BEFORE THE STATE OF WASHINGTON
ENERGY FACILITY SITE EVALUATION COUNCIL

In the Matter of: Application No. 2013-01 TESORO SAVAGE, LLC TESORO SAVAGE DISTRIBUTION TERMINAL	CASE NO. 15-001 SWORN PRE-FILED TESTIMONY OF DANIEL R. SHAFAR

I, Daniel R. Shafar, state as follows:

1. I swear under the penalty of perjury of the laws of Washington and the United States that the following testimony is true and correct.

2. I am over eighteen years of age and am otherwise competent to testify in this case. My testimony is based upon my education, training, experience, professional qualifications, and understanding of the matters herein.

3. Based on my professional experiences and training, I have developed an expertise in civil engineering.

I. INTRODUCTION, EDUCATION AND PROFESSIONAL BACKGROUND, AND OTHER QUALIFICATIONS

4. My name is Daniel R. Shafar. I am a project engineer for BergerABAM. BergerABAM is a consulting firm offering services in the areas of planning, civil and structural engineering, environmental services, public involvement, construction management and support, surveying, and underwater inspection services. Founded in 1951, we work with federal and municipal governments, port districts, special service districts, and private industry.

5. I have a Bachelor's of Science degree in civil engineering from Washington State University Department of Civil and Environmental Engineering (2006).

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Concurrently, I also graduated from the Washington State University Honors College. During my time at the university, I obtained my engineer-in-training (EIT) certificate from the Washington State Department of Licensing also in 2006. In 2010, I passed the professional engineering examination and obtained my professional engineer license on January 3, 2011.

6. I began my engineering career with Wallis Engineering after graduating in 2006. I began as an EIT where I designed and managed the design and construction of civil engineering projects for various local municipalities and special service districts. I developed project experience in comprehensive utility planning, water and wastewater treatment, hydraulic system modeling, underground water, sanitary sewer and drainage utility projects, mechanical pump station, and utility rehabilitation and restoration. In addition to my focus on water and wastewater systems, I worked on site development and transportation projects. Throughout my time at Wallis Engineering, I was provided additional responsibility and oversight of project design and construction; mentorship and supervision of in-house staff; oversight and coordination with clients; and management of subconsultants.

7. In 2012, I started working at BergerABAM as a project engineer. At BergerABAM, I have been responsible for the design and management of civil engineering projects for a wide array of clients, including municipalities, special service districts, and industrial clients. My responsibilities include coordinating directly with clients, state and federal permitting agencies, local agencies, and external stakeholders throughout project development. In my position, I have led preparation of project scoping, development of design concepts and approaches, formation of detailed plans and specifications, and led tasks of considerable scope and complexity. Throughout my time at BergerABAM, I have been granted additional supervisory management tasks, including

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coordinating with our team of design, permitting, drafting, and administrative personnel to deliver projects.

8. While at BergerABAM, I have focused most of my project work in water, wastewater, and water quality projects. I have worked on a wide array of wastewater and storm drainage pump stations, utility comprehensive planning and hydraulic modeling, utility conveyance and piping projects, industrial wastewater treatment plants, and permitting, including National Pollutant Discharge Elimination System (NPDES) and outfalls, industrial site development, and municipal grading and site improvement projects. I have attached my resume that includes relevant project experience (see Attachment A).

II. SCOPE OF ANALYSIS OF THE TERMINAL'S IMPACTS

9. For the Vancouver Energy Project, I became involved with the design and permitting of the facility in May 2013. I began working on the project to support the Washington State Energy Facility Site Evaluation Council (EFSEC) Application for Site Certification (ASC) providing narratives and facility descriptions for water, sanitary sewer, and stormwater. Shortly thereafter, I was also tasked with the development of the site civil grading. I attended numerous coordination meetings with the facility permitting and engineering teams. I also attended utility coordination meetings with Applicant Tesoro Savage Petroleum Terminal LLC, d/b/a Vancouver Energy (hereinafter, TSPT or the Applicant) and the utilities to discuss the facility and the resulting utility needs.

