STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by: Port of Tacoma (Former Arkema 3009 Taylor Way Site) (Former Arkema Mound Cleanup Action Plan)	AGREED ORDER No. DE 13124

TO: Port of Tacoma
PO Box 1837
Tacoma, WA 98401-1837

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I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology) and Port of Tacoma (the Port) 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 requires the Port to implement performance/confirmation groundwater monitoring in accordance with the previsions in the cleanup action plan (CAP, Exhibit B) and prepare and record an Environmental Covenant against the property. 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. The Port agrees to undertake all actions required by the terms and conditions of this Order. No change in ownership or corporate status shall alter the Port's responsibility under this Order. The Port 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 RCW 70.105D and WAC 173-340 shall control the meanings of the terms in this Order.

A. Site: The Site is referred to as the former Arkema property, generally located at 3009 Taylor Way in Tacoma, Washington. The Site is defined by the extent of contamination caused by the release of hazardous substances at the Site. The Site is generally described in the Site Diagram (Exhibit A). The Site constitutes a facility under RCW 70.105D.020(8).

B. Parties: Refers to the State of Washington, Department of Ecology and the Port.

C. Potentially Liable Person (PLP): Refers to the Port for the purpose of this Agreed Order.

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.

V. FINDINGS OF FACT

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

A. The Port (a Washington State municipal corporation) is the current owner of the former Arkema property located at 3009 Taylor Way, Tacoma, Washington (Property).

B. The Port purchased the Property in May 2007 from Arkema, Inc.

C. The Property was operated as a log sort yard in the 1980s by Dunlap Towing Company and Echo Lumber Company, and by other entities prior to that time. The Property owner was Arkema, Inc. (f/k/a: Atofina Chemicals, Atochem, Elf Atochem North America, and Pennwalt Chemicals) during the property's use as a sort yard, until 2007 when it was sold to the Port.

D. Slag from the former Asarco, Inc. smelter had been used as road bed rock for the unpaved sort yard on the Property. The Asarco slag contains elevated levels of heavy metals, including arsenic, copper, lead, and zinc. These metals were released into the environment until remedial action was taken pursuant to Consent Decree No. 92-2-11351-7, dated December 11, 1992 (Consent Decree), issued to Asarco, Inc., Dunlap Towing Company, and Arkema's predecessor, Elf Atochem North America, Inc. (hereinafter collectively Defendants). The remedial action comprised a capped and lined landfill (containment cell) constructed during 1992 on the Property for the contaminated soils, wood waste and slag. Because the 1992 cleanup action resulted in the creation of an on-site containment cell containing hazardous substances, a restrictive covenant was required for the Site.

E. The Port purchased the Property located at 3009 Taylor Way on May 31, 2007. Arkema provided notice of transfer of title under the Consent Decree to Ecology and the Attorney General's Office on June 8, 2007. The Port was issued a final PLP Notification for the Site on April 3, 2008, pursuant to MTCA and its implementing regulation Chapter 173-340 WAC.

F. In 2007, the Port desired to remove the material contained in the containment cell on the Site and haul the material off-site to a licensed disposal facility, so that the Port can develop the property to support maritime industrial use. The Port signed an Agreed Order No. DE 6129 with Ecology to implement the containment cell removal interim action, prepare and implement a remedial investigation/feasibility study (RI/FS), and develop a preliminary draft cleanup action plan (DCAP) for the site.

G. Between December 2008 and March 2009, the containment cell was removed and a total of 95,100 tons of material was disposed in the LRI landfill. This interim action was completed in June 2009 with placement of a final layer of crushed rock surfacing.

H. Following completion of the containment cell removal, a draft RI report was submitted to Ecology during May, 2011. Testing indicated that the direct-contact arsenic industrial soil screening level (SL)(88 mg/kg) was exceeded and shallow arsenic groundwater concentrations were above the SL of 5 µg/l beneath localized portions of the Site. Based on these data, the Port elected, with Ecology concurrence, to delay completion of the RI report and conduct a supplemental interim action.

I. The supplemental interim action was completed between August 2013 and February 2015. The primary goals of the supplemental interim action were to meet the industrial soil contact CUL (88 mg/kg) for arsenic and to prevent the erosion and migration of soil containing arsenic above the Commencement Bay Sediment Quality Objective (57 mg/kg) into the Hylebos Waterway. Approximately 24,560 tons of arsenic containing soil were removed from three areas of the Site and

disposed in the LRI landfill. The supplemental interim action included the construction of an engineered cover, stabilization of the Hylebos shoreline, and certain utilities. Twenty-five existing monitoring wells were abandoned during the supplemental interim action.

J. The interim actions completed by the Port (removal of the containment cell and soil containing arsenic exceeding the Method C (CUL)) are expected to constitute the primary cleanup actions for the Site. Based on these actions and monitoring data, Ecology did not require the Port to complete a FS. The DCAP was submitted to Ecology on November 20, 2015. The performance/confirmation groundwater monitoring plan is in Appendix A of the DCAP. The RI and DCAP documents reviewed and approved are summarized below:

Remedial Investigation Report, 3009 Taylor Way Site, Tacoma, Washington. Dalton, Olmsted, Fuglevand Consulting, September 2015.

Draft Cleanup Action Plan, 3009 Taylor Way Site, Tacoma, Washington. Dalton, Olmsted, Fuglevand Consulting, November 2015.

VI. ECOLOGY DETERMINATIONS

Ecology makes the following determinations, without any express or implied admissions of such determinations (and underlying facts) by the Port.

A. The Port is an "owner or operator" as defined in RCW 70.105D.020(22) of a "facility" as defined in RCW 70.105D.020(8).

B. Based upon all factors known to Ecology, a "release" or "threatened release" of "hazardous substance(s)" as defined in RCW 70.105D.020(32) and (13), respectively, has occurred at the Site.

C. Based upon credible evidence, Ecology issued a PLP status letter to the Port pursuant to RCW 70.105D.040, .020(26), and WAC 173-340-500. After providing for notice and opportunity for comment, reviewing any comments submitted, and concluding that credible evidence supported a

finding of potential liability, Ecology issued a determination that the Port is a PLP under RCW 70.105D.040 and notified the Port of this determination by letter dated April 3, 2008.

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

E. Under WAC 173-340-430, an interim action is a remedial action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance, that corrects a problem that may become substantially worse or cost substantially more to address if the remedial action is delayed, or that is needed to provide for completion of a site hazard assessment, remedial investigation/feasibility study, or design of a cleanup action plan. Either party may propose an interim action under this Order. If the Parties are in agreement concerning the interim action, the Parties will follow the process in Section VII.H. If the Parties are not in agreement, Ecology reserves its authority to require interim action(s) under a separate order or other enforcement action under RCW 70.105D, or to undertake the interim action itself.

VII. WORK TO BE PERFORMED

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

A. This Order requires the Port to implement performance/confirmation groundwater monitoring and provide an Environmental Covenant in accordance with the provisions in the DCAP.

B. The Port will install three groundwater monitoring wells in pre-determined locations as shown in Figure A-1 of the DCAP to monitor the shallow groundwater for dissolved arsenic, dissolved copper and dissolved zinc.

C. At the end of two quarters of monitoring, if concentrations of dissolved copper and dissolved zinc are below the cleanup levels as set in the DCAP, the monitoring for dissolved copper and zinc will be eliminated from the monitoring program. If after two quarters of monitoring the measured concentrations of dissolved copper and zinc are not below the cleanup levels as set in the DCAP, the groundwater monitoring for dissolved copper and zinc would continue quarterly until two years of quarterly monitoring are completed. If concentrations of copper and/or zinc are below the CUL using the statistical procedures in WAC 173-3340-720 (9)(d), monitoring may be discontinued. If a trend analysis indicates copper and/or zinc concentrations are declining, monitoring will continue at a mutually agreed upon sampling frequency and duration based on the first two years of quarterly monitoring.

D. The dissolved arsenic will be monitored quarterly for two years. After two years, the dissolved arsenic concentrations trends in each well will be evaluated to assess the effectiveness of the interim actions. If concentrations are below the cleanup level as set in the DCAP analyzed in accordance with the statistical procedures in WAC 173-3340-720 (9)(d), the monitoring wells will be eliminated from the monitoring program and be properly abandoned. If a trend analysis indicates that arsenic concentrations are declining, monitoring will continue at a mutually agreed upon sampling frequency and duration based on the first two years of quarterly monitoring. If a trend analysis indicates dissolved arsenic concentrations are not declining, Ecology may require the installation of two seep samplers in the predetermined locations shown in Figure A-1 of the DCAP along the Arkema shoreline will be installed and sampled.

E. The quarterly groundwater monitoring data and seep samples report will be submitted annually, 60 days after completion of the last quarterly sampling event of each year.

F. The Port will submit a signed environmental covenant to Ecology by September 1, 2016. The covenant shall be recorded as soon as feasible after Ecology executes and returns the

covenant to the Port. The draft environmental covenant is provided in Exhibit C of this Order. This covenant supersedes and replaces the existing Environmental (Restrictive) Covenant (#9302020332), which is recorded with Pierce County. Ecology hereby consents to the recording of an instrument which provides that Covenant #9302020332 shall no longer be of any further force or effect.

G. All plans or other deliverables submitted by the Port for Ecology's review and approval under the DCAP shall, upon Ecology's approval, become integral and enforceable parts of this Order.

H. If the Parties agree on an interim action under Section VI.E, the Port shall prepare and submit to Ecology an Interim Action Work Plan, including a scope of work and schedule, by the date determined by Ecology. Ecology will provide public notice and opportunity to comment on the Interim Action Work Plan in accordance with WAC 173-340-600(16). The Port shall not conduct the interim action until Ecology approves the Interim Action Work Plan. Upon approval by Ecology, the Interim Action Work Plan becomes an integral and enforceable part of this Order, and the Port is required to conduct the interim action in accordance with the approved Interim Action Work Plan.

I. If Ecology determines that the Port has failed to make sufficient progress or failed to implement the remedial action, in whole or in part, Ecology may, after notice to the Port, perform any or all portions of the remedial action or at Ecology's discretion allow the Port an opportunity to correct. The Port shall reimburse Ecology for the costs of doing such work in accordance with Section VIII.A. (Remedial Action Costs). Ecology reserves the right to enforce requirements of this Order under Section X (Enforcement).

J. Except where necessary to abate an emergency situation, the Port 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.

VIII. TERMS AND CONDITIONS

A. Remedial Action Costs

The Port 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 RCW 70.105D, 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). The Port shall pay the required amount within thirty (30) 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.

In addition to other available relief, pursuant to RCW 19.16.500, Ecology may utilize a collection agency and/or, pursuant to RCW 70.105D.055, file a lien against real property subject to the remedial actions to recover unreimbursed remedial action costs.

B. Designated Project Coordinators

The project coordinator for Ecology is:

Mohsen Kourehdar
P.O. Box 47775
Olympia, WA 98504-7775
(360) 407-6256

The project coordinator for the Port is:

Scott Hooton
Port of Tacoma
P.O. Box 1837
Tacoma, WA 98401-1837
(253) 383-9428

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 the Port, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order shall be directed through the project coordinators. The project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the work to be performed required by this Order.

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

C. Performance

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

All engineering work performed pursuant to this Order shall be under the direct supervision of a professional engineer registered by 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 by 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 RCW 18.43 and 18.220.

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

D. Access

Ecology or any Ecology authorized representative shall have access to enter and freely move about all property at the Site that the Port 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 the Port'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 the Port. The Port shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by the Port 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 the Port 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.

E. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, the Port 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, the Port shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by the Port pursuant to implementation of this

Order. The Port shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow the Port 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.D (Access), Ecology shall notify the Port 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 WAC 173-50 for the specific analyses to be conducted, unless otherwise approved by Ecology.

F. Public Participation

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 this 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.

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

1. If agreed to by Ecology, develop appropriate mailing lists and prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings.

2. Notify Ecology's project coordinator prior to the preparation of all press releases and fact sheets, and before major meetings with the interested public and local governments. Likewise, Ecology shall notify the Port 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 the Port that do not

receive prior Ecology approval, the Port shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

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

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

a. Tacoma Public Library
1102 Tacoma Way
Tacoma, WA 98402
(253) 591-5666

b. Washington Department Of Ecology
SWRO Toxics Cleanup Program
300 Desmond Drive
P.O. Box 47775
Olympia, WA 98504-7775
(360) 407-6365

c. Citizens for a Healthy Bay
917 Pacific Avenue, Suite 100
Tacoma, WA 98402
(253) 383-229

At a minimum, copies of all public notices, fact sheets, and documents relating to public comment periods shall be promptly placed in these repositories. A copy of all documents related to this Site shall be maintained in the repository at Ecology's Southwest Regional Office in Olympia, Washington.

G. 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, the Port 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, the Port shall make all records available to Ecology and allow access for review within a reasonable time.

