APPENDIX A

Agreed Order

Mgr.: Marv Coleman

Sauro's Cleanarama
FSID # 4339824
SIC # J1AT5

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by:	AGREED ORDER
The City of Tacoma for Sauro's Cleanerama 1401, 1407 and 1409 Pacific Avenue Tacoma, Washington	No. DE 4283

TO: The City of Tacoma
Attn: Richard McKinley
Director, Public Works Department
747 Market Street, Room 408 Tacoma, WA 98402

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I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology) and the City of Tacoma (Tacoma) 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. This Order is intended to support the cleanup and redevelopment of the former Sauro's Cleanarama facility in downtown Tacoma. As part of its remedial action obligation under this Order, Tacoma will also be conducting groundwater monitoring at certain parcels impacted by the Sauro's Cleanarama groundwater plume. In the event Ecology requires Tacoma to take additional remedial actions—beyond groundwater monitoring—at such parcels, it is the parties' intent that such remedial actions be undertaken pursuant to this Order, or an amendment to this Order.

This Order requires Tacoma to perform a Remedial Investigation and Feasibility Study, prepare a Draft Cleanup Action Plan, and then undertake remedial actions or interim remedial actions required under a Final Cleanup Action Plan approved by Ecology. Ecology believes the actions required by this Order are in the public interest.

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 this Order. Tacoma agrees to undertake all actions required by the terms and conditions of this Order. No change in ownership shall alter Tacoma's responsibility under this Order. Tacoma 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 includes the real property where Sauro's Cleanarama operated historically; generally located at 14th and Pacific Avenue in downtown Tacoma, legally described as Lots 1 and 5, inclusive, Block 1403, Map of New Tacoma, W.T., according to the plat filed for record February 3, 1875, in Pierce County, Washington. The Site is also defined by the extent of contamination caused by the release of hazardous substances at the former location of Sauro's Cleanarama. Based upon factors currently known to Ecology, the Site is more particularly described in the Site Diagram (Exhibit A). The Site constitutes a Facility under RCW 70.105D.020(4).

B. Parties: Refers to the State of Washington Department of Ecology and the City of Tacoma.

C. Potentially Liable Person (PLP): Refers to the City of Tacoma.

D. Agreed Order or Order: Refers to this Order and each of the exhibits to this 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. "Days" shall mean calendar days.

V. FINDINGS OF FACT

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

A. The address of the Site is commonly known as 1401, 1407 and 1409 Pacific Avenue, Tacoma Washington. The Site's location is generally depicted in the diagram attached to this Agreed Order as Exhibit A. The Site is listed on the Department of Ecology's Hazardous Sites List as "Sauros Cleanerama Tacoma" with the Facility Site ID #4339824. The Site's hazard ranking is 1.

B. From 1961 to 2000, Pete Sauro operated a dry cleaning business, Sauro's Cleanarama, at the Site. Based on Pierce County Assessor-Treasurer's office records, the property includes Parcel Numbers: 2014030010, 2014030020 and 2014030030. Mr. Sauro died in May of 2002, at which time his appointed personal representative took control of these parcels on behalf of the Estate of Pete Sauro ("the Sauro Estate").

C. During its operation, Sauro's Cleanarama used a wastewater sump that was located in the facility's basement. Over time, dry cleaning solvents leaked from the wastewater sump. These solvents included perchloroethylene which is a chemical used in the dry cleaning process.

D. Various Remedial Investigation projects have been performed at the Site and are documented in the following reports:

1. *Preliminary Environmental Assessment, Sauro's Cleanerama, Tacoma, Washington,* Kennedy / Jenks Consultants, January 1992.

2. *Subsurface Environmental Assessment, Sauro's Cleanarama, 1401 Pacific Avenue, Tacoma, Washington,* GeoEngineers, Inc., October 2000.

3. *Subsurface Environmental Assessment, Sauro's Cleanarama, 1401 Pacific Avenue, Tacoma, Washington,* GeoEngineers, Inc., March 2001.

4. *Supplemental Site Exploration, TRC Building, 1423 Pacific Avenue, Tacoma, Washington, 98402,* Environmental Associates, October 2001.

5. *Draft report, Subsurface Environmental Assessment, Sauro's Cleanarama, 1401 Pacific Avenue, Tacoma, Washington,* GeoEngineers, Inc., November 2003.

6. *Summary of Additional Subsurface Investigation, Former Sauro's Cleanarama, Tacoma, Washington,* Farralon Consulting LLC, August 2005.

7. *Additional Groundwater Characterization, Former Sauro's Cleanarama Site, Tacoma, Washington,* Robinson Noble Saltbush, Inc., July 2006.

8. *Additional Groundwater Characterization, Former Sauro's Cleanarama Site, Tacoma, Washington,* Robinson Noble Saltbush, Inc., August 2006.

9. *Additional Characterization and Pilot Feasibility Testing Former Sauro's Cleanerama Site, Tacoma, Washington,* Farrallon Consulting, January 11, 2008.

10. *Phase 2 Investigation Report, Sauro Property – 1401, 1407, & 1409 Pacific Avenue, Tacoma, Washington,* Landau Associates, June 2008.

In all these studies, perchloroethylene and its chlorinated hydrocarbon degradation products were found in Site soil and groundwater.

E. Perchloroethylene and some of its chlorinated hydrocarbon degradation products are known or suspected carcinogens and can be toxic to both humans and wildlife and their presence at historically observed concentrations pose a threat to human health and the environment.

F. The Sauro Estate previously entered the Site into Ecology's Voluntary Cleanup Program (VCP) to facilitate remedial action at the Site. By letter dated February 16, 2007, Ecology informed the Sauro Estate that the Site had been withdrawn from the VCP program and that Ecology intended to address remediation at the Site under a formal process.

G. On October 21, 2008, Tacoma entered into a Purchase and Sale Agreement with the Sauro Estate for acquisition of the real property on which the Sauro Cleanarama operated. The transaction closed on January 9, 2009, at which time title to the property transferred from the Sauro Estate to Tacoma, and Tacoma became the owner of the property. According to Tacoma, it acquired the property, and thereby voluntarily assumed liability under RCW 70.105D.040, to expedite the cleanup of hazardous substances on the Site, and to encourage re-development of the former Sauro Cleanarama property so it can be returned to productive use.

VI. ECOLOGY DETERMINATIONS

A. Tacoma is an "owner or operator" as defined in RCW 70.105D.020(17) of a "facility" as defined in RCW 70.105D.020(5).

B. Based upon all factors known to Ecology, a "release" or "threatened release" of "hazardous substance(s)" as defined in RCW 70.105D.020(25) and RCW 70.105D.020(10), respectively, has occurred at the Site.

C. Based upon credible evidence, Ecology issued a PLP status letter to Tacoma dated January 12, 2009, pursuant to RCW 70.105D.040, -.020(21) and WAC 173-340-500. By letter

dated January 20, 2009, Tacoma voluntarily waived its rights to notice and comment and accepted Ecology's determination that Tacoma is a PLP under RCW 70.105D.040. Ecology simultaneously issued a determination that Tacoma is a PLP under RCW 70.105D.040 and notified Tacoma of this determination by letter dated January 21, 2009.

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 from a facility, 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 or design of a cleanup action. Depending upon the outcome of the RI/FS, Ecology may determine that an interim action consistent with WAC 173-340-430 is warranted.

VI. WORK TO BE PERFORMED

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

A. Remedial Investigation/Feasibility Study (RI/FS)

Based on investigations conducted to date, various parties have generally gathered sufficient data to meet the requirements for a remedial investigation necessary to determine the extent and nature of the chlorinated hydrocarbon contamination identified on the Site, pursuant to WAC 173-340-350(7). Data from these investigations are reported in the documents listed in Section V, Findings of Fact. The information from the various reports of investigations shall be

compiled into one comprehensive RI/FS Report that meets the expectations of WAC 173-340-350(7). Information shall also be provided that discusses the fate and transport of the contamination that has migrated northeasterly from the source area and the contamination that is present in the foundation drain in the DaVita Building. Prior to producing a draft RI/FS report, a work plan detailing the steps needed to gather additional information, as noted, shall be provided to Ecology for review and approval.

1. Scope of Work

a. RI/FS: Based on the results of the site investigations, Tacoma shall prepare a draft RI/FS report in accordance with WAC 173-340-350 that provides information adequately documenting the nature and extent of contamination at the Site. The RI/FS shall report the results of remedial investigations of the Site including vertical and lateral distribution of contaminants in soil and groundwater and concentrations of COCs in both media. Additionally, the report shall include an analysis of potential remedial alternatives and recommendations regarding a preferred remedial action to be implemented. Cost estimates and time frames for completion shall be included in the analysis of alternatives.

b. Schedule: Tacoma shall submit the draft RI/FS report to Ecology for review and approval within one hundred and twenty (120) days of the effective date of this Order. Tacoma shall submit a final RI/FS report to Ecology for review and approval within thirty (30) days of the receipt of Ecology's comments.

B. Draft Cleanup Action Plan (CAP)

Upon Ecology approval of the final RI/FS report, Tacoma shall prepare a Draft CAP in accordance with WAC 173-340-380 that details the proposed cleanup action for addressing the contamination present on the Site, and addresses the requirements for developing a cleanup action in WAC 173-340-350 through 173-340-390, including Ecology's expectations for cleanup alternatives in WAC 173-340-370.

1. Scope of Work

a. CAP: The Draft CAP shall meet the requirements of WAC 173-340-380, and include a description of the proposed cleanup action, cleanup standards from the RI/FS and a rationale regarding their selection, a proposed schedule for implementation, description of any institutional controls proposed, and a summary of federal, state and local laws that are applicable to the proposed cleanup action. The Draft CAP shall include QA/QC procedures, a Health and Safety Plan, provisions for progress reports, and compliance sampling and monitoring plans. The proposed cleanup action shall meet the requirements of WAC 173-340-360.

b. Schedule: Tacoma shall submit the Draft CAP to Ecology for review within ninety (90) days of Ecology's review and acceptance of the final RI/FS.

C. Interim Action

If an interim action is deemed necessary to abate an emergency condition that threatens human health or the environment or that will substantially improve the efficacy of the final cleanup, Tacoma shall submit to Ecology a work plan that describes the scope of work expected and expected costs and time frames for completion. Any proposed interim action shall be designed and executed in accordance with WAC 173-340-430 and shall not foreclose reasonable alternatives for the final cleanup action.

1. Scope of Work

a. Interim Action: The work will consist of activities approved by Ecology as proposed in a work plan submitted to Ecology.

b. Schedule: Prior to implementing an interim action, Tacoma shall provide to Ecology for review and approval a work plan to implement an interim action. In accordance with Section VIII.P of this Order, the work plan shall also identify any federal, state or local requirements applicable to this action, including any state or local permits or approvals that are procedurally exempt under RCW

70.105D.090. Once approved by Ecology, the interim action shall be performed in accordance with the work plan and schedule provided in the work plan.

D. 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.

VII. TERMS AND CONDITIONS OF ORDER

A. Public Notice

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. To the extent possible, Ecology shall attempt to combine public notice of this Order with public notice under the State Environmental Policy Act, Chapter 43.21C RCW, if required.

B. Remedial Action Costs

Tacoma shall pay to Ecology costs incurred by Ecology pursuant to this Order and 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 both prior to and subsequent to the issuance of this Order. Ecology's costs shall include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). Tacoma 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 upon request. 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 real property subject to the remedial actions.

C. Implementation of Remedial Action

If Ecology determines that Tacoma has failed without good cause to implement the remedial action, in whole or in part, Ecology may, after notice to Tacoma, perform any or all portions of the remedial action that remain incomplete. If Ecology performs all or portions of the remedial action because of Tacoma's failure to comply with its obligations under this Order, Tacoma shall reimburse Ecology for the costs of doing such work in accordance with Section VIII. B. (Remedial Action Costs), provided that Tacoma 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, Tacoma 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:

Marv Coleman, Site Manager/Inspector
Southwest Regional Office, Department of Ecology
P.O. Box 47775
Olympia, WA 98504
360.407.6259
mcol461@ecy.wa.gov

The project coordinator for Tacoma is:

Calvin Taylor, L.H.G.
City of Tacoma Dept. of Public Works
2201 Portland Ave.
Tacoma, WA 98421
253.593.7711
ctaylor5@cityoftacoma.org

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 Tacoma, 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 Decree.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) 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 or hydrogeologist 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 Chapter 18.43 RCW.

Tacoma shall notify Ecology in writing of the identity of any engineer(s) and geologist(s), hydrogeologist(s), agents and contractor(s) 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 Tacoma 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

Tacoma'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 Tacoma. The phrase "at all reasonable times" shall mean 8:00 AM to 5:00 PM, Monday through Friday, excluding holidays, unless (1) Tacoma is conducting work outside of the times and days stated above, in which case Ecology shall have access at those times and dates as well or (2) if Ecology determines that an emergency condition exists that threatens human health or the environment. Tacoma shall make reasonable efforts to secure access rights for those properties within the Site not owned or controlled by Tacoma where remedial activities or investigations will be performed pursuant to this Order. Ecology or any Ecology authorized representative shall give reasonable notice before entering any Site property owned or controlled by Tacoma unless an emergency prevents such notice. All persons who access the Site pursuant to this Section shall comply with any applicable Health and Safety Plan(s). Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Site property access.

G. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, Tacoma 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 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, Tacoma shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by Tacoma pursuant to implementation of this Order. Tacoma shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow Tacoma 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 Tacoma 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. Ecology shall review any existing Public Participation Plan to determine its continued appropriateness and whether it requires amendment, or if no plan exists, Ecology shall develop a Public Participation Plan alone or in conjunction with Tacoma.

Ecology shall maintain the responsibility for public participation at the Site. However, Tacoma shall cooperate with Ecology and help coordinate and implement public participation at the Site, and shall:

1. If agreed to by Ecology, develop appropriate mailing lists, 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, in coordination with Tacoma, 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 and fact sheets, and before major meetings with the interested public and local governments. Likewise, Ecology shall notify Tacoma 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 Tacoma that do not receive prior

Ecology approval, Tacoma 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, and subject to Tacoma's availability, 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. Citizens for a Healthy Bay
917 Pacific Avenue Suite 100
Tacoma, WA 98402

b. Tacoma Public Library – Main Branch
Northwest Room
1102 Tacoma Avenue South
Tacoma, WA 98402

c. Ecology's Southwest Regional Office
300 Desmond Drive
Lacey, WA 98503

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, Tacoma shall preserve all records, reports, documents, and underlying data 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, Tacoma shall make all records available to Ecology and allow access for review within a reasonable time.

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 Ecology's project coordinator's written decision or the itemized billing statement, Tacoma has thirty (30) 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. Tacoma may then request regional management review of the decision. This request shall be submitted in writing to the Southwest Region Toxics Cleanup Section Manager within fourteen (14) 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 Tacoma'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 fifteen (15) 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:

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 Tacoma 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 Tacoma 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 Tacoma;

b. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, 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 Tacoma.

3. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give Tacoma written notification of any extensions granted pursuant to this 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; or

c. 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 Tacoma. Tacoma 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 this 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 Tacoma to cease such activities for such period of time as it deems necessary to abate the danger. Tacoma shall immediately comply with such direction.

In the event Tacoma 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, Tacoma may cease such activities. Tacoma 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 Tacoma shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with Tacoma's cessation of activities, it may direct Tacoma to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to Section VIII. M (Endangerment), Tacoma'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 of Ecology's rights or authority. Ecology will not, however, bring an action against Tacoma to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against Tacoma regarding remedial actions required by this Order, provided Tacoma 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. Tacoma expressly reserves all rights provided by law. Nothing in this Order shall be construed as an admission of liability or fact, or a waiver of any rights on the part of Tacoma provided by law.

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 Tacoma 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 Tacoma's transfer of any interest in all or any portion of the Site, and during the effective period of this Order, Tacoma 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, Tacoma shall notify Ecology of said transfer. Upon transfer of any interest, Tacoma shall restrict uses and activities to those consistent with this Order and notify all transferees of the restrictions on the use of the property.

P. Compliance with Applicable Laws

1. All actions carried out by Tacoma 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), Tacoma is exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals. However, Tacoma shall comply with the substantive requirements of such permits or approvals. The exempt permits or 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 D.

Tacoma 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 Tacoma 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 Tacoma shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, Tacoma 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 Tacoma and on how Tacoma must meet those requirements. Ecology shall inform Tacoma in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. Unless the parties agree in writing, Tacoma 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 Tacoma 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. Land Use Restrictions

Unless all soil and groundwater are cleaned up to levels that are below MTCA Method A or B standards, Tacoma shall record an Environmental Covenant (Exhibit E) on the property it owns with the office of the Pierce County Auditor within forty-five (45) days after receiving Ecology's written notice that the remedial actions required under this Order have been completed. The Environmental Covenant shall prohibit activities on the Site that may interfere

with the integrity of a remedial action conducted at the Site, or that may result in exposure to, or migration of hazardous substances at the Site. In the event Tacoma conducts remedial actions under this Order on properties it does not own, then Tacoma will, if requested by Ecology, make reasonable efforts to obtain the property owner's consent to record a Environmental Covenant on such property. Tacoma shall provide Ecology with a copy of the recorded Environmental Covenant(s) within thirty (30) days of the recording date.

R. Financial Assurances

Pursuant to WAC 173-340-440(11), Tacoma shall maintain sufficient and adequate financial assurance mechanisms to cover all costs associated with the operation and maintenance of the remedial action at the Site, including institutional controls, compliance monitoring, and corrective measures.

Within sixty (60) days of the effective date of this Order, Tacoma shall submit to Ecology for review and approval an estimate of the costs that it will incur in carrying out the terms of this Order, including operation and maintenance, and compliance monitoring. Within sixty (60) days after Ecology approves the aforementioned cost estimate, Tacoma shall provide proof of financial assurance sufficient to cover all such costs in a form acceptable to Ecology. The form of the financial assurance mechanism shall be in accordance with WAC 173-340-440(11)(a).

Tacoma shall adjust its financial assurance coverage and provide Ecology's project coordinator with documentation of the updated financial assurance for:

1. Inflation, annually, within thirty (30) days of the anniversary date of the entry of this Order; or if applicable, the modified anniversary date established in accordance with this Section, or if applicable, ninety (90) days after the close of Tacoma's fiscal year if the financial test or corporate guarantee is used, and

2. Changes in cost estimates, within thirty (30) days of issuance of Ecology's approval of a modification or revision to the cleanup action plan (CAP) that result in increases to the cost or expected duration of remedial actions. Any adjustments for inflation since the most recent preceding anniversary date shall be made concurrent with adjustments for changes in cost

estimates. The issuance of Ecology's approval of a revised or modified CAP will revise the anniversary date established under this Section to become the date of issuance of such revised or modified CAP.

S. Periodic Review

As remedial action, including groundwater monitoring, continues at the Site, the Parties agree to review the progress of remedial action at the Site, and to review the data accumulated as a result of monitoring the Site as often as is necessary and appropriate under the circumstances. At least every five (5) years after the initiation of cleanup action at the Site the Parties shall meet to discuss the status of the Site and the need, if any, for further remedial action at the Site. At least ninety (90) days prior to each periodic review, Tacoma shall submit a report to Ecology that documents whether human health and the environment are being protected based on the factors set forth in WAC 173-340-420(4). Ecology reserves the right to require further remedial action at the Site under appropriate circumstances. This provision shall remain in effect for the duration of this Order.

T. Indemnification

Tacoma 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 Tacoma, its officers, employees, agents, or contractors in entering into and implementing this Order. However, Tacoma 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 this Order.

VIII. SATISFACTION OF ORDER

The provisions of this Order shall be deemed satisfied upon Tacoma's receipt of written notification from Ecology that Tacoma has completed the remedial activity required by this

Order, as amended by any modifications, and that Tacoma has complied with all other provisions of this Agreed Order.

IX. 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 Tacoma refuses, without sufficient cause, to comply with any term of this Order, Tacoma will be liable for:

a. 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

b. 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: March 30, 2009

CITY OF TACOMA

Eric Anderson
City Manager
747 Market Street
Telephone: 253.591.5130

**STATE OF WASHINGTON,
DEPARTMENT OF ECOLOGY**

Rebecca S. Lawson, P.E.
Section Manager
Toxics Cleanup Program
Southwest Regional Office
Telephone: 360.407.6241

Richard McKinley
Director, Public Works Department

Approved Only As To Form:
CITY OF TACOMA

Doug Mosich
Assistant City Attorney
747 Market Street
253.591.5626

EXHIBIT A
SITE DIAGRAM

SITE MAP

Sauro's Cleanerama, 1401 S. Pacific Avenue, Tacoma

EXHIBIT B
LEGAL DESCRIPTION

Parcel 2014030010 (1401 Pacific Ave.): Section 04 Township 20 Range 03 Quarter 33 : NEW TACOMA L 1 THRU 3 B 1403.

Parcel 2014030020 (1407 Pacific Ave.): Section 04 Township 20 Range 03 Quarter 33 : NEW TACOMA L 4 B 1403.

Parcel 2014030030 (1409 Pacific Ave.): Section 04 Township 20 Range 03 Quarter 32 : NEW TACOMA L 5 B 1403.

EXHIBIT C
PUBLIC PARTICIPATION PLAN

PUBLIC PARTICIPATION PLAN

Sauro's Cleanerama

1401, 1407 and 1409 Pacific Avenue
Tacoma, WASHINGTON

Prepared by
Washington State Department of Ecology
Southwest Regional Office
Toxics Cleanup Program
300 Desmond Drive
Olympia, Washington 98504-7775

September 2008

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INTRODUCTION

The Washington State Department of Ecology (Ecology) has developed this public participation plan in cooperation with the potentially liable party (PLP), the City of Tacoma, to promote meaningful community involvement during the investigation and cleanup of the Sauro's Cleanerama site. Public involvement is a requirement of the Model Toxics Control Act (MTCA), and an important part of the cleanup process. This plan outlines and describes the tools that Ecology uses to inform the public about site activities and identifies opportunities for the community to become involved.

Ecology and the City of Tacoma have signed a legal agreement called an Agreed Order that describes their working relationship, outlines the scope of work and sets a schedule for choosing a cleanup remedy. The agreed order requires that the PLP completes a remedial investigation (RI) to determine the nature and extent of contamination in this area. It also requires that a feasibility study (FS) be completed to evaluate cleanup alternatives. Additionally, it requires that the PLP then develop a draft Cleanup Action Plan.

More information about the cleanup process and planned public comment periods is provided on page 6.

SITE LOCATION AND SITE BACKGROUND

The Sauro's Cleanerama site is located at 1401 Pacific Avenue in downtown Tacoma (see map on page 5). It includes three vacant lots—1401, 1407, and 1409 Pacific Avenue.

1401 Pacific Avenue - The lot at 1401 Pacific Avenue was first developed during the 1880s. The first structures were boarding houses and a hay and grain store. The site was then a bus terminal from the 1920s until 1957. In 1961, Sauro's Cleanerama began a dry cleaning operation. The building was demolished after they went out of business in 2000.

1407 Pacific Avenue - A hotel and laundry occupied the lot at 1407 Pacific Avenue from the late 1800s until 1971. Sauro's Cleanerama used the vacant hotel building for storage in the 1990s.

1409 Pacific Avenue - The lot at 1409 Pacific Avenue hosted several businesses, from a farm implement and seed store, to a tailor and clothes cleaner.

The entire site has been vacant since 2000.

Several studies, done between 1991 and 2008, show that the site has polluted soil and groundwater. The pollutants that exceed state Model Toxics Control Act (MTCA) cleanup standards are halogenated volatile organic compounds (HVOCs).

These chemicals all pose a threat to human health and the environment. E cology and the Estate of Pete Sauro, and the City of Tacoma have studied the site to determine where these pollutants are and how much pollution exists. This information will help Ecology plan the cleanup.

Additional study will be conducted to look at how to avoid recontamination after the cleanup work is done.

SITE MAP

Sauro's Cleanerama, 1401 Pacific Avenue, Tacoma

SITE CLEANUP PROCESS

Toxic sites are cleaned up in stages, described below. Each stage has a related report or plan that the public is welcome to review and comment on.

Remedial Investigation & Feasibility Study (RI/FS)
The RI/FS looks at the extent and type of pollution on the site. It is used to evaluate possible human health and environmental impacts, and to find cleanup alternatives.

Interim Actions
Ecology may sometimes take "interim actions" to partially clean up a site before the final cleanup plan is complete. *If Ecology decides to do interim cleanup, those plans would be made available for public comment.*

Cleanup Action Plan (CAP)
The CAP describes the cleanup methods and how they will meet Ecology's cleanup standards. *The RI/FS report and a draft CAP for this site will be available for public comment.*

Cleanup
Toxic substances are removed from the site, contained on the site, or treated to make them less toxic. Ecology will make sure that the CAP has been followed and can require that the site be monitored. *Any major changes to the CAP require a public notice before they can be finalized.*

Delisting
Ecology keeps track of toxic cleanup sites on the Hazardous Sites List (HSL). Once the cleanup is complete, the public will have a chance to comment before the site is taken off the HSL.

More information about toxic cleanups is available at
http://www.ecy.wa.gov/programs/tcp/cu_support/cu_process__steps_defns.htm.

PUBLIC PARTICIPATION ACTIVITIES AND RESPONSIBILITIES

The purpose of this Public Participation Plan is to promote public understanding and participation in the cleanup of this site. This section of the plan addresses how Ecology will share information and receive public comments and community input on the site activities.

Public Involvement Activities

Ecology uses several activities to increase public participation in the investigation and cleanup of MTCA sites—public comment periods, public meetings or hearings, and communications such as fact sheets and public notices. The following sections describe the public involvement activities that Ecology will use for the Sauro's Cleanerama site cleanup.

Formal Public Comment Periods

Comment periods are the primary method Ecology uses to get feedback from the public on proposed cleanup decisions. Comment periods usually last 30 days and are required at key points during the investigation and cleanup process before final decisions are made.

During a comment period, the public can comment in writing. Verbal comments are taken if a public hearing is held. After formal comment periods, Ecology reviews all comments received and may respond in a document called a Responsiveness Summary.

Ecology will consider the need for changes or revisions based on input from the public. If significant changes are made, then a second comment period may be held. If no significant changes are made, then the draft document(s) will be finalized.

Additional public comment periods will be held for draft remedial investigation/feasibility studies, for any draft cleanup action plans that are developed for the site, and for any future legal agreements regarding this site.

Public Meetings and Hearings

Public meetings may be held at key points during the investigation and cleanup process. Ecology also may offer public meetings for actions expected to be of particular interest to the community, or when 10 or more members of the public request one. These meetings will be held at locations convenient to the community.

Information Repositories

Information repositories are places where the public may read and review site information, including documents that are the subject of public comment.

Ecology has established four repositories for the Sauro's Cleanerama cleanup project.

- Tacoma Public Library – 1102 Tacoma Avenue, Tacoma, WA 98402, (253) 591-5666.
- Citizens for a Healthy Bay – 917 Pacific Ave. Suite 100, Tacoma 98402, (253) 383-2429.
- Washington State Department of Ecology, 300 Desmond Drive, Lacey, WA 98516. Please call (360) 407-6045 for an appointment.

Some site information also will be posted on Ecology's web site at http://www.ecy.wa.gov/programs/tcp/sauros/sauros_hp.htm.

Site Register

Ecology's Toxics Cleanup Program uses its bimonthly *Site Register* to announce all of its public meetings and comment periods, as well as many other activities. To receive the *Site Register* in electronic or hard copy format, contact Linda Thompson at (360) 407-6069 or by e-mail at Ltho461@ecy.wa.gov. It is also available on Ecology's web site at http://www.ecy.wa.gov/programs/tcp/pub_inv/pub_inv2.html

Mailing List

Ecology has created a mailing list for the site. The list includes individuals, groups, public agencies, elected officials, private businesses, potentially affected parties, and other known interested parties. Residents and property owners living within a half mile of the site boundaries were included. The list will be maintained at Ecology's Southwest Regional Office and will be updated as needed.

Please contact Hannah Aoyagi at (360) 407-6790 or by e-mail at haoy461@ecy.wa.gov if you would like to be involved or have your address added to or deleted from this mailing list.

Fact Sheets

Ecology will mail fact sheets to persons and organizations interested in the Sauro's Cleanerama cleanup project to inform them of public meetings and comment opportunities and important site activities. Ecology also may mail fact sheets about the progress of site activities.

Newspaper Display Ads

Ecology will place ads in the Tacoma News Tribune to announce public comment periods and public meetings or hearings for the site.

Plan Update

This public participation plan may be updated as the project moves forward. If an update is necessary, the revised plan will be submitted to the public for comment.

Points of Contact

If you have questions or need more information about this plan or the Sauro's Cleanerama cleanup project, please contact:

Marv Coleman, Site Manager
Washington State Department of Ecology
SWRO Toxics Cleanup Program
P.O. Box 47775
Olympia, WA 98504-7775
Phone: (360) 407-6259
Email: mcol461@ecy.wa.gov

Hannah Aoyagi, Public Involvement Coordinator
Washington State Department of Ecology
SWRO Toxics Cleanup Program
P.O. Box 47775
Olympia, WA 98504-7775
Lacey, WA 98503
Tel: (360) 407-6790
Email: haoy461@ecy.wa.gov

GLOSSARY

Agreed Order: A legal agreement between Ecology and a potentially liable person to conduct work toward a cleanup.

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 period during which the public can review and comment on various documents and proposed actions. For example, a comment period may be provided to allow community members to review and comment on proposed cleanup action alternatives and proposed plans.

Contaminant: Any hazardous substance that does not occur naturally or occurs at greater than natural background levels

Feasibility Study: This study develops and evaluates cleanup options for a given site.

Groundwater: Water found beneath the earth's surface that fills pores between materials such as sand, soil, or gravel. In some aquifers, ground water 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 are administered by the Washington State Department of Ecology.

Potentially Liable Person: 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.

Public Notice: At a minimum, 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 proposed 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: This study characterizes the site and defines the extent of contamination.

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 probability that a hazardous substance, when released into the environment, will cause an adverse effect in the exposed humans or living organisms.

Sediments: Settled particles located at the bottom of a lake, river or in wetlands. Sediment(s) also includes settled particulate matter exposed by human activity (e.g., dredging) to the biologically active aquatic zone or to the water column.

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.

EXHIBIT D
APPLICABLE PERMITS AND SUBSTANTIVE REQUIREMENTS

- Chapter 70.105D RCW (Model Toxics Control Act), and Chapter 173-340 WAC (MTCA Regulations);
- Chapter 70.105 RCW (Washington State Hazardous Waste Management Act), and Chapter173-303 WAC (State Dangerous Waste Regulations);
- Chapter 90.48 RCW (State Water Pollution Control Act);
- Chapter 70.95 RCW (Solid Waste Management – Reduction and Recycling);
- Chapter 70.94 RCW (Washington Clean Air Act);
- Chapter 173-160 RCW (Minimum Standards for Construction and Maintenance of Wells);
- Chapter 43.21C RCW (State Environmental Policy Act), and Chapter 197-11 WAC (State Environmental Policy Act Rules);
- Washington Industrial Safety and Health Act (WISHA);
- Puget Sound Air Pollution Control Agency (Regulation I and III);
- City of Tacoma Municipal Code – Chapter 70 (Uniform Building Code – Excavation and Grading);
- City of Tacoma Municipal Code – Chapter 12.08 City Code (Provisions for Acceptance for Discharges to Sewer System); and
- Tacoma Pierce County Health Department (Waste Disposal Authorization).

EXHIBIT E

Model Restrictive (Environmental) Covenant

After Recording Return to:

Department of Ecology
[fill in regional address]

Environmental Covenant

Grantor: [land owner]
Grantee: State of Washington, Department of Ecology
Legal: [fill in brief legal description]
Tax Parcel Nos.: [fill in]
Cross Reference: [if amendment, recording number of original covenant]

Grantor, **[land owner]**, hereby binds Grantor, its successors and assigns to the land use restrictions identified herein and grants such other rights under this environmental covenant (hereafter "Covenant") made this day of _____, 200__ in favor of the State of Washington Department of Ecology (Ecology). Ecology shall have full right of enforcement of the rights conveyed under this Covenant pursuant to the Model Toxics Control Act, RCW 70.105D.030(1)(g), and the Uniform Environmental Covenants Act, 2007 Wash. Laws ch. 104, sec. 12.

This Declaration of Covenant is made pursuant to RCW 70.105D.030(1)(f) and (g) and WAC 173-340-440 by [NAME OF PROPERTY OWNER], its successors and assigns, and the State of Washington Department of Ecology, its successors and assigns (hereafter "Ecology").

A remedial action (hereafter "Remedial Action") occurred at the property that is the subject of this Covenant. The Remedial Action conducted at the property is described in the following document[s]:

[INSERT THE DATE AND TITLE FOR CLEANUP ACTION PLAN and other documents as applicable].

These documents are on file at Ecology's [Insert Office Location] Office.

+++++++Select the appropriate scenario for the property+++++++

SCENARIO 1:

This Covenant is required because the Remedial Action resulted in residual concentrations of [SPECIFICALLY LIST SUBSTANCE(S)] which exceed the Model Toxics Control Act Method [LIST APPLICABLE METHOD] Cleanup Level(s) for [SOIL, GROUNDWATER, ETC.] established under WAC 173-340-____.

++++and/or++++

SCENARIO 2:

This Restrictive Covenant is required because a conditional point of compliance has been established for [SOIL, GROUNDWATER, ETC.].

SCENARIO 3:

If the Remedial Action does not fit within Scenarios 1 and/or 2 and you believe that the property still needs a Restrictive Covenant, contact the AG's office.

++

The undersigned, [NAME OF PROPERTY OWNER], is the fee owner of real property (hereafter "Property") in the County of [NAME OF COUNTY], State of Washington, that is subject to this Covenant. The Property is legally described [AS FOLLOWS: (insert legal description language)] -or- [IN ATTACHMENT A OF THIS COVENANT AND MADE A PART HEREOF BY REFERENCE (attach document containing legal description)].

[NAME OF PROPERTY OWNER] makes the following declaration as to limitations, restrictions, and uses to which the Property may be put and specifies that such declarations shall constitute covenants to run with the land, as provided by law and shall be binding on all parties and all persons claiming under them, including all current and future owners of any portion of or interest in the Property (hereafter "Owner").

Section 1. (This Section must describe with particularity the restrictions to be placed on the property.)

1. If the property was remediated to industrial soil cleanup standards, then use the following sentence: "The Property shall be used only for traditional industrial uses, as described in RCW 70.105D.020(23) and defined in and allowed under the [CITY -or- COUNTY] of [_____'s] zoning regulations codified in the [OFFICIAL NAME OF ZONING REGULATION] as of the date of this Restrictive Covenant."

2. If the groundwater contains hazardous substances above cleanup levels, then use the following sentence: "No groundwater may be taken for [LIST THE PROHIBITED USES, E.G., DOMESTIC, AGRICULTURAL, OR ANY USE] from the Property."

3. If the soil contains hazardous substances above cleanup levels, then describe prohibited activities as follows:

a. For contaminated soil under a structure use the following sentence: "A portion of the Property contains [SPECIFICALLY LIST SUBSTANCE(S)] contaminated soil located [SPECIFICALLY DESCRIBE WHERE THE SOIL IS LOCATED, I.E., UNDER THE SOUTHEAST PORTION OF BUILDING 10]. The Owner shall not alter, modify, or remove the existing structure[s] in any manner that may result in the release or exposure to the environment of that contaminated soil or create a new exposure pathway without prior written approval from Ecology."

b. Example language for contaminated soil under a cap: "Any activity on the Property that may result in the release or exposure to the environment of the contaminated soil that was contained as part of the Remedial Action, or create a new exposure pathway, is prohibited. Some examples of activities that are prohibited in the capped areas include: drilling, digging, placement of any objects or use of any equipment which deforms or stresses the surface beyond its load bearing capability, piercing the surface with a rod, spike or similar item, bulldozing or earthwork."

Section 2. Any activity on the Property that may interfere with the integrity of the Remedial Action and continued protection of human health and the environment is prohibited.

Section 3. Any activity on the Property that may result in the release or exposure to the environment of a hazardous substance that remains on the Property as part of the Remedial Action, or create a new exposure pathway, is prohibited without prior written approval from Ecology.

Section 4. The Owner of the property must give thirty (30) day advance written notice to Ecology of the Owner's intent to convey any interest in the Property. No conveyance of title, easement, lease, or other interest in the Property shall be consummated by the Owner without adequate and complete provision for continued monitoring, operation, and maintenance of the Remedial Action.

Section 5. The Owner must restrict leases to uses and activities consistent with the Covenant and notify all lessees of the restrictions on the use of the Property.

Section 6. The Owner must notify and obtain approval from Ecology prior to any use of the Property that is inconsistent with the terms of this Covenant. Ecology may approve any inconsistent use only after public notice and comment.

Section 7. The Owner shall allow authorized representatives of Ecology the right to enter the Property at reasonable times for the purpose of evaluating the Remedial Action; to take samples, to inspect remedial actions conducted at the property, to determine compliance with this Covenant, and to inspect records that are related to the Remedial Action.

Section 8. The Owner of the Property reserves the right under WAC 173-340-440 to record an instrument that provides that this Covenant shall no longer limit use of the Property or be of any further force or effect. However, such an instrument may be recorded only if Ecology, after public notice and opportunity for comment, concurs.

[NAME OF GRANTOR]

_____

[Name of Signatory]
[Title]

Dated: _____

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

_____

[Name of Person Acknowledging Receipt]
[Title]

Dated: _____

[INDIVIDUAL ACKNOWLEDGMENT]

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, and acknowledged that **he/she** is the individual described herein and who executed the within and foregoing instrument and signed the same at **his/her** free and voluntary act and deed for the uses and purposes therein mentioned.

_____
Notary Public in and for the State of
Washington, residing at _____.
My appointment expires_____.

[CORPORATE ACKNOWLEDGMENT]

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** is the _____ of the corporation that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that **he/she** was authorized to execute said instrument for said corporation.

_____
Notary Public in and for the State of
Washington, residing at _____.
My appointment expires_____.

[REPRESENTATIVE ACKNOWLEDGEMENT]

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, acknowledged that **he/she** signed this instrument, on oath stated that **he/she** was authorized to execute this instrument, and acknowledged it as the _____ [type of authority] of _____ [name of party being represented] to be the free and voluntary act and deed of such party for the uses and purposes mentioned in the instrument.

_____
Notary Public in and for the State of
Washington, residing at _____.
My appointment expires _____.

APPENDIX B

Investigation Timeline and Reference Documents

TABLE B-1
TIMELINE OF RELEVANT INVESTIGATIONS, ECOLOGY ACTIONS, AND PROPERTY TRANSACTIONS
SAURO'S PROPERTY RI/FS
TACOMA, WASHINGTON

Year	Consulting Firm or Other	Client	Properties	Investigation Summary	Reference
1991	Kennedy/Jenks Consultants	Law firm: Gordon, Thomas, Honeywell, Malanca, Peterson, and Daheim	1401 & 1407 Pacific Avenue	Conducted a "Preliminary Environmental Assessment". Included review of historical info, a walkthrough to locate any underground storage tanks (USTs) or other potential concerns, and to collect a limited number of surface soil and debris samples (six total; analyzed for total metals).	Kennedy Jenks Consultants 1992
1993	Langseth Environmental Services, Inc.	H R & H Properties	1412 A Street and/or 110 S 14th Street	Removed two 2,000 gallon UST tanks (one gasoline, one diesel); confirmation soil sampling in excavation area.	Langseth Environmental Services 1993
1999	Sauro's business operation terminates (operated from 1960s to 1999)				
1999	Artifacts Consulting, Inc.	Property owner Pete Sauro	1409 Pacific Avenue	Conducted Phase I environmental site assessment (ESA).	Artifacts Consulting 1999
2000	Site release reported to Ecology				
2000	Saltbush Environmental Services, Inc.	Property owner Pete Sauro, Sauro's Cleanerama	1409 Pacific Avenue	Conducted Phase II ESA. Collected soil samples from four exploratory test pits and analyzed samples for metals and volatile organic compounds (VOCs).	Saltbush Environmental Services 2000
2000	GeoEngineers, Inc	Property owner Pete Sauro	1401 Pacific Avenue	Subsurface environmental assessment. Included locating a UST (located north of the sump, beneath 14th Street), plating tanks, and other potential contaminant sources. Collected soil [up to 25 feet (ft) below ground surface (BGS)] and groundwater borehole samples at six locations using a truck-mounted probe. Silt samples also collected from sump in basement of the 1401 Pacific Ave building. Analyzed samples for metals, petroleum hydrocarbons, and/or VOCs.	GeoEngineers 2000
2001	Ecology receives/approves VCP Application; buildings at 1401 and 1407 Pacific Avenue were demolished.				
2001	Environmental Associates, Inc.	Herb Cutler, Intervest Mortgage Investment Company	1423 Pacific Avenue	Phase I ESA and subsequent supplemental site exploration conducted involving sampling of soil and groundwater at two explorations using a strataprobe. Groundwater samples analyzed for VOCs, petroleum hydrocarbons, and mercury; soil samples analyzed for VOCs.	Environmental Associates 2001
2001	GeoEngineers, Inc	Property owner Pete Sauro	1401 Pacific Avenue	Additional subsurface environmental assessment. Seven additional borings (sampled soil for VOCs, petroleum hydrocarbons, and/or metals). Installed groundwater monitoring wells at five of seven borings (sampled groundwater for VOCs, petroleum hydrocarbons, and metals). An interim action activity consisted of removal of the sump (a source) and excavation/disposal of 334 tons of soil (27 ft width by 33 ft length by 15 ft depth). Four soil confirmation samples collected from the north and east borders of the excavation and analyzed for VOCs.	GeoEngineers 2001
2003	GeoEngineers, Inc	Property owner Pete Sauro	1401 Pacific Avenue	Up to 11 additional borings and three monitoring wells sampled (soil and groundwater for VOCs, petroleum hydrocarbons, and/or metals). Records indicate only eight of the borings and two of the monitoring wells sampled for soil. MW-5 was abandoned and replaced by MW-5A.	GeoEngineers 2003 (portions of document provided in Farallon 2005)
2004	DaVita sued Sauro - Horizon Hil				
2004	Farallon Consulting	Betty Schindele	1401, 1407, & 1409 Pacific Avenue	Discovered two aboveground storage tanks (ASTs) and a suspected UST near the property borders; installed four wells; collected soil and groundwater samples from new wells; also collected groundwater samples from previously installed monitoring wells; analyzed for VOCs, petroleum hydrocarbons, and/or metals.	Farallon Consulting 2005
2006	Ecology terminated VCP				
2006	Robinson, Noble & Saltbush, Inc.	Horizon Partners, LLC (i.e., DaVita, or Horizon Holdings I, LLC and 1423 Pacific Partners LLC)	1401, 1407, & 1409 Pacific Avenue	Additional characterization phase to eventually achieve a "No Further Action" (NFA) under Voluntary Cleanup Program (VCP). Installed seven groundwater monitoring wells, conducted soil and groundwater sampling, and drain sample analysis. Analyzed for VOCs, petroleum hydrocarbons, and/or metals. Also collected a sample of water flowing in the DaVita drain and analyzed for VOCs.	Robinson, Noble, & Saltbush 2006
2007	Farallon Consulting	Insurance company	1401, 1407, & 1409 Pacific Avenue	Additional characterization and feasibility study pilot testing. Included 12 new borings (soil only), 4 new wells (soil and groundwater sampling), soil vapor extraction (SVE) well (soil only); analyzed for VOCs, petroleum hydrocarbons, and/or metals; tested MW-11D soil sample for total organic compounds (TOCs), frac organic compounds (OCs), soil bulk density, and effective porosity in support of future groundwater modeling efforts; SVE feasible, but better if impervious surface covered site soil.	Farallon Consulting 2008
2008	Ecology lists as hazardous site				
2008	Parametrix	Mr. John Barline, Willams Kastner	Intersection of 14th and A Streets	Conducted Phase I ESA. Known sampling consisted of five borings; soil and groundwater samples analyzed for VOCs, metals, and petroleum hydrocarbons; groundwater samples only collected from four of the borings.	Parametrix 2008
2008	Landau Associates, Inc.	City of Tacoma	1401, 1407, & 1409 Pacific Avenue	Conducted Phase I ESA.	Landau Associates 2008b
2008	Landau Associates, Inc.	City of Tacoma	Areas surrounding 1401, 1407, & 1409 Pacific Avenue	Conducted a Phase II ESA of the area surrounding the Sauro property. Drilled two soil borings and installed four wells; conducted soil and groundwater sampling ananalyzed for VOCs, petroleum hydrocarbons, and metals; evaluated tetrachloroethene (PCE) plume (looked for leading edge of); assessed potential offsite halogenated volatile organic compound (HVOC) sources; identified potential cleanup approaches (including excavation); summarized cost liability to potential purchaser based on potential cleanup approaches.	Landau Associates 2008a

TABLE B-1
TIMELINE OF RELEVANT INVESTIGATIONS, ECOLOGY ACTIONS, AND PROPERTY TRANSACTIONS
SAURO'S PROPERTY RI/FS
TACOMA, WASHINGTON

Year	Consulting Firm or Other	Client	Properties	Investigation Summary	Reference
2008	Landau Associates, Inc.	City of Tacoma	1412 A Street & 110 S 14th Street	Conducted Phase I ESA.	Landau Associates 2008c
2008	Landau Associates, Inc.	City of Tacoma	1310 & 1320 A Street	Conducted Phase I ESA.	Landau Associates 2008d
2008	Landau Associates, Inc.	City of Tacoma	NE of the Intersection of South 14th Street & Pacific Avenue	Conducted Phase I ESA.	Landau Associates 2008e
2009	City of Tacoma purchases 1401, 1407, and 1409 from Sauro Estate				
2009	Ecology and City of Tacoma enter into Agreed Order; remedial investigation begins				
2009	Landau Associates, Inc.	City of Tacoma	1401, 1407, & 1409 Pacific Avenue	Remedial investigation (RI) sampling; soil sampling and groundwater monitoring conducted to assess current VOC concentrations and monitor monitored natural attenation (MNA) parameters; further evaluate grounwater flow direction; evaluated the DaVita drainline and sampled in spring and summer.	Landau Associates 2009a,b
2009	Landau Associates, Inc.	City of Tacoma	1401, 1407, & 1409 Pacific Avenue	Surface and subsurface soil sampling to direct interim action excavation work (analyzed for VOCs, petroleum hydrocarbons, and metals); interim action excavation; vapor intrusion pathway evaluated.	Landau Associates 2009c
2010	Landau Associates, Inc.	City of Tacoma	Court A	Installed LAI-MW-5; began 1 year of quarterly sampling in April.	Landau Associates 2011
2011	Landau Associates, Inc.	City of Tacoma	1401, 1407, & 1409 Pacific Avenue	The City of Tacoma (City) had the property redeveloped as a parking structure. They followed geotechnical design recommendations from a 2010 Landau Associates design report.	Landau Associates 2010
2011	Landau Associates, Inc.	City of Tacoma		Upon evaluating 1 year of quarterly data, recommended and received Washington State Department of Ecology (Ecology) approval for 1 more year of quarterly sampling through April 2012; City sampling crew took over sampling.	Agreement between City of Tacoma and Ecology; no reference.
2012	Landau Associates, Inc.	City of Tacoma		The schedule was extended into 2013.	Landau Associates 2012a
2012	Landau Associates, Inc.	City of Tacoma	1401, 1407, & 1409 Pacific Avenue	Quarterly MNA activities began; initially only intended to cover one quarter of sampling but was extended to cover multiple quarters through fall 2013.	Landau Associates 2012b
2012	Landau Associates, Inc.	City of Tacoma		The schedule was extended into 2014.	Landau Associates 2012c
2012-2013	Landau Associates, Inc.	City of Tacoma		Quarterly groundwater monitoring (VOCs and MNA) and reporting	Landau Associates 2013a,b,d Landau Associates 2014
2013	Landau Associates, Inc.	City of Tacoma	Dock Street	Five direct-push borings conducted to verify that LAI-MW4 is adequately representative of downgradient conditions related to the PCE plume.	Landau Associates 2013c

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Saltbush Environmental Services, Inc. 2000. *Phase II Environmental Assessment (Limited Soil Sampling and Testing), The 1409 Pacific Avenue Project, Tacoma, Pierce County, Washington*. April 25.

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APPENDIX C

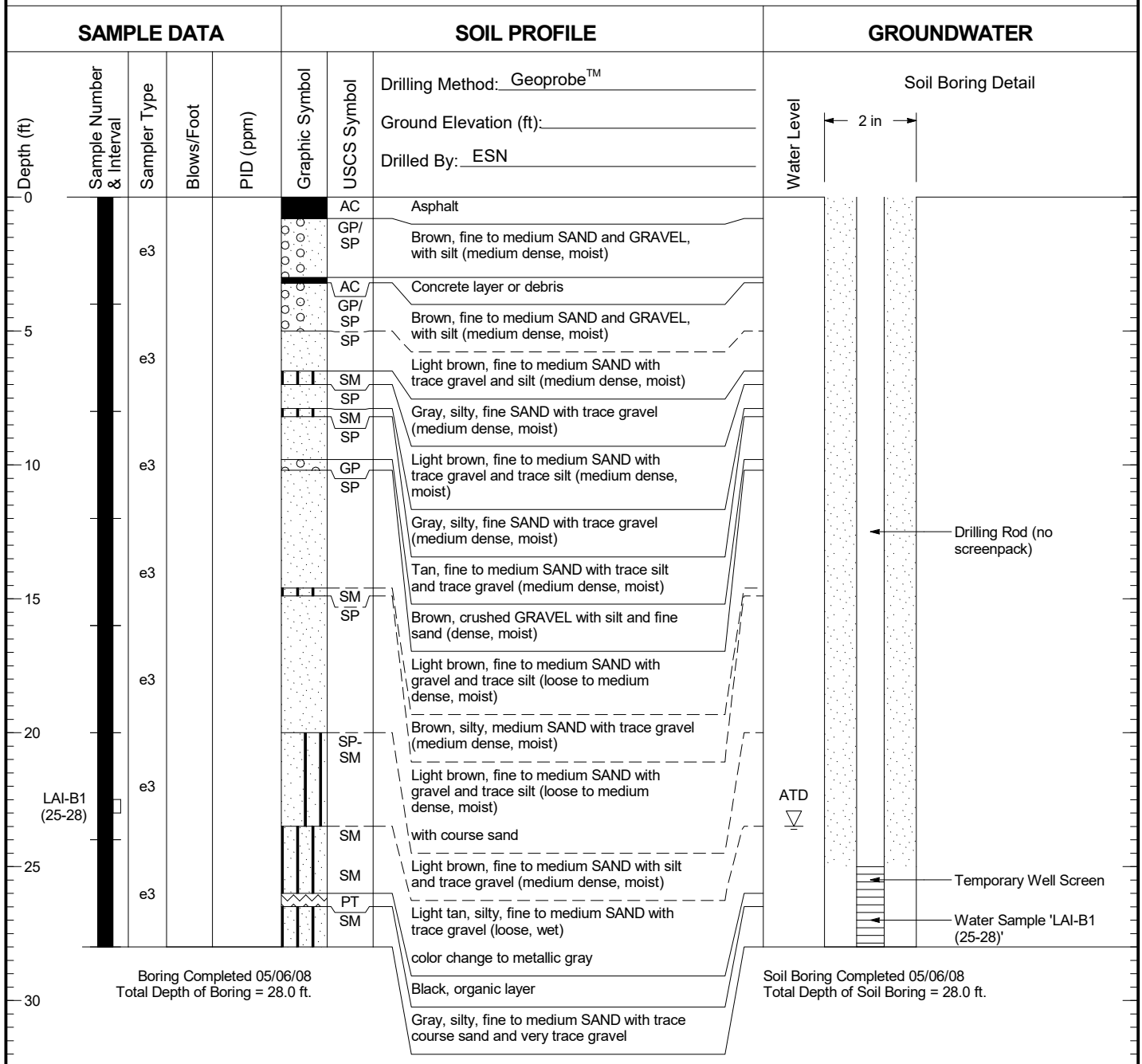
Pre-Remedial Investigation Soil Borings and Well Logs

Wells and Borings by Landau Associates

Landau Associates, Inc. Borings:
LAI-B1
LAI-B2
LAI-B3
LAI-B5

Landau Associates, Inc. Wells:
LAI-MW1
LAI-MW2
LAI-MW3
LAI-MW4

LAI-B1



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/22/14 Y:\094\044.020\T\094044.GPJ WELL LOG

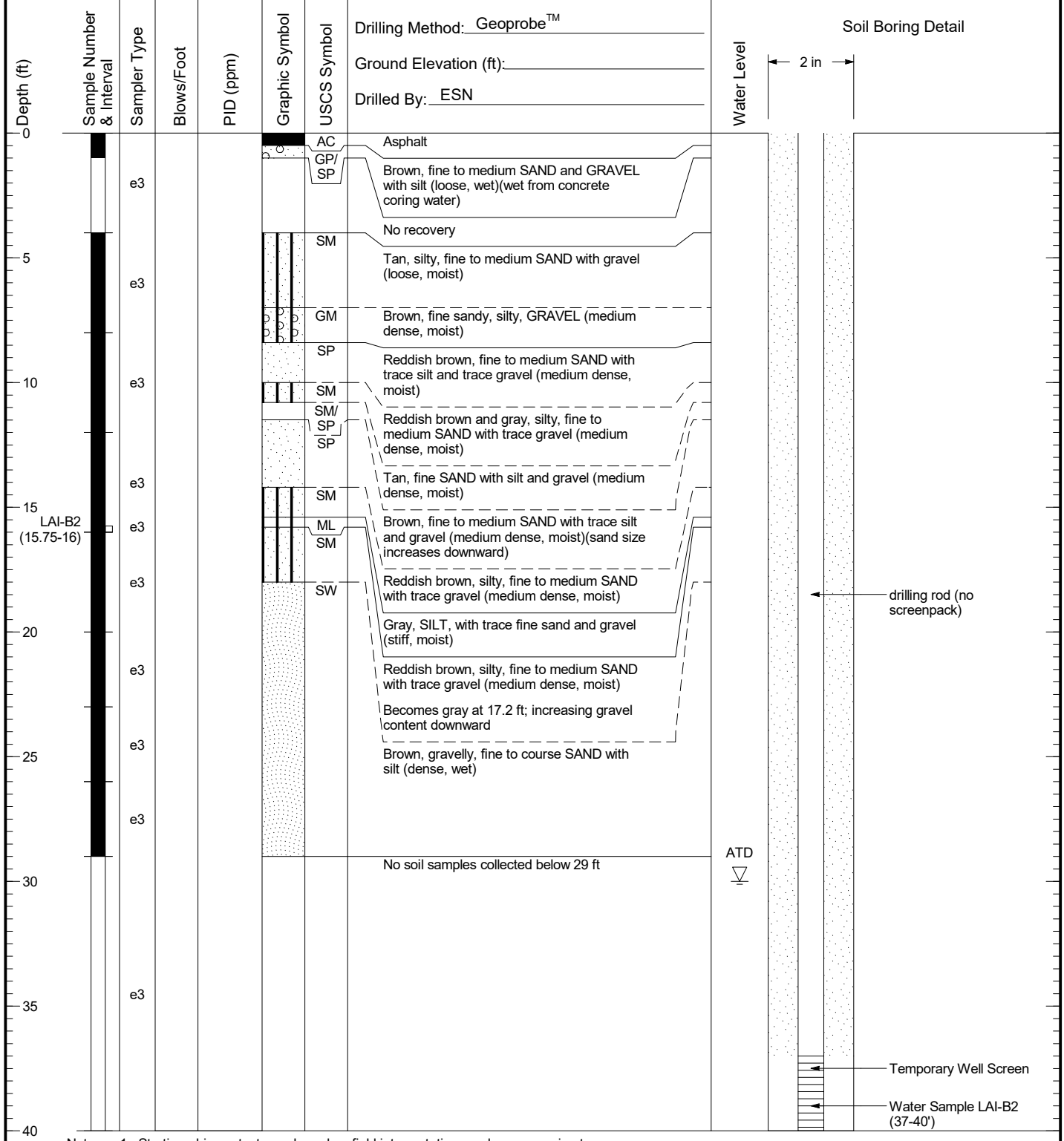
LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Soil Boring LAI-B1

Figure
C-2

LAI-B2



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3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/22/14 Y:\094\044.020\T\094044.GPJ WELL LOG

LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Soil Boring LAI-B2

Figure
C-3
(1 of 2)

LAI-B2

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: ESN	Water Level	Soil Boring Detail
40									

Boring Completed 05/06/08
Total Depth of Boring = 40.0 ft.

Soil Boring Completed 05/06/08
Total Depth of Soil Boring = 40.0 ft.

45
50
55
60
65
70
75
80

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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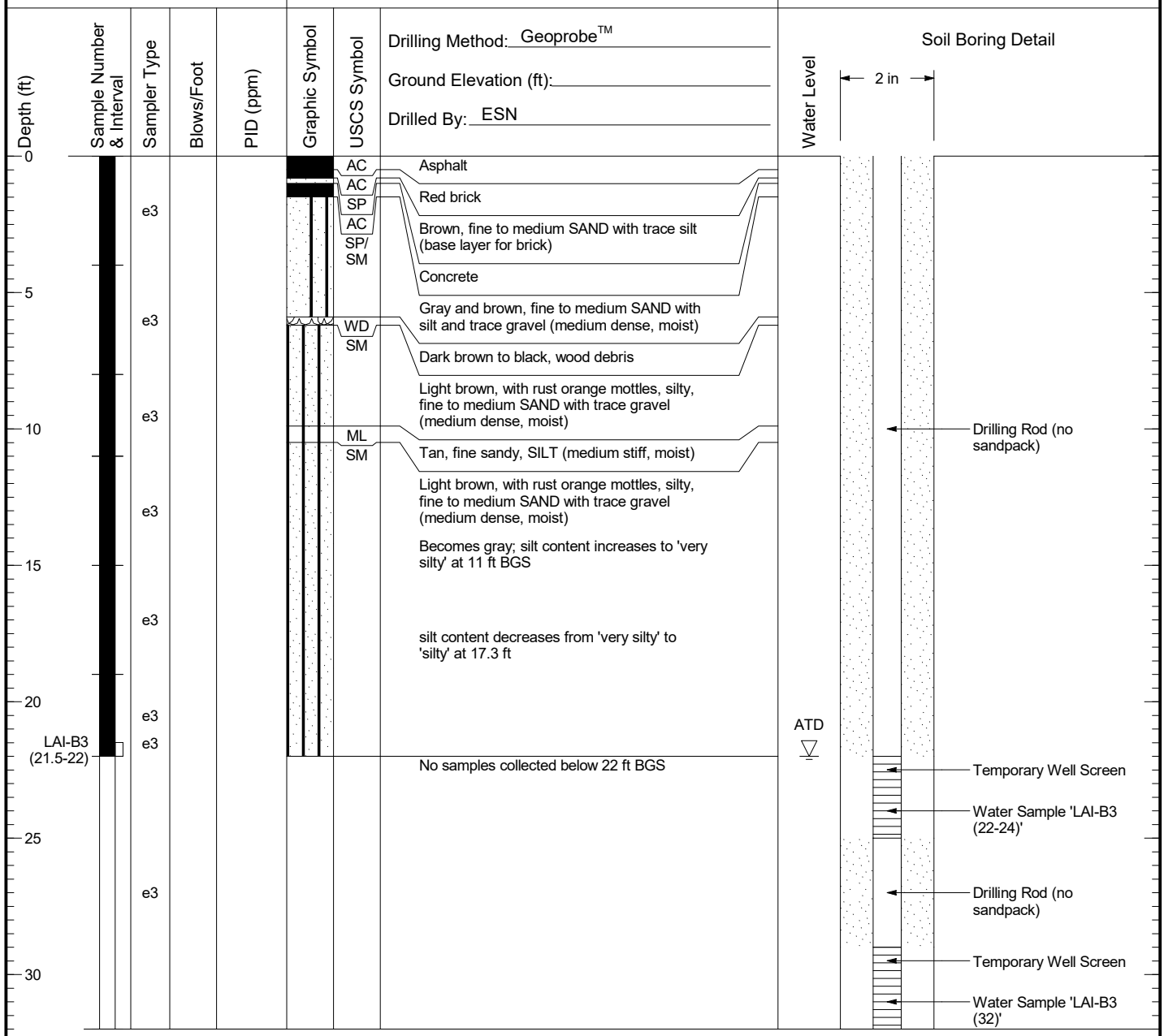
LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Soil Boring LAI-B2

Figure
C-3
(2 of 2)

LAI-B3



Boring Completed 05/06/08
Total Depth of Boring = 32.0 ft.

Soil Boring Completed 05/06/08
Total Depth of Soil Boring = 32.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/22/14 Y:\094\044.020\T\094044.GPJ WELL LOG

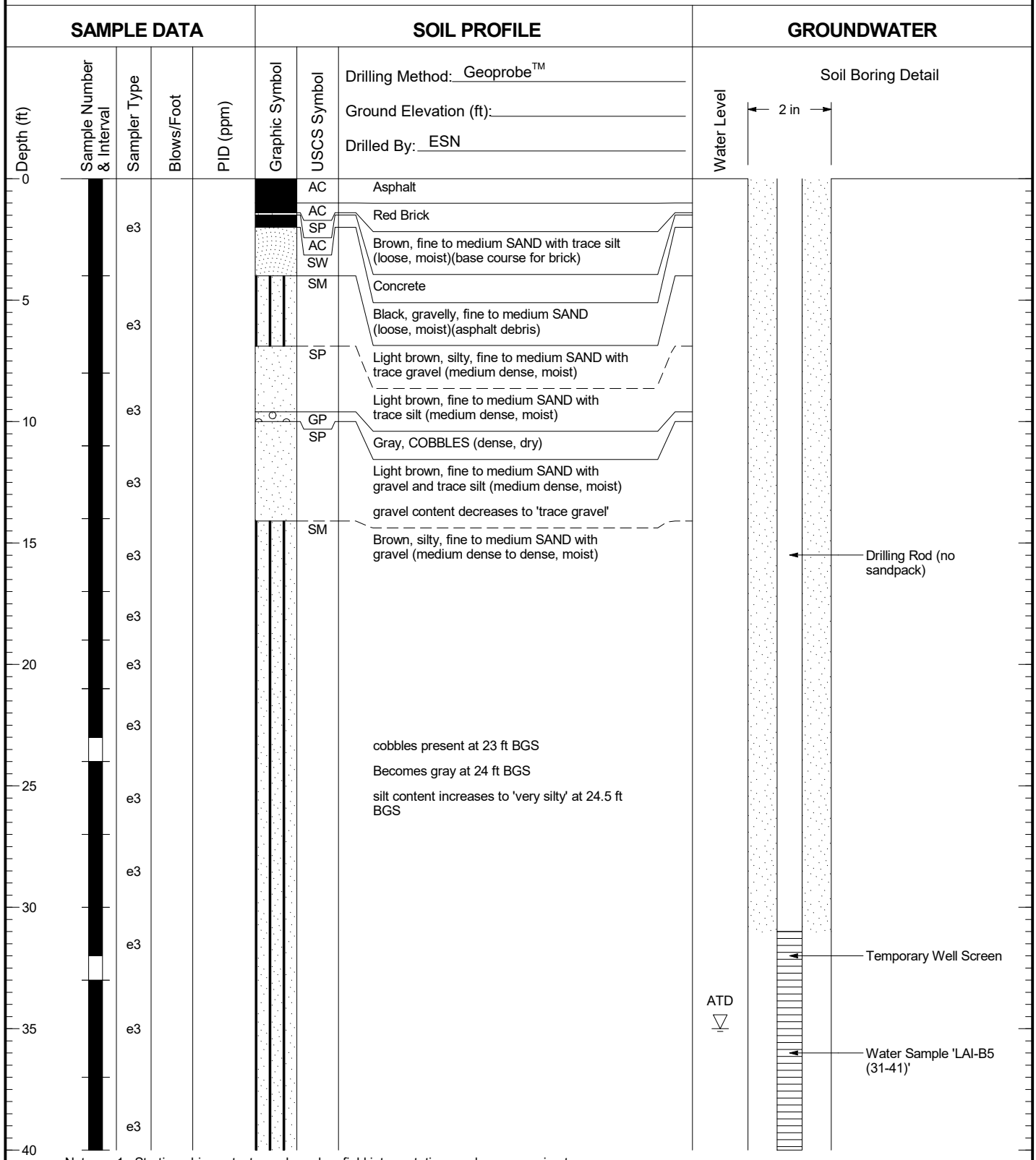
LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Soil Boring LAI-B3

Figure
C-4

LAI-B5



Notes:
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2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/22/14 Y:\094\044.020\T\094044.GPJ WELL LOG

LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Soil Boring LAI-B5

Figure
C-5
(1 of 2)

LAI-B5

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Drilled By: ESN	Water Level
40		e3				SM	Brown, silty, fine to medium SAND with gravel (medium dense to dense, moist)	Soil Boring Detail
45								
50								
55								
60								
65								
70								
75								
80								

Boring Completed 05/07/08
Total Depth of Boring = 44.0 ft.

Soil Boring Completed 05/07/08
Total Depth of Soil Boring = 41.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/22/14 Y:\0941044.020\T\094044.GPJ WELL LOG

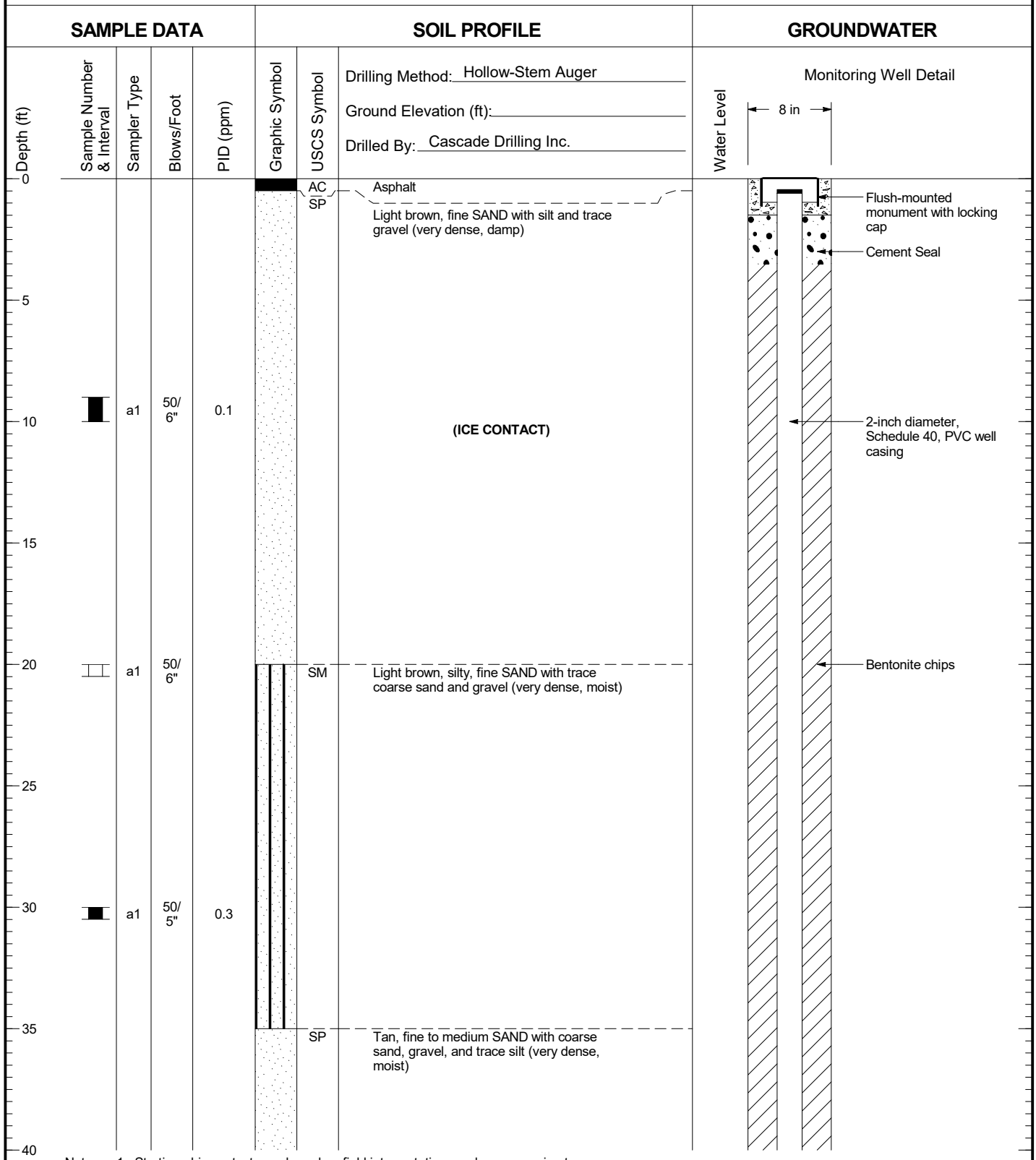
LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Soil Boring LAI-B5

Figure
C-5
(2 of 2)

LAI-MW1



Notes:
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2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/22/14 Y:\094\044.020\T\094044.GPJ WELL LOG

LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Monitoring Well LAI-MW1

Figure
C-6
(1 of 2)

LAI-MW1

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Water Level
40		a1	50/ 6"	0.0		SP	
45							ATD
50		a1	50/ 5"				
55							
60							
65							
70							
75							
80							

Drilling Method: Hollow-Stem Auger

Ground Elevation (ft):

Drilled By: Cascade Drilling Inc.

Tan, fine to medium SAND with coarse sand, gravel, and trace silt (very dense, moist)

Tan, medium to coarse SAND with gravel and trace silt (dense, wet)

very difficult drilling below 50 ft with heaving sands

Monitoring Well Detail

Bentonite chips

10/20 Colorado sand pack

2-inch diameter, Schedule 40, PVC screen (0.010-inch slot size)

Threaded end cap

Boring Completed 05/16/08
Total Depth of Boring = 68.0 ft.

Monitoring Well Completed 05/17/08
Total Depth of Monitoring Well = 68.0 ft.

Notes:
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2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/22/14 Y:\094\044.020\T\094044.GPJ WELL LOG

LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

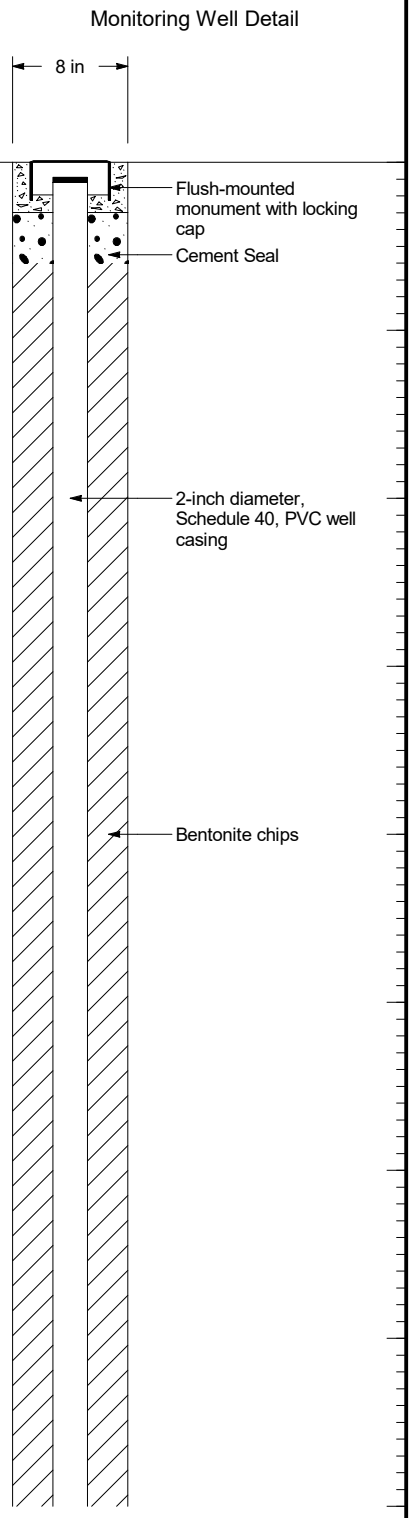
Log of Monitoring Well LAI-MW1

Figure
C-6
(2 of 2)

LAI-MW2

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Soil Profile
0						AC	Asphalt
						SP	Brown, fine to medium SAND (medium dense, moist)
							(FILL)
5		a1		0.5			
							Becomes black with trace silt at 7 ft BGS
10		a1	70/ 9"	0.0		SM	Brown, silty, fine to medium SAND with gravel (dense, damp)
							(ICE CONTACT)
							Becomes tan, moisture content increases at 12 ft BGS
15		a1	59	4.7			
							Becomes gray at 17 ft BGS
20		a1	50/ 4"	0.6			Becomes tan at 19.5 ft BGS
						SW	Brown, gravelly, fine to coarse SAND with silt (dense, moist)
25		a1	50/ 6"	0.0			**(PRE FRASER)**
30		a1	50/ 6"	0.0		SP	Light brown, fine SAND with very trace silt (medium dense, moist)
							Becomes tan with decreasing silt at 33 ft BGS
35		a1	43	0.0			
40		a1		15.4			

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft):
Drilled By: Cascade Drilling Inc.



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/27/14 Y:\094\044.020\T\094044.GPJ WELL LOG

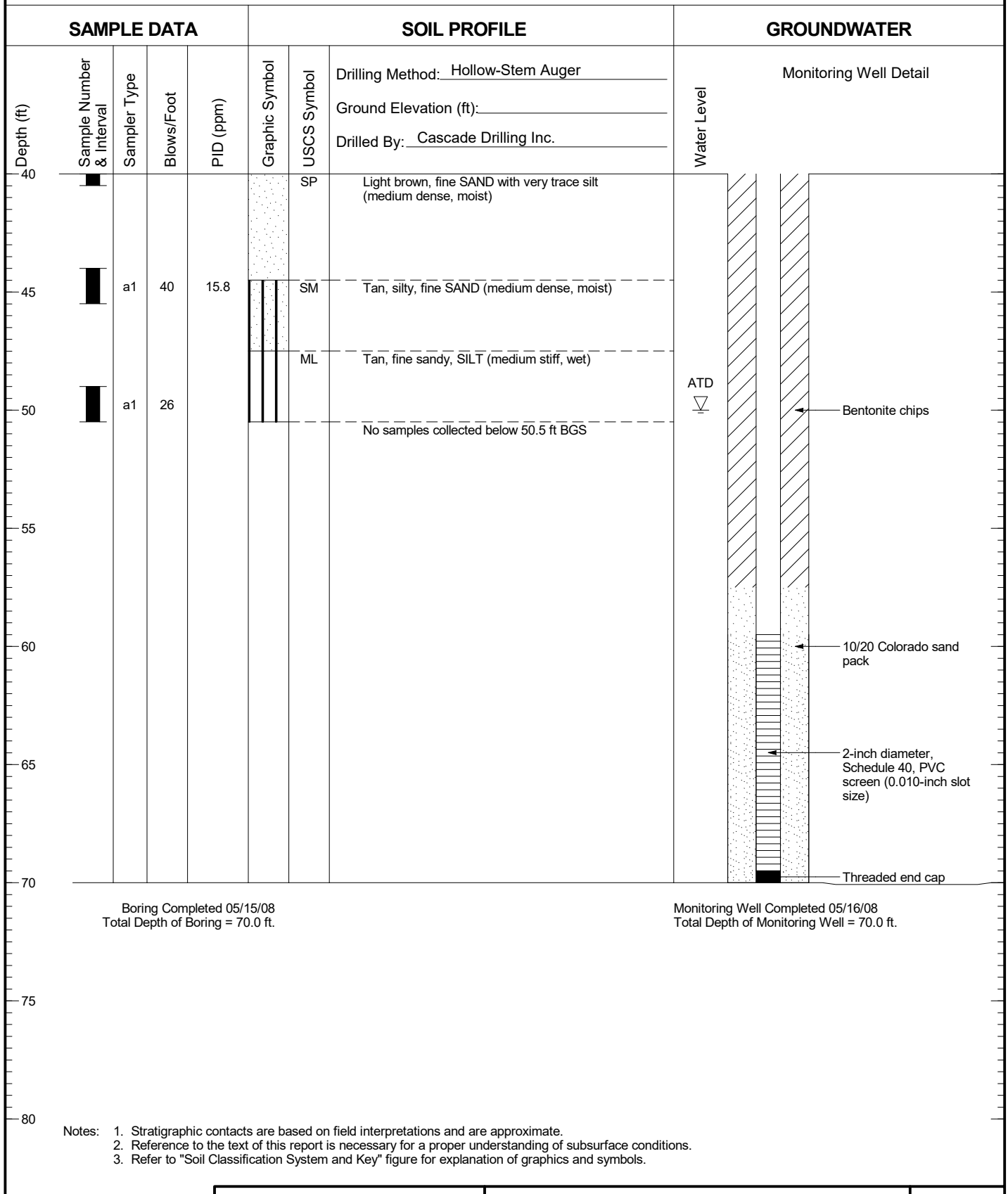
LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Monitoring Well LAI-MW2

Figure
C-7
(1 of 2)

LAI-MW2



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/27/14 Y:\094\044.020\T\094044.GPJ WELL LOG

LANDAU ASSOCIATES

Sauro's Property RI/FS Tacoma, Washington	Log of Monitoring Well LAI-MW2	Figure C-7 (2 of 2)

LAI-MW3

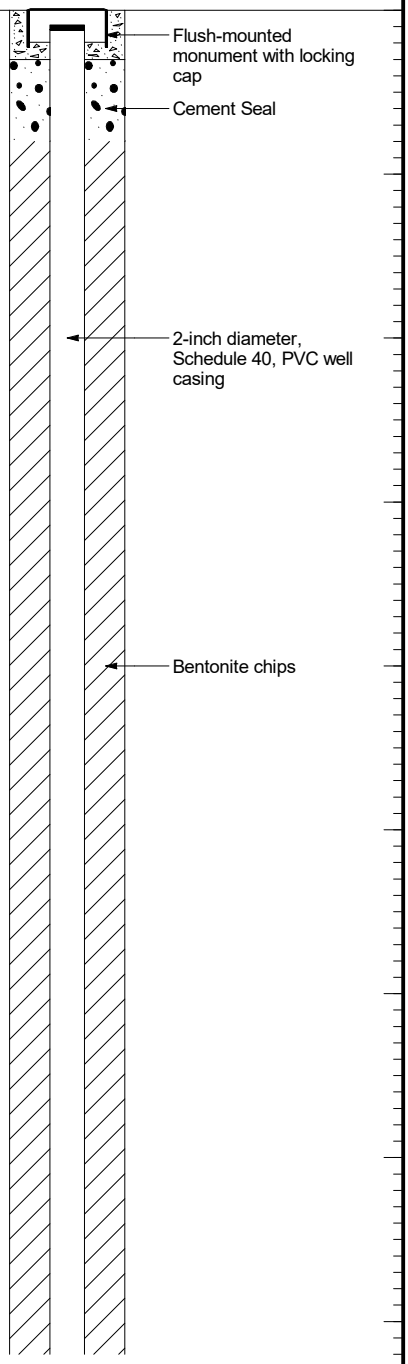
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Soil Profile
0						SM	Light brown, silty, fine SAND with grass and grass roots (medium dense, moist)
						SP	Light brown, fine SAND with silt and roots (loose, moist)
							(FILL)
5		a1	14	0.0		SM	Light brown, silty, fine to medium SAND (loose, wet) (perched water from sprinkler system)
10		a1	48	0.0		SP	Gray, silty, fine SAND with coarse sand and trace gravel (medium dense, moist)
							(ICE CONTACT)
							Silt content decreases; gravel content increases at 12.4 ft BGS
15		a1	50/ 6"	0.0			
						SM	Dark gray, silty, fine SAND with gravel (dense, moist)
20		a1	50/ 5"	0.0			
						SW	Gray, gravelly, fine SAND with coarse sand and silt (dense, moist)
25		a1	50/ 6"	0.0			
							(PRE FRASER)
						SM	Gray, silty, fine SAND with coarse sand and gravel (dense, moist)
30		a1	50/ 5"	0.3			
35		a1	50/ 2"				
						GP	GRAVEL
40		a1	56	0.0		SP/ SM	

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft):
Drilled By: Cascade Drilling Inc.