10. My involvement with the permitting team included authoring sections of the ASC, providing verbiage and review of the Pre-Application submittal to the City of Vancouver, and authoring sections of the Preliminary Draft Environmental Impact Statement (PDEIS). Additionally, I was part of the team that responded to data requests

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from EFSEC and the subsequently published Draft Environmental Impact Statement (DEIS).

11. My involvement with the facility design and engineering team included coordinating and attending meetings with the design team throughout project development, development of engineering design plans for site and utility demolition; erosion control; site grading; and water, sewer, and stormwater utilities. I am the primary author of the NPDES Engineering Report and permit application, as well as the construction and operational stormwater pollution prevention plans (cSWPPP or oSWPPP). I provided coordination for the development of the Vancouver Energy Terminal's construction and operational spill prevention control and countermeasure plans and the Oil Handling Manual.

12. In my role as part of the facility design and permitting team, I was specifically responsible for evaluating the following items.

- Coordinate with the City of Vancouver to determine if the City can provide the necessary operation and fire water necessary for the Terminal.
- Coordinate with the City of Vancouver to determine if the City can provide necessary sanitary sewer service for the Terminal.
- Coordinate and provide permitting assistance for the Terminal's wastewater discharges.
- Develop and analyze construction phase stormwater collection, conveyance, and treatment systems.
- Develop and analyze operational phase stormwater collection, conveyance, and treatment systems.

13. In my role on both the permit and facility design and engineering teams for the Vancouver Energy Terminal, I have had access to an enumerable amount of

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information regarding the Terminal design throughout the various phases of design, project descriptions, direct and indirect correspondence with the Applicant, publicly available design guidelines and manuals, existing water quality studies, and other data. I have attempted to provide to the best of my ability source data in as much complete form as possible (attached hereto as Attachment B).

III. ANALYSIS

A. Stormwater

14. Construction and operation of the approximately 47-acre Vancouver Energy Terminal Project will require the use of stormwater collection, conveyance, treatment, and discharge systems. The selection, design, and maintenance of these systems are directly related to demonstrating that the project meets the regulatory requirements for water quality discharges. EFSEC regulates these discharges in accordance with WAC 463-76.

15. The water quality characterization of stormwater is influenced by rainfall's interaction with the earth and built environment as it travels from where it first falls and its path to its eventual discharge. The best and most efficient way to limit degradation of water quality is to isolate stormwater from pollution generating surfaces, and exposed soils that could contribute contaminates to the stormwater.

16. The Washington State Department of Ecology (Ecology) and City of Vancouver have adopted regulations that require that industrial facilities apply best management practices (BMPs) to reduce the likelihood of stormwater contamination and to manage the stormwater on site. The first phase of the design and permitting process was to research all applicable stormwater regulations for the Terminal.

17. Following a review of the stormwater regulations, a preliminary stormwater report (August 2013) was prepared to accompany the original submittal for the

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ASC. The determination by the design team was to segregate and isolate industrial process waste water from stormwater to the maximum extent feasible. For this reason, the decision was made to cover the rail unloading area, use a fully enclosed system with piping to capture and return all vapors from the rail cars, use of fixed roof on the storage tanks, provisions for storage of materials within proposed on-site structures, enclosed electrical, control, fire pump, and foam buildings.

18. During development of the construction phase environmental control plans, the same approach to limit exposure of any contaminates with stormwater was followed. The overarching intent is to limit the amount of disturbed soils and open excavations throughout construction so as to limit the potential for runoff contamination.

19. A thorough environmental control plan was developed assuming, as the worst case, construction occurring in the wet season, use of storage tanks for runoff control and filtration and, if necessary, use of chemical additives to achieve compliance with the requirements of the Construction General Stormwater Permit. Detailed narrative regarding the analysis specifically for construction and facility operation stormwater is below.