Nothing in this Order is intended to waive any right The Port may have under applicable law to limit disclosure of documents protected by the attorney work-product privilege and/or the attorney-client privilege. If the Port withholds any requested records based on an assertion of privilege, the Port shall provide Ecology with a privilege log specifying the records withheld and the applicable privilege. No Site-related data collected pursuant to this Order shall be considered privileged.

H. Resolution of Disputes

1. In the event that the Port elects to invoke dispute resolution the Port must utilize the procedure set forth below.

a. Upon the triggering event (receipt of Ecology's project coordinator's written decision or an itemized billing statement), the Port has fourteen (14) calendar days within which to notify Ecology's project coordinator in writing of its dispute ("Informal Dispute Notice").

b. The Parties' project coordinators shall then confer in an effort to resolve the dispute informally. The parties shall informally confer for up to fourteen (14) calendar days from receipt of the Informal Dispute Notice. If the project coordinators cannot resolve the dispute within those 14 calendar days, then within seven (7) calendar days Ecology's project coordinator shall issue a written decision ("Informal Dispute Decision") stating: the nature of the dispute; the Port position with regards to the dispute; Ecology's position with regards to the dispute; and the extent of resolution reached by informal discussion.

c. The Port may then request regional management review of the dispute. This request ("Formal Dispute Notice") must be submitted in writing to the Southwest Region Toxics Cleanup Section Manager within seven (7) calendar days of receipt of Ecology's Informal Dispute Decision. The Formal Dispute Notice shall include a written statement of dispute setting forth: the nature of the dispute; the disputing Party's position with respect to the dispute; and the information relied upon to support its position.

d. The Section Manager shall conduct a review of the dispute and shall issue a written decision regarding the dispute ("Decision on Dispute") within thirty (30) calendar days of receipt of the Formal Dispute Notice. The Decision on Dispute 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.

4. In case of a dispute, failure to either proceed with the work required by this Order or timely invoke dispute resolution may result in Ecology's determination that insufficient progress is being made in preparation of a deliverable, and may result in Ecology undertaking the work under Section VII.H (Work to be Performed) or initiating enforcement under Section X (Enforcement).

I. Extension of Schedule

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

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 the Port 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 the Port 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 the Port;

b. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty; or

c. Endangerment as described in Section VIII.K (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 the Port.

3. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give the Port 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.J (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.K (Endangerment).

J. 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.L (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 the Port. The Port 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.H (Resolution of Disputes).

K. Endangerment

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

In the event the Port determines that any activity being performed at the Site under this Order is creating or has the potential to create a danger to human health or the environment, the Port may cease such activities. The Port 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, the Port shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with the Port's cessation of activities, it may direct the Port to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to this section, the Port'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.I (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.

L. Reservation of Rights

This Order is not a settlement under RCW 70.105D. 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 the Port to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against the Port regarding remedial actions required by this Order, provided the Port complies with this Order.

Ecology nevertheless reserves its rights under RCW 70.105D, 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.

By entering into this Order, the Port does not admit to any liability for the Site. Although the Port is committing to conducting the work required by this Order under the terms of this Order, the Port expressly reserves all rights available under law, including but not limited to the right to seek cost recovery or contribution against third parties, and the right to assert any defenses to liability in the event of enforcement.

M. 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 the Port 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 the Port's transfer of any interest in all or any portion of the Site, and during the effective period of this Order, the Port 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, the Port shall notify Ecology of said transfer. Upon transfer of any interest, the Port shall

notify all transferees of the restrictions on the activities and uses of the property under this Order and incorporate any such use restrictions into the transfer documents.

N. Compliance with Applicable Laws

1. All actions carried out by the Port 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 the execution of this Order have been identified in Exhibit D.

2. Pursuant to RCW 70.105D.090(1), the Port is exempt from the procedural requirements of RCW 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 and of any laws requiring or authorizing local government permits or approvals. However, the Port 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 the execution of this Order, have been identified in Exhibit D.

The Port 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 the Port 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 the Port shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, the Port 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 the Port and on how the Port must meet those requirements. Ecology shall inform the Port in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this

Order. The Port 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 the Port 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.

O. Land Use Restrictions

In consultation with the Port, Ecology will prepare the Environmental (Restrictive) Covenant consistent with WAC 173-340-440 and RCW 64.70. After approval by Ecology, the Port shall record the Environmental (Restrictive) Covenant with the office of the Pierce County Auditor. The Environmental (Restrictive) Covenant shall restrict future activities and uses of the Site as agreed to by Ecology and the Port. The Port shall provide Ecology with the original recorded Environmental (Restrictive) Covenant within thirty (30) days of the recording date.

P. 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. 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.

Q. Indemnification

The Port 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 (1) for death or injuries to persons, or (2) for loss or damage to property, to the extent arising from or on account of acts or omissions of the

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

IX. SATISFACTION OF ORDER

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

X. ENFORCEMENT

Pursuant to RCW 70.105D.050, this Order may be enforced as follows:

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

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

C. A liable party who refuses, without sufficient cause, to comply with any term of this Order will be liable for:

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

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

D. This Order is not appealable to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under RCW 70.105D.060.

Effective date of this Order: July 7, 2016

PORT OF TACOMA

4-28-16

John Wolfe
Executive Director
Port of Tacoma
(253) 383-9410

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Rebecca S. Lawson

Rebecca S. Lawson, P.E., L.H.G.
Section Manager
Toxics Cleanup Program
Southwest Regional Office
(360) 407-6241

Exhibit A
Site Diagram

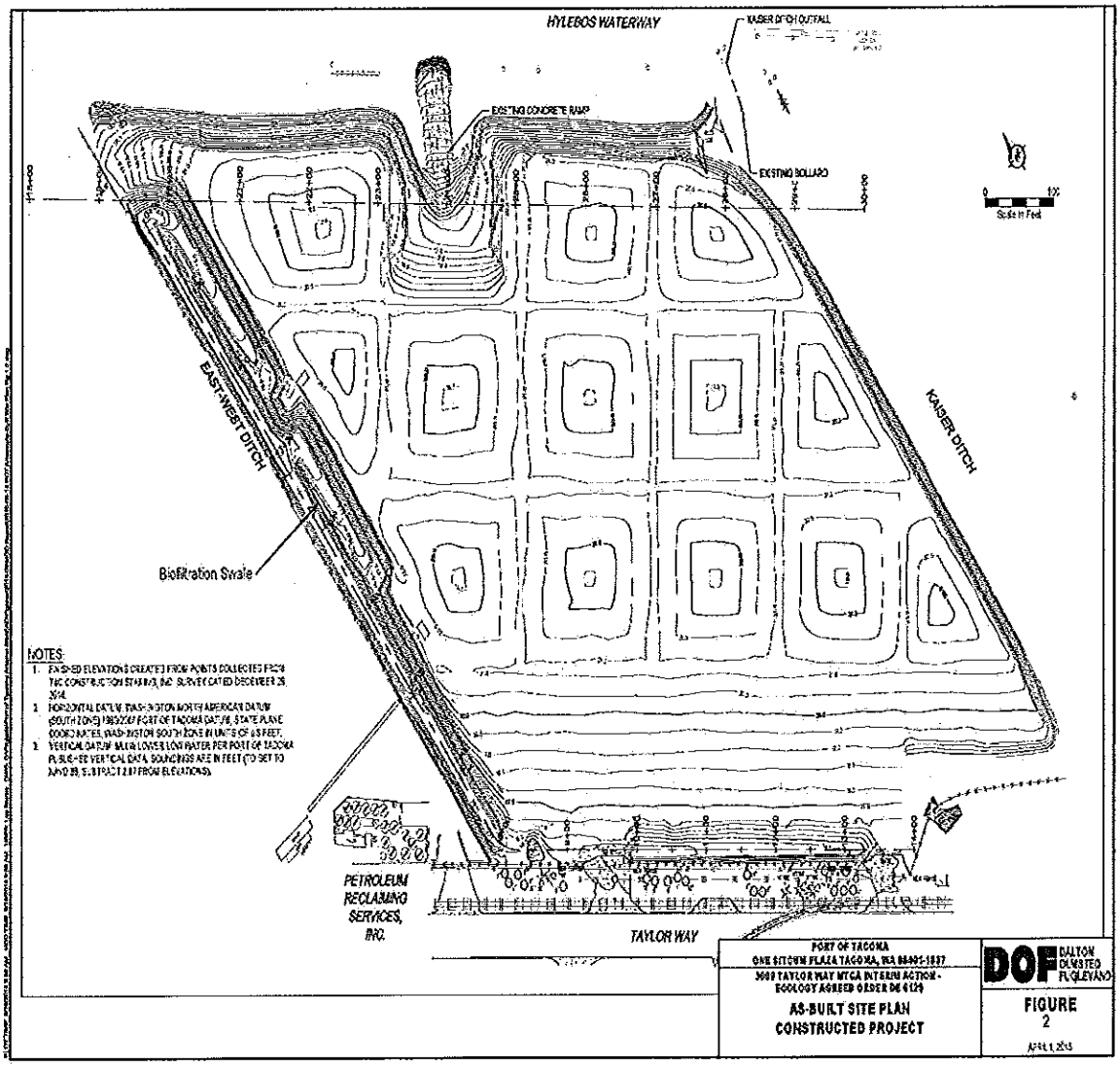

Exhibit B
Draft Cleanup Action Plan

DRAFT CLEANUP ACTION PLAN

Former Arkema Mound Site
3009 Taylor Way
Tacoma, Washington

November 20, 2015

Prepared For:

Port of Tacoma

Prepared By:

DOF DALTON OLMSTED FUGLEVAND

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I. INTRODUCTION

This draft Cleanup Action Plan (DCAP) describes the proposed cleanup action for the former Arkema Mound Site located at 3009 Taylor Way, Tacoma, Washington. The Port of Tacoma (Port) purchased the former Mound site in June 2007. The proposed cleanup action is consistent with the requirements and expectations of WAC 173-340-360 through -380.

A. SITE DESCRIPTION

The property at 3009 Taylor Way, also known as the Arkema Mound site, lies immediately to the south of the 2901 Taylor Way property (former Arkema Manufacturing site – herein "*Arkema main site*" also owned by the Port) along a portion of the Hylebos Waterway shoreline (Figures 1 and 2) [1]. The property is zoned Port Maritime and Industrial (PMI). Currently the Mound site is being used to store and stage semi-truck trailers.

The Mound site consists of approximately 15 acres and is bounded by 2901 Taylor Way (main Arkema site) on the north, Taylor Way on the west, Kaiser Ditch on the south and the Hylebos Waterway on the east. The former East-West Ditch (E-W ditch) defined the boundary between the main Arkema and Mound sites. As part of the 2013 Interim Action (described below), a biofiltration swale was constructed in the former E-W ditch alignment to treat stormwater runoff from the Mound site.

The site is underlain by two aquifer units of interest including the following:

- **Shallow (Upper) Aquifer** – Consisting of water saturated (below the water table) dredge and other fills (primarily silty sand and fine to medium sand) to a depth of approximately twelve feet.

- **Upper Aquitard** – Finer grained tidal marsh deposits, 4.5 to 9.5 feet thick, consisting of silt and clayey silt. This unit defines the bottom of the Upper Aquifer.

- **Intermediate Aquifer** – Sandy materials that lie directly beneath the tidal marsh deposits.

Most groundwater recharge occurs from local precipitation. Upper aquifer pre-interim action groundwater flow directions were towards the water bodies that are/were present on three sides of the site (E-W ditch, Kaiser Ditch, and Hylebos Waterway). These surface water channels truncate and separate the Upper Aquifer beneath the mound site from other sites to the north, east and south. Upper Aquifer water levels and flow directions are not significantly affected by tides, except a short distance inland along the shoreline areas.

Flow directions in the Intermediate Aquifer are effected by tides. At higher tides, groundwater flow is inland. As tide levels decline, flow is reversed towards the adjacent waterway. While Intermediate Aquifer flow from the Arkema properties is primarily towards the waterway,

[1] For purposes of this report, site north is assumed to be towards Commencement Bay and parallel with the Hylebos Waterway, consistent with local practice. True north is located approximately 41 degrees clockwise from site north.

available data indicate that flow occurs from the main Arkema property beneath the northeast corner of the Mound site.

B. INTERIM ACTIONS

Prior to the early 1990s, the site was used as a log sort yard where ASARCO slag was placed as ballast. The slag contained arsenic, lead and other metals that were introduced to soil and leached into groundwater. Since the early 1990s, several interim (remedial) actions have been completed under a Consent Decree (Arkema) and Agreed Order (Port) with the Department of Ecology (Ecology) as follows:

- In 1992 Arkema consolidated and contained woodwaste and slag in a lined and covered containment cell as required by Consent Decree No. 92-2-11351-7 (ENSR 1993). The cell was located on the southeastern portion of the property (Figure 3) and contained approximately 70,000 cubic yards (cy) of contaminated material from the former log yard operation.