GROUNDWATER

Water Level

Monitoring Well Detail



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/27/14 Y:\094\044.020\T\094044.GPJ WELL LOG

LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Monitoring Well LAI-MW3

Figure
C-8
(1 of 2)

LAI-MW3

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Water Level

Drilling Method: Hollow-Stem Auger
Ground Elevation (ft): _____
Drilled By: Cascade Drilling Inc.

Monitoring Well Detail

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	USCS Symbol	Description
					SP	Tan, fine SAND with silt and trace gravel (medium dense, moist)
						Tan, fine SAND with trace silt (dense, moist)
45	a1		50/ 2"	0.0		
50	a1		41	25.0		Silt content increases to 'with silt' at 49 ft BGS
55	a1		50/ 6"	0.4		Silt content decreases to 'trace silt' at 54 ft BGS
					SM	Tan to gray, silty, fine to medium SAND with gravel (medium dense, moist)
60	a1		50/ 6"	2.0		
65						
					SP	Tan, fine to medium SAND with coarse sand, gravel, and trace silt (medium dense to dense, wet)
70						
75	a1		45/ 6"			
80						

ATD

Bentonite chips

10/20 Colorado sand pack

2-inch diameter, Schedule 40, PVC screen (0.010-inch slot size)

Threaded end cap

Boring Completed 05/14/08
Total Depth of Boring = 80.0 ft.

Monitoring Well Completed 05/14/08
Total Depth of Monitoring Well = 80.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/27/14 Y:\094\044.020\T\094044.GPJ WELL LOG

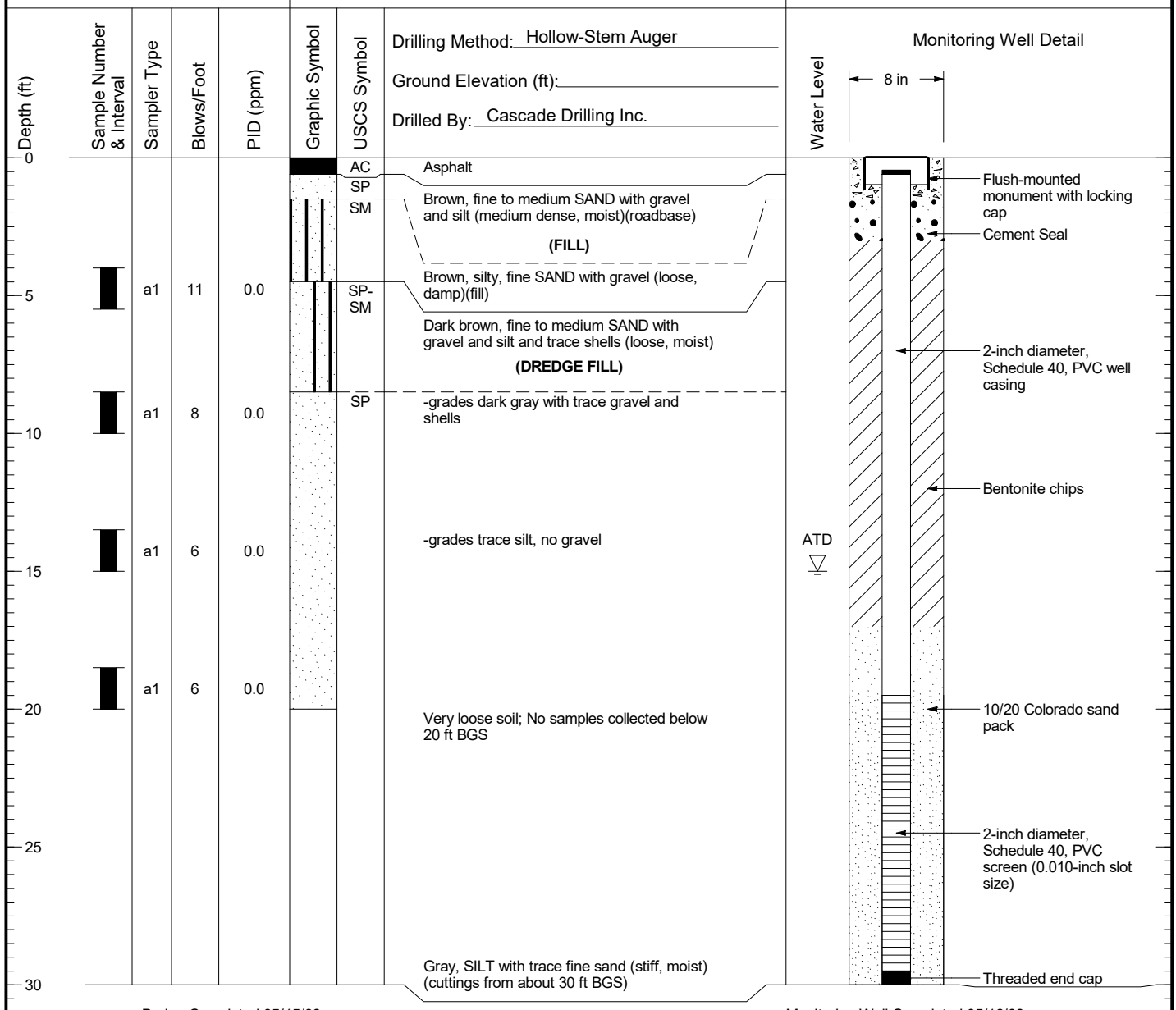
LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Monitoring Well LAI-MW3

Figure
C-8
(2 of 2)

LAI-MW4



Boring Completed 05/15/08
Total Depth of Boring = 30.0 ft.

Monitoring Well Completed 05/16/08
Total Depth of Monitoring Well = 30.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 1/22/14 Y:\094\044.020\T\094044.GPJ WELL LOG

LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Monitoring Well LAI-MW4

Figure
C-9

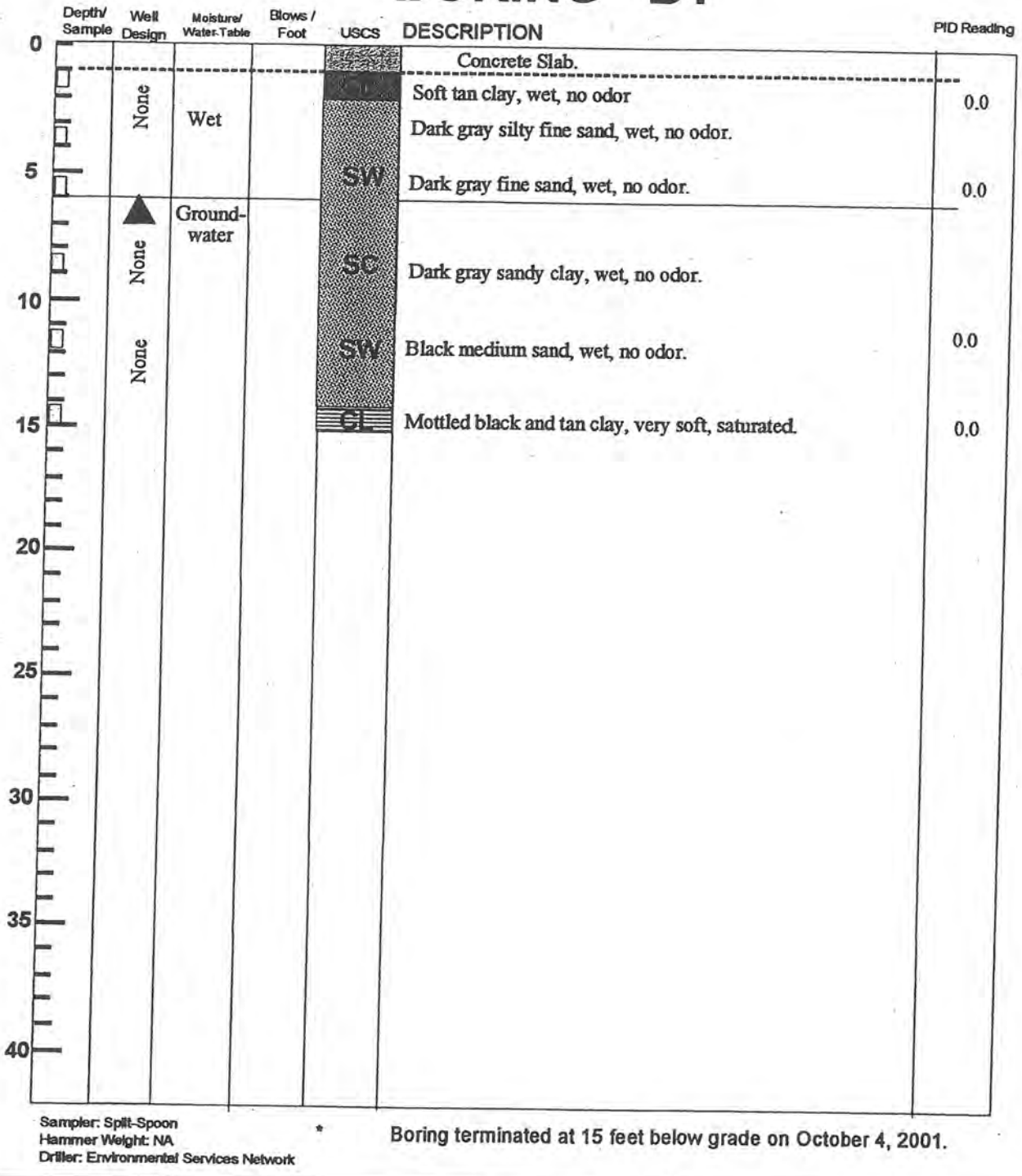
Well and Boring Logs by Others

Borings:
B-1
B-2
FB-1
FB-2
FB-3
FB-4
FB-5
FB-6
FB-7
FB-8
FB-9
FB10
FB-11
FB-12
GP-1
GP-2
GP-3
GP-4
GP-5
GP-6
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
P-9
P-10
P-11
SP-6
SP-7
TP-1
TP-2
TP-3
TP-4

Wells:
MW-1
MW-2 (SP-2)
MW-3 (SP-3)
MW-4 (SP-4)
MW-5 (SP-5)
MW-5A
MW-8
MW-8S
MW-9
MW-10
MW-11S
MW-11D
MW-13
RNS-MW1
RNS-MW2
RNS-MW3
RNS-MW4
RNS-MW5
RNS-MW6
RNS-MW7
SVE-1

Unavailable Logs:
MW-6
MW-7
MW-12
PMX-B-1
PMX-B-2
PMX-B-3
PMX-B-4

BORING B1



Sampler: Split-Spoon
Hammer Weight: NA
Driller: Environmental Services Network

Boring terminated at 15 feet below grade on October 4, 2001.

ENVIRONMENTAL ASSOCIATES, INC.

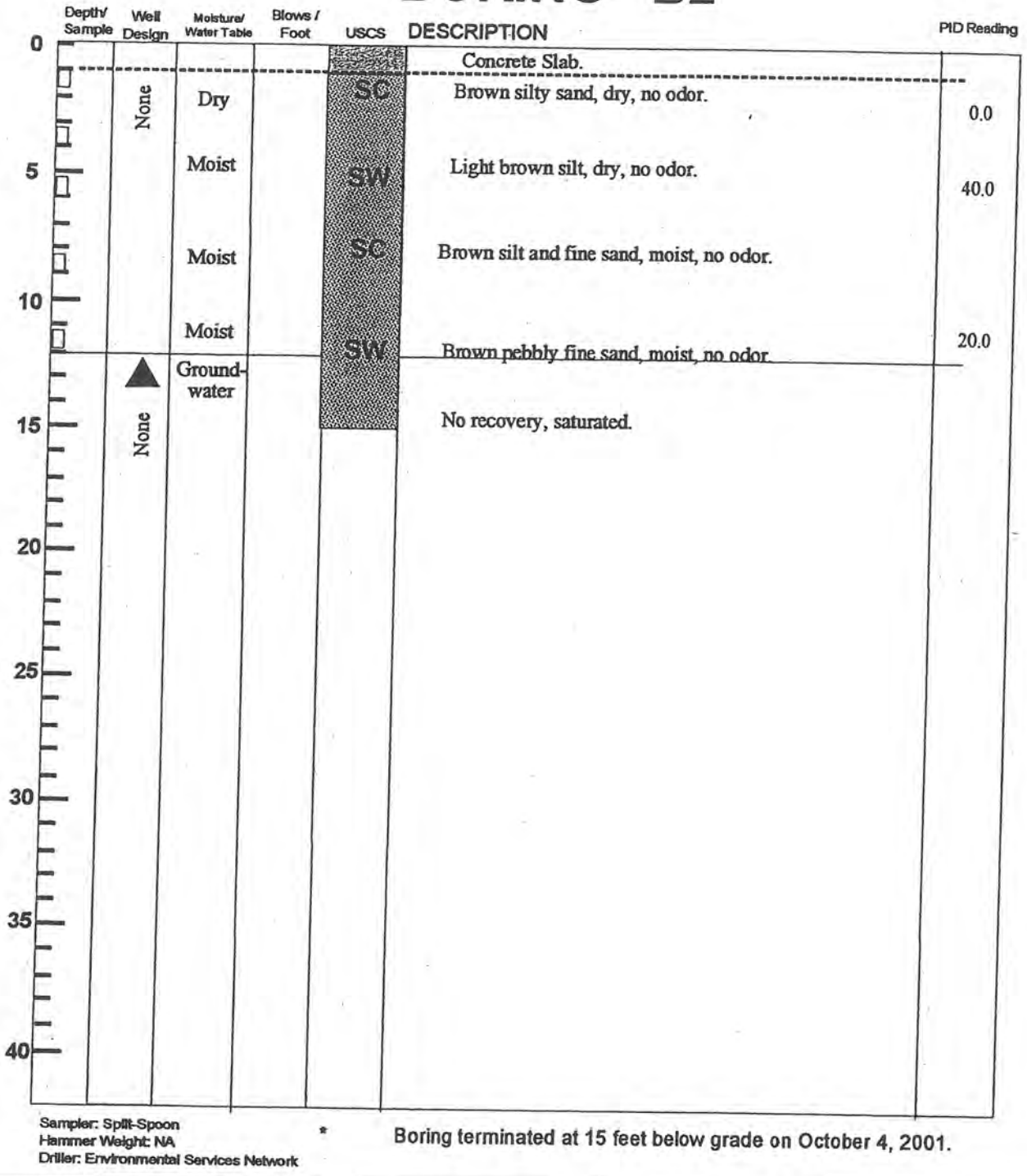
2122 - 112th Avenue N.E., Ste. B-100
Bellevue, Washington 98004

Boring: B1

TRC Building
1423 Pacific Avenue
Tacoma, Washington

Job Number:	Date:	Logged by:	Plate:
JN 21235-1	October 2001	JC	3

BORING B2



Sampler: Split-Spoon
Hammer Weight: NA
Driller: Environmental Services Network

Boring terminated at 15 feet below grade on October 4, 2001.

ENVIRONMENTAL ASSOCIATES, INC.

2122 - 112th Avenue N.E., Ste. B-100
Bellevue, Washington 98004

Boring: B2

TRC Building
1423 Pacific Avenue
Tacoma, Washington

Job Number:	Date:	Logged by:	Plate:
JN 21235-1	October 2001	JC	4

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB-1

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/23/07 0840	Sampler Type:	Macrocore
Date/Time Completed:	05/23/07 0945	Drive Hammer (lbs.):	140
Equipment:	CME 75	Depth of Water ATD (ft bgs):	NE
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	15
Drilling Foreman:	Eli Floyd	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		SAND, fine to medium, trace gravel, fine to coarse, light brown, moist, no odor, organics at surface, charcoal layer at 4'	SP		75	—	7.0	FB1-3		
		SAND, fine to medium, trace gravel, fine, trace silt, light brown, moist, no odor, trace organics, charcoal and glass shards at 5', charcoal is approximately 30-40% of bottom half of sample	SP		50	—	7.8	FB1-4-8		Bentonite Chips
		8-9: SAND, fine to medium, trace silt, trace gravel, fine, light brown, moist, no odor	SP			—		FB1-8-12		
		Top 2-3" : GRAVEL, fine to coarse, minor silt, minor sand, fine to medium.	GM							
10		Next 2': SAND, fine to medium, minor silt, minor gravel, fine, light brown with red mottling, moist, no odor. Bottom 6": impacted rock	SP		90		7.1			
		Top 16": SAND, fine to medium, minor silt, minor gravel, fine, light brown with trace reddish orange mottling. Next 4": SAA with dark brown color and red mottling. Next 8": SAND, fine, with silt, trace gravel, fine to coarse, light brown, dense, moist, no odor, some organics. Bottom 8": Same as top 16"	SP		90	—	7.4	FB-13		

Well Construction Information

Monument Type: NA
Casing Diameter (Inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: Bentonite
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB2

DRAFT

nt: Estate of Pete Sauro
ject: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	5/23/07 0950	Sampler Type:	Macrocore
Date/Time Completed:	5/23/07 1030	Drive Hammer (lbs.):	140
Equipment:	CME 25	Depth of Water ATD (ft bgs):	13
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	16
Drilling Foreman:	Eli Floyd	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		0-3" Vegetation 3"-9" GRAVEL, fine to coarse (mainly coarse), with fine to coarse sand, minor silt, brown, moist, no odor.	GP		75	-	7.3	FB2-3	X	
		9"-4' SAND, fine to medium, trace silt and fine gravel, brown, moist, no odor, brick pieces.	SP							
		4'-6' Same as above, minor silt, no brick, trace organic matter. 6'-6.3' Same as above, with silt, minor fine gravel, brick pieces. 6.3'-8' Same as above, minor silt.			75	-	5.0	FB2-8	X	
		8'-12' Same as above, with silt, minor fine to coarse gravel.			25	-	-	-		Bentonite Chips
10		12'-13' GRAVEL, fine, with fine sand, minor silt, black, wet, odor, brick and wood pieces.	GP		75	-	7.1	FB2-13		
		13'-15.5' SAND, fine to medium, trace silt, brown, wet, no odor. 15.5'-16' SAND, fine to medium, with fine to coarse gravel, minor silt, brown, moist, no odor.	SP							
15										

Well Construction Information

.ument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: Bentonite
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB-3

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/23/07 1030	**Sampler Type:**	Macrocore
Date/Time Completed:	05/23/07	**Drive Hammer (lbs.):**	140
Equipment:	CME 25	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	16
Drilling Foreman:	Eli Floyd	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		SAND, fine to medium, minor fine gravel, trace silt, light brown, moist, no odor, 3" band of GRAVEL, fine to coarse, with silt, minor sand approximately 18" from top	SP		75	—	9.4	FB3-3		
5		SAND, fine to medium, minor to trace gravel, fine, minor to trace silt, light brown, moist, no odor. 2" band GRAVEL, fine to coarse, minor sand, fine, trace silt 1' from bottom	SP		75					
		SAND, fine to medium, minor silt, minor gravel, fine, brown-grey grading to reddish brown grading to light brown, moist, brick fragments.	SP			—	7.5	FB3-8		Bentonite Chips
10					75		8.2			
		SAND, fine to medium, minor silt, minor gravel, fine, light brown, moist, no odor until bottom 1' which has petrol odor, some charcoal	SP			—	7.5	FB3-13		
15					75					
						—	13.1	FB3-16		

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: Bentonite
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB-4

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/23/07 1140	**Sampler Type:**	Macrocore
Date/Time Completed:	05/23/07 1220	**Drive Hammer (lbs.):**	140
Equipment:	CME 25	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	16
Drilling Foreman:	Eli Floyd	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		Top 18-20": 75% brick, SAND, fine to medium, trace gravel, fine to coarse, trace silt, dark brown and red. 3" asphalt layer followed by concrete layer to 4'	SP		60	—				
5		Top 2': 6" brick, 18" concrete. Bottom 2': SAND, fine to medium, minor silt, minor gravel, fine, light brown, moist, no odor, silt content increases with depth	SP		90	—	16.2	FB4-7		
10		Top 1.5': SAND, fine to medium, minor silt, minor gravel, fine, dark brown grading to light grey-brown, moist, brick fragments. 1" GRAVEL, fine, with sand, minor silt, light grey, moist. Bottom 1.5': SAND, fine to medium, minor silt, minor gravel, dark brown, moist	SP		75					Bentonite chips
15		Top 2": silty SAND, fine to medium, trace gravel, fine, light brown, moist, no odor. 18": SAND, fine to medium, trace silt, minor gravel, dark brown, moist. Bottom 2': SAND, fine to medium, with silt, trace gravel, dakr brown, moist, no odor, some orange-red mottling	SM		90	—	23.1	FB4-12		
						—	21	FB4-16		

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB-5

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/23/07 1305	Sampler Type:	Macrocore
Date/Time Completed:	05/23/07 1330	Drive Hammer (lbs.):	140
Equipment:	CME 25	Depth of Water ATD (ft bgs):	NE
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	16
Drilling Foreman:	Eli Floyd	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		Upper 6" brick, gravelly SAND, medium sand, fine to coarse gravel, trace silt, brown moist, no odor.	SW		75	—				
		3" concrete. Remaining: SAND, fine to medium, with silt, minor fine gravel, brown, moist, wood pieces/charcoal, plastic fragments, brick	SM							
		6" SAA, no plastic, fine to coarse gravel, brown with orange mottling, moist, increased sand in lower 6", minor silt	SP-SM		60	—	1.2	FB5-4		
		8'-9': SAA, 9'-12': SAND, fine to medium, trace fine gravel, minor silt (15%), brown, moist, no odor, increased silt in lower 3" (20%)	SP		80	—	32.1	FB5-9		Bentonite Chips
10		12'-13': SAA, 13'-16': SAND, fine, with silt (25%), trace fine gravel, brown, moist, no odor, trace organic material	SM		90	—	45.6	FB5-14		
15										

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	NA	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB-6

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	03/23/07 1335	**Sampler Type:**	Macrocore
Date/Time Completed:	03/23/07 1400	**Drive Hammer (lbs.):**	140
Equipment:	CME 25	**Depth of Water ATD (ft bgs):**	14
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	16
Drilling Foreman:	Eli Floyd	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		GRAVEL, fine to coarse (mainly coarse), with fine to medium sand, brown, moist, no odor	GP							
		SAND, fine to medium, minor fine gravel, trace silt, borwn, moist, no odor, brick pieces	SP		80	—	207	FB6-3		
		SAND, fine to medium (mainly fine), trace silt and fine gravel, brown, moist, no odor	SP							
5		SAND, fine to medium, minor fine to caorse gravel, trace silt, brown, moist, no odor, brick pieces	SP							
		SAND, fine to medium, silver, moist, no odor	SW		80	—	180	FB6-8		
		Brick	CAP							Bentonite Chips
		SAND, fine to medium, with silt, minor coarse gravel, brown, moist, no odor, brick piece, coarse gravel in bottom 2" of sample	SM		80	—				
10		SAND, fine, minor silt, minor fine to coarse gravel, brown, moist, no odor, charcoal piece	SP		80	—	238	FB6-13		
		SAND, fine, with silt, minor fine to coarse gravel, brown, wet, no odor	SP							
15										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB-7

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/23/07 1410	Sampler Type:	Macrocore
Date/Time Completed:	05/23/07 1435	Drive Hammer (lbs.):	140
Equipment:	CME 25	Depth of Water ATD (ft bgs):	15.5
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	16
Drilling Foreman:	Eli Floyd	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		GRAVEL, fine to coarse, mostly coarse, minor coarse sand, grey, moist, no odor, brick pieces	GP							
		SAND, fine to medium, minor fine gravel, trace silt, grey becoming brown, at 2' fine sand, minor silt (10%), moist, no odor, glass particles	SP		75	—	16.7	FB7-3		
		SAA	SP							
5		2": SAND, fine, silvery-beige, moist, no odor. Remainder: SAND, fine to medium, minor silt and fine gravel, greyish-brown, moist, no odor	SP		50	—	10.8	FB7-8		
		SAND, fine to medium, minor fine gravel, trace silt, light brown, moist, no odor, brick pieces, trace organics	SP							Bentonite chips
10		2": SAND, fine, silvery-beige, moist, no odor. Remainder: SAND, fine to medium, minor gravel (15%), trace silt, brown with some rust mottling, moist, no odor	SP		50	—	—	—		
		SAND, fine to medium, minor fine gravel, trace silt, brown, moist, no odor, brick pieces	SP		75	—	13.5	FB7-13		
15		SAND, fine, minor fine gravel, trace silt, brown, moist, no odor, glass pieces, lower 2" wet	SP							

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: Bentonite
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB-8

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/23/07 1430	**Sampler Type:**	Macrocore
Date/Time Completed:	05/23/07 1530	**Drive Hammer (lbs.):**	140
Equipment:	CME 25	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	16
Drilling Foreman:	Eli Floyd	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		SAND, fine, minor clay, tan, moist, no odor, lenses of grey silt	SP		80	—	85.5	FB8-3		
		SAND, medium, with silt, dark brown, no odor. Followed by GRAVEL, fine to coarse, with fine sand, silt, brown to grey, dry to moist	SM		75	—	11.5	FB8-8		
		SAND, fine, with silt, minor coarse gravel, light brown, no odor, brick fragments	SM		30	—	228	—		Bentonite chips
10		Brick layer, followed by 1' of charcoal/wood fragments with fine sand, minor gravel. Next 2': CLAY, with silt, minor fine gravel	ML		95	—	13.8	FB8-13		
15										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: Bentonite
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB-9

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/23/07 1530	**Sampler Type:**	Macrocore
Date/Time Completed:	05/23/07 1620	**Drive Hammer (lbs.):**	140
Equipment:	CME 25	**Depth of Water ATD (ft bgs):**	14.5
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	16
Drilling Foreman:	Eli Floyd	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		gravelly SAND to SAND with gravel, sand fine, gravel coarse, trace silt, brown, moist, no odor	SW		75	—	3.2	FB9-3		
		SAND, fine, with gravel, coarse, brown, moist, no odor	SW							
		SAND, medium, with gravel, fine to coarse, minor silt, grading to gravelly SAND, sand fine to coarse, gravel fine to coarse, brown, moist, no odor	SW		70	—	7.3	FB9-8		
		SAND, fine to medium, with gravel, coarse, brown, moist, no odor	SW							Bentonite Chips
10					80	—	3.5	—		
		6" of Brick, followed by gravelly SAND, sand medium to coarse, gravel coarse, green, wet, oil smell	SW							
					25	—	2.8	FB9-13		
15										

Well Construction Information

Document Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: Bentonite
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB-10

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/23/07 1620	**Sampler Type:**	Macrocore
Date/Time Completed:	05/23/07 1650	**Drive Hammer (lbs.):**	140
Equipment:	CME 25	**Depth of Water ATD (ft bgs):**	14.5
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	16
Drilling Foreman:	Eli Floyd	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		SAND, medium, with gravel, fine to coarse, brown, moist, no odor, trace brick fragments	SW	60	—	54.1	FB10-3		
5		gravelly SAND, sand fine to medium, gravel fine to coarse, brown grading to grey, moist, brine odor	SW						
		SAND, medium, with brick fragments, trace fine to coarse gravel, grey, moist, no odor	SP	70	—	1.8	FB10-8		
		SAND, fine, with gravel, brick fragments, contact with solid brick section underneath	SW						Bentonite Chips
10		clayey SAND, sand fine, track brick fragments,	SC	55	—	127	—		
		SAND, fine, with gravel, brown, no odor, gravel pocket at top of section	SW						
		SAND, with clay and gravel, minor brick fragments, brown, moist, no odor, grading to SAND, fine to medium, with gravel and silt, brown-grey, wet, no odor, capped by brick	SM	60	—	104	FB10-13		
15									

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: Bentonite
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB-11

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/23/07 1650	Sampler Type:	Macrocore
Date/Time Completed:	05/23/07 1800	Drive Hammer (lbs.):	140
Equipment:	CME 25	Depth of Water ATD (ft bgs):	14.5
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	16
Drilling Foreman:	Eli Floyd	Total Well Depth (ft bgs):	NA
Drilling Method:	Direct push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		silty SAND, minor coarse gravel, brown, minor organics, brick fragments	SM							
		silty SAND, fine, with clay, brown, moist, no odor, brick fragments	SM							
		SAND, medium, trace gravel, fine to coarse, brown, moist	SP		65	—	4.5	FB11-3		
		GRAVEL, coarse, with medium sand and silt, brown, moist, no odor	GM							
		sandy GRAVEL, coarse gravel, grey-brown, moist	GP		55	—	24.1	FB11-8		
		SAND, fine to medium fining downward, with gravel, fine to coarse, brown, moist, no odor, minor silt near bottom	SW		55	—	4.3	—		Bentonite Chips
10		SAA	SW							
		GRAVEL, with sand and silt, grey to black, wet, no odor, slimy texture, wood fragments	GM		50	—	3.6	FB11-13		
15										

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	NA	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	Bentonite Chips
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: FB-12

DRAFT

Client: Farallon Consulting
Project: Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: Jon Peterson, Jen. Cyr

Date/Time Started:	5/23/07 1730	Sampler Type:	D&M SS 18"x2"
Date/Time Completed:	5/23/07 1820	Drive Hammer (lbs.):	300
Equipment:	CME 75	Depth of Water ATD (ft bgs):	14'
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	16'
Drilling Foreman:	Eli	Total Well Depth (ft bgs):	NA
Drilling Method:	Geoprobe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		8" of Gravel, crushed 5/8ths to fine, with fine sand (60/40% gravel to sand), gray to dark gray moist, odorless.	GP							
		16" of Sand, medium to fine, silt and gravel (40/40/20%), gravel is <2" diam., brown, moist, odorless.	GM							
		4" of Sand and gravel, same as above minus silt, gray, moist, odorless,	SP							
		12" of Sand, with silt and gravel(40/40/20%), brown, moist , odorless	GM				1.8	FB-12-3 1740		
		22" of Sand, with silt and gravel as above. 2" clasts plus brick shards	GM		80					
		8" of Sand with silt and gravel, (50/25/25%), gray-brown, moist, odorless, with brick frags and 1/2" gravel	GM							
		1/2 of section = same as directly above	GM		65		2.1	FB-12-8 1745		
		3" of Gravel, 1-2" diam, white-gray, moist, odorless	GW							
10		12" of Fine sand and silt, with clay and gravel (30,30,20,20%), brown, moist, odorless, trace bricks; gravel is <3", angular to subrounded, well graded except there is a gap between 1/8th clasts to medium sand	SC							
		17" of Sand and silt, same as above, with one sandy, brick-rich pocket. By >12" down, the matrix is again clay-rich, plastic and there is less gravel, tan, moist, odorless	SC		70		2.1	FB-12-13 1750		
		9" of Gravel, with sand, and silt (50/30/20%); also bricks and sludge, wet, brown to greeen to black, gravel is mostly 1" in diameter.There is a 2" thick brick layer 8" from bottom, and below the water line (about 14') is the sludge with a sewage odor.	GM							
15										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOL	GROUP NAME
COARSE GRAINED SOILS More Than 50% Retained on No. 200 Sieve	GRAVEL More Than 50% of Coarse Fraction Retained on No. 4 Sieve	CLEAN GRAVEL	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL
			GP	POORLY-GRADED GRAVEL
		GRAVEL WITH FINES	GM	SILTY GRAVEL
			GC	CLAYEY GRAVEL
	SAND More Than 50% of Coarse Fraction Passes No. 4 Sieve	CLEAN SAND	SW	WELL-GRADED SAND, FINE TO COARSE SAND
			SP	POORLY-GRADED SAND
		SAND WITH FINES	SM	SILTY SAND
			SC	CLAYEY SAND
FINE GRAINED SOILS More Than 50% Passes No. 200 Sieve	SILT AND CLAY Liquid Limit Less Than 50	INORGANIC	ML	SILT
			CL	CLAY
		ORGANIC	OL	ORGANIC SILT, ORGANIC CLAY
	SILT AND CLAY Liquid Limit 50 or More	INORGANIC	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
			CH	CLAY OF HIGH PLASTICITY, FAT CLAY
		ORGANIC	OH	ORGANIC CLAY, ORGANIC SILT
HIGHLY ORGANIC SOILS			PT	PEAT

NOTES:

1. Field classification is based on visual examination of soil in general accordance with ASTM D2488-90.
2. Soil classification using laboratory tests is in general accordance with ASTM D2487-90.
3. Descriptions of soil density or consistency are based on interpretation of blow count data, visual appearance of soils, and/or test data.

SOIL MOSTURE MODIFIERS:

Dry - Absence of moisture, dusty, dry to the touch

Moist - Damp, but no visible water

Wet - Visible free water or saturated, usually soil is obtained from below water table

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SOIL CLASSIFICATION SYSTEM

FIGURE 3

File No. [illegible]-001-00 WEH:JHB:vc

LABORATORY TESTS:

CA Chemical Analysis

FIELD SCREENING TESTS:

Headspace vapor concentration data given in parts per million

Sheen classification system:

NS No Visible Sheen
SS Slight Sheen
MS Moderate Sheen
HS Heavy Sheen
NT Not Tested

SOIL GRAPH:

SM Soil Group Symbol (See Note 2)

Distinct Contact Between Soil Strata

Gradual or Approximate Location of Change Between Soil Strata

Water Level

Bottom of Boring

BLOW-COUNT/SAMPLE DATA:

Blows required to drive a 2.4-inch I.D. split-barrel sampler 12 inches or other indicated distances using a 300-pound hammer falling 30 inches.

22 Location of relatively undisturbed sample

12 Location of disturbed sample

17 Location of sampling attempt with no recovery

Blows required to drive a 1.5-inch I.D. (SPT) split-barrel sampler 12 inches or other indicated distances using a 140-pound hammer falling 30 inches.

10 Location of sample obtained in general accordance with Standard Penetration Test (ASTM D-1586) procedures

26 Location of SPT sampling attempt with no recovery

Location of grab sample

"P" indicates sampler pushed with weight of hammer or against weight of drill rig.

NOTES:

1. The reader must refer to the discussion in the report text, the Key to Boring Log Symbols and the exploration logs for a proper understanding of subsurface conditions.

2. Soil classification system is included.

ENVIRONMENTAL

KBLS2221.CDR

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KEY TO BORING LOG SYMBOLS

FIGURE 4

Project	Job Number	Location
Sauro's Cleanarama	8329-001-00	Tacoma, Washington

Date Drilled	05/23/00	Logged By	BES	Contractor	TEG
Drill Method	StrataProbe	Equipment	Track Mounted Drill Rig	Drill Bit	
Sample Method	Split Barrel	Hammer Data	140 lb hammer/30" drop	X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	19	Elevation (ft)	Not Measured	Datum: System:	

DEPTH IN FEET	% Recovery	Sample No.	Blow Count	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0						SP	Light brown fine to medium sand with a trace of silt (loose, moist) (fill)	10	NS		0
5							Light brown fine to medium sand with silt, brick debris and gravel (loose, moist) (fill)	6.0	NS		5
							Brown fine to medium sand with a trace of silt and occasional gravel (loose, moist) (fill)	15	NS		
10								20	NS		10
								5.0	NS		
15						SP	Gray silt with fine to medium sand and fine gravel (loose, wet) (fill)	6.0	NS		15
								0	NS		
20							Boring completed at a depth of 19.0 feet on 05/23/00. No ground water encountered during drilling.				20
25											25

Note: See Figure 4 for explanation of symbols

RING LOG 8329001.GPJ GEI_CORP.GDT 1/10/01 8329-001-00

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LOG OF BORING GP-1

FIGURE 5

Project	Job Number	Location
Sauro's Cleanarama	8329-001-00	Tacoma, Washington

Date Drilled	05/23/00	Logged By	BES	Contractor	TEG
Drill Method	StrataProbe	Equipment	Track Mounted Drill Rig	Drill Bit	
Sample Method	Split Barrel	Hammer Data	140 lb hammer/30" drop	X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	19	Elevation (ft)	Not Measured	Datum: System:	

DEPTH IN FEET	% Recovery	Sample No.	Blow Count	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0						SP	Light brown fine to medium sand with silt and brick debris (loose, moist) (fill)	15	NS		0
5								5.0	NS		5
								3.0	NS		
10								3.0	NS		10
								7.0	NS		
15							Brown fine to medium sand with silt and fine gravel (loose, wet) (fill)	3	NS		15
								0	NS		
20							Boring completed at a depth of 19.0 feet on 05/23/00. Ground water encountered at an approximate depth of 16.3 feet during drilling.				20
25											25

Note: See Figure 4 for explanation of symbols

GEI ENVIRONMENTAL NG LOG 8329001.GPJ GEI_CORP.GDT 1/10/01 8329-001-00

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LOG OF BORING GP-2

FIGURE 6

Project	Job Number	Location
Sauro's Cleanarama	8329-001-00	Tacoma, Washington

Date Drilled	05/23/00	Logged By	BES	Contractor	TEG
Drill Method	StrataProbe	Equipment	Track Mounted Drill Rig	Drill Bit	
Sample Method	Split Barrel	Hammer Data	140 lb hammer/30" drop	X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	19	Elevation (ft)	Not Measured	Datum: System:	

DEPTH IN FEET	% Recovery	Sample No.	Blow Count	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0						SP	Light brown fine to medium sand with a trace of silt and brick debris (loose, moist) (fill)		NS		0
5									NS		5
									NS		
10									NS		10
						SM	Brown silty fine to medium sand with fine gravel (loose, moist) (fill)		NS		
15						SP	Black fine to medium sand with wood debris with organic material (loose, wet) (fill)		NS		15
							Grades to silt and brick and wood debris	0	NS		
20							Boring completed at a depth of 19.0 feet on 05/23/00. Ground water encountered at an approximate depth of 14.5 feet during drilling.				20
25											25

Note: See Figure 4 for explanation of symbols

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LOG OF BORING GP-3

FIGURE 7

Project	Job Number	Location
Sauro's Cleanarama	8329-001-00	Tacoma, Washington

Date Drilled	05/23/00	Logged By	BES	Contractor	TEG
Drill Method	StrataProbe	Equipment	Track Mounted Drill Rig	Drill Bit	
Sample Method	Split Barrel	Hammer Data	140 lb hammer/30" drop	X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	19	Elevation (ft)	Not Measured	Datum: System:	

DEPTH IN FEET	% Recovery	Sample No.	Blow Count	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0						SP	Light brown fine to medium sand with silt (loose, moist) (fill)				0
								2.0	NS		
5							Grades to trace of silt and brick and wood debris	4.0	NS		5
								4.0	NS		
10							Brown fine to medium sand with silt and brick (loose, wet) (fill)	4.0	NS		10
						SM	Dark brown silty fine to medium sand with fine gravel (loose, wet) (fill)				
15								0	NS		15
							Black silty fine to medium sand with fine gravel (loose, wet) (fill)	0	NS		
20							Boring completed at a depth of 19.0 feet on 05/23/00. Ground water encountered at an approximate depth of 14.8 feet during drilling.				20
25											25

Note: See Figure 4 for explanation of symbols

GEI ENVIRONMENTAL BORING LOG 8329001.GPJ GEI_CORP.GDT 1/10/01 8329-001-00

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LOG OF BORING GP-4

FIGURE 8

Project	Job Number	Location
Sauro's Cleanarama	8329-001-00	Tacoma, Washington

Date Drilled	05/23/00	Logged By	BES	Contractor	TEG
Drill Method	StrataProbe	Equipment	Track Mounted Drill Rig	Drill Bit	
Sample Method	Split Barrel	Hammer Data	140 lb hammer/30" drop	X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	19	Elevation (ft)	Not Measured	Datum: System:	

DEPTH IN FEET	% Recovery	Sample No.	Blow Count	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0						SP	Gray fine to medium sand with silt and occasional fine gravel (loose, moist) (fill)	15	NS		0
5						SM	Brown silty fine to medium sand with fine gravel (loose, wet	10	NS		5
							Grades to with brick debris	7	NS		
10							Grades to gray	20	NS		10
								20	NS		
							▽				
15							Brown fine to coarse sand with silt (loose, wet) (fill)	45	NS		15
							Grades to medium with brick debris	3	NS		
20							Boring completed at a depth of 19.0 feet on 05/23/00. Ground water encountered at an approximate depth of 14.3 feet during drilling.				20
25											25

Note: See Figure 4 for explanation of symbols

Geo Engineers

LOG OF BORING GP-5

FIGURE 9

Project	Job Number	Location
Sauro's Cleanarama	8329-001-00	Tacoma, Washington

Date Drilled	05/23/00	Logged By	BES	Contractor	TEG
Drill Method	StrataProbe	Equipment	Track Mounted Drill Rig	Drill Bit	
Sample Method	Split Barrel	Hammer Data	140 lb hammer/30" drop	X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	25	Elevation (ft)	Not Measured	Datum: System:	

DEPTH IN FEET	% Recovery	Sample No.	Blow Count	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0						SP	Tan fine to medium sand with silt and fine gravel (loose, moist) (fill)	35	NS		0
5								7	NS		5
								1	NS		
10								0	NS		10
								0	NS		
15								3	NS		15
								0	NS		
20							Brown fine to medium sand (dense, moist) (native)	0	NS		20
							Grades to with silt	3	NS		
25							Boring completed at a depth of 25.0 feet on 05/23/00. Ground water encountered at an approximate depth of 19.5 feet during drilling.	5	NS		25
30											30

Note: See Figure 4 for explanation of symbols

GEI ENVIRONMEN... ING LOG 8329001.GPJ GEI_CORP.GDT 1/10/01 8329-001-00

Geo Engineers

LOG OF BORING GP-6

FIGURE 10

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-1

Client:
Project: Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: GeoEngineers, Inc.

Date/Time Started:	7/09/03	**Sampler Type:**	SS Core Barrel
Date/Time Completed:	7/09/03	**Drive Hammer (lbs.):**	Hydraulic
Equipment:	Strata Probe	**Depth of Water ATD (ft bgs):**	13
Drilling Company:	ESN Northwest	**Total Boring Depth (ft bgs):**	18
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		SAND with silt, trace gravel, fine to medium sand, brown, loose to medium dense, moist, fill.	SP-SM		100		0			
5		No recovery			20					
		Silty SAND trace gravel, fine to medium sand, brown, loose, wet, fill.	SM				0			
10		Silty SAND with gravel, fine to medium sand, gray, very dense, wet, glacial till.	SM		100		0			
		SAND with silt, fine to coarse sand, brown, dense, wet.	SP-SM							
		SAND with gravel, fine to medium sand, gray to brown, very dense, wet	SP		75		0	P-1-14	X	
15					75					

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	NA	**Surface Seal:**	NA	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Boring Abandonment:**	NA
Screened Interval (ft bgs):	NA			**Surveyed Location:** X: NA	Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-2

Client:
Project: Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: GeoEngineers, Inc.

Date/Time Started:	7/09/03	**Sampler Type:**	SS Core Barrel
Date/Time Completed:	7/09/03	**Drive Hammer (lbs.):**	Hydraulic
Equipment:	Strata Probe	**Depth of Water ATD (ft bgs):**	22
Drilling Company:	ESN Northwest	**Total Boring Depth (ft bgs):**	24
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		Silty SAND with gravel, fine to coarse sand, brown, loose, moist, fill, trace brick.	SM		100		0			
5					100		0			
		Silty SAND trace gravel, fine to medium sand, gray, very dense, moist, glacial till.	SM							
10					75		0			
		No recovery.						P-2-11	X	
		Silty SAND trace gravel, fine to medium sand, gray, very dense, moist.	SM		25					
		No recovery.								
15										
		Silty SAND trace gravel, fine to medium sand, gray, very dense, moist.	SM		25					
		No recovery								
20										
		Silty SAND trace gravel, fine to medium sand, gray, very dense, moist.	SM		75		0	P-2-22	X	
		No recovery								

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	NA	**Surface Seal:**	NA	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Boring Abandonment:**	NA
Screened Interval (ft bgs):	NA			**Surveyed Location:** X: NA	Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-3

Client:
Project: Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: GeoEngineers, Inc.

Date/Time Started:	7/09/03	**Sampler Type:**	SS Core Barrel
Date/Time Completed:	7/09/03	**Drive Hammer (lbs.):**	Hydraulic
Equipment:	Strata Probe	**Depth of Water ATD (ft bgs):**	20
Drilling Company:	ESN Northwest	**Total Boring Depth (ft bgs):**	38
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		Silty SAND with gravel, fine to coarse sand, brown, medium dense, moist, fill, trace brick and fragments.	SM		75		0			
		No recovery.								
5		Silty SAND with gravel, fine to coarse sand, brown, medium dense, moist, fill, trace brick and fragments.	SM		25					
		No recovery.								
		Silty SAND with gravel, fine to coarse sand, brown, medium dense, moist, fill, trace brick and fragments.	SM		50		0			
10		No recovery.								
		Silty SAND with gravel, fine to coarse sand, brown, medium dense, moist, fill, trace brick and fragments.	SM							
		Silty SAND trace gravel, fine to medium sand, gray, medium dense, moist, fill.	SM		50		0			
15		No recovery								
		Silty SAND trace gravel, fine to medium sand, gray, medium dense, moist, fill.	SM		50		0			
		No recovery.								
20										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-3

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
20		Silty SAND, fine sand, black to gray, loose, wet, fill, with wood debris and brick.	SM		50					
		No recovery.								
		Silty SAND, fine sand, black to gray, loose, wet, fill, with wood debris and brick.	SM		25			P-3-23	X	
		No recovery.					0			
25										
30										
35										
		SAND, fine to coarse sand, gray, very dense, wet.	SP		25		0			

Well Construction Information

Monument Type:	NA	Filter Pack:	NA	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	NA	Surface Seal:	NA	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	NA	Boring Abandonment:	NA
Screened Interval (ft bgs):	NA			Surveyed Location: X: NA	Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-4

Client:
Project: Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: GeoEngineers, Inc.

Date/Time Started:	7/09/03	**Sampler Type:**	SS Core Barrel
Date/Time Completed:	7/09/03	**Drive Hammer (lbs.):**	Hydraulic
Equipment:	Strata Probe	**Depth of Water ATD (ft bgs):**	16
Drilling Company:	ESN Northwest	**Total Boring Depth (ft bgs):**	28
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		Silty SAND with gravel, fine to coarse sand, gray, medium dense, moist, fill, trace brick.	SM		50		0			
		No recovery.								
5		Silty SAND with gravel, fine to coarse sand, gray, medium dense, moist, fill, trace brick.	SM		25		0			
		No recovery.								
10		Silty SAND, fine to medium sand, brown, loose, moist, fill, trace burnt wood.	SM		25		0			
		No recovery.								
		Silty SAND with gravel, fine to medium sand, black to gray, medium dense, moist, fill.	SM		25		0	P-4-13	X	
15		No recovery.								
		Silty SAND with gravel, fine to medium sand, black to gray, medium dense, moist, fill, some grades to wet.	SM		12		0			
		No recovery.								
20		WOOD with gravel, with sand, black, loose, wet.	WD		75		0	P-4-22	X	
		No recovery.								
		WOOD, very dense, wet, solid core of cedar wood.	WD		100		0			
25										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-5

Client:
Project: Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: GeoEngineers, Inc.

Date/Time Started:	7/09/03	**Sampler Type:**	SS Core Barrel
Date/Time Completed:	7/09/03	**Drive Hammer (lbs.):**	Hydraulic
Equipment:	Strata Probe	**Depth of Water ATD (ft bgs):**	12
Drilling Company:	ESN Northwest	**Total Boring Depth (ft bgs):**	32
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		SAND with gravel, fine to coarse sand, gray, dense, dry, fill.	SP		50		0			
		No recovery.								
5		SAND with gravel, fine to coarse sand, gray, dense, dry, fill, trace brick.	SP		25					
		No recovery.								
		SAND with gravel, fine to coarse sand, gray, dense, dry, fill, grades to moist.	SP		25		0	P-5-8	X	
10		No recovery.								
		SAND with gravel, fine to coarse sand, gray, dense, dry, fill, grades wet.	SP		50					
		No recovery.								
15		SAND with gravel, fine to coarse sand, black, dense, wet, fill.	SP		50		0			
		No recovery.								
20		SAND, fine sand, black, dense, wet, with wood.	SP-ML		12			P-5-20	X	
		No recovery.								
25										
30										

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	NA	**Surface Seal:**	NA	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Boring Abandonment:**	NA
Screened Interval (ft bgs):	NA			**Surveyed Location:** X: NA	Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-6

Client:
Project: Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: GeoEngineers, Inc.

Date/Time Started:	7/10/03	**Sampler Type:**	SS Core Barrel
Date/Time Completed:	7/10/03	**Drive Hammer (lbs.):**	Hydraulic
Equipment:	Strata Probe	**Depth of Water ATD (ft bgs):**	18
Drilling Company:	ESN Northwest	**Total Boring Depth (ft bgs):**	28
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		SAND with gravel, fine to coarse sand, gray, medium dense, moist, fill.	SP		50		0			
		No recovery.								
5										
		SAND with gravel, fine to coarse sand, gray, medium dense, moist, fill, trace brick.	SP		50		0			
10		No recovery.								
		Silty SAND trace gravel, fine to medium sand, brown, medium dense, moist to wet.	SM		50		0	P-6-13	X	
		No recovery.								
15										
20		GRAVEL trace sand, fine to coarse gravel, brown, dense, wet.	GP					P-6-20	X	
		No recovery.			12		0			
25										

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	NA
Casing Diameter (inches):	NA	**Surface Seal:**	NA	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Boring Abandonment:**	NA
Screened Interval (ft bgs):	NA			**Surveyed Location:** X: NA	Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-7

Client:
Project: Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: GeoEngineers, Inc.

Date/Time Started:	7/10/03	**Sampler Type:**	SS Core Barrel
Date/Time Completed:	7/10/03	**Drive Hammer (lbs.):**	Hydraulic
Equipment:	Strata Probe	**Depth of Water ATD (ft bgs):**	24
Drilling Company:	ESN Northwest	**Total Boring Depth (ft bgs):**	36
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		SAND trace gravel, fine to coarse sand, gray, loose, moist, fill, trace brick.	SP		50		0			
		No recovery.								
5		SAND trace gravel, fine to coarse sand, gray, loose, moist, fill, trace brick.	SP		50		0			
		No recovery.								
		SAND trace gravel, fine to coarse sand, gray, loose, moist to wet, fill, trace brick.	SP		50		0			
10		No recovery.								
		SAND trace gravel, fine to coarse sand, gray, loose, moist, fill, trace brick.	SP		25		0			
		No recovery.								
15		Silty SAND, fine to medium sand, gray, loose, moist to wet, wood.	SM		75		0	P-7-18	X	
		No recovery.								
20		Silty SAND, fine to medium sand, gray, loose, moist to wet, fill, trace wood.	SM		100		0			SZ
25		GRAVEL with sand, trace silt, fine to coarse gravel, gray, dense, wet, fill, trace brick.	GP		75		0	P-7-26	X	
		No recovery.			0					
30					0					
35										

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	87
Casing Diameter (inches):	NA	**Surface Seal:**	NA	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Boring Abandonment:**	NA
Screened Interval (ft bgs):	NA			**Surveyed Location:** X: NA	Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-8

Client:
Project: Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: GeoEngineers, Inc.

Date/Time Started:	7/10/03	**Sampler Type:**	SS Core Barrel
Date/Time Completed:	7/10/03	**Drive Hammer (lbs.):**	Hydraulic
Equipment:	Strata Probe	**Depth of Water ATD (ft bgs):**	24
Drilling Company:	ESN Northwest	**Total Boring Depth (ft bgs):**	36
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		SAND with gravel, fine to coarse sand, gray, loose, dry, fill.	SP		50		0			
		No recovery.								
5										
		SAND with gravel, fine to coarse sand, gray, loose, dry, fill, trace brick.	SP		25		0			
10		No recovery.								
		SAND with gravel, fine to coarse sand, black, loose, dry, petroleum odor, fill.	SP		50		0	P-8-13	X	
15		No recovery.								
		Silty SAND, fine to medium sand, gray, loose, moist to wet, fill, trace wood.	SM				0			
		Silty SAND, fine to medium sand, brown, loose, moist to wet, fill.	SM		100					
20		Silty SAND trace gravel, fine to medium sand, brown, loose, wet.	SM				0			
					100			P-8-22	X	
25					50					
		No recovery.								
		Silty SAND trace gravel, fine to coarse sand, black, very dense, wet, fill, brick and wood.	SM		50		0			
30										

Well Construction Information

Monument Type: NA
Casing Diameter (inches): NA
Screen Slot Size (inches): NA
Screened Interval (ft bgs): NA
Filter Pack: NA
Surface Seal: NA
Annular Seal: NA
Ground Surface Elevation (ft): 87
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-9

Client:
Project: Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: GeoEngineers, Inc.

Date/Time Started:	7/10/03	**Sampler Type:**	SS Core Barrel
Date/Time Completed:	7/10/03	**Drive Hammer (lbs.):**	Hydraulic
Equipment:	Strata Probe	**Depth of Water ATD (ft bgs):**	24
Drilling Company:	ESN Northwest	**Total Boring Depth (ft bgs):**	36
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		No soil samples were collected.								
5										
10										
15										
20										

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	87
Casing Diameter (inches):	NA	**Surface Seal:**	NA	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Boring Abandonment:**	NA
Screened Interval (ft bgs):	NA			**Surveyed Location:** X: NA	Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-10

Client:
Project: Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: GeoEngineers, Inc.

Date/Time Started:	7/11/03	**Sampler Type:**	SS Core Barrel
Date/Time Completed:	7/11/03	**Drive Hammer (lbs.):**	Hydraulic
Equipment:	Strata Probe	**Depth of Water ATD (ft bgs):**	NE
Drilling Company:	ESN Northwest	**Total Boring Depth (ft bgs):**	18
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		Crushed rock.								
		Silty SAND trace gravel, fine to medium sand, mottled, medium dense, moist, fill.	SM		70		0			
		No recovery.								
		GRAVEL, fine to coarse gravel, gray, medium dense, moist, fill, with concrete.	GP		25					
5		No recovery.					0			
		Silty SAND trace gravel, fine to medium sand, brown, medium dense, moist to wet, fill.	SM		50					
10		No recovery.								
		Silty SAND trace gravel, fine to medium sand, brown, medium dense, moist to wet, fill, with brick.	SM							
		SAND with gravel, fine to coarse sand, gray, dense, moist, native.	SP		100		0			
15							0			
					50					

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	82
Casing Diameter (inches):	NA	**Surface Seal:**	NA	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Boring Abandonment:**	NA
Screened Interval (ft bgs):	NA			**Surveyed Location:** X: NA	Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: P-11

Client:
Project: Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: GeoEngineers, Inc.

Date/Time Started:	7/11/03	**Sampler Type:**	SS Core Barrel
Date/Time Completed:	7/11/03	**Drive Hammer (lbs.):**	Hydraulic
Equipment:	Strata Probe	**Depth of Water ATD (ft bgs):**	26
Drilling Company:	ESN Northwest	**Total Boring Depth (ft bgs):**	38
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		Beauty bark.								
		SAND trace gravel, fine to coarse sand, gray, loose, dry, fill.	SP				0			
		Silty SAND with gravel, fine to medium sand, gray, loose, moist, fill, trace brick.	SM		100		0			
5		SAND with gravel, fine to coarse sand, black, medium dense, moist.	SM		100		0			
10					25		0			
15		No recovery.			25					
20		Sandy SILT, gray, soft, wet, fill, trace brick and wood.	ML		50		0			
25		Sandy SILT, gray, soft, wet, fill, trace wood.	ML		50		0			
		No recovery.								
30										
35		Wood, fill.	WD		50		0			

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	78
Casing Diameter (inches):	NA	**Surface Seal:**	NA	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Boring Abandonment:**	NA
Screened Interval (ft bgs):	NA			**Surveyed Location:** X: NA	Y: NA

Project	Job Number	Location
Sauro's Cleanerama	8329-001-01	Tacoma, WA

Date Drilled	01/26/01	Logged By	MHB	Contractor	TEG
Drill Method	Strata Probe	Equipment		Drill Bit	
Sample Method	Continuous Split-Barrel Sampler	Hammer Data		X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	21	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)		Monument Elevation (ft) Stickup (ft)		Casing Elevation (ft) Stickup (ft)	

DEPTH IN FEET	WELL SCHEMATIC	Sample No.	Blows per foot	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0						AC	2-inch asphalt paving				0
		1				SP-SM	Brown fine to coarse sand with silt and gravel (dense, moist) (fill)				
5		2				SP	Brown fine to coarse sand with occasional gravel and bricks (dense, moist) (fill)				5
10		3									10
		4									
15		5									15
		6				GP	Gray fine to coarse gravel with sand (dense, wet)	▽			
20							Boring completed at a depth of 21.0 feet on 01/26/01. Ground water encountered at a depth of 18.5 feet during drilling.				20
25											25
30											30
35											35

Note: See Figure A-2 for explanation of symbols

GEI WELL LOG 8329001.GPJ GEI_CORP.GDT 9/21/01 8329-001-01

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LOG OF BORING SP-6

FIGURE A-8

Project	Job Number	Location
Sauro's Cleanerama	8329-001-01	Tacoma, WA

Date Drilled	01/26/01	Logged By	MHB	Contractor	TEG
Drill Method	Strata Probe	Equipment		Drill Bit	
Sample Method	Continuous Split-Barrel Sampler	Hammer Data		X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	24.5	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)		Monument Elevation (ft) Stickup (ft)		Casing Elevation (ft) Stickup (ft)	

DEPTH IN FEET	WELL SCHEMATIC	Sample No.	Blows per foot	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0						CC	Concrete				0
						SP	Brown fine to medium sand with occasional gravel (dense, moist) (fill)				
5		1									5
		2									
10						SP-SM	Brown fine to medium sand with silt (dense, moist)				10
		3									
15		4									15
						SM	Dark gray silty fine to coarse sand with occasional organics (medium dense, moist)				
		5									
20		6									20
						SM	Gray silty fine to coarse sand with occasional gravel (dense, moist) (till)				
		7									
25							Boring completed at a depth of 24.5 feet on 01/26/01. No ground water observed during drilling.				25
30											30
35											35

Note: See Figure A-2 for explanation of symbols

GEI WELL LOG 8329001.GPJ GEL_CORP.GDT 9/21/01 8329-001-01

Geo Engineers

LOG OF BORING SP-7

FIGURE A-9

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: TP-1

Client:
Project: Sauro's Cleanerama
Location: Tacoma, Washington

Farallon PN: 899-001

Logged By: Saltbush Env.

Date/Time Started:	4/13/2000	**Sampler Type:**	NA
Date/Time Completed:	4/13/2000	**Drive Hammer (lbs.):**	NA
Equipment:	Backhoe	**Depth of Water ATD (ft bgs):**	NA
Drilling Company:	NA	**Total Boring Depth (ft bgs):**	4
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Test Pit		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0								TP-1	X	

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	38 +/-1
Casing Diameter (inches):	NA	**Surface Seal:**	NA	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Boring Abandonment:**	NA
Screened Interval (ft bgs):	NA			**Surveyed Location:** X: NA	Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: TP-2

Client:
Project: Sauro's Cleanerama
Location: Tacoma, Washington
Farallon PN: 899-001
Logged By: Saltbush Env.

Date/Time Started:	4/13/2000	**Sampler Type:**	NA
Date/Time Completed:	4/13/2000	**Drive Hammer (lbs.):**	NA
Equipment:	Backhoe	**Depth of Water ATD (ft bgs):**	NA
Drilling Company:	NA	**Total Boring Depth (ft bgs):**	4
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Test Pit		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0								TP-2	X	

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA
Casing Diameter (inches):	NA	**Surface Seal:**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA
Screened Interval (ft bgs):	NA		

Ground Surface Elevation (ft): 38 +/-1
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: TP-3

Client:
Project: Sauro's Cleanerama
Location: Tacoma, Washington

Farallon PN: 899-001

Logged By: Saltbush Env.

Date/Time Started:	4/13/2000	**Sampler Type:**	NA
Date/Time Completed:	4/13/2000	**Drive Hammer (lbs.):**	NA
Equipment:	Backhoe	**Depth of Water ATD (ft bgs):**	NA
Drilling Company:	NA	**Total Boring Depth (ft bgs):**	7.5
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Test Pit		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0										
5								TP-3	X	

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	38 +/-1
Casing Diameter (inches):	NA	**Surface Seal:**	NA	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Boring Abandonment:**	NA
Screened Interval (ft bgs):	NA			**Surveyed Location:** X: NA	Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: TP-4

Client:
Project: Sauro's Cleanerama
Location: Tacoma, Washington

Farallon PN: 899-001

Logged By: Saltbush Env.

Date/Time Started:	4/13/2000	**Sampler Type:**	NA
Date/Time Completed:	4/13/2000	**Drive Hammer (lbs.):**	NA
Equipment:	Backhoe	**Depth of Water ATD (ft bgs):**	NA
Drilling Company:	NA	**Total Boring Depth (ft bgs):**	5.5
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	NA
Drilling Method:	Test Pit		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0										
5								TP-4	X	

Well Construction Information

Monument Type:	NA	**Filter Pack:**	NA	**Ground Surface Elevation (ft):**	38 +/-1
Casing Diameter (inches):	NA	**Surface Seal:**	NA	**Top of Casing Elevation (ft):**	NA
Screen Slot Size (inches):	NA	**Annular Seal:**	NA	**Boring Abandonment:**	NA
Screened Interval (ft bgs):	NA			**Surveyed Location:** X: NA	Y: NA

LABORATORY TESTS

AL	Atterberg Limits
CP	Compaction
CS	Consolidation
DS	Direct shear
GS	Grain size
%F	Percent fines
HA	Hydrometer Analysis
SK	Permeability
SM	Moisture Content
MD	Moisture and density
SP	Swelling pressure
TX	Triaxial compression
UC	Unconfined compression
CA	Chemical analysis

SOIL GRAPH:

SM Soil Group Symbol (See Note 2)

Distinct Contact Between Soil Strata

Gradual or Approximate Location of Change Between Soil Strata

Water Level

Bottom of Boring

BLOW COUNT/SAMPLE DATA:

Blows required to drive a 2.4-inch I.D. split-barrel sampler 12 inches or other indicated distances using a 300-pound hammer falling 30 inches.

22 Location of relatively undisturbed sample

12 Location of disturbed sample

17 Location of sampling attempt with no recovery

Blows required to drive a 1.5-inch I.D. (SPT) split-barrel sampler 12 inches or other indicated distances using a 140-pound hammer falling 30 inches.

10 Location of sample obtained in general accordance with Standard Penetration Test (ASTM D-1586) procedures

26 Location of SPT sampling attempt with no recovery

Location of grab sample

"P" indicates sampler pushed with weight of hammer or against weight of drill rig.

NOTES:

1. The reader must refer to the discussion in the report text, the Key to Boring Log Symbols and the exploration logs for a proper understanding of subsurface conditions.
2. Soil classification system is summarized in Figure A-2.

File No. 8329-001-00-3150 WEH:JHB:tw

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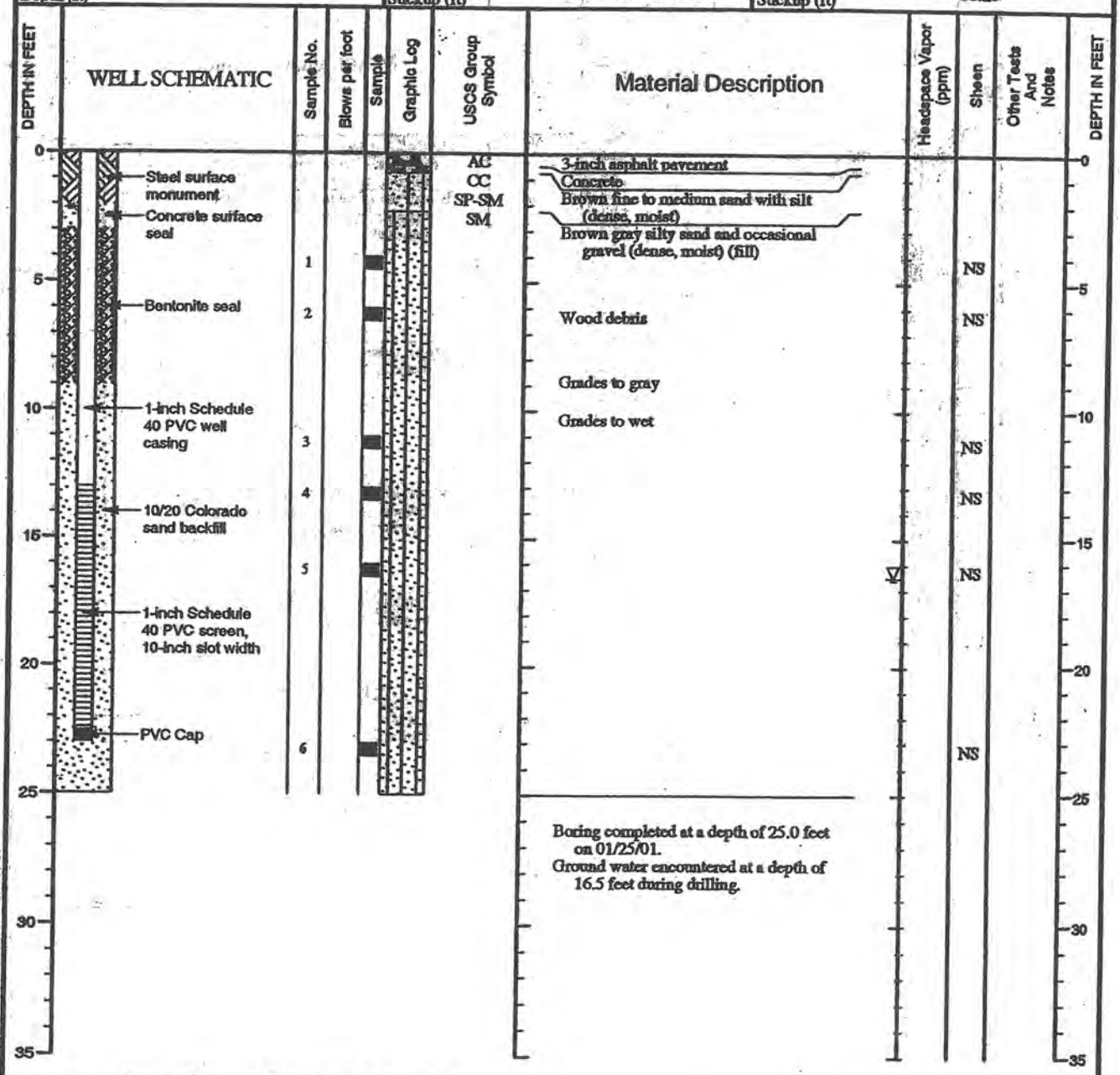
KEY TO BORING LOG SYMBOLS

FIGURE A-1

Project	Job Number	Location
Sauro's Cleanerama	8329-001-01	Tacoma, WA

Date Drilled	01/25/01	Logged By	SLM	Contractor	TEG
Drill Method	Strata Probe	Equipment		Drill Bit	
Sample Method	Continuous Split-Barrel Sampler	Hammer Data		X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	25	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	23.0	Monument Elevation (ft) Stickup (ft)	Not Measured	Casing Elevation (ft) Stickup (ft)	86.20



Note: See Figure A-2 for explanation of symbols

GEI WELL LOG 8329001.GPJ GEI_CORP.GDT 8/21/01 8329-001-01

GeoEngineers

LOG OF BORING SP-1 (MW-1)

FIGURE A-3

Project	Job Number	Location
Sauro's Cleanerama	8329-001-01	Tacoma, WA

Date Drilled	01/25/01	Logged By	SLM	Contractor	TEG
Drill Method	Strata Probe	Equipment		Drill Bit	
Sample Method	Continuous Split-Barrel Sampler	Hammer Data		X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	20	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	20.0	Monument Elevation (ft) Stickup (ft)	Not Measured	Casing Elevation (ft) Stickup (ft)	89.81

DEPTH IN FEET	WELL SCHEMATIC	Sample No.	Blows per foot	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0	Steel surface monument; Concrete surface seal					AC	Asphalt paving				0
						SP-SM	Brown fine to coarse sand with silt (dense, moist) (fill material)				
						AC					
						SM	Brown silty fine to coarse sand and occasional gravel (dense, moist) (fill material)				
5	Bentonite seal	1							NS		5
		2							NS		
	1-inch Schedule 40 PVC well casing					ML	Brown black sandy silt (soft, moist to wet) (fill)				
10		3							NS		10
	10/20 Colorado sand backfill	4							NS		
						SM	Brown gray silty fine to medium sand, occasional gravel and wood debris (medium dense, moist) (fill)				
15	1-inch Schedule 40 PVC screen, 10-inch slot width	5							NS		15
		6				SM	Brown silty fine to medium sand (dense, moist) (native)		NS		
20	PVC cap						Boring completed at a depth of 20.0 feet on 01/25/01. No ground water observed during drilling.				20
25											25
30											30
35											35

Note: See Figure A-2 for explanation of symbols

GEI WELL LOG 8329001.GPJ GEI_CORP.GDT 3/21/01 8329-001-01

Geo Engineers

LOG OF BORING SP-2 (MW-2)

FIGURE A-4

Project	Job Number	Location
Sauro's Cleanerama	8329-001-01	Tacoma, WA

Date Drilled	01/25/01	Logged By	SLM	Contractor	TEG
Drill Method	Strata Probe	Equipment		Drill Bit	
Sample Method	Continuous Split-Barrel Sampler	Hammer Data		X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	21	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	21.0	Monument Elevation (ft) Stickup (ft)	Not Measured	Casing Elevation (ft) Stickup (ft)	97.53

DEPTH IN FEET	WELL SCHEMATIC	Sample No.	Blows per foot	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0	Steel surface monument; Concrete surface seal					AC	Asphalt paving				0
						SP-SM	Brown fine to coarse sand with silt and gravel (dense, moist) (fill)				
		1				SM	Brown silty fine to medium sand with gravel (medium dense, moist) (weathered till)		NS		
5	Bentonite seal					SM	Gray silty fine to medium sand with gravel (dense, moist) (till)				5
		2							NS		
		3							NS		
10	1-inch Schedule 40 PVC well casing										10
		4							NS		
	10/20 Colorado sand backfill	5							NS		
15											15
	1-inch Schedule 40 PVC screen, 10-inch slot width	6							NS		
20		7				SP	Brown fine to coarse sand with gravel and trace of silt (dense, wet)		NS		20
	PVC Cap					SM	Brown silty fine to medium sand with gravel (dense, moist)				
							Boring completed at a depth of 21.0 feet on 01/25/01. No ground water observed during drilling.				
25											25
30											30
35											35

Note: See Figure A-2 for explanation of symbols

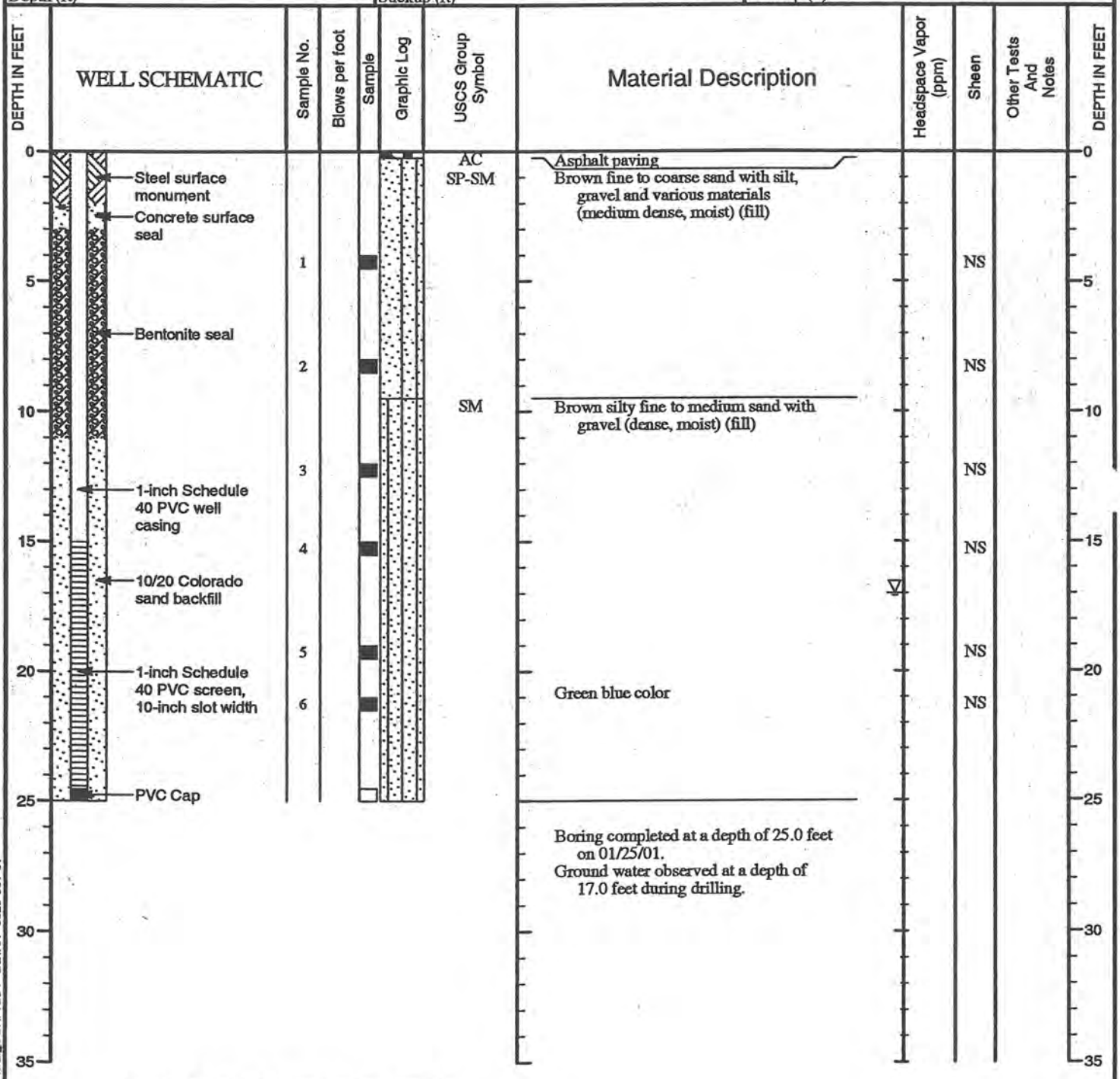
Geo Engineers

LOG OF BORING SP-3 (MW-3)

FIGURE A-5

Project	Job Number	Location
Sauro's Cleanerama	8329-001-01	Tacoma, WA

Date Drilled	01/25/01	Logged By	SLM	Contractor	TEG
Drill Method	Strata Probe	Equipment		Drill Bit	
Sample Method	Continuous Split-Barrel Sampler	Hammer Data		X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	25	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	25.0	Monument Elevation (ft) Stickup (ft)	Not Measured	Casing Elevation (ft) Stickup (ft)	88.61



Note: See Figure A-2 for explanation of symbols

GEI WELL LOG 8329001.GPJ GEI_CORP.GDT 3/21/01 8329-001-01

GeoEngineers

LOG OF BORING SP-4 (MW-4)

FIGURE A-6

Project	Job Number	Location
Sauro's Cleanerama	8329-001-01	Tacoma, WA

Date Drilled	01/26/01	Logged By	MHB	Contractor	TEG
Method	Strata Probe	Equipment		Drill Bit	
Sample Method	Continuous Split-Barrel Sampler	Hammer Data		X-coordinate: Y-coordinate:	Not Determined
Total Depth (ft)	25	Elevation (ft)	Not Measured	Datum: System:	
Total Well Depth (ft)	25.0	Monument Elevation (ft) Stickup (ft)	Not Measured	Casing Elevation (ft) Stickup (ft)	88.51

DEPTH IN FEET	WELL SCHEMATIC	Sample No.	Blows per foot	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0	Steel surface monument; Concrete surface seal					AC	Gravel				0
						SM	2-inch asphalt paving; Brown silty fine to coarse sand with gravel and occasional debris (dense, moist) (fill)				
5	Bentonite seal	1									5
		2				SP-SM	Brown fine to coarse sand with silt, gravel and occasional debris (dense, moist) (fill)				
10	1-inch Schedule 40 PVC well casing	3									10
		4									
15	10/20 Colorado sand backfill	5						▽			15
						ML	Gray silt with sand (stiff, wet)				
		6									
20	1-inch Schedule 40 PVC screen, 10-inch slot width	7				GP	Dark gray fine to coarse gravel with sand (dense, wet)				20
						ML	Gray silt with sand and occasional gravel (dense, moist)				
		8									
25	PVC Cap						Boring completed at a depth of 25.0 feet on 01/26/01. Ground water encountered at a depth of 18.0 feet during drilling.				25
30											30
35											35

Note: See Figure A-2 for explanation of symbols

J GEI_CORP.GDT 9/21/01 8329-001-01

GEI WELL LOG 8329

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LOG OF BORING SP-5 (MW-5)

FIGURE A-7

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-5A

Client: Former Sauro's Cleanerama
Project: Sauro's Cleanerama
Location: Tacoma, Washington
Farallon PN: 899-001
Logged By: GeoEngineers, Inc.

