and remediation of contaminants such as chlorinated solvents, metals, pesticides, petroleum hydrocarbons, nitrates, dioxins/furans, phenols, and polychlorinated biphenyls in soil and groundwater. He has developed several innovative techniques for site remediation and is the co-inventor of a patented, automatic-draining, condensate collector used in soil vapor extraction systems (U.S. Patent #5372621).

SELECTED TECHNICAL EXPERIENCE

- **Technical Support, Arbitration Hearing, Seattle, Washington.** Assisted the client in preparation for an arbitration hearing concerning the scope of work and financial responsibility to remediate subsurface contamination at a gas station site in Seattle, Washington. The work consisted of reviewing the opposing party's recommended scope of work and evaluating if the scope was appropriate for the site and contaminant conditions. The opposing party was proposing to remediate the soil and groundwater to MTCA Method A cleanup levels, which would cost more than $9,000,000. Identified weaknesses in the opposing party's approach, calculated site-specific, risk-based MTCA Method B cleanup levels for the impacted soil and groundwater, and developed two remediation alternatives to meet those cleanup levels. The estimated remediation costs to meet the Method B cleanup levels ranged from approximately $1,400,000 to $3,500,000.

- **Remedial Investigation and Site Remediation, Agriculture Chemical Storage Facility, Pasco, Washington.** Managed two remedial investigations at an agriculture chemical storage and distribution facility in Pasco, Washington. The initial investigation consisted of drilling and sampling 34 soil borings, installing 3 monitoring wells, excavating and sampling 3 test pits, collecting groundwater samples, and preparing a report. Prepared a technical report in accordance with an MTCA agreed order that summarized the many investigations and remedial actions that had been conducted at the site, identified the contaminants of concern for soil and groundwater, presented a baseline risk evaluation and site conceptual model, and described preliminary site remedial action objectives. Conducted a Phase II investigation that consisted of drilling and sampling 11 soil borings, installing 6 shallow and 3 deep monitoring wells, conducting quarterly groundwater sampling, collecting surface water samples from a neighboring stream, re-evaluating the contaminants of concern and the site conceptual model, and preparing a report. Performed a feasibility study that included identifying and screening several soil and groundwater remediation technologies, developing and evaluating five cleanup action alternatives, and recommending an alternative. Negotiated a cleanup action plan with the Department of Ecology (Ecology), and the site remediation (soil excavation, capping, and monitored natural attenuation) was conducted under a MTCA consent decree.

- **Remedial Investigation/Feasibility Study, Former Bulk Fuel Terminal, Edmonds, Washington**. Managed an RI/FS at a 47-acre, former bulk fuel terminal in Edmonds, Washington, that was conducted in accordance with a MTCA agreed order. Negotiated a focused scope of work for soil, groundwater, surface water and sediment sampling to address remaining data gaps, and directed the investigation activities. Prior to the completion of the FS, several interim actions were conducted at the site to reduce the threat to human health and the environment, and to allow for the sale and redevelopment of a 22-acre portion of the site. The interim actions included the excavation and off site disposal of over 150,000 tons of TPH- and metals-impacted soil, and the recovery of over 200,000 gallons of free product and impacted groundwater. Due to the success of the interim actions at remediating the soil and groundwater, we were able to apply risk-based remediation levels that were significantly greater than the cleanup levels that were proposed by Ecology.

- **Due Diligence Support, 13-Mile-Long Parcel, Buckley/Sumner, Washington.** Provided environmental services in support of a prospective purchaser's due diligence evaluation of water rights and other assets within a 13-mile-long stretch of parcels (the Conveyance Area) in Buckley and Sumner, Washington. The assets included a diversion dam on the White River, a surface water transport system (flowline) that runs from the dam to a downstream location on the White River, the properties located along the flowline, and a power plant and related structures. The flowline consisted of a flume, several settling basins and canals, two underground piped sections, and Lake Tapps. The due diligence efforts focused on establishing the environmental conditions within and adjacent to the Conveyance Area. The work initially consisted of reviewing project documents; reviewing local, state, and federal records/databases; conducting site visits; and interviewing current and former site personnel to identify and evaluate any recognized environmental conditions (RECs) within and near the Conveyance Area. After completing the initial assessment, several data gaps were identified and investigation activities were conducted to resolve the data gaps. The investigation consisted of drilling and sampling 42 soil borings, installing and sampling 7 temporary groundwater monitoring wells, and collecting 7 surface soil samples, 8 sediment samples, and 8 surface water samples. Based on the investigation results, several areas of contamination were encountered within or near the Conveyance Area, including two areas that were previously unidentified. The due diligence findings were used by the client to effectively minimize their environmental liabilities prior to purchasing the water rights and assets.

- **Litigation Support, Former Bulk Fuel Terminal and Asphalt Plant, Edmonds, Washington.** Provided technical support in the client's preparation for litigation pertaining to subsurface contamination at a former bulk fuel terminal and asphalt plant. The work consisted of reviewing the previous environmental reports, evaluating the previous remediation activities that were completed at the site, developing MTCA Method B risk-based soil and groundwater cleanup levels, and estimating the cost to remediate the site to the Method B cleanup levels. We also observed additional soil excavation activities that were conducted by the opposing party to remove Bunker C-impacted soil, and documented that most of the excavated soil should have been used as

backfill rather than hauled off site for disposal. Based in part to our work and field observations, the case settled prior to going to court, and our client paid less than they had anticipated.