- The Port entered into Agreed Order No. DE 6129 with Ecology in October 2009. The Agreed Order required the Port to remove the containment cell, to prepare a post-removal Remedial Investigation and Feasibility Study (FS) and to prepare a draft CAP.

    - Between December 2008 and March 2009, the containment cell was removed and approximately 95,100 tons of material were disposed at the LRI landfill (DOF 2009). This interim action was completed in June 2009 with placement of a final layer of crushed rock surfacing.

    - Following completion of the containment cell removal, a draft RI report (DOF 2011) was prepared and submitted to Ecology. Testing indicated that the direct-contact arsenic industrial soil screening level (SL) of 88 mg/kg was exceeded and shallow arsenic groundwater concentrations were above the SL of 5 ug/l beneath localized portions of the property. Based on these data, the Port decided, with Ecology concurrence, to delay completion of the RI and conduct an additional interim action (herein *"2013" Interim Action* – as described in DOF 2013a).

    - The 2013 Interim Action was completed between August 2013 and February 2015 (DOF 2015a). The primary goals of this interim action were to meet the industrial soil contact CUL (88 mg/kg) and to prevent the erosion and migration of soil containing arsenic above the Commencement Bay Sediment Quality Objective (57 mg/kg) into the Hylebos Waterway. Approximately 24,560 tons of arsenic containing soil were removed from three areas of the site termed "*Northeast*", "*P10*" and "*SB7*" (Figure 3). In addition, sediment from the E-W ditch was removed as part of construction of a biofiltration swale to treat stormwater. Excavated materials were disposed off-site at the LRI landfill. The interim action also included the construction of an engineered cover, buried utilities (power, water and sanitary sewer lines installed within the cover), drainage system (catch basins and piping), stormwater outfall and stabilized Hylebos shoreline. These as-built

features are illustrated on Figure 2. Twenty-five existing monitoring wells were abandoned during the 2013 Interim Action.

C. REMEDIAL INVESTIGATION

Following completion of the 2013 Interim Action, a draft RI report was submitted to Ecology for review and comment. The draft report was revised based on Ecology comments and a final RI report was approved and issued in September 2015 (DOF 2015b). The major findings of the RI were as follows:

- The interim actions completed by the Port reduced the overall metal concentrations (including arsenic) in site soils to concentrations below industrial direct contact SLs that are based on conservative CULs developed using Model Toxics Control Act (MTCA) default exposure assumptions.

- The interim actions also eliminated all but one possible migration pathway; the migration of arsenic in groundwater to surface water. Concentrations of metals associated with ASARCO slag[2] are below surface water SLs in most well samples and in a seep sample collected adjacent to the waterway. Upper Aquifer pre-interim action dissolved arsenic concentrations above SLs were present in two localized upland areas including the northeast corner and along the southwest site boundary near the head of the Kaiser Ditch (Figure 4). Data from a seep sampler in the Northeast area (Figure 4) where the highest Upper Aquifer arsenic soil and groundwater concentrations were detected show that arsenic in groundwater discharging to the Hylebos Waterway was below the SL, even before the 2013 Interim Action was completed.

- Completion of the 2013 Interim Action reduced the overall soil arsenic concentrations by two-thirds and substantially more in areas where soil was removed. Removal of the remnant arsenic reduced the potential for arsenic leaching and migration above SLs to surface water.

- Post interim action groundwater monitoring for arsenic was recommended to assess dissolved arsenic groundwater concentrations with respect to the SL and groundwater discharge to surface water.

Monitoring data from Intermediate Aquifer wells on the Mound site were below groundwater SLs except in wells MW-A2 and MW-G2, formerly located within the northeast corner of the site (Figure 3). An evaluation of the groundwater analytical data in this area indicates the SL exceedances for arsenic, chromium and nickel are associated with sources and migration from the adjacent Arkema Main Site and not associated with past log-yard operations on the Mound site. As described in the Arkema Main Site RI (DOF 2013b) prepared as part of Agreed Order DE 5668, the Main Site boundary was adjusted to include the Intermediate Aquifer beneath the Northeast Area of the Mound site.

[2] Primarily arsenic and lead.

D. FEASIBILITY STUDY

The interim actions completed by the Port (removal of the containment cell and soil containing remnant arsenic concentrations) are expected to constitute the primary cleanup actions for the Mound site. Based on these actions and monitoring data, Ecology is not requiring the Port to complete an FS. Post-interim action performance/confirmation monitoring will be part of the CAP as described below.

II. DESCRIPTION OF PROPOSED CLEANUP ACTION

The proposed cleanup action includes the following elements:

- **Monitored Natural Attenuation (MNA).** When applied to a cleanup action, natural attenuation is referred to as monitored natural attenuation or MNA. MNA relies on natural processes to achieve cleanup within a reasonable time frame. The extent of groundwater cleanup and achievement of cleanup levels (CULs) is determined by performance/confirmation monitoring according to an approved Groundwater Monitoring Plan (see Appendix A). The monitoring plan outlines the details of the monitoring program including objectives, locations, sampling frequency and procedures, analytes and analytical methods, QA/QC procedures, data interpretation, and reporting requirements. In the case of the Mound site, the outlines of the performance/confirmation monitoring plan are presented in Section 8 of the Final RI report (DOF 2015b).

- **Institutional Controls for Drinking Water**. As outlined in the final RI (Section 6.1.1), drinking water is not a beneficial use of Upper Aquifer groundwater. However, an environmental covenant will be placed on the property that prohibits the installation of drinking water wells in areas where groundwater concentrations exceed cleanup levels (e.g. Intermediate Aquifer beneath the Northeast Area), until those cleanup levels are met.

- **Institutional Controls for Industrial Site Use.** Soil contact CULs were based on industrial site use consistent with WAC 173-340-745. A restrictive covenant will be placed on the property to limit site use to industrial activities [WAC 173-340-745(1)(a)(i)] in accordance with WAC 173-340-745(1)(a)(ii).

- **Periodic Review.** Ecology will perform periodic reviews in accordance with WAC 173-340-420. Typically reviews are conducted at least every five years. In the case of the Mound site, the first review will occur two years after quarterly performance monitoring data are collected. Additional reviews will be conducted, as needed, based on the performance/confirmation monitoring data and monitoring schedule.

III. RATIONALE FOR SELECTING CLEANUP ACTION

The proposed cleanup action is consistent with the requirements and expectations of WAC 173-340-360 through -380.

- Soil contact CULs have been permanently achieved by removing soil containing the highest concentrations of arsenic and lead. A restrictive covenant will be placed on the property to ensure the property remains in industrial use.

- Soil containing arsenic concentrations greater than the Commencement Bay Sediment Quality Objective (SOQ) was permanently removed from the shoreline areas of the site. Construction of the biofiltration swale along the former E-W ditch alignment and stabilization of the Hylebos shoreline further reduced the potential for soil erosion.

- Groundwater analytical data from a shoreline seep sampler installed downgradient of the area with the highest pre-interim action arsenic concentrations indicate the arsenic CUL was met at the point of compliance (where groundwater discharges to surface water). The 2013 Interim Action permanently removed the source material (soil) from which arsenic was leaching. Installation of the engineered cover and drainage system will further reduce the potential for arsenic leaching by reducing natural recharge.

- Performance/confirmation monitoring will be completed to ensure the arsenic groundwater CUL is met at the point of compliance.

IV. GROUNDWATER CLEANUP STANDARDS

Groundwater CULs do not depend on land use; rather, they are based on the highest and beneficial use of site groundwater. Under MTCA, drinking water is the highest beneficial use of groundwater at most sites unless groundwater is determined to be non-potable using the criteria in WAC 173-340-720(2) subsections (a) through (c). As discussed in Section 6.1.1 of the RI, groundwater beneath the site is not classified as potable.

Groundwater beneath the site flows and discharges either to the Kaiser Ditch that is connected to the Hylebos Waterway or directly to the waterway. Therefore, discharge of site groundwater must meet water quality standards for aquatic life and humans eating fish or shellfish from the surface waters. Based on the finding that groundwater beneath the Site is not potable, the highest beneficial use of site groundwater is the protection of marine surface water via groundwater discharge to surface water.

Cleanup levels were derived from the following sources consistent with WAC 173-340-730:

- Surface Water Quality (WAC 173-201A) – Protection of aquatic organisms and human consumption of aquatic organisms.
- Marine Chronic Criteria (EPA) – Protection of aquatic organisms and human consumption of aquatic organisms – Criteria developed under the Federal Clean Water Act 304 (CWA).
- National Toxics Rule (NTR 40CFR131) - Protection of aquatic organisms and human consumption of aquatic organisms.
- MTCA Method B – Surface Water Cleanup Levels (WAC 173-340-730) – Protection of human consumption of aquatic organisms.

CULs for arsenic, copper and zinc are listed in the following table. The lowest applicable criterion is listed in the table with the adjustments summarized under the "*Basis for Proposed CUL*" column.

Table 1 - Groundwater Cleanup Levels (CULs)

Constituent (a)	Cleanup Level (ug/l)	Basis for Proposed CUL
Dissolved Arsenic	5	Criteria in the CWA, NTR and MTCA Method B to protect human health, adjusted for Washington State background, consistent with WAC 173-340-900 – Table 720-1 (footnote "b").
Dissolved Copper	3.1	Criteria in WAC 173-201A and CWA to protect aquatic life. A site specific Water Effects Ratio (WER) not available to apply the NTR criterion.
Dissolved Zinc	81	Criteria in WAC 173-201A, CWA and NTR to protect aquatic life.

Notes: (a) – The CULs are to be applied on a dissolved fraction basis. Samples delivered to the laboratory will be field filtered.

The point of compliance for surface water protection is the point or points where groundwater discharges to surface water consistent with WAC 173-340-730(6).

V. TENATIVE CLEANUP IMPLEMENTION SCHEDULE AND RESTORATION TIME FRAME

The tentative cleanup schedule would include the drilling and installation of monitoring wells and the start of the MNA (source control) performance/confirmation monitoring program. It is anticipated this would occur during the first quarter of 2016 (refer to the Performance/Confirmation Groundwater Quality Monitoring Plan in Appendix A).

The restoration time frame is difficult to predict but should be relatively short (less than five years). The interim actions removed most of the soil and upper aquifer groundwater (soil pore water) containing high concentrations of arsenic in the areas where the CULs were exceeded and it is assumed that groundwater concentrations were lower immediately after the soils were removed and replaced with uncontaminated structural fill. Seep sampling data at the point of compliance along the Hylebos shoreline in the Northeast area indicated arsenic concentrations were below the CUL, even before the interim actions were completed. Data in the RI also indicate that copper and zinc groundwater concentrations were likely below the CULs for these metals prior to completion of the interim actions. These metals are being analyzed to confirm this finding.

VI. CONTINGENCY PLAN

Performance/confirmation monitoring will be initiated in wells installed near to, but upgradient of the point of compliance. As outlined in Appendix A, monitoring will be completed on a quarterly basis for two years. At the end of this two years, data will be compared to the CULs to assess compliance. If the data show that concentrations are still above CULs but concentrations are declining, monitoring will continue on a frequency based on evaluation of the first two years of monitoring. However, if dissolved arsenic concentrations are relatively stable above the CUL, seep samplers may be installed at the point of compliance (Figure A-1 in Appendix A) as a contingency measure and monitoring would continue. Any future actions will be based on data collected as part of the performance/confirmation monitoring program.

VII. INSTITUTIONAL CONTROLS

The proposed cleanup action includes an environmental covenant with two provisions:

- The site will remain in commercial or industrial land use (current zoning) unless additional cleanup actions are implemented, with Ecology approval and oversight, to allow unrestricted site uses.

- Installation of groundwater wells to supply potable water will be prohibited until groundwater monitoring results confirm that drinking water standards are met and Ecology agrees to the removal of this site restriction.

VIII. APPLICABLE STATE AND FEDERAL LAWS

Cleanup standards established for the site incorporated applicable state and federal laws and regulations in the form of chemical-specific regulatory criteria for soil and water as described above in Section IV – Groundwater Cleanup Standards in the RI. Other local, state, and federal laws and requirements that potentially apply to the cleanup work at the site include:

- Washington State Water Well Construction Regulations (Chapter 173-160 WAC) – regulating the installation and abandonment of monitoring wells.

- Nationwide Permit (NWP) 38, Cleanup of Hazardous and Toxic Waste, Nationwide Permit 7, Outfall Structures, and Nationwide Permit 3, Maintenance authorized the interim action shoreline work covered by Agreed Order DE 6129. Verification of the NWP authorization is valid until March 18, 2017 unless the NWP is modified, reissued, or revoked prior to that date. Work covered by the NWP needs to have commenced or be under contract before March 18, 2017 and be completed by March 18, 2018. The seep samplers, if required, would be covered by this or future NWP.