Date/Time Started:	07/11/03	**Sampler Type:**	Split Spoon Core Barrel
Date/Time Completed:	07/11/03	**Drive Hammer (lbs.):**	NA
Equipment:	StrataProbe	**Depth of Water ATD (ft bgs):**	16
Drilling Company:	ESN Northwest, Inc.	**Total Boring Depth (ft bgs):**	30
Drilling Foreman:	NA	**Total Well Depth (ft bgs):**	30
Drilling Method:	Direct Push		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		No soil samples were collected at MW-5A. Pushed to 30 feet below ground surface and set well.								
5										
10										
15										
20										
25										
30										

Well Construction Information

Monument Type: Flush Monument
Casing Diameter (inches): 1
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 15 to 30
Filter Pack: 10/20 sand
Surface Seal: Concrete
Annular Seal: Bentonite Chips
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 87.49
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-8

Client:
Project: Former Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: Farallon/A. Morine

Date/Time Started:	5/12/04 0900	**Sampler Type:**	SS 18"x2"
Date/Time Completed:	5/12/04 1430	**Drive Hammer (lbs.):**	140
Equipment:	CME 75	**Depth of Water ATD (ft bgs):**	7
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	NA
Drilling Foreman:	Scott	**Total Well Depth (ft bgs):**	32
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 6/6/6	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0										Cement
	X	FILL, silty gravel with sand, grey, loose, moist, no odor, gravel is concrete.	FILL		40	7/2/2		MW-8-3.5		
5	X	FILL, silty sand with gravel, brown-black, loose, moist, no odor, pieces of brick.	FILL		30	2/3/3		MW-8-7.0		
	X	FILL, silty sand with gravel, brown, loose, wet, no odor. Switched to a D & M sampler.	FILL		100	5/6/3	7.5	MW-8-8.5		
	X	FILL, sand with silt, minor gravel, grey-brown, loose, wet, no odor,	FILL		10	4/5/6		MW-8-10.0		
10	X	FILL, silt with sand, with gravel, brown-grey, soft, wet, no odor.	FILL		100	1/1/3	6.6	MW-8-11.5		Bentonite
	X	FILL, silt with sand, with gravel, grey, loose, wet, slight weathered petroleum odor.	FILL		90	3/4/4	9.2	MW-8-13.0		
	X	FILL, silty gravel with sand, grey, loose, wet, no odor, minor wood debris.	FILL		100	3/4/4	7.1	MW-8-14.5		
15	X	FILL, silty gravel with sand, grey, loose, wet, no odor, minor wood debris.	FILL		100	4/5/5	8	MW-8-16.0		

Well Construction Information

Monument Type: Steel Flush Mount
Casing Diameter (inches): 4" PVC
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 24.5 to 29.5

Filter Pack: #2/12 Medium Monterey Sand
Surface Seal: Concrete
Annular Seal: Bentonite Chips

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 38.20
Boring Abandonment: Bentonite backfill.
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issoquah, WA 98027

Log of Boring: MW-8

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 6/6/6	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
		FILL, silty sand to sandy silt with gravel, grey-brown, loose, wet, no odor.	FILL		50	5/6/6		MW-8-17.5		
		FILL, poorly graded silty sand with gravel, fine sand, grey, loose, wet, no odor.	FILL		100	4/4/5	5.4	MW-8-19.0		
		FILL, poorly graded silty sand, fine sand, dark-grey, loose, wet, no odor.	FILL		100	4/5/5	5.2	MW-8-20.5		
20		FILL, silty sand with gravel, dark-grey, loose, wet, no odor.	FILL		70	4/5/5		MW-8-22.0		
		FILL, silty sand to sandy silt with gravel, dark brown, loose, wet, no odor, fragments of wood.	FILL		100	3/3/3	5.2	MW-8-23.5		
		FILL, sandy silt minor gravel, grey, medium stiff, wet, no odor.	FILL		100	3/3/4	4.3	MW-8-25.0		
25		FILL, sandy silt with gravel, grey, very stiff, wet, no odor, trace roots.	FILL		70	4/8/12		MW-8-26.5		Sand Pack
		FILL, silty sand with gravel, angular gravel, grey, medium dense, wet, no odor	FILL		20	4/8/8		MW-8-28.0		
		Silty GRAVEL with sand, rounded coarse gravel, fine to coarse sand, grey, dense, wet, no odor.	GM		90	48/50/50	4.5	MW-8-29.5		Screen
30		Silty GRAVEL with sand, coarse gravel, grey, dense, wet, no odor.	GM		90	50/50/50	5.3	MW-8-31.0		Bentonite
		SAND with silt, with gravel, sand is medium to coarse, grey, very dense, wet, no odor.	SP-SM		100	0/6"-150	15.5	MW-8-31.5		

Well Construction Information

Monument Type: Steel Flush Mount
Casing Diameter (inches): 4" PVC
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 24.5 to 29.5

Filter Pack: #2/12 Medium Monterey Sand
Surface Seal: Concrete
Annular Seal: Bentonite Chips

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 38.20
Boring Abandonment: Bentonite backfill.
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-8S

Client:
Project: Former Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: Farallon/A. Morine

Date/Time Started:	5/13/04 1030	**Sampler Type:**	D&M SS 18"x2"
Date/Time Completed:	5/13/04 1200	**Drive Hammer (lbs.):**	140
Equipment:	CME 75	**Depth of Water ATD (ft bgs):**	7
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	15.5
Drilling Foreman:	Scott	**Total Well Depth (ft bgs):**	15
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0										Concrete
										Bentonile
5	X	FILL, gravelly silt and sand, brown, stiff, wet, no odor, contains fragments of brick and concrete.	FILL		70	4/6/4	0.0	MW-8S-6.5	X	
										Sand Pack
10	X	FILL, silty gravel with sand, rounded coarse gravel, grey-brown, loose, wet, no odor.	FILL		80	3/5/6	0.0	MW-8S-11.5		Screen
15	X	FILL, silty sand, fine to medium sand, grey-brown, loose, wet, no odor.	FILL		50	4/5/5	0.0	MW-8S-15.5		

Well Construction Information

Monument Type: Steel Flush Mount
Casing Diameter (inches): 2" PVC
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 5 to 15

Filter Pack: #2/12 Medium Monterey Sand
Surface Seal: Concrete
Annular Seal: Bentonite Chips

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: Bentonite backfill.
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-9

Client:
Project: Former Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: Farallon/A. Morine

Date/Time Started:	5/12/04 1450	**Sampler Type:**	D&M SS, SPT
Date/Time Completed:	5/13/04 1000	**Drive Hammer (lbs.):**	140, Auto Ham
Equipment:	CME 75	**Depth of Water ATD (ft bgs):**	6
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	NA
Drilling Foreman:	Scott	**Total Well Depth (ft bgs):**	18
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0										Concrete
		FILL, silty sand and gravel, brown, dense, moist, no odor, pieces of brick and concrete.	FILL		100	22/50-5"	6.1	MW-9-3.0		Bentonite
5		No recovery, no sample collected.			0	50-0"				
		Silty SAND with gravel, fine to coarse sand, tan, very dense, wet, no odor.	SM		100	50-6"	6.4	MW-9-6.5		
		Silty SAND with gravel, fine to coarse sand, tan, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SM		80	35/37/40	6.3	MW-9-9.5	X	
10		SAND with gravel and silt, medium sand, brown, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SP-SM		95	37/40/45	5.8	MW-9-11.0		
		No recovery, broken sampler.			0					Sand Pack
		SAND with silt, trace gravel, medium sand, brown, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SP-SM		70	19/25/32	5.2	MW-9-14.5		Screen
15		Silty SAND with gravel, angular gravel, brown, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SM		100	37/80/100	10.1	MW-9-16.0		
		SAND with gravel, with silt, angular gravel, brown, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SP-SM		80	30/62/70	12.1	MW-9-18.0		
		Silty SAND with gravel, fine sand, grey-brown, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SM		100	19/27/32	14.2	MW-9-20.0		Bentonite
20		SAND with gravel, fine to coarse sand, brown, dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SP		10	37/50/90	8.6	MW-9-22.0		

Well Construction Information

Monument Type: Steel Flush Mount
Casing Diameter (inches): 2" PVC
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 5 to 18

Filter Pack: #2/12 Medium Monterey Sand
Surface Seal: Concrete
Annular Seal: Bentonite Chips

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 38.72
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-10

Client:
Project: Former Sauro's Cleanerama
Location: Tacoma, Washington

Farallon PN: 899-001

Logged By: Farallon/A. Morine

Date/Time Started:	5/13/04 1515	**Sampler Type:**	D&M SS 18"x2"
Date/Time Completed:	5/13/04	**Drive Hammer (lbs.):**	140
Equipment:	CME 75	**Depth of Water ATD (ft bgs):**	17
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	36.5
Drilling Foreman:	Scott	**Total Well Depth (ft bgs):**	23
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		No recovery.			0	50-6"				Concrete
5		FILL, silty sand with gravel, fine to medium sand, brown, loose, brown, moist, no odor, brick pieces.	FILL		60	6/6/4	0.0	MW-10-6.5		Bentonite
		FILL, silty sand with gravel, fine to medium sand, brown, medium dense, moist, no odor, brick pieces, possible concrete.	FILL		100	10/7/6	0.0	MW-10-8.0		
		FILL, silty sand with gravel, fine to medium sand, brown, medium dense, moist, no odor, brick pieces.	FILL		40	6/7/7	0.0	MW-10-9.5		
10		FILL, silty sand with gravel, fine to medium sand, grey-brown, medium dense, moist, no odor.	FILL		50	8/9/10	0.0	MW-10-11.0		
		FILL, silty sand with gravel, fine to medium sand, light brown, medium dense, moist, no odor.	FILL		80	7/8/9	0.0	MW-10-12.5	X	
		FILL, silty sand with gravel, fine sand, rounded gravel, light brown, medium dense, moist, no odor.	FILL		100	6/7/7	0.0	MW-10-14.0		
15		FILL, silty sand with gravel, fine sand, rounded gravel, light brown, medium dense, moist, no odor.	FILL		35	3/7/8	0.0	MW-10-15.5		
		FILL, silty sand with gravel, fine sand, rounded gravel, light brown, medium dense, wet, no odor.	FILL		80	7/8/8	0.0	MW-10-17.0		
		FILL, silty sand with gravel, fine to coarse sand, well graded, black, loose, musty odor, wood pieces.	FILL		65	4/5/6	0.0	MW-10-18.5		

Well Construction Information

Monument Type: Steel flush mount
Casing Diameter (inches): 4" PVC
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 13 to 23

Filter Pack: #2/12 Medium Monterey Sand
Surface Seal: Concrete
Annular Seal: Bentonite Chips

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 49.35
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-10

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
		FILL, silty gravel with sand, grey-brown, loose, wet.	FILL		20	3/3/4		MW-10-20.0		Screen
20		FILL, silty gravel with sand to silty sand with gravel, black, medium dense, wet, unidentifiable odor, wood fragments.	FILL		70	5/6/7	0.0	MW-10-21.5		Sand Pack
		FILL, silty gravel with sand to silty sand with gravel, black, medium dense, wet, no odor, wood fragments.	FILL		100	8/10/10	0.0	MW-10-23.0		
		FILL, sandy silt with gravel, coarse to fine sand, coarse to fine gravel, stiff, wet, no odor, wood fragments.	FILL		90	7/8/8	0.0	MW-10-24.5		
25		FILL, sandy silt with gravel, coarse to fine sand, coarse to fine gravel, stiff, wet, no odor, wood fragments.	FILL		5	4/5/5				
		FILL, silty gravel with sand, dark grey, dense, wet, no odor, wood fragments, brick pieces.	FILL		100	10/15/18	0.0	MW-10-27.5		
		FILL, silty sand with gravel, fine to coarse sand, dark grey, dense, wet, no odor, wood pieces.	FILL		25	16/22/9		MW-10-29.0		Bentonite
		FILL, silty sand with gravel, fine to coarse sand, dark grey, loose, wet, no odor, wood pieces.	FILL		30	7/4/4		MW-10-30.5		
30		No recovery.			0	6/7/7				
		Poorly graded SAND with gravel, minor silt, fine to medium sand, angular to rounded gravel, grey, very dense, wet, no odor.	GP-GM		90	23/60/70	0.0	MW-10-33.5		
		Poorly graded SAND with gravel, minor silt, fine to medium sand, angular to rounded gravel, grey, very dense, wet, no odor.	GP-GM		100	50/70/80	0.0	MW-10-35.0		
35		Well graded SAND with silt, with gravel, grey, very dense, wet, no odor.	GM			50/90/100	0.0	MW-10-36.5		

Well Construction Information

Monument Type: Steel flush mount
Casing Diameter (inches): 4" PVC
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): 13 to 23

Filter Pack: #2/12 Medium Monterey Sand
Surface Seal: Concrete
Annular Seal: Bentonite Chips

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 49.35
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: MW-11S DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/21/07 0920	**Sampler Type:**	D&M SS 18"x2"
Date/Time Completed:	05/21/07 1200	**Drive Hammer (lbs.):**	300
Equipment:	CME 75	**Depth of Water ATD (ft bgs):**	13
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	25
Drilling Foreman:	James Gobel	**Total Well Depth (ft bgs):**	25
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0										Concrete
		3 - 3.5: SAND, fine to medium, with fine coarse gravel and silt, brown, dense, moist, no odor. 3.5 - 4.5: SAND, fine to medium, with fine to coarse gravel, brown, dense, moist, no odor, trace organics	SP		100	31/25/ 26	0.9	MW11S-3		Casing
5										Bentonite
		8 - 8.5: SAND, fine to medium, with fine to coarse gravel and silt, dark brownish-black, dense, moist, no odor. 8.5 - 9: SAND, fine, trace silt, light brown, dense, moist, no odor.	SP		100	37/50 for 6	0.5	MW11S-8		
10		9 - 9.5: sandy GRAVEL, medium sand, fine to coarse gravel, trace silt, brown, moist, no odor.	GP							Screen
										Sand
15		Sampler split in half, drilled to 20' to get past.								Screen
20		silty SAND, fine to medium, with gravel, fine to coarse, dark grey, dense, moist, no odor	SP		100	21/31/ 30	0.1	MW11S-21		Sand
										Screen
25		Same as above, wet	SP		50	50 for 6	0.1	MW11S-24.5		

Well Construction Information

Monument Type: Flush mount
Casing Diameter (inches): 4
Screen Slot Size (inches): NA
Screened Interval (ft bgs): 10-25
Filter Pack: Sand
Surface Seal: Concrete
Annular Seal: Bentonite
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: MW11D

DRAFT

nt: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA

Farallon PN: 899-001

Logged By: J. Cyr

Date/Time Started:	05/21/07 1230	Sampler Type:	D&M SS 18"x2"
Date/Time Completed:	05/21/07	Drive Hammer (lbs.):	300
Equipment:	CME 75	Depth of Water ATD (ft bgs):	NA
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	50
Drilling Foreman:	James Gobel	Total Well Depth (ft bgs):	50
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		Same as MW-11S to 25 feet.								Concrete
										Casing
5										Bentonite
										Casing
10										Bentonite
										Casing
15										Bentonite
										Casing
20										

Well Construction Information

Monument Type: Flush mount
Casing Diameter (inches): 4
Screen Slot Size (inches): NA
Screened Interval (ft bgs): 45-50

Filter Pack: Sand
Surface Seal: Concrete
Annular Seal: Bentonite

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: MW11D

DRAFT

Depth (feet)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 6/6/6	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
25		silty SAND, fine, minor fine to coarse gravel, dark grey, dense, no odor	SP		100	37/50 for 6	0.1	MW11-25		Bentonite
										Casing
30		SAND, fine to medium, trace silt, grey,dense, wet, no odor	SP		60	32/50 for 6	0.4	MW11-30		Bentonite
										Casing
35		GRAVEL, fine, trace silt, greyish-brown, wet, no odor. 1" pocket of medium sand, brown, at bottom of sampler	GM		40	50 for 6	0.1	MW11-35		Bentonite
40		GRAVEL, fine to coarse, with medium sand, brown, wet, no odor	GP		80	31/50 for 6	0.2	MW11-40		Casing
		SAND, medium to coarse, trace silt, brown, dense, wet, no odor. Lower 1-2": SILT, trace fine sand, dark grey, very stiff, moist, no odor	SP							
45		GRAVEL, fine to coarse, with fine to medium sand, minor silt, grey, wet, no odor	GP		75	21/20/ 26	0.1	MW11-45		Sand
										Screen
										Sand
50		Sampler filled due to heave. Upper 6": sandy GRAVEL, fine to coarse, medium to coarse sand, trace silt, grey, wet, no odor. lower 12": GRAVEL, fine to coarse, with sand, medium to coarse, trace silt, grey, wet, no odor.	GP		100	50 for 6	0.1	MW11-49.5		

Well Construction Information

Monument Type: Flush mount
Casing Diameter (inches): 4
Screen Slot Size (inches): NA
Screened Interval (ft bgs): 45-50

Filter Pack: Sand
Surface Seal: Concrete
Annular Seal: Bentonite

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: MW-13

DRAFT

Client: Sauro's CLeaneramam, Inc.
Project: Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: F. Reider

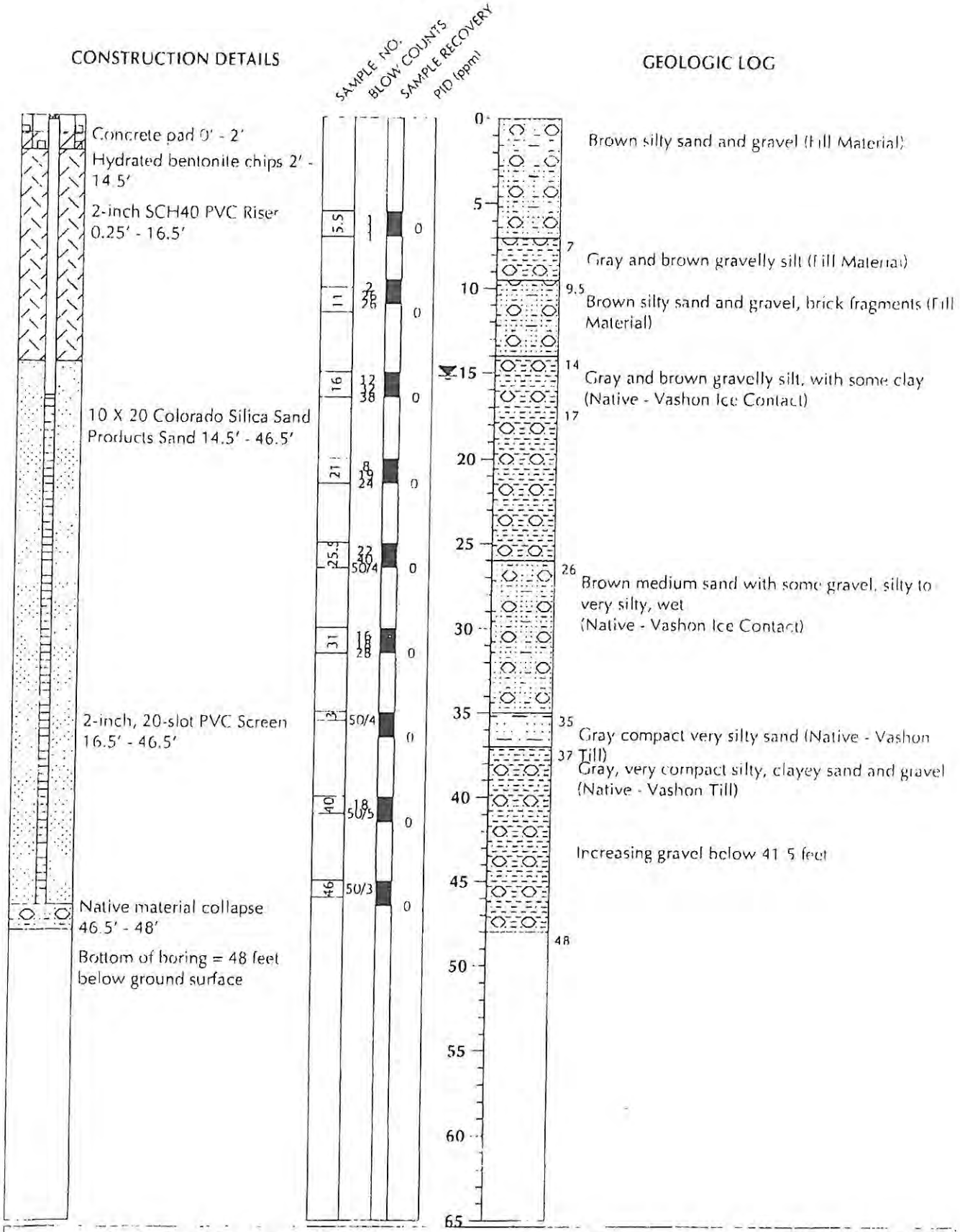
Date/Time Started:	9/21/07 0830	**Sampler Type:**	D&M SS 18"x2"
Date/Time Completed:	9/21/07	**Drive Hammer (lbs.):**	300
Equipment:	CME 75	**Depth of Water ATD (ft bgs):**	~47.5
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	57.5
Drilling Foreman:	Andy	**Total Well Depth (ft bgs):**	56
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0										Concrete
5		4-5.5' No recovery.			0		NA			Casing
10		9-10.5' Silty fine to coarse GRAVEL, minor sand, light brown, very dense, moist, no odor.	GM		50	17/50 for 4"	NA	MW13-092107-9-10.5		Bentonite Chips
15		14-15.5' SILT with fine to coarse gravel, light brown, very dense, moist, no odor.	ML		70	50 for 6"	NA	MW13-092107-14-15.5		
20		19-20.5' SILT, minor gracel, trace sand, light brown, medium dense, moist, no odor.	ML		70	21/26/27	NA	MW13-092107-19-20.5		
25		24-25.5' Sandy SILT, sand very fine, light brown, medium dense, moist, no odor.	ML		90	12/20/26	NA	MW13-092107-24-25.5		
30		29-30' Sandy fine GRAVEL, trace silt, medium brown, very dense, moist, no odor.	GP		60	25/50 for 6"	NA	MW13-092107-29-30		
35		34-35.5' Fine to medium SAND, minor gravel, light brown, very dense, moist, no odor.	SP		90	25/50 for 4"	NA	MW13-092107-34-35.5	Y	
40		39-40.5' Sandy SILT, sand fine to medium, trace gravel, light brown, very dense, moist, no odor.	ML		100	18/50 for 6"	NA	MW13-092107-39-40.5		
45		44-45' Same as above, sand is fine, light brown with orange mottling, medium dense, moist, no odor.	ML		100	10/12/16	NA	MW13-092107-44-45	Y	▽
50		49-50.5' fine to coarse SAND with gravel and silt, light brown, very dense, wet, no odor.	SP		80	26/50 for 6"	NA			Screen
55										Sandpack

Well Construction Information

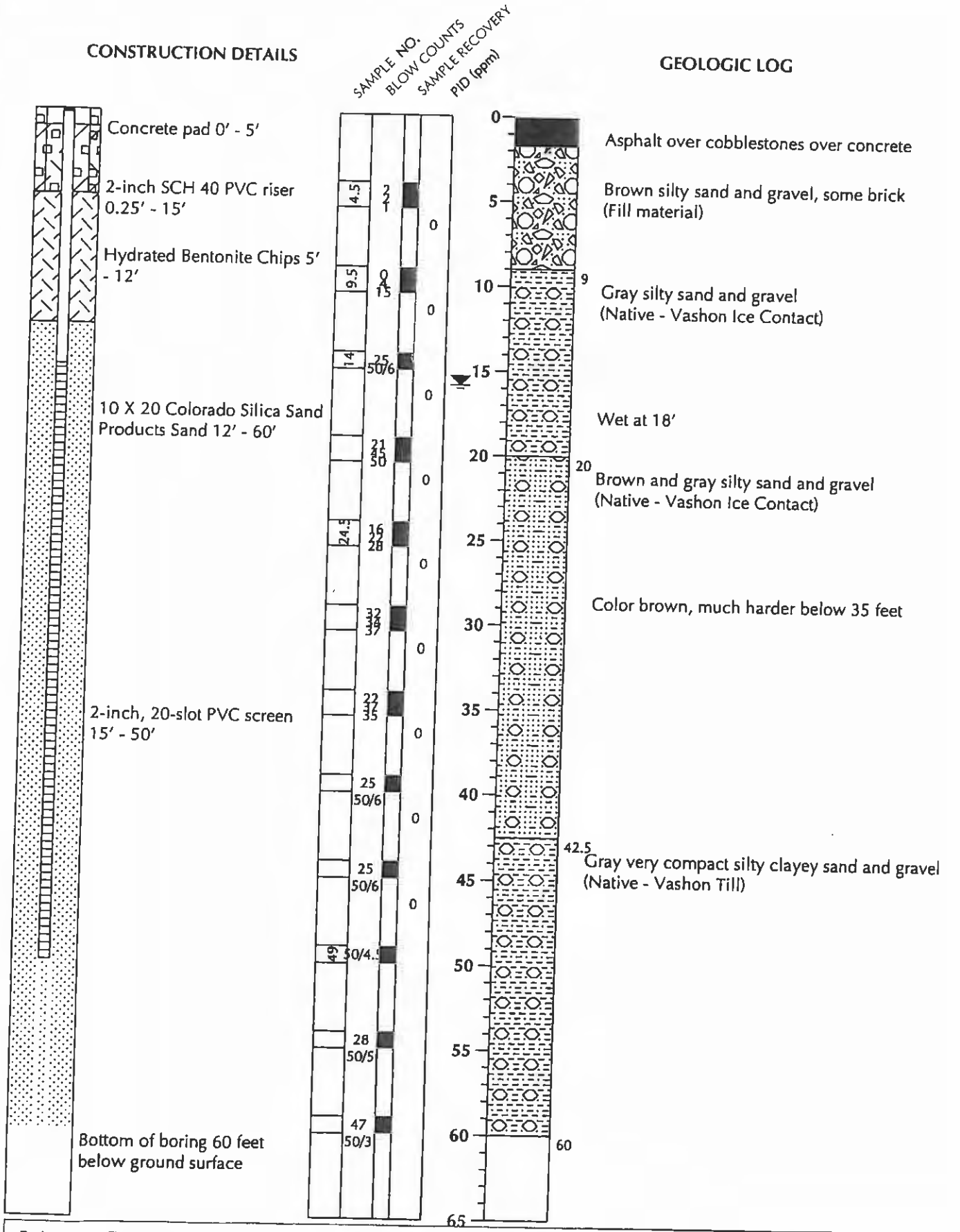
Monument Type: Flush Mount
Casing Diameter (inches): 2"
Screen Slot Size (inches): 0.01
Screened Interval (ft bgs): 46'-56'
Filter Pack: Sand
Surface Seal: Concrete/Asphalt
Annular Seal: Bentonite
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

RNSMW1



Project:	Horizon: Sauro's Cleanerama	Drilling Info:	Holt Drilling/Boart Longyear	Total Depth:	48 ft.	ROBINSON NOBLE SALTBRUSH INC.
Location:	14th & Pacific Tacoma, WA		Hollow Stem Auger	Elevation:	48.45 ft.	
Job Number	2126-002B		5 foot samples	Township/Range:	20 N 3 E	
Date:	6/14/2006	Logged By:	JEH	Section:	4	

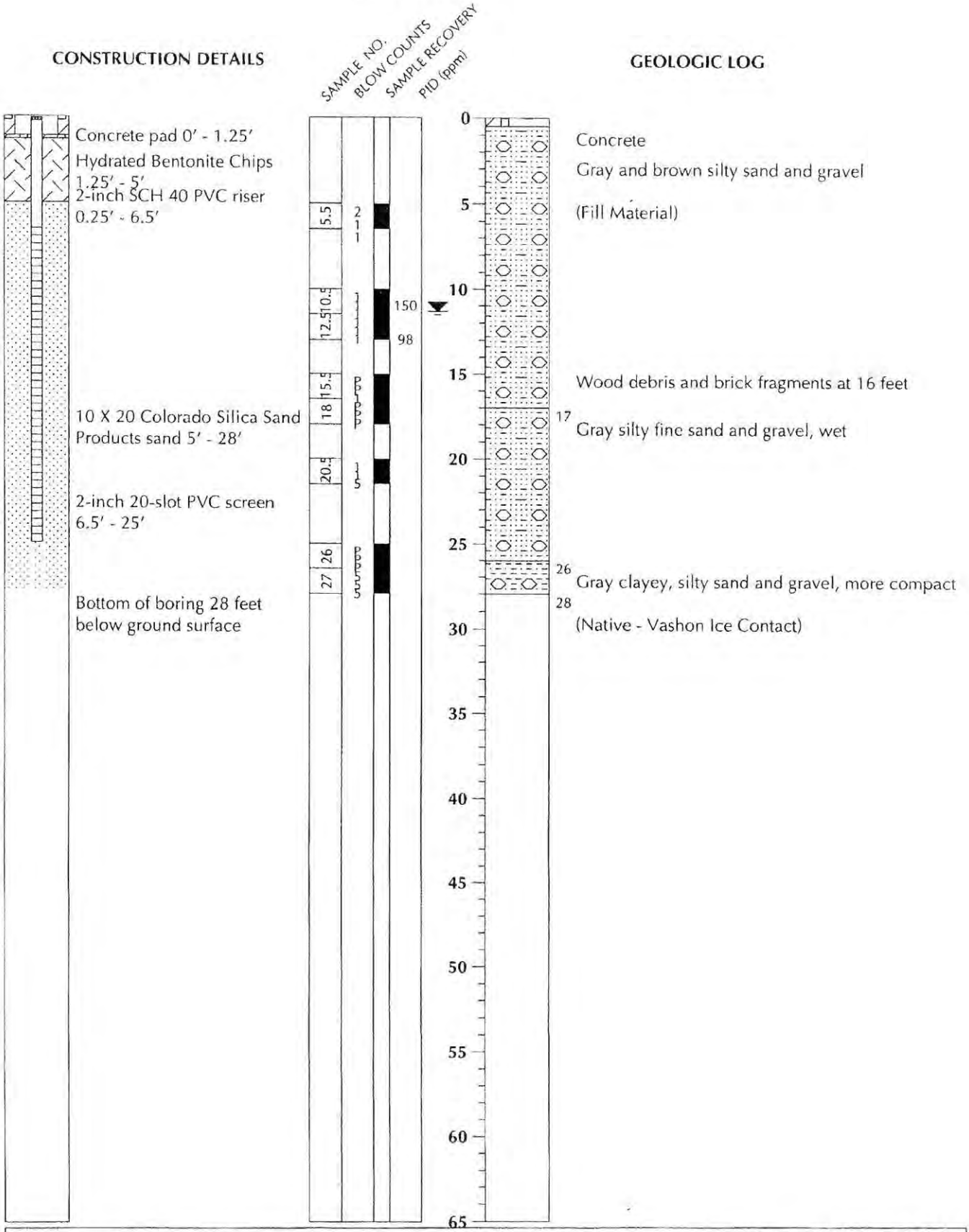
RNSMW2



Project:	Horizon: Sauro's Cleanerama	Drilling Info:	Holt Drilling/Boart Longyear	Total Depth:	60 ft.
Location:	14th & Pacific Tacoma, WA		Hollow Stem Auger	Elevation:	52.41 ft.
Job Number:	2126-002B		5 foot samples	Township/Range:	20 N 3 E
Date:	6/16/2006	Logged By:	MFP	Section:	4

ROBINSON NOBLE SALTBUSH INC.
GROUNDWATER & ENVIRONMENTAL SCIENTISTS

RNSMW3



Project:	Horizon: Sauro's Cleanerama	Drilling Info:	Holt Drilling/Boart Longyear	Total Depth:	28 ft.		
Location:	14th & Pacific Tacoma, WA		Hollow Stem Auger	Elevation:	35.8 ft.		
Job Number:	2126-002B		5 foot samples	Township/Range:	20 N	3 E	
Date:	6/16/2006	Logged By:	RAB	Section:	4		

ROBINSON NOBLE SALTBUSH INC.
GROUNDWATER & ENVIRONMENTAL SCIENTISTS

HOLT DRILLING, INC.

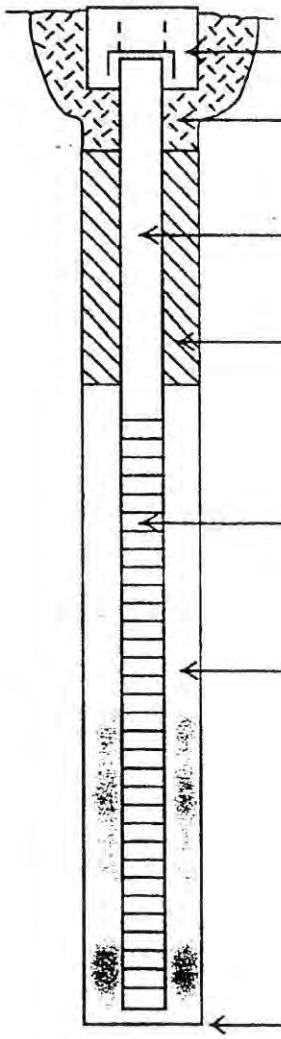
Resource Protection Well Report

RNS-MW4
33.5-43.5 screen

Project Name Tacoma
Well Identification # AKG 779
Drilling Method 4" HSA
Driller Dave Puckett
License # 2769

Date 12-7-06
County Pierce, SE ¼ NW ¼
Section 4 T. 20N R. 3E
Street Address 4th and A St
Start Card R 70575
Consulting Firm Robinson and Noble

AS-BUILT | WELL DATA | FORMATION DESCRIPTION



MONUMENT TYPE: Flush
CONCRETE SURFACE SEAL 6 ft.
PVC BLANK 2 "x 34'
BACKFILL 27 ft.
TYPE: Bentonite hdeplug
PVC SCREEN 2 "x 10'
SLOT SIZE: .020
TYPE: PVC
GRAVEL PACK 11 ft.
MATERIAL 10x20 Sand
WELL DEPTH 44' 0"

0 - 10 ft.
Backfill, Sand gravel, bricle

10 - 35 ft.
Silty Fine Sand

35' - 45' ft.
Course Sand, Small gravels

- ft.

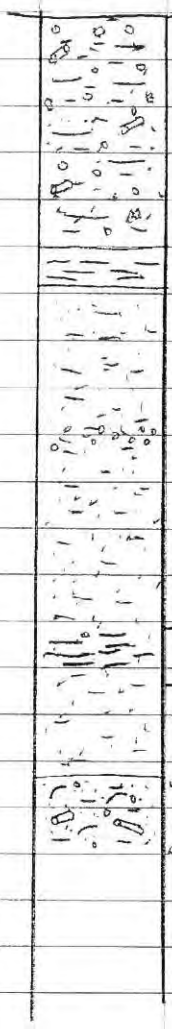
- ft.

REMARKS

Signature Paul Puckett

332.FDB/D41029.EPS

RNTOMW4 Geologic log



5 Brown grey silty clayey sand & gravel some wood & brick observed "fill"

10

12.5' grey blue silty clay some very fine sand

15 grey silty sand & gravel wood

20 fill material

23' grey brown sand & gravel

25

30

35 grey brown clay fine sand

36

40

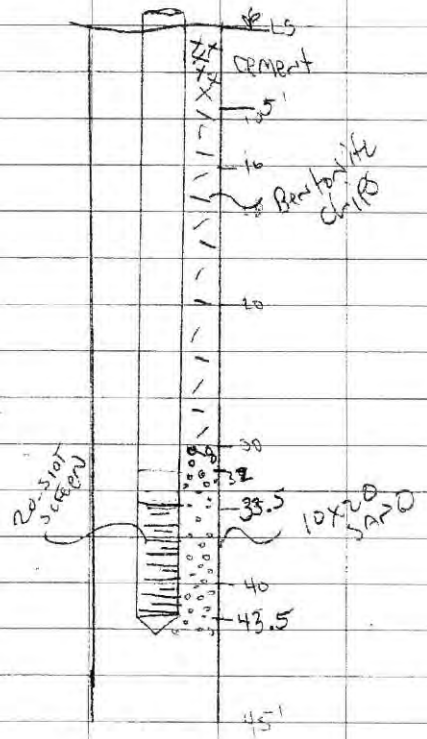
42' grey blk sand shells wood & pea gravel some silty clayey zones marine odor

45

50

Discussion with JOE decide to screen
33.5' to 43.5
SAND 30' to 45.0'
chips to 5' below ground surface
5' of Concrete to complete Monument
See figure below

RNSMW4 completion



HOLT DRILLING, INC.

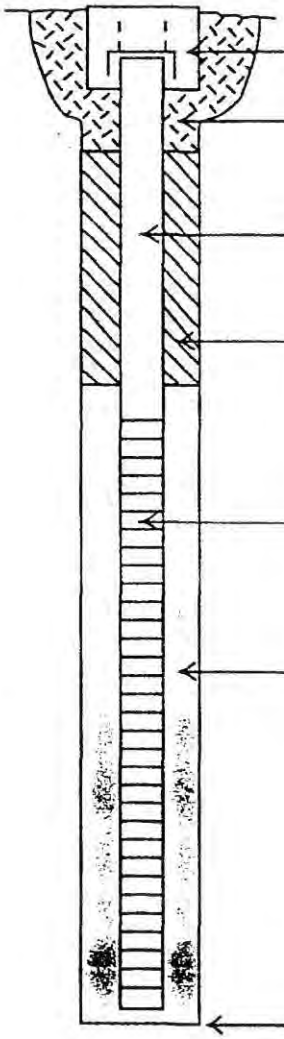
Resource Protection Well Report

RNS-MWS screen 30-45'.

Project Name Tacoma
Well Identification # AKG 780
Drilling Method 4" HSA
Driller Dave Puckett
License # 2769

Date 12-8-06
County Pierce, SE ¼ NW ¼
Section 4 T. 20N R. 3E
Street Address 4th and A st
Start Card R70575
Consulting Firm Robinson and Noble

AS-BUILT



WELL DATA

MONUMENT TYPE: Flush
CONCRETE SURFACE SEAL 5 ft.
PVC BLANK 2 "x 35'
BACKFILL 29 ft.
TYPE: Bentonite hydplug
PVC SCREEN 2 "x 10'
SLOT SIZE: .020
TYPE: PVC
GRAVEL PACK 11 ft.
MATERIAL: 10x20 Sand
WELL DEPTH 45.0 '

FORMATION DESCRIPTION

0 - 10 ft.
Fill, Sand, gravel
Brick

10 - 35 ft.
Silty Fine Sand

35 - 45 ft.
Sand, gravel
Grey Till

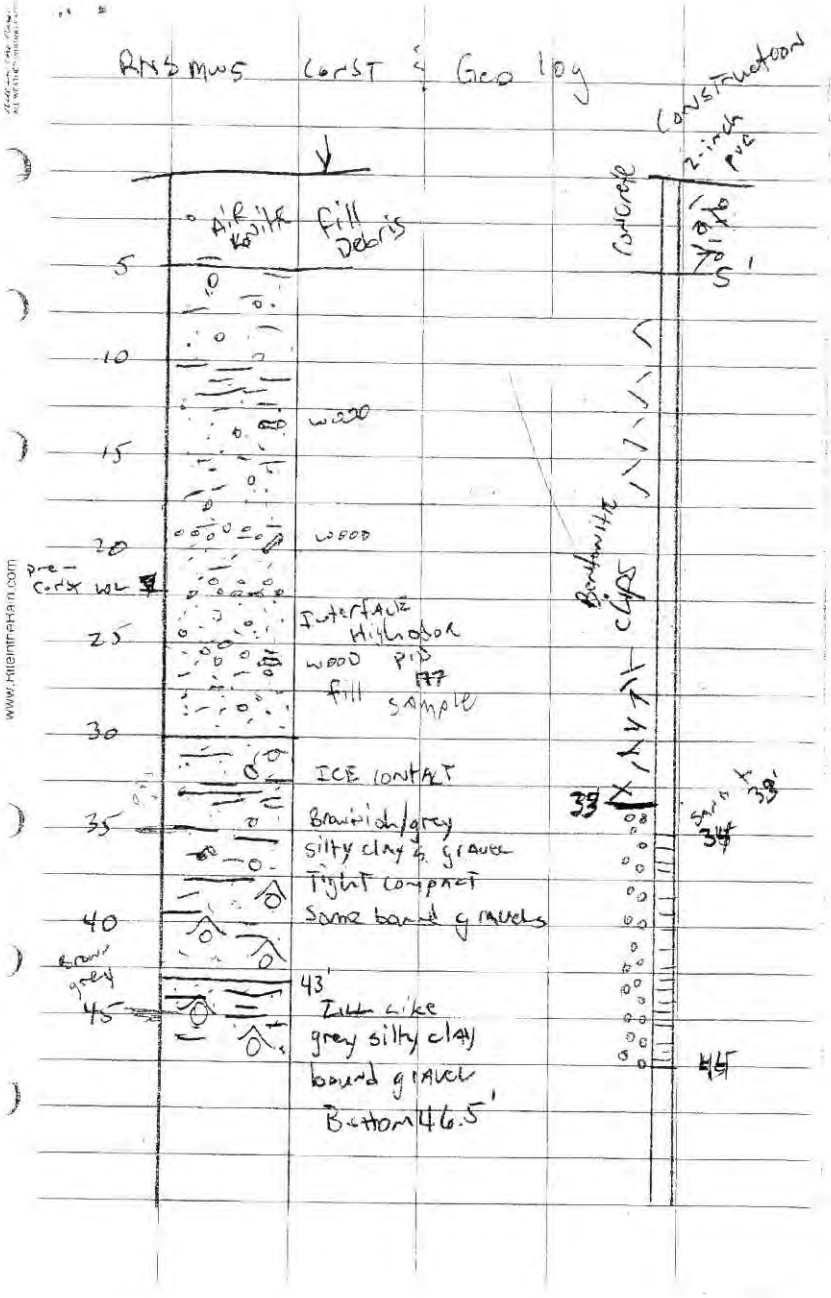
- ft.

- ft.

REMARKS

Signature David Puckett

1332 FDB/041029.EPS


RMSMWS CONST & Geo log
CONSTRUCTION
2-inch PVC
concrete
Air silk
fill
Debris
5
10
wood
15
20
wood
pre-
Cont WL
25
Interface
Highlabor
wood pip
fill sample
30
ICE CONTACT
Bentonite chips
33
35
Brownish/grey
silty clay & gravel
Tight compact
Some bound gravels
40
brown
grey
45
43'
Till like
grey silty clay
bound gravel
Bottom 46.5'
Sand
38'
34'
45'

HOLT DRILLING, INC.

Resource Protection Well Report

RNS-MW6
Screen 37-57

Project Name Sauros

Well Identification # AKG-782 (RNS MW-6)

Drilling Method 4" HSA

Driller Michael Reynolds

License # 2636

Date 12-12-06

County Pierce, SE ¼ NW ¼

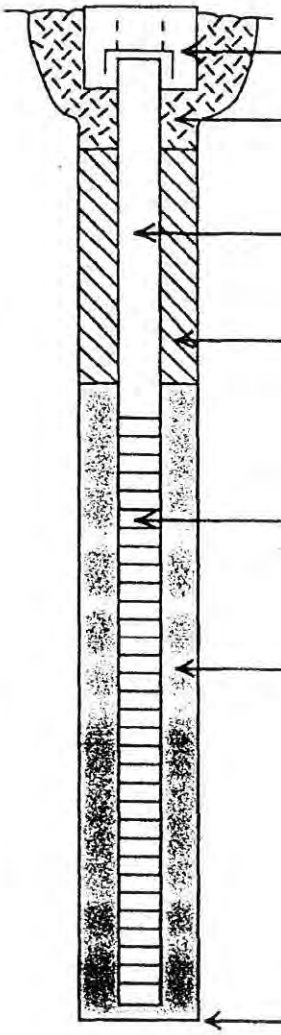
Section 4 T. 20N R. 3E

Street Address

Start Card R70575

Consulting Firm Robinson + Noble

AS-BUILT



WELL DATA

MONUMENT TYPE: Flush

CONCRETE SURFACE SEAL 5 ft.

PVC BLANK 2 "x 38 '

BACKFILL 33 ft.

TYPE: 3/8" Holeplug

PVC SCREEN 2 "x 20 '

SLOT SIZE: .020

TYPE: Flush Thread

GRAVEL PACK 22 ft.

MATERIAL: 10/20 Silica

WELL DEPTH 58 ' — "

FORMATION DESCRIPTION

0 - 1 ft.
Asphalt

1 - 5 ft.
Brn Fine-Med Sand.

5 - 30 ft.
Brn Fine-Med Silty Sand w/Sm-Med Gravels + Scattered Lg Gravels

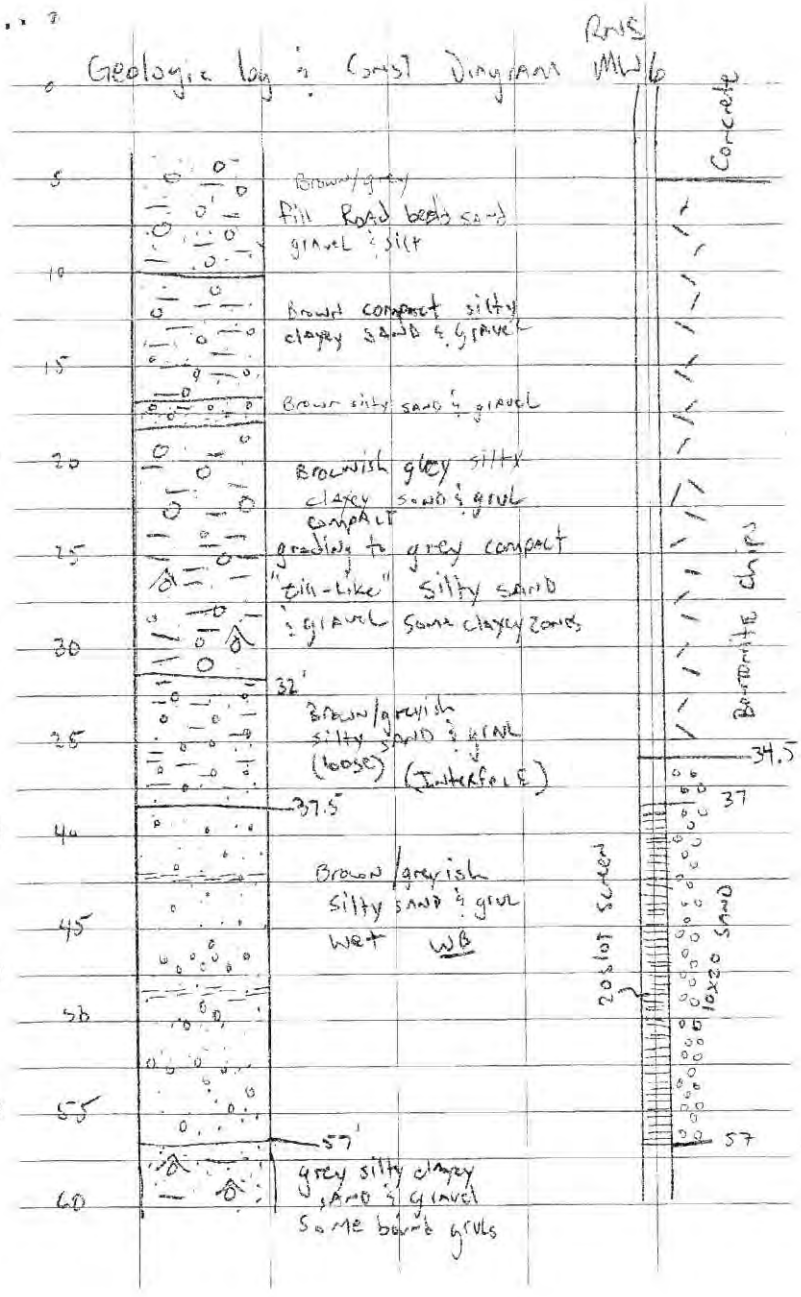
30 - 39 ft.
Gry Till

39 - 58 ft.
Brn Silty Med Sand w/Scattered Med. Gravels

REMARKS [redacted]

Signature Michael J Reynolds

AV039.CDR


Geologic log & Const Diagram
RMS
MW6
Concrete
Brown/grey
fill Road bed: sand
gravel & silt
Brown compact silty
clayey SAND & GRAVEL
Brown silty sand & gravel
Brownish grey silty
clayey sand & gravel
compact
gradual to grey compact
"till-like" silty sand
& GRAVEL some clayey zones
32'
Brown/greyish
silty SAND & GRAVEL
(loose) (Interbed)
37.5'
Brown/greyish
silty SAND & GRAVEL
wet WB
grey silty clayey
SAND & GRAVEL
some boulder grvls
Bentonite chips
34.5
37
20 slot screen
10x20 sand
57
5
10
15
20
25
30
35
40
45
50
55
60

HOLT DRILLING, INC.

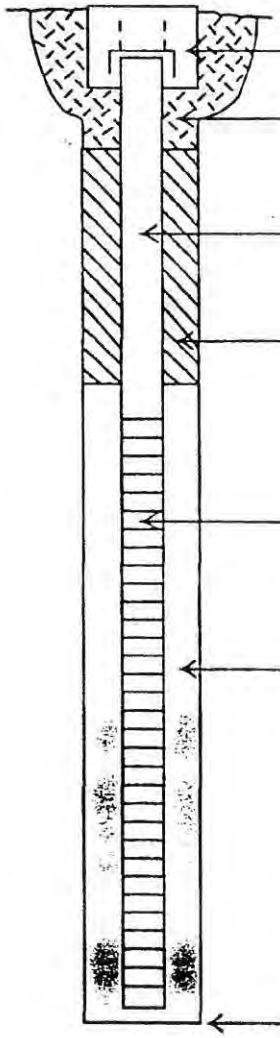
Resource Protection Well Report

RNS-MW1
screen 33.5-48.5

Project Name Tacoma
Well Identification # AKG-781
Drilling Method 4" HSA
Driller Dave Puckett
License # 2769

Date 12-11-06
County Pierce, SE ¼ NW ¼
Section 4 T. 20N R. 3E
Street Address 4th and A st
Start Card R 70575
Consulting Firm Robinson and Noble

AS-BUILT



WELL DATA

MONUMENT TYPE: Flush
CONCRETE SURFACE SEAL 6 ft.
PVC BLANK 2 "x 35 '
BACKFILL 32 ft.
TYPE: Bentonite hole plug
PVC SCREEN 2 "x 15 '
SLOT SIZE: .020
TYPE: PVC
GRAVEL PACK 12 ft.
MATERIAL: 10/20 Sand
WELL DEPTH 50 ' 0 "

FORMATION DESCRIPTION

0 - 10 ft.
Sand, medium gravels and cobbles

10 - 20 ft.
Silty, Sand and gravel

20 - 35 ft.
Large gravels
Fine - course Sand

35 - 50 ft.
Dense course Sand
cobbles

- ft.

REMARKS

Signature Daniel Puckett

332.FDB/D41029.EPS

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: SVE-1

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	5/22/07 0845	**Sampler Type:**	D&M SS
Date/Time Completed:	5/22/07 1100	**Drive Hammer (lbs.):**	300
Equipment:	CME 175	**Depth of Water ATD (ft bgs):**	13.5
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	25
Drilling Foreman:	James Gobel	**Total Well Depth (ft bgs):**	14
Drilling Method:	HSA		

Depth (feet bgs.)	Lithologic Description	USCS	% Recovery	Blow Counts 8/8/8	Sample ID	Boring/Well Construction Details
0	0-3" Asphalt					Grout
5	4'-5' SAND, fine to medium, trace silt and fine gravel, greyish-brown, loose, moist, no odor.	SP	100		MW2-4-5	
10	9'-10' Same as above, minor silt and fine to coarse gravel.	SP	50		MW2-9-10	Bentonite Chips
15	14'-15' SILT with fine sand and fine to coarse gravel, grey, medium stiff, moist, no odor.	ML	100		MW2-14-15	Blank
20	19'-20' SAND, fine to medium, with silt, minor fine to coarse gravel, grey, very loose, moist, no odor.	SP	100		MW2-19-20	
25	24'-25' SILT with fine sand, brown with rust mottling, medium stiff, moist, no odor.	ML	80		MW2-24-25	

Well Construction Information

Monument Type: Flush-mount
Casing Diameter (inches): 4"
Screen Slot Size (inches): 0.010
Screened Interval (ft bgs): NA
Filter Pack: 2/12 Sand
Surface Seal: Grout
Annular Seal: Bentonite
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

APPENDIX D

Investigation-Derived Waste Disposal Documentation

2009 Interim Action Soil Removal Totals
Dock Street Borings Waste Disposal Documentation
Laboratory Data Packages for Waste Disposal (2009 and 2013)

TABLE D-1
2009 INTERIM ACTION CATEGORIZED WASTE REMOVAL TOTALS FROM CONTRACTOR
SAURO'S PROPERTY RI/FS
TACOMA, WASHINGTON

Document ID	Job #	Date	Facility	Material Type	Scale Ticket #	Trucking Co.	Truck #	BOL #	Tons
32431	209052	10/1/2009	Chemical Waste Management	Cat 1	002656040FLE	Steve Forler Trucking Inc.	11	405241	30.65
32432	209052	10/1/2009	Chemical Waste Management	Cat 1	002656041FLE	Steve Forler Trucking Inc.		405243	30.43
32433	209052	10/1/2009	Chemical Waste Management	Cat 1	002656042FLE	Steve Forler Trucking Inc.	44	405242	29.88
32434	209052	10/1/2009	Chemical Waste Management	Cat 1	002656043FLE	Steve Forler Trucking Inc.		405244	28.63
32435	209052	10/1/2009	Chemical Waste Management	Cat 1	002656079FLE	Steve Forler Trucking Inc.	51	405264	35.78
32436	209052	10/1/2009	Chemical Waste Management	Cat 1	002656080FLE	Steve Forler Trucking Inc.	142	405266	35.15
32437	209052	10/1/2009	Chemical Waste Management	Cat 1	002656081FLE	Steve Forler Trucking Inc.	144	405265	35.15
32438	209052	10/1/2009	Chemical Waste Management	Cat 1	002656082FLE	Steve Forler Trucking Inc.	167	405267	37.95
32439	209052	10/1/2009	Chemical Waste Management	Cat 1	002656083FLE	Steve Forler Trucking Inc.		405268	36.65
32440	209052	10/1/2009	Chemical Waste Management	Cat 1	002656084FLE	Steve Forler Trucking Inc.		405269	39.5
32442	209052	10/5/2009	Chemical Waste Management	Cat 1	002656085FLE	Steve Forler Trucking Inc.	545	405271	39.45
32443	209052	10/6/2009	Chemical Waste Management	Cat 1	002656086FLE	Steve Forler Trucking Inc.	67	405309	30.23
32444	209052	10/6/2009	Chemical Waste Management	Cat 1	002656087FLE	Steve Forler Trucking Inc.	142	405310	28.88
32445	209052	10/6/2009	Chemical Waste Management	Cat 1	002656088FLE	Steve Forler Trucking Inc.	51	405312	32.85
32446	209052	10/6/2009	Chemical Waste Management	Cat 1	002656089FLE	Steve Forler Trucking Inc.	144	405315	32
32447	209052	10/6/2009	Chemical Waste Management	Cat 1	002656090FLE	Steve Forler Trucking Inc.	65	405316	34.7
32448	209052	10/6/2009	Chemical Waste Management	Cat 1	002656091FLE	Steve Forler Trucking Inc.	71	405317	31.9
32449	209052	10/6/2009	Chemical Waste Management	Cat 1	002656092FLE	Steve Forler Trucking Inc.	47	405318	30.05
32451	209052	10/6/2009	Chemical Waste Management	Cat 1	002656093FLE	Steve Forler Trucking Inc.	545	405313	22.6
32453	209052	10/6/2009	Chemical Waste Management	Cat 1	002656094FLE	Newsom Bros.	10	405314	35.08
32455	209052	10/6/2009	Chemical Waste Management	Cat 1	002656095FLE	Envircon and Trucking Inc	22	405320	33.23
32457	209052	10/6/2009	Chemical Waste Management	Cat 1	002656096FLE	Envircon and Trucking Inc	23	405321	31.4
32459	209052	10/6/2009	Chemical Waste Management	Cat 1	002656097FLE	Envircon and Trucking Inc	11	405322	32.6
32461	209052	10/6/2009	Chemical Waste Management	Cat 1	002656098FLE	Envircon and Trucking Inc	20	405323	31.65
32463	209052	10/6/2009	Chemical Waste Management	Cat 1	002656099FLE	Envircon and Trucking Inc	18	405324	30.6
32465	209052	10/6/2009	Chemical Waste Management	Cat 1	002656100FLE	Envircon and Trucking Inc	1	405325	32.85
32466	209052	10/7/2009	Chemical Waste Management	Cat 1	002656101FLE	Steve Forler Trucking Inc.	17	405345	29.95
32467	209052	10/7/2009	Chemical Waste Management	Cat 1	002656102FLE	Steve Forler Trucking Inc.	71	405338	30.95
32468	209052	10/7/2009	Chemical Waste Management	Cat 1	002656103FLE	Steve Forler Trucking Inc.	65	405340	30.83
32469	209052	10/7/2009	Chemical Waste Management	Cat 1	002656104FLE	Steve Forler Trucking Inc.	44	405346	30.28
32470	209052	10/7/2009	Chemical Waste Management	Cat 1	002656105FLE	Steve Forler Trucking Inc.	142	405347	30.78
32471	209052	10/7/2009	Chemical Waste Management	Cat 1	002656106FLE	Steve Forler Trucking Inc.	51	405341	29.85
32472	209052	10/7/2009	Chemical Waste Management	Cat 1	002656107FLE	Steve Forler Trucking Inc.	67	405342	30.53
32474	209052	10/7/2009	Chemical Waste Management	Cat 1	002656108FLE	Steve Forler Trucking Inc.	545	405343	29.9
32477	209052	10/7/2009	Chemical Waste Management	Cat 1	002656109FLE	Envirocon and Trucking Inc	18	405355	28.73
32479	209052	10/7/2009	Chemical Waste Management	Cat 1	002656110FLE	Envirocon and Trucking Inc	20	405349	31.43
32481	209052	10/7/2009	Chemical Waste Management	Cat 1	002656111FLE	Envirocon and Trucking Inc	26	405351	32.78
32483	209052	10/7/2009	Chemical Waste Management	Cat 1	002656112FLE	Envirocon and Trucking Inc	11	405352	32.2
32485	209052	10/7/2009	Chemical Waste Management	Cat 1	002656113FLE	Envirocon and Trucking Inc	1	405354	32.9
32487	209052	10/7/2009	Chemical Waste Management	Cat 1	002656114FLE	Envirocon and Trucking Inc	23	405356	33.28
32489	209052	10/13/2009	Chemical Waste Management	Cat 1	002656115FLE	Envirocon and Trucking Inc	11	405429	34

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Document ID	Job #	Date	Facility	Material Type	Scale Ticket #	Trucking Co.	Truck #	BOL #	Tons
32491	209052	10/13/2009	Chemical Waste Management	Cat 1	002656116FLE	Envirocon and Trucking Inc	20	405428	31.35
32493	209052	10/13/2009	Chemical Waste Management	Cat 1	002656117FLE	Envirocon and Trucking Inc	26	405430	32.45
32692	209052	10/13/2009	Chemcial Waste Management	Cat 1	002656118FLE	Envirocon and Trucking Inc	23	405431	33.63
32879	209052	10/27/2009	Chemical Waste Management	Cat 1	002656119FLE	Steve Forler Trucking			27.4
32880	209052	10/27/2009	Chemical Waste Management	Cat 1	002656120FLE	Steve Forler Trucking			28.23
33003	209052	10/27/2009	Chemical Waste Management	Cat 1	002656121FLE	Envirocon Trucking	4	15717	31.83
32881	209052	10/27/2009	Chemical Waste Management	Cat 1	002656122FLE	Steve Forler Trucking			32.53
32884	209052	10/27/2009	Chemical Waste Management	Cat 1	002656123FLE	Steve Forler Trucking			29.03
32882	209052	10/27/2009	Chemical Waste Management	Cat 1	002656124FLE	Steve Forler Trucking			29.55
32883	209052	10/27/2009	Chemical Waste Management	Cat 1	002656125FLE	Steve Forler Trucking			28.85
32885	209052	10/27/2009	Chemical Waste Management	Cat 1	002656126FLE	Steve Forler Trucking			30.2
32886	209052	10/27/2009	Chemical Waste Management	Cat 1	002656127FLE	Envirocon Trucking	22	23904	32.18
32887	209052	10/27/2009	Chemical Waste Management	Cat 1	002656128FLE	Steve Forler Trucking			30.83
32888	209052	10/27/2009	Chemical Waste Management	Cat 1	002656129FLE	Envirocon Trucking	M2	23928	32.25
32997	209052	10/27/2009	Chemical Waste Management	Cat 1	002656130FLE	Envirocon Trucking	5	15718	31.73
32893	209052	10/27/2009	Chemical Waste Management	Cat 1	002656131FLE	Envirocon Trucking	23	19640	33.23
32950	209052	10/27/2009	Chemical Waste Management	Cat 1	002656133FLE	Envirocon Trucking	6	19972	30.55
32999	209052	10/28/2009	Chemical Waste Management	Cat 1	002656132FLE	Envirocon Trucking	10	3446	34.75
32973	209052	11/2/2009	Chemical Waste Management	Cat 1	002656134FLE	Envirocon Trucking	26	18751	29.4
32984	209052	11/2/2009	Chemical Waste Management	Cat 1	002656135FLE	Envircon Trucking	20	16244	31.45
32971	209052	11/2/2009	Chemical Waste Management	Cat 1	002656136FLE	Envirocon Trucking	23	19641	33
32946	209052	11/2/2009	Chemical W aste Management	Cat 1	002656137FLE	Envirocon Trucking	M1	23929	32.43
32952	209052	11/2/2009	Chemical Waste Management	Cat 1	002656138FLE	Envirocon Trucking	18	23840	32.4
32961	209052	11/2/2009	Chemical Waste Management	Cat 1	002656299FLE	Envirocon Trucking	11	23883	33.83
33171	209052	11/2/2009	Chemical Waste Management	Cat 1	002656300FLE	Envirocon Trucking	999	19150	27.9
32967	209052	11/2/2009	Chemical Waste Management	Cat 1	002656301FLE	Envirocon Trucking	22	23908	33.4
32977	209052	11/2/2009	Chemical Waste Management	Cat 1	002656302FLE	Envirocon Trucking	RT2	20600	29.83
32979	209052	11/2/2009	Chemical Waste Management	Cat 1	002656304FLE	Envirocon Trucking	RT1	19646	31.08
32975	209052	11/3/2009	Chemical Waste Management	Cat 1	002656306FLE	Envirocon Trucking	26	18752	29.78
32965	209052	11/3/2009	Chemical Waste Management	Cat 1	002656307FLE	Envirocon Trucking	20	16245	31.8
32963	209052	11/3/2009	Chemical Waste Management	Cat 1	002656308FLE	Envirocon Trucking	11	23884	33.45
32969	209052	11/3/2009	Chemical Waste Management	Cat 1	002656309FLE	Envirocon Trucking	22	23909	33.13
32948	209052	11/3/2009	Chemical Waste Management	Cat 1	002656310FLE	Envirocon Trucking	M1	23930	32.45
32954	209052	11/3/2009	Chemical Waste Management	Cat 1	002656311FLE	Envirocon Trucking	18	23841	32.28
33147	209052	11/11/2009	Chemical Waste Management	Cat 1	002656312FLE	Envirocon Trucking	999	16360	30.28
33139	209052	11/11/2009	Chemical Waste Management	Cat 1	002656313FLE	Envirocon Trucking	26	18755	29.58
33133	209052	11/11/2009	Chemical Waste Management	Cat 1	002656314FLE	Envirocon Trucking	23	19644	31.33
33127	209052	11/11/2009	Chemical Waste Management	Cat 1	002656315FLE	Envirocon Trucking	20	16246	31.05
33308	209052	11/11/2009	Chemical Waste Management	Cat 1	002656316FLE	Newsom Bros	10	3462	32.8
33304	209052	11/11/2009	Chemical Waste Management	Cat 1	002656317FLE	Newsom Bros	4	19899	31.33
33305	209052	11/11/2009	Chemical Waste Management	Cat 1	002656318FLE	Newsom Bros	7	20354	32.6

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Document ID	Job #	Date	Facility	Material Type	Scale Ticket #	Trucking Co.	Truck #	BOL #	Tons
33424	209052	11/11/2009	Chemical Waste Management	Cat 1	002656319FLE	Envirocon Trucking	6	3431	31.98
33295	209052	11/11/2009	Chemical Waste Management	Cat 1	002656320FLE	Envirocon Trucking	M1	23931	31.73
33163	209052	11/11/2009	Chemical Waste Management	Cat 1	002656321FLE	Envirocon Trucking	RT2	20601	29.35
33155	209052	11/11/2009	Chemical Waste Management	Cat 1	002656322FLE	Envirocon Trucking	RT1	19647	32.15
33141	209052	11/12/2009	Chemical Waste Management	Cat 1	002656323FLE	Envirocon Trucking	26	18756	33.48
33149	209052	11/12/2009	Chemical Waste Management	Cat 1	002656324FLE	Envirocon Trucking	999	16361	31.33
33129	209052	11/12/2009	Chemical Waste Management	Cat 1	002656325FLE	Envirocon Trucking	20	16247	31.5
33299	209052	11/12/2009	Chemical Waste Management	Cat 1	002656326FLE	Newsom Brothers	5	15719	26.45
33300	209052	11/12/2009	Chemical Waste Management	Cat 1	002656327FLE	Newsom Brothers	2	19166	31.58
33135	209052	11/12/2009	Chemical Waste Management	Cat 1	002656328FLE	Envirocon Trucking	23	19645	32.28
33293	209052	11/12/2009	Chemical Waste Management	Cat 1	002656330FLE	Envirocon Trucking	M1	23934	31.45
33165	209052	11/12/2009	Chemical Waste Management	Cat 1	002656331FLE	Envirocon Trucking	RT2	20602	28.98
33157	209052	11/12/2009	Chemical Waste Management	Cat 1	002656332FLE	Envirocon Trucking	RT1	19648	31.6
33418	209052	11/12/2009	Chemical Waste Management	Cat 1	002656333FLE	Envirocon Trucking	6	3432	31.75
33137	209052	11/13/2009	Chemical Waste Management	Cat 1	002656334FLE	Envirocon Trucking	23	23933	34.73
33143	209052	11/13/2009	Chemical Waste Management	Cat 1	002656335FLE	Envirocon Trucking	26	18757	32.38
33131	209052	11/13/2009	Chemical Waste Management	Cat 1	002656336FLE	Envirocon Trucking	20	16248	30.75
33151	209052	11/13/2009	Chemical Waste Management	Cat 1	002656337FLE	Envirocon Trucking	999	16362	31.7
33291	209052	11/13/2009	Chemical Waste Management	Cat 1	002656338FLE	Envirocon Trucking	M1	23935	32.03
33159	209052	11/13/2009	Chemical Waste Management	Cat 1	002656339FLE	Envirocon Trucking	RT1	19649	31.8
33167	209052	11/13/2009	Chemical Waste Management	Cat 1	002656340FLE	Envirocon Trucking	RT2	20603	29.75
33420	209052	11/13/2009	Chemical Waste Management	Cat 1	002656341FLE	Envirocon Trucking	6	3433	31.68
33184	209052	11/14/2009	Chemical Waste Management	Cat 1	002656342FLE	Envirocon Trucking	23	16200	31.78
33186	209052	11/14/2009	Chemical Waste Management	Cat 1	002656343FLE	Envirocon Trucking	20	16249	32.58
33414	209052	11/14/2009	Chemical Waste Management	Cat 1	002656344FLE	Envirocon Trucking	22	23916	32.65
33188	209052	11/14/2009	Chemical Waste Management	Cat 1	002656346FLE	Envirocon Trucking	26	18758	32.63
33410	209052	11/14/2009	Chemical Waste Management	Cat 1	002656347FLE	Envirocon Trucking	11	23890	34.15
33422	209052	11/16/2009	Chemical Waste Management	Cat 1	002656345FLE	Envirocon Trucking	18	20479	33.45
Cat 1 Total									**3493**
32282	209052	10/2/2009	LRI	Cat 2	94787	Interwest	528/529	2913	29.11
32279	209052	10/2/2009	LRI	Cat 2	94788	Interwest	530	3924	29.25
32300	209052	10/2/2009	LRI	Cat 2	94790	Interwest	532	9201	29.33
32276	209052	10/2/2009	LRI	Cat 2	94793	Interwest	582	2008	28.9
32297	209052	10/2/2009	LRI	Cat 2	94819	Interwest	586/587	2850	28.69
32283	209052	10/2/2009	LRI	Cat 2	94829	Interwest	528/529	2913	32.75
32280	209052	10/2/2009	LRI	Cat 2	94835	Interwest	530	3924	32.18
32301	209052	10/2/2009	LRI	Cat 2	94838	Interwest	532	9201	33.45
32277	209052	10/2/2009	LRI	Cat 2	94841	Interwest	582	2008	32.24
32298	209052	10/2/2009	LRI	Cat 2	94861	Interwest	586/587	2850	32.82
32121	209052	10/5/2009	LRI	Cat 2	95026	Clearcreek	44/50	5059	34.04
32117	209052	10/5/2009	LRI	Cat 2	95027	Clearcreek	43/51	4768	33.54

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Document ID	Job #	Date	Facility	Material Type	Scale Ticket #	Trucking Co.	Truck #	BOL #	Tons
32122	209052	10/5/2009	LRI	Cat 2	95088	Clearcreek	44/50	5059	30.24
32118	209052	10/5/2009	LRI	Cat 2	95090	Clearcreek	43/51	4768	29.6
32124	209052	10/8/2009	LRI	Cat 2	95500	Clearcreek	43/51	4772	33.33
32328	209052	10/8/2009	LRI	Cat 2	95504	Interwest	586/587	9254	32.45
32323	209052	10/8/2009	LRI	Cat 2	95517	Interwest	582	2012	31.69
32333	209052	10/8/2009	LRI	Cat 2	95525	Interwest	578/579	9978	31.88
32125	209052	10/8/2009	LRI	Cat 2	95549	Clearcreek	43/51	4772	27.3
32329	209052	10/8/2009	LRI	Cat 2	95555	Interwest	586/587	9254	29.34
32324	209052	10/8/2009	LRI	Cat 2	95564	Interwest	582	2012	31.25
32334	209052	10/8/2009	LRI	Cat 2	95570	Interwest	578/579	9978	31.38
32126	209052	10/8/2009	LRI	Cat 2	95601	Clearcreek	43/51	4772	32.43
32330	209052	10/8/2009	LRI	Cat 2	95608	Interwest	586/587	9254	29.98
32325	209052	10/8/2009	LRI	Cat 2	95619	Interwest	582	2012	29.51
32335	209052	10/8/2009	LRI	Cat 2	95624	Interwest	578/579	9978	30.61
32127	209052	10/8/2009	LRI	Cat 2	95643	Clearcreek	43/51	4772	31.69
32331	209052	10/8/2009	LRI	Cat 2	95648	Interwest	586/587	9254	30.05
32326	209052	10/8/2009	LRI	Cat 2	95663	Interwest	582	2012	30.6
32336	209052	10/8/2009	LRI	Cat 2	95673	Interwest	578/579	9978	29.28
32338	209052	10/9/2009	LRI	Cat 2	95710	Interwest	582	2014	29.08
32343	209052	10/9/2009	LRI	Cat 2	95717	Interwest	578/579	9979	30.25
32339	209052	10/9/2009	LRI	Cat 2	95754	Interwest	582	2014	32.45
32344	209052	10/9/2009	LRI	Cat 2	95759	Interwest	578/579	9979	30.96
32340	209052	10/9/2009	LRI	Cat 2	95798	Interwest	582	2014	31.94
32345	209052	10/9/2009	LRI	Cat 2	95803	Interwest	578/579	9979	31.56
32341	209052	10/9/2009	LRI	Cat 2	95841	Interwest	582	2014	32.33
32346	209052	10/9/2009	LRI	Cat 2	95844	Interwest	578/579	9979	31.31
32313	209052	10/12/2009	LRI	Cat 2	96096	Clearcreek	43/51	4774	32.04
32307	209052	10/12/2009	LRI	Cat 2	96102	Interwest	582	2017	30.25
32314	209052	10/12/2009	LRI	Cat 2	96140	Clearcreek	43/51	4774	31.18
32308	209052	10/12/2009	LRI	Cat 2	96144	Interwest	582	2017	31.66
32689	209052	10/24/2009	LRI	Cat 2	97556	Clearcreek	43/51	4782	28.48
32842	209052	10/24/2009	LRI	Cat 2	97561	Interwest	528/529	95609	27.22
32846	209052	10/24/2009	LRI	Cat 2	97565	Interwest	584/585	11201	26.43
32850	209052	10/24/2009	LRI	Cat 2	97566	Interwest	190/175	11301	25.61
32836	209052	10/24/2009	LRI	Cat 2	97567	Interwest	568/569	11276	24.31
32854	209052	10/24/2009	LRI	Cat 2	97571	Interwest	592/593	2065	27.2
32834	209052	10/24/2009	LRI	Cat 2	97574	Interwest	158/165	9140	28.31
32840	209052	10/24/2009	LRI	Cat 2	97576	Interwest	176/177	2674	30.92
32688	209052	10/24/2009	LRI	Cat 2	97582	Clearcreek	43/51	4782	32.9
32843	209052	10/24/2009	LRI	Cat 2	97583	Interwest	528/529	95609	30.21
32847	209052	10/24/2009	LRI	Cat 2	97585	Interwest	584/585	11201	30.08

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32851	209052	10/24/2009	LRI	Cat 2	97586	Interwest	190/175	11301	38.15
32837	209052	10/24/2009	LRI	Cat 2	97588	Interwest	568/569	11276	34.57
32855	209052	10/24/2009	LRI	Cat 2	97598	Interwest	592/593	2065	35.78
32687	209052	10/24/2009	LRI	Cat 2	97601	Clearcreek	43/51	4782	32.6
32844	209052	10/24/2009	LRI	Cat 2	97606	Interwest	528/529	95609	33.13
32848	209052	10/24/2009	LRI	Cat 2	97607	Interwest	584/585	11201	33.71
32852	209052	10/24/2009	LRI	Cat 2	97610	Interwest	190/175	11301	33.28
32838	209052	10/24/2009	LRI	Cat 2	97612	Interwest	568/569	11276	32.5
32856	209052	10/24/2009	LRI	Cat 2	97614	Interwest	592/593	2065	31.6
32686	209052	10/24/2009	LRI	Cat 2	97622	Clearcreek	43/51	4782	29.32
32809	209052	10/28/2009	LRI	Cat 2	97976	Interwest	568/569	7196	29.32
32804	209052	10/28/2009	LRI	Cat 2	97981	Interwest	588/589	9019	29.7
32814	209052	10/28/2009	LRI	Cat 2	97986	Interwest	586/587	9271	29.64
32819	209052	10/28/2009	LRI	Cat 2	97991	Interwest	582	2328	28.81
32810	209052	10/28/2009	LRI	Cat 2	98022	Interwest	568/569	7196	28.52
32805	209052	10/28/2009	LRI	Cat 2	98023	Interwest	588/589	9019	31.41
32815	209052	10/28/2009	LRI	Cat 2	98025	Interwest	586/587	9271	31.2
32820	209052	10/28/2009	LRI	Cat 2	98032	Interwest	582	2328	33.01
32811	209052	10/28/2009	LRI	Cat 2	98063	Interwest	568/569	7196	32.42
32806	209052	10/28/2009	LRI	Cat 2	98065	Interwest	588/589	9019	31.8
32816	209052	10/28/2009	LRI	Cat 2	98068	Interwest	586/587	9271	31.68
32821	209052	10/28/2009	LRI	Cat 2	98071	Interwest	582	2328	30.45
32824	209052	10/28/2009	LRI	Cat 2	98080	Interwest	528/529	95617	31.87
32812	209052	10/28/2009	LRI	Cat 2	98109	Interwest	568/569	7196	30.95
32817	209052	10/28/2009	LRI	Cat 2	98113	Interwest	586/587	9271	31.78
32807	209052	10/28/2009	LRI	Cat 2	98118	Interwest	588/589	9019	31.5
32822	209052	10/28/2009	LRI	Cat 2	98122	Interwest	582	2328	31.89
32825	209052	10/28/2009	LRI	Cat 2	98128	Interwest	528/529	95617	33.31
32794	209052	10/29/2009	LRI	Cat 2	98172	Interwest	590	9393	30.29
32789	209052	10/29/2009	LRI	Cat 2	98173	Interwest	586	9272	29.42
32784	209052	10/29/2009	LRI	Cat 2	98174	Interwest	699	9020	34.51
32779	209052	10/29/2009	LRI	Cat 2	98175	Interwest	568	7197	29.57
32799	209052	10/29/2009	LRI	Cat 2	98176	Clearcreek	43/51	4785	29.3
32800	209052	10/29/2009	LRI	Cat 2	98195	Clearcreek	43/51	4785	31.73
32780	209052	10/29/2009	LRI	Cat 2	98199	Interwest	568	7197	30.7
32785	209052	10/29/2009	LRI	Cat 2	98202	Interwest	699	9020	30.23
32790	209052	10/29/2009	LRI	Cat 2	98205	Interwest	586	9272	31.69
32795	209052	10/29/2009	LRI	Cat 2	98211	Interwest	590	9393	30.81
32801	209052	10/29/2009	LRI	Cat 2	98242	Clearcreek	43/51	4785	32.47
32781	209052	10/29/2009	LRI	Cat 2	98250	Interwest	568	7197	32.54
32786	209052	10/29/2009	LRI	Cat 2	98252	Interwest	699	9020	33.48

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32791	209052	10/29/2009	LRI	Cat 2	98257	Interwest	586	9272	33.13
32796	209052	10/29/2009	LRI	Cat 2	98258	Interwest	590	9393	32.14
32802	209052	10/29/2009	LRI	Cat 2	98282	Clearcreek	43/51	4785	29.61
32782	209052	10/29/2009	LRI	Cat 2	98292	Interwest	568	7197	35.79
32787	209052	10/29/2009	LRI	Cat 2	98294	Interwest	699	9020	32.38
32792	209052	10/29/2009	LRI	Cat 2	98297	Interwest	586	9272	31.61
32797	209052	10/29/2009	LRI	Cat 2	98304	Interwest	590	9393	31.39
32860	209052	10/30/2009	LRI	Cat 2	98329	Clearcreek	43/51	4786	30.93
32865	209052	10/30/2009	LRI	Cat 2	98337	Clearcreek	44/50	5083	30.26
32870	209052	10/30/2009	LRI	Cat 2	98342	Interwest	592/593	2074	29.63
32874	209052	10/30/2009	LRI	Cat 2	98351	Interwest	578-579	9985	30.06
32861	209052	10/30/2009	LRI	Cat 2	98372	Clearcreek	43/51	4786	33.65
32866	209052	10/30/2009	LRI	Cat 2	98378	Clearcreek	44/50	5083	30.93
32871	209052	10/30/2009	LRI	Cat 2	98383	Interwest	592/593	2074	31.46
32875	209052	10/30/2009	LRI	Cat 2	98388	Interwest	578-579	9985	32.42
32862	209052	10/30/2009	LRI	Cat 2	98413	Clearcreek	43/51	4786	31.43
32867	209052	10/30/2009	LRI	Cat 2	98419	Clearcreek	44/50	5083	30.2
32872	209052	10/30/2009	LRI	Cat 2	98435	Interwest	592/593	2074	32.36
32876	209052	10/30/2009	LRI	Cat 2	98439	Interwest	578-579	9985	32.69
32863	209052	10/30/2009	LRI	Cat 2	98453	Clearcreek	43/51	4786	29.27
32868	209052	10/30/2009	LRI	Cat 2	98457	Clearcreek	44/50	5083	28.16
32909	209052	10/30/2009	LRI	Cat 2	98475	Interwest	592/593	2074	32.72
32908	209052	10/30/2009	LRI	Cat 2	98478	Interwest	578-579	9985	32.29
33013	209052	11/3/2009	LRI	Cat 2	98849	Interwest	532	11548	31.09
33016	209052	11/3/2009	LRI	Cat 2	98872	Interwest	570	9051	29.58
33014	209052	11/3/2009	LRI	Cat 2	98891	Interwest	532	11548	32.15
33017	209052	11/3/2009	LRI	Cat 2	98911	Interwest	570	9051	30.35
33011	209052	11/3/2009	LRI	Cat 2	98916	Interwest	588	9025	30.22
33019	209052	11/4/2009	LRI	Cat 2	98931	Clearcreek	44/50	5084	29.39
33024	209052	11/4/2009	LRI	Cat 2	98944	Clearcreek	43/51	4787	27.15
33020	209052	11/4/2009	LRI	Cat 2	98977	Clearcreek	44/50	5084	31.23
33025	209052	11/4/2009	LRI	Cat 2	98980	Clearcreek	43/51	4787	31.31
33021	209052	11/4/2009	LRI	Cat 2	99019	Interwest	Clearcreek	5084	30.5
33026	209052	11/4/2009	LRI	Cat 2	99021	Clearcreek	43/51	4787	32.81
33029	209052	11/4/2009	LRI	Cat 2	99026	Interwest	528/529	95623	31.93
33022	209052	11/4/2009	LRI	Cat 2	99055	Clearcreek	44/50	5084	31.34
33027	209052	11/4/2009	LRI	Cat 2	99059	Clearcreek	43/51	4787	28.5
33030	209052	11/4/2009	LRI	Cat 2	99063	Interwest	528/529	95623	31.34
33041	209052	11/5/2009	LRI	Cat 2	99097	Clearcreek	44/50	5085	32.33
33046	209052	11/5/2009	LRI	Cat 2	99099	Clearcreek	43/51	4788	32.8
33037	209052	11/5/2009	LRI	Cat 2	99115	Interwest	588/589	9602	31.55