- **Remedial Investigation and Remedial Action Plan, Agriculture Chemical Storage Facility, Caldwell, Idaho.** Managed a remedial investigation and negotiated a remedial action plan at an agriculture chemical storage and distribution facility in Caldwell, Idaho. The work, which was conducted under a consent order, initially consisted of the development and negotiation of a focused scope of work with the Idaho Department of Environmental Quality (IDEQ). The work included the drilling and sampling of over 30 soil borings, the installation of over 10 groundwater monitoring wells, and groundwater monitoring. After it was discovered that the groundwater contamination extended off site, an off site assessment was conducted that included a potential receptor survey, collecting a water sample from a neighboring water supply well, and collecting groundwater samples from over 10 temporary wells. The remedial action plan consisted of developing and negotiating cleanup levels for contaminants of concern and a remedial action (localized excavation, capping, and groundwater monitoring) that were approved by the IDEQ. Currently designing the remediation activities and the construction of an evaporation pond for the site storm water.

- **Technical Support for Cost Recovery Action, Former Gas Station, Seattle, Washington.** Provided technical support in a cost recovery action against a previous owner of a gas station in Seattle, Washington. The work consisted of reviewing the previous environmental reports, conducting a subsurface investigation to assess the age and current extent of the contamination, and estimating the costs to remediate the contamination. The results of the assessment showed that the contaminant release occurred during the previous ownership, and our client received over $160,000 to cover the investigation and remediation costs. After the settlement, the work consisted of excavating and off-site recycling of 300 tons of impacted soil, extracting over 1,600 gallons of impacted groundwater from the excavation, and groundwater monitoring.

- **Remedial Investigations, Bulk Fuel Farm and Aircraft Maintenance Hangars, SeaTac International Airport, Washington.** Managed remedial investigations at a bulk fuel farm and associated closed and abandoned hydrant line systems, and at two aircraft maintenance hangars at SeaTac International Airport. The investigations consisted of preparing work plans and negotiating scopes of work with the Port of Seattle and the Department of Ecology. In addition, the project included extensive permitting and coordination for work in the airport operations area; drilling and sampling a total of 130 soil borings; installing several groundwater monitoring wells; sampling groundwater from wells and temporary wellpoints; evaluating the direct contact and protection of groundwater risks associated with the TPH-impacted soil, and preparing reports. Based on the results of the risk analyses, soil cleanup levels of up to 13,500 milligrams per kilogram TPH have been proposed for the sites.

- **Remediation of Petroleum-Impacted Soil, Bulk Fuel Farm, Spokane International Airport, Washington.** Managed the remediation of petroleum hydrocarbon-impacted soil and groundwater at a former bulk fuel farm at Spokane International Airport. The

work initially consisted of performing a risk evaluation of the impacted soil in accordance with the Department of Ecology's Interim TPH Policy; monitoring groundwater conditions in perched and deep monitoring wells; and negotiating a cleanup action plan with Ecology. Successfully negotiated perched groundwater cleanup levels based on protection of surface water and installed a surface water compliance well approximately 500 feet downgradient of the groundwater plume. To recover free product (Jet A fuel) from the groundwater and remove the soil that contained total petroleum hydrocarbon concentrations greater than 4,310 mg/kg (risk-based cleanup action level), the remediation work consisted of excavating approximately 15,000 tons of soil, hauling over 9,600 tons of impacted soil off site for thermal treatment, pumping over 20,000 gallons of free product and impacted groundwater from one of the excavations, and backfilling the excavations with "clean" excavated soil and the thermally treated soil. After completing the remediation work and one year of groundwater monitoring, the Department of Ecology issued a "no further action" status for the site.

- **Technical Support for Cost Recovery Action, Gas Station, Bellevue, Washington.** Provided technical support in a cost recovery action against a previous tenant of a former gasoline service station in Bellevue, Washington. The work consisted of reviewing the previous environmental reports and invoices; assessing the appropriateness of the previous work and costs; and evaluating the age of the contaminant release. The purpose of the work was to determine if any of the site soil and groundwater contamination was due to a release that may have occurred when the previous operated the sties (1982 to 1989). Directed the sampling of groundwater from site wells to allow a laboratory to conduct forensics analysis of the groundwater contamination. Based on the results of the forensics analysis and our evaluation of the previous soil and groundwater sample analytical data, we determined that at least a portion of the contamination was released from 1982 to 1989. The results of the evaluation were used in a cost recovery mediation that resulted in our client receiving over $140,000.

- **Design of Recovery/Treatment System, Naval Air Station, Adak, Alaska**. Managed a team that designed a groundwater and free product (jet fuel JP-5) recovery/treatment system at the Naval Air Station in Adak, Alaska. The recovery system included 26 recovery wells within 6 separate plumes. The water and product was pumped into 6 heated product collection enclosures that each contained an oil/water separator tank, a product storage tank, and a water transfer system. The water was then pumped through several miles of underground piping to a dissolved air flotation (DAF) unit for treatment. The total pumping rate of the system was greater than 250 gallons per minute. The system also included remote monitoring by a programmable logic controller. The design package included a total of 23 drawings, written design specifications, and an operation and maintenance plan. The project team received a Certificate of Appreciation from the Department of the Navy recognizing the quality of this work.