20. The Applicant and design team held a series of early agency consultation meetings with EFSEC and their contracted water quality reviewer, Ecology. As a result of these meetings and comments received on the initial ASC, a detailed NPDES Engineering Report was developed, along with supporting cSWPPP, oSWPPP, and contaminated media management plan (CMMP). Development of the construction phase stormwater mitigation strategy began concurrently with the development of the preliminary stormwater report. The Western Washington Phase II Municipal Stormwater Permit stipulates the minimum stormwater requirements for which new and redevelopment projects must comply within the City of Vancouver. In this case, the Terminal Project

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would be classified as a redevelopment project according to Figures 3.1 and 3.2 because construction will disrupt more than 1-acre and more than 35% of the existing site is currently impervious. Therefore according to Figure 3.3 the terminal project would need to comply with all minimum requirements of the Stormwater Management Manual for Western Washington.

21. Development of construction phase stormwater mitigations began with the early development of erosion control drawings and narrative for construction BMPs that was included in Section 2.2 of the preliminary stormwater report and the preliminary SWPPP submitted with the ASC as Appendices C and F.

22. Following agency consultations and receipt of comments from EFSEC, a detailed NPDES Engineering Report (April 2014) that addressed both construction operation stormwater was developed. Following review of that document, EFSEC requested that a separate cSWPPP be prepared and that the construction phase of the project be removed from the NPDES Engineering Report. In February 2015, a revised NPDES Engineering Report and newly drafted cSWPPP and oSWPPP were prepared.

23. The cSWPPP and preparation of construction phase stormwater mitigations focused upon the development and implementation of BMPs that would protect downstream water quality with the intent of meeting the discharge benchmarks of the Ecology Construction General Stormwater Permit. Additional BMPs are included in the design of the cSWPPP due to existing past site remediation work on Terminal 5, installation of ground improvements, and proximity to existing surface waterbodies.

24. A CMMP, developed by BergerABAM, addresses the specific characterization and handling plan for contaminated materials resulting from construction phase work within one of five cap locations subject to environmental restrictive covenants within the boundary of the Terminal. The facility design specifically included avoidance

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of as much of the existing restrictive covenant areas as possible and, where necessary, full replacement of protective caps will be maintained or replaced to exclude surface water from entering the capped areas below.

25. Construction stormwater and dewatering within the identified cap areas are described in detail in Section 2.3.7 of the February 2015 cSWPPP. By design, the amount of work and depth of impact in these areas was minimized through facility design. The environmental control plans require that all construction stormwater and dewatering water that is pumped or removed from the excavations within restrictive areas be pumped to on-site tankage or lined holding pond to be tested in accordance with the CMMP. Upon testing, this water will be either treated through the same process for on-site construction stormwater, be discharged to sanitary sewer, or will be hauled off site.

26. Construction-related stormwater from the area of ground improvements and construction-related process water from ground improvements were identified in particular as potential sources of water that if unmitigated could lead to a degradation of adjacent surface waters. The team visited the Seattle Seawall project, and LaFarge to witness first-hand the installation jet-grout ground improvements and the necessary processing of the resulting slurry. Use of stone-columns has previously been completed at the Port of Vancouver for both BHP Billiton and the Gateway Avenue grade separation. The site visits and past experience provided the team first-hand experience to estimate and address the impacts from the proposed ground improvements. A number of preventative measures at the work limits, including wick drains, silt fencing, cutoff channels, and wheel washes were added to the design as mitigations to keep any resulting liquids from leaving the area of ground improvement. A steel sheet pile wall similar to that used for the Seattle Seawall project was also added between the proposed ground improvements

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and the ordinary high water line to provide containment and restrict groundwater migrations.

27. Where stone columns were being installed either by dry or wet feed methods, perimeter controls, including wick drains, silt fencing, cutoff channels, and wheel washes, will be used to keep liquids from the construction activity and stormwater on site. Treatment for stormwater and process water will be provided through on-site retention, filtration, and, if needed, chemical filtration to meet benchmarks consistent with the Construction General Stormwater Permit.

28. If deep soil mixing or jet grout columns are needed along the shoreline, sheet pile containment walls will be installed to reduce groundwater migration toward the Columbia River, and provide surface containment for slurry generated through the process. In the case of deep soil mixing and/or jet grout, the surface spoils and slurry will be captured and pumped into tank trucks for hauling to on-site holding ponds or pumped directly to those ponds. The slurry will be processed in a four step system to allow remaining cement product to set and dewater while also drawing off any excess water for reuse in the process. Any non-reusable excess waste water will be treated to reduce pH, filtered, and water quality tested before being discharged to sanitary sewer, discharged to construction stormwater, or hauled off site. Additional perimeter containment controls during jet grout and/or deep soil mixing will include silt fencing, cutoff channels, and wheel washes.

