STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by: NuStar Terminals Operations Partnership L.P. (f/k/a ST Services, Support Terminals Operating Partnership, L.P.)	AGREED ORDER No. DE .19602

TO: Renee Robinson
Manager Remediation
NuStar Energy, L.P.
19003 IH-10 West
San Antonio, Texas 78257

TABLE OF CONTENTS

I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology) and NuStar Terminals Operations Partnership L.P. (NuStar) 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 NuStar to implement a cleanup action plan. 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 70A.305.050(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. NuStar agrees to undertake all actions required by the terms and conditions of this Order. No change in ownership or corporate status shall alter NuStar's responsibility under this Order. NuStar 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 70A.305 and WAC 173-340 shall control the meanings of the terms in this Order.

A. Site: The Site is referred to as the NuStar Annex Terminal Site. The Site constitutes a facility under RCW 70A.305.020 (8). The Site is defined by where a hazardous substance, other than a consumer product in consumer use, has been deposited, stored, disposed of, or placed, or otherwise come to be located. Based upon factors currently known to Ecology, the Remedial Action Location Diagram (Exhibit A) shows where the remedial action will be implemented. The Site description and remedial action are more fully described in the Cleanup Action Plan (Exhibit B).

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

C. Potentially Liable Persons (PLPs): Refers to NuStar.

D. NuStar: Refers to NuStar Terminals Operations Partnership L.P. (f/k/a ST Services, Support Terminals Operating Partnership, L.P.

E. 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.

F. MTCA: Refers to Model Toxics Control Act Cleanup Regulation, chapter 173-340 WAC.

V. FINDINGS OF FACT

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

A. In 2003, Support Terminals Operation Partnership, L.P. acquired the tank farm facility property and assets (including tanks, truck-loading facilities, piping, instruments, office building, and other associated items) from Cenex Harvest States Cooperatives (Cenex), the current name for which is CHS, Inc. Support Terminals Operating Partnership, L.P. changed its name to NuStar Terminals Operations Partnership L.P. on March 31, 2008. NuStar currently owns and operates the facility, which is known as the NuStar Annex Terminal and is located at 5420 NW Fruit Valley Road, Vancouver, WA 98660.

B. An abbreviated legal description of the NuStar Annex Terminal property on which the Site is located is: #32 Abram Robie DLC 31.12A. Clark County (Washington) Auditor deed records (No. 3766670; Tax Ser. No. 147360-000) confirm that NuStar is the owner. The area of the NuStar Annex Terminal property is approximately 31 acres.

C. The NuStar Annex Terminal property was originally developed in 1957 and has generally been used for the handling and storage of petroleum products. In 2001, evidence of petroleum-impacted subsurface soils was encountered by Cenex during the decommissioning of an underground gasoline vapor recovery tank.

D. An Ecology *Environmental Report Tracking System* (*ERTS*) "Initial Report" (#52294), dated December 12, 2001, detailed a September 2001 gasoline spill originating from an underground storage tank apparently due to equipment failure. Soil contamination was noted.

E. Cenex (aka Farmers Union Central Exchange), which via mergers and acquisitions became Cenex Harvest States Cooperatives (Cenex), was a prior owner of the property.

On July 30, 2003, Cenex sold the property to Support Terminals Operating Partnership, LP, which became a wholly owned subsidiary of Valero L.P. in 2005. Valero L.P. changed its name to NuStar Energy L.P. effective April 2, 2007. On August 5, 2003, Cenex Harvest States Cooperatives changed its legal name to CHS, Inc. "Cenex" remains the energy brand of CHS, Inc.

F. The presence of petroleum constituents, including benzene and methyl tert-butyl ether (MTBE), in soil and groundwater was documented by a December 30, 2002, *Subsurface Investigation and Soil Removal Report* prepared by AMEC Earth & Environmental, Inc. (AMEC) for Cenex Harvest States Cooperatives.

Groundwater samples obtained in May and June 2002 from direct-push borings documented benzene concentrations up to 15,000 micrograms per liter (µg/L), exceeding the 5 µg/L MTCA Method A cleanup standard for that compound in groundwater. The maximum gasoline-range petroleum hydrocarbon concentration was 159,900 µg/L, exceeding the MTCA Method A cleanup level for groundwater of 800 µg/L.

G. In its May 8, 2002, *Phase II Environmental Site Assessment* report to Cenex, AMEC stated: "based on the inferred upgradient location of the truck fueling rack relative to groundwater sampling locations, there is a likelihood that benzene and other VOC concentrations may be related to activities associated with the fueling rack or similar upgradient source." AMEC further stated: "The lateral and vertical extent of impact identified from the Phase II ESA has not been defined at this time."

H. On March 28, 2005, Ecology entered the Site into the agency's database of "Confirmed and Suspected Contaminated Sites."

I. A Site Hazard Assessment (SHA) was conducted for Ecology by the Clark County Health Department. Based on a SHA worksheet dated June 23, 2006, the Site was assigned a Washington Ranking Method (WARM) risk rank of 2. A Number 1 ranking applies to the category of sites having the greatest risk to human health and/or the environment. A number 5 ranking indicates the lowest risk category.

J. A January 28, 2008, report entitled *Groundwater Monitoring Report – Quarterly Monitoring 2007* was prepared and submitted to Ecology on behalf of NuStar by Ash Creek Associates, an environmental consultant to NuStar. The report indicated that analytical data from two push-probe sampling points and four on-site monitoring wells, MW-1 through MW-4, confirmed an earlier Ash Creek conclusion that the contaminants are contained below the surface and within the boundaries of the NuStar facility property. Samples collected in May, August, and November of 2007 had petroleum-related contaminant levels below MTCA Method A cleanup levels except for benzene at monitoring wells MW-2 and MW-3, and MTBE at well MW-2. Wells MW-2 and MW-3 are both located in the east-central part of the tank farm. The November 2007 benzene concentrations in wells MW-2 and MW-3 were below the Method A benzene cleanup level of 5 µg/L; concentrations above the Method A level have not been detected in wells MW-1 through MW-4 since May 2007 when a level of 71 µg/L was measured in well MW-2. The benzene concentration in the November 2007 sample from well MW-2 was

less than the laboratory reporting limit of 1 µg/L and the concentration in the well MW-3 sample was 1.1 µg/L.

K. Clark Public Utilities (CPU) has developed plans to develop a public water supply source by installing wells approximately 1,000 feet north-northwest of the Site. Groundwater withdrawal under this plan could potentially induce migration of contaminated groundwater from under the Site, and other remediation sites in the Vancouver lowlands, toward the CPU well field.

L. On July 12, 2012, NuStar submitted a draft Feasibility Study (FS) to Ecology in accordance with the Agreed Order. The technical basis of the FS was the Remedial Investigation (RI) and Risk Assessment (RA) documented in the Remedial Investigation and Risk Assessment (RI/RA) Report submitted to Ecology in December 2010 and approved by Ecology on June 23, 2011. The draft FS proposed monitored natural attenuation (MNA) to address residual hydrocarbon constituents (methyl tert butyl ether [MTBE] and benzene) in groundwater in the eastern portion of the property.

M. On October 16, 2013, Ecology provided NuStar with comments on the draft FS. In the months following receipt, NuStar held several meetings with Ecology to discuss Ecology's comments on the FS, as well as additional comments that were presented to NuStar in a February 4, 2014, meeting. The meetings culminated in a Final Project Coordinator's Decision issued by Ecology on August 26, 2014, which established a series of steps for collecting additional data to support submittal of a revised FS. The additional data requested by Ecology

included one year of quarterly monitoring of the four wells MW-1 through MW-4, located on the eastern portion of the property along with additional soil and groundwater investigation in the western tank farm areas near historical borings SB-8 and SB-9. The results of the additional investigations and groundwater monitoring were summarized in the following reports: *Groundwater Monitoring Results-December 2014* dated February 6, 2015*; Groundwater Results Report and Groundwater Investigation Work Plan* dated May 28, 2015*; September 2015 Groundwater Monitoring Results* dated November 5, 2015*; and, Additional Investigation Summary Report and Pilot Test Work Plan* dated August 2, 2017.

N. The 2017 *Additional Investigation Summary Report* detailed the investigation work conducted in the western tank farm areas from 2014 through 2016 including the installation of borings SB-8R and SB-9R which subsequently resulted in the installation of wells MW-5 and MW-6 immediately adjacent to these borings, depth-discrete groundwater investigation via the installation of 12 borings in the western tank farm areas, additional delineation outside the tank farm berm areas via the installation of two additional soil borings, and installation of one deep and four shallow compliance monitoring wells across the Site as well as a summary of the groundwater monitoring program conducted in 2014 and 2015 on the eastern portion of the Site.

O. The results of the various investigations conducted in the western tank farm areas indicated the presence of petroleum constituents (primarily total petroleum hydrocarbons [TPH] and benzene) in groundwater at concentrations above MTCA Method A (unrestricted land use) Cleanup Levels in two localized areas in the vicinity of historical borings SB-8 and SB-9

(wells MW-5 and MW-6). Following discussions with Ecology, a pilot study was conducted in one of these areas to evaluate the efficacy of injecting chemical oxidants to address the petroleum hydrocarbons. The results of the pilot study were summarized in the *Pilot Study Results* report that was submitted to Ecology by Cascadia on January 17, 2019.

P. While evaluating the results from the pilot study, it became apparent that further delineation of petroleum constituents in soil and groundwater would be beneficial in the western portion of the Site to aid in evaluation of applicable remedial alternatives for the revised FS. Additionally, through the course of various discussions and meetings with Ecology, it was agreed that soil investigation near the Truck Loading Rack area to better define the current presence and extent of petroleum constituents in soil would be helpful. The information and data collected from the additional investigations completed in 2018 and 2019 were reported in the *Additional Investigations Results Report* dated July 1, 2019, and identified a third small localized area of petroleum constituents in soil and groundwater in the western area of the Site. The extent of petroleum hydrocarbons in this area was further defined in February 2020, and the results are presented in a *Supplemental Remedial Investigation and Revised Feasibility Study* report dated October 23, 2020.

VI. ECOLOGY DETERMINATIONS

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

A. NuStar is an "owner or operator" as defined in RCW 70A.305.020(22) of a "facility" as defined in RCW 70A.305.020(8).

B. Based upon all factors known to Ecology, a "release" or "threatened release" of "hazardous substance(s)" as defined in RCW 70A.305.020(32) and (13), respectively, has occurred at the Site.

C. Based upon credible evidence, Ecology issued a PLP status letter to Support Terminals Operating Partnership, L.P. (now NuStar Terminals Operations Partnership L.P.) dated December 27, 2006, pursuant to RCW 70A.305.040, .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 NuStar is a PLP under RCW 70A.305.040 and notified NuStar of this determination by letter dated March 7, 2007.