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Document ID	Job #	Date	Facility	Material Type	Scale Ticket #	Trucking Co.	Truck #	BOL #	Tons
33032	209052	11/5/2009	LRI	Cat 2	99121	Interwest	590/591	9398	31.51
33042	209052	11/5/2009	LRI	Cat 2	99146	Clearcreek	44/50	5085	31.97
33047	209052	11/5/2009	LRI	Cat 2	99149	Clearcreek	43/51	4788	26.84
33033	209052	11/5/2009	LRI	Cat 2	99161	Interwest	590/591	9398	30.92
33038	209052	11/5/2009	LRI	Cat 2	99181	Interwest	588/589	9602	30.02
33043	209052	11/5/2009	LRI	Cat 2	99188	Clearcreek	44/50	5085	31.14
33048	209052	11/5/2009	LRI	Cat 2	99195	Clearcreek	43/51	4788	33.39
33034	209052	11/5/2009	LRI	Cat 2	99202	Interwest	590/591	9398	31.31
33039	209052	11/5/2009	LRI	Cat 2	99220	Interwest	588/589	9602	30.39
33044	209052	11/5/2009	LRI	Cat 2	99229	Clearcreek	44/50	5085	30.24
33049	209052	11/5/2009	LRI	Cat 2	99236	Clearcreek	43/51	4788	30.64
33035	209052	11/5/2009	LRI	Cat 2	99241	Interwest	590/591	9398	30.38
33060	209052	11/9/2009	LRI	Cat 2	99499	Clearcreek	44/50	5087	27.61
33065	209052	11/9/2009	LRI	Cat 2	99505	Clearcreek	43/51	4790	26.21
33061	209052	11/9/2009	LRI	Cat 2	99541	Clearcreek	44/50	5087	31.64
33066	209052	11/9/2009	LRI	Cat 2	99550	Clearcreek	43/51	4790	32.82
33062	209052	11/9/2009	LRI	Cat 2	99591	Clearcreek	44/50	5087	33
33067	209052	11/9/2009	LRI	Cat 2	99598	Clearcreek	43/51	4790	32.19
33063	209052	11/9/2009	LRI	Cat 2	99628	Clearcreek	44/50	5087	31.97
33068	209052	11/9/2009	LRI	Cat 2	99636	Clearcreek	43/51	4790	30.22
33115	209052	11/10/2009	LRI	Cat 2	99673	Clearcreek	44/50	5088	32.35
33120	209052	11/10/2009	LRI	Cat 2	99679	Clearcreek	43/51	4791	32.49
33395	209052	11/10/2009	LRI	Cat 2	99709	Interwest	590	11679	30.62
33116	209052	11/10/2009	LRI	Cat 2	99716	Clearcreek	44/50	5088	28.56
33121	209052	11/10/2009	LRI	Cat 2	99719	Clearcreek	43/51	4791	27.37
33400	209052	11/10/2009	LRI	Cat 2	99725	Interwest	592	11384	29.56
33404	209052	11/10/2009	LRI	Cat 2	99726	Interwest	524	11403	31.6
33396	209052	11/10/2009	LRI	Cat 2	99741	Interwest	590	11679	28.56
33391	209052	11/10/2009	LRI	Cat 2	99748	Interwest	526	2275	31.83
33117	209052	11/10/2009	LRI	Cat 2	99759	Clearcreek	44/50	5088	33.02
33122	209052	11/10/2009	LRI	Cat 2	99762	Clearcreek	43/51	4791	33.18
33405	209052	11/10/2009	LRI	Cat 2	99765	Interwest	524	11403	33.44
33401	209052	11/10/2009	LRI	Cat 2	99770	Interwest	592	11384	31.99
33397	209052	11/10/2009	LRI	Cat 2	99778	Interwest	590	11679	32.17
33392	209052	11/10/2009	LRI	Cat 2	99783	Interwest	526	2275	34.88
33118	209052	11/10/2009	LRI	Cat 2	99791	Clearcreek	44/50	5088	30.68
33123	209052	11/10/2009	LRI	Cat 2	99792	Clearcreek	43/51	4791	28.44
33406	209052	11/10/2009	LRI	Cat 2	99800	Interwest	524	11403	32.41
33402	209052	11/10/2009	LRI	Cat 2	99805	Interwest	592	11384	32.09
33398	209052	11/10/2009	LRI	Cat 2	99825	Interwest	590	11679	30.2
33393	209052	11/10/2009	LRI	Cat 2	99836	Interwest	526	2275	31.8

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33208	209052	11/16/2009	LRI	Cat 2	100430	Interwest	568/569	9860	31.15
33199	209052	11/16/2009	LRI	Cat 2	100440	Interwest	588/589	9613	32.7
33213	209052	11/16/2009	LRI	Cat 2	100449	Interwest	586/587	11984	34.25
33194	209052	11/16/2009	LRI	Cat 2	100459	Interwest	590/591	11684	32.61
33204	209052	11/16/2009	LRI	Cat 2	100481	Interwest	570/571	9061	33.24
33209	209052	11/16/2009	LRI	Cat 2	100483	Interwest	568/569	9860	34.99
33200	209052	11/16/2009	LRI	Cat 2	100486	Interwest	588/589	9613	32.33
33214	209052	11/16/2009	LRI	Cat 2	100491	Interwest	586/587	11984	31.27
33195	209052	11/16/2009	LRI	Cat 2	100500	Interwest	590/591	11684	32.19
33205	209052	11/16/2009	LRI	Cat 2	100520	Interwest	570/571	9061	31.9
33210	209052	11/16/2009	LRI	Cat 2	100527	Interwest	568/569	9860	27.95
33201	209052	11/16/2009	LRI	Cat 2	100530	Interwest	588/589	9613	28.14
33215	209052	11/16/2009	LRI	Cat 2	100540	Interwest	586/587	11984	30.35
33196	209052	11/16/2009	LRI	Cat 2	100548	Interwest	590/591	11684	31.77
33206	209052	11/16/2009	LRI	Cat 2	100562	Interwest	570/571	9061	30.21
33211	209052	11/16/2009	LRI	Cat 2	100570	Interwest	568/569	9860	29.9
33216	209052	11/16/2009	LRI	Cat 2	100577	Interwest	586/587	11984	30.51
33197	209052	11/16/2009	LRI	Cat 2	100583	Interwest	590/591	11684	32.16
33202	209052	11/16/2009	LRI	Cat 2	100589	Interwest	588/589	9613	30.08
33329	209052	11/17/2009	LRI	Cat 2	100621	Interwest	570	9062	15.86
33345	209052	11/17/2009	LRI	Cat 2	100629	Interwest	588	9614	16.19
33241	209052	11/17/2009	LRI	Cat 2	100630	Interwest	586	11985	15.93
33234	209052	11/17/2009	LRI	Cat 2	100643	Interwest	590	11687	16.14
33331	209052	11/17/2009	LRI	Cat 2	100677	Interwest	570	9062	16.03
33347	209052	11/17/2009	LRI	Cat 2	100680	Interwest	588	9614	14.55
33243	209052	11/17/2009	LRI	Cat 2	100683	Interwest	586	11985	15.03
33235	209052	11/17/2009	LRI	Cat 2	100687	Interwest	590	11687	15.85
33333	209052	11/17/2009	LRI	Cat 2	100724	Interwest	570	9062	16.16
33218	209052	11/17/2009	LRI	Cat 2	100755	Clearcreek	44	5093	17.16
33356	209052	11/17/2009	LRI	Cat 2	100765	Interwest	568	9861	16.54
33220	209052	11/17/2009	LRI	Cat 2	100766	Clearcreek	45	4898	12.96
33335	209052	11/17/2009	LRI	Cat 2	100772	Interwest	570	9062	15.51
33246	209052	11/17/2009	LRI	Cat 2	100775	Interwest	586	11985	14.96
33236	209052	11/17/2009	LRI	Cat 2	100776	Interwest	590	11687	16.19
33315	209052	11/17/2009	LRI	Cat 2	100780	Interwest	576	2959	16.58
33321	209052	11/17/2009	LRI	Cat 2	100787	Interwest	592	11388	14.93
33327	209052	11/17/2009	LRI	Cat 2	100791	Interwest	176	7594	15.91
33523	209052	11/18/2009	LRI	Cat 2	100857	Clearcreek	43/51	4798	31.08
33517	209052	11/18/2009	LRI	Cat 2	100891	Clearcreek	44/50	5094	32.51
33509	209052	11/19/2009	LRI	Cat 2	100986	Clearcreek	44/50	5095	29.68
33690	209052	11/20/2009	LRI	Cat 2	101181	Interwest	530	9631	33.85

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33696	209052	11/20/2009	LRI	Cat 2	101185	Interwest	528/529	11914	32.93
33702	209052	11/20/2009	LRI	Cat 2	101190	Interwest	158/165	2276	30.11
33708	209052	11/20/2009	LRI	Cat 2	101196	Interwest	176/177	7597	32.53
33684	209052	11/20/2009	LRI	Cat 2	101206	Interwest	576/577	2961	27.42
33691	209052	11/20/2009	LRI	Cat 2	101248	Interwest	530	9631	33.11
33697	209052	11/20/2009	LRI	Cat 2	101250	Interwest	528/529	11914	36.75
33703	209052	11/20/2009	LRI	Cat 2	101258	Interwest	158/165	2276	34.26
33709	209052	11/20/2009	LRI	Cat 2	101271	Interwest	176/177	7597	32.31
33685	209052	11/20/2009	LRI	Cat 2	101275	Interwest	576/577	2961	31.9
33692	209052	11/20/2009	LRI	Cat 2	101292	Interwest	530	9631	32.1
33698	209052	11/20/2009	LRI	Cat 2	101294	Interwest	528/529	11914	33.57
33704	209052	11/20/2009	LRI	Cat 2	101307	Interwest	158/165	2276	34.98
33710	209052	11/20/2009	LRI	Cat 2	101312	Interwest	176/177	7597	34.66
33686	209052	11/20/2009	LRI	Cat 2	101321	Interwest	576/577	2961	32.44
33718	209052	11/21/2009	LRI	Cat 2	101340	Interwest	176/177	7598	32.68
33714	209052	11/21/2009	LRI	Cat 2	101342	Interwest	158/165	2278	33.18
33719	209052	11/21/2009	LRI	Cat 2	101363	Interwest	176/177	7598	37.47
33715	209052	11/21/2009	LRI	Cat 2	101366	Interwest	158/165	2278	34.11
33720	209052	11/21/2009	LRI	Cat 2	101387	Interwest	176/177	7598	32.03
33716	209052	11/21/2009	LRI	Cat 2	101389	Interwest	158/165	2278	34.01
33712	209052	11/23/2009	LRI	Cat 2	101422	Clearcreek	43/51	4801	28.64
33581	209052	11/23/2009	LRI	Cat 2	101436	Interwest	570/571	9065	33.21
33582	209052	11/23/2009	LRI	Cat 2	101481	Interwest	570/571	9065	28.4
33583	209052	11/23/2009	LRI	Cat 2	101527	Interwest	570/571	9065	30.51
33579	209052	11/24/2009	LRI	Cat 2	101600	Interwest	570/571	9067	31.24
33921	209052	11/24/2009	LRI	Cat 2	101609	Interwest	588/589	9620	33.96
33541	209052	11/25/2009	LRI	Cat 2	101767	Clearcreek	44/50	5096	31.56
33547	209052	11/25/2009	LRI	Cat 2	101772	Clearcreek	43/51	4802	32.03
33585	209052	11/25/2009	LRI	Cat 2	101777	Interwest	570/571	9070	30.37
33565	209052	11/25/2009	LRI	Cat 2	101794	Interwest	588/589	9623	32.56
33572	209052	11/25/2009	LRI	Cat 2	101798	Interwest	586/587	11987	33.77
33548	209052	11/25/2009	LRI	Cat 2	101837	Clearcreek	43/51	4802	31.15
33586	209052	11/25/2009	LRI	Cat 2	101846	Interwest	570/571	9070	30.32
33566	209052	11/25/2009	LRI	Cat 2	101849	Interwest	588/589	9623	30.62
33573	209052	11/25/2009	LRI	Cat 2	101854	Interwest	586/587	11987	32.08
33542	209052	11/25/2009	LRI	Cat 2	101889	Clearcreek	44/50	5096	31.71
33587	209052	11/25/2009	LRI	Cat 2	101894	Interwest	570/571	9070	31.02
33549	209052	11/25/2009	LRI	Cat 2	101900	Clearcreek	43/51	4802	32.43
33567	209052	11/25/2009	LRI	Cat 2	101909	Interwest	588/589	9623	31.99
33574	209052	11/25/2009	LRI	Cat 2	101912	Interwest	586/587	11987	31.05
33543	209052	11/25/2009	LRI	Cat 2	108131	Clearcreek	44/50	5096	31.11

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33559	209052	11/30/2009	LRI	Cat 2	102183	Clearcreek	44/50	5097	31.54
33553	209052	11/30/2009	LRI	Cat 2	102191	Clearcreek	43/51	4803	33.35
33560	209052	11/30/2009	LRI	Cat 2	102229	Clearcreek	44/50	5097	32.74
33554	209052	11/30/2009	LRI	Cat 2	102232	Clearcreek	43/51	4803	30.28
33561	209052	11/30/2009	LRI	Cat 2	102312	Clearcreek	44/50	5097	32.85
33829	209052	12/1/2009	LRI	Cat 2	102384	Interwest	570/571	9073	30.82
33824	209052	12/1/2009	LRI	Cat 2	102387	Interwest	590/591	11696	30.16
33830	209052	12/1/2009	LRI	Cat 2	102423	Interwest	570/571	9073	32.14
33825	209052	12/1/2009	LRI	Cat 2	102430	Interwest	590/591	11696	31.51
33831	209052	12/1/2009	LRI	Cat 2	102455	Interwest	570/571	9073	27.82
33826	209052	12/1/2009	LRI	Cat 2	102461	Interwest	590/591	11696	30.5
33832	209052	12/1/2009	LRI	Cat 2	102507	Interwest	570/571	9073	30.37
33827	209052	12/1/2009	LRI	Cat 2	102510	Interwest	590/591	11696	31
33820	209052	12/3/2009	LRI	Cat 2	102692	Interwest	586/587	11993	31.38
33808	209052	12/3/2009	LRI	Cat 2	102700	Interwest	158/165	2279	32.16
33817	209052	12/3/2009	LRI	Cat 2	102709	Clearcreek	43/51	4807	29.7
33821	209052	12/3/2009	LRI	Cat 2	102718	Interwest	586/587	11993	29.59
33809	209052	12/3/2009	LRI	Cat 2	102739	Interwest	158/165	2279	30.55
33834	209052	12/3/2009	LRI	Cat 2	102768	Clearcreek	44/50	4951	25.95
33822	209052	12/3/2009	LRI	Cat 2	102790	Interwest	586/587	11993	24.65
33810	209052	12/3/2009	LRI	Cat 2	102799	Interwest	158/165	2279	28.38
33816	209052	12/3/2009	LRI	Cat 2	102812	Clearcreek	43/51	4807	32.48
34111	209052	12/15/2009	LRI	Cat 2	104171	Bravo	B18	104171	7.15
34110	209052	12/16/2009	LRI	Cat 2	104266	Bravo	B18	104266	8.37
Cat 2 Total									**8483**
32303	209052	10/12/2009	WM Dickson	Cat 3	1063907	Interwest	582	2017	26
32310	209052	10/12/2009	WM Dickson	Cat 3	1063908	Clearcreek	43/51	4774	26
32304	209052	10/12/2009	WM Dickson	Cat 3	1063914	Interwest	582	2017	26
32311	209052	10/12/2009	WM Dickson	Cat 3	1063916	Clearcreek	43/51	4774	26
32305	209052	10/12/2009	WM Dickson	Cat 3	1063919	Interwest	582	2017	26
32312	209052	10/12/2009	WM Dickson	Cat 3	1063920	Clearcreek	43/51	4774	26
32306	209052	10/12/2009	WM Dickson	Cat 3	1063927	Interwest	582	2017	26
32830	209052	10/26/2009	WM Dickson Co.	Cat 3	1064754	Interwest	528/529	95610	23.4
32827	209052	10/26/2009	WM Dickson Co.	Cat 3	1064761	Interwest	582	2326	26
32831	209052	10/26/2009	WM Dickson Co.	Cat 3	1064768	Interwest	528/529	95610	26
32828	209052	10/26/2009	WM Dickson Co.	Cat 3	1064776	Interwest	582	2326	26
32832	209052	10/26/2009	WM Dickson Co.	Cat 3	1064786	Interwest	528/529	95610	23.4
33051	209052	11/6/2009	WM Dickson	Cat 3	1066001	Clearcreek	43/51	4789	26
33056	209052	11/6/2009	WM Dickson	Cat 3	1066002	Clearcreek	44/50	5086	26
33052	209052	11/6/2009	WM Dickson	Cat 3	1066011	Clearcreek	43/51	4789	30.97
33057	209052	11/6/2009	WM Dickson	Cat 3	1066014	Clearcreek	44/50	5086	28.23

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33053	209052	11/6/2009	WM Dickson	Cat 3	1066027	Clearcreek	43/51	4789	26
33058	209052	11/6/2009	WM Dickson	Cat 3	1066043	Clearcreek	44/50	5086	26
33054	209052	11/6/2009	WM Dickson	Cat 3	1066050	Clearcreek	43/51	4789	26
33516	209052	11/18/2009	WM Dickson Co	Cat 3	1066868	Clearcreek	44/50	5094	26
33522	209052	11/18/2009	WM Dickson Co	Cat 3	1066874	Clearcreek	43/51	4798	26
33511	209052	11/19/2009	WM Dickson Co.	Cat 3	1067010	Clearcreek	44/50	5095	26
33485	209052	11/19/2009	WM Dickson Co.	Cat 3	1067025	Interwest	582	2333	26
33562	209052	11/30/2009	WM Dickson	Cat 3	1067475	Clearcreek	44/50	5097	26
33555	209052	11/30/2009	WM Dickson	Cat 3	1067478	Clearcreek	43/51	4803	26
33563	209052	11/30/2009	WM Dickson	Cat 3	1067489	Clearcreek	44/50	5097	26
33556	209052	11/30/2009	WM Dickson	Cat 3	1067497	Clearcreek	43/51	4803	26
33557	209052	11/30/2009	WM Dickson	Cat 3	1067507	Clearcreek	43/51	4803	26
33983	209052	12/14/2009	WM Dickson Co.	Cat 3	1068872	Clearcreek	49	4714	6.5
				Cat 3 Total					**737**

Notes:
(a) Waste types per category defined in RI report Section 3.0.
(b) Sauro's property RCRA Site Identification Number is WAD027550722.

			Percent of Total Removed
Category Subtotals (tons)	Cat 1	3,493	27.5%
	Cat 2	8,483	66.7%
	Cat 3	737	5.8%
Total Removed (tons)		12,713	

Analytical Resources, Incorporated
Analytical Chemists and Consultants

May 18, 2009

Jennifer Wynkoop
Landau Associates, Inc.
950 Pacific Ave # 515
Tacoma, WA 98402

RE: Project No: 094048.010.013
Project Name: Sauro's Cleanarama
ARI Job No: OZ15

Dear Jennifer:

Please find enclosed copies of the chain of custodies (COC) and the final results from the project referenced above. Analytical Resources, Inc. accepted three solid samples in good condition on May 14, 2009.

The samples were analyzed for VOCs, as requested on the COC.

In cases where samples required additional diluted runs in order to quantify flagged values, both runs have been reported, for your information.

There were no anomalies associated with the analysis.

A copy of these reports and all corresponding raw data will remain on file electronically with ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,
ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@arilabs.com

Enclosures

LANDAU ASSOCIATES

☐ **Seattle (Edmonds)** (425) 778-0907
☒ **Tacoma** (253) 926-2493
☐ **Spokane** (509) 327-9737
☐ **Portland (Tigard)** (503) 443-6010
☐ _____

Chain-of-Custody Record

Date 5/14/09
Page 1 of 1

Project Name Sauro's Cleanarama Project No. 0094 048.010.013
Project Location/Event ~~Sauro's Cleanarama~~ Debris Sampling
Sampler's Name JWW/JCS
Project Contact Jennifer Wynkoop
Send Results To Jennifer Wynkoop

Testing Parameters

Turnaround Time
☐ Standard
☒ Accelerated 3day
☐ _____

Sample I.D.	Date	Time	Matrix	No. of Containers	VOC (PCE, TCE, Vinyl Cl)	TCLP VOC (PCE, TCE, Vinyl Cl)	Observations/Comments
Debris-SE	5/14/09	1020	Concrete	2	X	Hold	
Debris-stkpl	↓	0940	Brick	2	X	Hold	
Debris-NE	↓	1005	Concrete	2	X	Hold	

___ Allow water samples to settle, collect aliquot from clear portion

NWTPH-Dx:
___ run acid wash/silica gel cleanup
___ run samples standardized to _____ product

___ Analyze for EPH if no specific product identified

VOC/BTEX/VPH (soil):
☒ non-preserved
___ preserved w/methanol
___ preserved w/sodium bisulfate
___ Freeze upon receipt

___ Dissolved metal water samples field filtered

Other _____

Special Shipment/Handling or Storage Requirements

Method of Shipment

Relinquished by	Received by	Relinquished by	Received by
Signature Jennifer Wynkoop	Signature Rich Hudson	Signature	Signature
Printed Name Landau	Printed Name ARI	Printed Name	Printed Name
Company	Company	Company	Company
Date 5/14/09 Time 1415	Date 5/14/09 Time 1415	Date _____ Time _____	Date _____ Time _____

WHITE COPY - Project File YELLOW COPY - Laboratory PINK COPY - Client Representative

Rev 4/01

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau

COC No(s): ~~NA~~

Assigned ARI Job No: ~~QRL5~~

Project Name: Sauro's Cleanarama

Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Tracking No: ~~NA~~

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	~~YES~~	NO
Were custody papers included with the cooler?	~~YES~~	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)		3.2

If cooler temperature is out of compliance fill out form 00070F — Temp Gun ID#: 101886

Cooler Accepted by: JC Date: 5/14/09 Time: 1510

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	~~NO~~
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	~~YES~~	NO
Were all bottles sealed in individual plastic bags?		~~YES~~	NO
Did all bottles arrive in good condition (unbroken)?		~~YES~~	NO
Were all bottle labels complete and legible?		~~YES~~	NO
Did the number of containers listed on COC match with the number of containers received?		~~YES~~	NO
Did all bottle labels and tags agree with custody papers?		~~YES~~	NO
Were all bottles used correct for the requested analyses?		~~YES~~	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	NA	YES	~~NO~~
Were all VOC vials free of air bubbles?	~~NA~~	YES	NO
Was sufficient amount of sample sent in each bottle?		~~YES~~	NO

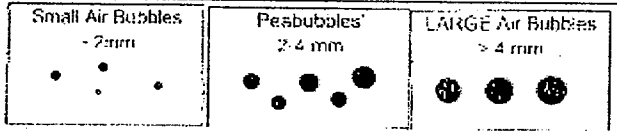
Samples Logged by: JH Date: 5/14/09 Time: 1528

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm"

Peabubbles → "pb"

Large → "lg"

Headspace → "hs"

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: Debris-SE SAMPLE**
Page 1 of 1

Lab Sample ID: OZ15A
LIMS ID: 09-11419
Matrix: Concrete
Data Release Authorized:
Reported: 05/15/09

QC Report No: OZ15-Landau Associates, Inc.
Project: Sauro's Cleanarama 0094048.010.013
Date Sampled: 05/14/09
Date Received: 05/14/09

Instrument/Analyst: FINN5/PAB
Date Analyzed: 05/15/09 15:01

Sample Amount: 5.11 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 7.5%

CAS Number	Analyte	RL	Result	Q
75-01-4	Vinyl Chloride	1.0	< 1.0	U
79-01-6	Trichloroethene	1.0	< 1.0	U
127-18-4	Tetrachloroethene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	101%
Bromofluorobenzene	97.2%
d4-1,2-Dichlorobenzene	100%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: Debris-STKPL**
Page 1 of 1 **SAMPLE**

Lab Sample ID: OZ15B
LIMS ID: 09-11420
Matrix: BRICK
Data Release Authorized:
Reported: 05/15/09

QC Report No: OZ15-Landau Associates, Inc.
Project: Sauro's Cleanarama
0094048.010.013
Date Sampled: 05/14/09
Date Received: 05/14/09

Instrument/Analyst: FINN5/PAB
Date Analyzed: 05/15/09 15:25

Sample Amount: 4.92 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 13.5%

CAS Number	Analyte	RL	Result	Q
75-01-4	Vinyl Chloride	1.0	< 1.0	U
79-01-6	Trichloroethene	1.0	< 1.0	U
127-18-4	Tetrachloroethene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	116%
d8-Toluene	102%
Bromofluorobenzene	98.3%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: Debris-NE**
Page 1 of 1 **SAMPLE**

Lab Sample ID: OZ15C
LIMS ID: 09-11421
Matrix: Concrete
Data Release Authorized:
Reported: 05/15/09

QC Report No: OZ15-Landau Associates, Inc.
Project: Sauro's Cleanarama
0094048.010.013
Date Sampled: 05/14/09
Date Received: 05/14/09

Instrument/Analyst: FINN5/PAB
Date Analyzed: 05/15/09 15:55

Sample Amount: 5.21 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 3.0%

CAS Number	Analyte	RL	Result	Q
75-01-4	Vinyl Chloride	1.0	< 1.0	U
79-01-6	Trichloroethene	1.0	< 1.0	U
127-18-4	Tetrachloroethene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	101%
Bromofluorobenzene	97.8%
d4-1,2-Dichlorobenzene	100%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: MB-051509**
Page 1 of 1 **METHOD BLANK**

Lab Sample ID: MB-051509
LIMS ID: 09-11419
Matrix: Concrete
Data Release Authorized:
Reported: 05/15/09

QC Report No: OZ15-Landau Associates, Inc.
Project: Sauro's Cleanarama
0094048.010.013
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 05/15/09 11:33

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
75-01-4	Vinyl Chloride	1.0	< 1.0	U
79-01-6	Trichloroethene	1.0	< 1.0	U
127-18-4	Tetrachloroethene	1.0	< 1.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	101%
Bromofluorobenzene	95.6%
d4-1,2-Dichlorobenzene	98.3%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Concrete

QC Report No: OZ15-Landau Associates, Inc.
Project: Sauro's Cleanarama
0094048.010.013

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-051509	Method Blank	Low	103%	101%	95.6%	98.3%	0
LCS-051509	Lab Control	Low	103%	98.2%	98.0%	101%	0
LCSD-051509	Lab Control Dup	Low	103%	99.5%	99.1%	101%	0
OZ15A	Debris-SE	Low	110%	101%	97.2%	100%	0
OZ15B	Debris-STKPL	Low	116%	102%	98.3%	101%	0
OZ15C	Debris-NE	Low	110%	101%	97.8%	100%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260B	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	75-120	76-120	72-134	69-120
(TOL) = d8-Toluene	80-122	80-120	78-124	80-120
(BFB) = Bromofluorobenzene	79-120	80-120	66-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	79-120	80-120

Log Number Range: 09-11419 to 09-11421

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: LCS-051509**
LAB CONTROL SAMPLE
Page 1 of 1

Lab Sample ID: LCS-051509
LIMS ID: 09-11419
Matrix: Concrete
Data Release Authorized:
Reported: 05/15/09

QC Report No: OZ15-Landau Associates, Inc.
Project: Sauro's Cleanarama
0094048.010.013
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 05/15/09 10:32
LCSD: 05/15/09 13:19

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Vinyl Chloride	64.0	50.0	128%	62.6	50.0	125%	2.2%
Trichloroethene	48.2	50.0	96.4%	47.6	50.0	95.2%	1.3%
Tetrachloroethene	49.7	50.0	99.4%	47.1	50.0	94.2%	5.4%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	103%	103%
d8-Toluene	98.2%	99.5%
Bromofluorobenzene	98.0%	99.1%
d4-1,2-Dichlorobenzene	101%	101%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

April 27, 2009

Jennifer Wynkoop
Landau Associates, Inc.
950 Pacific Ave # 515
Tacoma, WA 98402

RE: Project No: 094048.010
Project Name: Sauro's
ARI Job No: OW10

Dear Jennifer:

Please find enclosed copies of the chain of custodies (COC) and the final results from the project referenced above. Analytical Resources, Inc. accepted one soil sample in good condition on April 20, 2009.

The sample was analyzed for VOCs, as requested on the COC.

There were no anomalies associated with the sample.

A copy of these reports and all corresponding raw data will remain on file electronically with ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@arilabs.com

Enclosures

LANDAU ASSOCIATES

☐ **Seattle (Edmonds)** (425) 778-0907
☒ **Tacoma** (253) 926-2493
☐ **Spokane** (509) 327-9737
☐ **Portland (Tigard)** (503) 443-6010
☐ _____

OW10

Date 4/17/09
Page 1 of 1

Chain-of-Custody Record

Project Name SAMCO'S Project No. 0940048.010
Project Location/Event TACOMA / SOIL BORINGS
Sampler's Name JJB
Project Contact JENNIFER WYNNKOOP
Send Results To JENNIFER WYNNKOOP & ANNE KALVOPAH

Turnaround Time
☒ Standard
☐ Accelerated
☐ _____

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters: VOCs (8260B) / HOLD ROCKS	Observations/Comments
BB-WD-041709	4/17/09	13:45	SOIL	2	/ /	

Testing Parameters

___ Allow water samples to settle, collect aliquot from clear portion

NWTPH-Dx:
___ run acid wash/silica gel cleanup
___ run samples standardized to _____ product

___ Analyze for EPH if no specific product identified

VOC/BTEX/VPH (soil):
___ non-preserved
___ preserved w/methanol
___ preserved w/sodium bisulfate
___ Freeze upon receipt

___ Dissolved metal water samples field filtered

Other _____

Special Shipment/Handling or Storage Requirements

Method of Shipment

Relinquished by	Received by	Relinquished by	Received by
Signature	Signature	Signature	Signature
Printed Name: JONATHAN BROWN	Printed Name: Rich Hudson	Printed Name	Printed Name
Company	Company: ARI	Company	Company
Date: 4/20/09 Time:	Date: 9/20/09 Time: 1135	Date: Time:	Date: Time:

WHITE COPY - Project File YELLOW COPY - Laboratory PINK COPY - Client Representative

Rev 4/01

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau

Project Name: Sauro's

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: OW10

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	(YES)	NO
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)..... ____ ____ ____ ____ ____ 2.2

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 101886

Cooler Accepted by: RC Date: 4/20/09 Time: 1330

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ... Bubble Wrap ~~Wet Ice~~ ~~Gel Packs~~ Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO

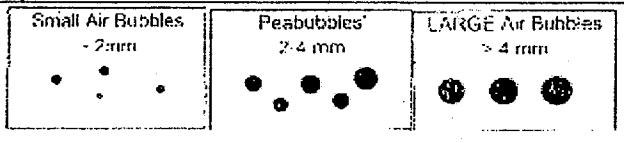
Samples Logged by: AV Date: 4/20/09 Time: 1403

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: B8-WD-041709**
Page 1 of 2 **SAMPLE**

Lab Sample ID: OW10A
LIMS ID: 09-9642
Matrix: Soil
Data Release Authorized:
Reported: 04/27/09

QC Report No: OW10-Landau Associates, Inc.
Project: SAURO'S
094048.010
Date Sampled: 04/17/09
Date Received: 04/20/09

Instrument/Analyst: NT9/PAB
Date Analyzed: 04/23/09 18:34

Sample Amount: 4.21 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 17.3%

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	1.2	< 1.2	U
74-83-9	Bromomethane	1.2	< 1.2	U
75-01-4	Vinyl Chloride	1.2	< 1.2	U
75-00-3	Chloroethane	1.2	< 1.2	U
75-09-2	**Methylene Chloride**	**2.4**	**2.6**	
67-64-1	**Acetone**	**5.9**	**99**	
75-15-0	Carbon Disulfide	1.2	< 1.2	U
75-35-4	1,1-Dichloroethene	1.2	< 1.2	U
75-34-3	1,1-Dichloroethane	1.2	< 1.2	U
156-60-5	trans-1,2-Dichloroethene	1.2	< 1.2	U
156-59-2	cis-1,2-Dichloroethene	1.2	< 1.2	U
67-66-3	Chloroform	1.2	< 1.2	U
107-06-2	1,2-Dichloroethane	1.2	< 1.2	U
78-93-3	**2-Butanone**	**5.9**	**15**	
71-55-6	1,1,1-Trichloroethane	1.2	< 1.2	U
56-23-5	Carbon Tetrachloride	1.2	< 1.2	U
108-05-4	Vinyl Acetate	5.9	< 5.9	U
75-27-4	Bromodichloromethane	1.2	< 1.2	U
78-87-5	1,2-Dichloropropane	1.2	< 1.2	U
10061-01-5	cis-1,3-Dichloropropene	1.2	< 1.2	U
79-01-6	Trichloroethene	1.2	< 1.2	U
124-48-1	Dibromochloromethane	1.2	< 1.2	U
79-00-5	1,1,2-Trichloroethane	1.2	< 1.2	U
71-43-2	Benzene	1.2	< 1.2	U
10061-02-6	trans-1,3-Dichloropropene	1.2	< 1.2	U
110-75-8	2-Chloroethylvinylether	5.9	< 5.9	U
75-25-2	Bromoform	1.2	< 1.2	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.9	< 5.9	U
591-78-6	**2-Hexanone**	**5.9**	**7.3**	
127-18-4	Tetrachloroethene	1.2	< 1.2	U
79-34-5	1,1,2,2-Tetrachloroethane	1.2	< 1.2	U
108-88-3	**Toluene**	**1.2**	**3.7**	
108-90-7	Chlorobenzene	1.2	< 1.2	U
100-41-4	Ethylbenzene	1.2	< 1.2	U
100-42-5	Styrene	1.2	< 1.2	U
75-69-4	Trichlorofluoromethane	1.2	< 1.2	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	2.4	< 2.4	U
179601-23-1	m,p-Xylene	1.2	< 1.2	U
95-47-6	o-Xylene	1.2	< 1.2	U
95-50-1	1,2-Dichlorobenzene	1.2	< 1.2	U
541-73-1	1,3-Dichlorobenzene	1.2	< 1.2	U
106-46-7	1,4-Dichlorobenzene	1.2	< 1.2	U
107-02-8	Acrolein	59	< 59	U
74-88-4	Methyl Iodide	1.2	< 1.2	U
74-96-4	Bromoethane	2.4	< 2.4	U
107-13-1	Acrylonitrile	5.9	< 5.9	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: B8-WD-041709**
 SAMPLE

Lab Sample ID: OW10A
LIMS ID: 09-9642
Matrix: Soil
Date Analyzed: 04/23/09 18:34

QC Report No: OW10-Landau Associates, Inc.
Project: SAURO'S
094048.010

CAS Number	Analyte	RL	Result	Q
563-58-6	1,1-Dichloropropene	1.2	< 1.2	U
74-95-3	Dibromomethane	1.2	< 1.2	U
630-20-6	1,1,1,2-Tetrachloroethane	1.2	< 1.2	U
96-12-8	1,2-Dibromo-3-chloropropane	5.9	< 5.9	U
96-18-4	1,2,3-Trichloropropane	2.4	< 2.4	U
110-57-6	trans-1,4-Dichloro-2-butene	5.9	< 5.9	U
108-67-8	1,3,5-Trimethylbenzene	1.2	< 1.2	U
95-63-6	1,2,4-Trimethylbenzene	1.2	< 1.2	U
87-68-3	Hexachlorobutadiene	5.9	< 5.9	U
106-93-4	Ethylene Dibromide	1.2	< 1.2	U
74-97-5	Bromochloromethane	1.2	< 1.2	U
594-20-7	2,2-Dichloropropane	1.2	< 1.2	U
142-28-9	1,3-Dichloropropane	1.2	< 1.2	U
98-82-8	Isopropylbenzene	1.2	< 1.2	U
103-65-1	n-Propylbenzene	1.2	< 1.2	U
108-86-1	Bromobenzene	1.2	< 1.2	U
95-49-8	2-Chlorotoluene	1.2	< 1.2	U
106-43-4	4-Chlorotoluene	1.2	< 1.2	U
98-06-6	tert-Butylbenzene	1.2	< 1.2	U
135-98-8	sec-Butylbenzene	1.2	< 1.2	U
99-87-6	**4-Isopropyltoluene**	**1.2**	**89**	
104-51-8	n-Butylbenzene	1.2	< 1.2	U
120-82-1	1,2,4-Trichlorobenzene	5.9	< 5.9	U
91-20-3	Naphthalene	5.9	< 5.9	U
87-61-6	1,2,3-Trichlorobenzene	5.9	< 5.9	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	91.5%
d8-Toluene	96.9%
Bromofluorobenzene	91.1%
d4-1,2-Dichlorobenzene	95.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: MB-042309**
 METHOD BLANK

Lab Sample ID: MB-042309
LIMS ID: 09-9642
Matrix: Soil
Data Release Authorized:
Reported: 04/27/09

QC Report No: OW10-Landau Associates, Inc.
Project: SAURO'S
094048.010
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT9/PAB
Date Analyzed: 04/23/09 13:42

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	1.0	< 1.0	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	1.0	< 1.0	U
75-00-3	Chloroethane	1.0	< 1.0	U
75-09-2	Methylene Chloride	2.0	< 2.0	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	1.0	< 1.0	U
75-35-4	1,1-Dichloroethene	1.0	< 1.0	U
75-34-3	1,1-Dichloroethane	1.0	< 1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	< 1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	< 1.0	U
67-66-3	Chloroform	1.0	< 1.0	U
107-06-2	1,2-Dichloroethane	1.0	< 1.0	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	1.0	< 1.0	U
56-23-5	Carbon Tetrachloride	1.0	< 1.0	U
108-05-4	Vinyl Acetate	5.0	< 5.0	U
75-27-4	Bromodichloromethane	1.0	< 1.0	U
78-87-5	1,2-Dichloropropane	1.0	< 1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	< 1.0	U
79-01-6	Trichloroethene	1.0	< 1.0	U
124-48-1	Dibromochloromethane	1.0	< 1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	< 1.0	U
71-43-2	Benzene	1.0	< 1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	< 1.0	U
110-75-8	2-Chloroethylvinylether	5.0	< 5.0	U
75-25-2	Bromoform	1.0	< 1.0	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	1.0	< 1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
108-90-7	Chlorobenzene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
100-42-5	Styrene	1.0	< 1.0	U
75-69-4	Trichlorofluoromethane	1.0	< 1.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	2.0	< 2.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0	U
107-02-8	Acrolein	50	< 50	U
74-88-4	Methyl Iodide	1.0	< 1.0	U
74-96-4	Bromoethane	2.0	< 2.0	U
107-13-1	Acrylonitrile	5.0	< 5.0	U

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: MB-042309**
 METHOD BLANK

Lab Sample ID: MB-042309 QC Report No: OW10-Landau Associates, Inc.
LIMS ID: 09-9642 Project: SAURO'S
Matrix: Soil 094048.010
Date Analyzed: 04/23/09 13:42

CAS Number	Analyte	RL	Result	Q
563-58-6	1,1-Dichloropropene	1.0	< 1.0	U
74-95-3	Dibromomethane	1.0	< 1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	< 1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	< 5.0	U
96-18-4	1,2,3-Trichloropropane	2.0	< 2.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	< 5.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	< 1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	< 1.0	U
87-68-3	Hexachlorobutadiene	5.0	< 5.0	U
106-93-4	Ethylene Dibromide	1.0	< 1.0	U
74-97-5	Bromochloromethane	1.0	< 1.0	U
594-20-7	2,2-Dichloropropane	1.0	< 1.0	U
142-28-9	1,3-Dichloropropane	1.0	< 1.0	U
98-82-8	Isopropylbenzene	1.0	< 1.0	U
103-65-1	n-Propylbenzene	1.0	< 1.0	U
108-86-1	Bromobenzene	1.0	< 1.0	U
95-49-8	2-Chlorotoluene	1.0	< 1.0	U
106-43-4	4-Chlorotoluene	1.0	< 1.0	U
98-06-6	tert-Butylbenzene	1.0	< 1.0	U
135-98-8	sec-Butylbenzene	1.0	< 1.0	U
99-87-6	4-Isopropyltoluene	1.0	< 1.0	U
104-51-8	n-Butylbenzene	1.0	< 1.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0	U
91-20-3	Naphthalene	5.0	< 5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	< 5.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	88.8%
d8-Toluene	97.6%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	99.7%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: OW10-Landau Associates, Inc.
Project: SAURO'S
094048.010

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-042309	Method Blank	Low	88.8%	97.6%	101%	99.7%	0
LCS-042309	Lab Control	Low	94.8%	98.2%	103%	101%	0
LCSD-042309	Lab Control Dup	Low	93.1%	99.4%	103%	99.4%	0
OW10A	B8-WD-041709	Low	91.5%	96.9%	91.1%	95.0%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260B	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	75-120	76-120	72-134	69-120
(TOL) = d8-Toluene	80-122	80-120	78-124	80-120
(BFB) = Bromofluorobenzene	79-120	80-120	66-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	79-120	80-120

Log Number Range: 09-9642 to 09-9642

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: LCS-042309**
LAB CONTROL SAMPLE

Lab Sample ID: LCS-042309
LIMS ID: 09-9642
Matrix: Soil
Data Release Authorized:
Reported: 04/27/09

QC Report No: OW10-Landau Associates, Inc.
Project: SAURO'S
094048.010
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT9/PAB
LCSD: NT9/PAB
Date Analyzed LCS: 04/23/09 11:03
LCSD: 04/23/09 13:04

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	32.3	50.0	64.6%	32.4	50.0	64.8%	0.3%
Bromomethane	42.1	50.0	84.2%	41.3	50.0	82.6%	1.9%
Vinyl Chloride	35.2	50.0	70.4%	35.4	50.0	70.8%	0.6%
Chloroethane	40.2	50.0	80.4%	38.8	50.0	77.6%	3.5%
Methylene Chloride	42.0	50.0	84.0%	41.8	50.0	83.6%	0.5%
Acetone	228	250	91.2%	199	250	79.6%	13.6%
Carbon Disulfide	42.8	50.0	85.6%	42.1	50.0	84.2%	1.6%
1,1-Dichloroethene	46.9	50.0	93.8%	45.8	50.0	91.6%	2.4%
1,1-Dichloroethane	43.3	50.0	86.6%	43.1	50.0	86.2%	0.5%
trans-1,2-Dichloroethene	45.8	50.0	91.6%	45.0	50.0	90.0%	1.8%
cis-1,2-Dichloroethene	45.5	50.0	91.0%	45.5	50.0	91.0%	0.0%
Chloroform	43.2	50.0	86.4%	44.1	50.0	88.2%	2.1%
1,2-Dichloroethane	45.0	50.0	90.0%	44.4	50.0	88.8%	1.3%
2-Butanone	238	250	95.2%	211	250	84.4%	12.0%
1,1,1-Trichloroethane	46.3	50.0	92.6%	46.1	50.0	92.2%	0.4%
Carbon Tetrachloride	47.0	50.0	94.0%	47.7	50.0	95.4%	1.5%
Vinyl Acetate	42.4	50.0	84.8%	39.2	50.0	78.4%	7.8%
Bromodichloromethane	46.3	50.0	92.6%	46.0	50.0	92.0%	0.7%
1,2-Dichloropropane	44.0	50.0	88.0%	44.3	50.0	88.6%	0.7%
cis-1,3-Dichloropropene	45.4	50.0	90.8%	44.8	50.0	89.6%	1.3%
Trichloroethene	45.1	50.0	90.2%	44.4	50.0	88.8%	1.6%
Dibromochloromethane	50.1	50.0	100%	48.3	50.0	96.6%	3.7%
1,1,2-Trichloroethane	46.7	50.0	93.4%	45.7	50.0	91.4%	2.2%
Benzene	43.7	50.0	87.4%	43.8	50.0	87.6%	0.2%
trans-1,3-Dichloropropene	46.5	50.0	93.0%	45.8	50.0	91.6%	1.5%
2-Chloroethylvinylether	34.2	50.0	68.4%	29.0	50.0	58.0%	16.5%
Bromoform	52.6	50.0	105%	49.6	50.0	99.2%	5.9%
4-Methyl-2-Pentanone (MIBK)	248	250	99.2%	217	250	86.8%	13.3%
2-Hexanone	217	250	86.8%	172	250	68.8%	23.1%
Tetrachloroethene	48.7	50.0	97.4%	47.2	50.0	94.4%	3.1%
1,1,2,2-Tetrachloroethane	44.6	50.0	89.2%	40.6	50.0	81.2%	9.4%
Toluene	44.7	50.0	89.4%	44.6	50.0	89.2%	0.2%
Chlorobenzene	45.0	50.0	90.0%	43.9	50.0	87.8%	2.5%
Ethylbenzene	44.1	50.0	88.2%	42.1	50.0	84.2%	4.6%
Styrene	48.0	50.0	96.0%	46.8	50.0	93.6%	2.5%
Trichlorofluoromethane	42.9	50.0	85.8%	41.8	50.0	83.6%	2.6%
1,1,2-Trichloro-1,2,2-trifluoroetha	51.9	50.0	104%	50.1	50.0	100%	3.5%
m,p-Xylene	91.1	100	91.1%	89.0	100	89.0%	2.3%
o-Xylene	45.2	50.0	90.4%	44.9	50.0	89.8%	0.7%
1,2-Dichlorobenzene	45.2	50.0	90.4%	44.1	50.0	88.2%	2.5%
1,3-Dichlorobenzene	46.4	50.0	92.8%	44.4	50.0	88.8%	4.4%
1,4-Dichlorobenzene	46.2	50.0	92.4%	44.4	50.0	88.8%	4.0%
Acrolein	232	250	92.8%	194	250	77.6%	17.8%
Methyl Iodide	48.6	50.0	97.2%	48.6	50.0	97.2%	0.0%
Bromoethane	48.0	50.0	96.0%	48.1	50.0	96.2%	0.2%
Acrylonitrile	45.8	50.0	91.6%	42.9	50.0	85.8%	6.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260B **Sample ID: LCS-042309**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-042309
LIMS ID: 09-9642
Matrix: Soil

QC Report No: OW10-Landau Associates, Inc.
Project: SAURO'S
094048.010

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
1,1-Dichloropropene	45.1	50.0	90.2%	45.0	50.0	90.0%	0.2%
Dibromomethane	47.5	50.0	95.0%	47.1	50.0	94.2%	0.8%
1,1,1,2-Tetrachloroethane	50.4	50.0	101%	49.6	50.0	99.2%	1.6%
1,2-Dibromo-3-chloropropane	44.7	50.0	89.4%	39.9	50.0	79.8%	11.3%
1,2,3-Trichloropropane	46.9	50.0	93.8%	42.2	50.0	84.4%	10.5%
trans-1,4-Dichloro-2-butene	48.4	50.0	96.8%	43.4	50.0	86.8%	10.9%
1,3,5-Trimethylbenzene	45.3	50.0	90.6%	43.9	50.0	87.8%	3.1%
1,2,4-Trimethylbenzene	45.8	50.0	91.6%	44.3	50.0	88.6%	3.3%
Hexachlorobutadiene	48.6	50.0	97.2%	50.4	50.0	101%	3.6%
Ethylene Dibromide	47.6	50.0	95.2%	46.5	50.0	93.0%	2.3%
Bromochloromethane	49.1	50.0	98.2%	48.2	50.0	96.4%	1.8%
2,2-Dichloropropane	46.0	50.0	92.0%	45.5	50.0	91.0%	1.1%
1,3-Dichloropropane	44.5	50.0	89.0%	42.5	50.0	85.0%	4.6%
Isopropylbenzene	46.7	50.0	93.4%	45.0	50.0	90.0%	3.7%
n-Propylbenzene	46.9	50.0	93.8%	45.0	50.0	90.0%	4.1%
Bromobenzene	48.7	50.0	97.4%	46.3	50.0	92.6%	5.1%
2-Chlorotoluene	46.6	50.0	93.2%	44.2	50.0	88.4%	5.3%
4-Chlorotoluene	47.6	50.0	95.2%	45.7	50.0	91.4%	4.1%
tert-Butylbenzene	45.1	50.0	90.2%	44.5	50.0	89.0%	1.3%
sec-Butylbenzene	44.8	50.0	89.6%	44.2	50.0	88.4%	1.3%
4-Isopropyltoluene	46.3	50.0	92.6%	45.4	50.0	90.8%	2.0%
n-Butylbenzene	45.9	50.0	91.8%	44.4	50.0	88.8%	3.3%
1,2,4-Trichlorobenzene	48.0	50.0	96.0%	46.0	50.0	92.0%	4.3%
Naphthalene	43.2	50.0	86.4%	39.3	50.0	78.6%	9.5%
1,2,3-Trichlorobenzene	45.5	50.0	91.0%	44.4	50.0	88.8%	2.4%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	94.8%	93.1%
d8-Toluene	98.2%	99.4%
Bromofluorobenzene	103%	103%
d4-1,2-Dichlorobenzene	101%	99.4%

Analytical Resources, Incorporated
Analytical Chemists and Consultants

June 25, 2009

Jennifer Wynkoop
Landau Associates, Inc.
950 Pacific Ave # 515
Tacoma, WA 98402

RE: Project No: 094048.010
Project Name: Sauros Drum sampling
ARI Job No: PD78

Dear Jennifer:

Please find enclosed copies of the chain of custodies (COC) and the final results from the project referenced above. Analytical Resources, Inc. accepted three water and two soil samples in good condition on June 19, 2009.

The samples were analyzed for VOCs, as requested on the COC.

The VOCs soil LCSD is out of control high for acetone. All other QC is in control and no further corrective action was taken.

There were no anomalies associated with the analysis.

A copy of these reports and all corresponding raw data will remain on file electronically with ARI. If you have any questions or require additional information, please contact me at your convenience.

Sincerely,
ANALYTICAL RESOURCES, INC.

Kelly Bottem
Client Services Manager
(206) 695-6211
kellyb@arilabs.com

Enclosures

LANDAU ASSOCIATES

☐ Seattle (Edmonds) (425) 778-0907
☒ Tacoma (253) 926-2493
☐ Spokane (509) 327-9737
☐ Portland (Tigard) (503) 443-6010
☐ _____

Chain-of-Custody Record

Date 6/18/09
Page 1 of 1

Project Name SAUROS Project No. 00948.010
Project Location/Event SAUROS DRUM SAMPLING
Sampler's Name JESSICA STONE
Project Contact JENNIFER WYNKOOP
Send Results To JENNIFER WYNKOOP

Turnaround Time
☒ Standard
☐ Accelerated
☐ _____

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters: JES	VOCs 8260	METALS RCRA 8 - HOLD (ARCHIVE)	Observations/Comments
TRIP BLANK	6/18/09		WATER	2	X	X		
Water 1-WD-061809	6/18/09	1350	WATER	3	X	X		
Water 2-WD-061809	6/18/09	1535	water	3	X	X		
Soil 2-WD-061809	6/18/09	1525	Soil	2		X	X	
Soil 1-WD-061809	6/18/09	1500	Soil	2		X	X	

Observations/Comments

___ Allow water samples to settle, collect aliquot from clear portion

NWTPH-Dx:
___ run acid wash/silica gel cleanup
___ run samples standardized to _____ product

___ Analyze for EPH if no specific product identified

VOC/BTEX/VPH (soil):
___ non-preserved
___ preserved w/methanol
___ preserved w/sodium bisulfate
___ Freeze upon receipt

___ Dissolved metal water samples field filtered

Other HOLD (ARCHIVE) METALS RCRA 8 SAMPLES FOR SOIL 2-WD-061809 & SOIL 1-WD-061809

Special Shipment/Handling or Storage Requirements

Method of Shipment

Relinquished by	Received by	Relinquished by	Received by
Signature	Signature	Signature	Signature
JESSICA STONE	Rich Hudson		
Printed Name	Printed Name	Printed Name	Printed Name
LANDAU ASSOCIATES	AR1		
Company	Company	Company	Company
Date 6/19/09 Time 1640	Date 6/19/09 Time 1640	Date _____ Time _____	Date _____ Time _____

WHITE COPY - Project File YELLOW COPY - Laboratory PINK COPY - Client Representative

Rev 4/01

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Landau

Project Name: _____

COC No(s): _____ NA

Delivered by: Fed-Ex UPS (Courier) Hand Delivered Other: _____

Assigned ARI Job No: PD78

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)		7.8

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 101886

Cooler Accepted by: R Date: 6/19/09 Time: 1740

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used? ...	(Bubble Wrap) Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		(YES)	NO
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	(NO)
Was sufficient amount of sample sent in each bottle?		(YES)	NO

Samples Logged by: _____ Date: 6/20/09 Time: 730

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

TB had pb (2 of 2 vials. TB dated 5/16/08. Sample Water1-WP-061809 had 1 of 3 vials with pb.

By: _____ Date: 6/20/09

Small Air Bubbles < 2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm
• •	● ● ●	● ●

Small → "sm"
Peabubbles → "pb"
Large → "lg"
Headspace → "hs"

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

Cooler#: 1 Temperature(°C): 7.8

Sample ID	Bottle Count	Bottle Type
Trip Blank2	2	40 ml VOA
Water 1-WD-061809	3	"
Water 2-WD-061809	3	"
Soil 2-WD-061809	2	1 1/2 soil VOA, 8oz WMG
Soil 1-WD-061809	2	"

Cooler#: Temperature(°C):

Sample ID	Bottle Count	Bottle Type

Cooler#: Temperature(°C):

Sample ID	Bottle Count	Bottle Type

Cooler#: Temperature(°C):

Sample ID	Bottle Count	Bottle Type

Completed by: [signature] Date: 6/20/09 Time: 730

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: TRIP BLANKS**
 SAMPLE

Lab Sample ID: PD78A
LIMS ID: 09-14369
Matrix: Water
Data Release Authorized:
Reported: 06/24/09

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010
Date Sampled: 06/18/09
Date Received: 06/19/09

Instrument/Analyst: NT5/JZ
Date Analyzed: 06/22/09 13:17

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	0.5	< 0.5	U
74-83-9	Bromomethane	0.5	< 0.5	U
75-01-4	Vinyl Chloride	0.2	< 0.2	U
75-00-3	Chloroethane	0.2	< 0.2	U
75-09-2	Methylene Chloride	0.5	< 0.5	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	0.2	< 0.2	U
75-35-4	1,1-Dichloroethene	0.2	< 0.2	U
75-34-3	1,1-Dichloroethane	0.2	< 0.2	U
156-60-5	trans-1,2-Dichloroethene	0.2	< 0.2	U
156-59-2	cis-1,2-Dichloroethene	0.2	< 0.2	U
67-66-3	Chloroform	0.2	< 0.2	U
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	0.2	< 0.2	U
56-23-5	Carbon Tetrachloride	0.2	< 0.2	U
108-05-4	Vinyl Acetate	1.0	< 1.0	U
75-27-4	Bromodichloromethane	0.2	< 0.2	U
78-87-5	1,2-Dichloropropane	0.2	< 0.2	U
10061-01-5	cis-1,3-Dichloropropene	0.2	< 0.2	U
79-01-6	Trichloroethene	0.2	< 0.2	U
124-48-1	Dibromochloromethane	0.2	< 0.2	U
79-00-5	1,1,2-Trichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
10061-02-6	trans-1,3-Dichloropropene	0.2	< 0.2	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.2	< 0.2	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	0.2	< 0.2	U
79-34-5	1,1,2,2-Tetrachloroethane	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
108-90-7	Chlorobenzene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
100-42-5	Styrene	0.2	< 0.2	U
75-69-4	Trichlorofluoromethane	0.2	< 0.2	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
95-50-1	1,2-Dichlorobenzene	0.2	< 0.2	U
541-73-1	1,3-Dichlorobenzene	0.2	< 0.2	U
106-46-7	1,4-Dichlorobenzene	0.2	< 0.2	U
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Methyl Iodide	1.0	< 1.0	U
74-96-4	Bromoethane	0.2	< 0.2	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.2	< 0.2	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: TRIP BLANKS**
 SAMPLE

Lab Sample ID: PD78A
LIMS ID: 09-14369
Matrix: Water
Date Analyzed: 06/22/09 13:17

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010

CAS Number	Analyte	RL	Result	Q
74-95-3	Dibromomethane	0.2	< 0.2	U
630-20-6	1,1,1,2-Tetrachloroethane	0.2	< 0.2	U
96-12-8	1,2-Dibromo-3-chloropropane	0.5	< 0.5	U
96-18-4	1,2,3-Trichloropropane	0.5	< 0.5	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	1,3,5-Trimethylbenzene	0.2	< 0.2	U
95-63-6	1,2,4-Trimethylbenzene	0.2	< 0.2	U
87-68-3	Hexachlorobutadiene	0.5	< 0.5	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
74-97-5	Bromochloromethane	0.2	< 0.2	U
594-20-7	2,2-Dichloropropane	0.2	< 0.2	U
142-28-9	1,3-Dichloropropane	0.2	< 0.2	U
98-82-8	Isopropylbenzene	0.2	< 0.2	U
103-65-1	n-Propylbenzene	0.2	< 0.2	U
108-86-1	Bromobenzene	0.2	< 0.2	U
95-49-8	2-Chlorotoluene	0.2	< 0.2	U
106-43-4	4-Chlorotoluene	0.2	< 0.2	U
98-06-6	tert-Butylbenzene	0.2	< 0.2	U
135-98-8	sec-Butylbenzene	0.2	< 0.2	U
99-87-6	4-Isopropyltoluene	0.2	< 0.2	U
104-51-8	n-Butylbenzene	0.2	< 0.2	U
120-82-1	1,2,4-Trichlorobenzene	0.5	< 0.5	U
91-20-3	Naphthalene	0.5	< 0.5	U
87-61-6	1,2,3-Trichlorobenzene	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	103%
Bromofluorobenzene	94.5%
d4-1,2-Dichlorobenzene	103%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: WATER 1-WD-061809**
 SAMPLE

Lab Sample ID: PD78B
LIMS ID: 09-14370
Matrix: Water
Data Release Authorized:
Reported: 06/24/09

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010
Date Sampled: 06/18/09
Date Received: 06/19/09

Instrument/Analyst: NT5/JZ
Date Analyzed: 06/22/09 13:43

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	0.5	< 0.5	U
74-83-9	Bromomethane	0.5	< 0.5	U
75-01-4	Vinyl Chloride	0.2	< 0.2	U
75-00-3	Chloroethane	0.2	< 0.2	U
75-09-2	Methylene Chloride	0.5	< 0.5	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	0.2	< 0.2	U
75-35-4	1,1-Dichloroethene	0.2	< 0.2	U
75-34-3	1,1-Dichloroethane	0.2	< 0.2	U
156-60-5	trans-1,2-Dichloroethene	0.2	< 0.2	U
156-59-2	**cis-1,2-Dichloroethene**	**0.2**	**0.3**	
67-66-3	**Chloroform**	**0.2**	**0.2**	
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	0.2	< 0.2	U
56-23-5	Carbon Tetrachloride	0.2	< 0.2	U
108-05-4	Vinyl Acetate	1.0	< 1.0	U
75-27-4	Bromodichloromethane	0.2	< 0.2	U
78-87-5	1,2-Dichloropropane	0.2	< 0.2	U
10061-01-5	cis-1,3-Dichloropropene	0.2	< 0.2	U
79-01-6	Trichloroethene	0.2	< 0.2	U
124-48-1	Dibromochloromethane	0.2	< 0.2	U
79-00-5	1,1,2-Trichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
10061-02-6	trans-1,3-Dichloropropene	0.2	< 0.2	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.2	< 0.2	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	**Tetrachloroethene**	**0.2**	**0.8**	
79-34-5	1,1,2,2-Tetrachloroethane	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
108-90-7	Chlorobenzene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
100-42-5	Styrene	0.2	< 0.2	U
75-69-4	Trichlorofluoromethane	0.2	< 0.2	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
95-50-1	1,2-Dichlorobenzene	0.2	< 0.2	U
541-73-1	1,3-Dichlorobenzene	0.2	< 0.2	U
106-46-7	1,4-Dichlorobenzene	0.2	< 0.2	U
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Methyl Iodide	1.0	< 1.0	U
74-96-4	Bromoethane	0.2	< 0.2	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.2	< 0.2	U

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: WATER 1-WD-061809**
 SAMPLE

Lab Sample ID: PD78B
LIMS ID: 09-14370
Matrix: Water
Date Analyzed: 06/22/09 13:43

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010

CAS Number	Analyte	RL	Result	Q
74-95-3	Dibromomethane	0.2	< 0.2	U
630-20-6	1,1,1,2-Tetrachloroethane	0.2	< 0.2	U
96-12-8	1,2-Dibromo-3-chloropropane	0.5	< 0.5	U
96-18-4	1,2,3-Trichloropropane	0.5	< 0.5	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	1,3,5-Trimethylbenzene	0.2	< 0.2	U
95-63-6	1,2,4-Trimethylbenzene	0.2	< 0.2	U
87-68-3	Hexachlorobutadiene	0.5	< 0.5	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
74-97-5	Bromochloromethane	0.2	< 0.2	U
594-20-7	2,2-Dichloropropane	0.2	< 0.2	U
142-28-9	1,3-Dichloropropane	0.2	< 0.2	U
98-82-8	Isopropylbenzene	0.2	< 0.2	U
103-65-1	n-Propylbenzene	0.2	< 0.2	U
108-86-1	Bromobenzene	0.2	< 0.2	U
95-49-8	2-Chlorotoluene	0.2	< 0.2	U
106-43-4	4-Chlorotoluene	0.2	< 0.2	U
98-06-6	tert-Butylbenzene	0.2	< 0.2	U
135-98-8	sec-Butylbenzene	0.2	< 0.2	U
99-87-6	4-Isopropyltoluene	0.2	< 0.2	U
104-51-8	n-Butylbenzene	0.2	< 0.2	U
120-82-1	1,2,4-Trichlorobenzene	0.5	< 0.5	U
91-20-3	Naphthalene	0.5	< 0.5	U
87-61-6	1,2,3-Trichlorobenzene	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	110%
d8-Toluene	104%
Bromofluorobenzene	96.3%
d4-1,2-Dichlorobenzene	101%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: WATER 2-WD-061809**
Page 1 of 2 **SAMPLE**

Lab Sample ID: PD78C
LIMS ID: 09-14371
Matrix: Water
Data Release Authorized:
Reported: 06/24/09

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010
Date Sampled: 06/18/09
Date Received: 06/19/09

Instrument/Analyst: NT5/JZ
Date Analyzed: 06/22/09 14:10

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	0.5	< 0.5	U
74-83-9	Bromomethane	0.5	< 0.5	U
75-01-4	Vinyl Chloride	0.2	< 0.2	U
75-00-3	Chloroethane	0.2	< 0.2	U
75-09-2	Methylene Chloride	0.5	< 0.5	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	**Carbon Disulfide**	**0.2**	**0.3**	
75-35-4	1,1-Dichloroethene	0.2	< 0.2	U
75-34-3	1,1-Dichloroethane	0.2	< 0.2	U
156-60-5	trans-1,2-Dichloroethene	0.2	< 0.2	U
156-59-2	**cis-1,2-Dichloroethene**	**0.2**	**1.0**	
67-66-3	**Chloroform**	**0.2**	**0.2**	
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	0.2	< 0.2	U
56-23-5	Carbon Tetrachloride	0.2	< 0.2	U
108-05-4	Vinyl Acetate	1.0	< 1.0	U
75-27-4	Bromodichloromethane	0.2	< 0.2	U
78-87-5	1,2-Dichloropropane	0.2	< 0.2	U
10061-01-5	cis-1,3-Dichloropropene	0.2	< 0.2	U
79-01-6	Trichloroethene	0.2	< 0.2	U
124-48-1	Dibromochloromethane	0.2	< 0.2	U
79-00-5	1,1,2-Trichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
10061-02-6	trans-1,3-Dichloropropene	0.2	< 0.2	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.2	< 0.2	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	**Tetrachloroethene**	**0.2**	**0.5**	
79-34-5	1,1,2,2-Tetrachloroethane	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
108-90-7	Chlorobenzene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
100-42-5	Styrene	0.2	< 0.2	U
75-69-4	Trichlorofluoromethane	0.2	< 0.2	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
95-50-1	1,2-Dichlorobenzene	0.2	< 0.2	U
541-73-1	1,3-Dichlorobenzene	0.2	< 0.2	U
106-46-7	1,4-Dichlorobenzene	0.2	< 0.2	U
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Methyl Iodide	1.0	< 1.0	U
74-96-4	Bromoethane	0.2	< 0.2	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.2	< 0.2	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: WATER 2-WD-061809**
 SAMPLE

Lab Sample ID: PD78C
LIMS ID: 09-14371
Matrix: Water
Date Analyzed: 06/22/09 14:10

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010

CAS Number	Analyte	RL	Result	Q
74-95-3	Dibromomethane	0.2	< 0.2	U
630-20-6	1,1,1,2-Tetrachloroethane	0.2	< 0.2	U
96-12-8	1,2-Dibromo-3-chloropropane	0.5	< 0.5	U
96-18-4	1,2,3-Trichloropropane	0.5	< 0.5	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	1,3,5-Trimethylbenzene	0.2	< 0.2	U
95-63-6	1,2,4-Trimethylbenzene	0.2	< 0.2	U
87-68-3	Hexachlorobutadiene	0.5	< 0.5	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
74-97-5	Bromochloromethane	0.2	< 0.2	U
594-20-7	2,2-Dichloropropane	0.2	< 0.2	U
142-28-9	1,3-Dichloropropane	0.2	< 0.2	U
98-82-8	Isopropylbenzene	0.2	< 0.2	U
103-65-1	n-Propylbenzene	0.2	< 0.2	U
108-86-1	Bromobenzene	0.2	< 0.2	U
95-49-8	2-Chlorotoluene	0.2	< 0.2	U
106-43-4	4-Chlorotoluene	0.2	< 0.2	U
98-06-6	tert-Butylbenzene	0.2	< 0.2	U
135-98-8	sec-Butylbenzene	0.2	< 0.2	U
99-87-6	4-Isopropyltoluene	0.2	< 0.2	U
104-51-8	n-Butylbenzene	0.2	< 0.2	U
120-82-1	1,2,4-Trichlorobenzene	0.5	< 0.5	U
91-20-3	Naphthalene	0.5	< 0.5	U
87-61-6	1,2,3-Trichlorobenzene	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	102%
Bromofluorobenzene	94.0%
d4-1,2-Dichlorobenzene	102%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-062209**
 METHOD BLANK

Lab Sample ID: MB-062209
LIMS ID: 09-14369
Matrix: Water
Data Release Authorized:
Reported: 06/24/09

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT5/JZ
Date Analyzed: 06/22/09 12:51

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	0.5	< 0.5	U
74-83-9	Bromomethane	0.5	< 0.5	U
75-01-4	Vinyl Chloride	0.2	< 0.2	U
75-00-3	Chloroethane	0.2	< 0.2	U
75-09-2	Methylene Chloride	0.5	< 0.5	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	0.2	< 0.2	U
75-35-4	1,1-Dichloroethene	0.2	< 0.2	U
75-34-3	1,1-Dichloroethane	0.2	< 0.2	U
156-60-5	trans-1,2-Dichloroethene	0.2	< 0.2	U
156-59-2	cis-1,2-Dichloroethene	0.2	< 0.2	U
67-66-3	Chloroform	0.2	< 0.2	U
107-06-2	1,2-Dichloroethane	0.2	< 0.2	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	0.2	< 0.2	U
56-23-5	Carbon Tetrachloride	0.2	< 0.2	U
108-05-4	Vinyl Acetate	1.0	< 1.0	U
75-27-4	Bromodichloromethane	0.2	< 0.2	U
78-87-5	1,2-Dichloropropane	0.2	< 0.2	U
10061-01-5	cis-1,3-Dichloropropene	0.2	< 0.2	U
79-01-6	Trichloroethene	0.2	< 0.2	U
124-48-1	Dibromochloromethane	0.2	< 0.2	U
79-00-5	1,1,2-Trichloroethane	0.2	< 0.2	U
71-43-2	Benzene	0.2	< 0.2	U
10061-02-6	trans-1,3-Dichloropropene	0.2	< 0.2	U
110-75-8	2-Chloroethylvinylether	1.0	< 1.0	U
75-25-2	Bromoform	0.2	< 0.2	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	0.2	< 0.2	U
79-34-5	1,1,2,2-Tetrachloroethane	0.2	< 0.2	U
108-88-3	Toluene	0.2	< 0.2	U
108-90-7	Chlorobenzene	0.2	< 0.2	U
100-41-4	Ethylbenzene	0.2	< 0.2	U
100-42-5	Styrene	0.2	< 0.2	U
75-69-4	Trichlorofluoromethane	0.2	< 0.2	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	0.2	< 0.2	U
179601-23-1	m,p-Xylene	0.4	< 0.4	U
95-47-6	o-Xylene	0.2	< 0.2	U
95-50-1	1,2-Dichlorobenzene	0.2	< 0.2	U
541-73-1	1,3-Dichlorobenzene	0.2	< 0.2	U
106-46-7	1,4-Dichlorobenzene	0.2	< 0.2	U
107-02-8	Acrolein	5.0	< 5.0	U
74-88-4	Methyl Iodide	1.0	< 1.0	U
74-96-4	Bromoethane	0.2	< 0.2	U
107-13-1	Acrylonitrile	1.0	< 1.0	U
563-58-6	1,1-Dichloropropene	0.2	< 0.2	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-062209**
 METHOD BLANK

Lab Sample ID: MB-062209 QC Report No: PD78-Landau Associates, Inc.
LIMS ID: 09-14369 Project: SAUROS
Matrix: Water 00948.010
Date Analyzed: 06/22/09 12:51

CAS Number	Analyte	RL	Result	Q
74-95-3	Dibromomethane	0.2	< 0.2	U
630-20-6	1,1,1,2-Tetrachloroethane	0.2	< 0.2	U
96-12-8	1,2-Dibromo-3-chloropropane	0.5	< 0.5	U
96-18-4	1,2,3-Trichloropropane	0.5	< 0.5	U
110-57-6	trans-1,4-Dichloro-2-butene	1.0	< 1.0	U
108-67-8	1,3,5-Trimethylbenzene	0.2	< 0.2	U
95-63-6	1,2,4-Trimethylbenzene	0.2	< 0.2	U
87-68-3	Hexachlorobutadiene	0.5	< 0.5	U
106-93-4	Ethylene Dibromide	0.2	< 0.2	U
74-97-5	Bromochloromethane	0.2	< 0.2	U
594-20-7	2,2-Dichloropropane	0.2	< 0.2	U
142-28-9	1,3-Dichloropropane	0.2	< 0.2	U
98-82-8	Isopropylbenzene	0.2	< 0.2	U
103-65-1	n-Propylbenzene	0.2	< 0.2	U
108-86-1	Bromobenzene	0.2	< 0.2	U
95-49-8	2-Chlorotoluene	0.2	< 0.2	U
106-43-4	4-Chlorotoluene	0.2	< 0.2	U
98-06-6	tert-Butylbenzene	0.2	< 0.2	U
135-98-8	sec-Butylbenzene	0.2	< 0.2	U
99-87-6	4-Isopropyltoluene	0.2	< 0.2	U
104-51-8	n-Butylbenzene	0.2	< 0.2	U
120-82-1	1,2,4-Trichlorobenzene	0.5	< 0.5	U
91-20-3	Naphthalene	0.5	< 0.5	U
87-61-6	1,2,3-Trichlorobenzene	0.5	< 0.5	U

Reported in µg/L (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	102%
d8-Toluene	102%
Bromofluorobenzene	95.6%
d4-1,2-Dichlorobenzene	99.4%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-062209	Method Blank	10	102%	102%	95.6%	99.4%	0
LCS-062209	Lab Control	10	100%	101%	101%	98.3%	0
LCSD-062209	Lab Control Dup	10	100%	100%	102%	99.1%	0
PD78A	TRIP BLANKS	10	106%	103%	94.5%	103%	0
PD78B	WATER 1-WD-061809	10	110%	104%	96.3%	101%	0
PD78C	WATER 2-WD-061809	10	106%	102%	94.0%	102%	0

	LCS/MB LIMITS	QC LIMITS
SW8260C		
(DCE) = d4-1,2-Dichloroethane	70-132	80-143
(TOL) = d8-Toluene	80-120	80-120
(BFB) = Bromofluorobenzene	80-120	80-120
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120

Prep Method: SW5030B
Log Number Range: 09-14369 to 09-14371

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-062209**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-062209
LIMS ID: 09-14369
Matrix: Water
Data Release Authorized:
Reported: 06/24/09

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT5/JZ
LCSD: NT5/JZ
Date Analyzed LCS: 06/22/09 11:58
LCSD: 06/22/09 12:24

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	10.5	10.0	105%	10.2	10.0	102%	2.9%
Bromomethane	9.7	10.0	97.0%	9.9	10.0	99.0%	2.0%
Vinyl Chloride	10.9	10.0	109%	11.0	10.0	110%	0.9%
Chloroethane	10.5	10.0	105%	11.1	10.0	111%	5.6%
Methylene Chloride	9.4	10.0	94.0%	10.0	10.0	100%	6.2%
Acetone	52.5	50.0	105%	52.2	50.0	104%	0.6%
Carbon Disulfide	10.3	10.0	103%	10.1	10.0	101%	2.0%
1,1-Dichloroethene	9.8	10.0	98.0%	9.6	10.0	96.0%	2.1%
1,1-Dichloroethane	10.3	10.0	103%	10.4	10.0	104%	1.0%
trans-1,2-Dichloroethene	10.3	10.0	103%	10.2	10.0	102%	1.0%
cis-1,2-Dichloroethene	10.8	10.0	108%	10.7	10.0	107%	0.9%
Chloroform	10.1	10.0	101%	10.2	10.0	102%	1.0%
1,2-Dichloroethane	9.9	10.0	99.0%	10.0	10.0	100%	1.0%
2-Butanone	55.7	50.0	111%	55.7	50.0	111%	0.0%
1,1,1-Trichloroethane	10.1	10.0	101%	10.1	10.0	101%	0.0%
Carbon Tetrachloride	9.7	10.0	97.0%	9.6	10.0	96.0%	1.0%
Vinyl Acetate	11.6	10.0	116%	11.7	10.0	117%	0.9%
Bromodichloromethane	9.9	10.0	99.0%	9.8	10.0	98.0%	1.0%
1,2-Dichloropropane	10.6	10.0	106%	10.3	10.0	103%	2.9%
cis-1,3-Dichloropropene	10.8	10.0	108%	11.0	10.0	110%	1.8%
Trichloroethene	10.2	10.0	102%	10.1	10.0	101%	1.0%
Dibromochloromethane	9.4	10.0	94.0%	9.5	10.0	95.0%	1.1%
1,1,2-Trichloroethane	9.4	10.0	94.0%	9.5	10.0	95.0%	1.1%
Benzene	10.4	10.0	104%	10.5	10.0	105%	1.0%
trans-1,3-Dichloropropene	10.4	10.0	104%	10.3	10.0	103%	1.0%
2-Chloroethylvinylether	9.0	10.0	90.0%	9.0	10.0	90.0%	0.0%
Bromoform	9.4	10.0	94.0%	9.5	10.0	95.0%	1.1%
4-Methyl-2-Pentanone (MIBK)	54.5	50.0	109%	55.1	50.0	110%	1.1%
2-Hexanone	55.9	50.0	112%	56.5	50.0	113%	1.1%
Tetrachloroethene	9.3	10.0	93.0%	9.4	10.0	94.0%	1.1%
1,1,2,2-Tetrachloroethane	9.4	10.0	94.0%	9.6	10.0	96.0%	2.1%
Toluene	10.3	10.0	103%	10.3	10.0	103%	0.0%
Chlorobenzene	9.9	10.0	99.0%	10.0	10.0	100%	1.0%
Ethylbenzene	10.8	10.0	108%	11.5	10.0	115%	6.3%
Styrene	9.6	10.0	96.0%	9.6	10.0	96.0%	0.0%
Trichlorofluoromethane	9.7	10.0	97.0%	9.5	10.0	95.0%	2.1%
1,1,2-Trichloro-1,2,2-trifluoroetha	9.7	10.0	97.0%	9.6	10.0	96.0%	1.0%
m,p-Xylene	22.8	20.0	114%	22.5	20.0	112%	1.3%
o-Xylene	11.0	10.0	110%	11.1	10.0	111%	0.9%
1,2-Dichlorobenzene	9.4	10.0	94.0%	9.7	10.0	97.0%	3.1%
1,3-Dichlorobenzene	9.9	10.0	99.0%	9.9	10.0	99.0%	0.0%
1,4-Dichlorobenzene	9.5	10.0	95.0%	9.8	10.0	98.0%	3.1%
Acrolein	52.2	50.0	104%	52.3	50.0	105%	0.2%
Methyl Iodide	10.9	10.0	109%	11.2	10.0	112%	2.7%
Bromoethane	10.0	10.0	100%	10.3	10.0	103%	3.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-062209**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-062209
LIMS ID: 09-14369
Matrix: Water

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Acrylonitrile	12.0	10.0	120%	11.6	10.0	116%	3.4%
1,1-Dichloropropene	10.7	10.0	107%	10.7	10.0	107%	0.0%
Dibromomethane	10.0	10.0	100%	9.8	10.0	98.0%	2.0%
1,1,1,2-Tetrachloroethane	9.6	10.0	96.0%	9.7	10.0	97.0%	1.0%
1,2-Dibromo-3-chloropropane	9.8	10.0	98.0%	9.8	10.0	98.0%	0.0%
1,2,3-Trichloropropane	10.0	10.0	100%	10.2	10.0	102%	2.0%
trans-1,4-Dichloro-2-butene	9.9	10.0	99.0%	10.1	10.0	101%	2.0%
1,3,5-Trimethylbenzene	11.5	10.0	115%	11.6	10.0	116%	0.9%
1,2,4-Trimethylbenzene	11.7	10.0	117%	11.8	10.0	118%	0.9%
Hexachlorobutadiene	9.1	10.0	91.0%	9.4	10.0	94.0%	3.2%
Ethylene Dibromide	10.0	10.0	100%	9.7	10.0	97.0%	3.0%
Bromochloromethane	10.2	10.0	102%	10.4	10.0	104%	1.9%
2,2-Dichloropropane	10.3	10.0	103%	10.3	10.0	103%	0.0%
1,3-Dichloropropane	10.3	10.0	103%	10.5	10.0	105%	1.9%
Isopropylbenzene	11.6	10.0	116%	11.8	10.0	118%	1.7%
n-Propylbenzene	11.1	10.0	111%	11.2	10.0	112%	0.9%
Bromobenzene	9.6	10.0	96.0%	9.9	10.0	99.0%	3.1%
2-Chlorotoluene	10.8	10.0	108%	10.9	10.0	109%	0.9%
4-Chlorotoluene	10.8	10.0	108%	11.0	10.0	110%	1.8%
tert-Butylbenzene	11.3	10.0	113%	11.6	10.0	116%	2.6%
sec-Butylbenzene	11.4	10.0	114%	11.5	10.0	115%	0.9%
4-Isopropyltoluene	11.5	10.0	115%	11.7	10.0	117%	1.7%
n-Butylbenzene	11.5	10.0	115%	11.6	10.0	116%	0.9%
1,2,4-Trichlorobenzene	10.2	10.0	102%	10.3	10.0	103%	1.0%
Naphthalene	10.9	10.0	109%	11.3	10.0	113%	3.6%
1,2,3-Trichlorobenzene	10.1	10.0	101%	10.4	10.0	104%	2.9%