- **Groundwater Study, SeaTac International Airport, Seattle, Washington.** Manager and hydrogeologist of a team conducting peer review of the Port of Seattle's groundwater study at SeaTac International Airport. The purpose of the groundwater study, which was conducted in accordance with a MTCA agreed order, is to provide a more comprehensive understanding of the fate and transport of groundwater contamination beneath the airport. Phase I of the groundwater study consists of creating an extensive database containing hydrogeologic conditions and groundwater receptor locations within a 10-mile radius of the airport, and environmental investigation results within a 1-mile radius of the airport. The database is currently being used to model contaminant fate and transport beneath the airport. The objectives of peer review work are to ensure that the terms of the agreed order are met but not exceeded, to identify areas where significant cost savings can be realized, and to review and provide comment on the database and modeling results.

- **Decommissioning of Bulk Fuel Farm, SeaTac International Airport, Seattle, Washington.** Managed a team that designed the scope of work, obtained the permits, prepared the contractor bid plans and specifications, and conducted contractor oversight for decommissioning of a bulk fuel farm and associated fuel hydrant line system at SeaTac International Airport. The decommissioning activities included demolishing and disposing the aboveground components of the fuel farm (e.g., electrical control shed, fuel filter sheds, and aboveground pumps and piping), removing and disposing fourteen 30,000-gallon underground Jet A fuel storage tanks, backfilling the excavation, capping the site surface with asphalt, and inerting and capping the underground hydrant lines. The project also included designing, installing, and operating an in-situ bioventing system to remediate the backfilled petroleum hydrocarbon-impacted soil and the impacted soil outside of the tank excavation area. Within 5 months of system operation, the hydrocarbon concentrations in the soil were reduced to below risk-based cleanup levels.

- **Groundwater and Free Product Recovery/Treatment System, Bulk Fuel Terminal, Tacoma, Washington**. Managed the operation and maintenance of a groundwater and free product (gasoline and diesel) recovery/treatment system and a soil vapor extraction system at a bulk fuel terminal in Tacoma, Washington. The work was conducted in accordance with a MTCA consent decree. The work initially consisted of evaluating the performance of the existing systems, negotiating system modifications and reductions in all of the sampling programs with the Department of Ecology, designing and installing cost effective modifications to components of the systems, and obtaining permission to deactivate the vapor treatment system. Obtained a sanitary sewer discharge permit to eliminate the high costs associated with NPDES discharge monitoring, and designed and directed the installation of system discharge piping and the connection to a sewer main. Based on the system modifications, the total groundwater and product pumping rates from 25 recovery wells significantly increased and the project costs decreased by approximately $50,000 per year. The work also consisted of designing and expansion to the remediation system to address a previous release area.

- **Groundwater Monitoring Study and Analysis, PLP Group**. Assisted a multiple party group in negotiating a financial settlement for remediation of a previous property owner's 17,740-gallon release of ethanol blend product at an active bulk fuel terminal. The work initially consisted of two years of quarterly groundwater monitoring to evaluate the impacts of the release and the migration of the main contaminant of concern (benzene), and an extensive records review to document and evaluate the site conditions before and after the release. The impacts from the ethanol blend release were difficult to determine due to the presence of soil and groundwater contamination at the site prior to the release. The impacts from the ethanol blend release were difficult to determine due to the presence of soil and groundwater contamination at the site prior to the release. Prepared a report that summarized the results of our evaluation of the soil and groundwater impacts from the release, and also conducted a feasibility study to evaluate several remediation alternatives and the costs to obtain project closure. The report and estimated cost to obtain project closure (based on the selected remediation alternative) were critical components to the successful settlement negotiations.

- **Soil Remediation, SeaTac International Airport, Seattle, Washington.** Managed the design, installation, and operation and maintenance of a dual-phase extraction system to remediate solvent- and hydrocarbon-impacted soil and groundwater at a former solvent and petroleum storage area at SeaTac International Airport. The system consisted of a 10-horsepower, liquid-ring pump that extracted free product (mineral spirits), groundwater, and soil vapors from two recovery wells. The extracted water and product were pumped into a storage tank, and the extracted vapors were treated by two carbon-filled canisters prior to emission. After five months of operation, the system was deactivated because the recoverable free product was removed and the hydrocarbon and solvent concentrations in the extracted vapors had decreased to asymptotic conditions. The system recovered a total of approximately 3,500 gallons of free product and groundwater, and a total of approximately 7,770 pounds (1,160 gallons) of volatile organic compounds in the vapor phase.

- **Due Diligence Support, Aircraft Part Manufacturer, Kent, Washington.** Provided environmental services in support of a prospective purchaser's due diligence evaluation of a former aircraft parts manufacturing facility in Kent, Washington. The work initially consisted of reviewing the previous environmental reports, identifying investigation data gaps, and recommending additional investigation activities to address the data gaps. After the seller conducted the recommended activities, the work consisted of reviewing the sample analytical results and evaluating the accuracy of risk-based MTCA Method C soil cleanup levels that were calculated by the seller's consultant. Assisted the client in the negotiation of an indemnification agreement.