D. Pursuant to RCW 70A.305.030(1), .050(1), Ecology may require PLPs to investigate or conduct other remedial actions with respect to any release or threatened release of hazardous substances, whenever it believes such action to be in the public interest. Based on the foregoing facts, Ecology believes the remedial actions required by this Order are in the public interest.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that NuStar take the following remedial actions at the Site. The area within the Site where remedial

action is necessary under RCW 70A.305 is described in the Remedial Action Location Diagram (Exhibit A). These remedial actions must be conducted in accordance with WAC 173-340:

A. As of the effective date of the Agreed Order, NuStar will implement the Cleanup Action Plan (Exhibit B) which includes, but is not limited to the following Scope of Work:

Removal of Vadose-Zone Soil. Petroleum affected soil will be removed from the vadose zone down to 12 feet in two areas where shallower soil impacts were observed in the MW-5 and MW-6 areas. The areal extent of each excavation is approximately 50 by 75 feet; the excavation will be backfilled with gravel to approximately 2 feet below grade. The upper 2 feet will be capped with a low permeability clay fill cap. An injection gallery will be constructed within each excavated area during the backfill process to allow injection of treated, amended water.

Groundwater Extraction, Treatment, and Recirculation. Groundwater in the MW-5 and MW-6 areas will be extracted from the edges of the plumes, treated, amended, and re-injected in the interior of the plumes to form a groundwater recirculation system. Extraction will be achieved through the installation of an estimated nineteen 35-feet-deep groundwater extraction wells. The groundwater will be treated using a coalescing plate separator and granulated carbon adsorption, or equivalent treatment system. Treated groundwater will be amended with biostimulants and reinjected via injection galleries for infiltration. These in-ground discharges of treated/amended water will be permitted and monitored in accordance with the State's Underground Injection Control

Program. The groundwater extraction points will then pull this amended water through the impacted zone, forming a recirculation treatment cell. The continuous recirculation of oxygen/nutrient-rich water through the impacted zones is designed to actively enhance the biodegradation of residual petroleum hydrocarbons in soil and groundwater.

Injection of Liquid Activated Carbon. Several direct injections of liquid micron-scale carbon adsorbents and biostimulants will be conducted throughout the silt zone surrounding well MW-11 within the vapor recovery unit area located in the east-central portion of the facility. An estimated 6-foot by 6-foot injection grid will be used in this area and reagents will be slowly injected at multiple depth intervals through direct-push injection points equipped with a surface seal to preclude daylighting. A compliance well will be installed downgradient of well MW-11 to enhance the current groundwater monitoring system in this area.

Soil Management Plan for Truck Loading Rack Area Soil. A Soil Management Plan will be prepared that provides required management and monitoring for the residual hydrocarbons in subsurface soil in the Truck Loading Rack area.

Institutional Controls for Truck Loading Rack Area. Institutional controls will include a deed restriction to prevent future unrestricted development or any other activities that could create exposure pathways for direct contact with the contaminated soil in the Truck Loading Rack area that is not conducted in accordance with the

approved Soil Management Plan. The institutional controls are required until concentrations of petroleum hydrocarbons in soil in the Truck Loading Rack area are demonstrated to have attenuated to below Site cleanup levels.

Monitoring Plan. A monitoring plan will be prepared that will include the following elements to monitor compliance:

- Semi-annual groundwater monitoring to include gauging of water levels to assess groundwater gradients, and sampling of Site monitoring wells and chemical analysis of the samples to assess petroleum hydrocarbon and related constituent concentrations in groundwater.
- Periodic inspection of Site conditions.
- Annual reporting of groundwater monitoring and Site inspection results, and any actions taken in accordance with the Soil Management Plan.

B. Schedule of Deliverables. The schedule for implementing the Cleanup Action Plan (CAP) and the Scope of Work deliverables is set forth in Exhibit C to this Order. Prior to implementation of remedial activities under the CAP, the following documents will be prepared:

Aquifer Testing and Pilot Study Work Plan (ATPSWP). The ATPSWP will describe the tests and procedures to perform aquifer tests and analysis to determine aquifer properties for the design of the Groundwater Extraction, Treatment, and Recirculation system.

Engineering Design Report (EDR). The EDR will describe the engineering concepts, design criteria and operation parameters of the cleanup action. The EDR will include the assumptions and calculations for the construction of the Groundwater Extraction, Treatment, and Recirculation system in areas MW-5 and MW-6 and injection of Liquid Activated Carbon in the MW-11 area. Other components of the EDR will include:

- A schedule for final design and construction.
- A general description of the construction of the remedial actions that will be used during the cleanup.
- A general description of the compliance monitoring that will be performed following installation of the remedial actions.

Construction Plans and Specifications. The plans and specifications will be prepared in conformance with currently accepted engineering practices and techniques to detail the cleanup actions to be performed.

Soil Management Plan for Truck Loading Rack Area Soil. A Soil Management Plan will be prepared that provides required management and monitoring for the residual hydrocarbons in subsurface soil in the Truck Loading Rack area. A deed restriction will be recorded for protection of site workers in the Truck Loading Rack area.

Operation Maintenance and Monitoring (OM&M) Plan. The OM&M Plan will present technical guidance and regulatory requirements for the long-term inspection, maintenance, and monitoring of the cleanup action. The OM&M Plan will provide the details and specifications for compliance groundwater monitoring and sampling and maintenance of

the remedial actions on-Site. Compliance of soil and groundwater standards will be demonstrated through analysis of soil and groundwater samples.

C. If NuStar learns of a significant change in conditions at the Site, including but not limited to a statistically significant increase in contaminant and/or chemical concentrations in soil, groundwater, surface water, air, and/or sediments, NuStar, within seven (7) days of learning of the change in condition, shall notify Ecology in writing of said change and provide Ecology with any reports or records (including laboratory analyses, sampling results) relating to the change in conditions.

D. NuStar shall submit to Ecology written quarterly Progress Reports that describe the actions taken during the previous quarter to implement the requirements of this Order. Unless otherwise specified by Ecology, Progress Reports and any other documents submitted pursuant to this Order shall be sent by email to Ecology's project coordinator. The Progress Reports shall include the following:

1. A list of on-Site activities that have taken place during the quarter.

2. Detailed description of any deviations from required tasks not otherwise documented in project plans or amendment requests.

3. Description of all deviations from the Scope of Work and Schedule during the current quarter and any planned deviations in the upcoming quarter.

4. For any deviations in schedule, a plan for recovering lost time and maintaining compliance with the schedule.

5. All raw data (including laboratory analyses) received during the previous quarter (if not previously submitted to Ecology), together with a detailed description of the underlying samples collected.

6. A list of deliverables for the upcoming year if different from the schedule.

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

1. Within one hundred and eighty (180) days of the effective date of this Order, NuStar shall submit to Ecology for review and approval an estimate of the costs under this Order for operation and maintenance of the remedial actions at the Site, including institutional controls, compliance monitoring, and corrective measures. Within sixty (60) days after Ecology approves the aforementioned cost estimate, NuStar shall provide proof of financial assurances sufficient to cover all such costs in a form acceptable to Ecology.

2. NuStar shall adjust the financial assurance coverage and provide Ecology's project coordinator with documentation of the updated financial assurance for:

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

ii. Changes in cost estimates, within thirty (30) days of issuance of Ecology's approval of a modification or revision to the CAP that result in increases to the cost or expected duration of remedial actions. Any adjustments for inflation since the most recent preceding anniversary date shall be made concurrent with adjustments for changes in cost estimates. The issuance of Ecology's approval of a revised or modified CAP will revise the anniversary date established under this section to become the date of issuance of such revised or modified CAP.

F. As detailed in the CAP, institutional controls are required at the Site. Environmental (Restrictive) Covenants will be used to implement the institutional controls.

1. In consultation with NuStar, Ecology will prepare the Environmental (Restrictive) Covenants consistent with WAC 173-340-440, RCW 64.70, and any policies or procedures specified by Ecology. The Environmental (Restrictive) Covenants shall restrict future activities and uses of the Site as agreed to by Ecology and NuStar.

2. After approval by Ecology, NuStar shall record the Environmental (Restrictive) Covenant for affected properties it owns with the office of the Clark County Auditor as detailed in the Schedule and Deliverables (Exhibit C). NuStar shall provide Ecology with the original recorded Environmental (Restrictive) Covenants within thirty (30) days of the recording date.

G. All plans or other deliverables submitted by NuStar for Ecology's review and approval under the Scope of Work and Schedule and Deliverables (Exhibit C) shall, upon

Ecology's approval, become integral and enforceable parts of this Order. NuStar shall take any action required by such deliverable.

H. If the Parties agree on an interim action under Section VI.E, NuStar 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 NuStar 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 NuStar is required to conduct the interim action in accordance with the approved Interim Action Work Plan.

I. If Ecology determines that NuStar has failed to make sufficient progress or failed to implement the remedial action, in whole or in part, Ecology may, after notice to NuStar, perform any or all portions of the remedial action or at Ecology's discretion allow the NuStar opportunity to correct. In an emergency, Ecology is not required to provide notice to NuStar, or an opportunity for dispute resolution. NuStar 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 or where required by law, NuStar shall not perform any remedial actions at the Site outside those remedial actions required by this Order to address the contamination that is the subject of this Order, unless Ecology concurs, in writing, with such additional remedial actions pursuant to Section VIII.J.

(Amendment of Order). In the event of an emergency, or where actions are taken as required by law, NuStar must notify Ecology in writing of the event and remedial action(s) planned or taken as soon as practical but no later than within twenty-four (24) hours of the discovery of the event.

VIII. TERMS AND CONDITIONS

A. Payment of Remedial Action Costs

NuStar 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 70A.305, 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). For all Ecology costs incurred, NuStar 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 70A.305.055, 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:

Andrew Smith
Department of Ecology
Toxics Cleanup Program
Southwest Regional Office
PO Box 47775
Olympia, WA 98504-7775
360-407-6316
andrew.smith@ecy.wa.gov

The project coordinator for NuStar is:

Renee Robinson, P.G.
Manager Remediation
NuStar Energy, L.P.
19003 IH-10 West
San Antonio, Texas 78257
210-918-2975
ReneeRobinson@NuStarEnergy.com

Each project coordinator shall be responsible for overseeing the implementation of this Order. Ecology's project coordinator will be Ecology's designated representative for the Site. To the maximum extent possible, communications between Ecology and NuStar, 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, hydrogeologic, or engineering work shall be under the seal of an appropriately licensed professional as required by RCW 18.43 and 18.220.