29. Portions of the facility, including areas 300 and 400, will be completed in close proximity to surface water features, such as wetlands and the Columbia River. Perimeter controls to keep sediment laden runoff resulting from construction-related activities on site will include, at a minimum, continuous silt fencing in these locations.

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Additional monitoring requirement to verify that on-site BMPs are adequate have been identified in the water quality protection and monitoring plan (WQPMP).

30. The cSWPPP has identified a number of detailed erosion control BMPs that will be used during construction for the site. The identified mitigation measures, including BMPs required in the facility environmental control plans, the provisions for monitoring, testing, and reporting within the cSWPPP, as well as additional measures contained within the construction spill prevention control and countermeasures (SPCC) plan, CMMP, and WQPMP, are included as a minimum performance standard. Sampling and monitoring of discharges from the site will be completed, as well as daily site inspections, to confirm that the mitigation measures are performing as designed. If testing or monitoring identifies that additional environmental controls are necessary to comply with the facility's permits, additional treatment or construction BMPs will be developed to meet required performance benchmarks. A complete list of BMPs used in each project area is included in Section 2.11.1 of the ASC. Development of the operations phase stormwater mitigation strategy began in May 2013 once a preliminary site plan was developed. The stormwater mitigations for the site began concurrently with the original site plan refinement. To limit the likelihood of stormwater comingling with industrial process water, extensive structural controls were used, including covering the rail unloading area, use of fully contained rail car vapor system, and external roofs on the storage tanks. From the rail car to the tanker, there is no point in the system where crude oil will be exposed to atmosphere or stormwater. Where there was a potential for stormwater to comingle with product within the pump basin, windblown into the rail unloading building, or catchment area at the dock, provisions to allow potentially contaminated stormwater to be discharged to sanitary sewer or hauled off site were added.

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31. Landscaping and erosion control seed use at the Terminal will exceed the minimum land use requirements and result in a net reduction of impervious surface coverage. The use of structurally isolating stormwater BMPs that segregate the industrial process water from stormwater also result in a net decrease over existing conditions of the amount of pollution generating surfaces on site.

32. Where there was the potential for stormwater to intermingle with any oily residues or drips from pipeline fittings, etc., containment provisions and monitoring for leaks were integrated in the design. The discharges from most of these areas, including where windblown rain may enter the rail unloading building, pump basin, or at the interface between the transfer pipelines and the hoses at the marine terminal containment in excess of minimum standards, were provided and discharges from these areas were identified for haul off or directed to sanitary sewer.

33. A preliminary stormwater plan and narrative was developed and included in the original ASC. Due to the strict source controls, the team identified that the project would qualify for coverage for an Industrial Stormwater General Permit, if not for the EFSEC process, which (at the time) required the facility to obtain an individual NPDES stormwater permit. Following comments received from EFSEC after meeting with EFSEC and their contracted stormwater reviewer, a detailed Engineering Report was prepared addressing operation stormwater and construction stormwater. Later versions of that document have been modified in accordance with EFSEC requests to exclude construction stormwater and subsequently include process wastewater. Construction Stormwater design information was moved from the Engineering Report to the construction SWPP.

34. As a supplement to the Engineering Report, an oSWPPP was also developed. Originally developed in February 2015, the oSWPPP has been updated in

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October 2015 to reflect changes resulting from clarifying types of on-site rail car maintenance.

35. As a result of the extensive structural controls at the Terminal, the possible sources of contaminants are considerably mitigated. The remaining risk to contaminate on-site stormwater is from unintended releases of product; long-term crude oil residuals from any drips, minor leaks and facility maintenance; and runoff from the on-site rail car maintenance rail spur.

36. To address this risk, an operations SPCC plan has been developed, as well as Oil Handling Manual, and other "operations" phase plans in preliminary form as a representative sample to demonstrate the operational practices and precautions built into the facility operations to reduce the likelihood of an unintended release. The rail unloading facility is fully contained within the building, track pans, floor drains, and curbing such that if a release were to occur with the rail unloading area, the release would be fully contained and segregated from stormwater discharges.