- **Remedial Investigation and Feasibility Study, Former Service Station, Longview Washington.** Provided technical support to a property owner in negotiations with a previous tenant regarding future remedial actions at a former gasoline service station in Longview, Washington. The client is currently unable to sell the site due to the presence of soil and groundwater contamination. The work consisted of reviewing the previous environmental reports, identifying investigation data gaps, and recommending

additional investigation activities to address the data gaps. Due to the previous owner's unwillingness to conduct the recommended actions, we conducted the investigation activities and completed a feasibility study, and received reimbursement from the client's insurance company. The investigation consisted of the drilling and sampling of over 30 soil borings, and installation and sampling of 14 shallow and deep groundwater monitoring wells.

EDUCATION

M.B.A. (Executive Program), University of Washington, 2005
M.S., Geology, Kansas University, 1987
B.S., Geology, University Puget Sound, 1984

REGISTRATIONS/CERTIFICATIONS/

Licensed Geologist, Washington, 2002
Registered Geologist, Oregon, 1995
Professional Geologist, Wyoming, 1992
Registered UST Site Assessor, Washington, 1995

BOARD MEMBERSHIPS

Kansas University Geology Associates Advisory Board (2005 – present)
Northwest Environmental Education Council (2006 – present)

PUBLICATIONS

"Groundwater vs. Surface Water Influences on Sediment Toxicity and Geochemistry in a Puget Sound Estuary." With L. Williams and L. Jacobs. Procedings of the Annual Conference of Society of Environmental Toxicology and Chemistry. 2005.

"In-situ Remediation of Petroleum Hydrocarbons." With R.S. Reis. Proceedings of the American Society of Civil Engineers North American Water and Environment Congress. 1996.

"Design of Free Product Recovery System for JP-5 at NAS Adak, Alaska." With R.S. Reis and H. Small. Proceedings of the USEPA Superfund XV Conference. 1994.

"Vacuum Enhanced Recovery of Semi-volatile LNAPLs." With A. Udaloy. Proceedings of EMCON Industrial Conference. 1994.

"Vacuum Enhanced Recovery of Semi-volatile LNAPLs." Proceedings of the 8th National Outdoor Action Conference, National Ground Water Association. 1994.

"Vacuum Enhanced Recovery of Semi-volatile LNAPLs." Proceedings of Alternative Corrective Action Technologies, USEPA Training Class. 1994.

Exhibit C

Data Submittal Requirements

All sample analytical data and field data from the interim action will be submitted to the Washington Department of Ecology (Ecology) in an electronic form that is capable of being transferred into Ecology's data management system. The data will also be submitted in a printed form. The electronic soil and groundwater data will be submitted in accordance with Ecology's Environmental Information Management (EIM) system format. Any sediment sample data will be submitted electronically in accordance with Ecology's Sediment Quality Information System (SEDQUAL) format. All sample analytical data and field data will be submitted to Ecology within three months of the date of sample collection.

Exhibit D

Permits Required For Interim Action

- National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permits (existing Industrial Stormwater General Permit will be used for the discharge of site storm water during the interim action period, and an Individual Stormwater Permit will be obtained for the treatment and discharge of extracted groundwater and surface water during the interim action).

- Nationwide Permit (NWP) 38 Notification.

Exhibit E

Substantive Requirements of State and Local Laws

- **Hydraulic Project Approval (by Washington Department of Fish and Wildlife)**

- **Department of Ecology (Ecology) Requirements**

    - ***Notification***

        - Union Oil Company shall provide notice to David South of Ecology at least 3 days prior to the start of excavation activities. Notification can be by email (dsou461@ecy.wa.gov), telephone (425-649-7200), fax (425-649-7098), or in writing.

    - ***Upland Excavation and Grading***

        - Extracted water from the upland excavations shall not be discharged to surface water unless testing indicates that it meets all water quality standards at the point of discharge, as authorized by an NPDES Individual Stormwater Permit issued for this project.

        - Wash water containing oils, grease, or other hazardous materials resulting from wash down of equipment shall be contained for proper disposal or treatment as authorized by the NPDES Individual Stormwater Permit issued for this project, and shall not be directly discharged into state waters or storm drains.

        - Fuel hoses, oil drums, oil or fuel transfer valves and fittings, and all other equipment shall be checked daily for drips or leaks, and shall be maintained and stored properly to prevent spills into state waters. No fueling of equipment shall occur within 50 feet of the drainage ditch (Willow Creek).

        - A qualified Engineer shall be on site to oversee the excavation and backfilling activities. A qualified ecologist or equivalent shall be on site to oversee riparian planting along the banks of the drainage ditch.

        - Within 7 calendar days of completion of backfilling the sediment excavation, all disturbed riparian areas along the banks of the drainage ditch shall be protected from erosion by using vegetation or other means.