NuStar 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 NuStar 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 NuStar'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 NuStar. NuStar shall make all reasonable efforts to secure access rights for those properties within the Site not owned or controlled by NuStar 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 NuStar 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) and Site restricted access requirements. 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, NuStar 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, NuStar shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by NuStar pursuant to implementation of this Order. NuStar shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Site. Ecology shall, upon request, allow NuStar 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.E (Access), Ecology shall notify NuStar 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

Ecology shall maintain the responsibility for public participation at the Site. However, NuStar 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 meetings related to remedial action work to be performed at the Site with the interested public and/or local governments. Likewise, Ecology shall notify NuStar prior to the issuance of all press releases and fact sheets related to the Site, and before meetings related to the Site with the interested public and local governments. For all press releases, fact sheets, meetings, and other outreach efforts by NuStar that do not receive prior Ecology approval, NuStar 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 location:

a. **Ecology's Southwest Regional Office**

300 Desmond Dr SE
Lacey, WA 98503

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 Lacey, 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, NuStar 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, NuStar 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 NuStar may have under applicable law to limit disclosure of documents protected by the attorney work-product privilege and/or the attorney-client privilege. If NuStar withholds any requested records based on an assertion of privilege, NuStar 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 NuStar elects to invoke dispute resolution NuStar 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), NuStar 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

NuStar's position with regards to the dispute; Ecology's position with regards to the dispute; and the extent of resolution reached by informal discussion.

c. NuStar 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.E (Work to be Performed) or initiating enforcement under Section X (Enforcement).

I. Extension of Schedule

1. NuStar request for 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.

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

2. The burden shall be on NuStar 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 NuStar 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 NuStar.

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

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 NuStar.

3. Ecology shall act upon any NuStar's written request for extension in a timely fashion. Ecology shall give NuStar 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. At NuStar's request, 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 one of the following:

a. Delays in the issuance of a necessary permit which was applied for in a timely manner.

b. Other circumstances deemed exceptional or extraordinary by Ecology.

c. 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 NuStar. Ecology will provide its written consent to a formal amendment only after public notice and opportunity to comment on the formal amendment.

When requesting a change to the Order, NuStar shall submit a written request to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely

manner after the written request is received. If Ecology determines that the change is substantial, then the Order must be formally amended. Reasons for the disapproval of a proposed change to this Order shall be stated in writing. If Ecology does not agree to a proposed change, 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 NuStar to cease such activities for such period of time as it deems necessary to abate the danger. NuStar shall immediately comply with such direction.

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

If Ecology concurs with or orders a work stoppage pursuant to this section, NuStar'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 70A.305. 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 NuStar to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against NuStar regarding remedial actions required by this Order, provided NuStar complies with this Order.

Ecology nevertheless reserves its rights under RCW 70A.305, including the right to require additional or different remedial actions at the Site should it deem such actions necessary to protect human health or 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, NuStar does not admit to any liability for the Site. Although NuStar is committing to conducting the work required by this Order under the terms of this Order, NuStar 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 NuStar 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 NuStar's transfer of any interest in all or any portion of the Site, and during the effective period of this Order, NuStar 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, NuStar shall notify Ecology of said transfer. Upon transfer of any interest, NuStar 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. *Applicable Laws.* All actions carried out by NuStar pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits or approvals, except as provided in RCW 70.105D.090. At this time, no federal, state, or local requirements have been identified as being applicable to the actions required by this Order. NuStar has a continuing obligation to identify additional applicable federal, state, and local requirements which apply to actions carried out pursuant to this Order, and to comply with those requirements. As additional federal, state, and local requirements are identified by Ecology or NuStar, Ecology will document in writing if they are applicable to actions carried out pursuant to this Order, and NuStar must implement those requirements.

2. *Relevant and Appropriate Requirements.* All actions carried out by NuStar pursuant to this Order shall be done in accordance with relevant and appropriate requirements identified by Ecology. 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. If additional relevant and appropriate requirements are identified by Ecology or NuStar, Ecology will document in writing if they are applicable to actions carried out pursuant to this Order and NuStar must implement those requirements.

3. Pursuant to RCW 70A.305.090(1), NuStar may be 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, NuStar shall comply with the substantive requirements of such permits or approvals. For permits and approvals covered under RCW 70A.305.090(1) that have been issued by local government, the Parties agree that Ecology has the non-exclusive ability under this Order to enforce those local government permits and/or approvals. At this time, no state or local permits or approvals have been identified as being applicable but procedurally exempt under this section.

4. NuStar has a continuing obligation to determine whether additional permits or approvals addressed in RCW 70A.305D.090(1) would otherwise be required for the remedial action under this Order. In the event either Ecology or NuStar determines that additional permits or approvals addressed in RCW 70A.305.090(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 NuStar shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, NuStar 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 NuStar and on how NuStar must meet those requirements. Ecology shall inform

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

Pursuant to RCW 70A.305.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70A.305.090(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 NuStar shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70A.305.090(1), including any requirements to obtain permits or approvals.

O. Periodic Review

So long as remedial action 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. Unless otherwise agreed to by Ecology, at least every five (5) years after the initiation of cleanup action at the Site the Parties shall confer regarding the status of the Site and the need, if any, for further remedial action at the Site. At least ninety (90) days prior to each periodic review, NuStar shall submit a report to Ecology that documents whether human health and the environment are being protected based on the factors set forth in WAC 173-340-420(4). Ecology reserves the right to

require further remedial action at the Site under appropriate circumstances. This provision shall remain in effect for the duration of this Order.

P. Indemnification

NuStar 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 NuStar, its officers, employees, agents, or contractors in entering into and implementing this Order. However, NuStar 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 NuStar's receipt of written notification from Ecology that NuStar has completed the remedial activity required by this Order, as amended by any modifications, and that NuStar has complied with all other provisions of this Agreed Order.

X. ENFORCEMENT

Pursuant to RCW 70A.305.050, 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 70A.305.060.

Effective date of this Order: 3-10-2023

NUSTAR TERMINALS OPERATIONS
PARTNERSHIP L.P.

Mark Trexler
Senior Vice President

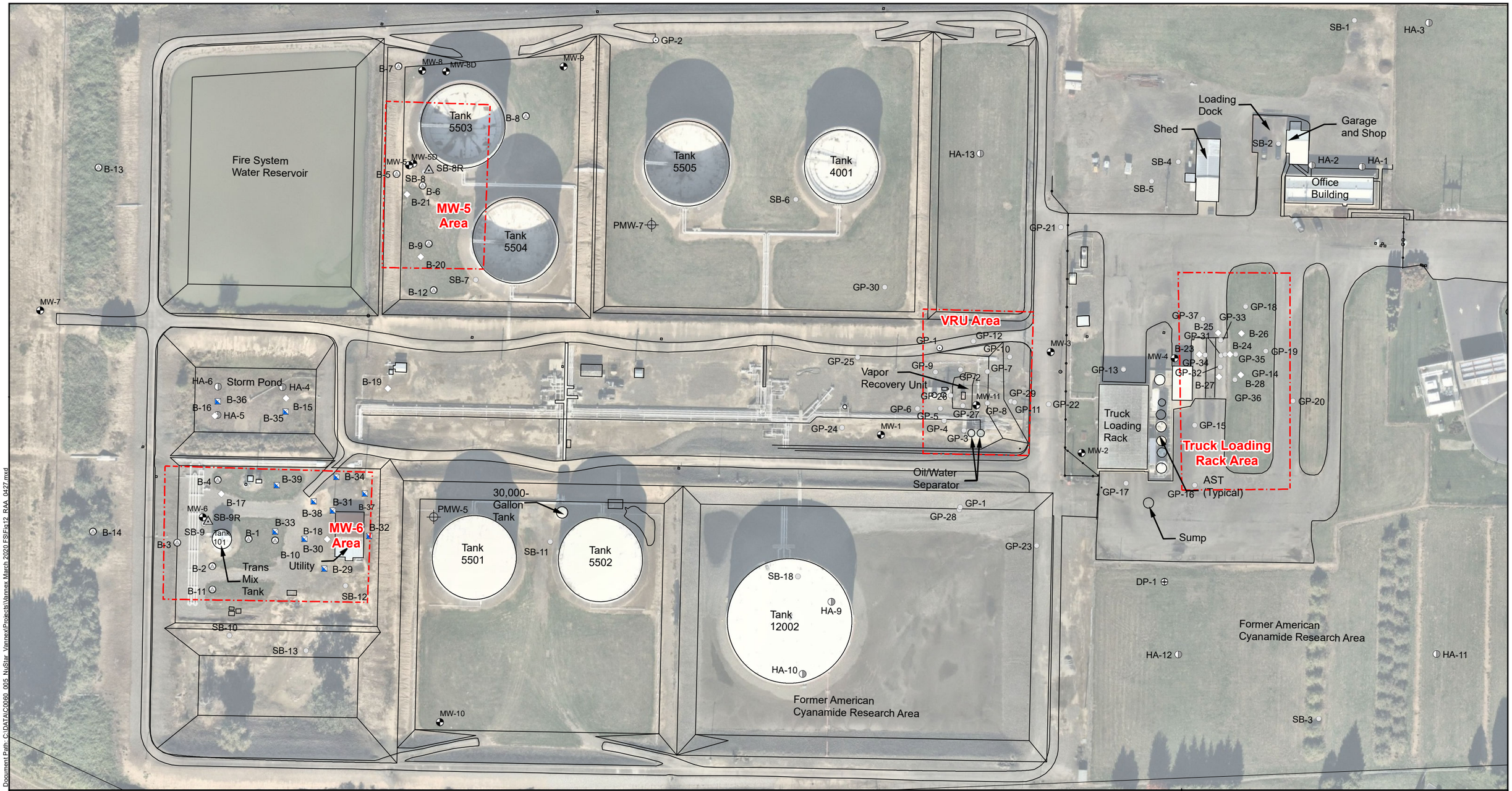
STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Rebecca S. Lawson, P.E., LHG
Section Manager
Toxics Cleanup Program
Southwest Regional Office
360-407-6241

EXHIBIT A

Remedial Action Location Diagram

This page intentionally left blank.



Notes:
Base map completed from a number of sources including but not limited to; Figure VAN1-21-002 provided by NuStar (1/8/2007) and a Monitoring Well Survey by Statewide Land Surveying, Inc (10/30/2007).

Locations of roads and containments are approximate.

Source:
Aerial from Mapbox.