Reported in µg/L (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	100%	100%
d8-Toluene	101%	100%
Bromofluorobenzene	101%	102%
d4-1,2-Dichlorobenzene	98.3%	99.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SOIL 2-WD-061809**
Page 1 of 2 **SAMPLE**

Lab Sample ID: PD78D
LIMS ID: 09-14372
Matrix: Soil
Data Release Authorized:
Reported: 06/25/09

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010
Date Sampled: 06/18/09
Date Received: 06/19/09

Instrument/Analyst: FINN5/PAB
Date Analyzed: 06/22/09 19:16

Sample Amount: 4.80 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 11.6%

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	1.0	< 1.0	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	1.0	< 1.0	U
75-00-3	Chloroethane	1.0	< 1.0	U
75-09-2	Methylene Chloride	2.1	< 2.1	U
67-64-1	Acetone	5.2	< 5.2	U
75-15-0	Carbon Disulfide	1.0	< 1.0	U
75-35-4	1,1-Dichloroethene	1.0	< 1.0	U
75-34-3	1,1-Dichloroethane	1.0	< 1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	< 1.0	U
156-59-2	**cis-1,2-Dichloroethene**	**1.0**	**2.7**	
67-66-3	Chloroform	1.0	< 1.0	U
107-06-2	1,2-Dichloroethane	1.0	< 1.0	U
78-93-3	2-Butanone	5.2	< 5.2	U
71-55-6	1,1,1-Trichloroethane	1.0	< 1.0	U
56-23-5	Carbon Tetrachloride	1.0	< 1.0	U
108-05-4	Vinyl Acetate	5.2	< 5.2	U
75-27-4	Bromodichloromethane	1.0	< 1.0	U
78-87-5	1,2-Dichloropropane	1.0	< 1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	< 1.0	U
79-01-6	**Trichloroethene**	**1.0**	**1.6**	
124-48-1	Dibromochloromethane	1.0	< 1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	< 1.0	U
71-43-2	Benzene	1.0	< 1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	< 1.0	U
110-75-8	2-Chloroethylvinylether	5.2	< 5.2	U
75-25-2	Bromoform	1.0	< 1.0	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.2	< 5.2	U
591-78-6	2-Hexanone	5.2	< 5.2	U
127-18-4	**Tetrachloroethene**	**1.0**	**32**	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
108-90-7	Chlorobenzene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
100-42-5	Styrene	1.0	< 1.0	U
75-69-4	Trichlorofluoromethane	1.0	< 1.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	2.1	< 2.1	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0	U
107-02-8	Acrolein	52	< 52	U
74-88-4	Methyl Iodide	1.0	< 1.0	U
74-96-4	Bromoethane	2.1	< 2.1	U
107-13-1	Acrylonitrile	5.2	< 5.2	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SOIL 2-WD-061809**
 SAMPLE

Lab Sample ID: PD78D
LIMS ID: 09-14372
Matrix: Soil
Date Analyzed: 06/22/09 19:16

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010

CAS Number	Analyte	RL	Result	Q
563-58-6	1,1-Dichloropropene	1.0	< 1.0	U
74-95-3	Dibromomethane	1.0	< 1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	< 1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.2	< 5.2	U
96-18-4	1,2,3-Trichloropropane	2.1	< 2.1	U
110-57-6	trans-1,4-Dichloro-2-butene	5.2	< 5.2	U
108-67-8	1,3,5-Trimethylbenzene	1.0	< 1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	< 1.0	U
87-68-3	Hexachlorobutadiene	5.2	< 5.2	U
106-93-4	Ethylene Dibromide	1.0	< 1.0	U
74-97-5	Bromochloromethane	1.0	< 1.0	U
594-20-7	2,2-Dichloropropane	1.0	< 1.0	U
142-28-9	1,3-Dichloropropane	1.0	< 1.0	U
98-82-8	Isopropylbenzene	1.0	< 1.0	U
103-65-1	n-Propylbenzene	1.0	< 1.0	U
108-86-1	Bromobenzene	1.0	< 1.0	U
95-49-8	2-Chlorotoluene	1.0	< 1.0	U
106-43-4	4-Chlorotoluene	1.0	< 1.0	U
98-06-6	tert-Butylbenzene	1.0	< 1.0	U
135-98-8	sec-Butylbenzene	1.0	< 1.0	U
99-87-6	4-Isopropyltoluene	1.0	< 1.0	U
104-51-8	n-Butylbenzene	1.0	< 1.0	U
120-82-1	1,2,4-Trichlorobenzene	5.2	< 5.2	U
91-20-3	Naphthalene	5.2	< 5.2	U
87-61-6	1,2,3-Trichlorobenzene	5.2	< 5.2	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	128%
d8-Toluene	102%
Bromofluorobenzene	101%
d4-1,2-Dichlorobenzene	99.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SOIL 1-WD-061809**
Page 1 of 2 **SAMPLE**

Lab Sample ID: PD78E
LIMS ID: 09-14373
Matrix: Soil
Data Release Authorized:
Reported: 06/25/09

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010
Date Sampled: 06/18/09
Date Received: 06/19/09

Instrument/Analyst: FINN5/PAB
Date Analyzed: 06/22/09 19:42

Sample Amount: 4.74 g-dry-wt
Purge Volume: 5.0 mL
Moisture: 20.4%

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	1.0	< 1.0	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	1.0	< 1.0	U
75-00-3	Chloroethane	1.0	< 1.0	U
75-09-2	Methylene Chloride	2.1	< 2.1	U
67-64-1	**Acetone**	**5.3**	**8.3**	
75-15-0	Carbon Disulfide	1.0	< 1.0	U
75-35-4	1,1-Dichloroethene	1.0	< 1.0	U
75-34-3	1,1-Dichloroethane	1.0	< 1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	< 1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	< 1.0	U
67-66-3	Chloroform	1.0	< 1.0	U
107-06-2	1,2-Dichloroethane	1.0	< 1.0	U
78-93-3	2-Butanone	5.3	< 5.3	U
71-55-6	1,1,1-Trichloroethane	1.0	< 1.0	U
56-23-5	Carbon Tetrachloride	1.0	< 1.0	U
108-05-4	Vinyl Acetate	5.3	< 5.3	U
75-27-4	Bromodichloromethane	1.0	< 1.0	U
78-87-5	1,2-Dichloropropane	1.0	< 1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	< 1.0	U
79-01-6	Trichloroethene	1.0	< 1.0	U
124-48-1	Dibromochloromethane	1.0	< 1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	< 1.0	U
71-43-2	Benzene	1.0	< 1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	< 1.0	U
110-75-8	2-Chloroethylvinylether	5.3	< 5.3	U
75-25-2	Bromoform	1.0	< 1.0	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.3	< 5.3	U
591-78-6	2-Hexanone	5.3	< 5.3	U
127-18-4	Tetrachloroethene	1.0	< 1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
108-90-7	Chlorobenzene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
100-42-5	Styrene	1.0	< 1.0	U
75-69-4	Trichlorofluoromethane	1.0	< 1.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	2.1	< 2.1	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0	U
107-02-8	Acrolein	53	< 53	U
74-88-4	Methyl Iodide	1.0	< 1.0	U
74-96-4	Bromoethane	2.1	< 2.1	U
107-13-1	Acrylonitrile	5.3	< 5.3	U

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: SOIL 1-WD-061809**
 SAMPLE

Lab Sample ID: PD78E
LIMS ID: 09-14373
Matrix: Soil
Date Analyzed: 06/22/09 19:42

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010

CAS Number	Analyte	RL	Result	Q
563-58-6	1,1-Dichloropropene	1.0	< 1.0	U
74-95-3	Dibromomethane	1.0	< 1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	< 1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.3	< 5.3	U
96-18-4	1,2,3-Trichloropropane	2.1	< 2.1	U
110-57-6	trans-1,4-Dichloro-2-butene	5.3	< 5.3	U
108-67-8	1,3,5-Trimethylbenzene	1.0	< 1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	< 1.0	U
87-68-3	Hexachlorobutadiene	5.3	< 5.3	U
106-93-4	Ethylene Dibromide	1.0	< 1.0	U
74-97-5	Bromochloromethane	1.0	< 1.0	U
594-20-7	2,2-Dichloropropane	1.0	< 1.0	U
142-28-9	1,3-Dichloropropane	1.0	< 1.0	U
98-82-8	Isopropylbenzene	1.0	< 1.0	U
103-65-1	n-Propylbenzene	1.0	< 1.0	U
108-86-1	Bromobenzene	1.0	< 1.0	U
95-49-8	2-Chlorotoluene	1.0	< 1.0	U
106-43-4	4-Chlorotoluene	1.0	< 1.0	U
98-06-6	tert-Butylbenzene	1.0	< 1.0	U
135-98-8	sec-Butylbenzene	1.0	< 1.0	U
99-87-6	4-Isopropyltoluene	1.0	< 1.0	U
104-51-8	n-Butylbenzene	1.0	< 1.0	U
120-82-1	1,2,4-Trichlorobenzene	5.3	< 5.3	U
91-20-3	Naphthalene	5.3	< 5.3	U
87-61-6	1,2,3-Trichlorobenzene	5.3	< 5.3	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	129%
d8-Toluene	103%
Bromofluorobenzene	100%
d4-1,2-Dichlorobenzene	98.8%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-062209**
 METHOD BLANK

Lab Sample ID: MB-062209
LIMS ID: 09-14372
Matrix: Soil
Data Release Authorized:
Reported: 06/25/09

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010
Date Sampled: NA
Date Received: NA

Instrument/Analyst: FINN5/PAB
Date Analyzed: 06/22/09 11:28

Sample Amount: 5.00 g-dry-wt
Purge Volume: 5.0 mL
Moisture: NA

CAS Number	Analyte	RL	Result	Q
74-87-3	Chloromethane	1.0	< 1.0	U
74-83-9	Bromomethane	1.0	< 1.0	U
75-01-4	Vinyl Chloride	1.0	< 1.0	U
75-00-3	Chloroethane	1.0	< 1.0	U
75-09-2	Methylene Chloride	2.0	< 2.0	U
67-64-1	Acetone	5.0	< 5.0	U
75-15-0	Carbon Disulfide	1.0	< 1.0	U
75-35-4	1,1-Dichloroethene	1.0	< 1.0	U
75-34-3	1,1-Dichloroethane	1.0	< 1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	< 1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	< 1.0	U
67-66-3	Chloroform	1.0	< 1.0	U
107-06-2	1,2-Dichloroethane	1.0	< 1.0	U
78-93-3	2-Butanone	5.0	< 5.0	U
71-55-6	1,1,1-Trichloroethane	1.0	< 1.0	U
56-23-5	Carbon Tetrachloride	1.0	< 1.0	U
108-05-4	Vinyl Acetate	5.0	< 5.0	U
75-27-4	Bromodichloromethane	1.0	< 1.0	U
78-87-5	1,2-Dichloropropane	1.0	< 1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	< 1.0	U
79-01-6	Trichloroethene	1.0	< 1.0	U
124-48-1	Dibromochloromethane	1.0	< 1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	< 1.0	U
71-43-2	Benzene	1.0	< 1.0	U
10061-02-6	trans-1,3-Dichloropropene	1.0	< 1.0	U
110-75-8	2-Chloroethylvinylether	5.0	< 5.0	U
75-25-2	Bromoform	1.0	< 1.0	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5.0	< 5.0	U
591-78-6	2-Hexanone	5.0	< 5.0	U
127-18-4	Tetrachloroethene	1.0	< 1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
108-90-7	Chlorobenzene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
100-42-5	Styrene	1.0	< 1.0	U
75-69-4	Trichlorofluoromethane	1.0	< 1.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroe	2.0	< 2.0	U
179601-23-1	m,p-Xylene	1.0	< 1.0	U
95-47-6	o-Xylene	1.0	< 1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	< 1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	< 1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	< 1.0	U
107-02-8	Acrolein	50	< 50	U
74-88-4	Methyl Iodide	1.0	< 1.0	U
74-96-4	Bromoethane	2.0	< 2.0	U
107-13-1	Acrylonitrile	5.0	< 5.0	U

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: MB-062209**
 METHOD BLANK

Lab Sample ID: MB-062209
LIMS ID: 09-14372
Matrix: Soil
Date Analyzed: 06/22/09 11:28

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010

CAS Number	Analyte	RL	Result	Q
563-58-6	1,1-Dichloropropene	1.0	< 1.0	U
74-95-3	Dibromomethane	1.0	< 1.0	U
630-20-6	1,1,1,2-Tetrachloroethane	1.0	< 1.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	< 5.0	U
96-18-4	1,2,3-Trichloropropane	2.0	< 2.0	U
110-57-6	trans-1,4-Dichloro-2-butene	5.0	< 5.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	< 1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	< 1.0	U
87-68-3	Hexachlorobutadiene	5.0	< 5.0	U
106-93-4	Ethylene Dibromide	1.0	< 1.0	U
74-97-5	Bromochloromethane	1.0	< 1.0	U
594-20-7	2,2-Dichloropropane	1.0	< 1.0	U
142-28-9	1,3-Dichloropropane	1.0	< 1.0	U
98-82-8	Isopropylbenzene	1.0	< 1.0	U
103-65-1	n-Propylbenzene	1.0	< 1.0	U
108-86-1	Bromobenzene	1.0	< 1.0	U
95-49-8	2-Chlorotoluene	1.0	< 1.0	U
106-43-4	4-Chlorotoluene	1.0	< 1.0	U
98-06-6	tert-Butylbenzene	1.0	< 1.0	U
135-98-8	sec-Butylbenzene	1.0	< 1.0	U
99-87-6	4-Isopropyltoluene	1.0	< 1.0	U
104-51-8	n-Butylbenzene	1.0	< 1.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	< 5.0	U
91-20-3	Naphthalene	5.0	< 5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	< 5.0	U

Reported in µg/kg (ppb)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	116%
d8-Toluene	103%
Bromofluorobenzene	103%
d4-1,2-Dichlorobenzene	98.1%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Soil

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010

ARI ID	Client ID	Level	DCE	TOL	BFB	DCB	TOT OUT
MB-062209	Method Blank	Low	116%	103%	103%	98.1%	0
LCS-062209	Lab Control	Low	115%	101%	106%	98.9%	0
LCSD-062209	Lab Control Dup	Low	117%	102%	104%	101%	0
PD78D	SOIL 2-WD-061809	Low	128%	102%	101%	99.6%	0
PD78E	SOIL 1-WD-061809	Low	129%	103%	100%	98.8%	0

	LCS/MB LIMITS		QC LIMITS	
SW8260C	Low	Med	Low	Med
(DCE) = d4-1,2-Dichloroethane	75-120	76-120	72-134	69-120
(TOL) = d8-Toluene	80-122	80-120	78-124	80-120
(BFB) = Bromofluorobenzene	79-120	80-120	66-120	76-128
(DCB) = d4-1,2-Dichlorobenzene	80-120	80-120	79-120	80-120

Log Number Range: 09-14372 to 09-14373

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-062209**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-062209
LIMS ID: 09-14372
Matrix: Soil
Data Release Authorized:
Reported: 06/25/09

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: FINN5/PAB
LCSD: FINN5/PAB
Date Analyzed LCS: 06/22/09 10:27
LCSD: 06/22/09 10:57

Sample Amount LCS: 5.00 g-dry-wt
LCSD: 5.00 g-dry-wt
Purge Volume LCS: 5.0 mL
LCSD: 5.0 mL
Moisture: NA

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Chloromethane	36.4	50.0	72.8%	43.0	50.0	86.0%	16.6%
Bromomethane	38.7	50.0	77.4%	45.7	50.0	91.4%	16.6%
Vinyl Chloride	39.8	50.0	79.6%	46.7	50.0	93.4%	16.0%
Chloroethane	37.7	50.0	75.4%	44.8	50.0	89.6%	17.2%
Methylene Chloride	43.7	50.0	87.4%	49.2	50.0	98.4%	11.8%
Acetone	285	250	114%	323	250	129%	12.5%
Carbon Disulfide	42.4	50.0	84.8%	49.4	50.0	98.8%	15.3%
1,1-Dichloroethene	41.0	50.0	82.0%	49.2	50.0	98.4%	18.2%
1,1-Dichloroethane	43.8	50.0	87.6%	51.1	50.0	102%	15.4%
trans-1,2-Dichloroethene	41.6	50.0	83.2%	48.9	50.0	97.8%	16.1%
cis-1,2-Dichloroethene	42.7	50.0	85.4%	47.6	50.0	95.2%	10.9%
Chloroform	44.1	50.0	88.2%	50.8	50.0	102%	14.1%
1,2-Dichloroethane	49.3	50.0	98.6%	54.4	50.0	109%	9.8%
2-Butanone	238	250	95.2%	270	250	108%	12.6%
1,1,1-Trichloroethane	44.0	50.0	88.0%	51.9	50.0	104%	16.5%
Carbon Tetrachloride	42.6	50.0	85.2%	50.5	50.0	101%	17.0%
Vinyl Acetate	49.6	50.0	99.2%	55.2	50.0	110%	10.7%
Bromodichloromethane	46.6	50.0	93.2%	51.7	50.0	103%	10.4%
1,2-Dichloropropane	41.6	50.0	83.2%	47.3	50.0	94.6%	12.8%
cis-1,3-Dichloropropene	46.7	50.0	93.4%	51.1	50.0	102%	9.0%
Trichloroethene	41.5	50.0	83.0%	47.8	50.0	95.6%	14.1%
Dibromochloromethane	48.2	50.0	96.4%	52.5	50.0	105%	8.5%
1,1,2-Trichloroethane	44.8	50.0	89.6%	49.2	50.0	98.4%	9.4%
Benzene	43.0	50.0	86.0%	49.7	50.0	99.4%	14.5%
trans-1,3-Dichloropropene	49.7	50.0	99.4%	54.0	50.0	108%	8.3%
2-Chloroethylvinylether	65.3	50.0	131%	63.1	50.0	126%	3.4%
Bromoform	47.7	50.0	95.4%	52.2	50.0	104%	9.0%
4-Methyl-2-Pentanone (MIBK)	237	250	94.8%	263	250	105%	10.4%
2-Hexanone	236	250	94.4%	262	250	105%	10.4%
Tetrachloroethene	40.3	50.0	80.6%	46.2	50.0	92.4%	13.6%
1,1,2,2-Tetrachloroethane	47.6	50.0	95.2%	52.0	50.0	104%	8.8%
Toluene	40.7	50.0	81.4%	46.7	50.0	93.4%	13.7%
Chlorobenzene	42.7	50.0	85.4%	47.3	50.0	94.6%	10.2%
Ethylbenzene	46.4	50.0	92.8%	52.3	50.0	105%	12.0%
Styrene	45.6	50.0	91.2%	49.7	50.0	99.4%	8.6%
Trichlorofluoromethane	41.0	50.0	82.0%	50.5	50.0	101%	20.8%
1,1,2-Trichloro-1,2,2-trifluoroetha	41.3	50.0	82.6%	51.4	50.0	103%	21.8%
m,p-Xylene	88.9	100	88.9%	99.1	100	99.1%	10.9%
o-Xylene	42.8	50.0	85.6%	47.8	50.0	95.6%	11.0%
1,2-Dichlorobenzene	45.4	50.0	90.8%	47.2	50.0	94.4%	3.9%
1,3-Dichlorobenzene	45.6	50.0	91.2%	48.1	50.0	96.2%	5.3%
1,4-Dichlorobenzene	45.8	50.0	91.6%	48.2	50.0	96.4%	5.1%
Acrolein	233	250	93.2%	255	250	102%	9.0%
Methyl Iodide	43.3	50.0	86.6%	50.0	50.0	100%	14.4%
Bromoethane	42.4	50.0	84.8%	49.9	50.0	99.8%	16.3%
Acrylonitrile	51.9	50.0	104%	57.2	50.0	114%	9.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS-Method SW8260C **Sample ID: LCS-062209**
 LAB CONTROL SAMPLE

Lab Sample ID: LCS-062209
LIMS ID: 09-14372
Matrix: Soil

QC Report No: PD78-Landau Associates, Inc.
Project: SAUROS
00948.010

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
1,1-Dichloropropene	42.3	50.0	84.6%	49.9	50.0	99.8%	16.5%
Dibromomethane	45.9	50.0	91.8%	49.9	50.0	99.8%	8.4%
1,1,1,2-Tetrachloroethane	43.6	50.0	87.2%	48.0	50.0	96.0%	9.6%
1,2-Dibromo-3-chloropropane	51.4	50.0	103%	55.6	50.0	111%	7.9%
1,2,3-Trichloropropane	49.8	50.0	99.6%	54.3	50.0	109%	8.6%
trans-1,4-Dichloro-2-butene	52.8	50.0	106%	56.1	50.0	112%	6.1%
1,3,5-Trimethylbenzene	48.2	50.0	96.4%	53.7	50.0	107%	10.8%
1,2,4-Trimethylbenzene	48.9	50.0	97.8%	53.9	50.0	108%	9.7%
Hexachlorobutadiene	46.2	50.0	92.4%	47.5	50.0	95.0%	2.8%
Ethylene Dibromide	45.7	50.0	91.4%	49.9	50.0	99.8%	8.8%
Bromochloromethane	43.6	50.0	87.2%	48.3	50.0	96.6%	10.2%
2,2-Dichloropropane	45.6	50.0	91.2%	53.1	50.0	106%	15.2%
1,3-Dichloropropane	47.9	50.0	95.8%	52.4	50.0	105%	9.0%
Isopropylbenzene	47.1	50.0	94.2%	54.1	50.0	108%	13.8%
n-Propylbenzene	46.6	50.0	93.2%	52.5	50.0	105%	11.9%
Bromobenzene	43.0	50.0	86.0%	47.2	50.0	94.4%	9.3%
2-Chlorotoluene	46.0	50.0	92.0%	50.7	50.0	101%	9.7%
4-Chlorotoluene	48.7	50.0	97.4%	54.1	50.0	108%	10.5%
tert-Butylbenzene	45.5	50.0	91.0%	51.1	50.0	102%	11.6%
sec-Butylbenzene	45.4	50.0	90.8%	51.2	50.0	102%	12.0%
4-Isopropyltoluene	48.3	50.0	96.6%	53.4	50.0	107%	10.0%
n-Butylbenzene	50.9	50.0	102%	54.9	50.0	110%	7.6%
1,2,4-Trichlorobenzene	48.9	50.0	97.8%	48.1	50.0	96.2%	1.6%
Naphthalene	41.3	50.0	82.6%	44.2	50.0	88.4%	6.8%
1,2,3-Trichlorobenzene	44.6	50.0	89.2%	46.2	50.0	92.4%	3.5%

Reported in µg/kg (ppb)

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	115%	117%
d8-Toluene	101%	102%
Bromofluorobenzene	106%	104%
d4-1,2-Dichlorobenzene	98.9%	101%

CHAIN OF CUSTODY

City of Tacoma Environmental Services
326 East D Street
Tacoma
WA, 98421-1801
phone (253) 502-2130
fax (253) 502-2170

Lab Work Order Number: T311194

Client Name	Project Name
PW Science and Engineering	Sauro Property 201311 Wells
Client Contact	Project Number
Calvin Taylor	CIP-00020-01-03
Address	Project Description
326 East D Street	Sauro Property Monitoring Wells
City	PO Number
Tacoma	61000055543
State/Zip	Sampler Signatures
WA, 98421	Kristin Hooper, Rachel Morgan
Phone: (253) 593-7711	Fax: (253) 502-2295
Samplers: Kristin Hooper, Rachel Morgan	

Requested Turn Around: Rush requests subject to additional charge. Rush requests subject to lab approval. 10 business Standard (days); Expedited (days); Due Date

Sample Name or Field ID #	Sampled Date	Sampled Time	Sample Type Code	Matrix Code	Container Count	Metals	EPA 8260C:(BTEX):NWTPH-Gx (GC/MS)	EPA 8260C/VOCs						Sample Number	Sample Comments
LAI-SoilDrum-20131126	11/26/13	1335	G	S	5	1	4							-09	
Trip Blank			G	W	3			3						-06	
LAI-GWDrum-20131126	11/26/13	1325	G	W	16	X	X	X						-08	
* LAI-GWDrum-20131126	11/26/13	1416	G	W		X								-15	

Relinquished By	Received By	Date/Time
Rachel Morgan	Nicole Riley	11/26/2013 1400
* Kristin Hooper	Nicole Riley	11/26/2013 1428
Relinquished By	Received By	Date/Time

Cooler Numbers and Temperatures

Comments: Received on ice 4.1°C
possible hydrocarbons in samples collected

Matrix Codes:

Preserv. Codes:

Login Reviewed By: _____

Login Reviewed Date: 11/26/13

PW Science and Engineering	Project: **Sauro Property 201311 Wells**	
326 East D Street	Project Number: CIP-00020-01-03	**Reported:**
Tacoma WA, 98421	Project Manager: Calvin Taylor	16-Dec-13 13:46

LAI-GWDrum-20131126
T311194-08 (Water)
26-Nov-13 13:25

Analyte	Result	PQL	Units	Prepared	Analyzed	Method
VOA						
1,1,1-Trichloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,1,2,2-Tetrachloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,1,2-Trichloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,1,2-Trichlorotrifluoroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,1-Dichloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,1-Dichloroethene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,2-Dibromoethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,2-Dichlorobenzene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,2-Dichloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,2-Dichloropropane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,3-Dichlorobenzene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,4-Dichlorobenzene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
2-Butanone	5.0 UJ	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
2-Hexanone	5.0 UJ	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
4-Methyl-2-pentanone	5.0 UJ	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Acetone	**11 J**	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Acrolein	5.0 UJ	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Acrylonitrile	5.0 UJ	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Benzene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Bromodichloromethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Bromoform	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Bromomethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Carbon Disulfide	**0.5 J**	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Carbon Tetrachloride	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Chlorobenzene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Chloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Chloroform	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Chloromethane	0.5 UJ	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
cis-1,2-Dichloroethene	**0.3 J**	0.2	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
cis-1,3-Dichloropropene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Dibromochloromethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Ethylbenzene	**1.1 J**	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
m/p-Xylene	**4.6 J**	1.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Methyl tert-butyl ether	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Methylene Chloride	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
o-Xylene	**1.7 J**	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C

PW Science and Engineering	Project: **Sauro Property 201311 Wells**	
326 East D Street	Project Number: CIP-00020-01-03	**Reported:**
Tacoma WA, 98421	Project Manager: Calvin Taylor	16-Dec-13 13:46

LAI-GWDrum-20131126

T311194-08 (Water)

26-Nov-13 13:25

Analyte	Result	PQL		Units	Prepared	Analyzed	Method
VOA							
Styrene	0.5 U	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Tetrachloroethene	0.2 U	0.2		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Toluene	0.5 U	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
trans-1,2-Dichloroethene	0.5 U	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
trans-1,3-Dichloropropene	0.5 U	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Trichloroethene	0.2 U	0.2		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Trichlorofluoromethane	0.5 U	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Vinyl Acetate	0.5 UJ	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Vinyl Chloride	0.2 U	0.2		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Surrogate: 1,2-Dichloroethane-d4		*94.2 %*	*26-175*		*27-Nov-13*	*27-Nov-13*	*EPA 8260C*
Surrogate: 4-Bromofluorobenzene		*101 %*	*86-126*		*27-Nov-13*	*27-Nov-13*	*EPA 8260C*
Surrogate: Dibromofluoromethane		*64.4 %*	*81-130*		*27-Nov-13*	*27-Nov-13*	*EPA 8260C*
Surrogate: Toluene-d8		*44.0 %*	*82-127*		*27-Nov-13*	*27-Nov-13*	*EPA 8260C*

PW Science and Engineering	Project: Sauro Property 201311 Wells	
326 East D Street	Project Number: CIP-00020-01-03	**Reported:**
Tacoma WA, 98421	Project Manager: Calvin Taylor	16-Dec-13 13:46

LAI-SoilDrum-20131126
T311194-09 (Soil)
26-Nov-13 13:35

Analyte	Result	PQL	Units	Prepared	Analyzed	Method
Conventional						
Total Solids	**86.4**	1.0	%	03-Dec-13	03-Dec-13	SM 2540 G
Metals						
Arsenic	**1.58**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Barium	**25.2**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Cadmium	0.231 U	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Chromium	**18.7**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Copper	**10.7**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Lead	**1.96**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Mercury	0.0143 U	0.0143	mg/kg dry	02-Dec-13	03-Dec-13	EPA 7471B
Nickel	**8.33**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Selenium	0.231 U	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Silver	0.231 U	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Zinc	**22.1**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
VOA						
1,1,1,2-Tetrachloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1,1-Trichloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1,2,2-Tetrachloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1,2-Trichloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1,2-Trichlorotrifluoroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1-Dichloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1-Dichloroethene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1-Dichloropropene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2,3-Trichlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2,3-Trichloropropane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2,4-Trichlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2-Dibromoethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2-Dichlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2-Dichloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2-Dichloropropane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,3-Dichlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,3-Dichloropropane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,4-Dichlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
2,2-Dichloropropane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
2-Butanone	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C

PW Science and Engineering	Project: **Sauro Property 201311 Wells**	
326 East D Street	Project Number: CIP-00020-01-03	**Reported:**
Tacoma WA, 98421	Project Manager: Calvin Taylor	16-Dec-13 13:46

LAI-SoilDrum-20131126
T311194-09 (Soil)
26-Nov-13 13:35

Analyte	Result	PQL	Units	Prepared	Analyzed	Method
VOA						
2-Chlorotoluene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
2-Hexanone	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
4-Chlorotoluene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
4-Methyl-2-pentanone	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Acetone	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Acrolein	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Acrylonitrile	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Benzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Bromobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Bromodichloromethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Bromoform	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Bromomethane	**54 UJ**	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Carbon Disulfide	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Carbon Tetrachloride	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Chlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Chloroethane	27 UJ	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Chloroform	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Chloromethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
cis-1,2-Dichloroethene	11 U	11	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
cis-1,3-Dichloropropene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Dibromochloromethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Dibromomethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Ethylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Hexachlorobutadiene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Isopropylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
m/p-Xylene	53 U	53	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Methyl tert-butyl ether	53 U	53	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Methylene Chloride	**43 UJ**	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Naphthalene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
n-Butylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
n-Propylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
o-Xylene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
sec-Butylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Styrene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
tert-Butylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Tetrachloroethene	11 U	11	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C

PW Science and Engineering	Project: **Sauro Property 201311 Wells**	
326 East D Street	Project Number: CIP-00020-01-03	**Reported:**
Tacoma WA, 98421	Project Manager: Calvin Taylor	16-Dec-13 13:46

LAI-SoilDrum-20131126
T311194-09 (Soil)
26-Nov-13 13:35

Analyte	Result	PQL		Units	Prepared	Analyzed	Method
VOA							
Toluene	27 U	27		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
trans-1,2-Dichloroethene	27 U	27		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
trans-1,3-Dichloropropene	27 U	27		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Trichloroethene	11 U	11		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Trichlorofluoromethane	27 UJ	27		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Vinyl Acetate	27 UJ	27		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Vinyl Chloride	11 U	11		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Surrogate: 1,2-Dichloroethane-d4		*118 %*	*26-175*		*09-Dec-13*	*09-Dec-13*	*EPA 8260C*
Surrogate: 4-Bromofluorobenzene		*106 %*	*86-126*		*09-Dec-13*	*09-Dec-13*	*EPA 8260C*
Surrogate: Dibromofluoromethane		*109 %*	*81-130*		*09-Dec-13*	*09-Dec-13*	*EPA 8260C*
Surrogate: Toluene-d8		*110 %*	*82-127*		*09-Dec-13*	*09-Dec-13*	*EPA 8260C*

54552

PRS Group, Inc.

ENTRY LOG FOR NON-HAZARDOUS ITEMS

3003 Taylor Way
Tacoma, WA 98421
Phone: (253)383-4175 Fax: (253)383-4531
prs@prsplant.net

Date: 1-2-2014	**Carrier:** NORTHERN	**Vehicle #:** 107
Drivers Signature *: Tony	**Plant Employee:** Kenny	**Time:** 1405

% Water: 60%	**Ph:** 7.0	**Flash>140** ☒ Other Value (Fuel Only):
% Solids: 40%	**Tank # Or Area:** YARD	**Chlor Test:NA** ☒ **SnifferPass** ☐ **Fail** ☐ **Chlor Value:**

Generator Name	Profile #	Work Order, BOL, Or Manifest #	Used Oil	Spent Antifreeze	Used Oil Filters	Off Spec. Fuel	Waste Water	Solids	PCS	Absorbent	Empty Drums	Other
Landau	4062 -b	13015						5drums				ic
Landau	4065 -b	13015						2drums				ic

Tony

* The information contained in this entry log describes your waste as specified in the specific waste profile approved in to the PRS facility. Please verify the information for accuracy prior to signing.

B.O.L. #1344

SHIPPING PAPER

Northern ENVIRONMENTAL
EPAID# WAH000039211
USDOT# 2133996
253.212.5446

DELIVERY DATE	WO #
01/02/14	13015

SHIPPER / CUSTOMER: Landau Associates	CONTACT NAME:
ADDRESS: 5. 15th St. Dock St.	PHONE #:
CITY, STATE, ZIP: Tacoma	
CONSIGNEE / FACILITY: N.R.S. Group	CONTACT NAME: Jay Johnson
ADDRESS: 3003 Taylor Way	PHONE #: (253) 383 4175
CITY, STATE, ZIP: Tacoma WA 98421	

HM	US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	Containers No.	Containers Type	Total Quantity	UOM	CHLOR	pH
A	**MATERIAL NOT REGULATED BY DOT (USED OIL AND WATER)**						
B	**MATERIAL NOT REGULATED BY DOT (SPENT ANTIFREEZE)**						
C	**MATERIAL NOT REGULATED BY DOT (SPENT OIL ABSORBENTS AND DEBRIS)**						
D	**COMBUSTIBLE LIQUID N.O.S., 3, NA1993, PGIII, RQ (100) (CONTAINS DIESEL & GASOLINE) ERG 128**						
E	Material Not Reg'd by D.O.T. Ground Water/Soil	02	DM	030	G		
F							

Special Handling Instruction and Additional Information:

A. PROFILE # 9065-13

B. PROFILE #

C. PROFILE #

D. PROFILE #

E. PROFILE #

F. PROFILE #

SHIPPER'S CERTIFICATION: "I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations." I also certify that all times listed above are true and correct.

		MONTH	DAY	YEAR
(SHIPPER) PRINT OR TYPE NAME: X Siena Mott	SIGNATURE: X Siena Mott	01	02	14
(CARRIER/TRANSPORTER) PRINT OR TYPE NAME: X Tony Hough	SIGNATURE: X	01	02	14
(CONSIGNEE/FACILITY) PRINT OR TYPE NAME: X NRS	SIGNATURE: X	1	2	14

PW Science and Engineering	Project: **Sauro Property 201311 Wells**	
326 East D Street	Project Number: CIP-00020-01-03	**Reported:**
Tacoma WA, 98421	Project Manager: Calvin Taylor	16-Dec-13 13:46

LAI-GWDrum-20131126
T311194-08 (Water)
26-Nov-13 13:25

Analyte	Result	PQL	Units	Prepared	Analyzed	Method
VOA						
1,1,1-Trichloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,1,2,2-Tetrachloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,1,2-Trichloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,1,2-Trichlorotrifluoroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,1-Dichloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,1-Dichloroethene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,2-Dibromoethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,2-Dichlorobenzene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,2-Dichloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,2-Dichloropropane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,3-Dichlorobenzene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
1,4-Dichlorobenzene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
2-Butanone	5.0 UJ	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
2-Hexanone	5.0 UJ	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
4-Methyl-2-pentanone	5.0 UJ	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Acetone	**11 J**	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Acrolein	5.0 UJ	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Acrylonitrile	5.0 UJ	5.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Benzene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Bromodichloromethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Bromoform	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Bromomethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Carbon Disulfide	**0.5 J**	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Carbon Tetrachloride	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Chlorobenzene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Chloroethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Chloroform	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Chloromethane	0.5 UJ	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
cis-1,2-Dichloroethene	**0.3 J**	0.2	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
cis-1,3-Dichloropropene	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Dibromochloromethane	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Ethylbenzene	**1.1 J**	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
m/p-Xylene	**4.6 J**	1.0	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Methyl tert-butyl ether	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Methylene Chloride	0.5 U	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C
o-Xylene	**1.7 J**	0.5	ug/L	27-Nov-13	27-Nov-13	EPA 8260C

PW Science and Engineering	Project: **Sauro Property 201311 Wells**	
326 East D Street	Project Number: CIP-00020-01-03	**Reported:**
Tacoma WA, 98421	Project Manager: Calvin Taylor	16-Dec-13 13:46

LAI-GWDrum-20131126

T311194-08 (Water)

26-Nov-13 13:25

Analyte	Result	PQL		Units	Prepared	Analyzed	Method
VOA							
Styrene	0.5 U	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Tetrachloroethene	0.2 U	0.2		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Toluene	0.5 U	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
trans-1,2-Dichloroethene	0.5 U	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
trans-1,3-Dichloropropene	0.5 U	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Trichloroethene	0.2 U	0.2		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Trichlorofluoromethane	0.5 U	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Vinyl Acetate	0.5 UJ	0.5		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Vinyl Chloride	0.2 U	0.2		ug/L	27-Nov-13	27-Nov-13	EPA 8260C
Surrogate: 1,2-Dichloroethane-d4		*94.2 %*	*26-175*		*27-Nov-13*	*27-Nov-13*	*EPA 8260C*
Surrogate: 4-Bromofluorobenzene		*101 %*	*86-126*		*27-Nov-13*	*27-Nov-13*	*EPA 8260C*
Surrogate: Dibromofluoromethane		*64.4 %*	*81-130*		*27-Nov-13*	*27-Nov-13*	*EPA 8260C*
Surrogate: Toluene-d8		*44.0 %*	*82-127*		*27-Nov-13*	*27-Nov-13*	*EPA 8260C*

PW Science and Engineering	Project: Sauro Property 201311 Wells	
326 East D Street	Project Number: CIP-00020-01-03	**Reported:**
Tacoma WA, 98421	Project Manager: Calvin Taylor	16-Dec-13 13:46

LAI-SoilDrum-20131126
T311194-09 (Soil)
26-Nov-13 13:35

Analyte	Result	PQL	Units	Prepared	Analyzed	Method
Conventional						
Total Solids	**86.4**	1.0	%	03-Dec-13	03-Dec-13	SM 2540 G
Metals						
Arsenic	**1.58**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Barium	**25.2**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Cadmium	0.231 U	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Chromium	**18.7**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Copper	**10.7**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Lead	**1.96**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Mercury	0.0143 U	0.0143	mg/kg dry	02-Dec-13	03-Dec-13	EPA 7471B
Nickel	**8.33**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Selenium	0.231 U	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Silver	0.231 U	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
Zinc	**22.1**	0.231	mg/kg dry	02-Dec-13	02-Dec-13	EPA 6020A
VOA						
1,1,1,2-Tetrachloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1,1-Trichloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1,2,2-Tetrachloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1,2-Trichloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1,2-Trichlorotrifluoroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1-Dichloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1-Dichloroethene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,1-Dichloropropene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2,3-Trichlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2,3-Trichloropropane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2,4-Trichlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2-Dibromoethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2-Dichlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2-Dichloroethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,2-Dichloropropane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,3-Dichlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,3-Dichloropropane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
1,4-Dichlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
2,2-Dichloropropane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
2-Butanone	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C

PW Science and Engineering	Project: **Sauro Property 201311 Wells**	
326 East D Street	Project Number: CIP-00020-01-03	**Reported:**
Tacoma WA, 98421	Project Manager: Calvin Taylor	16-Dec-13 13:46

LAI-SoilDrum-20131126
T311194-09 (Soil)
26-Nov-13 13:35

Analyte	Result	PQL	Units	Prepared	Analyzed	Method
VOA						
2-Chlorotoluene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
2-Hexanone	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
4-Chlorotoluene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
4-Methyl-2-pentanone	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Acetone	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Acrolein	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Acrylonitrile	270 U	270	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Benzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Bromobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Bromodichloromethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Bromoform	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Bromomethane	**54 UJ**	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Carbon Disulfide	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Carbon Tetrachloride	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Chlorobenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Chloroethane	27 UJ	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Chloroform	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Chloromethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
cis-1,2-Dichloroethene	11 U	11	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
cis-1,3-Dichloropropene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Dibromochloromethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Dibromomethane	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Ethylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Hexachlorobutadiene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Isopropylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
m/p-Xylene	53 U	53	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Methyl tert-butyl ether	53 U	53	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Methylene Chloride	**43 UJ**	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Naphthalene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
n-Butylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
n-Propylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
o-Xylene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
sec-Butylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Styrene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
tert-Butylbenzene	27 U	27	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Tetrachloroethene	11 U	11	ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C

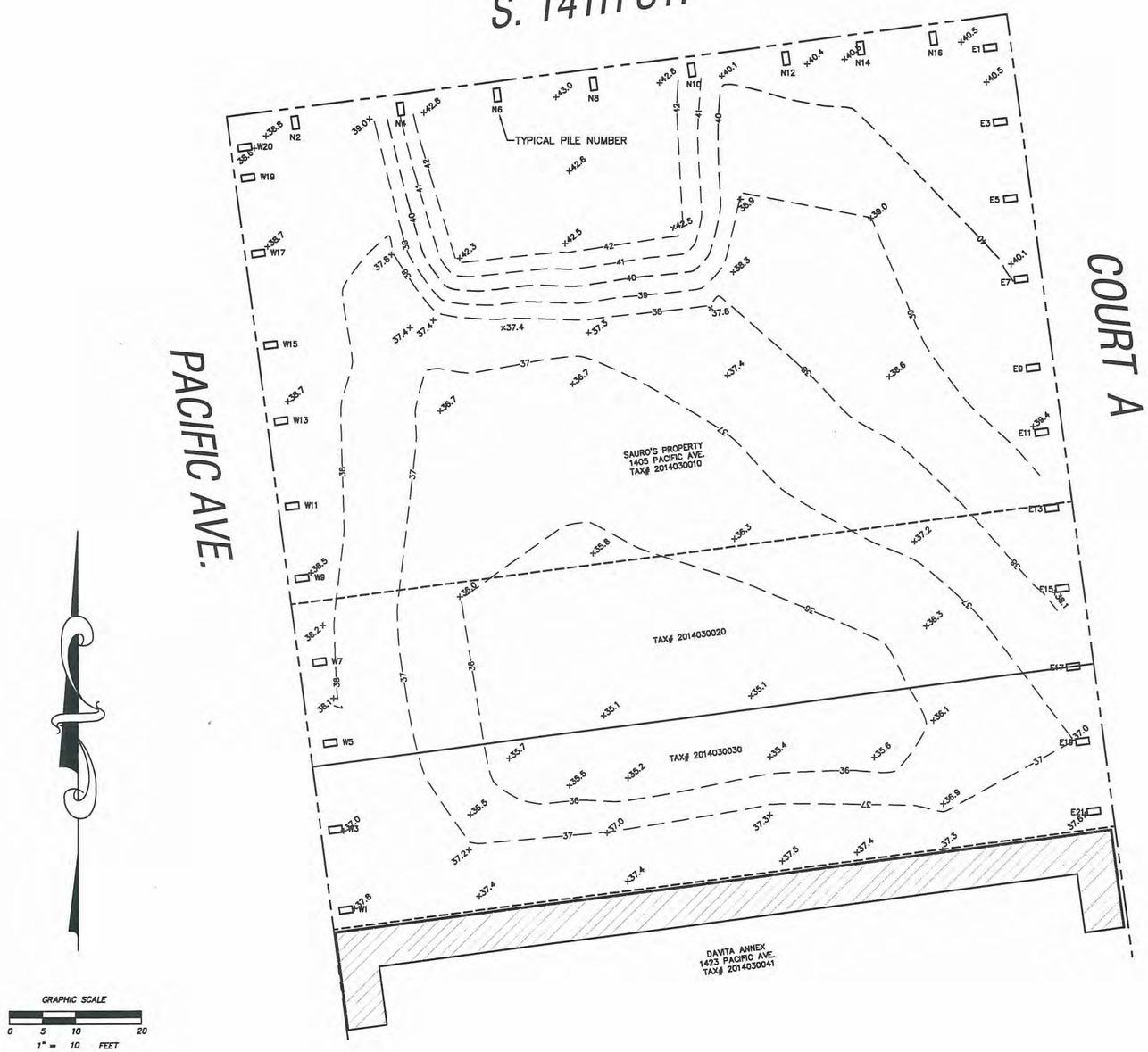
PW Science and Engineering	Project: **Sauro Property 201311 Wells**	
326 East D Street	Project Number: CIP-00020-01-03	**Reported:**
Tacoma WA, 98421	Project Manager: Calvin Taylor	16-Dec-13 13:46

LAI-SoilDrum-20131126
T311194-09 (Soil)
26-Nov-13 13:35

Analyte	Result	PQL		Units	Prepared	Analyzed	Method
VOA							
Toluene	27 U	27		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
trans-1,2-Dichloroethene	27 U	27		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
trans-1,3-Dichloropropene	27 U	27		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Trichloroethene	11 U	11		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Trichlorofluoromethane	27 UJ	27		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Vinyl Acetate	27 UJ	27		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Vinyl Chloride	11 U	11		ug/kg dry	09-Dec-13	09-Dec-13	EPA 8260C
Surrogate: 1,2-Dichloroethane-d4		*118 %*	*26-175*		*09-Dec-13*	*09-Dec-13*	*EPA 8260C*
Surrogate: 4-Bromofluorobenzene		*106 %*	*86-126*		*09-Dec-13*	*09-Dec-13*	*EPA 8260C*
Surrogate: Dibromofluoromethane		*109 %*	*81-130*		*09-Dec-13*	*09-Dec-13*	*EPA 8260C*
Surrogate: Toluene-d8		*110 %*	*82-127*		*09-Dec-13*	*09-Dec-13*	*EPA 8260C*

APPENDIX E

Post-Interim Action Construction As-Builts



GRAPHIC SCALE

0 5 10 20

1" = 10 FEET

SURVEYOR'S NOTES

PURPOSE OF THIS EXHIBIT IS TO SHOW THE FINISHED GRADE OF THE SITE AND THE FINAL LOCATIONS OF SOLDIER PILES THAT WERE BEING MONITORED DURING CONSTRUCTION ACTIVITIES.

MAPPING COMPLETED ON DECEMBER 14, 2009 USING A TRIMBLE 5603 ROBOTIC TOTAL STATION.

COORDINATES SHOWN FOR THE SOLDIER PILES REPRESENT CENTERLINE FACE OF PILE (FACE CLOSEST TO CENTER OF SITE).

HORIZONTAL & VERTICAL DATUMS

HORIZONTAL (NAD83/91) AND VERTICAL (NGVD29) DATUM BASED ON CITY OF TACOMA SURVEY MONUMENTS #62 & #63.

LEGEND

x38.1	SPOT ELEVATION MEASURED ON 12/14/09
▭	ASBUILT PILE LOCATED ON 12/14/09
N14	PILE NUMBER – LETTER BEFORE NUMBER REPRESENTS WHAT SIDE OD THE SITE THE PILE IS ON (W=WEST, N=NORTH, E=EAST)

LINETYPES

— —35— — CONTOUR LINE FROM MAPPING COMPLETTED ON 12/14/09

PILE LOCATIONS

PILE #	NORTHING	EASTING
W1	704831.72	1159245.97
W3	704843.97	1159244.38
W5	704857.17	1159243.59
W7	704869.52	1159241.96
W9	704882.35	1159239.33
W11	704893.34	1159237.86
W13	704906.34	1159236.18
W15	704917.95	1159234.63
W17	704931.93	1159232.78
W19	704943.50	1159231.23
W20	704948.11	1159230.76
N2	704950.77	1159237.59
N4	704952.83	1159253.69
N6	704954.93	1159268.36
N8	704956.63	1159283.04
N10	704958.77	1159298.09
N12	704960.49	1159312.48
N14	704961.97	1159323.90
N16	704963.42	1159335.00
E1	704962.85	1159342.51
E3	704951.52	1159343.99
E5	704939.78	1159345.52
E7	704927.52	1159347.08
E9	704913.97	1159348.85
E11	704904.12	1159350.12
E13	704892.50	1159351.60
E15	704880.25	1159353.19
E17	704868.26	1159354.78
E19	704856.84	1159356.16
E21	704846.20	1159357.86

Date: Dec 18, 2009 9:36:48 AM ()
Drawing: J:\15095501 SAURO PROPERTY SOLDIER PILE MONITORING\DWG\BIXICALC.DWG
Xrefs:]

SAURO'S PROPERTY
1405 PACIFIC AVENUE, TACOMA, WA 98402

NO.	REVISION	DATE
##	##	XX/XX/XX

ERIK R. HALVORSON
STATE OF WASHINGTON
14632
REGISTERED
PROFESSIONAL LAND SURVEYOR

HUITT-ZOLLARS
302 South 9th Street, Suite 101
Tacoma, Washington 98402
Phone (253) 627-9131 Fax (253) 627-4730

DRAFTED: ERH	CHECKED
DATE: 12/17/09	JOB NO.: 15-0955-01
SCALE: 1"=10'	FIELD CREW: DO/TB

AS-CONSTRUCTED EXHIBIT

CLEARCREEK CONTRACTORS
3203 15TH STREET
EVERETT, WA, 98201

SHT. 1 OF 1

AS-BUILT NOTES:

SEE *EXHIBITS ON ADDITIONAL SHEET 2A

SEE "AS-CONSTRUCTED EXHIBIT" BY HUITT-ZOLLARS FOR FINAL SITE GRADE ELEVATIONS [SURVEYED 12/17+09]

(RFI#18)
34.0' — APPROX. FINAL BOTTOM-OF-EXCAVATION SPOT ELEVATIONS (REVISED STAGE 1 EXCAVATION LEVEL IN-LIEU OF PROPOSED STAGE 1 CONTOUR LINES)
[32'] — APPROX. REVISED STAGE 1 ELEVATION CONTOUR LINES BASED ON CONTRACTOR GRADE CHECKING WITH LAZER ROD
NOTE:

(RFI#12) 14TH ST.
℄ S. 14TH ST.
(4) ALTERNATE CORNER TIEBACK/STEEL BRACING 10/15/09 EXHIBIT #5 SH.2A (RFI#15)
NW CASCADE NORTH/WEST WALL INTERSECTION DETAILS 10/14/09 NWC EXHIBIT #2 SH.2A
SOME PILES MOVED DUE TO BURIED OBSTRUCTIONS (MAX. 8-FT SPACING) (TYP.) APPROVED FIELD CHANGE SEPT-09
CDF 3/2/4 10/16/09 ED(P) (RFI#14)
N82°37'28"E 364.70
10" PVC DOES NOT CONNECT TO MANHOLE
SSMH TE=61.21 COC=50.21 (12"PVC S. 10"CP N)
℄ COURT A
EV(RECORD LOCATION)
SB
EMH
EV(P)
TMH
CATV(P)
SD(P)
SS(P)
VAULTED SIDEWALK
SLAB-ON-GRADE SIDEWALK
50'
39'
EXISTING WALLS AND COLUMNS TO REMAIN (APPROX.), TYP
PROPERTY LINE
~1.5', TYP
63.04 BW
61.59 BW
62.15 BW
50.92
50.03 CRWLBT
50.54 CRWLBT
34.5'
35.5'
MW-6
MW-12
SVE-1
MW-11S
MW-11D
NEW EMH
CURBLINE (APPROX.)
PROPERTY LINE
~1.5', TYP
64.70 BW
64.10 BW
64.34 BW
32.0'
32.5'
30'
40' (34)
33.0'
℄ PACIFIC AVE
(RFI#14) 10/16/09 CDF 2/2/3
W(P) DI (P)
10"W(P) (ABANDONED)
18" SS CP
PROPERTY LINE
63.42 BW
~1.5', TYP
63.80 BW
56'
95'
2:1
30.0'
CATEGORY 1 PCI SOIL
4 FT HIGH ADDITIONAL SOIL BERM NEW 11/20/09
MW-10
CATEGORY 2 PCI SOIL
31.0'
32.0'
1¼"G(P)
EXISTING WALLS AND COLUMNS TO REMAIN (APPROX.), TYP
VAULTED SIDEWALK
SLAB-ON-GRADE SIDEWALK
W(P)
50.00 CRWLBT
REMNANT CONCRETE FOOTING/ GRADE BEAM (APPROX.), TO BE REMOVED PRIOR TO SHORING WALL INSTALLATION, TYP
MW-4
DELETE OLD UNDOT X-ING DETAILS
REMNANT CONCRETE FLOOR (APPROX.), SEE NOTE 2, TO BE REMOVED AFTER SHORING WALL INSTALLATION
39'
SLAB-ON-GRADE SIDEWALK
EXISTING SIDEWALK TO REMAIN
REVISED SHORING WALL DRAINAGE DETAILS, SCHEDULES A/B 9.29.09 LAI EXHIBIT #2 SH.2A
PROPOSED SOLDIER PILE & LAGGING WALL, TYP
63.39 BW
62.96 BW
63.23 BW
62.90 BW
EXISTING VAULTED SIDWALK SUPPORT COLUMNS, TYP
SEWER LINE IE=449 (R) (APPROX.)
23'
MW-9
MW-8
MW-8S
ADDITIONAL DETAIL REF SH.6 LAI 11/2/09 EXHIBIT 3A SH.2A
ADDITIONAL DETAIL REF SH.6 LAI 11/2/09 EXHIBIT #2 SH.2A
SAWCUT & REMOVE CONCRETE FLOOR TO 6 INCHES OUTSIDE OF PLANNED DRILL HOLE, SEE NOTE 2, TYP
ALSO (RFI EXHIBIT 2A/SH.2A -REVISED DRAINAGE DETAILS
PROVIDE PEDESTRIAN GATE
31'
4 FT HIGH BRICK WALL
PROPOSED FENCING, SEE NOTE 7
PROPERTY LINE
REMNANT CONCRETE WALL FOOTING TO REMAIN, TYP
DAVITA BUILDING
REVISED CORNER SHORING, LAGGING DETAIL 9/29/09 EXHIBIT #1 LAI (RFI#10)
12" SS CONNECTED TO SSMH ~200' SOUTH I.E. 30.45
24" SD CONNECTED TO SDMH ~114' SOUTH I.E. 37.45
~1.65% SLOPE(R)
SEE SHEET 3
SEE SHEET 4
SEE SHEET 5

LEGEND:

- PROPOSED PERMANENT FENCING LOCATION
- PROPOSED FINAL STAGE II EXCAVATION LEVEL (CLEAN SOIL CAP) CONTOURS (STAGE I EXCAVATION LEVEL 6 FT BELOW STAGE II LEVEL, EXCEPT ALONG DAVITA BUILDING, REFER TO SHEET 6)
- EXISTING CONCRETE WALLS AND COLUMNS (DASHED WHERE INFERRED)
- EXISTING GROUND CONTOURS
- EXISTING LOT LINE / PROPERTY LINE
- LOCATION OF SOLDIER PILES FOR SOLDIER PILE & LAGGING WALLS (SEE DETAILS FOR SIZE), CENTERED IN 24" DIA DRILL HOLE, FILLED WITH LEAN MIX CONCRETE BELOW THE BASE OF CUT, AND CDF ABOVE THE BASE OF CUT. FIELD FIT DRILL HOLE AS CLOSE AS POSSIBLE TO EXISTING PROPERTY LINE WALLS / FOOTING, SEE NOTE 3. REFER TO SHEETS 3-5 FOR SPACING REQUIREMENTS AND PILE DETAILS
- MW-12 — EXISTING MONITORING WELL DESIGNATION AND LOCATION
- SOIL PCE CONCENTRATIONS: CATEGORY 1: >1.9 mg/kg; CATEGORY 2: BETWEEN 0.01 AND 1.9 mg/kg
- ADDITIONAL 4 FT HIGH SOIL BERM
- HORIZONTAL EXTENT OF TIEBACK ANCHORS (ONE TIEBACK PER SOLDIER PILE)

UTILITY SURVEY PROVIDED BY:

BUSH, ROED & HITCHINGS, INC.
2009 MINOR AVENUE EAST
SEATTLE, WA 98102-3513
TELEPHONE: (206) 323-4144

VERTICAL DATUM: NGVD 1929

SURVEY LEGEND:

	BUILDING LINE	(P)	PAINTED UTILITY LOCATION
CATV	CABLE TELEVISION		METAL STRAIN POLE
CP	CONCRETE PIPE	(R)	RECORD UTILITY LOCATION
COC	CENTER OF CHANNEL	SSMH (S)	SANITARY SEWER MANHOLE
	DRAIN INLET	SS	SANITARY SEWER
DI	DUCTILE IRON PIPE	SDMH (D)	STORM DRAIN MANHOLE
ED	ELECTRIC DUCT (BURIED)		SOIL BORING
EV	ELECTRIC VAULT	TMH	TELEPHONE MANHOLE
	FIRE HYDRANT	TD	TELEPHONE DUCT (BURIED)
	FOUND SURVEY MONUMENT	TV	TELEPHONE VAULT
FOD	FIBER OPTIC DUCT (BURIED)		WATER METER
FOV	FIBER OPTIC VAULT	(W)	WATER MANHOLE
	GAS VALVE	W	WATER LINE
G	GAS LINE	WV	WATER VAULT
	JUNCTION BOX		WATER VALVE
	LIGHT POLE		
(W)	MONITORING WELL		

SURVEY SPOT ELEVATIONS PROVIDED BY CITY OF TACOMA:

- × 60.60 CRWLBT — CONCRETE RETAINING WALL (BOTTOM, T.O.F.)
- × 60.60 BW — BACK OF WALL (GROUND SURFACE)

VERTICAL DATUM: NGVD 1929

NOTES:

1. ALL REMNANT FOOTINGS / GRADE BEAMS AND CONCRETE FLOORS EXTENDING INTO THE PROPERTY FROM PERIMETER WALLS / COLUMNS TO BE REMOVED BY SAW-CUTTING ALONG INSIDE OF EXISTING PROPERTY LINE / WALLS, ALLOW ROOM FOR SHORING WALL INSTALLATION.
2. SAWCUT HOLES THROUGH EXISTING FLOOR SLAB TO ALLOW FOR INSTALLATION OF SOLDIER PILES.
3. BACKSIDE OF DRILLED SHAFT HOLE FOR SOLDIER PILES SHALL BE SET BACK APPROX. 1.5 FT FROM PROPERTY LINE. FIELD FIT INSIDE EXISTING REMNANT PROPERTY LINE WALLS / FOOTINGS. CENTER SOLDIER PILE IN DRILLED HOLE.
4. THIS SITE PLAN DEPICTS THE HORIZONTAL EXTENT OF INCLINED TIEBACK ANCHORS. THIS DRAWING IS PROVIDED FOR REFERENCE PURPOSES ONLY. PLEASE REFER TO TIEBACK ANCHOR LOCATIONS, ELEVATIONS AND INCLINATIONS ON SHEETS 3-5.
5. MAXIMUM EXCAVATION TO STAGE I LEVEL ACROSS THE SITE SHALL PROCEED TO 6 FT BELOW PROPOSED STAGE II LEVEL CONTOURS SHOWN, OR TO CURRENT GROUNDWATER LEVEL AT TIME OF CONSTRUCTION, WHICHEVER IS ENCOUNTERED FIRST. ALONG PROPERTY LINES, STAGE I LEVEL EXCAVATION SHALL PROCEED TO ELEVATIONS SHOWN ON SHEETS 3 THROUGH 6, OR CURRENT GROUNDWATER LEVEL AT TIME OF CONSTRUCTION, WHICHEVER IS ENCOUNTERED FIRST.
6. REFER TO SHEET 6 FOR DETAILED CONSTRUCTION EXCAVATION SEQUENCING ALONG THE DAVITA BUILDING (SOUTH PROPERTY LINE).
7. INSTALL PERMANENT FENCING AS SHOWN AROUND ENTIRE CONSTRUCTION SITE FOLLOWING CONSTRUCTION, PER WSDOT SPECIFICATIONS AND STANDARD WSDOT PLANS.

LANDAU ASSOCIATES
130 2nd AVENUE S.
EDMONDS, WA. 98020
(425) 778-0907, FAX (425) 778-6409

0 10 20
Scale in Feet

NO	REVISION	DATE	APPD
0	ISSUED FOR PERMITTING	6-12-09	RBH
	RED LINE DWGS (AS-BUILTS) - SUBMITTED BY CLEARCREEK CONTRACTORS	JAN-10	SH.2A

FINAL CONSTRUCTION CHECKED [AS-BUILTS] BY RBH DATE 1/29-09 FIELD BOOKS

DATE	SCALE
6-12-2009	1" = 10'
DESIGNED RBH	CHECKED RBH
DRAWN BLT	PROJECT NAME SAURO'S
DRAWING NAME	

GOLF B. HYLSKEMA — STATE OF WASHINGTON — 31760 — REGISTERED PROFESSIONAL ENGINEER — 6/12/09

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

SAURO'S PROPERTY - EXCAVATION & SHORING WALL PLANS
1401, 1407 & 1409 PACIFIC AVENUE, TACOMA, WASHINGTON

SITE AND EXCAVATION PLAN

CIP 00020

SHEET NO. 2 OF 10

S:\SHORING WALL \ V1\DRAWINGS\Shoring Cover\CONSHEET.dwg LAI 6/12/2009

EXHIBIT #1

LANDAU ASSOCIATES

By RBH Date 9/23-09 Project SAUROS Project No. 094048.040.042
Checked By ____ Date ____ Subject SHORING LAGGING - CORNER DETAIL Sheet 1 of 1

LAGGING DETAIL @ BUILDING CORNER

[NTS]

[PROFILE VIEW]

SOLDIER PILE
SHORING WALL LAGGING
EXIST. GROUND
STAGE I EXCAVATION LEVEL
ADJACENT BUILDING CORNER
~2 FT

[PLAN VIEW]

CDF
SAWCUT LAGGING BOARD TO FIT (60° BEVELLED ENDS)
30°
~3'

FB - GridPad 12/06

EXHIBIT #2

LANDAU ASSOCIATES

By RBH Date 9/29-09 Project SAUROS Project No. 094048.040.042
Checked By ____ Date ____ Subject SHORING WALL DRAINAGE DETAILS Sheet 1 of 2

① WEST WALL (SCHEDULE "A")
[FROM DAVITA BLDG TO 1ST WALL COLUMN]
(NTS)

SOLDIER PILE
CDF BACKFILL
VAULTED SIDEWALK SUPPORT COL'N
PACIFIC AVE STONE WALL
WOOD LAGGING
GEOCOMPOSITE DRAIN STRIP PER DETAIL 1/2
NOTE: TOP OF DRAIN STRIP 1-FT BELOW TOP OF CDF
STAGE I EXCAVATION LEVEL

② WEST WALL (SCHEDULE "B")
[BETWEEN 1ST & 2ND WALL COL'NS - 2ND LOT N. OF DAVITA]
(NTS)

SOLDIER PILE
WOOD LAGGING
EXIST. WALL COLUMN
PACIFIC AVE STONE WALL
STAGE I EXCAVATION LEVEL
GEOCOMPOSITE DRAIN STRIP PER DETAIL 1/2
NOTE: NAIL BOARD TO SOIL BELOW EXIST. GROUND LINE; NAIL TO BACKSIDE OF LAGGING ABOVE (E) GROUND LINE.

FB - GridPad 12/06

EXHIBIT #2A

LANDAU ASSOCIATES

By RBH Date 9/29-09 Project SAUROS Project No. 094048.040.042
Checked By ____ Date ____ Subject SHORING WALL DRAINAGE DETAILS Sheet 2 of 2

③ EAST WALL (SCHEDULE "D"&"E") (NTS) PROFILE VIEW
[FROM DAVITA BLDG TO 1ST WALL COL'N COURT "A" →]

W15 W16 W17 W18 W19 W20 W21
REMNANT FLOOR SLAB REMOVED
(E) WALL COL'N
(E) CONCR. WALL
MIN. 1-FT
(E) WALL CRACK
(E) CONCR. WALK
STREET LEVEL
DAVITA BLDG
TEMP. SOIL BENCH LEVEL DURING PILE INSTALLATION
GEOCOMPOSITE DRAIN STRIP PER DETAIL (TYP) 1/2
STAGE I EXCAVATION LEVEL
← SCH. "D" SCH "E" →
[NOTE: CDF BACKFILL ABOVE EXISTING "TEMP SOIL BENCH" LEVEL]

TYP. X-SECTION
SOLDIER PILE
(E) CONCR. WALL
WOOD LAGGING
CDF BACKFILL
TEMP. SOIL BENCH
STAGE I EXCAV LEVEL
GEOCOMPOSITE DRAIN STRIP PER DETAIL 1/2

X-SECTION @ (E) WALL CRACK
[BETW. PILES W18 & W19]
(MIN. 1-FT)

FB - GridPad 12/06

EXHIBIT #4

W8x20 TYP COMPRESSIVE STRUTS
TIEBACK POCKET TYP
SEE ADDT'L BEARING PLATE DETAIL
SOLDIER PILE
WEST - 20
NORTH - 1

ELEVATION VIEW

TIEBACK ORIENTED ± 10° FROM PERP
NORTH - 1
STRESS THIS TIEBACK FIRST
TIEBACK ORIENTED ± 5° FROM PERP
W8x20 COMPRESSIVE STRUT
WEST - 20

PLAN VIEW

NORTHWEST CASCADE, INC.
P.O. BOX 73399
PUYALLUP, WA 98373
253-848-2371 PH
253-848-2545 FAX

SAURO PROPERTY
EXCAVATION AND SHORING
NORTH AND WEST WALL INTERSECTION DETAILS

DESIGN ____ DRAWN RJH CHECK ____ APPR ____ DATE 10/16/09
NTS SHEET 1 OF 1

EXHIBIT #3

EL 54.2 EL 53.7 EL 53.2 EL 52.7 EL 52.2 EL 51.8 DAVITA BUILDING
EL 50.0
EL 45.0
EL 44.0
POSSIBLE REMNANT FLOOR SLAB
EL 38.0
DAVITA SLOT CUT EXCAVATION [NO LAGGING REQ'D] (REF. SH. 6)
EL 33.0
EL 30.0
LAGGING REQ'D TO THESE DEPTHS
10'
ADDITIONAL DETAIL SE CORNER LAGGING (11/2-09)

EXHIBIT #3A

DAVITA BUILDING
EXIST BRICK WALL
EL 44.0
EL 39.0
EL. 38'
DAVITA SLOT CUT EXCAVATION [NO LAGGING REQ'D] (REF. SH. 6)
EL 33.0
EL. 35'
21'
ADDITIONAL DETAIL SW CORNER LAGGING (11/2-09)
10'
LAGGING REQ'D TO THESE DEPTHS
EL 23.0

SUBMITTED BY: CLEARCREEK CONTRACTORS (JAN-10)	SAUROS PROPERTY - EXCAV. & SHORING WALL PLANS [RED LINE DWGS (AS-BUILTS)]	SHEET NO. 2A OF 10 [ADD'L]
FINAL CONSTRUCTION AS-BUILT CHECKED BY: RBH (1/29-10)	SITE & EXCAVATION PLAN ADDITIONAL EXHIBITS	

EXHIBIT #5

LANDAU ASSOCIATES

By RBH Date 10/15-09 Project SAUROS Project No. 094048.040.042
Checked By DGT Date 10/15 Subject ADDT'L CORNER DETAILS Sheet 1 of 1

NW CORNER BEARING PLATE DETAIL

FRONT VIEW:
ANCHOR HEAD SEATING PLATE
4"(MIN)
5/16" FILLET WELD
4" (MIN)

SIDE VIEW:
5/16" FILLET WELDS (TYP)
HEAD PLATE
SEATING PLATE
WEDGE PLATES
TIEBACK
θ°
(25°-45°)

VERTICAL/PLAN VIEW:
TIEBACK
(5°-10°)
SOLDIER PILE
(2x) 5/16" FILLET WELDS
WEDGE PLATES
α° (5°-10°)
SEATING PLATE
HEAD PLATE

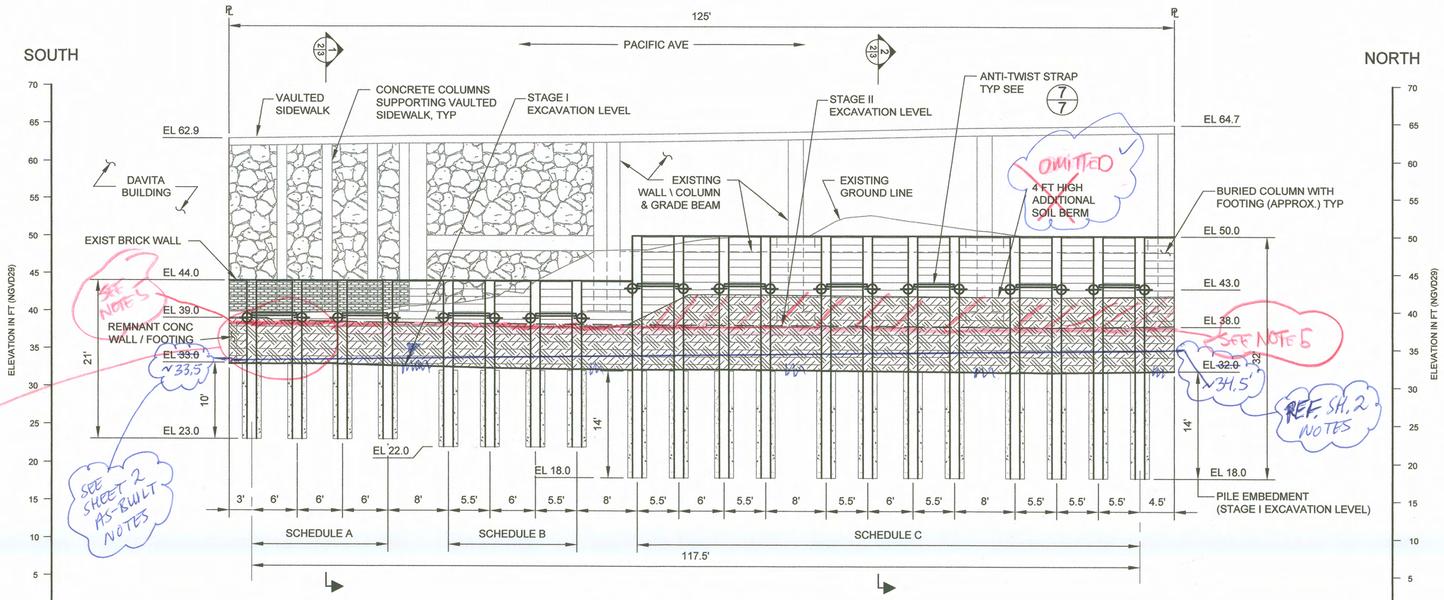
FB - GridPad 12/06

SOLDIER PILE AND TIEBACK INSTALLATION DETAILS

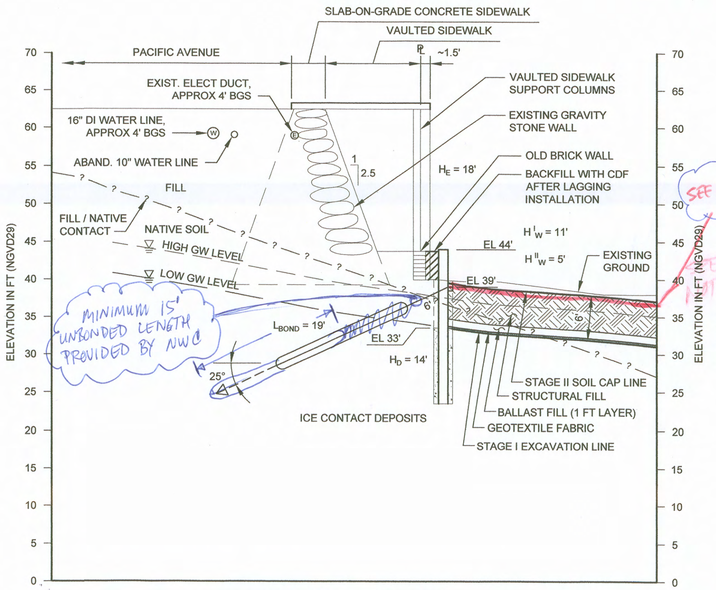
	SCHEDULE		
	A	B	C
PILE SIZE	W18X40	W18X40	W18X40
MIN. SHAFT DIAMETER (FT)	2.0	2.0	2.0
TOP OF WALL EL (FT)	44.0	44.0	50.0
BOTTOM OF WALL EL (FT)	33.0	32.0	32.0
MAX. SHORED WALL HEIGHT (FT)	11.0	12.0	18.0
BOTTOM OF PILE EL (FT)	23.0	22.0	18.0
TOTAL PILE LENGTH (FT)	21.0	22.0	32.0
ALLOWABLE TIEBACK LOAD (KIPS)	58.0	58.0	90.0
TIEBACK ANCHOR ELEVATION (FT)	39.0	39.0	43.0
TIEBACK INCLINATION (DEG)	25.0	25.0	25.0
LENGTH OF BONDED ZONE (FT)	19.0	19.0	29.0
LENGTH OF NO-LOAD ZONE (FT)	6.0	6.0	33.0
TOTAL TIEBACK LENGTH (FT)	25.0	25.0	62.0

15'

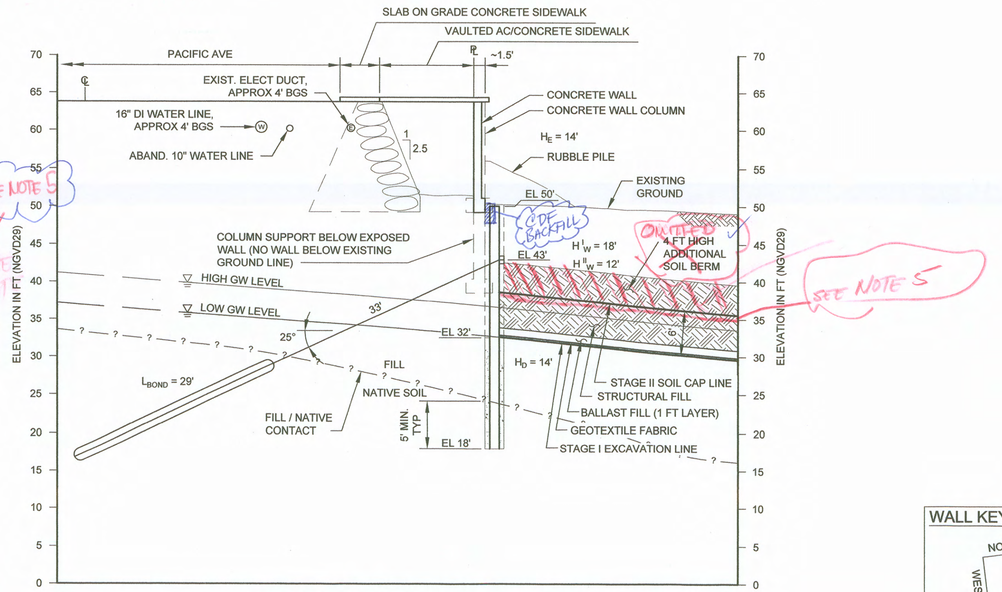
REVISED SLOT CUT/ CORNER LAGGING DETAIL 11/2/09 LAI (REF. SHEET 2A)



WEST WALL ELEVATION
SCALE: 1" = 10'

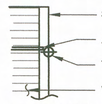


1/2 CROSS SECTION DETAIL
WEST WALL - SOUTH END
SCALE: 1" = 10'



2/2 CROSS SECTION DETAIL
WEST WALL - NORTH END
SCALE: 1" = 10'

LEGEND:



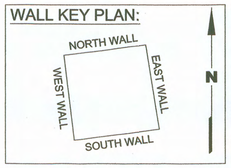
H_E = HEIGHT OF EXISTING WALL
H^I_W = HEIGHT OF PROPOSED SHORING WALL - STAGE I
H^{II}_W = HEIGHT OF PROPOSED SHORING WALL - STAGE II
H_D = DEPTH OF SHAFT EMBEDMENT IN CONCRETE
L_{BOND} = BONDED ANCHOR LENGTH
PL = PROPERTY LINE

NOTES:

1. BALLAST FILL SHALL MEET REQUIREMENTS OF WSDOT STD. SPECIFICATIONS SECTION 9-03.17, AND THE PROJECT SPECIAL PROVISIONS.
2. STRUCTURAL FILL SHALL MEET WSDOT SECTION 9-03.14(1), AND THE PROJECT SPECIAL PROVISIONS.
3. GEOTEXTILE FABRIC SHALL BE MIRAFI 160N, OR EQUAL. PROVIDE EDGE OVERLAP PER MANUFACTURER'S RECOMMENDATIONS.
4. IMPERVIOUS MEMBRANE SHALL BE 40-MIL HDPE LINER, WELDED PER MANUFACTURER'S RECOMMENDATIONS, AS NEEDED.