37. The containment area for the storage tank meets the most restrictive criteria providing containment for the largest tank and a 100-year, 24 hour rainfall event. Response and cleanup provisions for this area are described in detail in the operations SPCC plan. The stormwater system will not be operated in the event of a release. Operators will be trained to not engage the stormwater pump station in the event of an oil-sheen present within the containment area.

38. A similar system, including valved containment, oil-water separation, and water quality filters, is proposed at the Marine Terminal to receive and treat stormwater from the face of dock where all valves, fittings, and hoses necessary for vessel loading are located. If an unintended release of product were to occur, cleanup and mitigations in accordance with the facilities operation SPCC plan will be completed.

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39. The transfer pipelines interconnecting the different facility areas are located within non-exclusive general Port areas. The pipelines are installed above grade to facilitate inspection. Where absolutely necessary, the pipelines are buried in casings with cathodic protection and coated to resist corrosion. Leak detection systems are included for all pipeline segments. If a release of product were to occur within the pipeline areas, product would accumulate on the ground and eventually flow to an existing stormwater inlet that is part of the Port's stormwater system. The Terminal will install spill capture devices on the immediate downstream stormwater inlets.

40. Under normal operations, stormwater from the containment area will be piped through a control structure, oil-water separation treatment, a manually operated pump station, and discharged through a water quality filter vault designed to remove volatile organics and later comingled with the small parking and drive aisle stormwater and treated again through a water quality filter vault to remove suspended solids, and heavy metals. This system is described in detail in the Engineering Report.

41. The system is designed using the stormwater runoff from Tesoro's Anacortes refinery storage area as an applicable representative of the runoff. The oil-water separators were conservatively designed to remove oils from water even when the oil has a specific gravity nearly equal to water (0.986). At this design rate, oils will be removed greater than 60 micron, and volatile organics, including benzene, will also be removed where particle size is greater than 20 microns. At this removal rates, including the downstream water quality vault, the system can treat stormwater from the storage area and meet industrial water quality benchmarks. A detailed analysis is currently being completed concurrent with NPDES permit development to demonstrate that the same system is also protective of in-stream water quality within the Columbia River.

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42. During normal operations at the Marine Terminal, stormwater from the containment area will be transferred upland for treatment through an oil-water separator and water quality filters prior to being pumped and infiltrated on site. The oil-water separator and water quality filters were designed using the Tesoro Anacortes stormwater from the containment area as a representative sample.

43. For transfer pipelines, the number of valves and location of the valves were limited to areas at each end of the Terminal where the valves would be located inside containment and where stormwater systems are specifically designed for oil and volatile organic removal. The valves within the transfer pipeline section will be wrapped with an industry-specific wrapping that will absorb any minor releases of oil and turn colors in the presence of oils to signal a leak.

44. Rail car maintenance at the Terminal will only be completed on rail cars already scheduled to arrive at the Terminal and when needed to maintain and meet rail transportation regulations. It is anticipated that the majority of the maintenance activities will be minor and consist of work related to placard holders, chains, and other activities that can be completed with hand tools. However, larger maintenance activities such as truck and wheel replacements, may occur on a dedicated siding track located at the southeast portion of the rail unloading building.

45. Sources of potential contaminates for stormwater from these activities include heavy metals from rail car brakes and parts, oily residue on any maintenance item, and oils and lubricants used in the regular maintenance of the on-site locomotives. To mitigate for these possible contaminates, the rail car maintenance spur will be lined with track pans and concrete surfacing to collect stormwater. Stormwater will be piped to a dedicated oil-water separator with a downstream control manhole to remove oils and if needed valve and capture any release of oils or lubricants within this area. Heavy metal

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removal will be provided in a water quality filter vault installed further downstream in the stormwater system. A detailed description of this system is within the Engineering Report and oSWPPP.