- Groundwater Monitoring Well Location (MW-5D and MW-8D are Deep Monitoring Well Locations)
- Historical Temporary Well Location (Approximate)
- GP-1: Historical Direct-Push Boring Location (2002/2003)
- HA-1: Historical Hand Auger Location (2002/2003)
- GP-1: Sample Location (2008)
- DP-1: Sample Location (2009)
- SB-8R: Soil Boring Location (September 2014)
- B-1: Soil Boring Location (October 2015)
- B-1: Soil Boring Location (February 2019)
- B-29: Soil Boring Location (February 2020)
- Remediation Areas

0 25 50 100 Feet

Remediation Areas

Feasibility Study Report
NuStar Terminals Operations Partnership L.P. - Annex Terminal
Vancouver, Washington

Cascadia Associates, LLC

Project Number 0060-001-006

May 2020

Exhibit A

Document Path: C:\DATA\C0060_005_NuStar_VannexProjects\Vannex March 2020 FS\Fig12_RAA_0427.mxd

EXHIBIT B

FINAL Cleanup Action Plan

FINAL CLEANUP ACTION PLAN

Vancouver Annex Terminal
5420 NW Fruit Valley Road
Vancouver, Washington

March 2023

Contents

List of Tables

List of Figures

Acronyms

ARARs	Applicable Relevant and Appropriate Requirements
ASTs	above ground storage tanks
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, xylenes
COCs	constituents of concern
CAP	Cleanup Action Plan
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
mg/kg	milligrams per kilogram
MTBE	Methyl tert-butyl ether
TPHd	total petroleum hydrocarbons in the diesel carbon range
TPHg	total petroleum hydrocarbons in the gasoline carbon range
TPHo	total petroleum hydrocarbons as oil
ug/L	micrograms per liter
MTCA	Model Toxics Control Act
PAHs	polycyclic aromatic hydrocarbons
POC	point of compliance
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
RAA	Recent Alluvial Aquifer
PAA	Pleistocene Alluvial Aquifer
SGA	Sand and Gravel Aquifer
SRI/FS	Supplemental Remedial Investigation/Feasibility Study
UST	underground storage tank
WAC	Washington Administrative Code

1 Introduction

This cleanup action plan (CAP) describes the cleanup action selected by the Washington State Department of Ecology (Ecology) for the NuStar Terminals Operations Partnership L.P. (NuStar) Annex Terminal located at 5420 NW Fruit Valley Road, Vancouver, Washington (herein referred to as the Site; a location map is provided on Figure 1). The Site is located on an approximately 31-acre facility owned by NuStar (the Facility); Figure 2 illustrates the extent of the Site and the Facility. The Facility has been operated as a truck loading terminal by various owners since 1953.

The CAP has been prepared to meet the requirements of Agreed Order No. DE 08-TC-S DE5250 (Agreed Order) between the Washington State Department of Ecology (Ecology) and NuStar, executed on November 6, 2008. Ecology has determined that the cleanup action described here complies with the Model Toxics Control Act (MTCA), Chapter 70.105D Revised Code of Washington (RCW), and the MTCA Cleanup Regulation, Chapter 173-340 Washington Administrative Code (WAC). This determination is based on the Supplemental Remedial Investigation and Feasibility Study (SRI/FS) Report, Vancouver Annex Terminal, prepared by Cascadia Associates, LLC (Cascadia) on behalf of NuStar, and approved by Ecology (SRI/FS; Cascadia, 2020), and other relevant documents in the administrative record.

1.1 Purpose

A CAP is a required part of the site cleanup process under Chapter 173-340 WAC, MTCA Cleanup Regulations. The purpose of the CAP is to identify the proposed cleanup action for the Site and to provide an explanatory document for public review. More specifically, the CAP:

- Describes the Site;
- Summarizes current site conditions;
- Summarizes the cleanup action alternatives considered in the remedy selection process;
- Describes the selected cleanup action for the Site and the rationale for selecting this alternative;
- Identifies site-specific cleanup levels and points of compliance for each hazardous substance and medium of concern for the proposed cleanup action;
- Identifies applicable state and federal laws for the proposed cleanup action;
- Identifies residual contamination remaining on the Site after cleanup and restrictions on future uses and activities at the Site to ensure continued protection of human health and the environment;
- Discusses compliance monitoring requirements; and

- Presents the schedule for implementing the CAP.

Ecology has made a preliminary determination that the cleanup described in this CAP will comply with the requirements for selection of a remedy under WAC 173-340-360.

1.2 Previous Studies

The CAP was developed using information presented in the SRI/FS for the Site (Cascadia, 2020), which was reviewed and approved by Ecology. The Supplemental Remedial Investigation (SRI) consisted of multiple investigations conducted between 2014 and 2020. Prior to the SRI, two preliminary investigations and an initial remedial investigation were conducted at the Facility between 2001 and 2012.

In total, more than 90 soil borings have been installed at the Site, facilitating the collection and analysis of 115 soil samples and 108 grab groundwater samples. In addition, 13 monitoring wells have been installed and have been routinely monitored for the past 10 years. A brief summary of these investigations is provided below; more detail on the scope and results of these investigations can be found in the SRI/FS (Cascadia, 2020).

Preliminary Environmental Site Assessment – 2002. In April 2002, petroleum-impacted soils were encountered during the decommissioning of an underground gasoline-vapor recovery tank associated with a vapor recovery unit. Test pits were advanced to delineate the extent of the impacted soils, and approximately 60 to 100 cubic yards of soil were excavated based on the results of the test pitting. Soil and groundwater samples were collected from borings installed around the excavation area, which identified the presence of fuel constituents in soil and groundwater beyond the excavation. Further assessment was conducted to delineate the extent of the fuel-related constituents in soil and groundwater, and four monitoring wells were installed to allow for continued groundwater quality monitoring.

Phase I and II Environmental Site Assessment—2003. A comprehensive Phase II Environmental Site Assessment was conducted in 2003 in support of due diligence efforts during a property transfer from then-owner Cenex to NuStar. Results of the Phase I Environmental Site Assessment indicated several potential areas of concern:

- fuel storage in above ground storage tanks (ASTs);
- stormwater pond used to collect non-contact stormwater;
- slop tank used to store oily wastes prior to recycling or disposal;
- current and former truck loading racks used to transfer fuel;
- the vapor recovery unit and former underground storage tank (UST);
- an oil water separator located adjacent to the vapor recovery unit;

- and a former pesticide/herbicide handling and storage areas in the southeastern portion of the associated with a previous owner's site usage in the 1990s.

SECOR conducted a Phase II Facility-wide environmental investigation to assess each area of potential concern and concluded that significant areas of concern associated with fuel-related constituents in soil or groundwater were not identified outside of the former UST/VRU and truck loading rack areas). Pesticides, herbicides, triazines, and nitrates in soil and groundwater samples collected from the former pesticide/herbicide handling area in the southeastern part of the Facility were either not detected or were below concentrations of concern (Ash Creek, 2010). Lead results from groundwater sampling of the monitoring wells were slightly elevated and inconsistent with previous analysis of lead in groundwater at the Site. Results of the 2003 investigation indicated that additional investigations were needed to assess and monitor the former UST/vapor recovery unit area, the truck loading rack, and lead in groundwater. Locations of the former UST/vapor recovery unit area, truck loading rack, soil borings, and groundwater monitoring wells are shown on Figure 2.

Site Investigations—2006 to 2008. Several investigations of the former UST/vapor recovery unit and truck rack areas, and groundwater monitoring of the four on-site monitoring wells were conducted between 2006 and 2008 to assess the conditions at the Facility. The investigations included sampling of off-site wells, direct-push groundwater assessment of deeper groundwater at the Facility, and a year-long quarterly groundwater monitoring program. Results indicated that the fuel-related constituents were limited to shallow groundwater in the former UST/vapor recovery unit area, off-site groundwater was not impacted, lead concentrations in groundwater were non-detect, and fuel-related constituents in shallow groundwater were decreasing rapidly with time (Ash Creek, 2010). Locations of the borings installed during the 2006 to 2008 investigations are shown on Figure 2.

Supplemental Remedial Investigation—2014 to 2020. Prior to approving the initial remedial investigation, Ecology requested further assessment of the western half of the Facility to investigate the occurrence of petroleum hydrocarbons identified in several borings during the 2003 Facility-wide investigation. Results of these investigations indicated the presence of fuel-related constituents in soil and groundwater in two isolated areas in the western area: the first area is located in the southwest, south of the overflow storm pond at the Facility, and the second is located in a bermed AST east of the Fire System Water Reservoir. The two additional source areas identified in these investigations are referred to as the MW-5 and MW-6 areas; locations of the two areas are shown on Figure 2.

Groundwater Monitoring—2014 to 2020.

Comprehensive groundwater monitoring events were conducted periodically throughout the SRI. The monitoring well network currently consists of 11 shallow wells and two deeper wells across the Site installed and constructed as follows:

- Shallow wells MW-1 through MW-4 screened from 10 to 25 feet below ground surface (bgs), were installed in the former UST/vapor recovery unit and truck loading rack areas in 2003.
- Shallow wells MW-5 and MW-6, screened from 10 to 25 feet bgs, were installed in the western portion of the Site in 2014.
- Shallow wells MW-7 through MW-10, screened from 10 to 25 feet bgs, were installed in the western portion of the Site in 2016.
- Deeper wells MW-5D and MW-8D, screened from 35 to 45 feet bgs, were installed in the western portion of the Site in 2016.
- Shallow well MW-11, screened from 10 to 25 feet bgs, was installed in 2019 to monitor groundwater conditions in the vapor recovery unit Area.

Twelve comprehensive monitoring events were conducted at the Facility in the period from 2014 to 2020. Monitoring included gauging depth to groundwater and collecting groundwater samples from each well. Groundwater samples were analyzed for total petroleum hydrocarbons as gasoline, diesel, and oil (TPHg, TPHd, TPHo), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tert-butyl ether (MTBE). Naphthalene was added to the analytical program in 2019. Results from the continued groundwater monitoring confirmed that the TPH and related constituents are confined to the two localized areas in the western tank farm—one area around MW-5 and the second around MW-6—and a small area around well MW-11 in the vapor recovery unit Area.

The final draft of the SRI/FS was submitted to Ecology in October 2020. The SRI/FS provides the technical basis for the cleanup actions to be conducted at the Site.

2 Site Description

The Facility is a single parcel (Clark County Tax Lot No. 147360) of approximately 31 acres and is roughly rectangular, with dimensions of approximately 800 by 1,800 feet (Figure 2). The Facility is located in a mixed industrial-agricultural area and currently includes a tank farm consisting of seven large ASTs contained in four containment areas; a covered truck loading rack; smaller ASTs containing fuel additives; a 42,000-gallon transmix AST; and several buildings used for equipment storage and offices. The large ASTs are used to store jet fuel and range in capacity size from 1,680,000 to 4,599,378 gallons. The vapor recovery unit and adjacent oil water separator are located within a pipeline area between the south and north tank farm containments. The Facility is connected to the municipal sanitary sewer and water supply systems. The lined Fire System Water Reservoir is located in the northwestern portion of the Facility and an unlined overflow Storm Pond is located immediately south of the Fire System Water Reservoir (Figure 2). The Facility is fully fenced with a gated entry restricting access.

This section presents a discussion of the Site history, a summary of the conceptual site model describing the contamination found at the Site and the associated environmental concerns, and the cleanup standards.

2.1 Site History

Support Terminals Operating Partnership, L.P. (STOP) purchased the Facility from Cenex Harvest States Cooperative (Cenex) in 2003. In March 2008, STOP changed its name to NuStar.