- ***In-Water Activities***

  - Timing Limitations: Excavation of the impacted sediment and soil within the drainage ditch will be conducted in August or September (during low tide conditions) when the water levels in the ditch and Edmonds Marsh are low. These dates are subject to change by the Washington Department of Fish and Wildlife (WDFW). A qualified fisheries biologist shall be on site during installation and removal of the coffer dams, and during any fish/marine organism removal activities from the work areas.

  - If at any time, as a result of project activities, fish are observed in distress, a fish kill occurs, or water quality problems develop (including equipment leaks or spills), operations shall cease and Ecology (425-649-7000) and the WDFW (360-534-8233) shall be notified. Work shall not resume until approval is given by Ecology and the WDFW.

  - Fish habitat components and bank protection materials shall be installed to the standards required by the Nationwide Permit (NWP) 38 Notification issued for this project.

- ***Stormwater Management***

  - During the interim action period, Union Oil Company shall comply with all stormwater requirements within the existing NPDES Industrial Stormwater General Permit for the lower yard and the Individual Stormwater Permit that will be obtained for this project.

  - Work in or near the drainage ditch shall be conducted in a manner that minimizes turbidity, erosion, and other water quality impacts. Construction stormwater, sediment, and erosion control Best Management Practices suitable to prevent exceedances of state water quality standards (e.g., silt fences) shall be in place before starting the clearing, excavation, and backfilling work.

- ***Emergency/Contingency Measures***

  - In the event that Union Oil Company or its contractors are unable to comply within any of these Ecology requirements due to any cause, they shall:

    - Immediately take action to stop, contain, and clean up unauthorized discharges or otherwise stop the violation and correct the problem.

- Notify Ecology of the failure to comply. Spill events shall be reported immediately to Ecology's 24-Hour Spill Response Team at (425-649-7000), and within 24 hours to David South of Ecology at (425-649-7200).

- Submit a detailed written report to Ecology within 5 days that describes the nature of the violation, corrective actions taken and/or planned, steps to be taken to prevent a recurrence, results of any collected samples, and any other pertinent information.

- ***General Conditions***

  - This document does not exempt and is provisional upon compliance with other statutes and codes administered by federal, state, and local agencies.

  - Union Oil Company will be out of compliance with this document if the project is not completed in a manner that is consistent with the project description in the Interim Action Report, Work Plan for 2007 Lower Yard Interim Action, Unocal Edmonds Terminal, Edmonds, Washington (Exhibit B of the Agreed Order), or the existing NPDES Industrial Stormwater General Permit for the lower yard, or the Individual Stormwater Permit issued for this project, or plans otherwise required and approved by Ecology. Additional mitigation measures may be required through other local, state, or federal requirements.

  - Copies of this document shall be kept on the job site and readily available for reference by Ecology personnel, the construction superintendent, construction managers and foremen, and state and local government inspectors. To avoid violations or non-compliance with this Order, the applicant shall ensure that project managers, construction superintendents, and other responsible parties have read and understood relevant aspects of this Order, the NPDES permits, and any subsequent revision or Ecology-approved plans.

  - Union Oil Company shall provide to Ecology a signed statement from each project manager and construction superintendent working at the project site that they have read and understood the conditions of the above-referenced documents, plans, and approvals. These statements shall be provided to Ecology no less than 7 days before construction begins at the site.

        - The applicant shall provide access to the site by Ecology personnel for site inspections, monitoring, necessary data collection, or to ensure that conditions of this document are being met.

- **City of Edmonds Requirements**

    - **Grading, Fill & Excavation Permit** – Grading, fill, stockpile of fill, and excavation work requires compliance with the substantive requirements of Edmonds Municipal Code Title 19. These requirements are attached.

    - **Chapter 5.30 Noise Abatement and Control** – Sounds originating from temporary construction sites as a result of construction activities are exempt from the provisions of this chapter, but only during the hours of 7:00 a.m. to 6:00 p.m. on weekdays and from 10:00 a.m. to 6:00 p.m. on Saturdays. The noise level must be kept below 55 decibels on Sundays and federal holidays.

    - **Shoreline Substantial Development** – Excavation, dredging, and filling must be conducted in accordance with Edmonds Municipal Code Title 23.

PUBLIC PARTICIPATION PLAN

UNOCAL EDMONDS BULK FUEL TERMINAL
LOWER YARD
INTERIM ACTION PLAN

17020 Unoco Road
Edmonds, Washington

Prepared by

Washington State Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008-5452

February 2007

Table of Contents

1 Introduction and Overview of Public Participation Plan

Under Washington's Model Toxics Control Act (MTCA, Chapter 70.105D RCW), the public is guaranteed meaningful opportunities to learn about and provide comments on important cleanup decisions before they are made. Ecology's goal is to encourage public understanding of and participation in the cleanup of the Site through a variety of public information and public involvement activities.

This Public Participation Plan describes public participation activities for the interim remedial action included in the agreed order between the Washington State Department of Ecology ("Ecology") and Union Oil Company of California ("Unocal"), relating to the lower yard of the Unocal Edmonds Bulk Fuel Terminal Site ("the Site").