46. The oSWPPP has identified a number of detailed operation BMPs that will be used during operations of the Terminal. The identified mitigation measures, including BMPs required in the facility stormwater utility plans, the provisions for monitoring, testing, and reporting within the oSWPPP, as well as additional measures contained within the operations SPCCP and Oil Handling Manual, are included as a minimum performance standard. Sampling and monitoring of discharges from the site will be completed, as well as daily site inspections, to confirm that the mitigation measures are performing as designed. If testing or monitoring identifies that additional environmental controls are necessary to comply with the Terminal's permits, additional treatment or operation BMPs will be developed to meet required performance benchmarks. A complete list of BMPs used in each project area is included in Section 2.11.2 of the ASC. Stormwater discharges throughout construction will be designed in accordance with issued wastewater discharge permits and NPDES Construction Stormwater Individual Permit. A detailed cSWPPP was developed in accordance with the requirements of Ecology's Construction General Stormwater Permit. The preliminary SWPPP will be updated to meet the requirements of the final Construction Stormwater Individual Permit to be issued by EFSEC.

47. Stormwater discharges throughout operations of the Terminal will be designed in accordance with an NPDES Industrial Individual Stormwater Permit to be issued by EFSEC. A preliminary SWPPP has been developed in accordance with the Industrial General Stormwater Permit. A detailed NPDES Engineering Report meeting the requirements of WAC 463-76 and WAC 173-240 has been prepared and submitted to EFSEC to detail the anticipated types of operational BMPs that will be used on site.

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Stormwater treatment on site was developed and discharge evaluated to confirm that discharges will meet minimum treatment standards within the Industrial Stormwater General Permit. Additionally, detailed analysis is underway as part of the permitting process to demonstrate that the discharges will meet the criteria of Ecology's anti-degradation standard in WAC 173-201A-320.

B. Wastewater

48. Wastewater from the Terminal is categorized into three major categories; domestic sewage, process wastewater, and process wastewater for haul off. The decision on discharge source was largely influenced by proximity to existing sanitary sewer and potential for wastewater to contain oily residues. Besides domestic sewage, process wastewater on site is only routinely generated from the boiler building, rail unloading building, and fire pump maintenance cycling.

49. Construction at the Terminal will also generate wastewater from construction workers and certain activities for which construction discharges are prohibited from release to stormwater systems.

50. Construction phase wastewater is classified into the following three categories: domestic sewage, cement-related waters, and possible discharges resulting from start-up and commissioning and/or dewatering water from restrictive areas. Prior to discharge of cement-related waters and discharges from startup and commissions or dewatering from restrictive areas wastewaters will be tested for water quality. Depending upon the results of the testing, the discharge could be released in accordance with City discharge permit, Construction Stormwater Permit or hauled off-site. Necessary coordination with the City and/or EFSEC will be completed prior to release in accordance with issued permits.

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51. Domestic sewage from construction activities will be hauled off site from rented on-site portable toilets. It is not anticipated that domestic sewage during construction will be discharged to the City's sanitary sewer system.

52. Cement-related wastewater is produced through the washing out of concrete trucks, concrete curing, and any excess water from the production and processing of cement products for ground improvements. These wastewaters are typically high in pH and suspended solids. On-site pH adjustment and solids settling and/or filtration will be provided prior to testing and release to the City's sanitary sewer system or hauled off site.

53. Wastewater generated from trench and foundation dewatering, as well as hydrostatic testing water for on-site pipelines and tanks, may be discharged to the on-site stormwater systems, City's sanitary sewer system, or hauled off site. These potential wastewaters will be captured and placed into tankage for testing to confirm which discharge options are suitable for discharge.

54. Wastewater from the facility operation as described in the Engineering Report is classified in three categories, predominately based upon proximity to existing sanitary sewer and probability of the wastewaters to include any oily waters. These categories are domestic wastewater, process wastewaters discharged to sanitary sewer, and process wastewaters hauled off site.

55. Domestic wastewater from the facility is the result of on-site restroom and lunchroom facilities. Most of the domestic flow originates from the Administration and Support Buildings located in Area 200. A single restroom facility may be added at a future time to the storage building at Area 300 depending upon actual staffing frequencies. These are the only two sources of domestic sewage that will be connected to the City's sanitary sewer. Employees at the Marine Terminal will use portable toilets during operations at the terminal. The facilities will be pumped and hauled off site for disposal.