5. 1-FT BALLAST FILL OVER GEOTEXTILE FABRIC PROVIDED IN LIEU OF STRUCTURAL FILL - FINAL BACKFILL LIFT EVERYWHERE

WALL KEY PLAN:



LANDAU ASSOCIATES
130 2nd AVENUE S.
EDMONDS, WA. 98020
(425) 778-0907, FAX (425) 778-6409

0 10 20
Scale in Feet

NO	REVISION	DATE	APPD
0	ISSUED FOR PERMITTING	6-12-09	RBH

RED LINE DWGS (AS-BUILTS) – SUBMITTED BY CLEARCREEK CONTRACTORS JAN-10

FINAL CONSTRUCTION CHECKED [AS-BUILTS] BY RBH DATE 1/29/10
FIELD BOOKS

DATE	SCALE
6-12-2009	1" = 10'
DESIGNED RBH	CHECKED RBH
DRAWN BLT	PROJECT NAME SAURO'S
DRAWING NAME	

RALF B. HYLLSETH STATE OF WASHINGTON 31760 REGISTERED PROFESSIONAL ENGINEER 6/12-09

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

SAURO'S PROPERTY - EXCAVATION & SHORING WALL PLANS
1401, 1407 & 1409 PACIFIC AVENUE, TACOMA, WASHINGTON
WEST SHORING WALL
ELEVATION AND SECTIONS

CIP 00020

SHEET NO. 3 OF 10

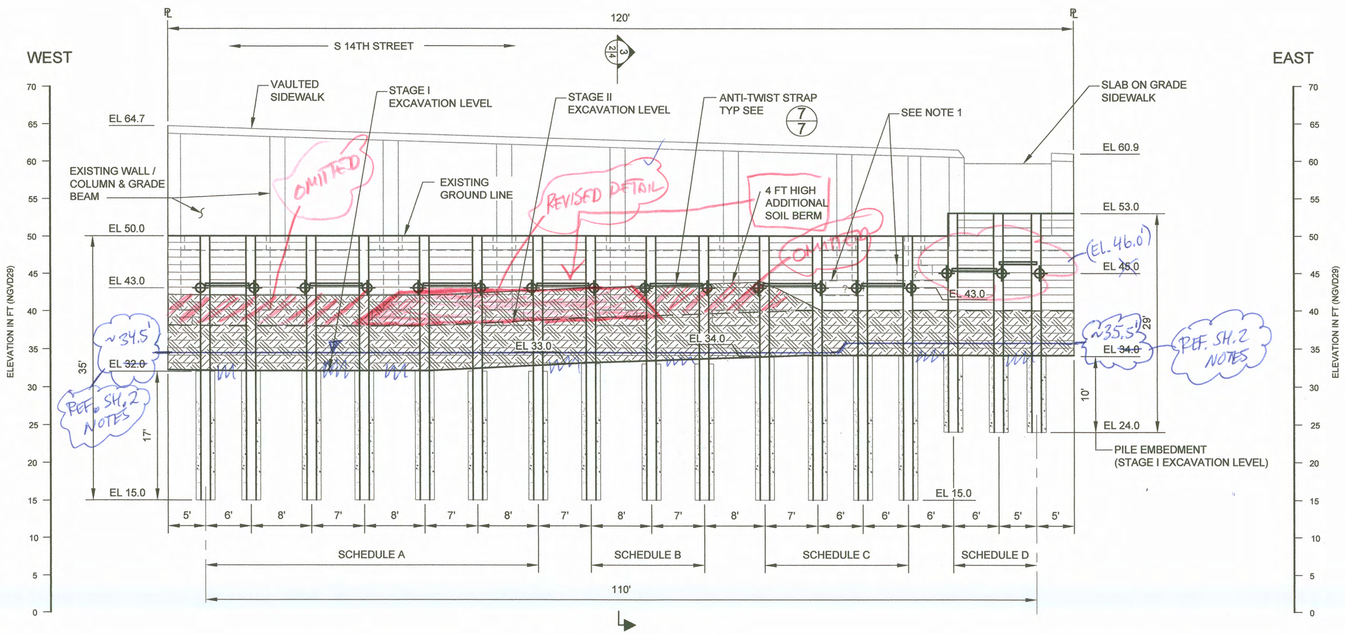
SHORING WALL LV WWORKS\Sheets\Shoring Cover\CONSHEET.dwg LA 6/12/2009

SOLDIER PILE AND TIEBACK INSTALLATION DETAILS

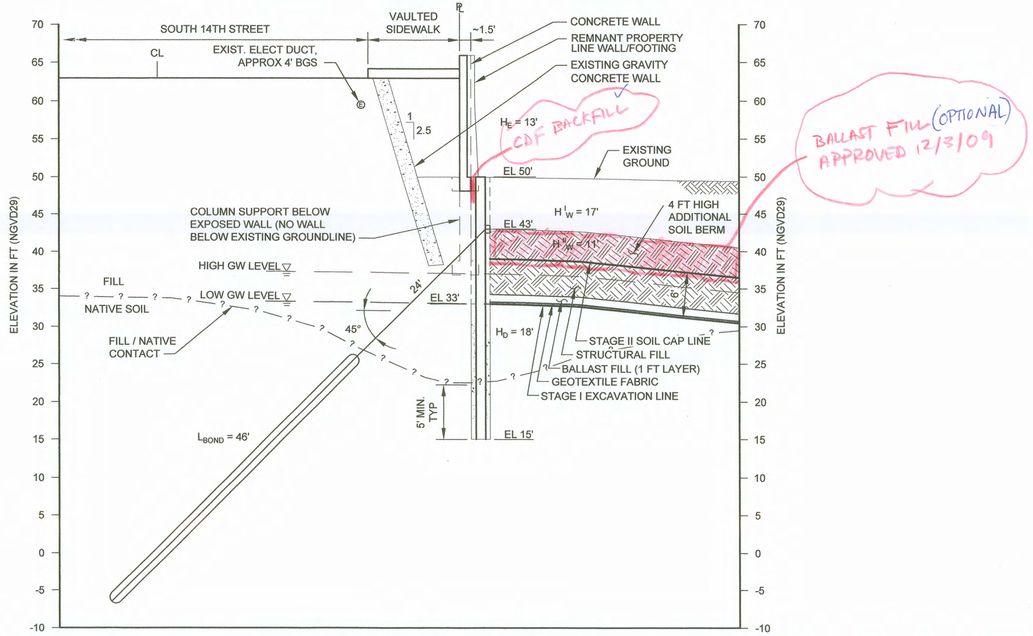
	SCHEDULE			
	A	B	C	D*
PILE SIZE	W18X46	W18X46	W18X46	W18X35
MIN. SHAFT DIAMETER (FT)	2.0	2.0	2.0	2.0
TOP OF WALL EL (FT)	50.0	50.0	50.0	53.0
BOTTOM OF WALL EL (FT)	32.0	33.0	34.0	34.0
MAX. SHORED WALL HEIGHT (FT)	18.0	17.0	16.0	19.0
BOTTOM OF PILE EL (FT)	15.0	15.0	15.0	24.0
TOTAL PILE LENGTH (FT)	35.0	35.0	35.0	29.0
ALLOWABLE TIEBACK LOAD (KIPS)	145.0	145.0	145.0	99.0
TIEBACK ANCHOR ELEVATION (FT)	43.0	43.0	43.0	45.0
TIEBACK INCLINATION (DEG)	45.0	45.0	45.0	25.0
LENGTH OF BONDED ZONE (FT)	46.0	46.0	46.0	32.0
LENGTH OF NO-LOAD ZONE (FT)	24.0	24.0	24.0	11.0
TOTAL TIEBACK LENGTH (FT)	70.0	70.0	70.0	43.0

15

* REFER TO CROSS SECTION DETAIL 4/5

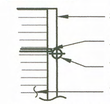


NORTH WALL ELEVATION
SCALE: 1" = 10'



3/2 CROSS SECTION DETAIL
NORTH WALL
SCALE: 1" = 10'

LEGEND:



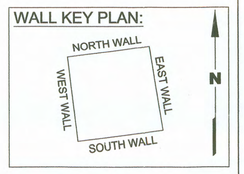
H_E = HEIGHT OF EXISTING WALL
H^I_W = HEIGHT OF PROPOSED SHORING WALL - STAGE I
H^{II}_W = HEIGHT OF PROPOSED SHORING WALL - STAGE II
H_D = DEPTH OF SHAFT EMBEDMENT IN CONCRETE
L_{BOND} = BONDED ANCHOR LENGTH
PL = PROPERTY LINE

NOTES:

1. EXCAVATE, PRIOR TO START OF SHORING, TO EXPOSE AND REMOVE PORTION OF EXISTING COLUMN FOOTING INTERFERING WITH SOLDIER PILE INSTALLATION (MAX. 5' WIDTH ALONG WALL). SHORE AS NECESSARY PER WISHA REGULATIONS.
1. BALLAST FILL SHALL MEET REQUIREMENTS OF WSDOT STD. SPECIFICATIONS SECTION 9-03.17, AND THE PROJECT SPECIAL PROVISIONS.
2. STRUCTURAL FILL SHALL MEET WSDOT SECTION 9-03.14(1), AND THE PROJECT SPECIAL PROVISIONS.
3. GEOTEXTILE FABRIC SHALL BE MIRAFI 160N, OR EQUAL. PROVIDE EDGE OVERLAP PER MANUFACTURER'S RECOMMENDATIONS.
4. IMPERVIOUS MEMBRANE SHALL BE 40-MIL HDPE LINER, WELDED PER MANUFACTURER'S RECOMMENDATIONS, AS NEEDED.

5. SAME AS SHEET 3

WALL KEY PLAN:



LANDAU ASSOCIATES
130 2nd AVENUE S.
EDMONDS, WA. 98020
(425) 778-0907, FAX (425) 778-6409

0 10 20
Scale in Feet

NO	REVISION	DATE	APPD
0	ISSUED FOR PERMITTING	6-12-09	RBH

RED LINE DWGS (AS-BUILTS) - SUBMITTED BY CREAR CREEK CONTRACTORS JAN-10

FINAL CONSTRUCTION CHECKED (AS-BUILTS) BY RBH DATE 1/29-10 FIELD BOOKS

DATE 6-12-2009 | SCALE 1" = 10'
DESIGNED RBH | CHECKED RBH
DRAWN BLT | PROJECT NAME SAURO'S
DRAWING NAME

STATE OF WASHINGTON ROLF B. HYLLSETH 31760 REGISTERED PROFESSIONAL ENGINEER
6/12-09

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

SAURO'S PROPERTY - EXCAVATION & SHORING WALL PLANS
1401, 1407 & 1409 PACIFIC AVENUE, TACOMA, WASHINGTON
NORTH SHORING WALL
ELEVATION AND SECTION

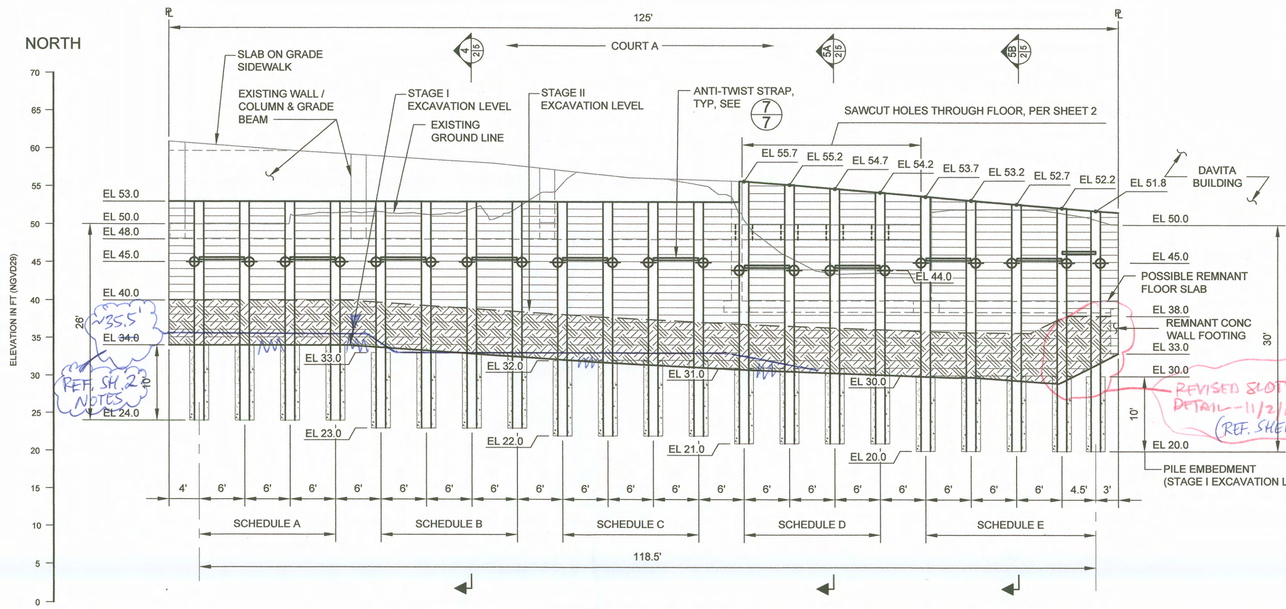
CIP 00020
SHEET NO. 4 OF 10

SHORING WALL | V:\0940\ACAD\Working Cond\CONSHEET.dwg (A) 8/3/2009

SOLDIER PILE AND TIEBACK INSTALLATION DETAILS

	SCHEDULE				
	A	B	C	D	E
PILE SIZE	W18X35	W18X35	W18X35	W18X35	W18X35
MIN. SHAFT DIAMETER (FT)	2.0	2.0	2.0	2.0	2.0
TOP OF WALL EL (FT)	53.0	53.0	53.0	VARIES	VARIES
BOTTOM OF WALL EL (FT)	34.0	33.0	32.0	31.0	30.0
MAX. SHORED WALL HEIGHT (FT)	19.0	20.0	21.0	VARIES	VARIES
BOTTOM OF PILE EL (FT)	24.0	23.0	22.0	21.0	20.0
TOTAL PILE LENGTH (FT)	29.0	30.0	31.0	VARIES	VARIES
ALLOWABLE TIEBACK LOAD (KIPS)	99.0	99.0	99.0	80.0	66.0
TIEBACK ANCHOR ELEVATION (FT)	45.0	45.0	45.0	44.0	45.0
TIEBACK INCLINATION (DEG)	25.0	25.0	25.0	20.0	25.0
LENGTH OF BONDED ZONE (FT)	32.0	32.0	32.0	26.0	21.0
LENGTH OF NO-LOAD ZONE (FT)	11.0	11.0	11.0	13.0	13.0
TOTAL TIEBACK LENGTH (FT)	43.0	43.0	43.0	39.0	34.0

15'



EAST WALL ELEVATION
SCALE: 1" = 10'

LEGEND:

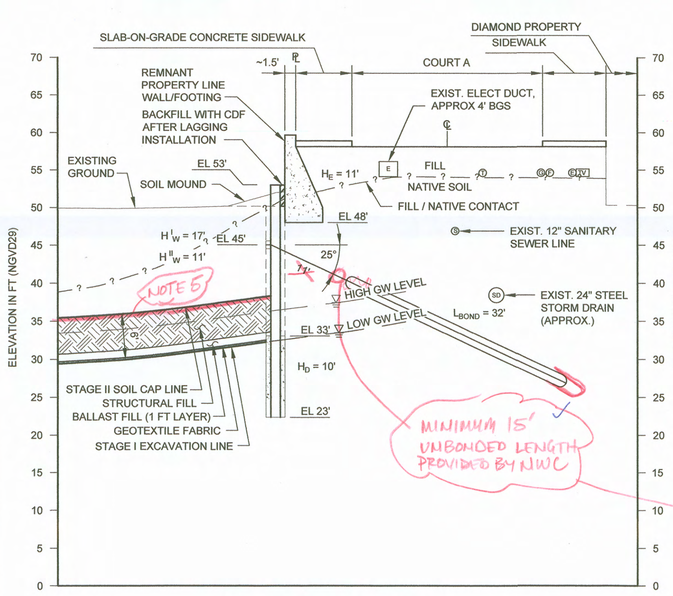
- SOLDIER PILE
- ANTI-TWIST STRAP
- TIEBACK ANCHOR
- WOOD LAGGING

H_E = HEIGHT OF EXISTING WALL
H^I_W = HEIGHT OF PROPOSED SHORING WALL - STAGE I
H^{II}_W = HEIGHT OF PROPOSED SHORING WALL - STAGE II
H_D = DEPTH OF SHAFT EMBEDMENT IN CONCRETE
L_{BOND} = BONDED ANCHOR LENGTH
PL = PROPERTY LINE
TV CABLE TELEVISION
E ELECTRICAL
F FIBER OPTIC
G GAS
SS SANITARY SEWER
SD STORM DRAIN
T TELEPHONE

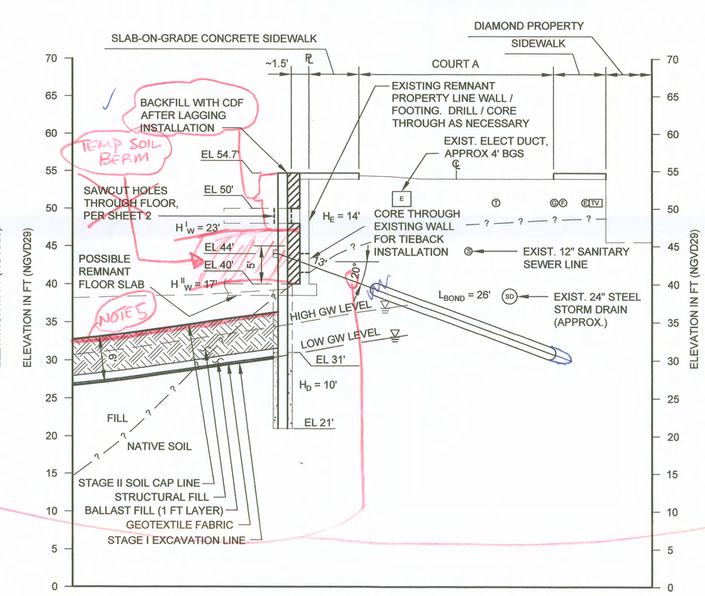
NOTES:

1. BALLAST FILL SHALL MEET REQUIREMENTS OF WSDOT STD. SPECIFICATIONS SECTION 9-03.17, AND THE PROJECT SPECIAL PROVISIONS.
2. STRUCTURAL FILL SHALL MEET WSDOT SECTION 9-03.14(1), AND THE PROJECT SPECIAL PROVISIONS.
3. GEOTEXTILE FABRIC SHALL BE MIRAFI 160N, OR EQUAL. PROVIDE EDGE OVERLAP PER MANUFACTURER'S RECOMMENDATIONS.
4. IMPERVIOUS MEMBRANE SHALL BE 40-MIL HDPE LINER, WELDED PER MANUFACTURER'S RECOMMENDATIONS, AS NEEDED.

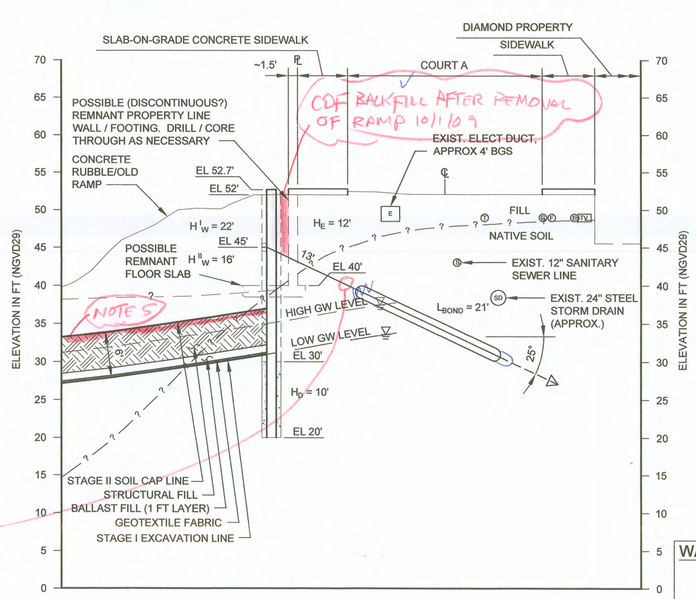
5. SAME AS SHEET 3



4/2 CROSS SECTION DETAIL
EAST WALL - NORTH END
SCALE: 1" = 10'

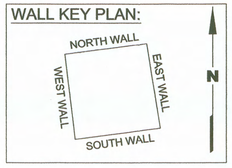


5A/2 CROSS SECTION DETAIL
EAST WALL - SOUTH END
SCALE: 1" = 10'



5B/2 CROSS SECTION DETAIL
EAST WALL - SOUTH-EAST CORNER
SCALE: 1" = 10'

WALL KEY PLAN:



LANDAU ASSOCIATES
130 2nd AVENUE S.
EDMONDS, WA. 98020
(425) 778-0907, FAX (425) 778-6409

0 10 20
Scale in Feet

NO	REVISION	DATE	APPD
0	ISSUED FOR PERMITTING	6-12-09	RBH
	RED LINE DWGS (AS-BUILTS) - SUBMITTED BY CLEARCREEK CONTRACTORS	JAN-10	

FINAL CONSTRUCTION CHECKED [AS-BUILTS] BY RBH DATE 1/29-10
FIELD BOOKS

DATE	SCALE
6-12-2009	1" = 10'
DESIGNED RBH	CHECKED RBH
DRAWN BLT	PROJECT NAME SAURO'S
DRAWING NAME	

ROLF B. HYLSCHER — STATE OF WASHINGTON — 31760 — REGISTERED PROFESSIONAL ENGINEER — 6/12-09

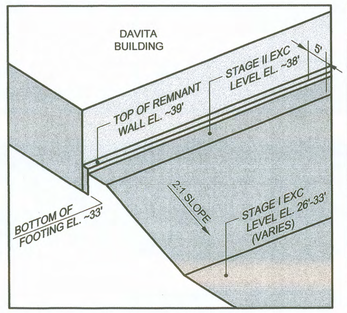
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

SAURO'S PROPERTY - EXCAVATION & SHORING WALL PLANS
1401, 1407 & 1409 PACIFIC AVENUE, TACOMA, WASHINGTON
EAST SHORING WALL
ELEVATION AND SECTIONS

CIP 00020

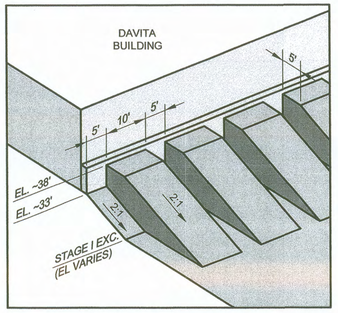
SHEET NO. 5 OF 10

SHORING WALL | V:\094\04\R04\18\Shoring Cont\CONSHEET.dwg (A) 9/12/2009



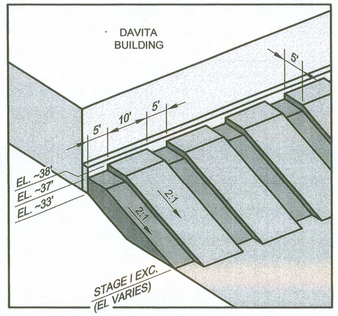
STEP 1

INITIAL CUT TO STAGE I & II EXCAVATION LEVELS



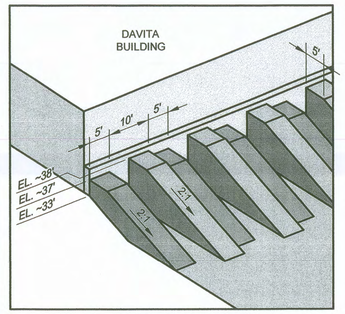
STEP 2

FIRST SET OF SLOTS CUT TO STAGE I EXCAVATION LEVEL. INSTALL GEOTEXTILE FABRIC AT BASE OF EACH SLOT.



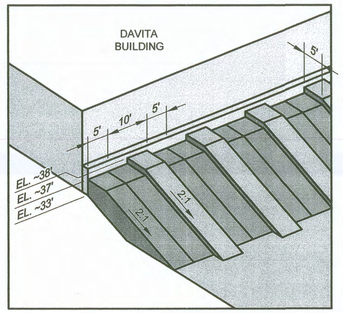
STEP 3

FIRST SET OF SLOTS BACKFILLED AND COMPACTED TO STAGE I EXCAVATION LEVEL, PRIOR TO CUTTING SECOND SET OF SLOTS, PER DETAIL 6/2



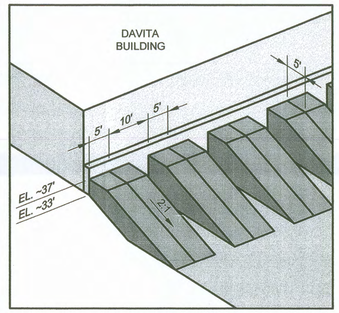
STEP 4

SECOND SET OF SLOTS CUT TO STAGE I EXCAVATION LEVEL. INSTALL GEOTEXTILE FABRIC AT BASE OF EACH SLOT.



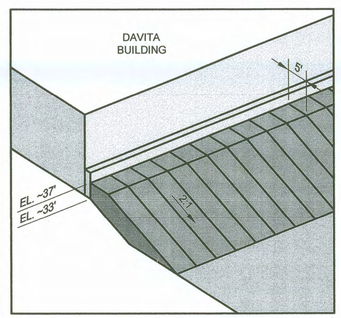
STEP 5

SECOND SET OF SLOTS BACKFILLED AND COMPACTED TO STAGE II EXCAVATION LEVEL, PRIOR TO CUTTING THIRD SET OF SLOTS, SEE DETAIL 6/2



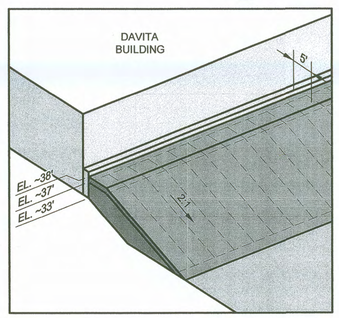
STEP 6

THIRD SET OF SLOTS CUT TO STAGE I EXCAVATION LEVEL. INSTALL GEOTEXTILE FABRIC AT BASE OF EACH SLOT.



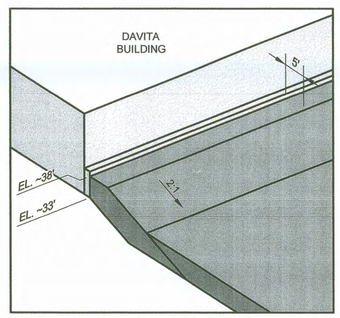
STEP 7

THIRD SET OF SLOTS BACKFILLED AND COMPACTED TO STAGE II EXCAVATION LEVEL, PER DETAIL 6/2



STEP 8

PLACE CONTINUOUS IMPERVIOUS MEMBRANE AND FINAL 1 FT LAYER OF BALLAST FILL

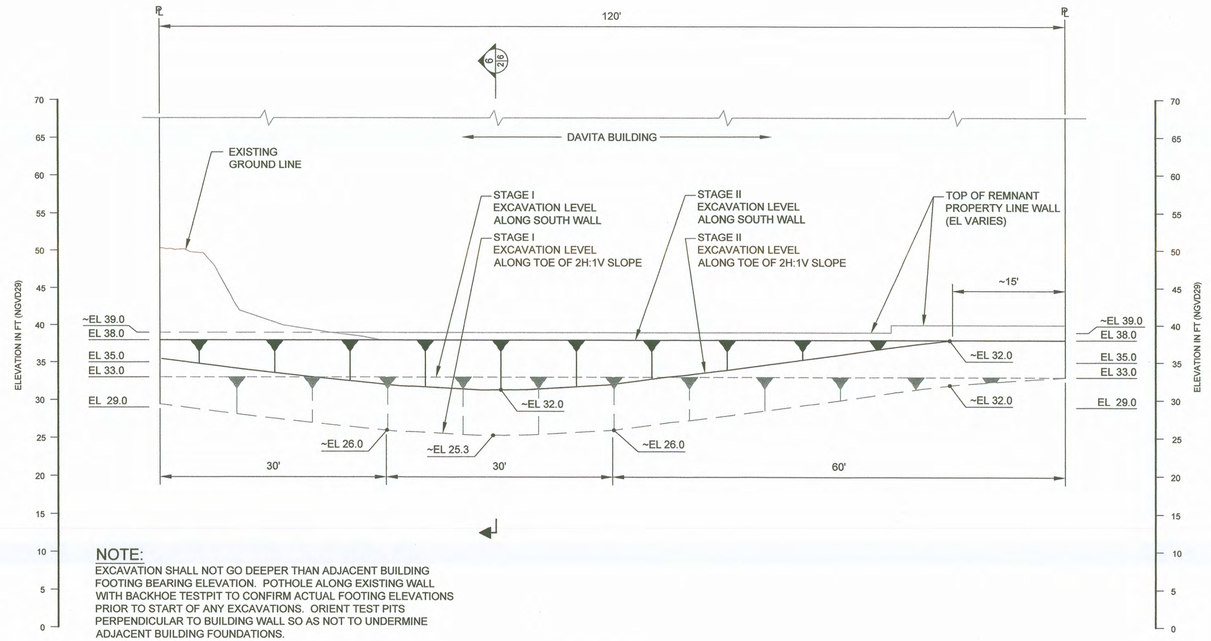


STEP 9

CONTINUE PLACING CLEAN SOIL CAP LAYER UP TO STAGE II EXCAVATION LEVEL ACROSS REMAINDER OF SITE.

ISOMETRIC VIEWS SOUTH WALL EXCAVATION SEQUENCING

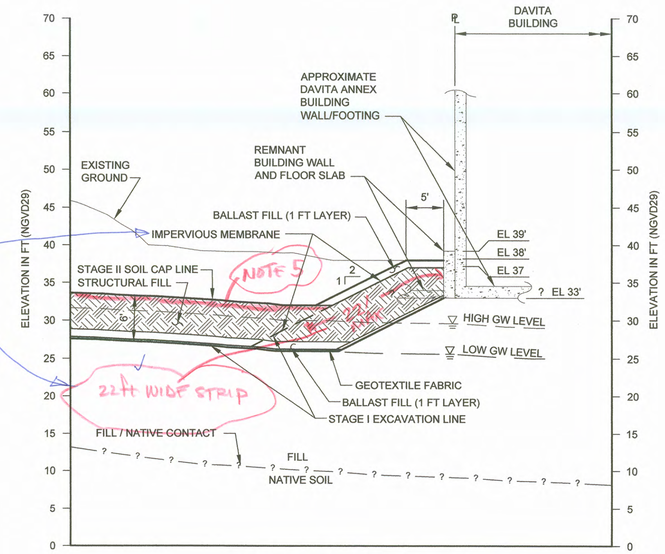
N.T.S.



NOTE:
EXCAVATION SHALL NOT GO DEEPER THAN ADJACENT BUILDING FOOTING BEARING ELEVATION. POTHOLE ALONG EXISTING WALL WITH BACKHOE TESTPIT TO CONFIRM ACTUAL FOOTING ELEVATIONS PRIOR TO START OF ANY EXCAVATIONS. ORIENT TEST PITS PERPENDICULAR TO BUILDING WALL SO AS NOT TO UNDERMINE ADJACENT BUILDING FOUNDATIONS.

SOUTH WALL ELEVATION

SCALE: 1" = 10'



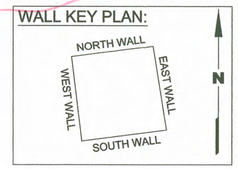
6/2 CROSS SECTION DETAIL
SOUTH WALL
SCALE: 1" = 10'

NOTES:

1. BALLAST FILL SHALL MEET REQUIREMENTS OF WSDOT STD. SPECIFICATIONS SECTION 9-03.17, AND THE PROJECT SPECIAL PROVISIONS.
2. STRUCTURAL FILL SHALL MEET WSDOT SECTION 9-03.14(1), AND THE PROJECT SPECIAL PROVISIONS.
3. GEOTEXTILE FABRIC SHALL BE MIRAFI 160N, OR EQUAL. PROVIDE EDGE OVERLAP PER MANUFACTURER'S RECOMMENDATIONS.
4. IMPERVIOUS MEMBRANE SHALL BE 40-MIL HDPE LINER, WELDED PER MANUFACTURER'S RECOMMENDATIONS, AS NEEDED.

5. SAME AS SHEET 3

WALL KEY PLAN:



LANDAU ASSOCIATES
130 2nd AVENUE S.
EDMONDS, WA. 98020
(425) 778-0907, FAX (425) 778-6409

0 10 20
Scale in Feet

Tacoma

NO	REVISION	DATE	APPD
0	ISSUED FOR PERMITTING	6-12-09	RBH

RED LINE DWGS (AS-BUILTS) - SUBMITTED BY CLEARCREEK CONTRACTORS

FINAL CONSTRUCTION CHECKED [AS-BUILTS] RBH
BY
DATE 1/29-10
FIELD BOOKS

DATE 6-12-2009 | SCALE 1" = 10'
DESIGNED RBH | CHECKED RBH
DRAWN BLT | PROJECT NAME SAURO'S
DRAWING NAME

ROLF B. HYLLSETH — STATE OF WASHINGTON — 31760 — REGISTERED PROFESSIONAL ENGINEER
6-12-09

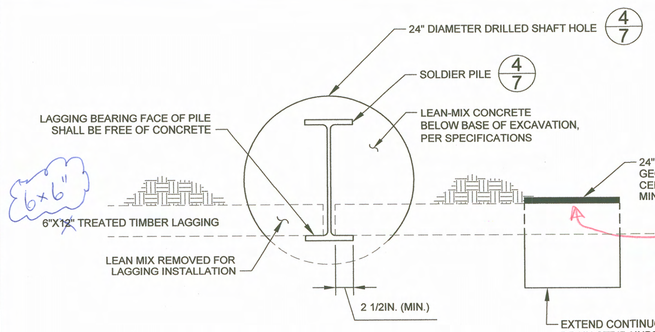
CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS

SAURO'S PROPERTY - EXCAVATION & SHORING WALL PLANS
1401, 1407 & 1409 PACIFIC AVENUE, TACOMA, WASHINGTON
SOUTH WALL EXCAVATION
ELEVATION, SECTION & SEQUENCING

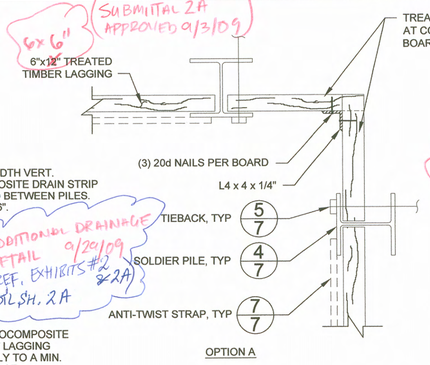
CIP 00020

SHEET NO. 6 OF 10

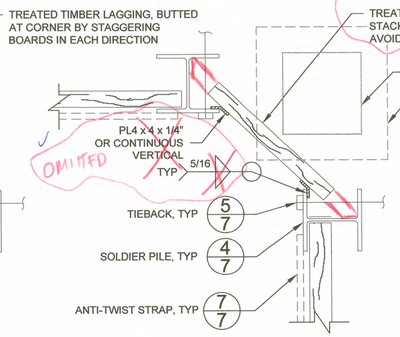
SHORING WALL I V:\094\08\01\Shoring Cond\CONSHEET.dwg (A) 6/12/2009



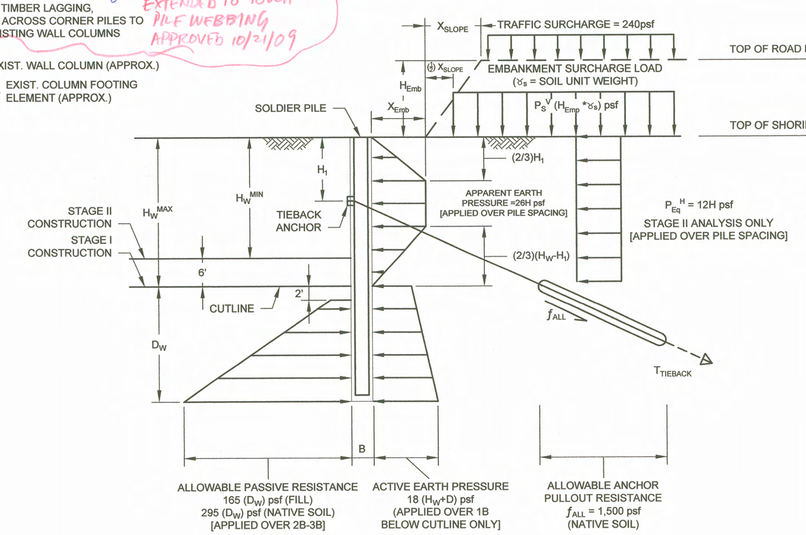
1/7 SOLDIER PILE & LAGGING DETAIL
N.T.S.



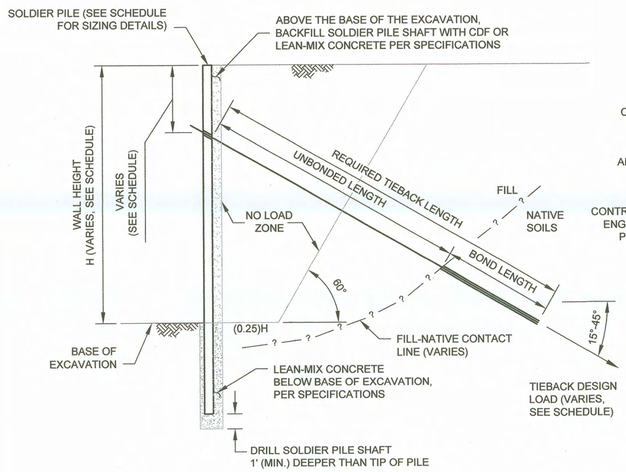
OPTION A



OPTION B

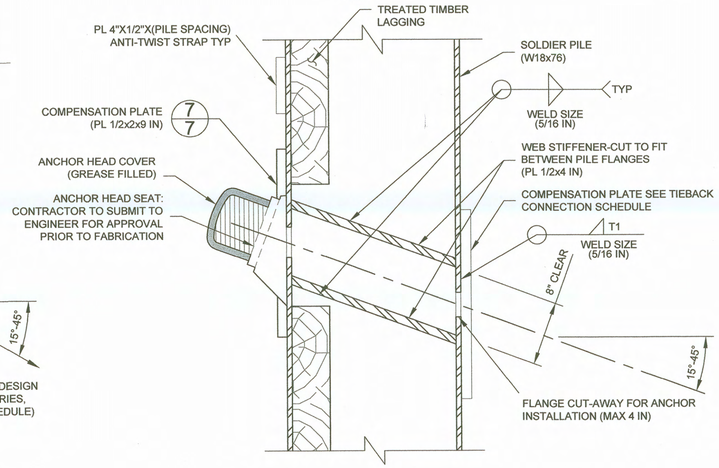


3/7 TIEBACK SOLDIER PILE WALL PRESSURE DIAGRAM
N.T.S.

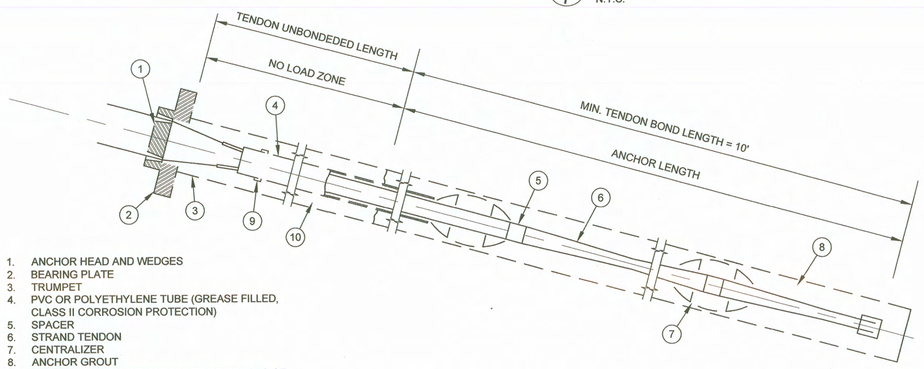


4/7 CROSS SECTION DETAIL
TYPICAL TIEBACK SOLDIER PILE WALL
N.T.S.

2/7 WOOD LAGGING CORNER DETAIL
N.T.S.

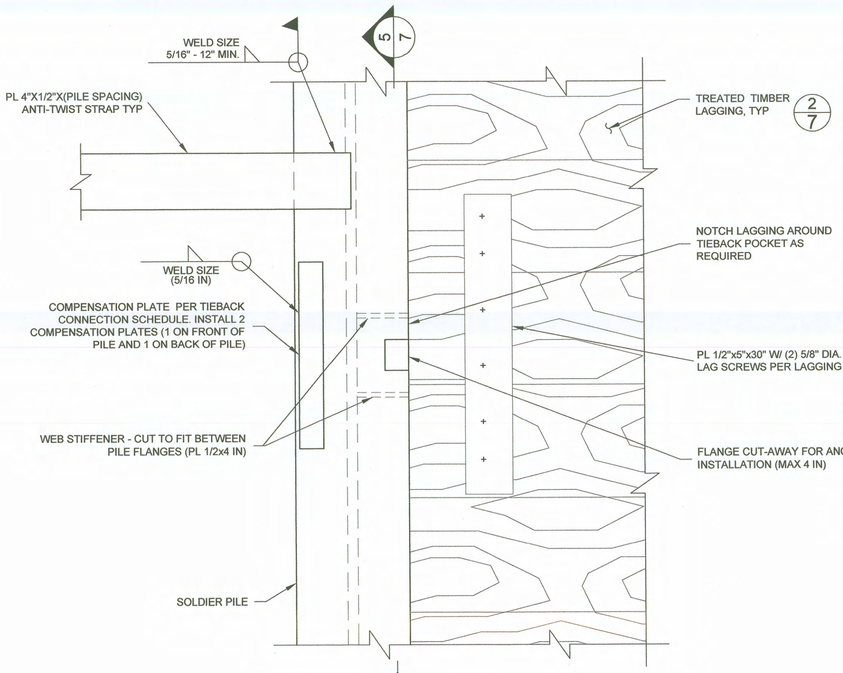


5/7 CROSS SECTION DETAIL
ANCHOR TO PILE CONNECTION
N.T.S.



1. ANCHOR HEAD AND WEDGES
2. BEARING PLATE
3. TRUMPET
4. PVC OR POLYETHYLENE TUBE (GREASE FILLED, CLASS II CORROSION PROTECTION)
5. SPACER
6. STRAND TENDON
7. CENTRALIZER
8. ANCHOR GROUT
9. TENSION RING TO RESIST SPLITTING FORCES OF DEFLECTED STRANDS
10. NON-STRUCTURAL FILLER

6/7 TYPICAL STRAND TENDON GROUND ANCHOR
N.T.S.



7/7 ELEVATION DETAIL
ANCHOR TO PILE CONNECTION
N.T.S.

LANDAU ASSOCIATES
130 2nd AVENUE S.
EDMONDS, WA. 98020
(425) 778-0907, FAX (425) 778-6409

NO	REVISION	DATE	APPD
0	ISSUED FOR PERMITTING (RED LINE DWGS (AS-BUILTS) – SUBMITTED BY CLEARCREEK CONTRACTORS)	6-12-09	RBH

FINAL CONSTRUCTION CHECKED BY [AS-BUILTS] RBH DATE 1/29-10
FIELD BOOKS
DATE 6-12-2009 | SCALE 1" = 10'
DESIGNED RBH | CHECKED RBH
DRAWN BLT | PROJECT NAME SAURO'S
DRAWING NAME

ROLF B. HYLSETH — STATE OF WASHINGTON — 31760 — REGISTERED PROFESSIONAL ENGINEER — 6-12-09

CITY OF TACOMA
DEPARTMENT OF PUBLIC WORKS
SAURO'S PROPERTY - EXCAVATION & SHORING WALL PLANS
1401, 1407 & 1409 PACIFIC AVENUE, TACOMA, WASHINGTON
SHORING WALL DETAILS

CIP 00020
SHEET NO. 7 OF 10

SHORING WALL I V:\0045\ABKM\Shoring Const\CONSHEET.dwg (A) 6/12/2009

APPENDIX F

Decommissioned Well Logs and Reports

Submittal Paperwork

Decommissioned Wells:
SVE-1
MW-4
MW-6
MW-8S
MW-8
MW-9
MW-10
MW-11S
MW-11D
MW-12

SUBMITTAL TRANSMITTAL

Clearcreek CONTRACTORS Environmental/Civil
3203 15th Street
Everett, WA 98201
Tel: [425] 252-5800
Fax: [425] 252-1093
www.clearcreekcon.com

TO: City of Tacoma Public Works
747 Market Street
Room 620

ATTENTION: Mark Henry

DATE: 9/23/2009
PROJECT: Sauro Property Cleanup
JOB NO: 209052
SUBMITTAL #: 28
RE: Well Decommission Reports

WE ARE SENDING YOU THE FOLLOWING SUBMITTALS:

COPIES	SPEC NO.	DESCRIPTION
6		Well Decommission Report: Resource Protection Well Report

REMARKS:

Resource Protection Well Reports for the 10 Abandoned Monitoring Wells

RECEIVED BY: _____ TITLE: _____

SIGNATURE: _____ DATE: _____

If enclosures are not as noted, please notify us at once.

SUBMITTAL TRANSMITTAL FORM

Project Sauro Property Environmental Cleanup
Project Number. CIP-00020
Specification No. PW09-0228F

ATTN: Construction Division Date: 9/23/09

Submittal Number 28

Specification Number 2-02.3(4)

Submittal Description Monitoring Well Decommission Reports

We are sending you:

Copies	Date	Page	Description
6	9/23	10	Resource Protection Well Report

Transmitted: ☒ Submittals (Product Data) for information only.
☐ Submittals for review and comment.

Remarks: _____

Certify Either A or B:

☒ A. This document has been detail-checked for accuracy of content and for compliance with the contract documents **(no exceptions)**. The information contained herein has been fully coordinated with all involved Subcontractors.

☐ B. This document has been detail-checked for accuracy of content and for compliance with the contract documents **except for the attached deviations.** The information contained herein has been fully coordinated with all involved Subcontractors.

Certified By: _____
Signature

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: SVE-1

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	5/22/07 0845	**Sampler Type:**	D&M SS
Date/Time Completed:	5/22/07 1100	**Drive Hammer (lbs.):**	300
Equipment:	CME 175	**Depth of Water ATD (ft bgs):**	13.5
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	25
Drilling Foreman:	James Gobel	**Total Well Depth (ft bgs):**	14
Drilling Method:	HSA		

Depth (feet bgs.)	Lithologic Description	USCS	% Recovery	Sample ID	Boring/Well Construction Details
0	0-3" Asphalt				Grout
5	4'-5' SAND, fine to medium, trace silt and fine gravel, greyish-brown, loose, moist, no odor.	SP	100	MW2-4-5	
10	9'-10' Same as above, minor silt and fine to coarse gravel.	SP	50	MW2-9-10	Bentonite Chips
15	14'-15' SILT with fine sand and fine to coarse gravel, grey, medium stiff, moist, no odor.	ML	100	MW2-14-15	Blank
20	19'-20' SAND, fine to medium, with silt, minor fine to coarse gravel, grey, very loose, moist, no odor.	SP	100	MW2-19-20	
25	24'-25' SILT with fine sand, brown with rust mottling, medium stiff, moist, no odor.	ML	80	MW2-24-25	

Well Construction Information

Monument Type:	Flush-mount	**Filter Pack:**	2/12 Sand
Casing Diameter (inches):	4"	**Surface Seal:**	Grout
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite
Screened Interval (ft bgs):	NA		

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. AE069161

Construction/Decommission

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Sauro's Cleanerama

Site Address 1401 Pacific Ave

Consulting Firm Clearcreek Contractor's

City Tacoma County 27-Pierce

EWM

Unique Ecology Well ID
Tag No. APF 498

Location 1/4 SW 1/4 NW Sec 4 Twn 20N R 3E or ___ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☒ Driller ☐ Trainee Name (Print) David Gose

Driller/Trainee Signature x _____

Driller/Trainee License No. 2744

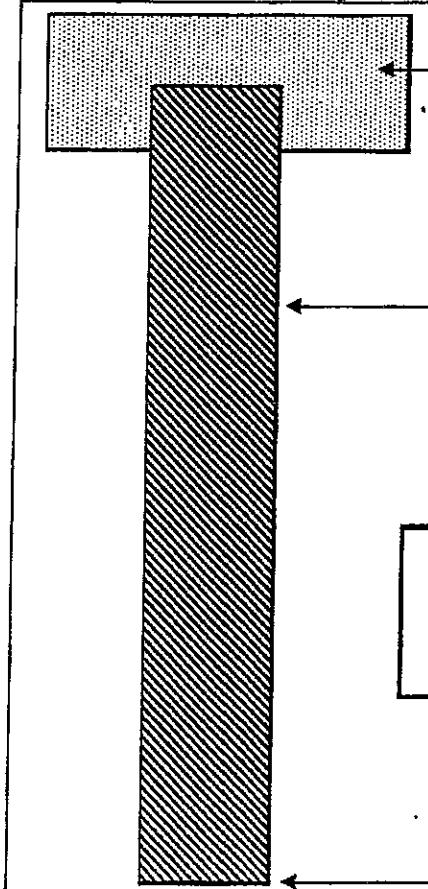
Cased or Uncased Diameter 4" Static Level 18'

Work/Decommission Start Date 9/4/2009

If trainee, licensed driller's Signature and License No. _____

Work/Decommission Completed Date 9-4-09

Construction/Design — Well Data W09-456 — Formation Description



CONCRETE SURFACE SEAL 1 FT — 0 - ___ FT

BACKFILL 13'6" FT — 0 - ___ FT

hydrated bentonite

REQUIRED INFORMATION
(Must get one or both if available)

DEPT OF ECOLOGY WELL TAG #: APF 498

CLIENT WELL ID #: SVE1

DEPTH OF BORING 14'6" FT

Scale 1" = _____ Page _____ of _____

ECY 050-12 (Rev 2/01)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-4

Client:
Project: Former Sauro's Cleanerama
Location: Tacoma, Washington
Farallon PN: 899-001
Logged By: GeoEngineers, Inc.

Date/Time Started:	01/25/01	Sampler Type:	Split-Barrel
Date/Time Completed:	01/25/01	Drive Hammer (lbs.):	NA
Equipment:	NA	Depth of Water ATD (ft bgs):	17
Drilling Company:	TEG	Total Boring Depth (ft bgs):	NA
Drilling Foreman:	NA	Total Well Depth (ft bgs):	25
Drilling Method:	Strata Probe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 6/6/6	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		Asphalt.	AC							
		SAND with silt, trace gravel, fine to coarse sand, brown, medium dense, moist, fill.	SP-SM							Concrete
5										Bentonite
10		Silty SAND with gravel, fine to medium sand, brown, dense, moist, fill.	SM							
		Green-blue color.								
15										
										Sand Pack
20								SP-4-21	X	Screen
25										

Well Construction Information

Monument Type:	Steel surface	Filter Pack:	10-20 Colorado Sand
Casing Diameter (Inches):	3/4 " PVC	Surface Seal:	Bentonite Chips
Screen Slot Size (Inches):	"10 inch"	Annular Seal:	Bentonite Chips
Screened Interval (ft bgs):	15 to 25		

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 49.42
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. AE06961

Construction/Decommission

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Sauro's Cleanerama

Site Address 1401 Pacific Ave

Consulting Firm Clearcreek Contractor's

City Tacoma County 27-Pierce

EWM

Unique Ecology Well ID

Tag No. No tag

Location 1/4 SW 1/4 NW Sec 4 Twn 20N R 3E or ____ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☒ Driller ☐ Trainee Name (Print) David Gose

Driller/Trainee Signature x

Driller/Trainee License No. 2744

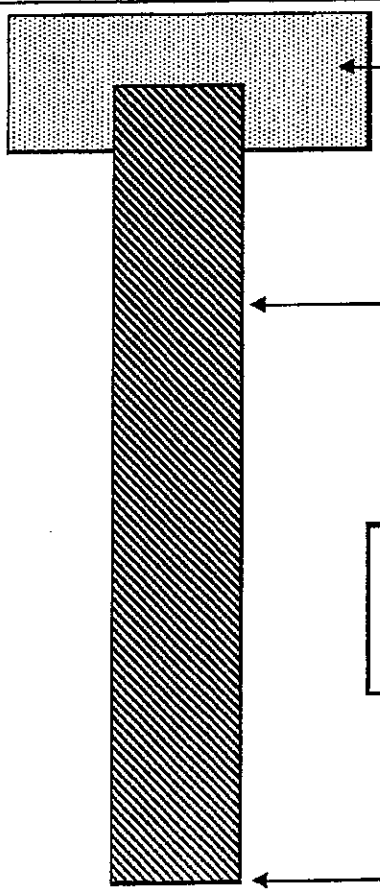
Cased or Uncased Diameter 3/4" Static Level —

Work/Decommission Start Date 9/4/2009

If trainee, licensed driller's Signature and License No. _____

Work/Decommission Completed Date 9-4-09

Construction/Design | Well Data W09-456 | Formation Description



CONCRETE SURFACE SEAL 1' FT — 0 - ____ FT

BACKFILL 24' FT (bentonite grout) — 0 - ____ FT

REQUIRED INFORMATION

(Must get one or both if available)

DEPT OF ECOLOGY WELL TAG #: No tag

CLIENT WELL ID #: MW-4

DEPTH OF BORING 25' FT

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev 2/01)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-6

Client: former
Project: Sauro's Cleanerama
Location: Tacoma, Washington
Farallon PN: 899-001
Logged By: GeoEngineers, Inc.

Date/Time Started:	07/11/03	Sampler Type:	SS Core Barrel
Date/Time Completed:	07/11/03	Drive Hammer (lbs.):	NA
Equipment:	Strata Probe	Depth of Water ATD (ft bgs):	13
Drilling Company:	ESN Northwest	Total Boring Depth (ft bgs):	NA
Drilling Foreman:	NA	Total Well Depth (ft bgs):	26
Drilling Method:	Strata Probe		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		No recovery.			0		0			Concrete
		SAND trace gravel, fine to coarse sand, gray, medium dense, dry, brick and concrete, fill.	SP		75					
5		No recovery.			0					Bentonite
10							0			
		Silty SAND, fine to medium sand, black, loose, wet, trace wood.	SM		75					
		No recovery.								
15					0		0			
		Silty SAND, fine to medium sand, black, loose, wet, trace wood.	SM		100			MW-6-16	X	
		No recovery.			0		0			
20					75					Sand Pack
							0			Screen
					0					
		SAND trace silt, trace gravel, fine to coarse sand, gray, loose, wet.	SP		12			MW-6-24	X	
25		No recovery.								

Well Construction Information

Monument Type:	Steel surface	Filter Pack:	10-20 Sand	Ground Surface Elevation (ft):	NA
Casing Diameter (inches):	3/4 " PVC	Surface Seal:	Concrete	Top of Casing Elevation (ft):	47.91
Screen Slot Size (inches):	0.010	Annular Seal:	Bentonite Chips	Boring Abandonment:	NA
Screened Interval (ft bgs):	11 to 26			Surveyed Location: X: NA	Y: NA

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. AE06961

Construction/Decommission

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Sauro's Cleanerama

Site Address 1401 Pacific Ave

Consulting Firm Clearcreek Contractor's

City Tacoma County 27-Pierce EWM

Unique Ecology Well ID

Tag No. No tag

Location 1/4 SW 1/4 NW Sec 4 Twn 20N R 3E or ___ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☒ Driller ☐ Trainee Name (Print) David Gose

Driller/Trainee Signature x

Driller/Trainee License No. 2744

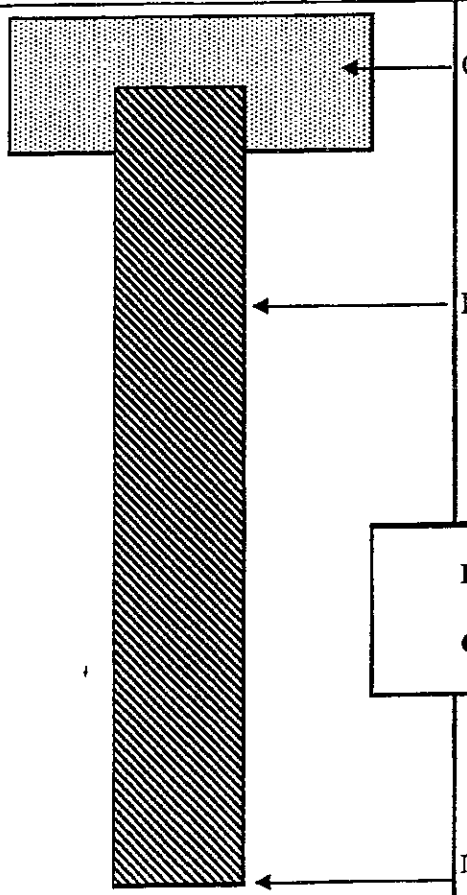
Cased or Uncased Diameter 3/4" Static Level —

Work/Decommission Start Date 9/4/2009

If trainee, licensed driller's Signature and License No. _____

Work/Decommission Completed Date 9-4-09

Construction/Design — Well Data W09-456 — Formation Description



CONCRETE SURFACE SEAL 1 FT — 0 - ___ FT

BACKFILL 24' FT bentonite grout — 0 - ___ FT

REQUIRED INFORMATION
(Must get one or both if available)

DEPT OF ECOLOGY WELL TAG #: No tag

CLIENT WELL ID #: MW 6

DEPTH OF BORING 25' FT

Scale 1" = _____

ECY 050-12 (Rev 2/01)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-8S

Client:
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: Farallon/A. Morine

Date/Time Started:	5/13/04 1030	**Sampler Type:**	D&M SS 18"x2"
Date/Time Completed:	5/13/04 1200	**Drive Hammer (lbs.):**	140
Equipment:	CME 75	**Depth of Water ATD (ft bgs):**	7
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	15.5
Drilling Foreman:	Scott	**Total Well Depth (ft bgs):**	15
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 6/6/6	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0										Concrete
										Bentonite
5		FILL, gravelly silt and sand, brown, stiff, wet, no odor, contains fragments of brick and concrete.	FILL		70	4/6/4	0.0	MW-8S-6.5	X	
										Sand Pack
10		FILL, silty gravel with sand, rounded coarse gravel, grey-brown, loose, wet, no odor.	FILL		80	3/5/6	0.0	MW-8S-11.5		Screen
15		FILL, silty sand, fine to medium sand, grey-brown, loose, wet, no odor.	FILL		50	4/5/5	0.0	MW-8S-15.5		

Well Construction Information

Monument Type:	Steel Flush Mount	**Filter Pack:**	#2/12 Medium Monterey Sand
Casing Diameter (inches):	2" PVC	**Surface Seal:**	Concrete
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite Chips
Screened Interval (ft bgs):	5 to 15		

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: Bentonite backfill.
Surveyed Location: X: NA Y: NA

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. AE06961

Construction/Decommission

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Sauro's Cleanerama

Site Address 1401 Pacific Ave

Consulting Firm Clearcreek Contractor's

City Tacoma County 27-Pierce

EWM

Unique Ecology Well ID
Tag No. ALB 403

Location 1/4 SW 1/4 NW Sec 4 Twn 20N R 3E or ____ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☒ Driller ☐ Trainee Name (Print) David Gosel

Driller/Trainee Signature x

Driller/Trainee License No. 2744

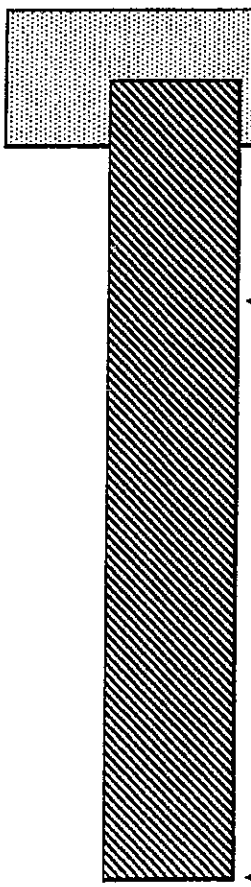
Cased or Uncased Diameter 4" Static Level 7'

Work/Decommission Start Date 9/4/2009

If trainee, licensed driller's Signature and License No. _____

Work/Decommission Completed Date 9-4-09

Construction/Design — Well Data W09-456 — Formation Description



CONCRETE SURFACE SEAL 1' FT — 0 - ____ FT

BACKFILL 14'6" FT — 0 - ____ FT

bentonite

REQUIRED INFORMATION
(Must get one or both if available)

DEPT OF ECOLOGY WELL TAG #: ALB403

CLIENT WELL ID #: B MW 8S

DEPTH OF BORING 15'6" FT

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev 2/01)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-8

Client:
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: Farallon/A. Morine

Date/Time Started:	5/12/04 0900	**Sampler Type:**	SS 18"x2"
Date/Time Completed:	5/12/04 1430	**Drive Hammer (lbs.):**	140
Equipment:	CME 75	**Depth of Water ATD (ft bgs):**	7
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	NA
Drilling Foreman:	Scott	**Total Well Depth (ft bgs):**	32
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 6/6/6	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		FILL, silty gravel with sand, grey, loose, moist, no odor, gravel is concrete.	FILL		40	7/2/2		MW-8-3.5		Cement
5		FILL, silty sand with gravel, brown-black, loose, moist, no odor, pieces of brick.	FILL		30	2/3/3		MW-8-7.0		
		FILL, silty sand with gravel, brown, loose, wet, no odor. Switched to a D & M sampler.	FILL		100	5/6/3	7.5	MW-8-8.5		
		FILL, sand with silt, minor gravel, grey-brown, loose, wet, no odor,	FILL		10	4/5/6		MW-8-10.0		
10		FILL, silt with sand, with gravel, brown-grey, soft, wet, no odor.	FILL		100	1/1/3	6.6	MW-8-11.5		Bentonite
		FILL, silt with sand, with gravel, grey, loose, wet, slight weathered petroleum odor.	FILL		90	3/4/4	9.2	MW-8-13.0		
		FILL, silty gravel with sand, grey, loose, wet, no odor, minor wood debris.	FILL		100	3/4/4	7.1	MW-8-14.5		
15		FILL, silty gravel with sand, grey, loose, wet, no odor, minor wood debris.	FILL		100	4/5/5	8	MW-8-16.0		

Well Construction Information

Monument Type:	Steel Flush Mount	**Filter Pack:**	#2/12 Medium Monterey Sand
Casing Diameter (inches):	4" PVC	**Surface Seal:**	Concrete
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite Chips
Screened Interval (ft bgs):	24.5 to 29.5		

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 38.20
Boring Abandonment: Bentonite backfill.
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-8

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
		FILL, silty sand to sandy silt with gravel, grey-brown, loose, wet, no odor.	FILL		50	5/6/6		MW-8-17.5		
		FILL, poorly graded silty sand with gravel, fine sand, grey, loose, wet, no odor.	FILL		100	4/4/5	5.4	MW-8-19.0		
20		FILL, poorly graded silty sand, fine sand, dark-grey, loose, wet, no odor.	FILL		100	4/5/5	5.2	MW-8-20.5		
		FILL, silty sand with gravel, dark-grey, loose, wet, no odor.	FILL		70	4/5/5		MW-8-22.0		
		FILL, silty sand to sandy silt with gravel, dark brown, loose, wet, no odor, fragments of wood.	FILL		100	3/3/3	5.2	MW-8-23.5		
		FILL, sandy silt minor gravel, grey, medium stiff, wet, no odor.	FILL		100	3/3/4	4.3	MW-8-25.0		
25		FILL, sandy silt with gravel, grey, very stiff, wet, no odor, trace roots.	FILL		70	4/8/12		MW-8-26.5		Sand Pack
		FILL, silty sand with gravel, angular gravel, grey, medium dense, wet, no odor	FILL		20	4/8/8		MW-8-28.0		
		Silty GRAVEL with sand, rounded coarse gravel, fine to coarse sand, grey, dense, wet, no odor.	GM		90	48/50/50	4.5	MW-8-29.5		Screen
30		Silty GRAVEL with sand, coarse gravel, grey, dense, wet, no odor.	GM		90	50/50/50	5.3	MW-8-31.0		
		SAND with silt, with gravel, sand is medium to coarse, grey, very dense, wet, no odor.	SP-SM		100	0/6"-150	15.5	MW-8-31.5		Bentonite

Well Construction Information

Monument Type:	Steel Flush Mount	Filter Pack:	#2/12 Medium Monterey Sand
Casing Diameter (inches):	4" PVC	Surface Seal:	Concrete
Screen Slot Size (inches):	0.010	Annular Seal:	Bentonite Chips
Screened Interval (ft bgs):	24.5 to 29.5		

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 38.20
Boring Abandonment: Bentonite backfill.
Surveyed Location: X: NA Y: NA

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. AE016961

Construction/Decommission

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Consulting Firm: Clearcreek Contractor's

Property Owner: Sauro's Cleanerama

Site Address: 1401 Pacific Ave

City: Tacoma County: 27-Pierce

EWM

Unique Ecology Well ID
Tag No.: AUB401

Location: 1/4 SW 1/4 NW Sec 4 Twn 20N R 3E or ___ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

☒ Driller ☐ Trainee Name (Print) David Gose

Driller/Trainee Signature: x

Driller/Trainee License No.: 2744

Tax Parcel No. _____

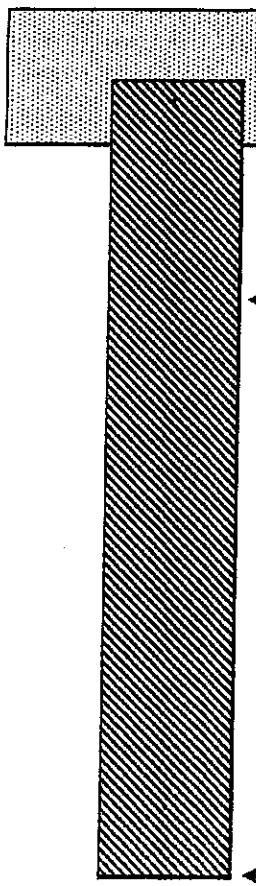
Cased or Uncased Diameter: 4" Static Level: 16'

Work/Decommission Start Date: 9/4/2009

If trainee, licensed driller's Signature and License No. _____

Work/Decommission Completed Date: 9-4-09

Construction/Design — Well Data W09-456 — Formation Description



CONCRETE SURFACE SEAL 1' FT — 0 - ___ FT

BACKFILL 29'6" FT — 0 - ___ FT

bentonite

REQUIRED INFORMATION
(Must get one or both if available)

DEPT OF ECOLOGY WELL TAG #: AUB401

CLIENT WELL ID #: MW8

DEPTH OF BORING 30'6" FT

Scale 1" = _____

ECY 050-12 (Rev 2/01)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-9

Client:
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: Farallon/A. Morine

Date/Time Started:	5/12/04 1450	**Sampler Type:**	D&M SS, SPT
Date/Time Completed:	5/13/04 1000	**Drive Hammer (lbs.):**	140, Auto Ham
Equipment:	CME 75	**Depth of Water ATD (ft bgs):**	6
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	NA
Drilling Foreman:	Scott	**Total Well Depth (ft bgs):**	18
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 6/6/6	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		FILL, silty sand and gravel, brown, dense, moist, no odor, pieces of brick and concrete.	FILL		100	22/50-5"	6.1	MW-9-3.0		Concrete
5		No recovery, no sample collected.			0	50-0"				Bentonite
		Silty SAND with gravel, fine to coarse sand, tan, very dense, wet, no odor.	SM		100	50-6"	6.4	MW-9-6.5		
		Silty SAND with gravel, fine to coarse sand, tan, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SM		80	35/37/40	6.3	MW-9-9.5	X	
10		SAND with gravel and silt, medium sand, brown, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SP-SM		95	37/40/45	5.8	MW-9-11.0		
		No recovery, broken sampler.			0					Sand Pack
		SAND with silt, trace gravel, medium sand, brown, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SP-SM		70	19/25/32	5.2	MW-9-14.5		Screen
15		Silty SAND with gravel, angular gravel, brown, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SM		100	37/80/100	10.1	MW-9-16.0		
		SAND with gravel, with silt, angular gravel, brown, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SP-SM		80	30/62/70	12.1	MW-9-18.0		
		Silty SAND with gravel, fine sand, grey-brown, very dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SM		100	19/27/32	14.2	MW-9-20.0		Bentonite
20		SAND with gravel, fine to coarse sand, brown, dense, wet, no odor. Sampled with the SPT and Auto Hammer.	SP		10	37/50/90	8.6	MW-9-22.0		

Well Construction Information

Monument Type:	Steel Flush Mount	**Filter Pack:**	#2/12 Medium Monterey Sand
Casing Diameter (inches):	2" PVC	**Surface Seal:**	Concrete
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite Chips
Screened Interval (ft bgs):	5 to 18		

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 38.72
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. AE069961

Construction/Decommission

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number.* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Sauro's Cleanerama

Site Address 1401 Pacific Ave

Consulting Firm Clearcreek Contractor's

City Tacoma County 27-Pierce

EWM

Unique Ecology Well ID
Tag No. ALB402

Location 1/4 SW 1/4 NW Sec 4 Twn 20N R 3E or ____ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☒ Driller ☐ Trainee Name (Print) David Gose

Driller/Trainee Signature x

Driller/Trainee License No. 2744

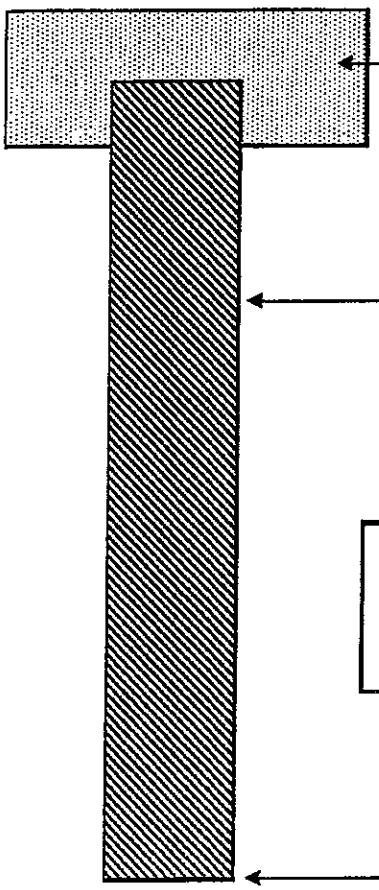
Cased or Uncased Diameter 4" Static Level 3'

Work/Decommission Start Date 9/4/2009

If trainee, licensed driller's Signature and License No. _____

Work/Decommission Completed Date 9-4-09

Construction/Design — Well Data W09-456 — Formation Description



CONCRETE SURFACE SEAL _____ FT — 0 - _____ FT

BACKFILL 17'6" FT — 0 - _____ FT

bentonite

REQUIRED INFORMATION
(Must get one or both if available)

DEPT OF ECOLOGY WELL TAG #: AUB402

CLIENT WELL ID #: MW9

DEPTH OF BORING 18'6" FT

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev 2/01)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-10

Client:
Project: Former Sauro's Cleanerama
Location: Tacoma, Washington
Farallon PN: 899-001
Logged By: Farallon/A. Morine

Date/Time Started:	5/13/04 1515	**Sampler Type:**	D&M SS 18"x2"
Date/Time Completed:	5/13/04	**Drive Hammer (lbs.):**	140
Equipment:	CME 75	**Depth of Water ATD (ft bgs):**	17
Drilling Company:	Cascade Drilling	**Total Boring Depth (ft bgs):**	36.5
Drilling Foreman:	Scott	**Total Well Depth (ft bgs):**	23
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
0		No recovery.			0	50-6"				Concrete
5		FILL, silty sand with gravel, fine to medium sand, brown, loose, brown, moist, no odor, brick pieces.	FILL		60	6/6/4	0.0	MW-10-6.5		Bentonite
		FILL, silty sand with gravel, fine to medium sand, brown, medium dense, moist, no odor, brick pieces, possible concrete.	FILL		100	10/7/6	0.0	MW-10-8.0		
		FILL, silty sand with gravel, fine to medium sand, brown, medium dense, moist, no odor, brick pieces.	FILL		40	6/7/7	0.0	MW-10-9.5		
10		FILL, silty sand with gravel, fine to medium sand, grey-brown, medium dense, moist, no odor.	FILL		50	8/9/10	0.0	MW-10-11.0		
		FILL, silty sand with gravel, fine to medium sand, light brown, medium dense, moist, no odor.	FILL		80	7/8/9	0.0	MW-10-12.5	X	
		FILL, silty sand with gravel, fine sand, rounded gravel, light brown, medium dense, moist, no odor.	FILL		100	6/7/7	0.0	MW-10-14.0		
15		FILL, silty sand with gravel, fine sand, rounded gravel, light brown, medium dense, moist, no odor.	FILL		35	3/7/8	0.0	MW-10-15.5		
		FILL, silty sand with gravel, fine sand, rounded gravel, light brown, medium dense, wet, no odor.	FILL		80	7/8/8	0.0	MW-10-17.0		
		FILL, silty sand with gravel, fine to coarse sand, well graded, black, loose, musty odor, wood pieces.	FILL		65	4/5/6	0.0	MW-10-18.5		

Well Construction Information

Monument Type:	Steel flush mount	**Filter Pack:**	#2/12 Medium Monterey Sand
Casing Diameter (inches):	4" PVC	**Surface Seal:**	Concrete
Screen Slot Size (inches):	0.010	**Annular Seal:**	Bentonite Chips
Screened Interval (ft bgs):	13 to 23		

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 49.35
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

Log of Boring: MW-10

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
		FILL, silty gravel with sand, grey-brown, loose, wet.	FILL		20	3/3/4		MW-10-20.0		Screen
20		FILL, silty gravel with sand to silty sand with gravel, black, medium dense, wet, unidentifiable odor, wood fragments.	FILL		70	5/6/7	0.0	MW-10-21.5		Sand Pack
		FILL, silty gravel with sand to silty sand with gravel, black, medium dense, wet, no odor, wood fragments.	FILL		100	8/10/10	0.0	MW-10-23.0		
		FILL, sandy silt with gravel, coarse to fine sand, coarse to fine gravel, stiff, wet, no odor, wood fragments.	FILL		90	7/8/8	0.0	MW-10-24.5		
25		FILL, sandy silt with gravel, coarse to fine sand, coarse to fine gravel, stiff, wet, no odor, wood fragments.	FILL		5	4/5/5				
		FILL, silty gravel with sand, dark grey, dense, wet, no odor, wood fragments, brick pieces.	FILL		100	10/15/18	0.0	MW-10-27.5		
		FILL, silty sand with gravel, fine to coarse sand, dark grey, dense, wet, no odor, wood pieces.	FILL		25	16/22/9		MW-10-29.0		Bentonite
30		FILL, silty sand with gravel, fine to coarse sand, dark grey, loose, wet, no odor, wood pieces.	FILL		30	7/4/4		MW-10-30.5		
		No recovery.			0	6/7/7				
		Poorly graded SAND with gravel, minor silt, fine to medium sand, angular to rounded gravel, grey, very dense, wet, no odor.	GP-GM		90	23/60/70	0.0	MW-10-33.5		
		Poorly graded SAND with gravel, minor silt, fine to medium sand, angular to rounded gravel, grey, very dense, wet, no odor.	GP-GM		100	50/70/80	0.0	MW-10-35.0		
35		Well graded SAND with silt, with gravel, grey, very dense, wet, no odor.	GM			50/90/100	0.0	MW-10-36.5		

Well Construction Information

Monument Type:	Steel flush mount	Filter Pack:	#2/12 Medium Monterey Sand
Casing Diameter (inches):	4" PVC	Surface Seal:	Concrete
Screen Slot Size (inches):	0.010	Annular Seal:	Bentonite Chips
Screened Interval (ft bgs):	13 to 23		

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): 49.35
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. AE069061

Construction/Decommission

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner: Sauro's Cleanerama

Site Address: 1401 Pacific Ave

Consulting Firm: Clearcreek Contractor's

City: Tacoma County: 27-Pierce

EWM

Unique Ecology Well ID

Tag No. _____

Location 1/4 SW 1/4 NW Sec 4 Twn 20N R 3E or ___ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☒ Driller ☐ Trainee Name (Print) David Gose

Driller/Trainee Signature x _____

Driller/Trainee License No. 2744

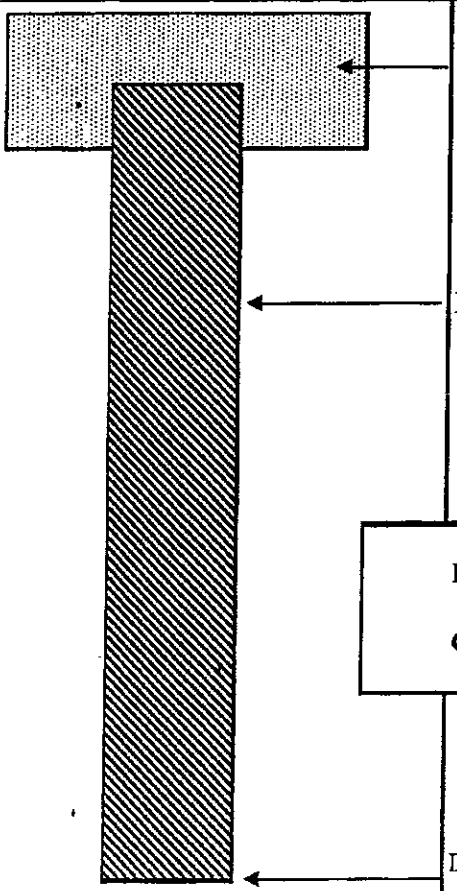
Cased or Uncased Diameter 4" Static Level 18'

Work/Decommission Start Date 9/4/2009

If trainee, licensed driller's Signature and License No. _____

Work/Decommission Completed Date 9-4-09

Construction/Design | Well Data W09-456 | Formation Description



CONCRETE SURFACE SEAL 1' FT — 0 - ___ FT

BACKFILL 23' FT — 0 - ___ FT

bentonite

REQUIRED INFORMATION
(Must get one or both if available)

DEPT OF ECOLOGY WELL TAG #: NO Tag

CLIENT WELL ID #: MW-10

DEPTH OF BORING 24' FT

Scale 1" = _____ Page _____ of _____

ECY 050-12 (Rev=v 2/01)

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: MW-11S

DRAFT

Client: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/21/07 0920	Sampler Type:	D&M SS 18"x2"
Date/Time Completed:	05/21/07 1200	Drive Hammer (lbs.):	300
Equipment:	CME 75	Depth of Water ATD (ft bgs):	13
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	25
Drilling Foreman:	James Gobel	Total Well Depth (ft bgs):	25
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0										Concrete
		3 - 3.5: SAND, fine to medium, with fine coarse gravel and silt, brown, dense, moist, no odor. 3.5 - 4.5: SAND, fine to medium, with fine to coarse gravel, brown, dense, moist, no odor, trace organics	SP		100	31/25/26	0.9	MW11S-3		Casing
5										Bentonite
		8 - 8.5: SAND, fine to medium, with fine to coarse gravel and silt, dark brownish-black, dense, moist, no odor. 8.5 - 9: SAND, fine, trace silt, light brown, dense, moist, no odor.	SP		100	37/50 for 6	0.5	MW11S-8		
10		9 - 9.5: sandy GRAVEL, medium sand, fine to coarse gravel, trace silt, brown, moist, no odor.	GP							Screen
										▼
										Sand
15		Sampler split in half, drilled to 20' to get past.								
										Screen
20		silty SAND, fine to medium, with gravel, fine to coarse, dark grey, dense, moist, no odor	SP		100	21/31/30	0.1	MW11S-21		Sand
										Screen
25		Same as above, wet	SP		50	50 for 6	0.1	MW11S-24.5		

Well Construction Information

Monument Type:	Flush mount	Filter Pack:	Sand	Ground Surface Elevation (ft):	NA
Casing Diameter (Inches):	4	Surface Seal:	Concrete	Top of Casing Elevation (ft):	NA
Screen Slot Size (inches):	NA	Annular Seal:	Bentonite	Boring Abandonment:	NA
Screened Interval (ft bgs):	10-25			Surveyed Location: X: NA	Y: NA

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. AE06961

Construction/Decommission

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Sauro's Cleanerama

Site Address 1401 Pacific Ave

Consulting Firm Clearcreek Contractor's

City Tacoma County 27-Pierce

EWM

Unique Ecology Well ID
Tag No. APF 497

Location 1/4 SW 1/4 NW Sec 4 Twn 20N R 3E or ___ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☒ Driller ☐ Trainee Name (Print) David Gose