The property was developed in 1957 as a truck loading terminal. It is unclear from the records whether the Facility was developed by Cenex. Historically, chemicals and other products stored at the Facility included liquid fertilizers and refined petroleum products such as gasoline, diesel and kerosene, de-natured alcohol, and petroleum product additives. A transmix tank is located in the western portion of the Facility (Figure 2) and this is typically where waste (such as from tank-bottom cleanouts or the oil water separator) would be stored prior to off-site disposal or recycling. There is no indication that materials from tank-bottom cleanouts were buried at the Facility.

Prior to or during Cenex's ownership, American Cyanamid conducted agricultural research—including the testing of herbicides and pesticides—in the southeastern portion of the Facility (Figure 2).

2.2 Conceptual Site Model

The information presented in this section is based on the conceptual site model that was provided in the SRI/FS (Cascadia, 2020), which should be referenced for additional details.

The Site and surrounding area is dominated by three primary geologic units: Recent Alluvial deposits, the Pleistocene Alluvial deposits, and the Troutdale Formation. The Recent Alluvial deposits are the upper unit with deposits approximately 55 to 70 feet thick and consist of fine-grained silt and sand. The Recent Alluvial deposits underlying the western portion of the Site consist of clayey silt, silt with some fine sand, and sandy silt to depths of approximately 28 to 35 feet bgs. In some areas, localized, thin laterally discontinuous sand layers are observed in the silt. Below 28 to 35 feet bgs, the Recent Alluvial deposits consist of layers of fine- to medium-grained sand to a depth of at least 65 feet bgs. On the eastern portion of the Facility, the base of the silt layer is generally shallower, with fine- to medium-grained sand encountered at approximately 10 feet bgs near the vapor recovery unit.

The underlying Pleistocene Alluvial deposits are approximately 95 to 115 feet thick in the vicinity of the Site and consist of coarse-grained sand and gravel. The Troutdale Formation underlies the Pleistocene Alluvial deposits and can be in excess of 1,000 feet thick in the Site vicinity. It is made up of cemented sandy gravels and semi-consolidated sands, silts, and clays.

The regional aquifers—Recent Alluvial Aquifer (RAA), Pleistocene Alluvial Aquifer (PAA), and the aquifers of the Troutdale Formation, including the Sand and Gravel Aquifer (SGA)—follow the regional geology. The RAA is unconfined and receives recharge directly from the land surface and/or surface water features. The PAA directly underlies the RAA and is a productive aquifer with high well yields (several thousand gallons per minute [gpm] without significant drawdown). The groundwater flow system is highly influenced by nearby local surface water bodies, including the Columbia River, Vancouver Lake, Vancouver Lake Flushing Channel, and Lake River. Clark Public Utilities, a community drinking water provider, installed a domestic supply wellfield approximately 500 feet north of the Site and extracts water from the SGA from depths of approximately 500 to 600 feet bgs. Clark Public Utilities has plans to initiate pumping from the shallower PAA in the future.

First encountered groundwater is found in the sandy silt of the RAA. In the western portion of the Facility, depth to first encountered groundwater has ranged from approximately 8 to 22 feet bgs; in the eastern portion of the Facility, near the former and current Truck Loading Rack, depth to groundwater has ranged from approximately 20 to 32 feet bgs. Shallow groundwater flow at the Facility has remained, under static conditions, relatively flat with a slight gradient predominantly to the southeast.

Based on the SRI/FS, the contaminants of concern (COCs) for the cleanup action are fuel-related constituents, specifically: TPHg, TPHd, BTEX, and naphthalene. There are four localized areas of soil and/or groundwater impacts that define the Site. The nature and extent of contamination in each of these areas are summarized as follows:

- **Truck Loading Rack Area**. Soil is impacted by TPHg and TPHd in a localized area approximately 40 feet by 90 feet in extent located west of the truck loading rack. Vertically, the TPH are limited to the depth interval between 6 and 16 feet bgs. Comparison of soil data collected from this area in 2002 to data collected in 2019 indicate that petroleum hydrocarbon concentrations have attenuated significantly with time. Seasonally high groundwater is encountered at approximately 22 feet bgs; therefore, soil containing petroleum hydrocarbons is at least 6 feet above the water table. Groundwater is not impacted in this area and the residual hydrocarbons in soil are not leachable.

- **Overflow Storm Pond**. TPHg is found in a limited area (estimated to be 25 feet in diameter or less) in shallow soil between 3 and 6 feet bgs in the overflow Storm Pond. Comparison of soil data collected from this area in 2002 to data collected in 2019 indicate that petroleum hydrocarbon concentrations have attenuated significantly with time. Groundwater is not impacted in this area and the limited residual hydrocarbons in the soil are not leachable nor accessible. Due to its limited size and location directly adjacent to the MW-6 Area, cleanup of this area has been evaluated in conjunction with and included into the MW-6 Area.

- **Vapor Recovery Unit Area**. Shallow groundwater contains TPHg, benzene, ethylbenzene, xylenes, and naphthalene in an approximately 50- by 50-foot area near the vapor recovery unit.

- **MW-5 Area**. TPHg and TPHd are present in shallow groundwater in an approximate 100- by 200-foot area and in vadose zone soil below a depth of 7 feet in an approximate 50- by 75-foot area. The vertical extent of impacted groundwater is primarily confined to the silty layer within the RAA. Ethylbenzene and xylenes are also found in this area, although the extent of these constituents is more limited than TPH. Benzene and toluene are not found in this area

- **MW-6 Area**. TPHg and TPHd are present in shallow groundwater in an oblong area extending approximately 125 feet by 225 feet. BTEX is also present in this area, but is more limited in extent. The vertical extent of the COCs is limited to the silty layer within the RAA and does not extend below 40 feet bgs. Soil between 3 and 21 feet contains COCs in a localized area around boring B-18, the location of which is shown on Figure 3. Vadose zone soil between 10 and 20 feet bgs also contain COCs in a localized area around well MW-6.

Based on current and potential future use scenarios, the potential for risk at the Site to human receptors is via the potential future transport of COCs into a drinking water aquifer should the Clark Public Utilities wellfield initiate pumping from the PAA. A Terrestrial Ecological Evaluation did not identify risk to terrestrial ecological receptors (plants and animals).

3 Cleanup Standards

The cleanup standards required under MTCA consist of cleanup levels for hazardous substances present at the Site and the location where cleanup levels must be met (point of compliance). Media exceeding a cleanup level are addressed through a cleanup remedy that prevents exposure to the contaminated media. The cleanup standards for the Site are presented in this section.

3.1 Contaminated Media and Points of Compliance

This section presents the contaminated media and points of compliance for the cleanup action.

3.1.1 Soil

The soil point of compliance (POC) is the location or locations where the soil cleanup levels must be attained for the Site to be in compliance with the cleanup standards. The standard POC for direct contact with soil is 15 feet, based on a reasonable maximum depth of excavation and assumed placement of excavated soils at the surface where excavation occurs. The conditional POC for direct contact with soil is 6 feet when an institutional control is established to prevent soil excavation.

Soil in isolated areas generally below 7 to 12 feet contain COCs, primarily TPH. One area near boring B-18 in the southwest portion of the site contains a limited area of soil that contains TPHg, TPHd, and BTEX from a depth of 3 feet to 21 feet bgs. These petroleum hydrocarbons are weathered with few volatile compounds remaining but may have the potential to leach petroleum hydrocarbons to groundwater at concentrations of potential concern. Therefore, soil cleanup levels are based on protecting groundwater via a soil leaching pathway and established based on the highest beneficial use of groundwater. Based on WAC 173-340-720(1)(a), the highest potential beneficial use of groundwater is assumed to be drinking water unless it can be otherwise demonstrated.

3.1.2 Groundwater

The groundwater POC is the point, or points, where the groundwater cleanup levels must be attained for the Site to comply with the cleanup standards. The standard POC for groundwater under MTCA is throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest most depth that could potentially be affected by the Site (WAC 173-340-720(8)(b)). Where it can be demonstrated that it is not practicable to meet the cleanup level throughout the Site within a reasonable restoration timeframe, Ecology may approve a conditional POC that is as close as practicable to the source and does not exceed the property boundary.

The maximum beneficial use of groundwater beneath and downgradient of the Site is drinking water; therefore, the groundwater cleanup levels are based on cleanup levels protective of potable groundwater.

3.2 Cleanup Levels

Cleanup levels are the concentration at which a substance does not threaten human health or the environment. The cleanup levels for the Site were developed during the SRI/FS and have been approved by Ecology as the final cleanup levels. The soil and groundwater cleanup levels are the most stringent of the cleanup levels protective of human health through the direct contact and ingestion pathways and those that are protective of ecological receptors. The soil cleanup levels for the Site are shown on Table 1 and groundwater cleanup levels are presented on Table 2.

4 Cleanup Action Alternatives and Analysis

4.1 Alternatives Evaluated

Remedial alternatives were evaluated for the areas of the Site where both soil and groundwater contain COCs (the MW-5, MW-6, and vapor recovery unit areas) separately from the area where COCs are limited to soil (truck loading rack).

MW-5, MW-6, and vapor recovery unit Areas. Six remedial alternatives were developed and evaluated in the SRI/FS (Cascadia, 2020) to address contamination at the Site. The alternatives combined a range of potentially applicable technologies, consisting of landfill capping, source removal, institutional controls and long-term monitoring. The alternatives consisted of the following:

- **Alternative 1 – No Action**. The no action alternative assumes that no actions are taken to treat, remove, or monitor COCs in soil and groundwater at the Site. This alternative provides a baseline against which to evaluate the other alternatives.
- **Alternative 2 – Monitored Natural Attenuation.** Monitored Natural Attenuation consists of institutional controls to prevent the groundwater from being accessed and long-term groundwater quality monitoring. The application of institutional controls provides notification regarding the presence of contaminated materials, regulates the disturbance/management of these materials, and prohibits the creation of preferential pathways for contaminant migration. The principal assumption of Alternative 2 is that reductions of COCs within the shallow water bearing zone (silt unit) will occur through natural processes such as biodegradation, diffusion, dispersion, hydrolysis, and sorption.
- **Alternative 3 – Hydraulic Containment.** Alternative 3 provides for the hydraulic control and containment of COCs in groundwater by installing groundwater extraction wells throughout the defined extent of TPH in shallow groundwater, extracting COC-containing groundwater, treating the groundwater via a coalescing plate separator and granulated carbon adsorption, and discharging treated groundwater to the municipal sanitary sewer system under permit with the publicly owned treatment works.
- **Alternative 4 – Plume Stabilization and Enhanced Bioremediation**. Alternative 4 includes the direct injection of liquid activated carbon and biostimulants throughout residual source areas to minimize migration of the dissolved phase hydrocarbons and promote biodegradation.
- **Alternative 5 – Removal of Accessible Petroleum Containing Soil and Groundwater Recirculation**. Alternative 5 includes removal of readily accessible petroleum hydrocarbon containing soil, hydraulic containment of the dissolved phase plumes via groundwater extraction, and reinjection/recirculation of treated/amended water inside the plumes to stimulate bioremediation.