Public involvement activities will be led by Ecology, with informational support from Unocal. The goal of this plan is to promote public understanding of the hazardous waste cleanup process so that the community can provide meaningful comments on the interim remedial action at the Site. It has the following objectives:

- to identify people and organizations with an interest or potential interest in the interim remedial action plan and its planned activities.
- to identify community concerns regarding the interim remedial action, and ways to address those concerns.
- to design public involvement activities for the local and surrounding communities.
- to promote public understanding of the interim remedial action plan process and findings.
- to provide the public with opportunities for frequent review and comment on the interim remedial action, so that public involvement is meaningful.
- to aid communication among Ecology, Unocal, ECAC, and the general public.
- to invite and encourage interaction and collaboration among Ecology, Unocal, ECAC, and the broader community in developing public information and public education programs related to the Site.
- to meet the Model Toxics Control Act public participation requirements (WAC 173-340-600).

The public participation process consists of methodologies to obtain pubic opinion and concerns regarding the interim remedial action plan, to address those concerns, and to keep the public informed of the status of the activities and schedule pursuant to the interim remedial action. The intent of the public participation plan is to provide complete and current information to all interested parties, to listen to concerns regarding the interim remedial action, and to address those concerns in a way that is satisfactory to Ecology and to the general public. The March 1996 *Edmonds Bulk Fuel Terminal Public Participation Plan* is the predecessor to this pubic participation plan. This public participation plan takes advantage of technologies that did not exist in 1996, attempts to reach a broader audience, and recognizes the growth that has occurred in the city of

Edmonds in the ensuing years. Edmonds's population, 30,774 in 1990, is estimated at 40,360 as of 2006, a 31% increase.

2 Background and Agreed Order

The Unocal Edmonds Bulk Fuel Terminal Site is at 11720 Unoco Road in Edmonds, Washington. It is within approximately 1,000 feet of the Puget Sound shoreline, below Point Edwards, and just south of downtown Edmonds. The lower yard is approximately 23 acres in area.

The Edmonds Marsh forms the northern boundary of the lower yard. In 1981, Unocal donated the marsh property to the City of Edmonds. West of the lower yard are the Burlington Northern railroad tracks, parking for the Port of Edmonds, and restaurants and the Edmonds marina, which are located on Puget Sound. The new residential development of Point Edwards was constructed on the former upper yard, above the lower yard. The residential community of Woodway lies to the south, and State Route 104 is to the east of the lower yard. In April 2005, Unocal donated a portion of its property to the Deer Creek fish hatchery.

Unocal's bulk fuel terminal in Edmonds operated from the early 1920s until 1992. The facility's primary purposes were storage, blending, and distribution of various petroleum products, including gasoline, diesel fuel, and bunker oil. Unocal also operated an asphalt plant at the Site between 1950 and 1974. Unocal ceased operations at the Site in 1992.

The terminal has two distinct areas: the upper yard area (former tank farm) and the lower yard area. The upper yard formerly consisted of 23 aboveground storage tanks.

It was cleaned up in an interim action conducted between 2001 and 2003. Based on the results of the interim action, Ecology issued a letter to Unocal on October 9, 2003 confirming that Unocal had successfully completed the cleanup actions that make the upper yard suitable for residential use. The upper yard is now the residential neighborhood of Point Edwards. Point Edwards is a village of 150 condominiums overlooking the Edmonds waterfront. This condominium village, now in its third phase of construction, will eventually grow to 395 homes.

The lower yard consisted of office buildings, two former truck loading racks, aboveground and underground piping, four aboveground storage tanks, a boiler, detention basin no. 1, detention basin no. 2, and an storm water collection system which includes an oil/water separator. The buildings, loading racks, piping, tanks, and boiler have been removed. The above-ground structures have been demolished and the lower yard is currently vacant.

In April 2005, Unocal donated the southeastern portion of the lower yard to the Deer Creek Fish Hatchery. The Laebugten Salmon Chapter has maintains and cares for the hatchery as a volunteer–run organization.

In August 2005, Chevron Corporation acquired Unocal. Unocal is now a subsidiary of Chevron Corporation.

Residential, recreational, industrial, transportation, and commercial activities surround the former lower yard. Known communities of interest include the Edmonds Citizen's Awareness Committee, residents of Edmonds, Woodway, and Point Edwards; recreational users of Point Edwards Park, Edmonds Marsh and Marina Beach Park; operators of the Deer Creek fish hatchery; the Washington State Fish and Wildlife Agency; and ECAC. Commercial, industrial and governmental interests include Burlington Northern Santa Fe Railroad, the Washington State Department of Transportation, Sound Transit, Amtrak, the Port of Edmonds, and the City of Edmonds Department of Community Development. State Route 104 will be reconstructed by the Washington State Department of Transportation (WSDOT), across a portion of the lower yard, and the remaining area of the lower yard has been identified by WSDOT as the location for the Edmonds multimodal terminal, which will include a new ferry dock, and commuter and passenger rail station.

During more than sixty years of operation, petroleum releases occurred at the Site. As a result of these releases, petroleum contamination exists in the soil and the groundwater beneath the property. There is also metal contamination due to use of sand blast grit to clean equipment

The agreed order is between the Washington State Department of Ecology (Ecology) and the Unocal Company of California, a subsidiary of the Chevron Corporation, and pertains to the interim remedial action at the lower yard of the Unocal Edmonds bulk fuel terminal. The interim action will consist of excavation of all soil with petroleum concentrations exceeding those protective of human health. Groundwater monitoring will be performed to assess whether soil petroleum concentrations remaining on Site are a threat to groundwater. If so, additional cleanup actions will be taken.