Driller/Trainee Signature x

Driller/Trainee License No. 2744

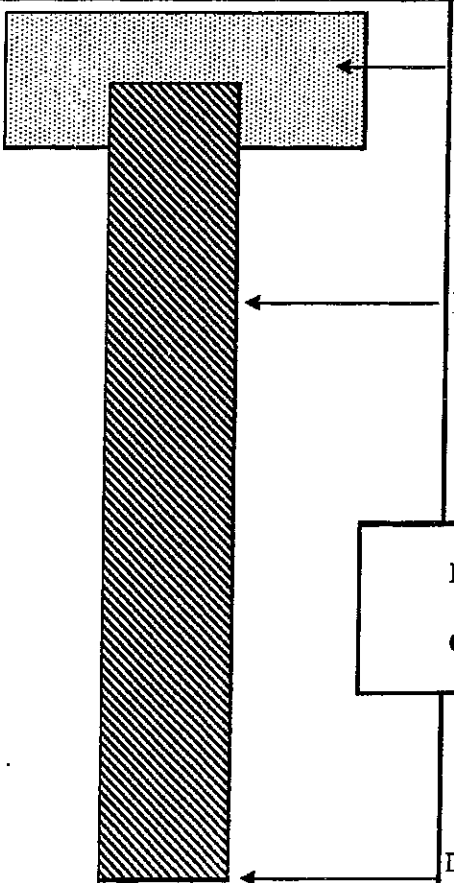
Cased or Uncased Diameter 4" Static Level 18'

Work/Decommission Start Date 9/4/2009

If trainee, licensed driller's Signature and License No. _____

Work/Decommission Completed Date 9-4-09

Construction/Design | Well Data W09-456 | Formation Description



CONCRETE SURFACE SEAL 1 FT — 0 - ___ FT

BACKFILL 23' FT — 0 - ___ FT

bentonite

REQUIRED INFORMATION
(Must get one or both if available)

DEPT OF ECOLOGY WELL TAG #: APF 497

CLIENT WELL ID #: MW 11S

DEPTH OF BORING 24' FT

Scale 1" = _____ Page _____ of _____

ECY 050-12 (Rev 2/01)

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: MW11D

DRAFT

nt: Estate of Pete Sauro
Project: Former Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/21/07 1230	Sampler Type:	D&M SS 18"x2"
Date/Time Completed:	05/21/07	Drive Hammer (lbs.):	300
Equipment:	CME 75	Depth of Water ATD (ft bgs):	NA
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	50
Drilling Foreman:	James Gobel	Total Well Depth (ft bgs):	50
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		Same as MW-11S to 25 feet.								Concrete
5										Casing
										Bentonite
10										Casing
										Bentonite
15										Casing
										Bentonite
20										Casing

Well Construction Information

Monument Type: Flush mount
Casing Diameter (inches): 4
Screen Slot Size (inches): NA
Screened Interval (ft bgs): 45-50

Filter Pack: Sand
Surface Seal: Concrete
Annular Seal: Bentonite

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: MW11D

DRAFT

Depth (feet)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Well Construction Details
25		silty SAND, fine, minor fine to coarse gravel, dark grey, dense, no odor	SP		100	37/50 for 6	0.1	MW11-25		Bentonite
										Casing
30		SAND, fine to medium, trace silt, grey,dense, wet, no odor	SP		60	32/50 for 6	0.4	MW11-30		Bentonite
										Casing
35		GRAVEL, fine, trace silt, greyish-brown, wet, no odor. 1" pocket of medium sand, brown, at bottom of sampler	GM		40	50 for 6	0.1	MW11-35		Bentonite
40		GRAVEL, fine to coarse, with medium sand, brown, wet, no odor	GP		80	31/50 for 6	0.2	MW11-40		Casing
		SAND, medium to coarse, trace silt, brown, dense, wet, no odor. Lower 1-2": SILT, trace fine sand, dark grey, very stiff, moist, no odor	SP							
45		GRAVEL, fine to coarse, with fine to medium sand, minor silt, grey, wet, no odor	GP		75	21/20/ 26	0.1	MW11-45		Sand
										Screen
50		Sampler filled due to heave. Upper 6": sandy GRAVEL, fine to coarse, medium to coarse sand, trace silt, grey, wet, no odor. lower 12": GRAVEL, fine to coarse, with sand, medium to coarse, trace silt, grey, wet, no odor.	GP		100	50 for 6	0.1	MW11-49.5		Sand

Well Construction Information

Monument Type: Flush mount
Casing Diameter (inches): 4
Screen Slot Size (inches): NA
Screened Interval (ft bgs): 45-50

Filter Pack: Sand
Surface Seal: Concrete
Annular Seal: Bentonite

Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA
Boring Abandonment: NA
Surveyed Location: X: NA Y: NA

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. AE06961

Construction/Decommission

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Sauro's Cleanerama

Site Address 1401 Pacific Ave

Consulting Firm Clearcreek Contractor's

City Tacoma County 27-Pierce

EWM

Unique Ecology Well ID
Tag No. APF 496

Location 1/4 SW 1/4 NW Sec 4 Twn 20N R 3E or ____ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☒ Driller ☐ Trainee Name (Print) David Gese

Driller/Trainee Signature x _____

Driller/Trainee License No. 2744

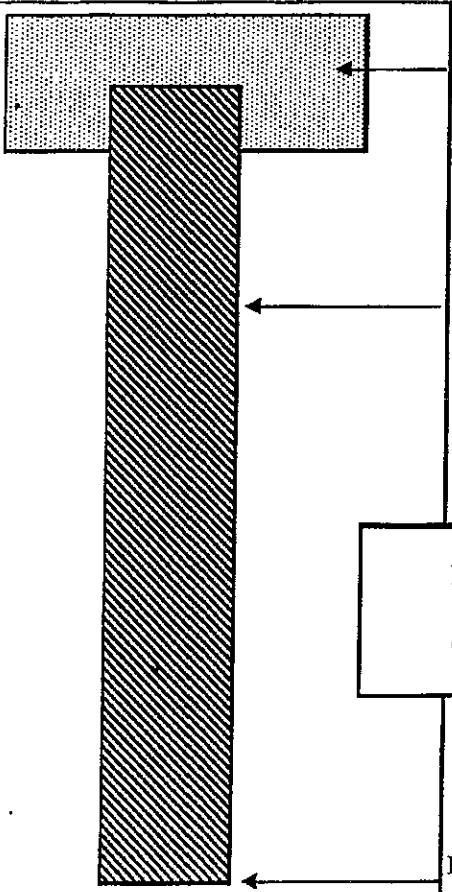
Cased or Uncased Diameter 4" Static Level 17'6"

Work/Decommission Start Date 9/4/2009

If trainee, licensed driller's Signature and License No. _____

Work/Decommission Completed Date 9-4-09

Construction/Design — Well Data W09-456 — Formation Description



CONCRETE SURFACE SEAL	2' FT	0 -	FT
BACKFILL	48' FT	0 -	FT
bentonite			

REQUIRED INFORMATION
(Must get one or both if available)

DEPT OF ECOLOGY WELL TAG # : APF 496

CLIENT WELL ID #: mw11D

DEPTH OF BORING 50' FT

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev 2/01)

FARALLON CONSULTING
975 5th Avenue Northwest
Issaquah, WA 98027

Log of Boring: MW-12

Client: Estate of Pete Sauro
Project: Sauro's Cleanerama
Location: Tacoma, WA
Farallon PN: 899-001
Logged By: J. Cyr

Date/Time Started:	05/22/07 1110	Sampler Type:	D&M SS 18"x2"
Date/Time Completed:	05/22/07	Drive Hammer (lbs.):	300
Equipment:	CME 75	Depth of Water ATD (ft bgs):	14
Drilling Company:	Cascade Drilling	Total Boring Depth (ft bgs):	36 5
Drilling Foreman:	James Gobel	Total Well Depth (ft bgs):	27
Drilling Method:	Hollow Stem Auger		

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (units)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		SAND, fine to medium, with silt. trace fine gravel, brown, loose, moist, solvent odor	SP		100	3/4/8	92 8	MW12-3		Cement
5		Top 3": SAND, fine to medium, minor silt and gravel, brown, loose, moist, possible slight odor; Remainder: same as 3-4' sample with fine to coarse gravel, slight odor	SP		100	4/5/4	123	MW12-8		Casing
10		Top 3": SAND, fine to medium. with silt and fine to coarse gravel, brown, very loose, moist, solvent odor and brick pieces	SP		75	4/3/3	322	MW12-13		Bentonite
15		Lower 3":GRAVEL, coarse, with medium sand. brown, wet, some petrol odor, some black slag	GP							Screen
20		SAND, medium to coarse, with fine gravel and silt, dark brown, loose, wet, slight petrol odor	SP		100	6/6/5	126	MW12-20		Sand
25		Top 3": SAND, fine to medium, minor coarse gravel, trace silt, bluish-grey, loose. wet, no odor, wood pieces	SP		80	6/6/7	205	MW12-25		Screen
		Next 6": SILT, minor fine to medium sand, dark brownish-black, medium stiff, moist, no odor, wood pieces	ML							Sand
			GP							Bentonite
30		Bottom 3": GRAVEL, fine, minor medium sand, brown, wet, no odor	GP		50	50 for 6	13 0	MW12-30		Backfill
		GRAVEL, fine to coarse, minor medium sand, brown, wet, no odor								
35		Top 9": SAND, coarse, with fine gravel, grey, dense, wet, no odor	SP		60	50 for 6	44 3	MW12-35		Sand
		Bottom 9": SAND, fine to medium, minor fine gravel, grey, dense, wet, no odor	SP							

Well Construction Information

Monument Type: Flush mount
Casing Diameter (inches): 4
Filter Pack: 2/12 Sand
Ground Surface Elevation (ft): NA
Top of Casing Elevation (ft): NA

Screen Slot Size (inches):	NA	Surface Seal:	Concrete	Boring Abandonment:	NA
Screened Interval (ft bgs):	10-27	Annular Seal:	Bentonite	Surveyed Location: X: NA	Y: NA

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT
Notice of Intent No. AE06961

Construction/Decommission

☐ Construction

☒ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Sauro's Cleanerama

Site Address 1401 Pacific Ave

Consulting Firm Clearcreek Contractor's

City Tacoma County 27-Pierce

EWM

Unique Ecology Well ID
Tag No. AGG811

Location 1/4 SW 1/4 NW Sec 4 Twn 20N R 3E or ____ WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

Lat/Long (s,t,r still Required) Lat Deg _____ Lat Min/Sec _____ Long Deg _____ Long Min/Sec _____

Tax Parcel No. _____

☒ Driller ☐ Trainee Name (Print) David Gose

Driller/Trainee Signature x _____

Driller/Trainee License No. 2744

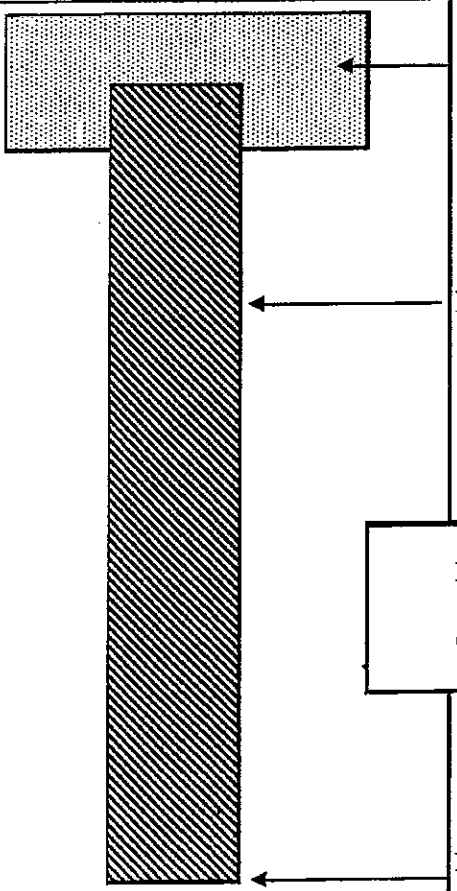
Cased or Uncased Diameter 4" Static Level 18'

Work/Decommission Start Date 9/4/2009

If trainee, licensed driller's Signature and License No. _____

Work/Decommission Completed Date 9-4-09

Construction/Design — Well Data W09-456 — Formation Description



CONCRETE SURFACE SEAL 1' FT — 0 - ____ FT

BACKFILL 24'6" FT — 0 - ____ FT

bentonite

REQUIRED INFORMATION
(Must get one or both if available)

DEPT OF ECOLOGY WELL TAG #: AGG811

CLIENT WELL ID #: MW12

DEPTH OF BORING 25'6" FT

Scale 1" = _____

ECY 050-12 (Rev 2/01)

APPENDIX G

Underground Storage Tank Decommissioning and Removal Documentation

LETTER OF TRANSMITTAL

Clearcreek CONTRACTORS Environmental/Civil
3203 15th Street
Everett, WA 98201
Tel: [425] 252-5800
Fax: [425] 252-1093
www.clearcreekcon.com

TO: City of Tacoma Public Works
747 Market Street
Room 620

ATTENTION: Mark Henry
DATE: 1/18/2010
PROJECT: Sauro Property Cleanup
JOB NO: 209052 TRANSMITTAL NO: 30

CC: «copyto»

WE ARE SENDING YOU THE FOLLOWING ITEMS:

ITEM	COPIES	DESCRIPTION
Permit	1	TFD Approved UST Removal Permit
Certificate	1	Pump & Rinse for 300-gallon UST
Certificate	1	Pump & Rinse for 500-gallon UST
Weight Ticket	1	Disposal Ticket for USTs

REMARKS:

UST Removal Backup Documentation

Tacoma Fire Department
Fire Prevention Bureau 253.591.5740
FAX Number 253.594.7943
3471 S. 35th St. Tacoma, WA 98409
www.tacomafiredepartment.org

Permit Application #2000.3 Underground Tank – Removal or Decommissioning - Commercial
Permit Fee: $225.00 per site

To be completed by the Permit Applicant (type in the grey box or print out and complete)

Business Information			
Date:	**11/19/09**	Projected Start Date: **11/30/09**	
Business Name:	**City of Tacoma/Former Cleanerama**		
Address:	Street **1401 Pacific Avenue**	State **WA**	Zip **98402**
Site Address:	(if different from above)		
Contact Name:	Darren Ness - Clearcreek Contractors		
Phone:	**(425)** 252.5800	Alternate Phone/Cell: **(206)** 714.1166	
E-mail Address:	**DarrenN@clearcreekcon.com**		
City of Tacoma Business License: **0400017429**	Washington State Contractor License: **CLEARCI997K1**	ICC UST Certification # **1042763-U2**	
Comments:			

Please include a check made payable to the CITY OF TACOMA TREASURER, or request an invoice.

☒ Check this box to have the applicant invoiced for the permit fee.

FPB OFFICIAL USE ONLY			
Approved By:	B. Trunk	Date:	11/20/09
Denied: ☐	Reason for Denial:		
Comments:			
Permit Number:	pending		
Permit Fees:	Date Received: 11/20/09	Receipt Number: 11796	Check Number: 010505

See attached documentation for description of conditions that must be met prior to the issuance of this permit.

-Underground Tank-

7343 E. MARGINAL WAY SOUTH
SEATTLE, WASHINGTON 98108
PH. (206) 832-3000
FAX (206) 832-3030
24 HOUR EMERGENCY PHONE: 1-888-832-3008

209052
51476

BILL OF LADING AND GALLONAGE TICKET

SHIPPER/GENERATOR Clear Creek Construction	CONTACT	JOB # 3064724
ADDRESS Jobsite 1401 Pacific Ave	PHONE#	LOAD # (
CITY, STATE, ZIP Tacoma, WA		DATE 12/14/09
CARRIER Emerald Services Seattle, WA	PHONE#	DOCUMENT # 51476
CONSIGNEE Emerald Recycling Services	CONTACT	TRUCK # 777
ADDRESS 1500 Air Dock Interlake	PHONE#	PRODUCT TYPE Liquid
CITY, STATE, ZIP Seattle, WA		EST. GALLONS 1,500

HM	ITEM #	U.S. DOT DESCRIPTION	#	TYPE	QTY.
	A	Non-Regulated Materials by D.O.T.	1	T	22 Tanks
	B				
	C				
	D				

A. WPQ # _____ DISP. CODE: 600501 C. WPQ # _____ DISP. CODE: _____

B. WPQ # _____ DISP. CODE: _____ D. WPQ # _____ DISP. CODE: _____

DISPOSAL

DUMP DELAY TIME _____

WASH OUT: YES (✓) NO ( ) TIME IN _____ TIME OUT _____

E. WATER _____ GALLONS LOCATION _____ TEST _____ DISP. CODE _____

F. SOLIDS _____ GALLONS LOCATION _____ TEST _____ DISP. CODE _____

_____ % SUSPENDED SOLIDS BY CENTRIFUGE + _____ GALS SEDIMENT

G. OIL/DIESEL/GAS _____ GALLONS LOCATION _____ TEST _____ DISP. CODE _____

HOC'S _____ PCB'S _____ B.S.&W. _____ API _____ LAB: Y / N

Shipper's Certification: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway, vessel and rail according to applicable international and national government regulations and this material is not regulated as a hazardous waste in accordance with WAC 173-303, 40 CFR Part 261 or 40 CFR Part 761.

X Jim Burke — SHIPPER (PRINT NAME) X [signature] — SIGNATURE DATE: 12/14/09

X Charles Stumpf — CARRIER - DRIVER 1 (PRINT NAME) X [signature] — SIGNATURE DATE: 12/14/09

X _____ — CARRIER - DRIVER 2 (PRINT NAME) X _____ — SIGNATURE DATE: _____

X _____ — CONSIGNEE (PRINT NAME) X _____ — SIGNATURE DATE: _____

G-2

CUSTOMER

EMERALD SERVICES INC
www.emeraldnw.com

7343 E. MARGINAL WAY SOUTH
SEATTLE, WASHINGTON 98108
PH. (206) 832-3000
FAX (206) 832-3030
24 HOUR EMERGENCY PHONE: 1-888-832-3008

209052
51572

BILL OF LADING AND GALLONAGE TICKET

SHIPPER/GENERATOR Clear Creek	CONTACT	JOB # 30-64724
ADDRESS 11101 Pacific Ave	PHONE#	LOAD # 1
CITY, STATE, ZIP Tacoma WA		DATE 12-15-09
CARRIER E S I	PHONE#	DOCUMENT # 51572
CONSIGNEE EPS	CONTACT	TRUCK # 737
ADDRESS 1500 airport way SO	PHONE#	PRODUCT TYPE L
CITY, STATE, ZIP Seattle WA		EST. GALLONS 3

HM	ITEM #	U.S. DOT DESCRIPTION	#	TYPE	QTY.
	A	1011 Regulated liquid waste	1	TT	50
	B	1 by DOT			
	C				
	D				

A. WPQ # _____ DISP. CODE: B00501 C. WPQ # _____ DISP. CODE: _____

B. WPQ # _____ DISP. CODE: _____ D. WPQ # _____ DISP. CODE: _____

DISPOSAL

DUMP DELAY TIME _____

WASH OUT: YES ( ) NO ( ) TIME IN _____ TIME OUT _____

E. WATER _____ GALLONS LOCATION _____ TEST _____ DISP. CODE _____

F. SOLIDS _____ GALLONS LOCATION _____ TEST _____ DISP. CODE _____

_____ % SUSPENDED SOLIDS BY CENTRIFUGE + _____ GALS SEDIMENT

G. OIL/DIESEL/GAS _____ GALLONS LOCATION _____ TEST _____ DISP. CODE _____

HOC'S _____ PCB'S _____ B.S.&W. _____ API _____ LAB: Y / N

Shipper's Certification: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway, vessel and rail according to applicable international and national government regulations and this material is not regulated as a hazardous waste in accordance with WAC 173-303, 40 CFR. Part 261 or 40 CFR Part 761.

X Tom Dolk — SHIPPER (PRINT NAME) — X _____ SIGNATURE — DATE: _____

X Ricky Ewing — CARRIER - DRIVER 1 (PRINT NAME) — X _____ SIGNATURE — DATE: 12-15-09

X _____ CARRIER - DRIVER 2 (PRINT NAME) — X _____ SIGNATURE — DATE: _____

X _____ CONSIGNEE (PRINT NAME) — X _____ SIGNATURE — DATE: _____

G-2

CUSTOMER

SEATTLE IRON & METALS CORP.

601 S. MYRTLE ST. • SEATTLE, WASHINGTON 98108
(206) 682-0040 • FAX: (206) 623-1231

dealers and brokers...

IRON AND STEEL SCRAP • NON-FERROUS METALS • STEEL PRODUCTS

Control# 351749

Date: 12-23-2009 Notes:
Prepared By:
Check#
VID# 6523
CLEAR CREEK CONTRACTORS
3015 Everett Avenue
Everett, WA 98201
Paid To

Retail Ticket

Commodity	Gross	Tare	Tare2	Net	UM	Price	Total
Unprepared Scrap	20,900	20,140		760	N	130.0000	49.40
	20,900	20,140		760			49.40

I, the undersigned, affirm under penalty of law that, to the best of my knowledge, the property that is subject to this transaction is not stolen property.

Signed_____ Date_____

PAID

SEATTLE IRON & METALS COR

209052

Received cash 12/28/09

Certificate of Weight

Issued under authority of City of Seattle Ord. 7.04.580

SEATTLE IRON & METALS CORP.

601 South Myrtle Street Seattle, WA 98108 206-682-0040

Date

Ticket #

Weighed for: CLEAR CREEK

Driver: On Off

Commodity	Price	
S	130-	Gross lbs. 20900 lb
	PAID	Tare lbs. 20140 lb
12 23 09 9:53 AM		Net lbs. 760 lb
cc# 34	1404	581726

SEATTLE IRON & METALS CORP.

I, the undersigned, certify that the weights indicated hereon are true and correct and do hereby impress the seal of the above licensed city weighmaster in authentication thereof.

Weighed by _____

Licensed City Weigher

KS100 (7/99)

ORIGINAL

APPENDIX H

Groundwater Screening Levels for Vapor Intrusion Pathway - Calculations

TABLE H-1
UNRESTRICTED LAND USE VAPOR INTRUSION SCREENING CRITERIA SUMMARY
SAURO'S PROPERTY RI/FS
TACOMA, WASHINGTON

Constituent of Concern	MTCA Method B		Screening Levels Protective of MTCA Method B			
	Air (µg/m^3)		Soil Gas (µg/m^3)		Groundwater (µg/L)	
	CUL (Carc.)	CUL (Non-Carc.)	SL (Carc.)	SL (Non-Carc.)	SL (Carc.)	SL (Non-Carc.)
PCE	9.6	18	320	610	24	47
TCE	0.37	0.91	12	30	1.6	3.8
VC	0.28	46	9.5	1500	0.35	56

= Most Conservative Cleanup Levels (CUL) or Screening Level (SL)

Carc. = Carcinogenic
CLARC = Cleanup Levels and Risk Calculations
CUL = Cleanup Level
IAALs = Indoor Air Action Levels
Non-Carc. = Non-Carcinogenic
PCE = Tetrachloroethene
TCE = Trichloroethene
µg/m3 = Micrograms per Cubic Meter
µg/L = Micrograms per Liter
VC = Vinyl Chloride

(a) Soil gas screening levels are provide for reference only. No soil gas data was collected during the remedial investigation.

TABLE H-2
UNRESTRICTED MTCA METHOD B CARCINOGENIC RISK CLEANUP LEVELS AND SCREENING LEVELS FOR TETRACHLOROETHENE
SAURO'S PROPERTY RI/FS
TACOMA, WASHINGTON

Given:

$IUR_{PCE}(\mu g/m^3)$	=	0.00000026	***Inhalation unit risk (IUR) from EPA IRIS Database last updated 2/10/12***
H_{cc} @ 13° Celsius (C)	=	0.393	***Henry's Law Constant (H_{cc}) from EPA On-line Tools for Site Assessment***

Constants from MTCA Equation 750-2, for Carcinogens with reduced RISK per WAC 173-340-750 (4)(b)(ii)(B)

RISK	=	1.E-06	Acceptable cancer risk level
ABW (kg)	=	70	Average body weight over exposure duration
AT (yr)	=	75	Averaging time
UCF (µg/mg)	=	1000	Unit conversion factor
CPF	=	Carcinogenic potency factor per WAC 173-340-708(8) (kg-day/mg)	
BR (m^3/day)	=	20	Breathing/inhalation rate
ABS (unitless)	=	1	Inhalation absorption fraction
ED (yr)	=	30	Exposure duration
EF (unitless)	=	1	Exposure frequency

Find: (a) CPF, (b) Indoor Air Cleanup Level (CUL_{IA}), (c) Soil Gas Screening Level (SL_{SG}), and (d) Shallow GW Screening Level (SL_{GW})

Equations:

(1) CPF (kg-day/mg) = $\frac{IUR \times ABW \times UCF}{BR}$ ***From EPA Risk Assessment Guidance for Superfund Appendix E***

(2) CUL_{IA} ($\mu g/m^3$)= $\frac{RISK \times ABW \times AT \times UCF}{CPF \times BR \times ABS \times ED \times EF}$ ***MTCA Equation 750-2***

(3) SL_{SG} ($\mu g/m^3$) = SL_{IA} /VAF

Eqn 2. Generic soil gas VI SLs from Ecology's Draft Vapor Intrusion Guidance Document

The sub-slab soil gas screening level is based on a Vapor Attenuation Factor (VAF) of 0.03, per EPA's updated database (EPA's Vapor *Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings* ; EPA 530-R-10-002. *March 16, 2012) and communications with Ecology.*

(4) SL_{GW} (µg/L) = $\frac{SL_{IA}}{VAF \times UCF \times H_{cc}}$

Eqn 1. Generic groundwater VI SLs from Ecology's Draft Vapor Intrusion Guidance Document

VAF = 0.001 (unitless; default)

UCF = 1000 L/m^3

H_{cc} = Chemical- and temperature-dependent value. H_{cc} values are based on an average Washington shallow groundwater temperature of 13 °C, consistent with Ecology's draft vapor intrusion guidance document.

Solve:

(a)	CPF (kg-day/mg) =	0.00091
(b)	CUL_{IA} ($\mu g/m^3$)=	**9.6**
(c)	SL_{SG} ($\mu g/m^3$) =	**320**
(d)	SL_{GW} (µg/L) =	**24**

TABLE H-3
UNRESTRICTED METHOD B NON-CARCINOGENIC RISK CLEANUP LEVELS AND SCREENING LEVELS FOR TETRACHLOROETHENE
SAURO'S PROPERTY RI/FS
TACOMA, WASHINGTON

Given:

RfC_{PCE}(mg/m^3)	=	0.04	***RfC from EPA IRIS database updated 2/10/2012 based on studies of occupationally-exposed adults; childhood exposure studies inadequate***
RfD_{PCE}(mg/kg-day)	=	0.011428571	***RfC_{PCE} multiplied by standard adult BR of 20m^3/day over standard adult average body weight of 70 kg.***
H_{cc} @ 13° Celsius (C)	=	0.393	***Henry's Law Constant (H_{cc}) from EPA On-line Tools for Site Assessment***

Constants from MTCA Equation 750-1, for Non-carcinogens per WAC 173-340-750 (4)(b)(ii)(A)

ABW (kg)	=	16	Average body weight over exposure duration
UCF (µg/mg)	=	1000	Unit conversion factor
HQ (unitless)	=	1	Hazard Quotient
AT (yr)	=	6	Averaging time
BR (m^3/day)	=	10	Breathing/inhalation rate
ABS (unitless)	=	1	Inhalation absorption fraction
ED (yr)	=	6	Exposure duration
EF (unitless)	=	1	Exposure frequency

Find: (a) Indoor Air Cleanup Level (CUL_{IA}), (b) Soil Gas Screening Level (SL_{SG}), and (c) Shallow GW Screening Level (SL_{GW})

Equations:

(1) CUL_{IA} (µg/m^3)= $\frac{RfD \times ABW \times UCF \times HQ \times AT}{BR \times ABS \times ED \times EF}$ ***MTCA Equation 750-1***

(2) SL_{SG} (µg/m^3) = SL_{IA} /VAF

Eqn 2. Generic soil gas VI SLs from Ecology's Draft Vapor Intrusion Guidance Document
The sub-slab soil gas screening level is based on a Vapor Attenuation Factor (VAF) of 0.03, per EPA's updated database (EPA's Vapor *Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings*; EPA 530-R-10-002. *March 16, 2012) and communications with Ecology.*

(3) SL_{GW} (µg/L) = $\frac{SL_{IA}}{VAF \times UCF \times H_{cc}}$

Eqn 1. Generic groundwater VI SLs from Ecology's Draft Vapor Intrusion Guidance Document
VAF = 0.001 (unitless; default)
UCF = 1000 L/m^3
H_{cc} = Chemical- and temperature-dependent value. H_{cc} values are based on an average Washington shallow groundwater temperature of 13 °C, consistent with Ecology's draft vapor intrusion guidance document.

Solve:

(a)	CUL_{IA} (µg/m^3)=	**18**
(b)	SL_{SG} (µg/m^3) =	**610**
(c)	SL_{GW} (µg/L) =	**47**

TABLE H-4
UNRESTRICTED MTCA METHOD B CARCINOGENIC RISK CLEANUP LEVELS AND SCREENING LEVELS FOR TRICHLOROETHENE
SAURO'S PROPERTY RI/FS
TACOMA, WASHINGTON

Given:

Kidney Cancer	$CPF_{TCE,i}$(kg-day/mg)		=	0.0035	Converted cancer potency factor for inhalation (CPF_i) from current EPA IUR.	
Early-Life Exp. Age Adj. Assumptions:		<2yrs	2 to <6yrs	6 to <16yrs	16 to 30yrs	
ADAFs		10	3	3	1	Factors for Kidney Cancer per EPA IRIS database summary.
ED		2	4	10	14	Factors for Kidney Cancer per EPA IRIS database summary.
BR		10	10	20	20	Factors for Kidney Cancer per EPA IRIS database summary.
BW		16	16	70	70	Factors for Kidney Cancer per EPA IRIS database summary.
Non-Hodgkin's Lymphoma (NHL)	$CPF_{TCE,i}$(kg-day/mg)		=	0.007	Converted CPF_i from current EPA IUR.	
Liver Cancer	$CPF_{TCE,i}$(kg-day/mg)		=	0.0035	Converted CPF_i from current EPA IUR.	

H_{cc} @ 13° Celsius (C)	=	0.238	***Henry's Law Constant (H_{cc}) from EPA On-line Tools for Site Assessment***

Constants from MTCA Equation 750-2, for Carcinogens with reduced RISK per WAC 173-340-750 (4)(b)(ii)(B)

RISK	=	1.E-06	Acceptable cancer risk level
ABW (kg)	=	70	Average body weight over exposure duration
AT (yr)	=	75	Averaging time
UCF (µg/mg)	=	1000	Unit conversion factor
CPF	=	Carcinogenic potency factor per WAC 173-340-708(8) (kg-day/mg)	
BR (m^3/day)	=	20	Breathing/inhalation rate
ABS (unitless)	=	1	Inhalation absorption fraction
ED (yr)	=	30	Exposure duration
EF (unitless)	=	1	Exposure frequency

Find: (a) ELE for Kidney Cancer, (b) Kidney CUL_i, (c) Lymphoma CULi, (d) Liver CULi, (e) Indoor Air Cleanup Level (CUL_{IA}), (f) Soil Gas Screening Level (SL_{SG}), and (g) Shallow GW Screening Level (SL_{GW})

Equations:

(1) Early Life Exposure (ELE) Adjustment Factor (ug-yr/kg-day) =

$$\frac{(ADAF*ED*BR)}{BW}_{<2yrs} + \frac{(ADAF*ED*BR)}{BW}_{2\ to\ <6yrs} + \frac{(ADAF*ED*BR)}{BW}_{6\ to\ <16yrs} + \frac{(ADAF*ED*BR)}{BW}_{16\ to\ 30\ yrs}$$

(2) Final Kidney Cancer CPF_i = (kg-day/mg)

$$[CPF_i \times (2yrs/30yrs) \times ADAF_1] + [CPF_i \times (14yrs/30yrs) \times ADAF_2] + [CPF_i \times (14yrs/30yrs) \times ADAF_3]$$

(3) Kidney Cancer CUL_i = (µg/m3)

$$\frac{RISK \times AT \times UCF}{CPFi \times ELE \times ABS \times EF}$$

(4) CUL_{IA} (µg/m3) for Lymphoma Cancer and Liver Cancer=

$$\frac{RISK \times ABW \times AT \times UCF}{CPF \times BR \times ABS \times ED \times EF}$$

MTCA Equation 750-2

(5) SL_{SG} (µg/m^3) =

$$SL_{IA} / VAF$$

Eqn 2. Generic soil gas VI SLs from Ecology's Draft Vapor Intrusion Guidance Document
The sub-slab soil gas screening level is based on a Vapor Attenuation Factor (VAF) of 0.03, per EPA's updated database (EPA's Vapor *Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings* ; EPA 530-R-10-002. *March 16, 2012) and communications with Ecology.*

(6) SL_{GW} (µg/L) =

$$\frac{SL_{IA}}{VAF \times UCF \times H_{cc}}$$

Eqn 1. Generic groundwater VI SLs from Ecology's Draft Vapor Intrusion Guidance Document
VAF = 0.001 (unitless; default)
UCF = 1000 L/m^3
H_{cc} = Chemical- and temperature-dependent value. H_{cc} values are based on an average Washington shallow groundwater temperature of 13 °C, consistent with Ecology's draft vapor intrusion guidance document.

Solve:

(a)	ELE for Kidney Cancer = (ug-yr/kg-day)	**32.6**
(b)	Kidney CUL_i (µg/m3) =	**0.658**
(c)	Lymphoma CUL_i (µg/m3) =	**1.25**
(d)	Liver CUL_i (µg/m3) =	**2.50**
(e)	CUL_{IA} (ug/m^3)=	**0.37**
(f)	SL_{SG} (µg/m^3) =	**12**
(g)	SL_{GW} (µg/L) =	**1.6**

TABLE H-5
UNRESTRICTED METHOD B NON-CARCINOGENIC RISK CLEANUP LEVELS AND SCREENING LEVELS FOR TRICHOROETHENE
SAURO'S PROPERTY RI/FS
TACOMA, WASHINGTON

Given:

$RfC_{TCE}(mg/m^3)$	=	0.002	***Principal candidate reference concentration for chronic inhalation exposure, continuous exposure scenario; from EPA IRIS database, updated 9/28/11.***
RfD_{TCE}(mg/kg-day)	=	0.000571	***RfCTCE multiplied by standard adult BR of 20m^3 /day over standard adult average body weight of 70 kg.***
H_{cc} @ 13° Celsius (C)	=	0.238	***Henry's Law Constant (H_{cc}) from EPA On-line Tools for Site Assessment***

Constants from MTCA Equation 750-1, for Non-carcinogens per WAC 173-340-750 (4)(b)(ii)(A)

ABW (kg)	=	16	Average body weight over exposure duration
UCF (µg/mg)	=	1000	Unit conversion factor
HQ (unitless)	=	1	Hazard Quotient
AT (yr)	=	6	Averaging time
BR (m^3/day)	=	10	Breathing/inhalation rate
ABS (unitless)	=	1	Inhalation absorption fraction
ED (yr)	=	6	Exposure duration
EF (unitless)	=	1	Exposure frequency

Find: (a) Indoor Air Cleanup Level (CUL_{IA}), (b) Soil Gas Screening Level (SL_{SG}), and (c) Shallow GW Screening Level (SL_{GW})

Equations:

(1) CUL_{IA} ($\mu g/m^3$)= $\frac{RfD \times ABW \times UCF \times HQ \times AT}{BR \times ABS \times ED \times EF}$ ***MTCA Equation 750-1***

(2) SL_{SG} ($\mu g/m^3$) = SL_{IA} /VAF

Eqn 2. Generic soil gas VI SLs from Ecology's Draft Vapor Intrusion Guidance Document
The sub-slab soil gas screening level is based on a Vapor Attenuation Factor (VAF) of 0.03, per EPA's updated database (EPA's Vapor *Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings* ; EPA 530-R-10-002. *March 16, 2012) and communications with Ecology.*

(3) SL_{GW} (µg/L) = $\frac{SL_{IA}}{VAF \times UCF \times H_{cc}}$

Eqn 1. Generic groundwater VI SLs from Ecology's Draft Vapor Intrusion Guidance Document
VAF = 0.001 (unitless; default)
UCF = 1000 L/m^3
H_{cc} = Chemical- and temperature-dependent value. H_{cc} values are based on an average Washington shallow groundwater temperature of 13 °C, consistent with Ecology's draft vapor intrusion guidance document.

Solve:

(a)	CUL_{IA} ($\mu g/m^3$)=	**0.91**
(b)	SL_{SG} ($\mu g/m^3$) =	**30**
(c)	SL_{GW} (µg/L) =	**3.8**

TABLE H-6
UNRESTRICTED METHOD B CARCINOGENIC RISK CLEANUP LEVELS AND SCREENING LEVELS FOR VINYL CHLORIDE
SAURO'S PROPERTY RI/FS
TACOMA, WASHINGTON

Given:

$IUR_{VC}(\mu g/m^3)$	=	0.0000088	***Inhalation unit risk for early childhood exposure from EPA IRIS database***
H_{cc} @ 13° Celsius (C)	=	0.816	***Henry's Law Constant (H_{cc}) from EPA On-line Tools for Site Assessment***

Constants from MTCA Equation 750-2, for Carcinogens with reduced RISK per WAC 173-340-750 (4)(b)(ii)(B)

RISK	=	1.E-06	Acceptable cancer risk level
ABW (kg)	=	70	Average body weight over exposure duration
AT (yr)	=	75	Averaging time
UCF (µg/mg)	=	1000	Unit conversion factor
CPF	=	Carcinogenic potency factor per WAC 173-340-708(8) (kg-day/mg)	
BR (m^3/day)	=	20	Breathing/inhalation rate
ABS (unitless)	=	1	Inhalation absorption fraction
ED (yr)	=	30	Exposure duration
EF (unitless)	=	1	Exposure frequency

Find: (a) CPF, (b) Indoor Air Cleanup Level (CUL_{IA}), (c) Soil Gas Screening Level (SL_{SG}), and (d) Shallow GW Screening Level (SL_{GW})

Equations:

(1) CPF (kg-day/mg) = $\frac{IUR \times ABW \times UCF}{BR}$ ***From EPA Risk Assessment Guidance for Superfund Appendix E***

(2) CUL_{IA} ($\mu g/m^3$)= $\frac{RISK \times ABW \times AT \times UCF}{CPF \times BR \times ABS \times ED \times EF}$ ***MTCA Equation 750-2***

(3) SL_{SG} ($\mu g/m^3$)= SL_{IA} /VAF

Eqn 2. Generic soil gas VI SLs from Ecology's Draft Vapor Intrusion Guidance Document

The sub-slab soil gas screening level is based on a Vapor Attenuation Factor (VAF) of 0.03, per EPA's updated database (EPA's Vapor *Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings* ; EPA 530-R-10-002. *March 16, 2012) and communications with Ecology.*

(4) SL_{GW} (µg/L) = $\frac{SL_{IA}}{VAF \times UCF \times H_{cc}}$

Eqn 1. Generic groundwater VI SLs from Ecology's Draft Vapor Intrusion Guidance Document

VAF = 0.001 (unitless; default)

UCF = 1000 L/m^3

H_{cc} = Chemical- and temperature-dependent value. H_{cc} values are based on an average Washington shallow groundwater temperature of 13 °C, consistent with Ecology's draft vapor intrusion guidance document.

Solve:

(a)	CPF (kg-day/mg) =	0.031
(b)	CUL_{IA} ($\mu g/m^3$)=	**0.28**
(c)	SL_{SG} ($\mu g/m^3$)=	**9.5**
(d)	SL_{GW} (µg/L) =	**0.35**

TABLE H-7
UNRESTRICTED METHOD B NON-CARCINOGENIC RISK CLEANUP LEVELS AND SCREENING LEVELS FOR VINYL CHLORIDE
SAURO'S PROPERTY RI/FS
TACOMA, WASHINGTON

Given:

RfC_{VC}(mg/m^3)	=	0.1	***RfC from EPA IRIS database updated 8/7/2000***
RfD_{VC}(mg/kg-day)	=	0.029	***RfC_{VC} multiplied by standard adult BR of 20m^3/day over standard adult average body weight of 70 kg.***
H_{cc} @ 13° Celsius (C)	=	0.816	***Henry's Law Constant (H_{cc}) from EPA On-line Tools for Site Assessment***

Constants from MTCA Equation 750-1, for Non-carcinogens per WAC 173-340-750 (4)(b)(ii)(A)

ABW (kg)	=	16	Average body weight over exposure duration
UCF (µg/mg)	=	1000	Unit conversion factor
HQ (unitless)	=	1	Hazard Quotient
AT (yr)	=	6	Averaging time
BR (m^3/day)	=	10	Breathing/inhalation rate
ABS (unitless)	=	1	Inhalation absorption fraction
ED (yr)	=	6	Exposure duration
EF (unitless)	=	1	Exposure frequency

Find: (a) Indoor Air Cleanup Level (CUL_{IA}), (b) Soil Gas Screening Level (SL_{SG}), and (c) Shallow GW Screening Level (SL_{GW})

Equations:

(1) CUL_{IA} (µg/m^3)= $\frac{RfD \times ABW \times UCF \times HQ \times AT}{BR \times ABS \times ED \times EF}$ ***MTCA Equation 750-1***

(2) SL_{SG} (µg/m^3) = SL_{IA} /VAF

Eqn 2. Generic soil gas VI SLs from Ecology's Draft Vapor Intrusion Guidance Document
The sub-slab soil gas screening level is based on a Vapor Attenuation Factor (VAF) of 0.03, per EPA's updated database (EPA's Vapor *Intrusion Database: Evaluation and Characterization of Attenuation Factors for Chlorinated Volatile Organic Compounds and Residential Buildings* ; EPA 530-R-10-002. *March 16, 2012) and communications with Ecology.*

(3) SL_{GW} (µg/L) = $\frac{SL_{IA}}{VAF \times UCF \times H_{cc}}$

Eqn 1. Generic groundwater VI SLs from Ecology's Draft Vapor Intrusion Guidance Document
VAF = 0.001 (unitless; default)
UCF = 1000 L/m^3
H_{cc} = Chemical- and temperature-dependent value. H_{cc} values are based on an average Washington shallow groundwater temperature of 13 °C, consistent with Ecology's draft vapor intrusion guidance document.

Solve:

(a)	CUL_{IA} (µg/m^3)=	**46**
(b)	SL_{SG} (µg/m^3) =	**1500**
(c)	SL_{GW} (µg/L) =	**56**

APPENDIX I

Remedial Investigation Well and Boring Logs

Pre-Interim Action:
LAI-HA1a
LAI-HA1b
LAI-HA2
LAI-HA3
LAI-HA4
LAI-HA5
LAI-HA6
LAI-HA7
LAI-P1
LAI-P2
LAI-P3
LAI-P4
LAI-P5
LAI-P6
LAI-P7
LAI-P8
LAI-P9
LAI-P9b
LAI-P10
LAI-P10b
LAI-P11

Post-Interim Action Wells:
LAI-MW5

Post-Interim Action Borings:
LAI-B6
LAI-B7
LAI-B8
LAI-B9
LAI-B10

Soil Classification System

MAJOR DIVISIONS			GRAPHIC SYMBOL	USCS LETTER SYMBOL[1]	TYPICAL DESCRIPTIONS [2][3]
COARSE-GRAINED SOIL (More than 50% of material is larger than No. 200 sieve size)	GRAVEL AND GRAVELLY SOIL (More than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (Little or no fines)		GW	Well-graded gravel; gravel/sand mixture(s); little or no fines
				GP	Poorly graded gravel; gravel/sand mixture(s); little or no fines
		GRAVEL WITH FINES (Appreciable amount of fines)		GM	Silty gravel; gravel/sand/silt mixture(s)
				GC	Clayey gravel; gravel/sand/clay mixture(s)
	SAND AND SANDY SOIL (More than 50% of coarse fraction passed through No. 4 sieve)	CLEAN SAND (Little or no fines)		SW	Well-graded sand; gravelly sand; little or no fines
				SP	Poorly graded sand; gravelly sand; little or no fines
		SAND WITH FINES (Appreciable amount of fines)		SM	Silty sand; sand/silt mixture(s)
				SC	Clayey sand; sand/clay mixture(s)
FINE-GRAINED SOIL (More than 50% of material is smaller than No. 200 sieve size)	SILT AND CLAY (Liquid limit less than 50)			ML	Inorganic silt and very fine sand; rock flour; silty or clayey fine sand or clayey silt with slight plasticity
				CL	Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay
				OL	Organic silt; organic, silty clay of low plasticity
	SILT AND CLAY (Liquid limit greater than 50)			MH	Inorganic silt; micaceous or diatomaceous fine sand
				CH	Inorganic clay of high plasticity; fat clay
				OH	Organic clay of medium to high plasticity; organic silt
	HIGHLY ORGANIC SOIL			PT	Peat; humus; swamp soil with high organic content

OTHER MATERIALS	GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
PAVEMENT		AC or PC	Asphalt concrete pavement or Portland cement pavement
ROCK		RK	Rock (See Rock Classification)
WOOD		WD	Wood, lumber, wood chips
DEBRIS		DB	Construction debris, garbage

Notes:
1. USCS letter symbols correspond to symbols used by the Unified Soil Classification System and ASTM classification methods. Dual letter symbols (e.g., SP-SM for sand or gravel) indicate soil with an estimated 5-15% fines. Multiple letter symbols (e.g., ML/CL) indicate borderline or multiple soil classifications.
2. Soil descriptions are based on the general approach presented in the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), outlined in ASTM D 2488. Where laboratory index testing has been conducted, soil classifications are based on the Standard Test Method for Classification of Soils for Engineering Purposes, as outlined in ASTM D 2487.
3. Soil description terminology is based on visual estimates (in the absence of laboratory test data) of the percentages of each soil type and is defined as follows:

Primary Constituent:	> 50% - "GRAVEL," "SAND," "SILT," "CLAY," etc.
Secondary Constituents:	> 30% and ≤ 50% - "very gravelly," "very sandy," "very silty," etc.
	> 15% and ≤ 30% - "gravelly," "sandy," "silty," etc.
Additional Constituents:	> 5% and ≤ 15% - "with gravel," "with sand," "with silt," etc.
	≤ 5% - "with trace gravel," "with trace sand," "with trace silt," etc., or not noted.

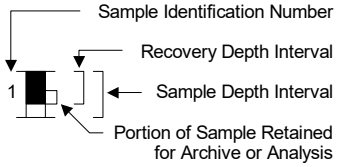
4. Soil density or consistency descriptions are based on judgement using a combination of sampler penetration blow counts, drilling or excavating conditions, field tests, and laboratory tests, as appropriate.

Drilling and Sampling Key

SAMPLER TYPE

Code	Description
a	3.25-inch O.D., 2.42-inch I.D. Split Spoon
b	2.00-inch O.D., 1.50-inch I.D. Split Spoon
c	Shelby Tube
d	Grab Sample
e	Single-Tube Core Barrel
f	Double-Tube Core Barrel
g	2.50-inch O.D., 2.00-inch I.D. WSDOT
h	3.00-inch O.D., 2.375-inch I.D. Mod. California
i	Other - See text if applicable
1	300-lb Hammer, 30-inch Drop
2	140-lb Hammer, 30-inch Drop
3	Pushed
4	Vibrocore (Rotosonic/Geoprobe)
5	Other - See text if applicable

SAMPLE NUMBER & INTERVAL



Field and Lab Test Data

Code	Description
PP = 1.0	Pocket Penetrometer, tsf
TV = 0.5	Torvane, tsf
PID = 100	Photoionization Detector VOC screening, ppm
W = 10	Moisture Content, %
D = 120	Dry Density, pcf
-200 = 60	Material smaller than No. 200 sieve, %
GS	Grain Size - See separate figure for data
AL	Atterberg Limits - See separate figure for data
GT	Other Geotechnical Testing
CA	Chemical Analysis

Groundwater

▽ Approximate water level at time of drilling (ATD)

▼ Approximate water level at time other than ATD

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Sauro's Property
Status Report
Tacoma, Washington

Soil Classification System and Key

Figure
I-1

LAI-HA1a

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hand Auger Ground Elevation (ft): Not Measured Drilled By: KMH	
0		i5				SM	Brown, silty, gravelly, fine to coarse SAND with cobble (medium dense, moist) **(FILL)**	Groundwater not encountered.
		i5						
2	LAI-HA1(2)							

Boring Completed 03/30/09
Total Depth of Boring = 2.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Status Report
Tacoma, Washington

Log of Boring LAI-HA1a

Figure
I-2

LAI-HA1b

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	
0						ML	Brown, sandy SILT with gravel (very soft, wet) **(FILL)**	Groundwater not encountered.
						DB	CONCRETE DEBRIS	
2		e3				SM	Light brown, silty, fine to medium SAND with coarse sand and gravel (medium dense, moist)	
	LAI-HA1-3.5					SP-SM	Light brown, fine to medium SAND with silt and trace gravel (medium dense, moist)	
4								

Boring Completed 04/03/09
Total Depth of Boring = 5.0 ft.

6
8
10
12
14

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.01 8/28/14 \\TACOMA3\PROJECT\94\048.010\T\BORING LOGS\094048.010.GPJ SOIL_BORING LOG

LANDAU ASSOCIATES

Sauro's Property
Status Report
Tacoma, Washington

Log of Boring LAI-HA1b

Figure
I-3

LAI-HA2

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hand Auger Ground Elevation (ft): Not Measured Drilled By: KMH	
0		i5				SM	Brown, silty, gravelly, fine to coarse SAND with cobble (medium dense, moist) **(FILL)**	Groundwater not encountered.
		i5						
2	LAI-HA2(2)							

Boring Completed 03/30/09
Total Depth of Boring = 2.0 ft.

Point located at State Plane Coordinates:
North: 95332.28
East: 1242052.36

4
6
8
10
12
14

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.01 8/28/14 \\TACOMA3\PROJECT\94\048.010\T\BORING LOGS\094048.010.GPJ SOIL_BORING LOG

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Log of Boring LAI-HA2

Figure
I-4

LAI-HA3

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	
0						GM	Mottled brown and black, silty, sandy GRAVEL with brick fragments and wood debris (medium dense, wet) **(FILL)**	Groundwater not encountered.
						ML	Light brown, fine sandy SILT with gravel and brick fragments (soft, wet)	
2						DB	Gray, CONCRETE DEBRIS	
		e3				ML	Brown and black, gravelly, sandy SILT with brick fragments and trace glass fragment (medium stiff, moist)	
	LAI-HA3-3.5					SM	Brown, silty, fine to medium SAND (loose to medium dense, moist to wet)	
4								

Boring Completed 04/03/09
Total Depth of Boring = 5.0 ft.

6
8
10
12
14

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-HA3

Figure
I-5

LAI-HA4

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	
0						ML	Brown, fine sandy SILT (soft, moist to wet) with wood debris	Groundwater not encountered.
						DB	(FILL)	
						GP	BRICK FRAGMENTS	
2							Mottled brown, gray, and red GRAVEL with sand and brick fragments (medium dense, moist)	
		e3				DB	BRICK FRAGMENTS	
						ML	Black silt-sized ASH or CHARCOAL	
	LAI-HA4-3.3					ML	Light gray, layered, fine SILT (medium stiff, moist) ("play-doh" like odor)	
4								

Boring Completed 04/03/09
Total Depth of Boring = 5.0 ft.

6
8
10
12
14

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-HA4

Figure
I-6

LAI-HA5

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	
0						SM	Brown, gravelly, silty, fine SAND (medium dense, moist to wet) with brick fragments **(FILL)**	Groundwater not encountered.
						DB	Brown and gray, silty, CONCRETE and brick fragments (dense, moist)	
						GM	Brown, silty, sandy, GRAVEL and brick fragments (medium dense, moist)	
2	LAI-HA5-3.0	e3						
4								
6								
8								
10								
12								
14								

Boring Completed 04/03/09
Total Depth of Boring = 5.0 ft.

Notes:
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2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-HA5

Figure
I-7

LAI-HA6

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	
0						ML	Mottled light brown and black, fine sandy SILT with gravel (very soft, wet) **(FILL)**	Groundwater not encountered.
2		e3				GP	Light gray, fine sandy GRAVEL; possibly old concrete (very dense, dry)	
4	LAI-HA6-4.0					ML	Brown, fine sandy SILT with gravel (soft to medium stiff, moist)	
6								
8								
10								
12								
14								

Boring Completed 04/03/09
Total Depth of Boring = 5.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-HA6

Figure
I-8

LAI-HA7

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	
0						ML	Brown and black, fine sandy SILT with gravel and red brick and glass fragments (loose, wet)	Groundwater not encountered.
							(FILL)	
						SP-SM	Light brown, gravelly to with gravel, fine to medium SAND with silt (medium dense, wet to moist)	
2		e3						
						ML	Tan SILT (very soft, wet)	
						SP-SM	Light brown, gravelly, fine to medium SAND with silt (medium dense, moist to wet)	
4	LAI-HA7-4.0							

Boring Completed 04/03/09
Total Depth of Boring = 5.0 ft.

6
8
10
12
14

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-HA7

Figure
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LAI-P1

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
0				0		SP	Brown, very gravelly, medium to coarse SAND (medium dense, damp) (no odor) **(FILL)**	
				0				
2		e3		0.2		SM	Light brown, silty, fine to coarse SAND with gravel (medium dense, damp) (no odor)	
				0				
4								
	LAI-P1-(5-6)			0				
6				0				
		e3		0				
8								
10								
	LAI-P1-(10-11)			0				
				0		GP	Gray, sandy, fine to coarse GRAVEL (medium dense, damp) (no odor)	
12		e3						
14								

Notes:
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2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P1

Figure
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(1 of 2)

LAI-P1

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Water Level
14						SP	Light brown, gravelly, fine to medium SAND (loose, damp) (no odor)
	LAI-P1-(15-16)			0			
16				0			
		e3		0		WD	Dark brown wood chunks in sandy matrix (loose, wet) (no odor)
18				0		SM	Mottled gray, orange, and brown, silty, fine to medium SAND (loose, wet) (no odor)
	LAI-P1-(18.5-19.5)			0			
20							

Drilling Method: Geoprobe™
Ground Elevation (ft): Not Measured
Drilled By: Cascade Drilling Inc.

▽ ATD

Boring Completed 04/06/09
Total Depth of Boring = 20.0 ft.

Point located at State Plane Coordinates:
North: 95427.71
East: 1242010.13

22
24
26
28

Notes:
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3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P1

Figure
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(2 of 2)

LAI-P2

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
0				0.7		SP-SM	Brown, very gravelly, fine to coarse SAND with silt (loose to medium dense, damp) (no odor) with occasional rootlets and occasional brick fragments **(FILL)**	
				1.0				
2		e3		0.4		SP	Light brown, medium SAND with trace gravel and trace silt (loose, damp) (no odor)	
4						SM	Brown, silty, gravelly, fine to coarse SAND (loose, damp to wet) (no odor) with occasional brick fragments	
	LAI-P2-(5-6)			0				
6				0				
	LAI-P2-(6.5-7.25)			0				
		e3						
8								
10	LAI-P2-(10-11)			0.7				
				2.2				
12		e3		1.7				
14								

Notes:
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3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P2

Figure
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LAI-P2

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
14						SM	Brown, silty, gravelly, fine to coarse SAND (loose, damp to wet) (no odor) with occasional brick fragments	▽ ATD
	LAI-P2-(15-16)			0.1				
16				0.4		ML	Light brown to gray, sandy, SILT (very soft, wet) (no odor) with trace roots	
		e3		0.2				
18				0		GP	Greenish gray, sandy, fine to coarse GRAVEL (medium dense, wet) (no odor) **(NATIVE?)**	
				0.1				
20								
22								
24								
26								
28								

Boring Completed 04/06/09
Total Depth of Boring = 20.0 ft.

Point located at State Plane Coordinates:
North: 95421.81
East: 1242033.13

Notes:
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3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P2

Figure
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LAI-P3

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	
0				0.1		SP	Brown to gray, very gravelly, fine to coarse SAND with cobbles (loose to medium dense) (no odor) with abundant brick fragments **(FILL)**	Groundwater not encountered.
2		e3		0				
4								
6	LAI-P3-(5-6)			0				
8	LAI-P3-(7-8)	e3		0.4 0.9 0				
10	LAI-P3-(10-11)			0		SM	Brown, silty, fine SAND (loose, damp) (no odor)	
12		e3		0 0		SP	Brown, very gravelly, medium to coarse SAND (loose to medium dense, damp to moist) (no odor)	
14	LAI-P3-			1.8				

Notes:
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3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P3

Figure
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LAI-P3

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	
14	(13.5-14.5)			0		SP	Brown, very gravelly, medium to coarse SAND (loose to medium dense, damp to moist) (no odor)	Groundwater not encountered.

Boring Completed 04/06/09
Total Depth of Boring = 15.0 ft.

Point located at State Plane Coordinates:
North: 95421.03
East: 1242022.90

16
18
20
22
24
26
28

Notes:
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3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P3

Figure
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LAI-P4

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
0						SP-SM	Brown, gravelly, fine to medium SAND with silt (medium dense, moist) **(FILL)**	
2	LAI-P4-3.0	e3						
4						GP-GM	Brown, fine to medium sandy GRAVEL with silt (medium dense, moist)	
6						SP-SM	Light brown, fine SAND with silt (medium dense, moist) -crushed rock fragments	
8	LAI-P5-8.0	e3						
10						SM	Brown, silty, fine to medium SAND (loose, moist)	
						GP	CRUSHED ROCK	
						DB	BRICK FRAGMENTS	
						ML	Black silt-sized ASH or CHARCOAL	
12						ML	Brown, fine sandy SILT with gravel (medium dense, moist)	
		e3						
						GP	CRUSHED ROCK AND GRAVEL	
14	LAI-P4-13.0							

Notes:
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Log of Boring LAI-P4

Figure
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LAI-P4

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
14						GP	CRUSHED ROCK AND GRAVEL	
16						ML	Brown, fine sandy SILT with gravel (medium dense, moist)	
						GP-GM	Brown, fine to medium sandy GRAVEL with silt (medium dense, wet)	▽ ATD
18	LAI-P4-18.0	e3				SM	Dark blue-gray, silty, fine SAND (medium dense, wet) -Brick fragments at 18 ft bgs	
20								
22								
24								
26								
28								

Boring Completed 04/03/09
Total Depth of Boring = 20.0 ft.

Point located at State Plane Coordinates:
North: 95401.24
East: 1242013.88

Notes:
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Log of Boring LAI-P4

Figure
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LAI-P5

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
0						ML	Brown, fine sandy, SILT (loose, wet) with brick fragments **(FILL)**	
2	LAI-P5-3.0	e3				GP	Brown, fine to medium sandy, GRAVEL (medium dense, moist) with trace brick fragments	
4								
6								
8	LAI-P5-8.7	e3						
10								
12	LAI-P5-11.0	e3				SM	Light brown, silty, fine SAND (loose to medium dense, moist) with trace brick fragments	
14								▽ ATD

Notes:
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Log of Boring LAI-P5

Figure
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LAI-P5

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
14						SM	Light brown, silty, fine SAND (loose to medium dense, moist) with trace brick fragments	
16								

Boring Completed 04/03/09
Total Depth of Boring = 16.0 ft.

Point located at State Plane Coordinates:
North: 95411.16
East: 1242010.85

18
20
22
24
26
28

Notes:
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Log of Boring LAI-P5

Figure
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LAI-P6

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
0		e3				GP-GM	Brown, fine sandy, GRAVEL with silt (very dense to medium dense, moist) **(FILL)** -Very difficult drilling from 0 to 1 ft bgs; No recovery. Probe rods bent.	
2								
		e3				SM	Light brown, silty, fine SAND with gravel (medium dense, moist) and a piece of coal	
						GP	CRUSHED ROCK	
4	LAI-P6-4.0					GP-GM	Brown, fine sandy, GRAVEL with silt (very dense to medium dense, moist)	
6								
						SP	Light brown, fine to medium SAND with gravel and trace silt (medium dense, moist) with brick fragments	
8	LAI-P6-8.0	e3					-Encountered dense areas followed by voids.	
10								
						SM	Light brown, silty, fine to medium SAND with gravel (very loose to dense, moist to wet)	
12	LAI-P6-12.0							▽ ATD
		e3						
14								

Notes:
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3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P6

Figure
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LAI-P6

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
14						SM	Light brown, silty, fine to medium SAND with gravel (very loose to dense, moist to wet)	
16								

Boring Completed 04/03/09
Total Depth of Boring = 16.0 ft.

Point located at State Plane Coordinates:
North: 95416.15
East: 1241988.34

18
20
22
24
26
28

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
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3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P6

Figure
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(2 of 2)

LAI-P7

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
0				0		GP/ SP	Brown to gray, very sandy, fine to coarse GRAVEL / very gravelly, fine to coarse SAND (loose, damp) (no odor) **(FILL)**	
				0				
2		e3		0				
	LAI-P7-(3-4)			0.2				
4								
				0				
6				0				
		e3		0				
8	LAI-P7-(7.5-8.5)			0				
10				0				
						SM	Light brown, silty, gravelly, fine to coarse SAND (medium dense, moist) (no odor) with brick fragments	
				0				
12	LAI-P7-(11.5-12.5)			0				
		e3						
14								

Notes:
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3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P7

Figure
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(1 of 2)

LAI-P7

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Water Level
14						SM	
						SP	Gray, medium to coarse SAND (medium dense, moist) (no odor)
				0			ATD
16	LAI-P7-(15.5-16.5)	e3		0		SM	Dark gray, silty, medium to coarse SAND (loose, wet) (no odor) with abundant brick fragments
18							
20							
22							
24							
26							
28							

Drilling Method: Geoprobe™

Ground Elevation (ft): Not Measured

Drilled By: Cascade Drilling Inc.

Boring Completed 04/06/09
Total Depth of Boring = 18.0 ft.

Point located at State Plane Coordinates:
North: 95415.47
East: 1242001.82

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P7

Figure
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LAI-P8

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
0						SM	Brown, silty, fine SAND with gravel (medium dense, wet) with grass roots **(FILL)**	
						DB	CONCRETE DEBRIS	
						DB		
						SP-SM	BRICK FRAGMENTS Light brown, gravelly, fine SAND with silt (medium dense, moist) with brick fragments	
2		e3						
4							-Lesser gravel content	
6						DB	Gray, sand-sized particles similar to crushed kiln bricks	
8	LAI-P8-8.0	e3						
						SM	Brown, silty, fine SAND (medium dense, moist) with brick fragments	
10								
						SP-SM	Light brown, fine SAND with silt and gravel (medium dense, moist)	
12	LAI-P8-12.0	e3					-Glass fragments	
14								

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P8

Figure
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LAI-P8

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
14						SP-SM	Light brown, gravelly, fine SAND with silt (medium dense, moist to wet)	
								ATD
16								
		e3						
18								
						WD	Dark black, WOOD DEBRIS with gravel and isolated sand/silt pockets	
20								
22		e3					-Glass and ceramic fragments	
24						SP	Black, fine to medium SAND (loose, wet) with wood debris and brick fragments	
26						WD	WOOD DEBRIS	
		e3						
28								

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P8

Figure
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LAI-P8

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
28						WD	WOOD DEBRIS	
						WD	BLACKENED WOOD DEBRIS	
30								
32						SM	Gray, silty, fine to medium SAND (loose, wet)	
		e3				SM	Gray, gravelly, silty, fine to medium SAND (medium dense, moist)	
34						SP	Gray, fine to medium SAND with gravel (medium dense, wet)	
36						SM	Gray, silty, medium SAND with gravel (medium dense, wet) with wood debris **(NATIVE)** -Very dense at 27 ft bgs.	
		e3				SM	Blue-gray, silty, fine to coarse SAND with gravel (very dense, moist) **(GLACIAL TILL)**	
38								
40								
42								

Boring Completed 04/03/09
Total Depth of Boring = 40.0 ft.

Point located at State Plane Coordinates:
North: 95394.21
East: 1241997.51

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P8

Figure
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LAI-P9

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	
0				0		SP	Brown, fine to medium SAND with gravel (loose, damp) (no odor) **(FILL)**	Groundwater not encountered.
				0				
2		e3		0		SP	Brown, very gravelly, fine to coarse SAND (loose to very loose, damp) (no odor) with abundant brick fragments and trace glass fragments	
4								
6	LAI-P9-(5.5-6.5)			0				
				0				
8		e3		0				
10							-Very loose from 10 to 15 ft bgs.	
				0				
12	LAI-P9-(11-12)			0				
		e3						
14								

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P9

Figure
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LAI-P9

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol		
14						SP	Brown, very gravelly, fine to coarse SAND (loose to very loose, damp) (no odor) with abundant brick fragments and trace glass fragments	Groundwater not encountered.

Drilling Method: Geoprobe™

Ground Elevation (ft): Not Measured

Drilled By: Cascade Drilling Inc.

Boring Completed 04/06/09
Total Depth of Boring = 15.0 ft.

-Boring drilled less than 1 ft from Boring LAI-9b. Log for Boring LAI-9b contains data for 25 to 40 ft bgs.

Point located at State Plane Coordinates:
North: 95376.55
East: 1242004.27

16
18
20
22
24
26
28

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P9

Figure
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LAI-P9b

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
0							Boring was not sampled from 0 to 25 ft bgs and sampled from 25 to 40 ft bgs. Boring was drilled less than 1 ft from Boring LAI-9. No samples collected for chemical analysis. Log for Boring LAI-9 contains data for 0 to 15 ft bgs. Samples collected for chemical analysis from Boring LAI-9.	
2								
4								
6								
8								
10								
12								
14								

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P9b

Figure
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LAI-P9b

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
14							Boring was not sampled from 0 to 25 ft bgs and sampled from 25 to 40 ft bgs. Boring was drilled less than 1 ft from Boring LAI-9. No samples collected for chemical analysis. Log for Boring LAI-9 contains data for 0 to 15 ft bgs. Samples collected for chemical analysis from Boring LAI-9.	
16								▽ ATD
18							Top of groundwater table was not recorded for this boring. Groundwater was not encountered in nearby boring LAI-9. Groundwater level was estimated based on groundwater level for nearby boring LAI-8.	
20								
22								
24								
26						SM	Gray, very silty, gravelly, medium SAND (medium dense, wet) **(FILL)**	
28	e3					WD	WOOD DEBRIS	

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P9b

Figure
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LAI-P9b

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
28						WD	WOOD DEBRIS	
						ML	Gray, fine sandy SILT with gravel (very soft, wet) with wood debris	
30								
32		e3						
						WD	WOOD DEBRIS	
34								
36						ML	Dark gray, fine sandy SILT with gravel (very soft, wet) with wood debris	
						ML	SILT (very soft) **(NATIVE)**	
38						GP	Gray, GRAVEL with silt and fine sand	
						SM	Blue-gray, silty, fine to coarse SAND with gravel (very dense, moist) **(GLACIAL TILL)**	
40								
42								

Boring Completed 04/03/09
Total Depth of Boring = 40.0 ft.

Point located at State Plane Coordinates:
North: 95376.55
East: 1242004.27

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P9b

Figure
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LAI-P10

SAMPLE DATA | **SOIL PROFILE** | **GROUNDWATER**

Drilling Method: Geoprobe™
Ground Elevation (ft): Not Measured
Drilled By: Cascade Drilling Inc.

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Soil Profile	Water Level
0						ML	Multicolored, gravelly, fine sandy SILT with glass debris (medium stiff, moist) **(FILL)**	
		e3				DB / DB	RUBBLE FRAGMENTS / CONCRETE DEBRIS	
5	LAI-P10-5.5					ML	Light brown, fine sandy SILT-SIZED MATERIAL (soft, moist to wet) Described in field as "goopy, similar to concrete powder".	
						SP		
		e3				ML	Gray, fine to medium SAND with abundant concrete debris (dense, damp)	
							Brown, fine sandy SILT with gravel (very soft, moist)	
10								▽ ATD
		e3				ML	Dark gray, fine sandy SILT with trace gravel and wood fibers (medium stiff, wet)	
15						ML	Dark gray to black, fine sandy SILT (very soft, wet)	
						WD / SM	WOOD DEBRIS	
		e3					Gray, silty, fine to medium SAND with gravel (medium dense, wet)	
						ML	Brown SILT with blue-gray fine sand (soft, wet)	
20						SM	Blue-gray, silty, fine to medium SAND with gravel (loose to medium dense, wet)	
		e3				SP-SM	Gray, fine to medium SAND with silt and fine gravel (medium dense, wet)	
25								
		e3					- Thin layer of wood debris	
						WD	Reddish, WOOD DEBRIS - Refusal at 28 ft bgs on wood debris.	
30								
35								

Boring Completed 04/03/09
Total Depth of Boring = 28.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P10

Figure
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LAI-P10b

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
0							Boring was not sampled from 0 to 15 ft bgs. See Boring LAI-P10 for lithology from 0 to 15 ft BGS. Boring was drilled approximately 5 ft northeast of Boring LAI-P10.	
12							Top of groundwater table was not recorded for this boring (See Boring LAI-P10).	▽ ATD

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P10b

Figure
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LAI-P10b

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
14							Boring was not sampled from 0 to 15 ft bgs. See Boring LAI-P10 for lithology from 0 to 15 ft BGS. Boring was drilled approximately 5 ft northeast of Boring LAI-P10.	
						ML	Gray SILT with trace fine sand (soft, wet) **(FILL)**	
						WD	WOOD DEBRIS and silt	
16						SM	Gray, silty to very silty, fine to medium SAND with gravel (loose to medium dense, wet)	
		e3						
18								
20							- grades very loose from 20 to 23.8 ft bgs	
22		e3						
24						ML	Blue-gray SILT (very soft, wet)	
						SM/ ML	Mixed silty SAND and blue-gray SILT (loose/very soft, wet)	
26						SM	Grayish-brown, silty, fine SAND with abundant wood debris (loose to medium dense, wet)	
						GP-GM	-Burned wood fragments at 27 ft bgs.	
28		e3					Brown, sandy GRAVEL with silt (loose, wet) **(ICE CONTACT DEPOSITS)**	

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P10b

Figure
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LAI-P10b

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	Water Level
28						GP-GM	Brown, sandy GRAVEL with silt (loose, wet) **(ICE CONTACT DEPOSITS)**	
						GP	Gray, fine to coarse GRAVEL (loose, wet)	
30		e3						
32								
34								
36								
38								
40								
42								

Boring Completed 04/03/09
Total Depth of Boring = 33.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P10b

Figure
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LAI-P11

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	
0				0		GP	Brown, very sandy, fine to coarse GRAVEL; no odor (loose, damp) **(FILL)**	Groundwater not encountered.
				0				
2		e3		0				
4								
	LAI-P11-(5-6)			0				
6				0				
		e3				SM	Light brown, silty, gravelly, fine to coarse SAND with Cobble and brick fragments; no odor (loose, moist)	
8				0				
	LAI-P11-(9.5-10.5)			0				
10				0				
		e3						
				0				
12								
						ML	Light brown, very sandy, SILT; no odor (medium stiff, damp) **(ICE CONTACT DEPOSITS)**	
14								

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P11

Figure
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LAI-P11

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Cascade Drilling Inc.	
14		e3				ML	Light brown, very sandy, SILT; no odor (medium stiff, damp) **(ICE CONTACT DEPOSITS)**	Groundwater not encountered.
16								
18								
20								
22								
24								
26								
28								

Boring Completed 04/06/09
Total Depth of Boring = 17.0 ft.

Point located at State Plane Coordinates:
North: 95373.24
East: 1241972.98

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

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Log of Boring LAI-P11

Figure
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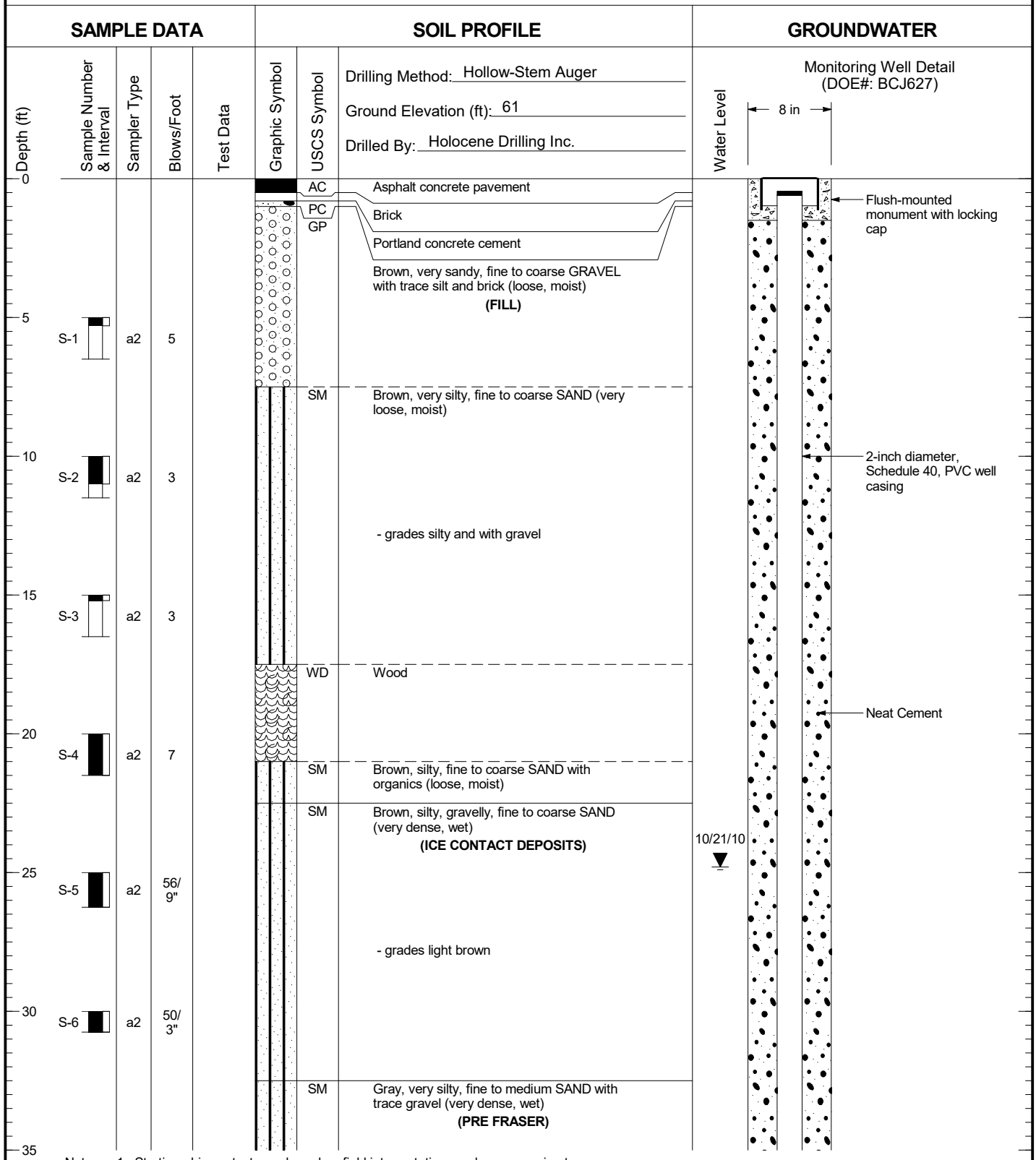
LAI-MW5



Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
4. **DOE Unique Well Number: BCJ627**

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Log of Monitoring Well LAI-MW5

Figure
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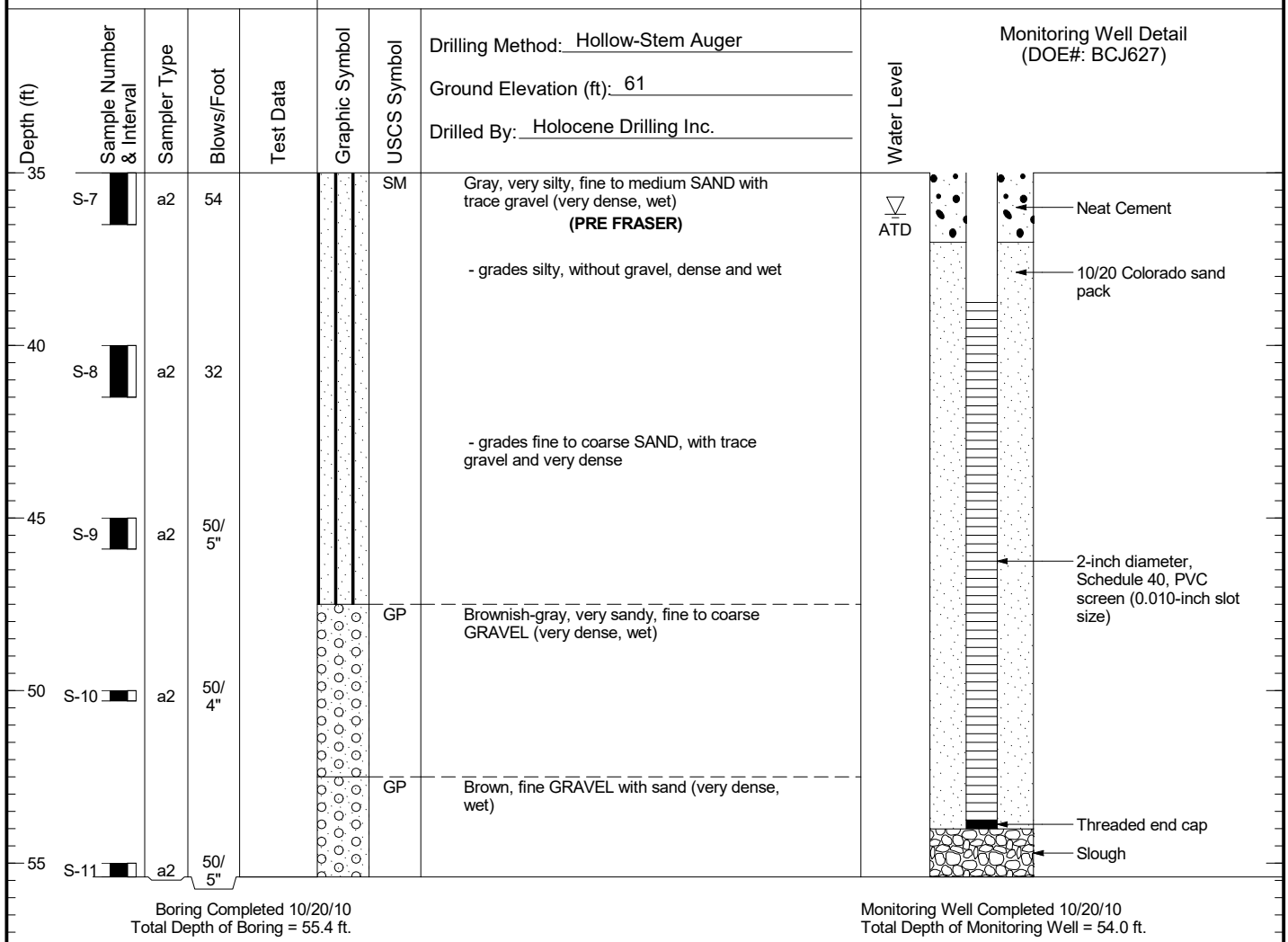
LAI-MW5



Boring Completed 10/20/10
Total Depth of Boring = 55.4 ft.