- **Alternative 6 – Removal of Petroleum Containing Soil and Enhanced Bioremediation.** Alternative 6 includes the removal of all accessible petroleum-containing soil and the placement of oxygen releasing compounds in the completed excavations to enhance aerobic biodegradation of residual contamination.

The six alternatives were evaluated against the MTCA threshold criteria and other requirements, including disproportionate cost analysis procedures (WAC 173-340-360). With the exception of Alternative 1, no action, all of the alternatives meet the MTCA threshold criteria. Based on the results of the disproportionate cost ana11

lysis, Alternatives 3, 5 and 6 had the highest beneficial scores. However, Alternative 5 and 6 have the higher benefit to cost ratio, and Alternative 5 is a more proven technology. Therefore, under MTCA, Alternative 5 is identified as the alternative that is permanent to the maximum extent practicable.

Truck Loading Rack. Three cleanup alternatives were developed to address the subsurface soil containing petroleum hydrocarbons in the truck loading rack area. The cleanup alternatives developed consisted of:

- No Action (retained for comparison purposes)
- Institutional Controls—Deed Restrictions and Soil Management Plan
- Excavation with Off-Site Disposal

With the exception of the no-action alternative, the alternatives meet the MTCA threshold criteria. However, the third alternative, excavation with off-site disposal, would be significantly more expensive, and, based on the results of the disproportionate cost analysis of the three options, the second alternative is selected for the truck loading rack area.

4.2 Rationale for the Selected Cleanup Action

The contamination at the Site requiring remedial action consists of three localized areas where subsurface soil and shallow groundwater contain TPHg, TPHd, BTEX and/or naphthalene, and one area where soil between depths of 6 and 13 feet contain TPH. The selected cleanup action in the groundwater impacted areas consists of: removal of readily accessible petroleum hydrocarbon-containing soil and extraction; treatment and recirculation of treated groundwater in the MW-5 and MW-6 areas; and, injection of liquid activated carbon in the vapor recovery unit area. The selected cleanup actions in the truck loading rack area are institutional controls, including deed restrictions and a soil management plan.

The selected cleanup action in the MW-5, MW-6, and vapor recovery unit areas meets the threshold requirements set forth in MTCA and identified in WAC 173-340-360(2)(a), as follows:

- **Protect human health and the environment.** This alternative protects human health and the environment by controlling the migration of COCs and reducing residual contaminant levels through targeted removal actions, pumping and treating COCs in groundwater, and treating residual contamination *in situ* through groundwater recirculation and enhanced bioremediation.
- **Comply with cleanup standards.** The alternative complies with the cleanup standards by reducing the COC concentration throughout the Site groundwater to below cleanup levels (using a combination of removal actions and *in-situ* treatment).
- **Comply with applicable state and federal laws.** The cleanup action was specifically developed to comply with MTCA. The cleanup action is anticipated to comply with all other potential applicable, relevant, and appropriate requirements ([ARARs]; see Section 5.2) because the required engineering design and agency review processes will include steps to ensure compliance. The means of compliance with ARARs will be documented in the engineering design documents and other preconstruction documentation that will be prepared during the design phase.
- **Provide for compliance monitoring.** The alternative includes compliance monitoring to verify that cleanup levels have been achieved.

The selected cleanup action in the truck loading rack area meets the threshold requirements set forth in MTCA and identified in WAC 173-340-360(2)(a), as follows:

- **Protect human health and the environment.** This alternative protects human health and the environment by limiting and managing access to contaminated soil while natural attenuation reduces concentrations to acceptable levels.
- **Comply with cleanup standards.** The alternative complies with the cleanup standards by reducing the COC concentration through monitored natural attenuation.
- **Comply with applicable state and federal laws.** The cleanup action was specifically developed to comply with MTCA. The cleanup action is anticipated to comply with all other potential ARARs (see Section 5.2) because the required institutional controls and agency review processes will include steps to ensure compliance. The means of compliance with ARARs will be documented in the institutional control documents, including the soil management plan.
- **Provide for compliance monitoring**. The alternative includes compliance monitoring to verify that cleanup levels have been achieved.

The Site cleanup action has a reasonable restoration timeframe, uses permanent solutions to the maximum extent practicable, and was provided for public review during the SRI/FS public comment period. The selected Site cleanup action meets the MTCA threshold requirements and selection criteria per WAC 173-340-360.

5 Description of the Cleanup Action

The selected remedial alternative for implementation during the cleanup action was developed through evaluation of the Site conditions and applicable remedial technologies in the SRI/FS. This section describes the selected remedial alternative.

5.1 Cleanup Action Components

The cleanup action includes the following components:

- **Removal of Vadose Zone Soil**. Petroleum-containing soil will be removed from the vadose zone down to 12 feet in two areas where shallower soil impacts were observed in the MW-5 and MW-6 Areas. The areal extent of each excavation is approximately 50 by 75 feet; the excavation will be backfilled with gravel to approximately 2 feet below grade. The upper 2 feet will be capped with a low permeability clay fill cap. An injection gallery will be constructed within each excavated area during the backfill process to allow injection of treated, amended water.
- **Groundwater Extraction, Treatment, and Recirculation.** Groundwater in the MW-5 and MW-6 Areas will be extracted from the edges of the plumes, treated, amended, and re-injected in the interior of the plumes to form a groundwater recirculation system. Extraction will be achieved through the installation of an estimated nineteen 35-feet-deep groundwater extraction wells. The groundwater will be treated using a coalescing plate separator and granulated carbon adsorption, or equivalent treatment system. Treated groundwater will be amended with biostimulants and reinjected via injection galleries for infiltration. These in-ground discharges of treated/amended water will be permitted and monitored in accordance with the state's Underground Injection Control program. The groundwater extraction points will then pull this amended water through the impacted zone, forming a recirculation treatment cell. The continuous recirculation of oxygen/nutrient-rich water through the impacted zones is designed to actively enhance the biodegradation of residual COCs in soil and groundwater.
- **Injection of Liquid Activated Carbon.** Several direct injections of liquid micron-scale carbon adsorbents and biostimulants will be conducted throughout the silt zone surrounding MW-11 within the vapor recovery unit Area. An estimated 6-foot by 6-foot injection grid will be used in this area and reagents will be slowly injected at multiple depth intervals through direct-push injection points equipped with a surface seal to preclude daylighting. A compliance well will be installed downgradient of MW-11 to enhance the current groundwater monitoring system in this area.
- **Soil Management Plan for Truck Loading Rack Area Soil.** A Soil Management Plan will be prepared that provides required management and monitoring for the residual hydrocarbons in subsurface soil in the truck loading rack area.

- **Institutional Controls for Truck Loading Rack Area.** Institutional controls will include a deed restriction to prevent future, unrestricted development or any other activities that could create exposure pathways for direct contact with the contaminated soil in the truck rack area that is not conducted in accordance with the approved Soil Management Plan. The institutional controls are required until concentrations of COCs in soil in the Truck Rack Area are demonstrated to have attenuated to below Site Cleanup Levels.
- **Monitoring Plan.** A Monitoring Plan will be prepared that will include the following elements to monitor compliance:
  - Semi-annual groundwater monitoring to include gauging of water levels to assess groundwater gradients, and sampling of Site monitoring wells and chemical analysis of the samples to assess COC concentration trends with time;
  - Periodic inspection of Site conditions; and
  - Annual reporting of groundwater monitoring and site inspection results, and any actions taken in accordance with the Soil Management Plan.
- **Five Year Reviews**. Ecology will review the status of the Cleanup Action at least every five years to assess whether it is on track and/or whether additional cleanup elements are needed to achieve cleanup levels within a reasonable timeframe.

The conceptual elements of the cleanup action are depicted on Figure 3. The detailed locations and specifications will be defined in future design and specification documents.

5.2 Applicable, Relevant, and Appropriate Requirements (ARARs)

The MTCA rules (WAC-173-340-710) require that cleanup actions comply with applicable state and federal laws, which are defined as "legally applicable requirements and those requirements that the department determines…are relevant and appropriate requirements" (i.e., ARARs). A cleanup action performed under MTCA authority (e.g., an Agreed Order) is exempt from the procedural requirements of certain state and local environmental laws, although the cleanup action must still comply with the substantive requirements of applicable federal, state, and local laws.

"Legally applicable" requirements include cleanup standards or environmental protection requirements under state or federal laws that specifically address a hazardous substance or cleanup action for a site. "Relevant and appropriate" requirements include cleanup standards or environmental requirements (e.g., cleanup standards, standards of control, environmental criteria, environmental limits, etc.) under state and federal law that, while not legally applicable to the cleanup action, address problems or situations that are considered sufficiently similar to those encountered at the Site. The ARARs applicable for the Site are as follows:

- **Safe Drinking Water Act (42 USC Section 300f).** The Safe Drinking Water Act sets a framework for the Underground Injection Control program to control the injection of wastes into groundwater. EPA and individual states implement the Underground Injection Control program, which sets standards for safe waste injection practices and bans certain types of injection altogether.
- **Resource Conservation and Recovery Act**. The Resource Conservation and Recovery Act is the principal federal law in the United States governing the disposal of solid waste and hazardous waste. Resource Conservation and Recovery Act handles many regulatory functions of hazardous and non-hazardous waste. In the State of Washington, Resource Conservation and Recovery Act is implemented by Ecology under the Dangerous Waste Regulations (WAC 173-303).
- **State Environmental Policy Act (43.21C Revised Code of Washington [RCW]; WAC 197-11)**. The State Environmental Policy Act was created to ensure that state and local government officials consider potential environmental impacts when making decisions. These decisions may be related to issuing permits for private projects, constructing public facilities, or adopting regulations, policies, or plans. The State Environmental Policy Act process begins when an application for a permit is submitted to a state or local government agency, or when an agency proposes to take an action such as the implementation of a remedial action. One agency is identified as the "lead agency" under the State Environmental Policy Act Rules (WAC 197-11-924-938) and is responsible for conducting the environmental review for a proposal and documenting that review in the appropriate State Environmental Policy Act documents.
- **Washington Solid Waste Management—Reduction and Recycling Act (Chapter 70.95 RCW; Chapter 173-350 WAC).** This act establishes a state-wide program for solid waste handling, recovery, and/or recycling to prevent land, air, and water pollution and conserve the natural and economic resources of the state.
- **Underground Injection Control Program (Chapter 173-218 WAC).** The program was designed to protect groundwater quality by preventing groundwater contamination through regulating the discharge of fluids into Underground Injection Control wells. The program satisfies the intent and requirements of Washington State Water Pollution Control Act (Chapter 90.48 RCW) as well as Part C of the Safe Drinking Water Act .
- **State of Washington Water Pollution Control Law (Chapter 90.48 RCW).** This legislation defines Ecology's authority and obligations for the wastewater discharge permit program. The Facility's stormwater discharges to ground must comply with State Waste Discharge Permit Number ST 6255 (Permit). The Permit is effective May 1, 2020 and expires on April 30, 2025. The cleanup action would need to be consistent with the substantive requirements of the Permit, which include effluent limits for authorized discharges to ground, groundwater quality monitoring, and a

best management practice that precludes any discharge in excess of the hydraulic capacity of the evaporative/infiltration ponds, so that the surge pond overflows.