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56. Wastewater from the facility that is proposed to be discharged to the City's sanitary sewer include the wastewater generated at the Area 600 Boiler Building and the Area 300 fire pump cooling water. The Boiler Building wastewater has been estimated in detail and will be summarized in the pending update to the Engineering Report and related Response to EFSEC. The detailed analysis demonstrates that the discharges from the boiler building will comply with all state, local, and federal pretreatment standards for discharge to the City's sanitary sewer system.

57. The Area 300 fire pump cooling water was identified as a potential source of wastewater that can be discharged to the City's sanitary sewer. The cooling water is City domestic water that has run through a non-contact heat exchanger integral with the fire pump. The water does not come in contact with any additional chemicals or materials that could lead to a degradation of water quality. The water will increase in temperature as a result of the heat exchanger. The water will be discharged to a holding tank to monitor temperature and chlorine residual and its discharge will be released to the City's sanitary sewer only after the temperature and chlorine levels meet the requirements of the City's pretreatment ordinance for temperature and chlorine.

58. The volume of wastewater to be discharged was reviewed by the City and the City has already acknowledged sufficient capacity to receive the wastewaters from the facility.

59. The remaining wastewaters at the Terminal will be hauled off site for disposal at a facility that is licensed to receive industrial wastewaters. The sources of wastewaters that will be hauled off include rail unloading building, pump basin, Area 400 fire pump cooling water, and miscellaneous drains at Area 400.

60. Wastewater from the rail unloading building will include windblown rainwater, drips off of the rail cars, miscellaneous parts and equipment wash, facility wash

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down, steam condensate blowdown, fire pump cooling water, and rail car exterior washing. Approximately every three years, the fire sprinkler system will require flow testing. The waters (which may include fire suppression foam) would be collected and hauled off-site. Any spills would be addressed and mitigated for in accordance with the Terminal's operations SPCC plan.

61. Wastewater from the rail unloading building has the potential to vary from extremely pure steam condensate blowdown to a range of potentially oily parts and equipment wash with an unknown mix of wash water, and if needed solvents such as simple green. Additionally, it was not possible within the Terminal to provide separate systems for collection for each stream and potential spill containment systems.

62. As a result of the range of potential wastewater characterizations and the infeasibility of providing separate systems for each type of wastewater, it was determined that the wastewaters would be comingled with the spill containment systems for haul off. The containment systems at the rail unloading building discharge through pumps to holding tanks located at the administration building and support area for short-term holding before haul off.

63. During normal operations, a hauling company, such as Bravo Environmental, and receiving facility, such as PPV Inc., will be used. Prior to use of any facility, a treatability plan will be developed to verify that the receiving facility has the capacity and treatment technology necessary to receive the range of wastewaters generated for haul off.

64. The pump basin at Area 300 will be covered with a shed roof to segregate stormwater from the basin. The basin will include a sloped floor to a valved sump and underground storage tank. Wastewater from the pump basin will result only from occasional facility wash down during maintenance operations and windblown rain.

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65. The Area 400 fire pump cooling water will be captured in an underground storage tank for short-term storage until the contents can be pumped out once a week. The wastewater is the same as the Area 300 fire pump cooling water and could be discharged to the City's sanitary sewer; however, sanitary sewer is not available at the Marine Terminal. Additionally, the tank will be outfitting with the ability for maintenance personnel to discharge small quantities (less than five gallons) of miscellaneous drain water from the hydrogen sulfide treatment units and any bottom drains that may be included with the marine vapor combustion units.

66. Wastewaters discharged from the facility resulting from construction and operation phases of the project will comply with all state, local, and federal clean water standards.

67. The Terminal's construction phase wastewater discharges are will comply with state, local, and federal standards. All construction wastewaters will be tested on site prior to discharge in accordance with all construction phase NPDES or wastewater discharge permits. The issuance of the permits requires that submittal of permit applications, review by the agency, and confirmation that the discharges through review will not result in upset conditions to the receiving treatment facility, or result in an exceedance of permitted discharge benchmarks.