IX. COMPLIANCE WITH WAC 173-340-360

The proposed cleanup action complies with the MTCA provisions for selecting a cleanup action as listed in WAC 173-340-360. Specifically, the proposed cleanup action will:

1. **Protect human health and the environment.** The proposed cleanup action will mitigate potential risks associated with direct contact with site soils containing residue arsenic by restricting the site to industrial uses and prevent human ingestion of groundwater by prohibiting the installation of groundwater supply wells. Preventing the discharge of groundwater containing constituents above CULs to surface water will protect human health and aquatic receptors.

2. **Comply with cleanup standards.** Groundwater cleanup standards protective of all exposure pathways and receptors are established and the cleanup action will meet those cleanup standards.

3. **Comply with applicable state and federal laws.** The cleanup action will comply with the requirements of the state cleanup regulation (MTCA), as well as other applicable laws and regulations. All necessary permits will be obtained during cleanup implementation.

4. **Provide for compliance monitoring.** A performance/confirmation monitoring plan has been prepared (Appendix A) and will be implemented to document achievement of groundwater cleanup standards.

5. **Use permanent solutions to the maximum extent practicable.** The interim actions completed at the site permanently removed the highest concentrations of source soil contributing arsenic to groundwater.

6. **Provide for a reasonable restoration time frame.** The interim actions removed soil, and most of the groundwater (soil porewater) containing concentrations of arsenic above CULs and replaced this soil with uncontaminated structural fill. Since most of the Upper Aquifer was removed and replaced, cleanup levels were achieved as the contaminated soil and porewater were removed from the site.

7. **Consider public concerns.** Ecology is making available the draft Cleanup Action Plan for public review during a formal public review comment period in accordance with Agreed Order DE 6129. Ecology will respond to public comments and concerns on the draft Cleanup Action Plan received during the public comment period, prior to preparing the final Cleanup Action Plan.

X. REFERENCES

DOF (Dalton, Olmsted & Fuglevand, Inc.). 2009. As-Built Report, Removal of Woodwaste/Slag Containment Cell. Tacoma, Washington. June 10, 2009.

DOF. 2011. Ecology Review Draft, Remedial Investigation, Post-Removal of Woodwaste/Slag Containment Cell, 3009 Taylor Way, Tacoma, Washington, May 3, 2011.

DOF. 2013a. Revised Interim Action Work Plan Addendum (90% Design), Agreed Order DE 6129, 3009 Taylor Way, Tacoma, Washington, January 10, 2013.

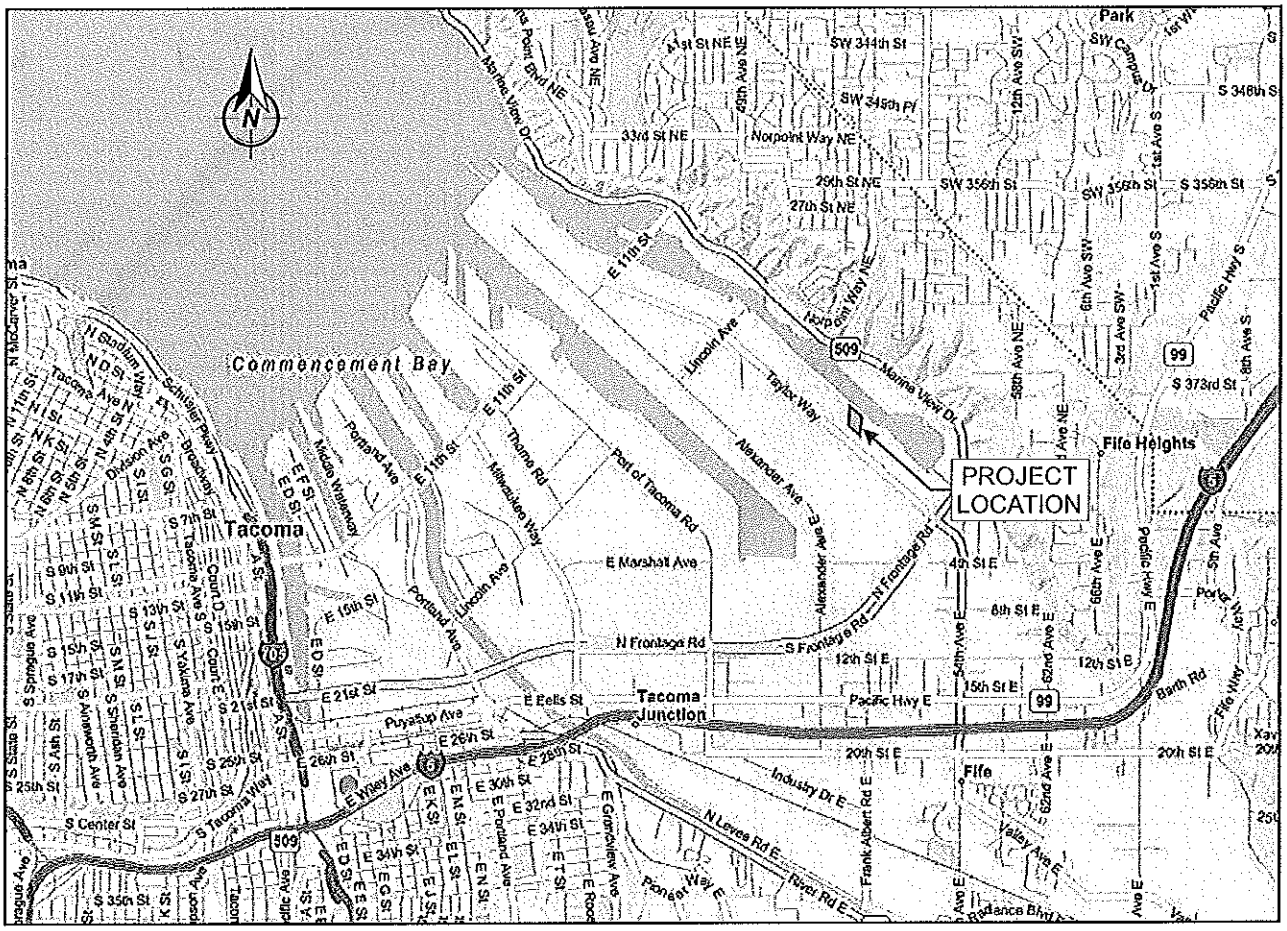
DOF. 2013b. Final Remedial Investigation Report, Former Arkema Manufacturing Plant, 2901 and 2920 Taylor Way, Tacoma, Washington. September 2013.

DOF. 2015a. As-Built Report, 2013 Interim Action, 3009 Taylor Way, Agreed Order DE 6129, Tacoma, Washington. Draft: March 31, 2015

DOF. 2015b. Remedial Investigation, Former Arkema Mound Site, 3009 Taylor Way, Prepared for the Port of Tacoma. September 2015.

ENSR (ENSR Consulting and Engineering. 1993. Final Construction Quality Assurance/Quality Control Report, 3009 Taylor Way Site, Tacoma, Washington. April 1993.