All soil contaminated with metals which are a threat to human health or the environment will be excavated.

The remedial action is an interim cleanup of the lower yard. The interim remedial action plan specifies interim cleanup activities that will take place at the lower yard, prior to the final cleanup of the lower yard. A complete description of the interim remedial action is available at: http://www.ecy.wa.gov/programs/tcp/sites/sites_information.html.

3 Public Participation Plan: Activities and Responsibilities

Public notices are required on all agreed orders, consent decrees and enforcement orders. Public notification is also required for all Ecology-conducted remedial actions. Ecology's site register is a widely used means of providing information about cleanup efforts to the public and is one way of assisting community involvement. The site register is published every two weeks to inform citizens of public meetings and comment periods, discussions or negotiations of legal agreements, and other cleanup activities.

The point of contact for the Unocal Edmonds Bulk Fuel Terminal Site is:

David L. South, Site Manager
Washington State Department of Ecology
3190 160th Avenue SE
Bellevue, WA 98008
(425) 649-7200
dsou461@ecy.wa.gov

Information repositories will be maintained at the following locations:

- Edmonds Public Library, 650 Main Street, Edmonds, WA 98020
- Washington State Department of Ecology, Northwest Regional Office, 3190 160th Avenue SE, Bellevue, WA 98008

Ecology will use the following tools to identify and address public concerns, and to keep the pubic informed of the status of the interim remedial action. This list of tools may change as more is learned about the Site.

- Information repositories: The Agreed Order and other site documents will be placed at the information repositories.
- Public comment periods: The public will be asked to provide comment on the agreed order. The public will have at least thirty (30) days to provide comment. Comments will be accepted in writing (by letter or e-mail), or by telephone.
- Public meeting(s): Within thirty days of issuance of the agreed order, Ecology will hold one public meeting to describe the interim action, and to solicit public comment. Fliers, articles or display ads in *The Herald*, the Seattle *Times* (Snohomish County edition), the Edmonds *Enterprise*, and other methods will be used to publicize the public meeting. Additional public meetings may be held if warranted.
- Responsiveness summary: After every public comment period, Ecology will review all comments received and may prepare a written responsiveness summary. The summary would then be made available to the public at the information repositories listed below.
- Mailing list and letters: Ecology's toxics cleanup program has developed a mailing list for the Site. Ecology will update the list as needed. Unocal will prepare a letter for distribution among neighbors adjacent to the Site. The letter will describe the interim action activities and schedule. Unocal contact information will be provided in the letter. Unocal may distribute letters periodically during the interim action to ensure that nearby property owners are aware of imminent activities. Please contact David South at

(425) 649-7200, or dsou461@ecy.wa.gov to be added to or removed from the mailing list.

- Site Register and Public Involvement Calendar: Ecology's toxics cleanup program will use its bimonthly site register and web-based public involvement calendar to announce all public meetings and comment periods related to the investigation and cleanup of the Site. To receive a copy of the site register, please contact David South at (425) 649-7200, or dsou461@ecy.wa.gov. Copies also are available on the Ecology website at http://www.ecy.wa.gov/biblio/siteregister.html. Ecology's public involvement calendar may be found at http://apps.ecy.wa.gov/pubcalendar/calendar.asp,

- Public service announcements, advertisements, media placements: Media communications will be used at critical points during the interim remedial action, when the need for public awareness and information is determined to be at its greatest. Unocal will pay to produce and place these advertisements and announcements in local media outlets: print, radio, and television. Also, Unocal will seek opportunities for reciprocal weblinks of its internal project website (www.unocaledmonds.info) with other sites, such as the City of Edmonds, Ecology, Chevron, environmental and advocacy groups, and other related websites.

- Fact and focus sheets: Fact and focus sheets for the Site may be used to inform the public of meetings, comment opportunities on key decisions and actions, and other important activities. These brief fliers will be mailed to key stakeholders, including property owners and residents close to the Site; made available at the repositories listed above; and posted on Ecology's website: http://www.ecy.wa.gov/programs/tcp/sites/sites_information.html.

- Agreed Order: The Agreed Order will be posted on Ecology's website (address above).

- Notices: Legal or display ads announcing each public comment period or meeting will be placed in *The Herald*, the Seattle *Times* (Snohomish County edition), and the Edmonds *Enterprise*. Each notice will be published before the comment period begins or a meeting is held.

- News Releases: Ecology may issue news releases to the media on major milestones, significant events, and accomplishments related to the Site.

- Informational signs: Unocal will maintain outdoor informational signs that describe the interim remedial action, give contact information, and provide a holder for the newsletter, will be posted at two locations — near the fish hatchery, and near Waterfront Park.

- Portable information panels: Unocal will maintain panels with graphic and descriptive information on the interim remedial action. These panels will be used by the consultant at public presentations.

- Unocal Web page updates: Unocal maintains a web page specifically for the cleanup at this Site. The web page address is www.unocaledmonds.info. It will be updated regularly with information about the interim remedial action. All news releases and media communications will refer the public to the website for the most up-do-date information on the Site.