68. Discharges of construction phase wastewater to the City's sewer system will be compliant with City's pretreatment ordinance in Vancouver Municipal Code (VMC) 14.10. The City's pretreatment program operates under a NPDES permit which requires implementation of these pretreatment standards.

69. The Terminal's operational wastewater discharges as proposed are in full compliance with state, local, and federal standards. All wastewaters from the site will be pretreated on site or hauled off site for pretreatment prior to discharge to permitted

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sanitary sewer collection system for conveyance and eventual treatment by a publicly owned treatment plant permitted through the federal NPDES program.

70. On-site wastewater from operations that will be discharged to the City's sanitary sewer system have been designed and effluent characterizations completed to demonstrate compliance with the City's pretreatment ordinance in VMC 14.10.

71. Wastewaters that have been identified for haul off have been characterized to the extent possible, and range of anticipated quantities determined. The wastewaters selected for haul off will be stored on site temporarily and will be hauled off by a licensed hauler to a permitted pretreatment facility, such as PPV Inc. Prior to the Terminal agreeing to haul wastewater to an off-site facility, a treatability plan will be developed by the receiving facility to demonstrate that the facility can treat the wastes and comply with the pretreatment and discharge permits of the Terminal.

C. Wetlands

72. The information I received regarding the location of wetlands near the Terminal were obtained from the ASC in Section 3.5 and the Biological Resource Report in Appendix H1.

73. The Terminal areas were surveyed by MacKay Sposito in 2013. The survey included site topography and was completed using the National Geodetic Vertical Datum (NGVD) 29 (pre-47 adjustment) vertical datum. The topography of the site is generally sloping from a topographical high point in the north gently to the south. According to the wetland information noted above, the wetlands are located north of the site across State Router 501 (SR 501) and immediately east of the storage area.

74. Oil handling operations at the rail unloading building occur within the rail unloading building at finish floor elevation of approximately 31 feet 10 inches NGVD. The nearest wetland to the north is on the north side of Old Lower River Road. The

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lowest point on Old Lower River road is at elevation approximately 36 feet over 500 feet away. With the topography sloping down to the south of the rail unloading building, any release of product in this area or adjacent transfer pipelines would flow south and into existing on-site stormwater drainage systems and would not flow to the wetland.

75. Oil handling operations at the storage area (outside of the containment area) consist of transfer pipelines located at the southwest corner of the Terminal. The elevation of the transfer pipelines at the nearest point to the nearby wetlands is at 27.70 feet NGVD. A Wetland Mitigation Bank is located north of SR 501 approximately 700 feet to the north. Any release of product along the transfer pipeline between the unloading area and storage area would slowly flow to the south and into existing on-site stormwater drainage systems and away from this wetland.

76. The Vancouver Lake flushing channel was constructed with two 84-inch-diameter culverts between the flushing channel and Vancouver Lake. Two large flap valves were installed on the 84-inch-diameter culverts to allow flow only from the Columbia River into the lake. The flap valves permit flow into the lake only when the water elevation of the river is higher than the lake. The valve operators appear to have valve stems with operators on them, which would indicate that the valves can be manually closed. These valves could be manually closed in the event of a spill to prevent any release from reaching Vancouver Lake.

IV. ATTACHMENTS

77. The following documents are attached to my testimony for reference:

Attachment A: Daniel Shafar Curriculum Vitae

Attachment B: Reference Source Data

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DATED this 13th day of May, 2016.

Daniel R. Shafar

Daniel R. Shafar, Declarant

STATE OF WA)
)
COUNTY OF Clark)

Daniel R. Shafar, being duly sworn upon oath, deposes and says: The foregoing testimony is true, correct and complete to the best of my knowledge, information and belief and is given subject to the laws of perjury in the State of Washington.

GIVEN under my hand and official seal this 11th day of May, 2016.

KIMBERLEE J. PIERCE
COMMISSION EXPIRES
NOTARY PUBLIC
MARCH 9, 2017
STATE OF WASHINGTON

NOTARY PUBLIC in and for the State of: Washington

Residing at: Camas

My Commission Expires: 3/9/17

Printed Name of Notary: Kimberlee J. Pierce

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