Not to Scale

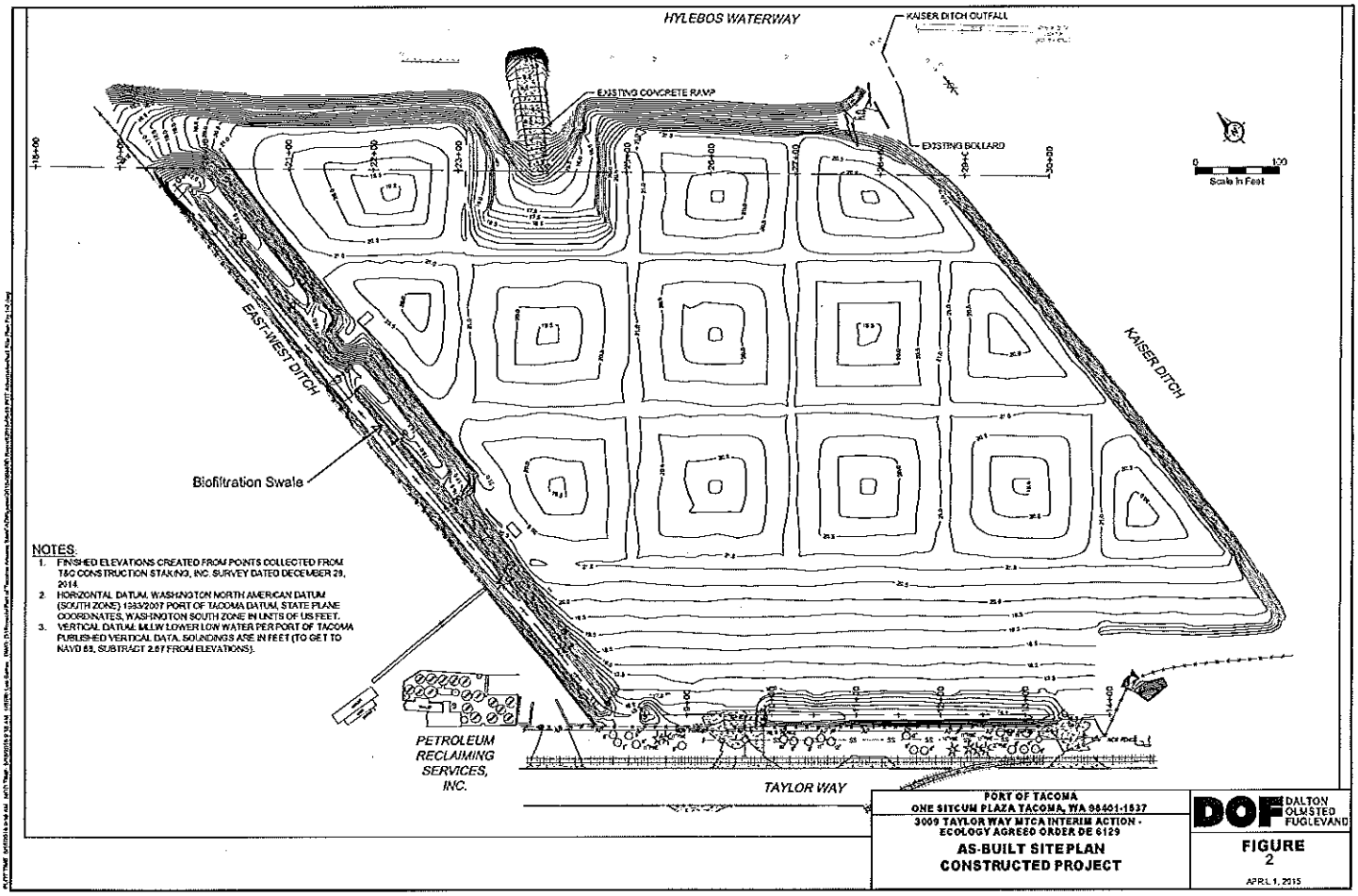


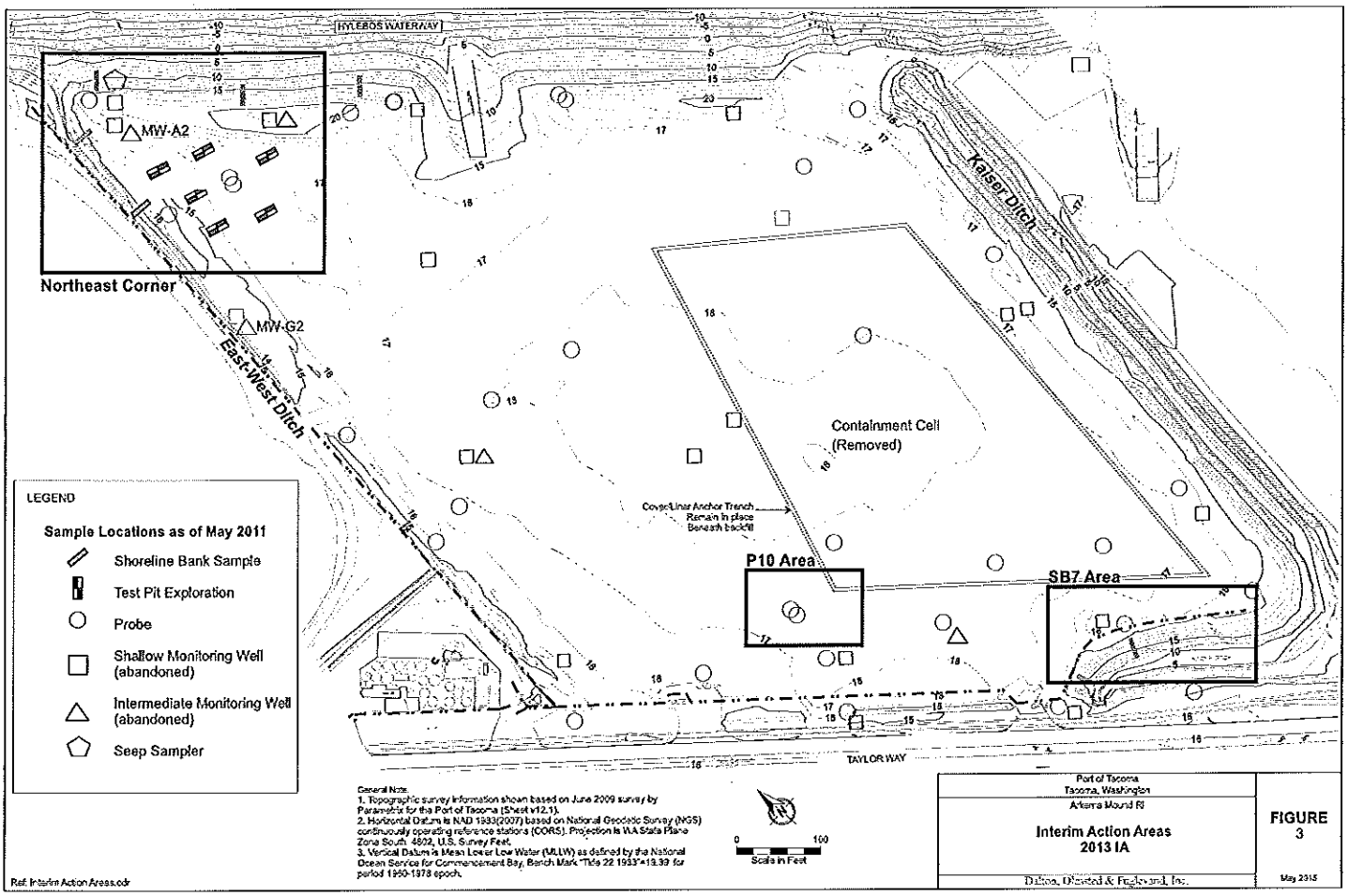
Not To Scale

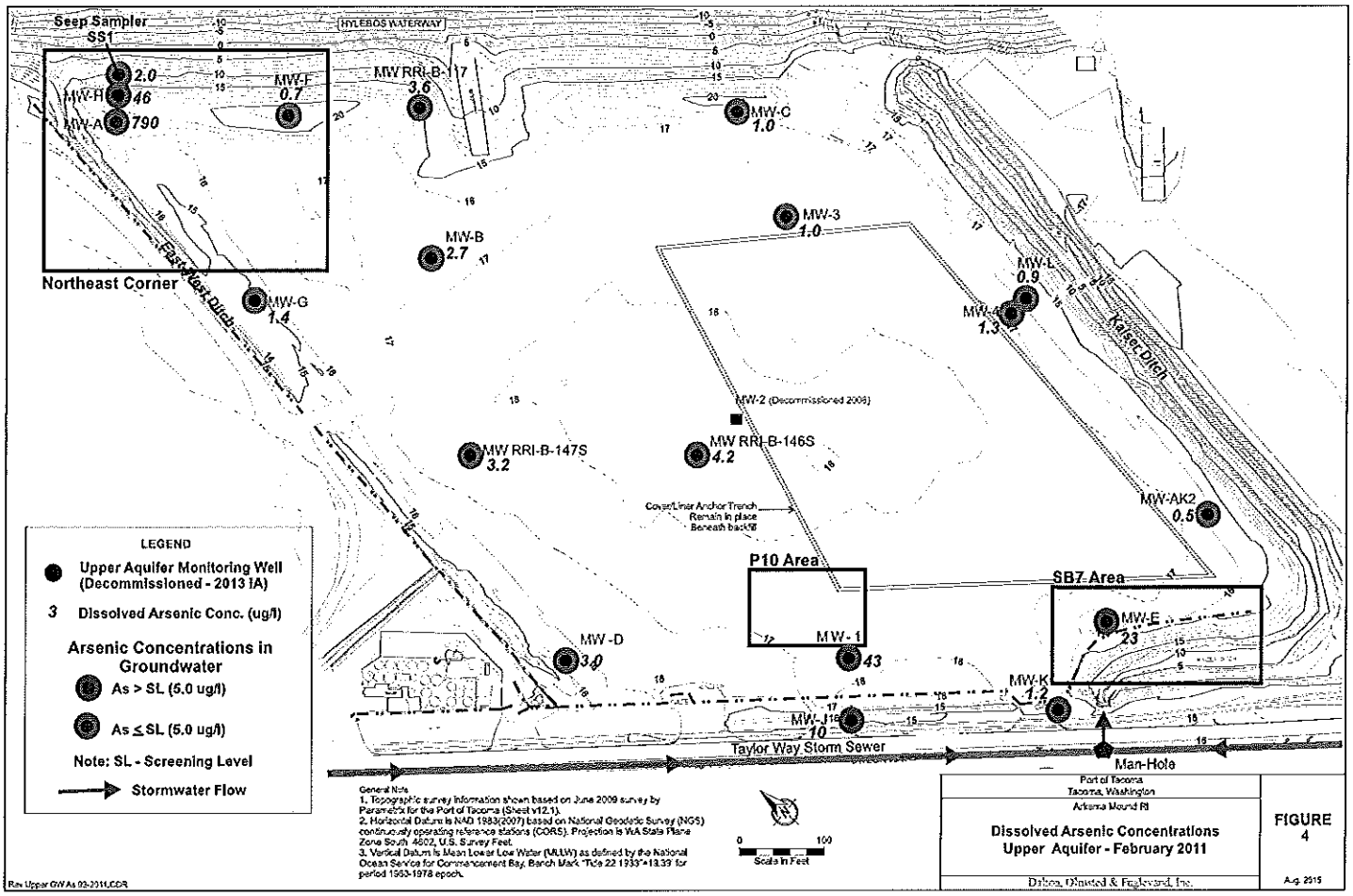
General Note:
Vicinity map images come from Microsoft Virtual Earth web site.

Port of Tacoma Tacoma, Washington	
Remedial Investigation and Feasibility Study Removal of Woodwaste/Slag Containment Cell 3009 Taylor Way, Tacoma WA **VICINITY MAP**	**FIGURE** 1
Dalton, Olmsted & Fuglevand, Inc.	March 27, 2010

File Name


HYLEBOS WATERWAY
KAISER DITCH OUTFALL
EXISTING CONCRETE RAMP
EXISTING BOLLARD
0
120
Scale In Feet
EAST-WEST DITCH
KAISER DITCH
Biofiltration Swale
PETROLEUM RECLAIMING SERVICES, INC.
TAYLOR WAY
NOTES:
1. FINISHED ELEVATIONS CREATED FROM POINTS COLLECTED FROM T&G CONSTRUCTION STAKING, INC. SURVEY DATED DECEMBER 29, 2014.
2. HORIZONTAL DATUM, WASHINGTON NORTH AMERICAN DATUM (SOUTH ZONE) 1983/2007 PORT OF TACOMA DATUM, STATE PLANE COORDINATES, WASHINGTON SOUTH ZONE IN UNITS OF US FEET.
3. VERTICAL DATUM: MLLW LOWER LOW WATER PER PORT OF TACOMA PUBLISHED VERTICAL DATA. SOUNDINGS ARE IN FEET (TO GET TO NAVD 88, SUBTRACT 2.87 FROM ELEVATIONS).
PORT OF TACOMA
ONE SITCUM PLAZA TACOMA, WA 98401-1537
3009 TAYLOR WAY MTCA INTERIM ACTION - ECOLOGY AGREED ORDER DE 6129
AS-BUILT SITEPLAN
CONSTRUCTED PROJECT
DOF DALTON OLMSTED FUGLEVAND
FIGURE
2
APRIL 1, 2015


HYLEBOS WATERWAY
MW-A2
Northeast Corner
MW-G2
East-West Ditch
Kaiser Ditch
Containment Cell
(Removed)
Cover/Liner Anchor Trench
Remain in place
Beneath backfill
P10 Area
SB7 Area
TAYLOR WAY
LEGEND
Sample Locations as of May 2011
Shoreline Bank Sample
Test Pit Exploration
Probe
Shallow Monitoring Well (abandoned)
Intermediate Monitoring Well (abandoned)
Seep Sampler
General Note:
1. Topographic survey information shown based on June 2009 survey by Parametrix for the Port of Tacoma (Sheet v12.1).
2. Horizontal Datum is NAD 1983(2007) based on National Geodetic Survey (NGS) continuously operating reference stations (CORS). Projection is WA State Plane Zone South 4602, U.S. Survey Feet.
3. Vertical Datum is Mean Lower Low Water (MLLW) as defined by the National Ocean Service for Commencement Bay, Bench Mark "Tide 22 1933" +13.39' for period 1950-1978 epoch.
0
100
Scale in Feet
Ref: Interim Action Areas.cdr
Port of Tacoma
Tacoma, Washington
Asarco Mound RI
Interim Action Areas
2013 IA
FIGURE
3
Dalton, Olmsted & Fuglevand, Inc.
May 2015


Seep Sampler SS1
HYLEBOS WATERWAY
MW-H 46
MW-A 790
MW-F 0.7
MW RRI-B-117 3.6
MW-C 1.0
Northeast Corner
MW-B 2.7
MW-3 1.0
MW-G 1.4
MW-L 0.9
MW- 1.3
Kaiser Ditch
MW-2 (Decommissioned 2006)
MW RRI-B-147S 3.2
MW RRI-B-146S 4.2
Cover/Liner Anchor Trench Remain in place Beneath backfill
MW-AK2 0.5
P10 Area
SB7 Area
MW-E 23
MW-D 3.0
MW-1 43
MW-K 1.2
MW- 10
Taylor Way Storm Sewer
Man-Hole
LEGEND
Upper Aquifer Monitoring Well (Decommissioned - 2013 IA)
3 Dissolved Arsenic Conc. (ug/l)
Arsenic Concentrations in Groundwater
As > SL (5.0 ug/l)
As ≤ SL (5.0 ug/l)
Note: SL - Screening Level
Stormwater Flow
General Note
1. Topographic survey information shown based on June 2009 survey by Parametrix for the Port of Tacoma (Sheet v12.1).
2. Horizontal Datum is NAD 1983(2007) based on National Geodetic Survey (NGS) continuously operating reference stations (CORS). Projection is WA State Plane Zone South 4602, U.S. Survey Feet.
3. Vertical Datum is Mean Lower Low Water (MLLW) as defined by the National Ocean Service for Commencement Bay, Bench Mark "Tide 22 1933"+13.33' for period 1960-1978 epoch.
0
100
Scale in Feet
Port of Tacoma
Tacoma, Washington
Arkema Mound RI
Dissolved Arsenic Concentrations
Upper Aquifer - February 2011
FIGURE 4
Dalton, Olmsted & Fuglevand, Inc.
Aug. 2015
Rev Upper GW As 03-2011.CDR

APPENDIX A
PERFORMANCE/CONFIRMATION GROUNDWATER MONITORING PLAN

Former Arkema Mound Site
3009 Taylor Way
Tacoma, Washington

November 20, 2015

Prepared For:

Port of Tacoma

Prepared By:

DOF DALTON OLMSTED FUGLEVAND

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I. INTRODUCTION

This Performance/Confirmation Groundwater Monitoring Plan describes procedures for the implementation of a plan to assess the performance of source control interim actions completed at the former Arkema Mound site and to confirm that groundwater cleanup levels (CULs) have been achieved for dissolved arsenic, copper and zinc. The outline of the monitoring plan is presented in section 8.0 of the RI (DOF 2015).

The primary objective of the monitoring is to assess whether Upper Aquifer dissolved arsenic concentrations are below CULs at the point where groundwater discharges to surface water (points of compliance) within two general areas (Figure A-1) of the site including:

- Along the Hylebos shoreline within the Northeast Area, and
- Along the western/southern site boundary at the head of the Kaiser Ditch.

A secondary objective is to confirm that Upper Aquifer dissolved concentrations of copper and zinc are below CULs within the Northeast Area.

CULs are discussed in the main body of the Cleanup Action Plan (CAP) and are as follows:

Table A-1. Groundwater CULs

Constituent	Cleanup Level (ug/l)
Dissolved Arsenic	5
Dissolved Copper	3.1
Dissolved Zinc	81

The monitoring plan includes a Sampling and Analysis Plan (SAP), and sections regarding data interpretation and actions, and reporting, and a Quality Assurance Project Plan (QAPP). Persons implementing this plan must also prepare a site-specific health and safety plan (HSAP) to provide worker safety in accordance with federal and state requirements.

II. SAMPLING AND ANALYSIS PLAN

A. GROUNDWATER MONITORING LOCATIONS

Monitoring will be completed at three locations as described below and shown on Figure A-1:

- **Northeast Area** – One monitoring well installed in the Upper Aquifer at the approximate former location of well MW-H. This well will be designated *"MW-H(R)"*.