Monitoring Well Completed 10/20/10
Total Depth of Monitoring Well = 54.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.
4. **DOE Unique Well Number: BCJ627**

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Log of Monitoring Well LAI-MW5

Figure
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LAI-B6

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Holocene Drilling Inc.	Water Level
0						AC	12-inches asphalt concrete pavement	
	S-1	i4 d		0.0		SP-SM	Brown, gravelly, fine to coarse SAND with silt; no odor (medium dense, damp) **(FILL)**	
5	S-2	d		0.0				
	S-3	i4 d		0.0		SP	Dark gray, fine to medium SAND with trace shells; no odor (loose, damp) **(DREDGE FILL)**	
							- grades moist	
10	S-4	d i4		0.0				
	S-5	d i4		52.1			- grades wet and with a strong hydrocarbon odor	ATD-9:36 am ATD-10:41 am
15	S-6	d		0.4		ML	Dark gray SILT with organics; stong hydrocarbon odor (medium stiff, wet)	
	S-7	d		0.0		SP-SM	**(TIDAL DEPOSITS)**	
	S-8	d i4		13.0		SP	Brown, fine to medium SAND with silt; strong hydrocarbon odor (medium dense, wet)	
	S-9	d		0.0		SM	Dark gray, fine to medium SAND; strong hydrocarbon odor (medium dense, wet)	
20	S-10	d		0.0		SP	Brown, silty, fine to coarse SAND with gravel; no odor (very dense, wet)	
	S-11	d i4		0.0		SM	**(PRE-FRASER DEPOSITS)**	
							Dark gray, fine to medium SAND; no odor (dense, wet)	
25							**Groundwater sample: LAI-B6(20)-20131125**	
							Light gray iron oxide mottled, silty, gravelly, fine to coarse SAND; no odor (very dense, wet)	
							Groundwater sample: LAI-B6(25.6)-20131125	
30								
35								

Boring Completed 11/25/13
Total Depth of Boring = 25.6 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 8/28/14 N:\PROJECTS\094048.013.GPJ SOIL BORING LOG

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Log of Boring LAI-B6

Figure
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LAI-B7

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Holocene Drilling Inc.	Water Level
0						AC	9-inches asphalt concrete pavement	
	S-1	d		0.0		GP	Brown, very sandy GRAVEL; no odor (medium dense, damp)	
		i4				SP	**(FILL)**	
	S-2	d		0.0			Dark brown, very gravelly, fine to coarse SAND; no odor (medium dense, damp)	
		d						
	S-3			0.0			- grades gravelly	
5						SP	Dark gray, fine to medium SAND with trace shells; no odor (medium dense, moist)	
	S-4	i4 d		0.0			**(DREDGE FILL)**	
	S-5	d		0.0			- grades moist	
10		i4						
	S-6	d		0.0			- grades brown and wet	ATD-12:10 pm ATD- 1:11 pm
		i4						
	S-7	d		0.0			- grades dark gray and with light hydrocarbon odor	
15	S-8	d		0.0				
		i4						
	S-9	d		0.2		SM	Dark gray, very silty, fine to medium SAND with trace shells; hydrocarbon odor (medium dense, wet)	
20	S-10	d		0.2		SP	**(TIDAL DEPOSITS)**	
							Dark gray, fine to medium SAND; no odor (dense, wet)	
		i4					**Groundwater sample: LAI-B7(20)-20131125**	
25						SM	Yellowish-brown, very silty, fine to coarse SAND with gravel; no odor (very dense, wet)	
	S-11	d		0.0			**(PRE-FRASER DEPOSITS)**	
							Groundwater sample: LAI-B7(25)-20131125	
30								
35								

Boring Completed 11/25/13
Total Depth of Boring = 28.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 8/28/14 N:\PROJECTS\094048.013.GPJ SOIL BORING LOG

LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Boring LAI-B7

Figure
I-25

LAI-B8

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Holocene Drilling Inc.	Water Level
0						AC	10-inches asphalt concrete pavement	
	S-1	d i4		0.0		GP	Brown, sandy to very sandy GRAVEL; no odor (very dense, damp) **(FILL)**	
5	S-2	d i4		0.0				
	S-3	d		0.0		SP	Dark gray, fine to medium SAND with trace shells; no odor (medium dense, moist) **(DREDGE FILL)**	
	S-4	d i4		0.0				
10							- grades wet	▽ ATD-2:23 pm ▽ ATD-3:04 pm
		i4						
15	S-5	d i4		0.0				
	S-6	d		0.0		SM	Dark gray, silty, fine to medium SAND; no odor (medium dense, wet)	
20	S-7	d		0.0		GP	**(TIDAL DEPOSITS)**	
	S-8	d		0.0		SP	Gray, sandy GRAVEL with trace shells; no odor (dense, wet) **Groundwater sample: LAI-B8(20)-20131125**	
	S-9	i4 d		0.0		GP	Dark gray, fine to medium SAND with trace shells; hydrocarbon odor (very dense, wet)	
25							Gray, sandy GRAVEL; hydrocarbon odor (very dense, wet) **LAI-B8(25)-20131125**	
30								
35								

Boring Completed 11/25/13
Total Depth of Boring = 28.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 8/28/14 N:\PROJECTS\094048.013.GPJ SOIL BORING LOG

LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Boring LAI-B8

Figure
I-26

LAI-B9

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Holocene Drilling Inc.	Water Level
0						AC	10.5-inches asphalt concrete pavement	
	S-1	d i4		0.0		GP	Brownish-gray, very sandy GRAVEL; no odor (medium dense, damp) **(FILL)**	
	S-2	d		0.0		SP	Dark gray, very gravelly, fine to coarse SAND with trace shells; no odor (medium dense, damp)	
5						SP	**(DREDGE FILL)**	
	S-3	i4 d		0.0			Dark gray, fine to medium SAND with trace shells; no odor (medium dense, moist)	
	S-4	d		0.0				
10		i4						
	S-5	d		0.0			- grades wet and with shells	ATD-8:50 am ATD-9:40 am
		i4						
15	S-6	d		0.0				
		i4						
	S-7	d		0.0		SM SP	Dark gray, silty, fine SAND with trace shells; no odor (medium dense, wet) **(TIDAL DEPOSITS)**	
20	S-8	d		0.0			Dark gray, fine to medium SAND with trace shells; no odor (medium dense, wet)	
							Groundwater sample: LAI-B9(20)-20131126	
		i4					- grades with hydrocarbon odor	
25								
							- grades with trace gravel	
	S-9	i4 d		0.0				
30							**Groundwater sample: LAI-B9(30)-20131126**	

Boring Completed 11/26/13
Total Depth of Boring = 30.0 ft.

35

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 8/28/14 N:\PROJECTS\094048.013.GPJ SOIL BORING LOG

LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Boring LAI-B9

Figure
I-27

LAI-B10

SAMPLE DATA					SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	PID (ppm)	Graphic Symbol	USCS Symbol	Drilling Method: Geoprobe™ Ground Elevation (ft): Not Measured Drilled By: Holocene Drilling Inc.	Water Level
0						AC	9-inches asphalt concrete pavement	
	S-1	d		0.0		GP	Brown, very sandy GRAVEL; no odor (very dense, damp)	
		i4						
	S-2	d		0.0		SP	**(FILL)**	
							Brown, fine to coarse SAND with gravel; no odor (very dense, damp)	
	S-3	d		0.0		SP		
5							Brown, fine to coarse SAND with gravel and trace shells; no odor (dense, damp)	
		i4					**(DREDGE FILL)**	
	S-4	d		1.0		SP	Brown, fine to medium SAND with trace shells; no odor (medium dense, moist)	
10		i4						ATD-11:42 am
								ATD-12:30 pm
							- grades dark gray, with shells and wet	
		i4						
15	S-5	d		1.4			- grades with hydrocarbon odor	
	S-6	i4 d		2.1			**Groundwater sample: LAI-B10(19)-20131126**	
20								
		i4				GP	Brown GRAVEL; no odor (medium dense, wet)	
							(TIDAL DEPOSITS)	
	S-7	d		0.0				
25								
	S-8	i4 d		1.1		SP	Dark gray, fine to medium SAND with gravel and trace shells; hydrocarbon odor (medium dense, wet)	
							- grades with trace gravel	
	S-9	i4 d		0.3				
30							**Groundwater sample: LAI-B10(30)-20131126**	

Boring Completed 11/26/13
Total Depth of Boring = 30.0 ft.

35

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

94048.013 8/28/14 N:\PROJECTS\094048.013.GPJ SOIL BORING LOG

LANDAU ASSOCIATES

Sauro's Property RI/FS
Tacoma, Washington

Log of Boring LAI-B10

Figure
I-28

August 19, 2009

State of Washington
Department of Ecology
Toxics Cleanup Program
PO Box 47775
Olympia, WA 98504-7775

Attn: Marv Coleman

RE: SOIL VAPOR INTRUSION
EVALUATION OF NEIGHBORING PROPERTIES
SAURO'S CLEANERAMA

Dear Mr. Coleman:

Landau Associates has been asked to evaluate the potential effect of a dissolve-phase chlorinated volatile organic compound (VOC) contaminant plume emanating from the former Sauro Cleanerama property located at 1401 Pacific Avenue on neighboring properties indoor air quality. The neighboring properties in question are owned by Haub Enterprises and are located north of the Sauro property at 1305 Pacific Avenue (parcel # 2013030010; western property) and 1310 and 1320 A Street (parcel #s 2013020020 and 2013020011; eastern properties), which for the purposes of this letter will be referred to as the western and eastern subject properties. This letter evaluates the potential effects on indoor air quality from the groundwater contaminant plume and offers design considerations for proposed buildings on the subject properties. We are seeking approval from the Department of Ecology that the evaluation methods, assumptions, and conclusions in this evaluation are appropriate for the subject properties.

BACKGROUND

According to previous investigations performed by Landau Associates for the City of Tacoma (Landau Associates 2008), a dissolved-phase VOC groundwater plume emanating from the Sauro property crosses beneath portions of the subject properties. Plan views of tetrachloroethene (PCE) and trichloroethene (TCE) groundwater plumes are shown on Figures 1 and 2, respectively. Additionally, very low dissolved concentrations of vinyl chloride (less than 1 µg/L) are estimated to occur beneath the subject properties as shown on Figure 3. The groundwater table ranges in Elevation 38 ft, Mean Sea Level (ft, MSL) to 18 ft, MSL. This corresponds to depths between 25 ft to 40 ft below ground surface

(BGS), with groundwater beneath the majority of the subject properties expected to be at a depth of 35 to 40 ft BGS.

APPROACH

Risk posed by vapor intrusion is typically evaluated through development of a site conceptual model, followed by use of site-specific data to model exposure scenarios, such as the Johnson and Ettinger model (J&E model). If modeling results demonstrate unacceptable or elevated risk, approaches for mitigation may be evaluated based on cost, effectiveness, degree of implementability and regulatory acceptance. The following sections document this step-wise approach.

CONCEPTUAL SITE MODEL

The subject properties have a conceptual design to build a structure that utilizes a four to five-story parking garage below grade, with commercial office and retail space above. The below grade portion of the parking structure is expected to extend 40 to 50 ft BGS, and hence the bottom of the structure will likely be below the water table. Commercial space will be above the parking and as such, the property will likely be zoned for commercial use. Since parking garages are required to have their own ventilation systems that are separate from the remainder of the building, the conceptual site model focuses on potential exposure to workers such as ticket takers who may spend extended periods of time inside the parking garage.

Based on information presented above, it is likely that a portion of the proposed parking structure will be in direct contact with contaminated groundwater. Several stories of the parking structures on both properties may be in direct contact with groundwater. However, presumably only the southeast corner of the western structure and the southern half of the eastern structure will be in contact with contaminated groundwater.

USE OF A PREDICTIVE MODEL

Models provide predictive capability, but their reliability is difficult to determine with limited site-specific data (Johnson et al. 2002). The United State Environmental Protection Agency (USEPA) and the Interstate Technology Regulatory Council (ITRC) advocate the use of the Johnson and Ettinger (J&E) model, which is the most commonly used model for predicting chemical concentrations in indoor air. To facilitate its use in evaluating potential risk due to the inhalation of vapor in indoor air, USEPA has programmed into the J&E model a health risk component that calculates the human health risk from inhaling a specific chemical at the concentration estimated in indoor air. With input of groundwater or soil gas concentrations, the model estimates the associated indoor air concentration and provides an

associated health risk. The model uses the conservation-of-mass principle and is based, in part, on the following assumptions:

- Steady state conditions exist
- An infinite source of contamination exists
- Air mixing in the building is uniform
- Preferential pathways do not exist
- Biodegradation of soil gas does not occur
- Contaminants are homogeneously distributed laterally beneath the building
- Contaminant vapors enter a building primarily through cracks in the foundation and walls
- Buildings are constructed on slabs or with basements
- Ventilation rates and soil gas flow into the building are assumed to remain constant.

Many of the J&E model assumptions do not correspond to proposed conditions for this development scenario. For this reason the model results represent a very conservative conclusion. The following points summarize how actual site conditions will likely differ from the J&E model assumptions:

- An infinite source of contamination does not exist as the site is currently undergoing cleanup.
- Air mixing in the building is not uniform, as parking garages have their own ventilation systems that operate continuously or intermittently to remove carbon monoxide (CO) from vehicle emissions. The parking garage ventilation systems are typically separate from the ventilation systems in the remainder of the building. For this reason, only the parking structure is considered in the overall model calculations.
- Contaminants are not homogeneously distributed laterally beneath the building. For example, on the western subject property, contaminated media is estimated to only contact a very small percentage of the building foundation along the southeastern corner. To address this variability, USEPA's ProUCL Statistical Software was utilized to determine the 95% upper confidence intervals of known groundwater concentrations within 100 ft of the conceptual building footprints. This method yields a conservative estimate of groundwater concentrations beneath the buildings for use in the J&E model.
- Several stories of the building will be below the groundwater table. Therefore waterproofing of the foundation will likely be required. Most water proofing methods are also effective at preventing vapor intrusion. Thus there will be limited opportunity for soil gas to enter the building and vapor flow into the building will not be constant beneath the entire parking structure.

Several of the default model inputs for the J&E model can be changed to more closely correspond to the site specific conditions. For example the default parameters assume the structure is a residential

home, but air exchange rates and exposure durations can be modified to reflect a multi-story commercial building. The following values were used in the model.

- An average soil temperature of 11.7 C was used to reflect average soil temperature in the Tacoma area (J/E Model User's Guide 1997).

- The enclosed floor space dimensions for each proposed parking garage structure are assumed to be 120 ft by 160 ft and located on the south end of each property. This is a conservative assumption since the buildings will likely have a larger foot print that will extend to the north over the portion of the aquifer that is uncontaminated.

- Based on the required air exchange rates required for parking garages under the Washington State Ventilation and Indoor Air Quality Code (WAC 51-13-304), an air exchange rate of 1.5 cfm/ft^2 (10 air exchanges per hour for a structure with 9-ft ceilings) was used in the model.

- An inhalation rate of 7 m^3/day was used to reflect an 8-hour work day typical of a commercial situation.

- An exposure frequency of 250 days/year was used to reflect a 5-day work week typical of a commercial situation.

A summary of modeling results for PCE, TCE and vinyl chloride are shown in the table below. Estimated incremental risk for carcinogens in excess of 1E-06 (or one in one million), or a hazard quotient for non-carcinogens greater than one represent elevated levels of risk to human health. The model results indicate that the estimated risk is below that which would be considered an elevated health risk for all constituents at both the east and west subject properties.

TABLE 1. SUMMARY OF J & E MODELING RESULTS

	Western Subject Property		Eastern Subject Property	
	Incremental Risk	Hazard Quotient	Incremental Risk	Hazard Quotient
PCE	2.2E-08	1.6E-05	4.1E-08	2.9E-05
TCE	1.3E-7	7.5E-05	1.6E-07	9.0E-05
Vinyl chloride	2.8E-10	8.0E-07	5.3E-10	1.5E-06

These model results represent an average of 10 air exchanges per hour. The air exchanges per hour are directly related to the required ventilation rate (1.5 cfm/sf) and the ceiling heights in the garage. The higher the ceiling the fewer air exchanges per hour are achieved. The model was run using different air exchanges per hour to identify the minimum air exchanges per hour that would not result in increased health risk. In order to control health risk the air exchanges per hour should be greater than or equal to two. All envisioned scenarios for the parking garage would have greater than two air exchanges per hour.

OTHER CONSIDERATIONS

In addition to considering the parking structure itself, we also considered other potential routes of vapor intrusion into the building, namely, the elevator shaft. Although there is no potential for long term worker exposure in an elevator shaft, the shaft has the ability to act as a conduit to other parts of the building if not properly sealed or ventilated. Since the floor of the building is proposed below the elevation of the water table, we assume that the floor along with the base of the elevator shaft will be sealed with a water proofing material such as LiquidBoot™, or Epro's System III MB Moisture/Gas Barrier. These systems would also be effective at preventing chemical vapor intrusion into the elevator shaft and should therefore eliminate this pathway. The chosen method of waterproofing should be evaluated for its compatibility with VOCs. Additionally, care should be taken in the design process to identify any potential subgrade conduits that could introduce soil vapor into the elevator shaft and ensure that they are properly sealed if they are in a contaminated area.

CONCLUSIONS AND RECOMMENDATIONS

The J&E model results indicate that VOCs from soil vapor would not cause an elevated health risk for workers in the proposed building. No additional active treatment or engineering controls are needed for the proposed development scenario. During the design process, the designers should be informed of the design considerations for the elevator shaft and ventilation rates mentioned above. Additionally, the designers should verify with the manufacturer that the waterproof coatings for submerged portions of the building are compatible with low concentrations of dissolved VOCs.

USE OF THIS EVALUATION

This evaluation has been prepared for the exclusive use of the City of Tacoma, Haub Enterprises, and the Department of Ecology. No other party is entitled to rely on the information, conclusions and recommendations included in this document without the express written consent of Landau Associates. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

LANDAU ASSOCIATES, INC.

Jennifer W. Wynkoop
Senior Scientist

JWW/jas

REFERENCES

Integrated Technology & Regulatory Council. 2007. *Technical and Regulatory Guidance Supplement, Vapor Intrusion Pathway: Investigative Approaches for Typical Scenarios, A Supplement to Vapor Intrusion Pathway: A Practical Guide.* Prepared by the Interstate Technology & Regulatory Council Vapor Intrusion Team. January.

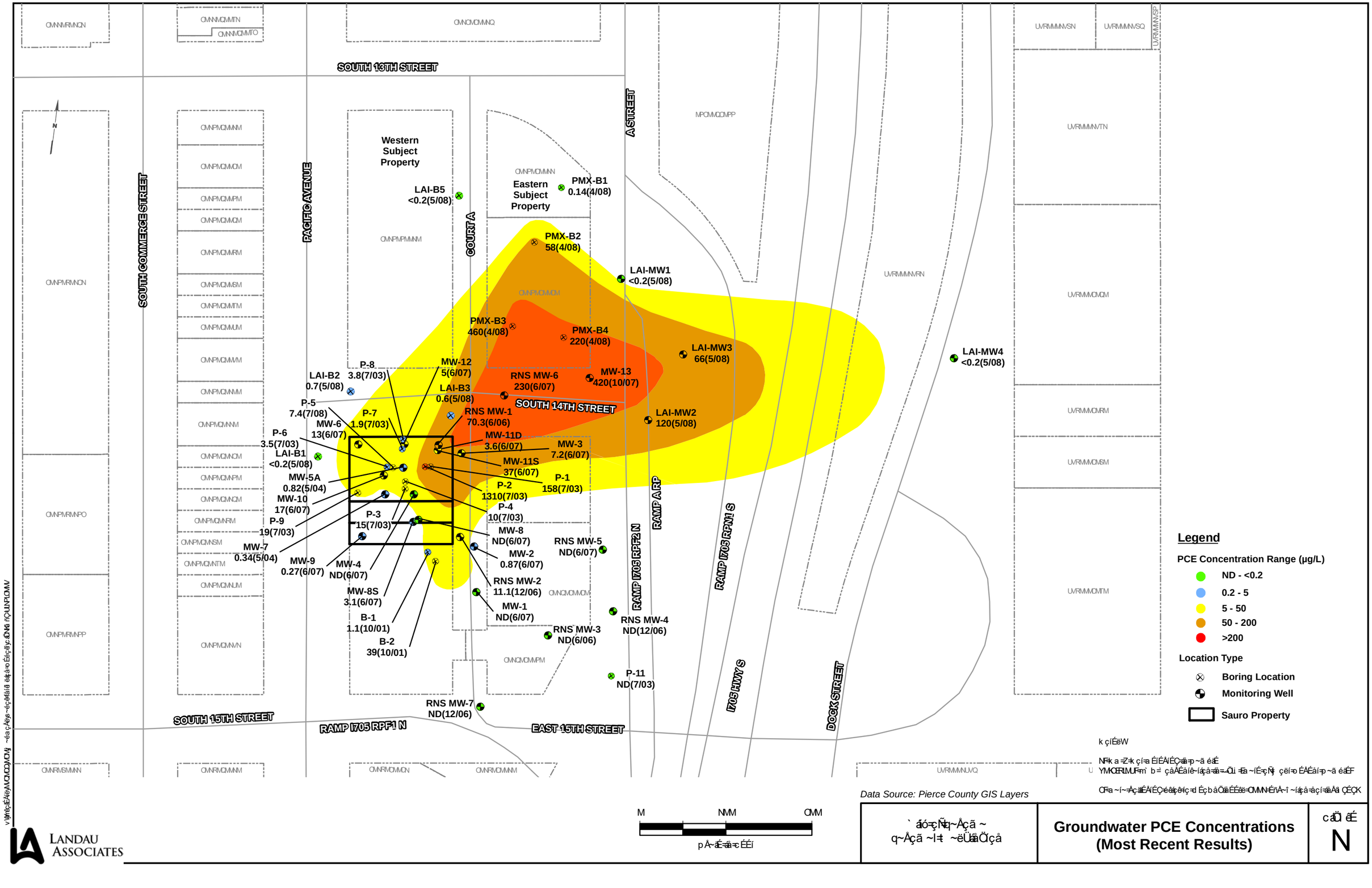
Johnson, P. C., R. A. Ettinger, J. Kurtz, R. Bryan, and J. E. Kester. 2002. *Migration of Soil Gas Vapors to Indoor Air: Determining Vapor Attenuation Factors Using a Screening Level Model and Field Data from the CDTO-MTL Denver, Colorado Site.* API Soil and Groundwater Research Bulletin No. 16. American Petroleum Institute.

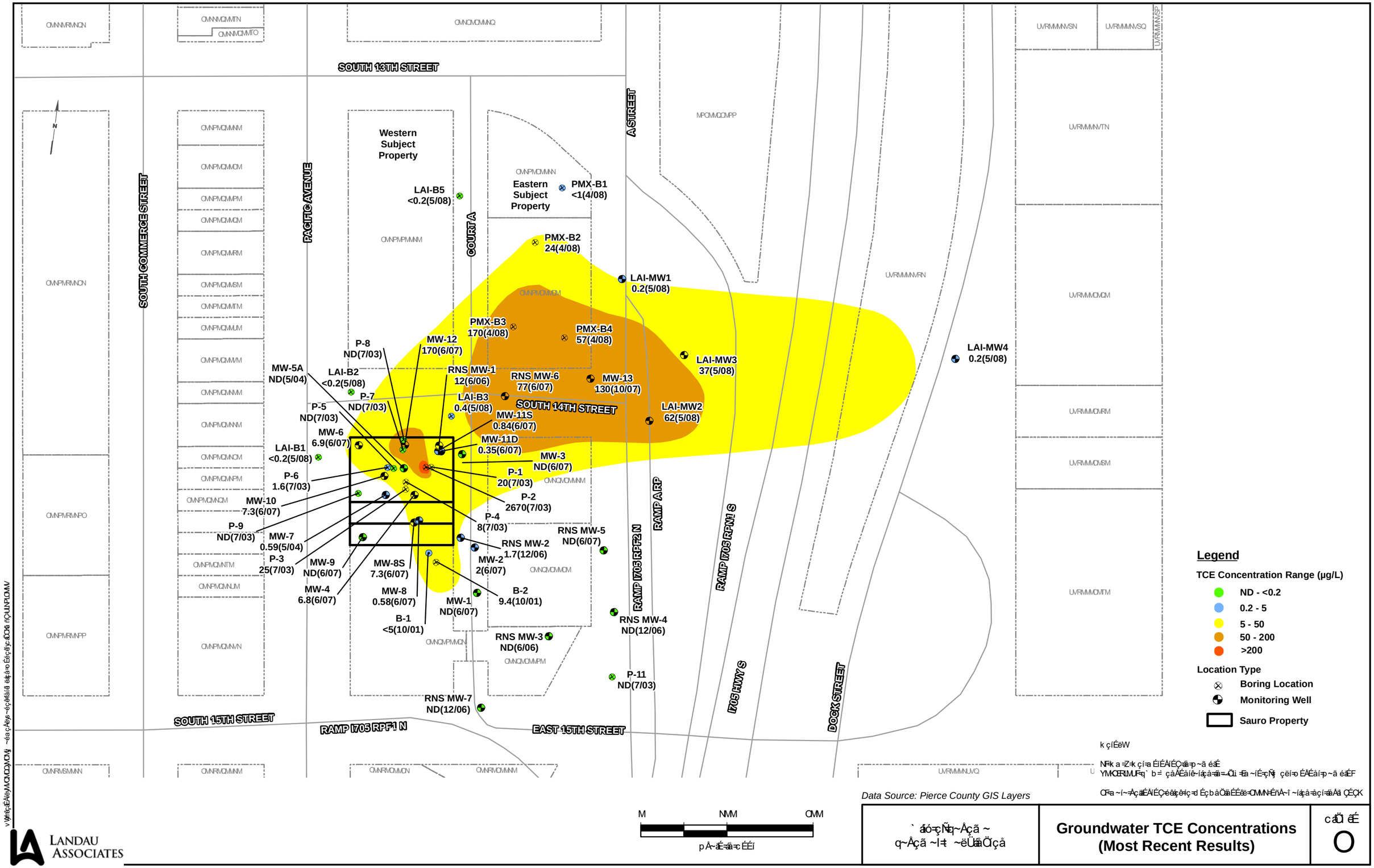
Landau Associates. 2008. *Phase II Investigation Report, Sauro Property-1401, 1407, and 1409 Pacific Avenue, Tacoma, Washington.* June 17.

Spengler, J.D., Sarnet, J.M, McCarthy, J.F. 2000. *Indoor Air Quality Handbook.* McGraw Hill Professional. December.

Attachments: Figure 1 – Groundwater PCE Concentrations (Most Recent Results)
Figure 2 – Groundwater TCE Concentrations (Most Recent Results)
Figure 3 – Groundwater Vinyl Chloride Concentrations (Most Recent Results)

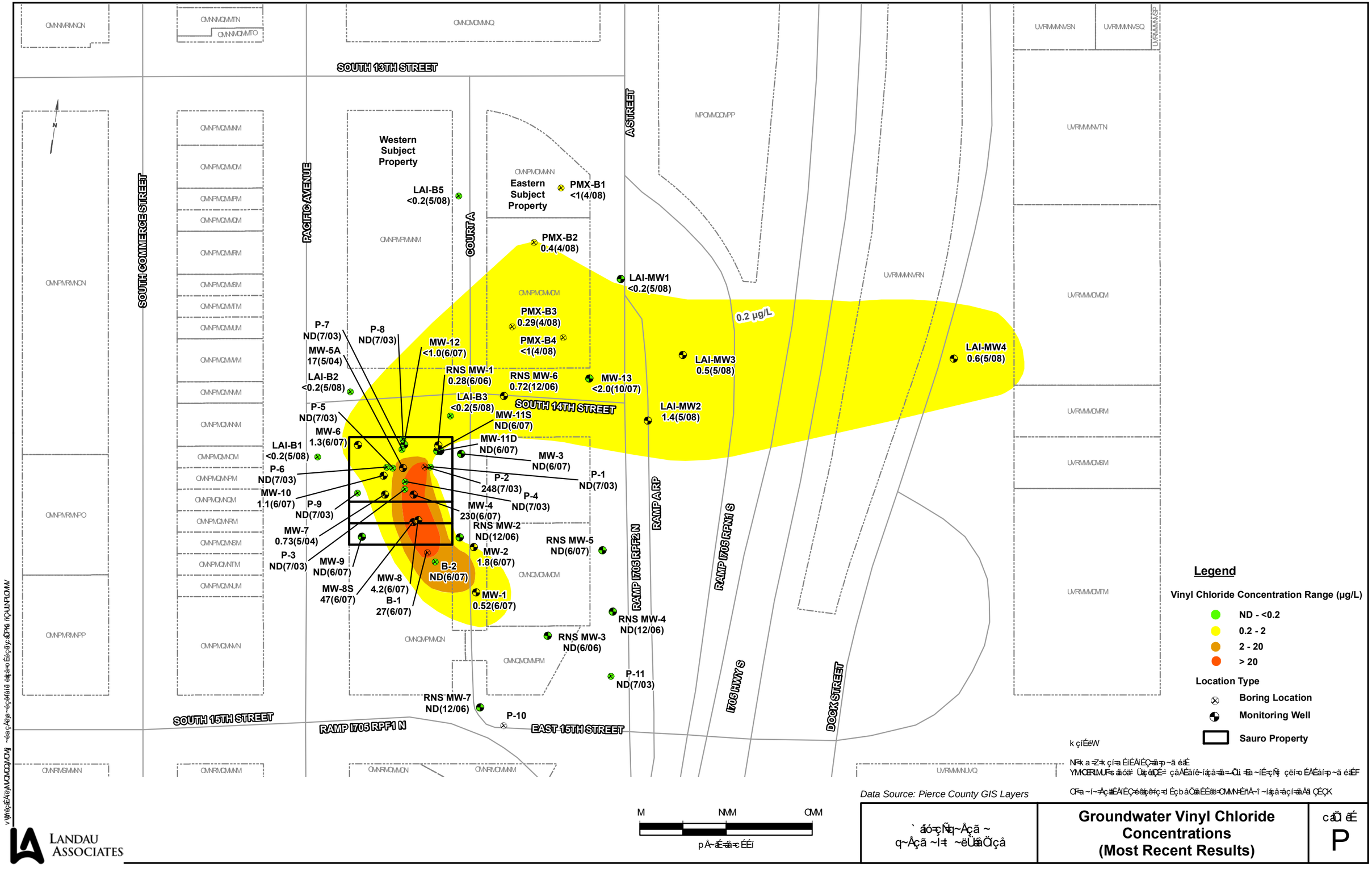
Cc: Mr. John Barline, Williams Kastner
Mr. Mike Hickey, Neil Walter Company
Mr. Calvin Taylor, City of Tacoma
Ms. Ellen Walkowiak, City of Tacoma


SOUTH 13TH STREET
SOUTH COMMERCE STREET
PACIFIC AVENUE
COURT A
A STREET
Western Subject Property
Eastern Subject Property
LAI-B5 <0.2(5/08)
PMX-B1 0.14(4/08)
PMX-B2 58(4/08)
LAI-MW1 <0.2(5/08)
PMX-B3 460(4/08)
PMX-B4 220(4/08)
LAI-MW3 66(5/08)
LAI-MW4 <0.2(5/08)
P-8 3.8(7/03)
MW-12 5(6/07)
LAI-B2 0.7(5/08)
RNS MW-6 230(6/07)
MW-13 420(10/07)
LAI-B3 0.6(5/08)
SOUTH 14TH STREET
P-5 7.4(7/08)
P-7 1.9(7/03)
RNS MW-1 70.3(6/06)
LAI-MW2 120(5/08)
MW-6 13(6/07)
P-6 3.5(7/03)
MW-11D 3.6(6/07)
MW-3 7.2(6/07)
LAI-B1 <0.2(5/08)
MW-11S 37(6/07)
MW-5A 0.82(5/04)
P-1 158(7/03)
P-2 1310(7/03)
MW-10 17(6/07)
P-4 10(7/03)
P-3 15(7/03)
P-9 19(7/03)
MW-8 ND(6/07)
RNS MW-5 ND(6/07)
MW-7 0.34(5/04)
MW-2 0.87(6/07)
MW-9 0.27(6/07)
MW-4 ND(6/07)
RNS MW-2 11.1(12/06)
MW-8S 3.1(6/07)
MW-1 ND(6/07)
B-1 1.1(10/01)
RNS MW-4 ND(12/06)
RNS MW-3 ND(6/06)
B-2 39(10/01)
P-11 ND(7/03)
RNS MW-7 ND(12/06)
SOUTH 15TH STREET
RAMP I705 RPF1 N
EAST 15TH STREET
RAMP I705 RPF2 N
RAMP ARP
RAMP I705 RPM1 S
I705 HWY S
DOCK STREET
Legend
PCE Concentration Range (µg/L)
ND - <0.2
0.2 - 5
5 - 50
50 - 200
>200
Location Type
Boring Location
Monitoring Well
Sauro Property
Data Source: Pierce County GIS Layers
LANDAU ASSOCIATES
Groundwater PCE Concentrations (Most Recent Results)
N



LANDAU ASSOCIATES

Groundwater TCE Concentrations (Most Recent Results)



LANDAU ASSOCIATES

Groundwater Vinyl Chloride Concentrations (Most Recent Results)

P

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

August 28, 2009

Jennifer Wynkoop
Landau Associates, Inc.
950 Pacific Ave., Suite 515
Tacoma, WA 98402

Re: Soil Vapor Intrusion Associated with Sauro's Cleanerama

Dear Jennifer:

I have reviewed the document dated August 19, 2009 that provides an evaluation of potential vapor intrusion (VI) of volatile organic compounds (VOCs) into a building to be constructed over the groundwater contamination associated with Sauro's Cleanerama. The evaluation was primarily based on subjecting groundwater and soil data to the Johnson & Ettinger (J&E) model, with additional assumptions based on expected building design elements.

As noted in your report, the J&E model has some utility in forming some base risk calculations, but uses some input assumptions that don't apply to the expected building design. Using the applicable input assumptions and using some other inputs that more closely match the expected design (such as indoor air exchange rates), the predicted risk values came up better than the goal risk values of 1E-06 incremental risk and a hazard quotient of one. I agree with your assertion that, even at that, the values are based on relatively conservative inputs (such as removal of current source material, total percentage of building area that would be in proximity to the contamination, air exchange, depth to groundwater, etc.)

Based on the risk calculations and the design considerations, it is my opinion that Ecology can accept the Conclusions and Recommendations contained in the report. I would request that, as building design and construction take place, that Ecology be provided details of proposed design elements so that we can be sure that the assumptions that were considered in your report are being carried out as you indicated in the report. In the same vein, please provide as-builts, once construction has been completed. Please let me know if any questions.

Sincerely,

Mary Coleman, Site Manager/Inspector
Southwest Regional Office
Toxics Cleanup Program
Phone: 360 407 6259
Fax: 360 407 6305
Pager: 360 709 4139
Email: mcol461@ecy.wa.gov

MC/ksc:VI JE Model and assumptions

cc: John Barline, Williams Kastner
Cal Taylor, City of Tacoma
Ellen Walkowiak, City of Tacoma
Scott Rose, Ecology

By certified mail: (7007 2560 0000 6214 8668)

APPENDIX L

September 2013 Quarterly MNA Parameters
MNA Remedy Evaluation Scoring Sheets

United States
Environmental Protection
Agency

Office of Research and
Development
Washington DC 20460

EPA/600/R-98/128
September 1998

EPA

Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water

Table 2.3 Analytical Parameters and Weighting for Preliminary Screening for Anaerobic Biodegradation Processes[a/]

Analysis	Concentration in Most Contaminated Zone	Interpretation	Value
Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
Sulfide*	>1 mg/L	Reductive pathway possible	3
Methane*	<0.5 mg/L >0.5 mg/L	VC oxidizes Ultimate reductive daughter product, VC Accumulates	0 3
Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV) <-100mV	Reductive pathway possible Reductive pathway likely	1 2
pH*	5 < pH < 9 5 > pH >9	Optimal range for reductive pathway Outside optimal range for reductive pathway	0 -2
TOC	> 20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
Temperature*	> 20°C	At T >20°C biochemical process is accelerated	1
Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
Chloride*	>2x background	Daughter product of organic chlorine	2
Hydrogen	>1 nM	Reductive pathway possible, VC may accumulate	3
Hydrogen	<1 nM	VC oxidized	0
Volatile Fatty Acids	> 0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
BTEX*	> 0.1 mg/L	Carbon and energy source; drives dechlorination	2
Tetrachloroethene		Material released	0
Trichloroethene*		Material released Daughter product of PCE	0 2[a/]
DCE*		Material released Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	0 2[a/]
VC*		Material released Daughter product of DCE	0 2[a/]
1,1,1-Trichloroethane*		Material released	0
DCA		Daughter product of TCA under reducing conditions	2
Carbon Tetrachloride		Material released	0
Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
Ethene/Ethane	>0.01mg/L >0.1 mg/L	Daughter product of VC/ethene	2 3
Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
Dichloromethane		Material released Daughter product of Chloroform	0 2

* Required analysis. a/ Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).

Table 2.4 Interpretation of Points Awarded During Screening Step 1

Score	Interpretation
0 to 5	Inadequate evidence for anaerobic biodegradation* of chlorinated organics
6 to 14	Limited evidence for anaerobic biodegradation* of chlorinated organics
15 to 20	Adequate evidence for anaerobic biodegradation* of chlorinated organics
> 20	Strong evidence for anaerobic biodegradation* of chlorinated organics

**reductive dechlorination*

TABLE L-1
MW-1 SEPTEMBER 2013 DATA
MONITORED NATURAL ATTENUATION REMEDY EVALUATION
SAURO'S PROPERTY RI/FS

Most Recent Concentration	Analysis	Concentration in Most Concentrated Zone	Interpretation	Value
NS	Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
	Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
<0.010 mg/L	Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
NS	Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
39.7 mg/L	Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
<0.150 mg/L	Sulfide*	>1 mg/L	Reductive pathway possible	3
0.25 mg/L	Methane*	<0.5 mg/L	VC oxidizes	0
		>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	3
NS	Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV)	Reductive pathway possible	1
		<-100 mV	Reductive pathway likely	2
NS	pH*	5<pH<9	Optimal range for reductive pathway	0
		5>pH>9	Outside optimal range for reductive pathway	-2
13.4 mg/L	TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
NS	Temperature*	>20°C	At T>20°C biochemical process is accelerated	1
--	Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
--	Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
64.3 mg/L	Chloride*	>2x background	Daughter product of organic chlorine	2
--	Hydrogen	>1 nM	Reductive pathway possible	3
	Hydrogen	<1 nM	VC oxidized	0
--	Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
<0.5 µg/L	BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	2
<0.2 µg/L	Tetrachloroethene		Material released	0
<0.2 µg/L	Trichloroethene*		Material released	0
			Daughter product of PCE	2^a
0.5 µg/L	DCE*		Material released	0
			Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	2^a
<0.2 µg/L	VC*		Material released	0
			Daughter product of DCE	2^a
<0.5 µg/L	1,1,1-Trichloroethane*		Material released	0
--	DCA		Daughter product of TCA under reducing conditions	2
<0.5 µg/L	Carbon Tetrachloride		Material released	0
<0.5 µg/L	Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
<0.0050 mg/L	Ethene/Ethane	>0.01 mg/L	Daughter product of VC	2
<0.0050 mg/L		>0.1 mg/L	Daughter product of ethene	3
<0.5 µg/L	Chloroform		Material released	0
			Daughter product of Carbon Tetrachloride	2
--	Dichloromethane		Material released	0
			Daughter product of Chloroform	2

SCORE: **6**
INTERPRETATION: **Limited**

-- = Not part of sampling program
* Required analysis.
2^a = Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).
Yellow Highlight = applicable scoring criteria and score

NS = Not sampled, but part of sampling program

Scores:
0-5 = Inadequate evidence of anaerobic biodegradation of chlorinated organics
6-14 = Limited evidence of anaerobic biodegradation of chlorinated organics
15-20 = Adequate evidence of anaerobic biodegradation of chlorinated organics

Notes:
For wells with more than one sample depth, the greatest concentration was used.
Background level for chloride was taken from well RNS-MW7 and was equal to 28.8 mg/L in September 2013.

TABLE L-2
MW-2 SEPTEMBER 2013 DATA
MONITORED NATURAL ATTENUATION REMEDY EVALUATION
SAURO'S PROPERTY RI/FS

Most Recent Concentration	Analysis	Concentration in Most Concentrated Zone	Interpretation	Value
NS	Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
	Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
1.63 mg/L	Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
NS	Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
50.3 mg/L	Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
<0.150 mg/L	Sulfide*	>1 mg/L	Reductive pathway possible	3
0.26 mg/L	Methane*	<0.5 mg/L	VC oxidizes	0
		>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	3
-113.0 mV	Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV)	Reductive pathway possible	1
		<-100 mV	Reductive pathway likely	2
7.44	pH*	5<pH<9	Optimal range for reductive pathway	0
		5>pH>9	Outside optimal range for reductive pathway	-2
6.74 mg/L	TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
17.7°C	Temperature*	>20°C	At T>20°C biochemical process is accelerated	1
--	Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
--	Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
66.3 mg/L	Chloride*	>2x background	Daughter product of organic chlorine	2
--	Hydrogen	>1 nM	Reductive pathway possible	3
	Hydrogen	<1 nM	VC oxidized	0
--	Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
< 0.5 µg/L	BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	2
0.7 µg/L	Tetrachloroethene		Material released	0
0.6 µg/L	Trichloroethene*		Material released	0
			Daughter product of PCE	2[a]
1.4 µg/L	DCE*		Material released	0
			Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	2[a]
0.2 µg/L	VC*		Material released	0
			Daughter product of DCE	2[a]
<0.5	1,1,1-Trichloroethane*		Material released	0
--	DCA		Daughter product of TCA under reducing conditions	2
< 0.5 µg/L	Carbon Tetrachloride		Material released	0
<0.5 µg/L	Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
<0.0050 mg/L	Ethene/Ethane	>0.01 mg/L	Daughter product of VC	2
<0.0050 mg/L		>0.1 mg/L	Daughter product of ethene	3
<0.5 µg/L	Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
--	Dichloromethane		Material released Daughter product of Chloroform	0 2

SCORE: **10**
INTERPRETATION: **Limited**

-- = Not part of sampling program
* Required analysis.
2[a] = Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).
Yellow Highlight = applicable scoring criteria and score

NS = Not sampled, but part of sampling program

Scores:
0-5 = Inadequate evidence of anaerobic biodegradation of chlorinated organics
6-14 = Limited evidence of anaerobic biodegradation of chlorinated organics
15-20 = Adequate evidence of anaerobic biodegradation of chlorinated organics

Notes:
For wells with more than one sample depth, the greatest concentration was used.
Background level for chloride was taken from well RNS-MW7 and was equal to 28.8 mg/L in September 2013.

TABLE L-3
MW-13 SEPTEMBER 2013 DATA
MNA REMEDY EVALUATION
SAURO'S PROPERTY RI/FS

Most Recent Concentration	Analysis	Concentration in Most Concentrated Zone	Interpretation	Value
1.28 mg/L	Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
	Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
1.01 mg/L	Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
0.240 mg/L	Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
34.6 mg/L	Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
<0.150 mg/L	Sulfide*	>1 mg/L	Reductive pathway possible	3
0.0066 mg/L	Methane*	<0.5 mg/L	VC oxidizes	0
		>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	3
48.5 mV	Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV)	Reductive pathway possible	1
		<-100 mV	Reductive pathway likely	2
6.84	pH*	5<pH<9	Optimal range for reductive pathway	0
		5>pH>9	Outside optimal range for reductive pathway	-2
8.79 mg/L	TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
16.11°C	Temperature*	>20°C	At T>20°C biochemical process is accelerated	1
--	Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
--	Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
10.2 mg/L	Chloride*	>2x background	Daughter product of organic chlorine	0
--	Hydrogen	>1 nM	Reductive pathway possible	3
	Hydrogen	<1 nM	VC oxidized	0
--	Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
<0.5 µg/L	BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	2
430 µg/L	Tetrachloroethene		Material released	0
110 µg/L	Trichloroethene*		Material released	0
			Daughter product of PCE	2[a]
120 µg/L	DCE*		Material released	0
			Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	2[a]
0.8 µg/L	VC*		Material released	0
			Daughter product of DCE	2[a]
< 0.5 µg/L	1,1,1-Trichloroethane*		Material released	0
--	DCA		Daughter product of TCA under reducing conditions	2
< 0.5 µg/L	Carbon Tetrachloride		Material released	0
<0.5 µg/L	Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
<0.0050 mg/L	Ethene/Ethane	>0.01 mg/L	Daughter product of VC	2
<0.0050 mg/L		>0.1 mg/L	Daughter product of ethene	3
< 0.5 µg/L	Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
--	Dichloromethane		Material released Daughter product of Chloroform	0 2

SCORE: 7
INTERPRETATION: Limited

-- = Not part of sampling program
* Required analysis.
2[a] = Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).
Yellow Highlight = applicable scoring criteria and score

NS = Not sampled, but part of sampling program

Scores:
0-5 = Inadequate evidence of anaerobic biodegradation of chlorinated organics
6-14 = Limited evidence of anaerobic biodegradation of chlorinated organics
15-20 = Adequate evidence of anaerobic biodegradation of chlorinated organics

Notes:
For wells with more than one sample depth, the greatest concentration was used.
Background level for chloride was taken from well RNS-MW7 and was equal to 28.8 mg/L in September 2013.

TABLE L-4
LAI-MW1 SEPTEMBER 2013 DATA
MONITORED NATURAL ATTENUATION REMEDY EVALUATION
SAURO'S PROPERTY RI/FS

Most Recent Concentration	Analysis	Concentration in Most Concentrated Zone	Interpretation	Value
1.20 mg/L	Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
	Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
1.40 mg/L	Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
<0.030 mg/L	Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
25.8 mg/L	Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
<0.150 mg/L	Sulfide*	>1 mg/L	Reductive pathway possible	3
<0.0050 mg/L	Methane*	<0.5 mg/L	VC oxidizes	0
		>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	3
-31.8 mV	Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV)	Reductive pathway possible	1
		<-100 mV	Reductive pathway likely	2
6.27	pH*	5<pH<9	Optimal range for reductive pathway	0
		5>pH>9	Outside optimal range for reductive pathway	-2
11.2 mg/L	TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
19.28°C	Temperature*	>20°C	At T>20°C biochemical process is accelerated	1
--	Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
--	Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
47.8mg/L	Chloride*	>2x background	Daughter product of organic chlorine	2
--	Hydrogen	>1 nM	Reductive pathway possible	3
	Hydrogen	<1 nM	VC oxidized	0
--	Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
<0.5 µg/L	BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	2
<0.2 µg/L	Tetrachloroethene		Material released	0
<0.2 µg/L	Trichloroethene*		Material released	0
			Daughter product of PCE	2[a]
<0.2 µg/L	DCE*		Material released	0
			Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	2[a]
<0.2 µg/L	VC*		Material released	0
			Daughter product of DCE	2[a]
<0.5 µg/L	1,1,1-Trichloroethane*		Material released	0
--	DCA		Daughter product of TCA under reducing conditions	2
<0.5 µg/L	Carbon Tetrachloride		Material released	0
<0.5 µg/L	Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
<0.0050 mg/L	Ethene/Ethane	>0.01 mg/L	Daughter product of VC	2
<0.0050 mg/L		>0.1 mg/L	Daughter product of ethene	3
<0.5 µg/L	Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
--	Dichloromethane		Material released Daughter product of Chloroform	0 2

SCORE: **1**

INTERPRETATION: **Inadequate**

-- = Not part of sampling program
* Required analysis.
2[a] = Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).
Yellow Highlight = applicable scoring criteria and score

NS = Not sampled, but part of sampling program

Scores:
0-5 = Inadequate evidence of anaerobic biodegradation of chlorinated organics
6-14 = Limited evidence of anaerobic biodegradation of chlorinated organics
15-20 = Adequate evidence of anaerobic biodegradation of chlorinated organics

Notes:
For wells with more than one sample depth, the greatest concentration was used.
Background level for chloride was taken from well RNS-MW7 and was equal to 28.8 mg/L in September 2013.

TABLE L-5
LAI-MW2 SEPTEMBER 2013 DATA
MONITORED NATURAL ATTENUATION REMEDY EVALUATION
SAURO'S PROPERTY RI/FS

Most Recent Concentration	Analysis	Concentration in Most Concentrated Zone	Interpretation	Value
2.90 mg/L	Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
	Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
<0.010 mg/L	Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
<0.030 mg/L	Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
18.9 mg/L	Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
<0.150 mg/L	Sulfide*	>1 mg/L	Reductive pathway possible	3
0.026 mg/L	Methane*	<0.5 mg/L	VC oxidizes	0
		>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	3
-44.8 mV	Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV)	Reductive pathway possible	1
		<-100 mV	Reductive pathway likely	2
7.08	pH*	5<pH<9	Optimal range for reductive pathway	0
		5>pH>9	Outside optimal range for reductive pathway	-2
12.3 mg/L	TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
18.28°C	Temperature*	>20°C	At T>20°C biochemical process is accelerated	1
--	Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
--	Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
13.0 mg/L	Chloride*	>2x background	Daughter product of organic chlorine	0
--	Hydrogen	>1 nM	Reductive pathway possible	3
	Hydrogen	<1 nM	VC oxidized	0
--	Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
<0.5 µg/L	BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	2
360 µg/L	Tetrachloroethene		Material released	0
120 µg/L	Trichloroethene*		Material released	0
			Daughter product of PCE	2[a]
160 µg/L	DCE*		Material released	0
			Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	2[a]
0.8 µg/L	VC*		Material released	0
			Daughter product of DCE	2[a]
<0.5 µg/L	1,1,1-Trichloroethane*		Material released	0
--	DCA		Daughter product of TCA under reducing conditions	2
<0.5 µg/L	Carbon Tetrachloride		Material released	0
<0.5 µg/L	Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
<0.0050 mg/L	Ethene/Ethane	>0.01 mg/L	Daughter product of VC	2
0.0027 mg/L		>0.1 mg/L	Daughter product of ethene	3
<0.5 µg/L	Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
--	Dichloromethane		Material released Daughter product of Chloroform	0 2

SCORE: **11**
INTERPRETATION: **Limited**

-- = Not part of sampling program
* Required analysis.
2[a] = Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).
Yellow Highlight = applicable scoring criteria and score

NS = Not sampled, but part of sampling program

Scores:
0-5 = Inadequate evidence of anaerobic biodegradation of chlorinated organics
6-14 = Limited evidence of anaerobic biodegradation of chlorinated organics
15-20 = Adequate evidence of anaerobic biodegradation of chlorinated organics

Notes:
For wells with more than one sample depth, the greatest concentration was used.
Background level for chloride was taken from well RNS-MW7 and was equal to 28.8 mg/L in September 2013.

TABLE L-6
LAI-MW3 SEPTEMBER 2013 DATA
MONITORED NATURAL ATTENUATION REMEDY EVALUATION
SAURO'S PROPERTY RI/FS

Most Recent Concentration	Analysis	Concentration in Most Concentrated Zone	Interpretation	Value
3.00 mg/L	Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
	Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
0.655 mg/L	Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
<0.030 mg/L	Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
21.9 mg/L	Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
<0.150 mg/L	Sulfide*	>1 mg/L	Reductive pathway possible	3
0.0029 mg/L	Methane*	<0.5 mg/L	VC oxidizes	0
		>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	3
-29.0 mV	Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV)	Reductive pathway possible	1
		<-100 mV	Reductive pathway likely	2
6.87	pH*	5<pH<9	Optimal range for reductive pathway	0
		5>pH>9	Outside optimal range for reductive pathway	-2
16.0mg/L	TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
15.2 °C	Temperature*	>20°C	At T>20°C biochemical process is accelerated	1
--	Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
--	Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
19.3 mg/L	Chloride*	>2x background	Daughter product of organic chlorine	0
--	Hydrogen	>1 nM	Reductive pathway possible	3
	Hydrogen	<1 nM	VC oxidized	0
--	Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
<0.5 µg/L	BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	2
78 µg/L	Tetrachloroethene		Material released	0
34 µg/L	Trichloroethene*		Material released	0
			Daughter product of PCE	2[a]
54 µg/L	DCE*		Material released	0
			Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	2[a]
<0.2 µg/L	VC*		Material released	0
			Daughter product of DCE	2[a]
<0.5 µg/L	1,1,1-Trichloroethane*		Material released	0
--	DCA		Daughter product of TCA under reducing conditions	2
<0.5 µg/L	Carbon Tetrachloride		Material released	0
<0.5 µg/L	Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
<0.0050 mg/L	Ethene/Ethane	>0.01 mg/L	Daughter product of VC	2
<0.0050 mg/L		>0.1 mg/L	Daughter product of ethene	3
<0.5 µg/L	Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
--	Dichloromethane		Material released Daughter product of Chloroform	0 2

SCORE: **9**
INTERPRETATION: **Limited**

-- = Not part of sampling program
* Required analysis.
2[a] = Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).
Yellow Highlight = applicable scoring criteria and score

NS = Not sampled, but part of sampling program

Scores:
0-5 = Inadequate evidence of anaerobic biodegradation of chlorinated organics
6-14 = Limited evidence of anaerobic biodegradation of chlorinated organics
15-20 = Adequate evidence of anaerobic biodegradation of chlorinated organics

Notes:
For wells with more than one sample depth, the greatest concentration was used.
Background level for chloride was taken from well RNS-MW7 and was equal to 28.8 mg/L in September 2013.

TABLE L-7
LAI-MW4 SEPTEMBER 2013 DATA
MOINTORED NATURAL ATTENUATION REMEDY EVALUATION
SAURO'S PROPERTY RI/FS

Most Recent Concentration	Analysis	Concentration in Most Concentrated Zone	Interpretation	Value
2.60 mg/L	Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
	Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
<0.010 mg/L	Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
2.52 mg/L	Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
11.1 mg/L	Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
<0.150 mg/L	Sulfide*	>1 mg/L	Reductive pathway possible	3
3.0 mg/L	Methane*	<0.5 mg/L	VC oxidizes	0
		>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	3
-82.6 mV	Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV)	Reductive pathway possible	1
		<-100 mV	Reductive pathway likely	2
6.7	pH*	5<pH<9	Optimal range for reductive pathway	0
		5>pH>9	Outside optimal range for reductive pathway	-2
19.6 mg/L	TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
15.72°C	Temperature*	>20°C	At T>20°C biochemical process is accelerated	1
--	Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
--	Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
32.6 mg/L	Chloride*	>2x background	Daughter product of organic chlorine	2
--	Hydrogen	>1 nM	Reductive pathway possible	3
	Hydrogen	<1 nM	VC oxidized	0
--	Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
0.8 µg/L	BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	2
<0.2 µg/L	Tetrachloroethene		Material released	0
<0.2 µg/L	Trichloroethene*		Material released	0
			Daughter product of PCE	2[a]
0.6 µg/L	DCE*		Material released	0
			Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	2[a]
<0.2 µg/L	VC*		Material released	0
			Daughter product of DCE	2[a]
<0.5 µg/L	1,1,1-Trichloroethane*		Material released	0
--	DCA		Daughter product of TCA under reducing conditions	2
<0.5 µg/L	Carbon Tetrachloride		Material released	0
<0.5 µg/L	Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
<0.0050 mg/L	Ethene/Ethane	>0.01 mg/L	Daughter product of VC	2
<0.0050 mg/L		>0.1 mg/L	Daughter product of ethene	3
0.5 µg/L	Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
--	Dichloromethane		Material released Daughter product of Chloroform	0 2

SCORE: **13**
INTERPRETATION: **Limited**

-- = Not part of sampling program
* Required analysis.
2[a] = Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).
Yellow Highlight = applicable scoring criteria and score

NS = Not sampled, but part of sampling program

Scores:
0-5 = Inadequate evidence of anaerobic biodegradation of chlorinated organics
6-14 = Limited evidence of anaerobic biodegradation of chlorinated organics
15-20 = Adequate evidence of anaerobic biodegradation of chlorinated organics

Notes:
For wells with more than one sample depth, the greatest concentration was used.
Background level for chloride was taken from well RNS-MW7 and was equal to 28.8 mg/L in September 2013.

TABLE L-8
LAI-MW5 SEPTEMBER 2013 DATA
MONITORED NATURAL ATTENUATION REMEDY EVALUATION
SAURO'S PROPERTY RI/FS

Most Recent Concentration	Analysis	Concentration in Most Concentrated Zone	Interpretation	Value
1.00 mg/L	Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
	Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
<0.010 mg/L	Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
2.52 mg/L	Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
5.3 mg/L	Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
<0.150 mg/L	Sulfide*	>1 mg/L	Reductive pathway possible	3
11 mg/L	Methane*	<0.5 mg/L	VC oxidizes	0
		>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	3
-69.8 mV	Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV)	Reductive pathway possible	1
		<-100 mV	Reductive pathway likely	2
6.53	pH*	5<pH<9	Optimal range for reductive pathway	0
		5>pH>9	Outside optimal range for reductive pathway	-2
24.4 mg/L	TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
16.39°C	Temperature*	>20°C	At T>20°C biochemical process is accelerated	1
--	Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
--	Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
56.3 mg/L	Chloride*	>2x background	Daughter product of organic chlorine	2
--	Hydrogen	>1 nM	Reductive pathway possible	3
	Hydrogen	<1 nM	VC oxidized	0
--	Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
<0.5 µg/L	BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	2
<0.2 µg/L	Tetrachloroethene		Material released	0
<0.2 µg/L	Trichloroethene*		Material released	0
			Daughter product of PCE	2[a]
<0.2 µg/L	DCE*		Material released	0
			Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	2[a]
<0.2 µg/L	VC*		Material released	0
			Daughter product of DCE	2[a]
<0.5 µg/L	1,1,1-Trichloroethane*		Material released	0
--	DCA		Daughter product of TCA under reducing conditions	2
<0.5 µg/L	Carbon Tetrachloride		Material released	0
<0.5 µg/L	Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
<0.0050 mg/L	Ethene/Ethane	>0.01 mg/L	Daughter product of VC	2
<0.0050 mg/L		>0.1 mg/L	Daughter product of ethene	3
<0.5 µg/L	Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
--	Dichloromethane		Material released Daughter product of Chloroform	0 2

SCORE: **13**
INTERPRETATION: **Limited**

-- = Not part of sampling program
* Required analysis.
2[a] = Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).
Yellow Highlight = applicable scoring criteria and score

NS = Not sampled, but part of sampling program

Scores:
0-5 = Inadequate evidence of anaerobic biodegradation of chlorinated organics
6-14 = Limited evidence of anaerobic biodegradation of chlorinated organics
15-20 = Adequate evidence of anaerobic biodegradation of chlorinated organics

Notes:
For wells with more than one sample depth, the greatest concentration was used.
Background level for chloride was taken from well RNS-MW7 and was equal to 28.8 mg/L in September 2013.

TABLE L-9
RNS-MW2 SEPTEMBER 2013 DATA
MONITORED NATURAL ATTENUATION REMEDY EVALUATION
SAURO'S PROPERTY RI/FS

Most Recent Concentration	Analysis	Concentration in Most Concentrated Zone	Interpretation	Value
6.04 mg/L	Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
	Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
3.02 mg/L	Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
0.800 mg/L	Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
33.4 mg/L	Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
<0.150 mg/L	Sulfide*	>1 mg/L	Reductive pathway possible	3
<0.0050 mg/L	Methane*	<0.5 mg/L	VC oxidizes	0
		>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	3
66.5 mV	Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV)	Reductive pathway possible	1
		<-100 mV	Reductive pathway likely	2
6.41	pH*	5<pH<9	Optimal range for reductive pathway	0
		5>pH>9	Outside optimal range for reductive pathway	-2
6.68 mg/L	TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
16.89°C	Temperature*	>20°C	At T>20°C biochemical process is accelerated	1
--	Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
--	Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
18.5 mg/L	Chloride*	>2x background	Daughter product of organic chlorine	2
--	Hydrogen	>1 nM	Reductive pathway possible	3
	Hydrogen	<1 nM	VC oxidized	0
--	Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
<0.5 µg/L	BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	2
23 µg/L	Tetrachloroethene		Material released	0
0.8 µg/L	Trichloroethene*		Material released	0
			Daughter product of PCE	2[a]
0.3 µg/L	DCE*		Material released	0
			Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	2[a]
<0.2 µg/L	VC*		Material released	0
			Daughter product of DCE	2[a]
<0.5 µg/L	1,1,1-Trichloroethane*		Material released	0
--	DCA		Daughter product of TCA under reducing conditions	2
<0.5 µg/L	Carbon Tetrachloride		Material released	0
<0.5 µg/L	Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
<0.0050 mg/L	Ethene/Ethane	>0.01 mg/L	Daughter product of VC	2
<0.0050 mg/L		>0.1 mg/L	Daughter product of ethene	3
0.5 µg/L	Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
--	Dichloromethane		Material released Daughter product of Chloroform	0 2

SCORE: **1**
INTERPRETATION: **Inadequate**

-- = Not part of sampling program
* Required analysis.
2[a] = Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).
Yellow Highlight = applicable scoring criteria and score

NS = Not sampled, but part of sampling program

Scores:
0-5 = Inadequate evidence of anaerobic biodegradation of chlorinated organics
6-14 = Limited evidence of anaerobic biodegradation of chlorinated organics
15-20 = Adequate evidence of anaerobic biodegradation of chlorinated organics

Notes:
For wells with more than one sample depth, the greatest concentration was used.
Background level for chloride was taken from well RNS-MW7 and was equal to 28.8 mg/L in September 2013.

TABLE L-10
RNS-MW6 SEPTEMBER 2013 DATA
MONITORED NATURAL ATTENUATION REMEDY EVALUATION
SAURO'S PROPERTY RI/FS

Most Recent Concentration	Analysis	Concentration in Most Concentrated Zone	Interpretation	Value
3.72 mg/L	Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
	Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
0.317 mg/L	Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
0.180 mg/L	Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
33.5 mg/L	Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
<0.150 mg/L	Sulfide*	>1 mg/L	Reductive pathway possible	3
0.068 mg/L	Methane*	<0.5 mg/L	VC oxidizes	0
		>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	3
55.8 mV	Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV)	Reductive pathway possible	1
		<-100 mV	Reductive pathway likely	2
6.82	pH*	5<pH<9	Optimal range for reductive pathway	0
		5>pH>9	Outside optimal range for reductive pathway	-2
11.6 mg/L	TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
15.11°C	Temperature*	>20°C	At T>20°C biochemical process is accelerated	1
--	Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
--	Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
21.0 mg/L	Chloride*	>2x background	Daughter product of organic chlorine	2
--	Hydrogen	>1 nM	Reductive pathway possible	3
	Hydrogen	<1 nM	VC oxidized	0
--	Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
<0.5 µg/L	BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	2
1100 µg/L	Tetrachloroethene		Material released	0
260 µg/L	Trichloroethene*		Material released	0
			Daughter product of PCE	2[a]
140 µg/L	DCE*		Material released	0
			Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	2[a]
0.3 µg/L	VC*		Material released	0
			Daughter product of DCE	2[a]
<0.5 µg/L	1,1,1-Trichloroethane*		Material released	0
--	DCA		Daughter product of TCA under reducing conditions	2
<0.5 µg/L	Carbon Tetrachloride		Material released	0
<0.5 µg/L	Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
<0.0050 mg/L	Ethene/Ethane	>0.01 mg/L	Daughter product of VC	2
0.0092 mg/L		>0.1 mg/L	Daughter product of ethene	3
<0.5 µg/L	Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
--	Dichloromethane		Material released Daughter product of Chloroform	0 2

SCORE: **8**
INTERPRETATION: **Limited**

-- = Not part of sampling program
* Required analysis.
2[a] = Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).
Yellow Highlight = applicable scoring criteria and score

NS = Not sampled, but part of sampling program

Scores:
0-5 = Inadequate evidence of anaerobic biodegradation of chlorinated organics
6-14 = Limited evidence of anaerobic biodegradation of chlorinated organics
15-20 = Adequate evidence of anaerobic biodegradation of chlorinated organics

Notes:
For wells with more than one sample depth, the greatest concentration was used.
Background level for chloride was taken from well RNS-MW7 and was equal to 28.8 mg/L in September 2013.

TABLE L-11
RNS-MW7 SEPTEMBER 2013 DATA
MONITORED NATURAL ATTENUATION REMEDY EVALUATION
SAURO'S PROPERTY RI/FS

Most Recent Concentration	Analysis	Concentration in Most Concentrated Zone	Interpretation	Value
0.800 mg/L	Oxygen*	<0.5 mg/L	Tolerated, suppresses the reductive pathway at higher concentrations	3
	Oxygen*	>5 mg/L	Not tolerated; however, VC may be oxidized aerobically	-3
0.608 mg/L	Nitrate*	<1 mg/L	At higher concentrations may compete with reductive pathway	2
<0.120 mg/L	Iron II*	>1 mg/L	Reductive pathway possible; VC may be oxidized under Fe(III)-reducing conditions	3
41.3 mg/L	Sulfate*	<20 mg/L	At higher concentrations may compete with reductive pathway	2
<0.150 mg/L	Sulfide*	>1 mg/L	Reductive pathway possible	3
<0.0050 mg/L	Methane*	<0.5 mg/L	VC oxidizes	0
		>0.5 mg/L	Ultimate reductive daughter product, VC Accumulates	3
64.3 mV	Oxidation Reduction Potential* (ORP) against Ag/AgCl electrode	<50 millivolts (mV)	Reductive pathway possible	1
		<-100 mV	Reductive pathway likely	2
6.74	pH*	5<pH<9	Optimal range for reductive pathway	0
		5>pH>9	Outside optimal range for reductive pathway	-2
6.06 mg/L	TOC	>20 mg/L	Carbon and energy source; drives dechlorination; can be natural or anthropogenic	2
15.22°C	Temperature*	>20°C	At T>20°C biochemical process is accelerated	1
--	Carbon Dioxide	>2x background	Ultimate oxidative daughter product	1
--	Alkalinity	>2x background	Results from interaction between CO_2 and aquifer minerals	1
28.8 mg/L	Chloride*	>2x background	Daughter product of organic chlorine	2
--	Hydrogen	>1 nM	Reductive pathway possible	3
	Hydrogen	<1 nM	VC oxidized	0
--	Volatile Fatty Acids	>0.1 mg/L	Intermediates resulting from biodegradation of more complex compounds; carbon and energy source	2
NS	BTEX*	>0.1 mg/L	Carbon and energy source; drives dechlorination	2
NS	Tetrachloroethene		Material released	0
NS	Trichloroethene*		Material released	0
			Daughter product of PCE	2[a]
NS	DCE*		Material released	0
			Daughter product of TCE If cis is > 80% of total DCE it is likely a daughter product 1,1-DCE can be chemical reaction product of TCA	2[a]
NS	VC*		Material released	0
			Daughter product of DCE	2[a]
NS	1,1,1-Trichloroethane*		Material released	0
--	DCA		Daughter product of TCA under reducing conditions	2
NS	Carbon Tetrachloride		Material released	0
NS	Chloroethane*		Daughter product of DCA or VC under reducing conditions	2
<0.0050 mg/L	Ethene/Ethane	>0.01 mg/L	Daughter product of VC	2
<0.0050 mg/L		>0.1 mg/L	Daughter product of ethene	3
NS	Chloroform		Material released Daughter product of Carbon Tetrachloride	0 2
--	Dichloromethane		Material released Daughter product of Chloroform	0 2

SCORE: **2**
INTERPRETATION: **Inadequate**

-- = Not part of sampling program
* Required analysis.
2[a] = Points awarded only if it can be shown that the compound is a daughter product (i.e., not a constituent of the source NAPL).
Yellow Highlight = applicable scoring criteria and score

NS = Not sampled, but part of sampling program

Scores:
0-5 = Inadequate evidence of anaerobic biodegradation of chlorinated organics
6-14 = Limited evidence of anaerobic biodegradation of chlorinated organics
15-20 = Adequate evidence of anaerobic biodegradation of chlorinated organics

Notes:
For wells with more than one sample depth, the greatest concentration was used.
Background level for chloride was taken from well RNS-MW7 and was equal to 28.8 mg/L in September 2013.

APPENDIX M

Remedial Alternative Cost Estimates

TABLE M-1
REMEDIAL ALTERNATIVE COST ESTIMATES
SAURO'S PROPERTY RI/FS

ALTERNATIVE 1: MONITORED NATURAL ATTENUATION WITH INSTITUTIONAL CONTROLS

General Description: Monitored Natural Attenuation (MNA) of soil and groundwater contamination, with long term monitoring and institutional controls to prevent contact with contaminated soil or use of groundwater

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENTS
Work Plans/Design/Reporting/Other					
Cleanup action plan	1	LS	$ 15,000	$ 15,000	
Permits and Plans	1	LS	$ 10,000	$ 10,000	Assume ROW permits needed for each sampling event
Construction contract documents and contractor procurement	1	LS	$ -	$ -	Including shoring designs
Cleanup action report	1	LS	$ 20,000	$ 20,000	
Project Management	10%	pct	$ 361,000	$ 36,000	Assume ~10% of project costs
Ecology oversight	1	LS	$ 5,000	$ 5,000	
Task Subtotal				*$ 86,000*	
Monitoring Network					
Install Additional Monitoring wells					
Utility locate/clearing	1	LS	$ 500	$ 500	
Drilling - new monitoring wells	4	wells	$ 5,000	$ 20,000	Assume addition of one upgradient well, one source area (Sauro's property) well, two downgradient wells
Waste Disposal	1	LS	$ 5,000	$ 5,000	Disposal of drill cuttings, development water, decon water
Equipment for oversight	1	LS	$ 2,500	$ 2,500	Vehicle, PID, camera
Labor/oversight	5	day	$ 2,000	$ 10,000	
Soil/groundwater sampling/analysis	16	sample	$ 350	$ 5,600	Sampling soil and groundwater from new wells: VOCs and MNA parameter analysis
Task Subtotal				*$ 44,000*	
Long Term MNA Monitoring					
Discount Rate			3%		Quick turnaround, includes data validation/management
Year 1 monitoring and sampling (quarterly)	4	Events	$ 8,000	$ 32,000	Quarterly sampling for 1 year for VOCs & MNA parameters
Years 2 & 3 monitoring and sampling (semi-annual)	4	Events	$ 8,000	$ 32,000	Semi-annual sampling for Years 2 and 3 for VOCs & MNA parameters
Years 4 through 30 monitoring and sampling (annual)	30	YRS	$ 8,000	$ 208,000	Annual sampling for VOCs and MNA parameters
Reporting (annual)	30	YRS	$ 5,000	$ 150,000	Annual summary report to Ecology
Task Subtotal				*$ 272,000*	
			Total	$ 402,000	
Appropriate Cost Range (-30% - +50%)		**TOTAL**	**$ 281,000 to**	**$ 603,000**	

Notes:
1. All costs presented in this feasibility study are considered to have a relative accuracy within the range of -30 to +50 percent, as shown above, and should be used primarily as a basis for comparison of costs between alternatives. More reliable costs will be developed during the design and implementation phases of the cleanup.
2. Costs do not include taxes or markup unless specifically identified.

TABLE M-2
REMEDIAL ALTERNATIVE COST ESTIMATES
SAURO'S PROPERTY RI/FS

ALTERNATIVE 2: ENHANCED *IN SITU* BIOREMEDIATION (EISB)

General Description: Injection of electron donor for enhanced bioremediation of groundwater and saturated soils

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENTS
Work Plans/Design/Reporting/Other					
Cleanup action plan	1	LS	$ 25,000	$ 25,000	
Permits and Plans	1	LS	$ 20,000	$ 20,000	UIC permit, access agreements, SPCC plans, etc.
Construction contract documents and contractor procurement	1	LS	$ 15,000	$ 15,000	
Cleanup action report	1	LS	$ 20,000	$ 20,000	
Project Management	10%	pct	$ 1,208,000	$ 121,000	Assume ~10% of project costs
Ecology oversight	1	LS	$ 5,000	$ 5,000	
Task Subtotal				*$ 206,000*	
Electron Donor Injections					
Install injection wells wells/distribution					
Utility locate/clearing	1	LS	$ 2,500	$ 2,500	
Drilling - injection wells	73	wells	$ 3,300	$ 240,900	70 injection wells and 3 monitoring wells. Includes mob/demob, tax, start card, well construction materials
Well development	73	wells	$ 300	$ 21,900	Vaults, valves, fittings, piping for injection wells
IDW Disposal	160	Drums	$ 200	$ 32,000	
Oversight	36	day	$ 2,000	$ 72,000	Assume one-person crew overseeing drilling and installation
Injection of Electron Acceptor					
Purchase equipment/supplies for injection system setup	1	LS	$ 25,000	$ 25,000	Pumps, mixing tanks, hoses, fittings, trailer
Materials and rentals for injection events	3	event	$ 120,000	$ 360,000	Water tank rental, water, electron donor (vegatable oil, etc.), other rental equipment and materials
Labor	80	day	$ 2,000	$ 160,000	Assume 27 days per event, two-person crew, three events
Traffic Control	3	event	$ 27,000	$ 81,000	Assume $1,000 per day
Task Subtotal				*$ 995,000*	
Progress/Confirmation Sampling and Monitoring					
Baseline (inj wells concurrent w well development, baseline of 10 MWs)	1	LS	$ 10,000	$ 10,000	
6 months monthly monitoring (VOCs and redox, 10 wells)	6	event	$ 8,000	$ 48,000	
1.5 years qtly monitoring (VOCs and redox, 10 wells)	6	event	$ 8,000	$ 48,000	
Data evaluation	1	LS	$ 12,000	$ 12,000	
Reporting	1	LS	$ 15,000	$ 15,000	Annual report
Task Subtotal				*$ 133,000*	
			Total	$ 1,334,000	
Appropriate Cost Range (-30% - +50%)		**TOTAL**	**$ 934,000 to**	**$ 2,001,000**	

1) All costs presented in this feasibility study are considered to have a relative accuracy within the range of -30 to +50 percent, as shown above, and should be used primarily as a basis for comparison of costs between alternatives. More reliable costs will be developed during the design and implementation phases of the cleanup.

2) Costs do not include taxes or markup unless specifically identified.

TABLE M-3
REMEDIAL ALTERNATIVE COST ESTIMATES
SAURO'S PROPERTY RI/FS

ALTERNATIVE 3: OZONE SPARGING

General Description: Sparging ozone to oxidize groundwater contamination, enhanced desorption of sorbed soil contamination.

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENTS
Work Plans/Design/Reporting/Other					
Cleanup action plan	1	LS	$ 25,000	$ 25,000	
Permits and Plans	1	LS	$ 20,000	$ 20,000	Air NOI, access agreements, SPCC plans, etc.
Construction contract documents and contractor procurement	1	LS	$ 15,000	$ 15,000	
Cleanup action report	1	LS	$ 20,000	$ 20,000	
Project Management	10%	pct	$ 2,046,000	$ 205,000	Assume ~10% of project costs
Ecology oversight	1	LS	$ 5,000	$ 5,000	
Task Subtotal				*$ 290,000*	
Ozone Sparging					
Sparge wells wells/distribution					
Utility locate/clearing for injections	1	LS	$ 2,500	$ 2,500	
Drilling - sparge wells	50	wells	$ 3,500	$ 175,000	50 sparge wells to depth of 90 ft. Includes mob/demob, tax, start card, well construction materials
Well development	50	wells	$ 300	$ 15,000	
IDW Disposal	120	Drums	$ 200	$ 24,000	
Aboveground completions	50	wells	$ 2,000	$ 100,000	Vaults, valves, fittings, piping for sparge wells
Ozone distribution line trenching, piping, and backfilling	1000	LF	$ 65	$ 65,000	Includes trench, ozone tubing, and conduit, repaving as needed
Oversight	40	day	$ 20,000	$ 800,000	Assume one-person crew overseeing drilling and installation
Ozone Generator Equipment					
Electrical drop and power	1	LS	$ 15,000	$ 15,000	
Ozone generator unit (Areas A & B)	1	LS	$ 500,000	$ 500,000	Containerized ozone sparge unit
Monitoring equipment	1	LS	$ 5,000	$ 5,000	
Security measures	2	LS	$ 1,000	$ 2,000	Fenced compound for equipment.
Vendor startup and maintenance	1	LS	$ 45,500	$ 45,500	Startup services, maintenance services and kits
Operations and maintenance	36	month	$ 1,500	$ 54,000	Assume 1 day O&M per month, 1 person crew, for 3 years
Task Subtotal				*$ 1,803,000*	
Progress/Confirmation Sampling and Monitoring					
Baseline (inj wells concurrent w well development, baseline of 10 MW	1	LS	$ 10,000	$ 10,000	
6 months monthly monitoring (VOCs, 10 wells)	6	event	$ 8,000	$ 48,000	
1.5 years qtly monitoring (VOCs, 10 wells)	6	event	$ 8,000	$ 48,000	
Data evaluation	1	LS	$ 12,000	$ 12,000	
Reporting	3	LS	$ 15,000	$ 45,000	Annual reports
Task Subtotal				*$ 163,000*	
			Total	$ 2,256,000	
Appropriate Cost Range (-30% - +50%)		**TOTAL**	**$ 1,579,000 to**	**$ 3,384,000**	

1) All costs presented in this feasibility study are considered to have a relative accuracy within the range of -30 to +50 percent, as shown above, and should be used primarily as a basis for comparison of costs between alternatives. More reliable costs will be developed during the design and implementation phases of the cleanup.

2) Costs do not include taxes or markup unless specifically identified.

TABLE M-4
REMEDIAL ALTERNATIVE COST ESTIMATES
SAURO'S PROPERTY RI/FS

ALTERNATIVE 4: ELECTRICAL RESISTANCE HEATING (ERH)

General Description: Electrical resistance heating of subsurface groundwater and saturated soil to volatilize/boil contaminants, with vapor recovery to capture and treat contaminants above ground.

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL	COMMENTS
Work Plans/Design/Reporting/Other					
Cleanup action plan	1	LS	$ 30,000	$ 30,000	
Permits and Plans	1	LS	$ 40,000	$ 40,000	Air discharge permit, utility major permit, sewer discharge permit
Construction contract documents and contractor procurement	1	LS	$ 25,000	$ 25,000	
Cleanup action report	1	LS	$ 20,000	$ 20,000	
Project Management	10%	pct	$ 4,664,700	$ 466,000	Assume ~10% of project costs
Ecology oversight	1	LS	$ 5,000	$ 5,000	
Task Subtotal				*$ 586,000*	
Construction/ERH System					
Drilling and sampling for electrode installation	93	electrodes	6300	$ 585,900	Includes sampling and analytical for soil
ERH System Installation and Operation	1	LS	2600000	$ 2,600,000	Includes all installation,system components, GAC treatment/regan, site security,system operation (TRS)
Trenching and subsurface installation	1	LS	200000	$ 200,000	Installatoin of electrodes wellheads and cables/conduits/vapor lines below grade in ROW
IDW disposal	1	LS	54000	$ 54,000	Assume $200 per ton
Utility connection to PUD	1	LS	70000	$ 70,000	
Electrical	7810000	kwh	0.08	$ 624,800	Assume electrical usage rate of $0.08 per kwh, total usage based on TRS estimate
Traffic Control	40	day	1000	$ 40,000	Traffic control staff, equipment, permit (assume $1,000 per day for construction/demob)
Oversight	60	day	1500	$ 90,000	During construction and restoration
Site restoration/repaving	1	LS	100000	$ 100,000	Removal of subgrade piping/cable
Task Subtotal				*$ 4,364,700*	
Progress/Confirmation Sampling and Monitoring					
System monitoring	25	week	3500	$ 87,500	Weekly collection of system vapor samples to monitor progress
Groundwater monitoring/sampling	12	event	8000	$ 96,000	Monthly while system in operatoin, quarterly for 1.5 years after ERH activities are discontinued.
Reporting	1	LS	$ 1,500	$ 1,500	Annual report
Task Subtotal				*$ 185,000*	
			Total	$ 5,136,000	
Appropriate Cost Range (-30% - +50%)	**TOTAL**		**$ 3,595,000 to**	**$ 7,704,000**	

Notes:

1) All costs presented in this feasibility study are considered to have a relative accuracy within the range of -30 to +50 percent, as shown above, and should be used primarily as a basis for comparison of costs between alternatives. More reliable costs will be developed during the design and implementation phases of the cleanup.

2) Costs do not include taxes or markup unless specifically identified.