- **Water Resources Act (Chapter 90.54 RCW).** This act establishes fundamental policies for the utilization and management of the waters of the State of Washington. If construction-generated dewatering water or stormwater from the cleanup action is treated for discharge to water of the State of Washington, such discharge would need to comply with the requirements of the Facility's stormwater Permit and/or a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit.

5.3 Restoration Timeframe

The estimated time for COC concentrations in groundwater to achieve cleanup levels is 7 to 10 years and soil mitigation will be achieved once the removal actions are completed, the Soil Management Plan has been approved by Ecology, and deed restrictions have been recorded with the appropriate entities, all of which are anticipated to be completed within one year following execution of the Agreed Order for Site Cleanup between NuStar and Ecology. This is considered a reasonable restoration timeframe in accordance with the factors listed in WAC 173-340-360(4)(b).

5.4 Compliance Monitoring and Reporting

Compliance monitoring and reporting will be implemented in accordance with WAC 173-340-410 to ensure the protectiveness of the cleanup actions. The following sections generally describe the monitoring requirements. In addition to compliance monitoring, confirmation sampling of soil and groundwater will be conducted when cleanup is complete to demonstrate the applicable goals have been obtained.

5.4.1 Groundwater

The goal of groundwater monitoring is to evaluate groundwater quality over time and ensure that there are no risks to human health or the environment at the point of compliance. The COC concentrations in groundwater downgradient of the Site currently meet the cleanup levels. Once the cleanup action is implemented, the COC concentrations at the Site are anticipated to be at or below groundwater cleanup levels in 7 to 10 years. Groundwater monitoring will be conducted to observe these changes over time.

Groundwater monitoring will include semiannual water level measurement; sample collection from Site monitoring wells MW-5 through MW12, MW5d, and MW-8d; and laboratory analysis. Measured water levels will be analyzed to determine the groundwater surface elevation and direction and rate of groundwater flow. Groundwater samples will be collected using low-flow techniques while monitoring for pH, temperature, and conductivity using calibrated field equipment, handled using standard chain-of-custody procedures, and analyzed by an accredited laboratory for TPHg, TPHd, BTEX, and naphthalene.

Concentrations of TPHg, TPHd, BTEX, and naphthalene will be evaluated for statistically significant trends following unified guidance provided by the EPA (EPA, 2009). These trends will be used to determine compliance with cleanup levels.

An Operations Maintenance and Monitoring Plan (OM&MP) to monitor compliance will be prepared in accordance with WAC 173-340-410 and will include a Sampling and Analysis Plan and contingency plan. The Sampling and Analysis Plan will identify the data analysis and evaluation procedures to be used to demonstrate and confirm compliance and to determine when the cleanup action has met the cleanup goals. The contingency plan will propose one or more reliable statistical methods or other equivalent analysis techniques to demonstrate and confirm compliance, and the conditions under which the methods would be used at the facility, including actions to be taken if post system monitoring indicates an exceedance of cleanup levels. Groundwater monitoring and interpretation will be documented annually and submitted to the Ecology Site Manager. Results of laboratory analyses will be posted to Ecology's Environmental Information Management database. Groundwater monitoring and reporting will be conducted for at least two years following shutdown of the groundwater recirculation system.

5.4.2 Truck Loading Rack Reporting

The vertical and lateral extent of soil currently containing petroleum hydrocarbons above soil cleanup levels will be described in the Soil Management Plan and will become the designated soil management area. Any activities conducted within the designated soil management area that trigger the elements of the Soil Management Plan will be documented and reported annually. These activities include, but may not be limited to, digging, accessing, and/or removing soil from within the designated soil management area.

5.5 Schedule for Implementation

The implementation of the cleanup action occurs after a public participation comment period on a draft CAP. Construction of the remedy is expected in 2023 and 2024.

5.6 Institutional Controls

Institutional controls are measures taken to limit or prohibit activities that may interfere with the integrity of a cleanup action or that may result in exposure to hazardous substances at a site (WAC 173-340-440). An environmental covenant, in the form of a deed restriction, will be developed for the Property. The environmental covenant will prevent disturbance of the contaminated soil in the truck loading rack area without prior notification of Ecology and require implementation of a Soil Management Plan.

5.7 Periodic Review

In accordance with WAC 173-340-420, at a site where a cleanup action requires multiple years to achieve and/or an institutional control, Ecology will conduct a review of this Site

every five years to ensure the continued protection of human health and the environment. Since groundwater cleanup is anticipated to take 7 to 10 years and institutional controls will be required for the truck loading rack area, periodic reviews will occur at the Site to assess the effectiveness of the cleanup action.

References

Cascadia Associates, LLC, 2020, Supplemental Remedial Investigation and Feasibility Study Report, Vancouver Terminal Annex, Vancouver, Washington, October 23, 2020.

Washington State Department of Ecology (Ecology), 2013, Model Toxics Control Act Regulation and Statute, Chapter 173-340 of the Washington Administrative Code (WAC 173-340), and Chapter 70.105D of the Revised Code of Washington (RCW 70.105D), Publication No. 94-06, Revised 2013.

United States Environmental Protection Agency (EPA), 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance, Publication EPA 530-R-09-007, March 2009.

TABLES

Table 1
Soil Constituents of Concern and Site Cleanup Levels
NuStar Terminals Operations Partnership L.P. - Annex Terminal
Vancouver, Washington

Constituent of Concern	Soil Cleanup Level (mg/kg)[1]
TPHg	30
TPHd	2,000
Napthalene	5
Benzene	0.03
Ethylbenzene	6
Toluene	7
Xylenes	9

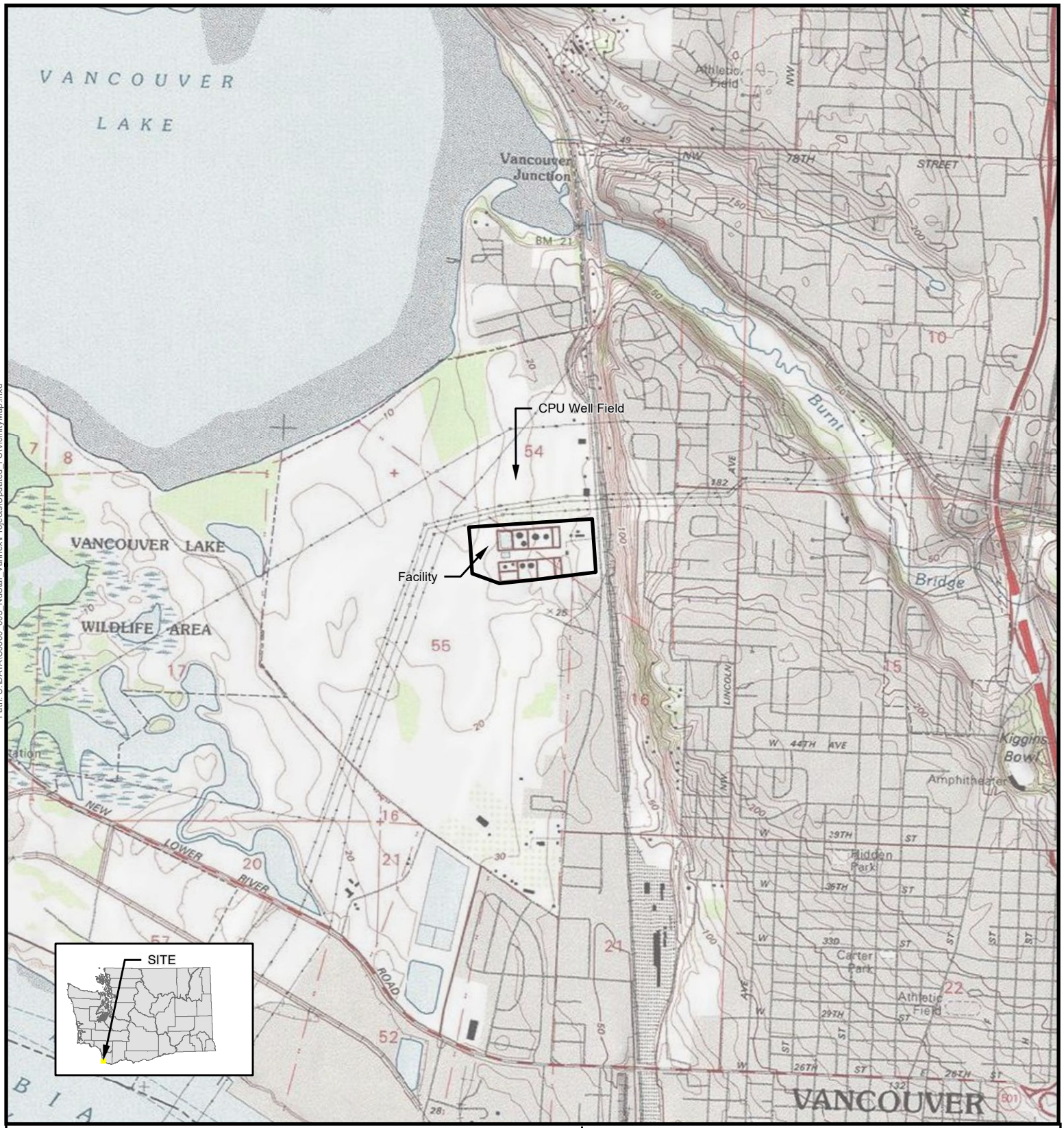
[1] Model Toxics Control Act Cleanup Regulation (MTCA), WAC 173-340, Method A values for soil with unrestricted land use.
TPHg = Total Petroleum Hydrocarbons in gasoline hydrocarbon range
TPHd = Total Petroleum Hydrocarbons in diesel hydrocarbon range
mg/kg = milligrams per kilogram

Table 2
Groundwater Constituents of Concern and Site Cleanup Levels
NuStar Terminals Operations Partnership L.P. - Annex Terminal
Vancouver, Washington

Constituent of Concern	Groundwater Cleanup Level (ug/L)[1]
TPHg	800
TPHd	500
Naphthalene	160
Benzene	5
Ethylbenzene	700
Toluene	1,000
Xylenes	1,000

[1] Model Toxics Control Act Cleanup Regulation (MTCA), WAC 173-340, Method A values for groundwater based on potential drinking water beneficial use.
TPHg = Total Petroleum Hydrocarbons in gasoline hydrocarbon range
TPHd = Total Petroleum Hydrocarbons in diesel hydrocarbon range
ug/L = micrograms per liter

FIGURES



Source: USGS Map obtained from Esri ArcGIS Online

Facility Boundary

0 1,000 2,000
Feet

Facility Location Map

NuStar Terminals Operations Partnership L.P. - Annex Terminal
Vancouver, Washington

Cascadia Associates, LLC

Figure 1

Project:
Produced By: ErikStrandhagen Approved By:
Print Date: 4/27/2020
Path: C:\DATA\C0060_005_NuStar_Vannex\Projects\Updated_FS\VicinityMap.mxd

Document Path: P:\19\19001008\GIS\MXD\Cleanup Action Plan\Aerial View Site Vicinity.mxd

Source:
Aerial from Mapbox.