- **Southwestern Site Boundary** (downgradient of areas P10 and SB7 – near head of Kaiser Ditch) – Two monitoring wells located along the site boundary in the vicinity of former wells MW-1 and MW-E. These wells will be designated *"MW-1(R)"* and *"MW-E(R)"*.

B. MONITORING WELL INSTALLATION AND DEVELOPMENT

Monitoring wells will be installed in a similar manner as the previous wells by a Washington State licensed driller in accordance with Chapter 176-160 WAC. The wells will be installed using a hollow-stem auger or soil probe drilling rig.

The wells will be drilled to the top of the underlying Upper Aquitard, estimated to lie at a depth of between ten and fifteen feet below existing grade. During drilling, soil samples will be obtained on approximately 2.5 feet intervals to tag the top of the aquitard (silt layer). The samples will be described in the field and based on these descriptions a geologic log will be prepared.

The wells will be constructed of 2-inch diameter PVC screen and well casing. Five-feet of pre-packaged well screen (composed of 10-slot screen surrounded by 10/20 silica sand) will be placed just above the aquitard layer. The screen will be connected to a PVC riser pipe. The annular space between the top of the screen and ground surface will be sealed with bentonite chips. The well will be finished with a flush to ground steel monument installed in a small concrete pad.

Each of the new wells will be developed to remove fine grained materials from inside the well casing. Well development will be accomplished using a small electric submersible pump. The wells will be pumped until the water clears or until ten casing volumes have been removed from the well casing. Development water will be drummed on-site for profiling and disposal as investigation-derived waste (discussed below).

After the wells are installed and developed, the wells will be professionally surveyed to determine the horizontal coordinates (State Plane System) and top of casing elevations (datum NGVD88). Elevations will be measured to 0.01 feet.

C. GROUNDWATER SAMPLING FREQUENCY AND PARAMETERS

The wells will be sampled on a quarterly basis for the first two years of the monitoring program. The need for and frequency of later sampling will be based on this initial monitoring period. Analyses will be made for the following parameters:

- **All Wells**
  - Field parameters (pH, conductivity, temperature, dissolved oxygen, Eh, turbidity and ferrous iron)
  - Total/Dissolved arsenic

- **Well in Northeast Area** (in addition to field parameters and dissolved arsenic)
  - Total/Dissolved copper
  - Total/Dissolved zinc

D. SAMPLING PROCEDURES, HANDLING

Groundwater samples will be collected with a peristaltic pump and dedicated downhole polyethylene tubing. Low flow sampling procedures will be used to minimize particulates being entrained in the samples submitted to the laboratory. Sampling will be conducted at lower tidal levels when groundwater flow is towards surface water.

Sample labels will clearly indicate the following:

- Sample location (well number)
- Date and time of collection
- Sampler's initials
- Confirm which samples were field filtered.

The depth to water will be initially measured using an electric well probe. Purging will be completed at a flow rate of less than 0.5 liters/minute. During purging, field parameters will be monitored. Samples will be obtained using the same purging flow rate when field parameters have stabilized to within 10% or at least three casing volumes have been removed from the well.

Samples will be pumped directly into containers provided by the receiving laboratory. Samples for dissolved metals analysis will be field filtered using an in-line 0.45 micron filter. The laboratory will place the appropriate preservatives into the containers prior to delivery to the sampling team. A summary of sample handling requirements is provided in the following table.

Table A-2. Sample Handling Requirements

Constituent	Container Type/No	Volume (ml)	Preservation	Maximum Holding Time
Arsenic	HDPE/1 – Unfiltered HDPE/1 - Filtered	500	HNO3	6 months
Copper				
Zinc				

Field measurements and observations will be recorded on a groundwater sampling field form. The following information will be recorded:

- Date and time of sampling
- Identity of sampler
- Water level below top of casing (TOC)
- Depth to bottom of well
- Purging/sampling method
- Flow rate and volume purged prior to sampling
- Confirm the samples were field filtered
- Field measurements
- Identification of field duplicate sample
- Other pertinent observations as appropriate

Once the containers are filled, they will be placed in chilled coolers that will be delivered to the laboratory (by the sampler) within 24 hours of collection. Sample handling will be documented using standard chain-of-custody (COC) procedures. The filled out COCs will be included with the laboratory documentation, along with the typical documentation of the condition of the samples when delivered to the laboratory.

E. DECONTAMINATION AND INVESTIGATIVE-DERIVED WASTE

Drilling equipment will be decontaminated prior to installing the first well and between each well using a steam cleaner. Rinsate water will be placed in a labeled 55-gallon drum for profiling and off-site disposal. Development and purge water will be combined with rinsate water in labeled 55-gallon drums for profiling and off-site disposal.

Only a small amount of drill cuttings will be generated during the well installation, especially if a soil-probe rig is used to install the wells. Any drill cuttings will be placed in a labeled 55-gallon drum for profiling and off-site disposal.

F. DATA EVALUATION AND ACTIONS

Data will be evaluated in the following manner:

- At the end of the initial two quarters of monitoring, if dissolved copper and zinc are below the CULs in Table A-1 (Northeast Area well), these constituents would be eliminated from the monitoring program.

- After the completion of two years of quarterly monitoring, the dissolved arsenic concentration trends in each well will be evaluated to assess the efficacy of the interim actions.

    - If concentrations are below the CUL using the statistical procedures in WAC 173-3340-720(9)(d), the well will be eliminated from the monitoring program and be properly abandoned.

    - If a trend analysis indicates dissolved arsenic concentrations are declining, monitoring will continue at a mutually agreed upon sampling frequency and duration based on the first two years of quarterly monitoring.

    - If concentrations are not shown to be declining, Ecology may require the installation of two seep samplers along the Arkema shoreline and monitoring would continue at a mutually agreed upon sampling frequency and duration based on the first two years of quarterly monitoring.

        - Seep samplers would be installed at the locations shown on Figure A-1 in a similar manner as the previous seep sampler SS-1 (Figure A-2). The samplers would be installed at the top of the underlying silt layer (approximate elevation 9 to 10 feet MLLW – within the intertidal zone) and

be incorporated into the stabilized shoreline fill section. Sampling would occur on outgoing tides where waterway levels fall below the elevation of the sampler and Upper Aquifer groundwater is seeping into the waterway.

G. REPORTING

Data would be reported to Ecology in the following manner. Reports would submitted by the end of the quarter following each annual monitoring period.

End of the First Year of Quarterly Monitoring

- A data report would be prepared that will include the following:
  - Site plan showing well locations
  - Geologic and well construction logs
  - Brief narrative of well installation and sampling procedures
  - Laboratory data sheets and validation discussion
  - Table summarizing the field measurements and analytical results
- The first year of data would be uploaded to Ecology's Environmental Information Management (EIM) database.

End of the Second Year of Quarterly Monitoring

- An interpretive report would be prepared that will include the following:
  - Site plan showing well locations
  - Brief narrative of sampling procedures
  - Laboratory data sheets and validation discussion
  - Table summarizing the field measurements and analytical results for the first two years of quarterly monitoring
  - Plots showing the dissolved arsenic concentration trends
  - Comparison of the analytical results with CULs using the procedures in WAC 173-340-720(9)(d)
  - Proposed modifications to the future monitoring program (locations, frequency etc.), should additional monitoring be required.
- The second year of data would be uploaded to EIM.

III. QUALITY ASSURANCE PROJECT PLAN

The purpose of the Quality Assurance Project Plan (QAPP) is to define the Quality Assurance (QA) and Quality Control (QC) procedures that will be used to ensure reliable data is collected during implementation of the monitoring plan. The QAPP presents the objectives and functional activities associated with the sampling and analysis of groundwater samples collected to assess performance of the interim remedial actions.

A. ANALYTICAL PROCEDURES AND TARGET REPORTING LIMITS

Laboratory analytical methods and target reporting limits for groundwater analyses are summarized below:

Table A-3 – Analytical Methods and Reporting Levels

Constituent	Analytical Method	Target Reporting Limit (RL) in ug/l
Arsenic	ICP-QQQ-MS (a)	<2
Copper		<3
Zinc		<5

Note: (a) Inductively Coupled Plasma Triple Quadrupole Mass Spectrometry

The laboratory will achieve the above-listed RLs for the indicated method, depending on possible matrix interferences (that are not expected). The RL is equivalent to the practical quantitation limit (PQL) and is defined as the lowest concentration at which a chemical can be accurately and reproducibly quantified within specified limits of precision and accuracy, for a given environmental sample. The RL can vary from sample to sample depending on the sample size, sample dilution, matrix interferences, and other specific sample conditions. The RLs usually correspond to the lowest calibration standard.

B. DATA QUALITY AND QUALITY CONTROL

Data quality will be maintained using standard procedures as outlined below:

- Field equipment used to measure the field parameters will be maintained and calibrated according to manufactures instructions and recommendations.

- The laboratory analyses will be completed by a Washington State certified laboratory using approved methods.

- Data quality will be validated at level EPA2B as outlined in EIM upload guidance. This validation level includes the following:

    - **Completeness** – defined as the percentage of measurements made that are judged to be valid for their intended use. The target completeness goal is 95%.

    - **Sample Receipt Conditions** – Samples are delivered to the laboratory in a timely manner and in good condition. Sample handling documentation and chain-of-custody are complete and in order.

    - **Sample Related QC Results** – A field duplicate will be obtained and delivered to the laboratory with each sampling round. The results of the original and duplicate sample analyses will be used to calculate a relative percent difference (RPD).

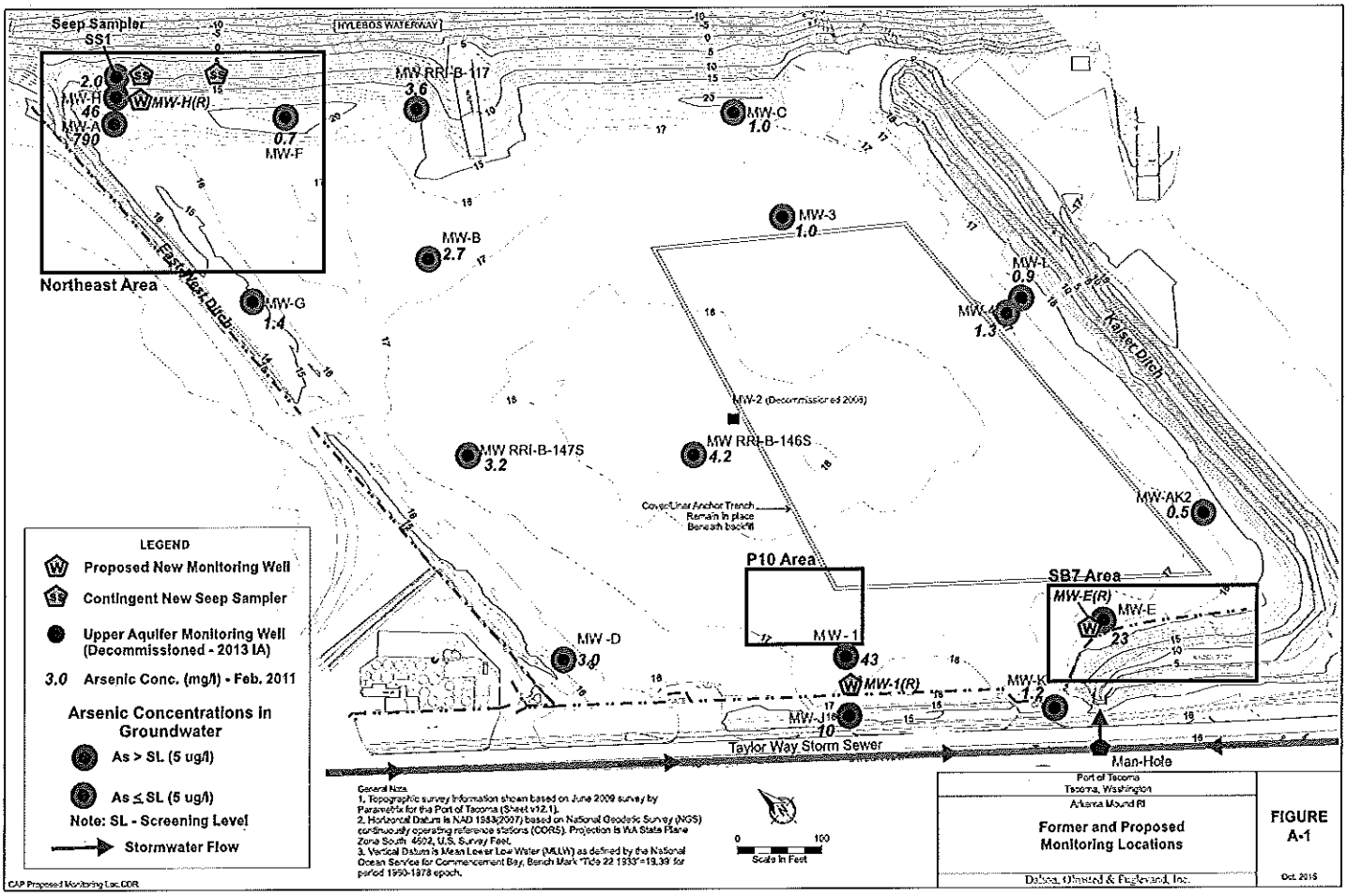
    - **Laboratory/Instrument QC Results** – QC sample analyses will be conducted in accordance with the approved analytical method, typically at a rate of 1 per 20 samples or per batch of samples if the sample number is less than 20. The QC checks will include:

- Laboratory method blanks
- Matrix spike/matrix spike duplicates
- Laboratory duplicate samples

The QC results will be reported on the laboratory data sheets, along with QC criteria and data qualifiers. Each report will include a narrative discussion of the QC results, any anomalies, and any required corrective actions.