- Targeted outreach: Unocal's will respond to requests from local Chambers of Commerce, community organizations, neighborhood organizations, school and youth groups, senior groups, and others, to make an informational presentation regarding the interim remedial action. The presentation will be accompanied by the portable information panels, and a PowerPoint slide show, that describes the activities and timeline for the interim remedial action.

This public participation plan is intended to provide clarity and certainty for the general public and the parties involved in the agreed order. Therefore, modifications to the plan may be made in the event that Ecology determines that there is a substantial change in the project schedule or the public involvement needs for the project. In the interest of providing clarity and certainty for all parties involved, this plan is intended to be as inclusive as possible.

Ecology, Unocal, and ECAC will continue to work cooperatively to review the plan on a regular basis, and coordinate on any amendments to the plan. Ecology is responsible for final approval of this plan, for any amendments to the plan, and for ensuring that the plan is carried out.

4 Glossary

Agreed Order: A legal agreement between Ecology and a potentially liable person to conduct work toward a cleanup.

Aquifer: A water-bearing layer of rock or sediment that is capable of yielding useable amounts of water. Drinking water and irrigation wells draw water from underlying aquifers.

Cleanup: Actions taken to deal with a release, or threatened release of hazardous substances that could affect public health and/or the environment. The term "cleanup" is often used broadly to describe various response actions or phases of remedial responses such as the remedial investigation/feasibility study.

Cleanup Action Plan (CAP): A document that explains which cleanup alternative(s) will be used at sites for the cleanup. The cleanup action plan is based on information and

technical analysis generated during the remedial investigation/feasibility study and consideration of public comments and community concerns.

Comment Period: A time during which the public can review and comment on various documents and planned actions. For example, a comment period may be provided to allow community members to review and comment on cleanup action alternatives and cleanup plans.

Contaminant: Any hazardous substance that does not occur naturally or occurs at greater than natural background levels and could have negative impacts on air, water, or soil.

Consent Decree: A formal legal document approved and issued by a court which formalizes an agreement reached between the state (and EPA if involved) and the potentially liable person(s) (PLPs) on what will take place during the Remedial Investigation and Feasibility Study. A Consent Decree is similar to an Agreed Order except that a Consent Decree goes through the courts. Consent Decrees are subject to public comment. If a decree is substantially changed, an additional comment period is provided.

Feasibility Study: This study is designed to develop and evaluate cleanup options for a given site (also see Remedial Investigation/Feasibility Study).

Groundwater: Water found beneath the earth's surface that fills pores between materials such as sand, soil, or gravel or that fills cracks in bedrock. In some aquifers, groundwater occurs in sufficient quantities that it can be used for drinking water, irrigation and other purposes.

Information Repository: A file containing current information, technical reports, and reference documents available for public review. The information repository is usually located in a public building that is convenient for local residents such as a public school, city hall, or library.

Model Toxics Control Act (MTCA): Legislation passed by citizens of the State of Washington through an initiative in 1988. Its purpose is to identify, investigate, and clean up facilities where hazardous substances have been released. It defines the role of Ecology and encourages public involvement in the decision making process. MTCA regulations became effective March 1, 1989 and are administered by the Washington State Department of Ecology.

Monitoring Wells: Wells drilled at specific locations on or off a hazardous waste site where ground water can be sampled at selected depths and studied to determine details such as the direction in which the ground water flows and the types and amounts of contaminants present.

Potentially Liable Person (PLP): Any individual(s) or company(s) potentially responsible for, or contributing to, the contamination problems at a site. Whenever possible, Ecology requires these PLPs, through administrative and legal actions, to clean up sites.

Prospective Purchaser Consent Decree: A formal legal agreement entered into by the state and a person or company that wants to purchase and redevelop contaminated property. A prospective purchaser's liability for the known contamination is settled before the property is purchased. In return, the prospective purchaser provides resources to clean up contamination at the site.

Public Notice: A series of activities that provide adequate notice mailed to all persons who have made a timely request of Ecology and to persons residing in the potentially affected vicinity of the planned action; mailed to appropriate news media; published in the local (city and county) newspaper of largest circulation; and the opportunity for the interested persons to comment.

Public Participation Plan: A plan prepared to encourage coordinated and effective public involvement designed to the public's needs at a particular site.

Remedial Investigation/Feasibility Study: Two distinct but related studies. They are usually performed at the same time, and together referred to as the "RI/FS." They are intended to:

-Gather the data necessary to determine the type and extent of contamination;

-Establish criteria for cleaning up the site;

-Identify and screen cleanup alternatives for remedial action; and

-Analyze in detail the technology and costs of the alternatives.

Responsiveness Summary: A summary of oral and/or written public comments received by Ecology during a comment period on key documents, and Ecology's responses to those comments. The responsiveness summary is especially valuable during the Cleanup Action Plan phase at a site when it highlights community concerns.

Risk: The chance that a hazardous substance, when released into the environment, will cause an adverse effect in the exposed humans or living organisms.

Site: Any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, vessel, or aircraft; or any site or area where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located.

Toxicity: The degree to which a substance at a particular concentration is capable of causing harm to living organisms, including people, plants and animals.