Facility Boundary

MTCA Site Boundaries

0 100 200
Feet

Aerial View of Site and Site Vicinity

NuStar Terminals Operations Partnership L.P. - Annex Terminal
Vancouver, Washington

GeoEngineers

Project Number 019001-008

February 2022

Figure 2

Notes:
Base map completed from a number of sources including but not limited to; Figure VAN1-21-002 provided by NuStar (1/8/2007) and a Monitoring Well Survey by Statewide Land Surveying, Inc (10/30/2007).

Locations of roads and containments are approximate.

Source:
Aerial from Mapbox.

- Groundwater Monitoring Well Location (MW-5D and MW-8D are Deep Monitoring Well Locations)
- Historical Temporary Well Location (Approximate)
- GP-1 Historical Direct-Push Boring Location (2002/2003)
- HA-1 Historical Hand Auger Location (2002/2003)
- GP-1 Sample Location (2008)
- DP-1 Sample Location (2009)
- SB-8R Soil Boring Location (September 2014)
- B-1 Soil Boring Location (October 2015)
- B-1 Soil Boring Location (February 2019)
- B-29 Soil Boring Location (February 2020)
- Facility Boundary

0 25 50 100 Feet

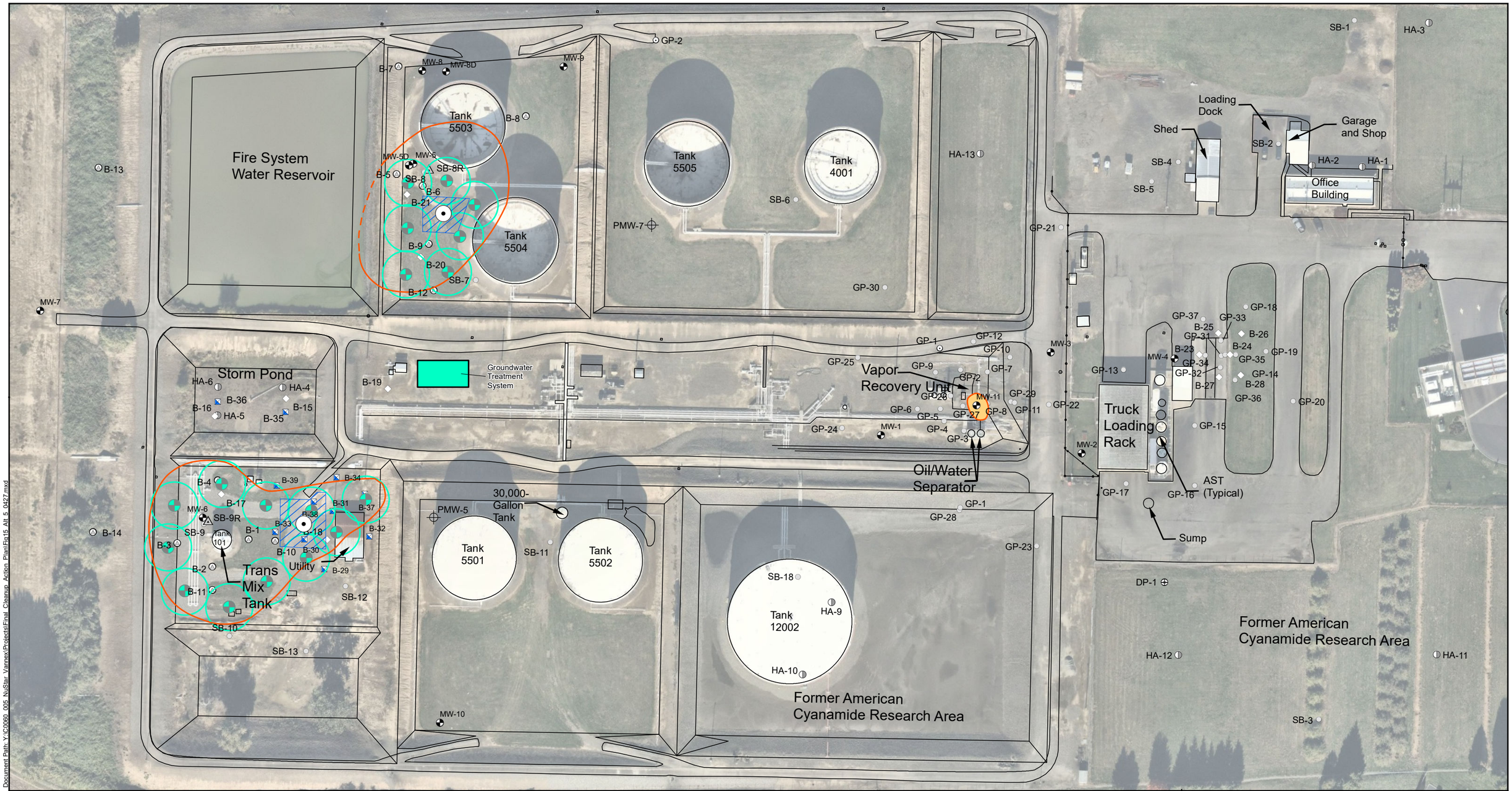
Facility Site Plan

Final Cleanup Action Plan
NuStar Terminals Operations Partnership L.P. - Annex Terminal
Vancouver, Washington

Cascadia Associates, LLC

Project Number	0060-001-006	Figure
January 2021		3

Document Path: X:\0060_005_NuStar_Vannes\Projects\Final_Cleanup_Action_Plan\Fig2_Site_Plan_0107.mxd



Document Path: Y:\C0060_005_NuStar_Vannex\Projects\Final_Cleanup_Action_Plan\Fig15_Alt_5_0427.mxd

Groundwater Monitoring Well Location (MW-5D and MW-8D are Deep)

Historical Temporary Well Location (Approximate)

GP-1 Historical Direct-Push Boring Location (2002/2003)

HA-1 Historical Hand Auger Location (2002/2003)

GP-1 Sample Location (2008)

DP-1 Sample Location (2009)

SB-8R Soil Boring Location (September 2014)

B-1 Soil Boring Location (October 2015)

B-1 Soil Boring Location (February 2019)

B-29 Soil Boring Location (February 2020)

Shallow Groundwater Extraction Well and Estimated Radius of Drawdown

Extent of TPH in Groundwater Greater Than MTCA Method A Cleanup Levels (Dashed Where Inferred)

Excavate Soil to 12 feet

Direct Injection

Recirculation Gallery

0 25 50 100 Feet

Notes:
Base map completed from a number of sources including but not limited to; Figure VAN1-21-002 provided by NuStar (1/8/2007) and a Monitoring Well Survey by Statewide Land Surveying, Inc (10/30/2007). Locations of roads and containments are approximate.
Source: Aerial from Mapbox.

Alternative 5
Removal of Readily Accessible Soil; Hydraulic Recirculation and Enhanced Bioremediation
Feasibility Study Report
NuStar Terminals Operations Partnership L.P. - Annex Terminal
Vancouver, Washington

Cascadia Associates, LLC

Project Number 0060-001-006

January 2021

Figure 4

EXHIBIT C

Schedule of Deliverables

Exhibit C

Schedule of Deliverables

Action	Deliverable	Schedule
Prepare draft Aquifer Testing and Pilot Study Work Plan	Draft Aquifer Testing and Pilot Study Work Plan	45 days following the effective date of the Agreed Order
Prepare final Aquifer Testing and Pilot Study Work Plan	Final Aquifer Testing and Pilot Study Work Plan	45 days following receipt and incorporation of Ecology comments on the draft plan
Complete aquifer testing and pilot studies (if needed)	NA[1]	90 days following Ecology approval of Aquifer Testing and Pilot Study Work Plan
Design cleanup action	Draft Engineering Design Report (EDR)	45 days following completion of aquifer testing and pilot studies
Incorporate Ecology comments on EDR and finalize design	Final EDR	45 days following receipt and incorporation of Ecology comments on the draft EDR
Prepare draft Soil Management Plan (SMP)	Draft SMP	90 days following the effective date of the Agreed Order
Prepare Final Soil Management Plan	Final SMP	45 days following receipt and incorporation of Ecology comments on the draft SMP
Prepare draft Operations Maintenance and Monitoring Plan (OM&MP)	Draft OM&MP	45 days following Ecology approval of Final EDR
Finalize OM&MP	Final OM&MP	45 days following receipt and incorporation of Ecology comments on the draft OM&MP
Implement EDR	NA	Within 30 days following Ecology approval of the Final EDR
Submit Draft Construction Completion Report	Draft Construction Completion Report	Within 60 days following Installation of Recirculation System and Injections of Petrofix
Submit Final Construction Completion Report	Final Construction Completion Report	45 days following receipt and incorporation of Ecology comments on the Draft Construction Completion Report
Submit Draft Environmental Covenant	Draft Environmental Covenant	Within 30 days after receipt of Final Construction Completion Report
Submit Final Environmental Covenant	Final Environmental Covenant	Within 30 days after receipt and incorporation of Ecology comments on draft EC
Submit Recorded Environmental Covenant	Recorded Environmental Covenant	Within 60 days of the approved final Environmental Covenant

[1] Results of the pilot studies and aquifer testing will be reported in the draft and final EDR.

EXHIBIT D

Relevant and Appropriate Requirements

EXHIBIT D

Permit Exemptions and Substantive Requirements

The known permits and rules that are pertinent to this order and their respective substantive requirements are listed below. A contact and phone number are provided for the state agency or local government that would typically administer each permit or applicable regulation. Ecology will make a final determination regarding which substantive requirements will apply in situations where requirements conflict.

Permits pertinent to this action:

1. Underground Injection Permit – Washington State Department of Ecology
   (Contact: UIC Program Coordinator – 360-407-6483)

2. Construction Stormwater General Permit – Washington State Department of Ecology
   (Contact: Deborah Cornett – 360-407-7269)[1]

Permits potentially exempt and their substantive requirements:

1. State Water Resources Act – Conduct groundwater withdrawal in accordance with water resources requirements.

---

[1] Added for completeness; it is not anticipated that this permit would be required. This permit will only be required if soil excavation were to extend below the water table, dewatering of the excavation was needed, and the extracted water was sent to the municipal system.