IV. REFERENCES

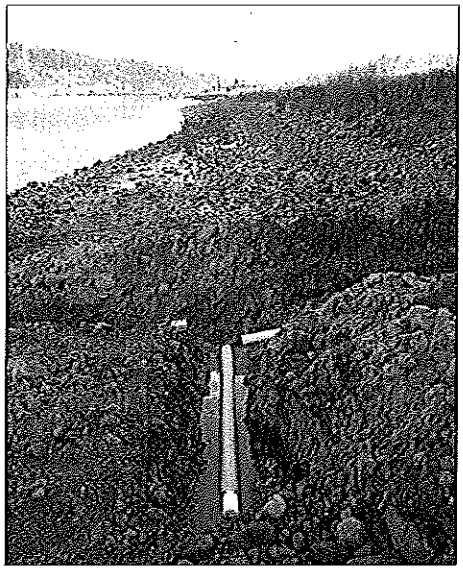
DOF (Dalton, Olmsted & Fuglevand, Inc.). 2015. Remedial Investigation, Former Arkema Mound Site, 3009 Taylor Way, Prepared for the Port of Tacoma. September 2015.


Seep Sampler SS1
HYLEBOS WATERWAY
MW-H 46
MW-A 790
MW-H(R)
2.0
0.7
MW-F
MW RRI-B-117 3.6
MW-C 1.0
Northeast Area
East West Ditch
MW-B 2.7
MW-3 1.0
MW-G 1.4
MW-1 0.9
MW-2 1.3
Raisbeck Ditch
MW-2 (Decommissioned 2009)
MW RRI-B-147S 3.2
MW RRI-B-146S 4.2
Cover/Liner Anchor Trench Remain in place Beneath backfill
MW-AK2 0.5
P10 Area
SB7 Area
MW-E(R)
MW-E 23
MW-D 3.0
MW-1 43
MW-1(R)
MW-K 1.2
MW-J 10
Taylor Way Storm Sewer
Man-Hole
LEGEND
Proposed New Monitoring Well
Contingent New Seep Sampler
Upper Aquifer Monitoring Well (Decommissioned - 2013 IA)
3.0 Arsenic Conc. (mg/l) - Feb. 2011
Arsenic Concentrations in Groundwater
As > SL (5 ug/l)
As ≤ SL (5 ug/l)
Note: SL - Screening Level
Stormwater Flow
General Note
1. Topographic survey information shown based on June 2009 survey by Parametrix for the Port of Tacoma (Sheet v12.1).
2. Horizontal Datum is NAD 1983(2007) based on National Geodetic Survey (NGS) continuously operating reference stations (CORS). Projection is WA State Plane Zone South 4602, U.S. Survey Feet.
3. Vertical Datum is Mean Lower Low Water (MLLW) as defined by the National Ocean Service for Commencement Bay, Bench Mark "Tide 22 1933" =19.39' for period 1960-1978 epoch.
0
100
Scale in Feet
Port of Tacoma
Tacoma, Washington
Arkema Mound #1
Former and Proposed Monitoring Locations
FIGURE A-1
Oct. 2015
CAP Proposed Monitoring Loc.GDR

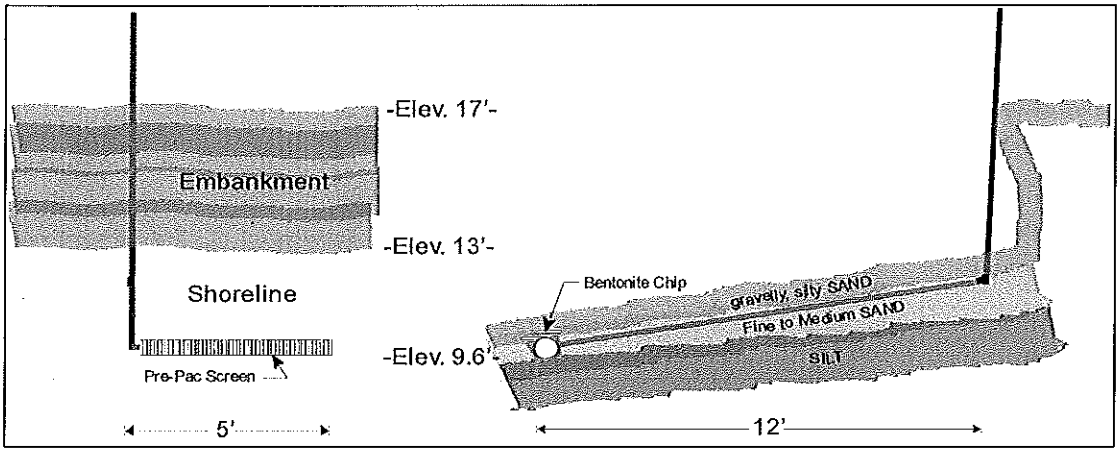
DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION - MONITORING WELL NO. **Seep Sampler SS-1**

Field Rep: D. Cooper	Location:	N710543 E1175859 (Riser location) / N710543 E1175850 (Screen Location)
Drilling Co.: Cascade	Ground surface elevation:	9.6 ft. MLLW
Driller: Frank Scott	Date Completed:	12/10/2010
Drill Type: Hand Excavated	Weather:	Cloudy 45F
Size/Type Casing: N/A	Sampler:	N/A

Looking South



Looking East



SEEP SAMPLER INFORMATION

Riser: 2" dia.SCH 40 PVC
Length: 20'
Screen: 2" dia. SCH 40 PVC Pre-Pac
Slot size: 0.010"
Length: 5'
Horizontal @ Elev. 9.6' MLLW
0.3' end cap
Sandpack: 2/12 colorado sand
Seal: Hydrated bentonite chip

Dalton, Olmsted Fuglevand, Inc.

FIGURE A-2
Seep Sampler SS-1

Exhibit C

Environmental (Restrictive) Covenant

Grantor: Port of Tacoma

Grantee: State of Washington, Department of Ecology (hereafter "Ecology")

Legal Description: Section 35 Township 21 Range 03 Quarter 11 BEG AT INTER OF NLY R/W LI OF TAYLOR WAY & E LI OF W 800 FT OF NE OF SW OF SEC 36-21-03E TH N 47 DEG 57 MIN 51 SEC W 1030.60 FT TH N 02 DEG 56 MIN 47 SEC E 212.43 FT TH N 87 DEG 44 MIN 20 SEC W 257.72 FT TO NLY R/W LI OF TAYLOR WAY TH N 47 DEG 57 MIN 51 SEC W 2237.89 FT TH N 43 DE 04 MIN 59 SEC E 907.78 FT TH S46 DEG 55 MIN 01 SEC E 2888.32 FT TH S 02 DEG 37 MIN 17 SEC W 228.81 FT TH S 02 DEG 56 MIN 47 SEC TO POB OUT OF 1-041 SEG 2005-0842 11/29/04JK

Tax Parcel Nos.: 0321351053
(Superseding Original Covenant #9302020332 under Consent Decree No. 92-2-11351-7)

A. *RECITALS* [1]

a. This document is an environmental (restrictive) covenant (hereafter "Covenant") executed pursuant to the Model Toxics Control Act ("MTCA"), chapter 70.105D RCW, and Uniform Environmental Covenants Act ("UECA"), chapter 64.70 RCW.

b. The Property that is the subject of this Covenant is part or all of a site commonly known as FORMER ARKEMA 3009 TAYLOR WAY, TACOMA, WASHINGTON, FACILITY ID #1219. The Property is legally described in Exhibit A, and illustrated in Exhibit B, both of which are attached (hereafter "Property"). If there are differences between these two Exhibits, the legal description in Exhibit A shall prevail.

c. The Property is the subject of remedial action conducted under MTCA. This Covenant is required because the soil at the site was cleaned up to MTCA Method C industrial soil clean up level of 88 mg/kg for Arsenic. Groundwater is contaminated with Arsenic, Copper and Zinc above groundwater clean-up levels established in clean-up action plan (CAP). The groundwater clean-up levels established in the CAP for Arsenic, Copper and Zinc are 5 µg/l, 3.1 µg/l, and 81 µg/l, respectively.

Medium	Principal Contaminants Present
Soil	Arsenic Below Method C Soil Clean-up Level of 88 mg/kg
Groundwater	Arsenic, Copper and Zinc

[1] This section is primarily used to describe this document and its purpose. It should not be used for substantive binding provisions.

d. It is the purpose of this Covenant to restrict certain activities and uses of the Property to protect human health and the environment and the integrity of remedial actions conducted at the site. Records describing the extent of residual contamination and remedial actions conducted are available through Ecology. This includes the following documents:

Remedial Investigation, Dalton, Olmsted & Fuglevand, Inc., September 2015

Draft Cleanup Action Plan, Dalton, Olmsted & Fuglevand, Inc., November 2015

As-Built Report, Port of Tacoma, April 2015

e. This Covenant grants Ecology certain rights under UECA and as specified in this Covenant. As a Holder of this Covenant under UECA, Ecology has an interest in real property, however, this is not an ownership interest which equates to liability under MTCA or the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9601 *et seq.* The rights of Ecology as an "agency" under UECA, other than its' right as a holder, are not an interest in real property.

f. This Covenant supersedes and replaces the existing Environmental (Restrictive) Covenant (#9302020332), which is recorded with Pierce County.

B. *COVENANT*

Port of Tacoma, as Grantor and owner of the Property hereby grants to the Washington State Department of Ecology, and its successors and assignees, the following covenants. Furthermore, it is the intent of the Grantor that such covenants shall supersede any prior interests the GRANTOR has in the property and run with the land and be binding on all current and future owners of any portion of, or interest in, the Property.

C. *Section 1. General Restrictions and Requirements.*

The following general restrictions and requirements shall apply to the Property:

a. Interference with Remedial Action. The Grantor shall not engage in any activity on the Property that may impact or interfere with the remedial action and any operation, maintenance, inspection or monitoring of that remedial action without prior written approval from Ecology.

b. Protection of Human Health and the Environment. The Grantor shall not engage in any activity on the Property that may threaten continued protection of human health or the environment without prior written approval from Ecology. This includes, but is not limited to, any activity that results in the release of residual contamination that was contained as a part of the remedial action or that exacerbates or creates a new exposure to residual contamination remaining on the Property.

c. Continued Compliance Required. Grantor shall not convey any interest in any portion of the Property without providing for the continued adequate and complete operation, maintenance and monitoring of remedial actions and continued compliance with this Covenant.

d. Leases. Grantor shall restrict any lease for any portion of the Property to uses and activities consistent with this Covenant and notify all lessees of the restrictions on the use of the Property.

e. Preservation of Reference Monuments. Grantor shall make a good faith effort to preserve any reference monuments and boundary markers used to define the areal extent of coverage of this Covenant. Should a monument or marker be damaged or destroyed, Grantor shall have it replaced by a licensed professional surveyor within 30 days of discovery of the damage or destruction.

D. ***Section 2. Specific Prohibitions and Requirements.***

In addition to the general restrictions in Section 1 of this Covenant, the following additional specific restrictions and requirements shall apply to the Property.

a. Land use.

Industrial Land Use: The remedial action for the Property is based on a clean-up designed for industrial property. As such, the Property shall be used in perpetuity only for industrial uses, as that term is defined in the rules promulgated under Chapter 70.105D RCW. Prohibited uses on the Property include but are not limited to residential uses, childcare facilities, K-12 public or private schools, parks, grazing of animals, and growing of food crops.

b. Groundwater Use.

The groundwater beneath the Property remains contaminated and shall not be extracted for any purpose other than temporary construction dewatering, investigation, monitoring or remediation. Drilling of a well for any water supply purpose is strictly prohibited. Groundwater extracted from the Property for any purpose shall be considered potentially contaminated and any discharge of this water shall be done in accordance with state and federal law.

E. ***Section 3. Access.***

a. The Grantor shall maintain clear access to all remedial action components necessary to construct, operate, inspect, monitor and maintain the remedial action.

b. The Grantor freely and voluntarily grants Ecology and its authorized representatives, upon reasonable notice, the right to enter the Property at reasonable times to evaluate the effectiveness of this Covenant and associated remedial actions, and enforce compliance with this Covenant and those actions, including the right to take samples, inspect any remedial actions conducted on the Property, and to inspect related records.

c. No right of access or use by a third party to any portion of the Property is conveyed by this instrument.

F. ***Section 4. Notice Requirements.***

a. Conveyance of Any Interest. The Grantor, when conveying any interest IN ANY PART OF THE PROPERTY, including but not limited to title, easement, leases, and security or other interests, must:

i. Provide written notice to Ecology of the intended conveyance at least thirty (30) days in advance of the conveyance.

ii. Include in the conveying document a notice in substantially the following form, as well as a complete copy of this Covenant:

NOTICE: THIS PROPERTY IS SUBJECT TO AN ENVIRONMENTAL COVENANT GRANTED TO THE WASHINGTON STATE DEPARTMENT OF ECOLOGY ON [DATE] AND RECORDED WITH THE [COUNTY] COUNTY AUDITOR UNDER RECORDING NUMBER [RECORDING NUMBER]. USES AND ACTIVITIES ON THIS PROPERTY MUST COMPLY WITH THAT COVENANT, A COMPLETE COPY OF WHICH IS ATTACHED TO THIS DOCUMENT.

iii. Unless otherwise agreed to in writing by Ecology, provide Ecology with a complete copy of the executed document within thirty (30) days of the date of execution of such document.

b. Reporting Violations. Should the Grantor become aware of any violation of this Covenant, Grantor shall promptly report such violation in writing to Ecology.

c. Emergencies. For any emergency or significant change in site conditions due to Acts of Nature (for example, flood or fire) resulting in a violation of this Covenant, the Grantor is authorized to respond to such an event in accordance with state and federal law. The Grantor must notify Ecology in writing of the event and response actions planned or taken as soon as practical but no later than within 24 hours of the discovery of the event.

d. Notification procedure. Any required written notice, approval, reporting or other communication shall be personally delivered or sent by first class mail to the following persons. Any change in this contact information shall be submitted in writing to all parties to this Covenant. Upon mutual agreement of the parties to this Covenant, an alternative to personal delivery or first class mail, such as e-mail or other electronic means, may be used for these communications.

Scott Hooton **Port of Tacoma** **PO Box 47775** **Tacoma, WA 98401-1837** **(253) 383-9428** ***Shooton@PortofTacoma.com***	Environmental Covenants Coordinator Washington State Department of Ecology Toxics Cleanup Program P.O. Box 47600 Olympia, WA 98504 – 7600 (360) 407-6000 ToxicsCleanupProgramHQ@ecy.wa.gov

G. Section 5. Modification or Termination.

a. Grantor must provide written notice and obtain approval from Ecology at least sixty (60) days in advance of any proposed activity or use of the Property in a manner that is inconsistent with this Covenant. [2] For any proposal that is inconsistent with this Covenant and permanently modifies an activity or use restriction at the site: [3]

i. Ecology must issue a public notice and provide an opportunity for the public to comment on the proposal; and

ii. If Ecology approves of the proposal, the Covenant must be amended to reflect the change before the activity or use can proceed.

b. If the conditions at the site requiring a Covenant have changed or no longer exist, then the Grantor may submit a request to Ecology that this Covenant be amended or terminated. Any amendment or termination of this Covenant must follow the procedures in MTCA and UECA and any rules promulgated under these chapters.

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[2] Example of inconsistent uses are using the Property for a use not allowed under the covenant (i.e. mixed residential and commercial use on a property restricted to industrial uses), OR drilling a water supply well when use of the groundwater for water supply is prohibited by the covenant.

[3] An example of an activity that is unlikely to be considered a permanent modification is a proposal to disturb a cap to repair an existing underground utility that passes through the site. However, installing a new underground utility within a capped area would be a permanent change.

H. ***Section 6. Enforcement and Construction.***

a. This Covenant is being freely and voluntarily granted by the Grantor.

b. Within ten (10) days of execution of this Covenant, Grantor shall provide Ecology with an original signed Covenant and proof of recording and a copy of the Covenant and proof of recording to others required by RCW 64.70.070.

c. Ecology shall be entitled to enforce the terms of this Covenant by resort to specific performance or legal process. All remedies available in this Covenant shall be in addition to any and all remedies at law or in equity, including MTCA and UECA. Enforcement of the terms of this Covenant shall be at the discretion of Ecology, and any forbearance, delay or omission to exercise its rights under this Covenant in the event of a breach of any term of this Covenant is not a waiver by Ecology of that term or of any subsequent breach of that term, or any other term in this Covenant, or of any rights of Ecology under this Covenant.

d. The Grantor shall be responsible for all costs associated with implementation of this Covenant. Furthermore, the Grantor, upon request by Ecology, shall be obligated to pay for Ecology's costs to process a request for any modification or termination of this Covenant and any approval required by this Covenant.

e. This Covenant shall be liberally construed to meet the intent of MTCA and UECA.

f. The provisions of this Covenant shall be severable. If any provision in this Covenant or its application to any person or circumstance is held invalid, the remainder of this Covenant or its application to any person or circumstance is not affected and shall continue in full force and effect as though such void provision had not been contained herein.

g. A heading used at the beginning of any section or paragraph or exhibit of this Covenant may be used to aid in the interpretation of that section or paragraph or exhibit but does not override the specific requirements in that section or paragraph.

The undersigned Grantor warrants he/she holds the title to the Property and has authority to execute this Covenant.

EXECUTED this _____ day of _____, 20___.

_____

by: _____

Title: _____

INDIVIDUAL ACKNOWLEDGMENT

STATE OF _____
COUNTY OF _____

On this _____ day of _____, 20__, I certify that _____ personally appeared before me, 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 [4]
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 [15]
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 [15]
Residing at _____
My appointment expires _____

---

[4] Where landowner is located out of state, replace with appropriate out-of-state title and location.

[ECOLOGY'S SIGNATURE BLOCK]

The Department of Ecology, hereby accepts the status as GRANTEE and HOLDER of the above Environmental Covenant.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

_____

by: Rebecca S. Lawson, _____

Title: _____

Dated: _____

STATE 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 state agency that executed the within and foregoing instrument, and signed said instrument by free and voluntary act and deed, for the uses and purposes therein mentioned, and on oath stated that **he/she** was authorized to execute said instrument for said state agency.

_____
Notary Public in and for the State of Washington

Residing at _____

My appointment expires _____

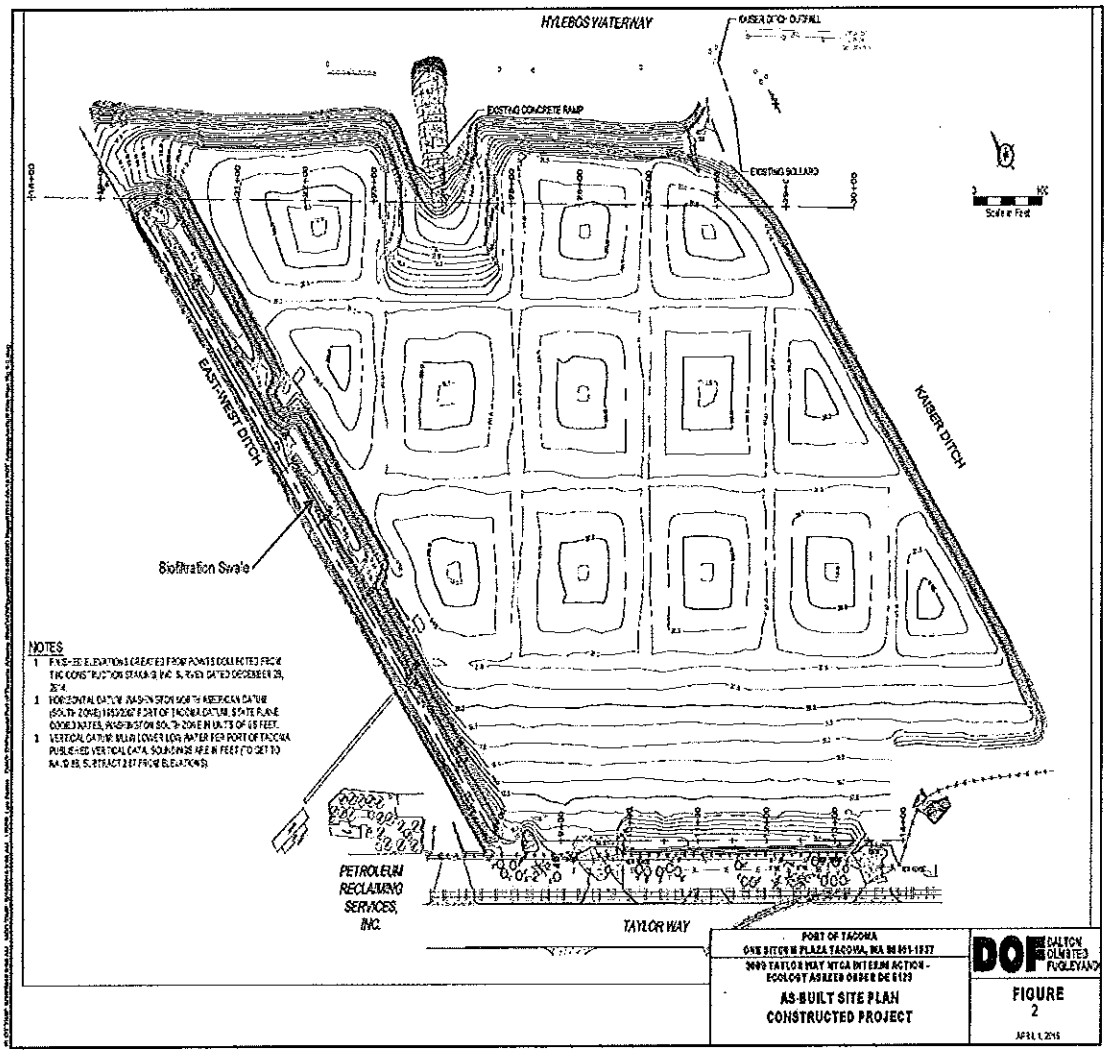
I. *Exhibit A*

LEGAL DESCRIPTION

Section 35 Township 21 Range 03 Quarter 11 BEG AT INTER OF NLY R/W LI OF TAYLOR WAY & E LI OF W 800 FT OF NE OF SW OF SEC 36-21-03E TH N 47 DEG 57 MIN 51 SEC W 1030.60 FT TH N 02 DEG 56 MIN 47 SEC E 212.43 FT TH N 87 DEG 44 MIN 20 SEC W 257.72 FT TO NLY R/W LI OF TAYLOR WAY TH N 47 DEG 57 MIN 51 SEC W 2237.89 FT TH N 43 DE 04 MIN 59 SEC E 907.78 FT TH S46 DEG 55 MIN 01 SEC E 2888.32 FT TH S 02 DEG 37 MIN 17 SEC W 228.81 FT TH S 02 DEG 56 MIN 47 SEC TO POB OUT OF 1-041 SEG 2005-0842 11/29/04JK

J. *Exhibit B*

PROPERTY MAP



INDIVIDUAL ACKNOWLEDGMENT

e. Groundwater Use.

The groundwater beneath the Property remains contaminated and shall not be extracted for any purpose other than temporary construction dewatering, investigation, monitoring or remediation. Drilling of a well for any water supply purpose is strictly prohibited. Groundwater extracted from the Property/within this area for any purpose shall be considered potentially contaminated and any discharge of this water shall be done in accordance with state and federal law.

g. Monitoring.

Several groundwater monitoring wells are located on the Property to monitor the performance of the remedial action. The Grantor shall maintain clear access to these devices and protect them from damage. The Grantor shall report to Ecology within forty-eight (48) hours of the discovery of any damage to any monitoring device. Unless Ecology approves of an alternative plan in writing, the Grantor shall promptly repair the damage and submit a report documenting this work to Ecology within thirty (30) days of completing the repairs.

Exhibit D
Permit and Substantive Requirements

Laws and regulations addressing permits or federal, state, or local requirements that Ecology believes may be applicable at the time of entry of this Order are listed below. This list may not include all pertinent laws and regulations. Work performed shall be in accordance within the substantive requirements of any applicable law or regulation.

1. Chapter 173-160 WAC (Minimum Standards for Construction and Maintenance of Wells). This regulations manages the well installation and abandonment of monitoring wells.

2. The Nationwide Permits (NWP) 38, 7 and 3

    a. Insure the installation of seep samplers in the intertidal zone, is covered under an applicable NWP.

3. Washington Industrial Safety and Health Act (WISHA).

    a. Contractor (s) will develop a written Health and Safety Plan (HASP)