

Fact Sheet for NPDES Permit No. WA0031062

Fishing Vessel Owners Marine Ways, Inc.

Effective date: July 1, 2019

Purpose of this fact sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for Fishing Vessel Owners Marine Ways, Inc.

This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit and accompanying fact sheet for public evaluation before issuing an NPDES permit.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before issuing the final permit. Copies of the fact sheet and draft permit for Fishing Vessel Owners Marine Ways, Inc., NPDES Permit No. WA0031062, were available for public review and comment from April 4, 2019, until May 6, 2019. For more details on preparing and filing comments about these documents, please see **Appendix A--Public Involvement Information**.

Fishing Vessel Owners Marine Ways, Inc. (FVO) reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions regarding the facility's location, history, discharges, or receiving water prior to publishing this draft fact sheet for public notice.

After the public comment period closes, Ecology will summarize substantive comments and provide responses to them. Ecology will include the summary and responses to comments in this fact sheet as **Appendix E--Response to Comments**, and publish it when issuing the final NPDES permit. Ecology generally will not revise the rest of the fact sheet. The full document will become part of the legal history contained in the facility's permit file.

Summary

FVO is a ship repair facility on the Lake Washington Ship Canal, leasing land from Port of Seattle Fishermen's Terminal. Ecology issued the previous permit for this facility on March 17, 2014. FVO operates two marine ways. Process water is collected from the marine ways and hauled offsite for disposal. This permit covers discharges from the marine ways into the Lake Washington Ship Canal during ship launches, and discharges of stormwater to groundwater.

Effluent limits for the conventional pollutants Oil and Grease and Turbidity are unchanged from the permit issued in 2014. The new permit requires monitoring of stormwater discharges to groundwater and compliance with discharge standards.

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I. Introduction

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Our State Legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to Ecology. The Legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

The following regulations apply to industrial NPDES permits:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC).
- Water quality criteria for surface waters (chapter 173-201A WAC).
- Water quality criteria for groundwaters (chapter 173-200 WAC).
- Whole effluent toxicity testing and limits (chapter 173-205 WAC).
- Sediment management standards (chapter 173-204 WAC).
- Submission of plans and reports for construction of wastewater facilities (chapter 173-240 WAC).

These rules require any industrial facility owner/operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Under the NPDES permit program and in response to a complete and accepted permit application, Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days (WAC 173-220-050). (See **Appendix A--Public Involvement Information** for more detail about the public notice and comment procedures). After the public comment period ends, Ecology may make changes to the draft NPDES permit in response to comment(s). Ecology will summarize the responses to comments and any changes to the permit in **Appendix E**.

II. Background Information

Table 1. General Facility Information

Facility Information	
Applicant	Fishing Vessel Owners Marine Ways, Inc.
Facility Name and Address	Fishing Vessel Owners Marine Ways, Inc. 1511 W Thurman Seattle, WA 98119
Contact at Facility	Name: Mr. Daniel Payne Telephone #: 206-282-6421
Responsible Official	Name: Mr. Daniel Payne Title: General Manager Address: 1511 W Thurman, Seattle, WA Telephone #: 206-282-6421
Industry Type	Ship Repair
SIC Codes	3731
NAIC Codes	336611
Facility Location (NAD83/WGS84 reference datum)	Latitude: 47.655737 Longitude: -122.376953
Discharge Waterbody Name and Location (NAD83/WGS84 reference datum)	Lake Washington Ship Canal Latitude: 47.65646 Longitude: -122.3766
Permit Status	
Issuance Date of Previous Permit	March 17, 2014
Application for Permit Renewal Submittal Date	September 13, 2018
Date of Ecology Acceptance of Application	September 25, 2018
Inspection Status	
Date of Last Non-sampling Inspection Date	October 23, 2017

Figure 1. Facility Location Map

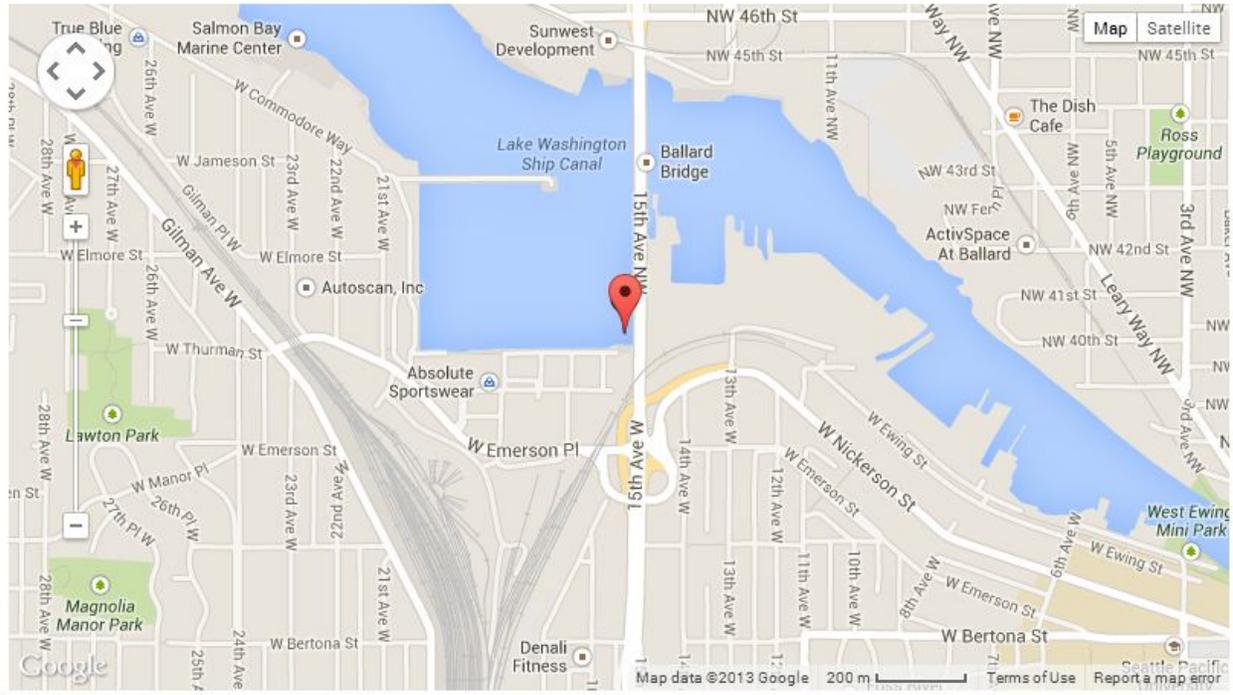
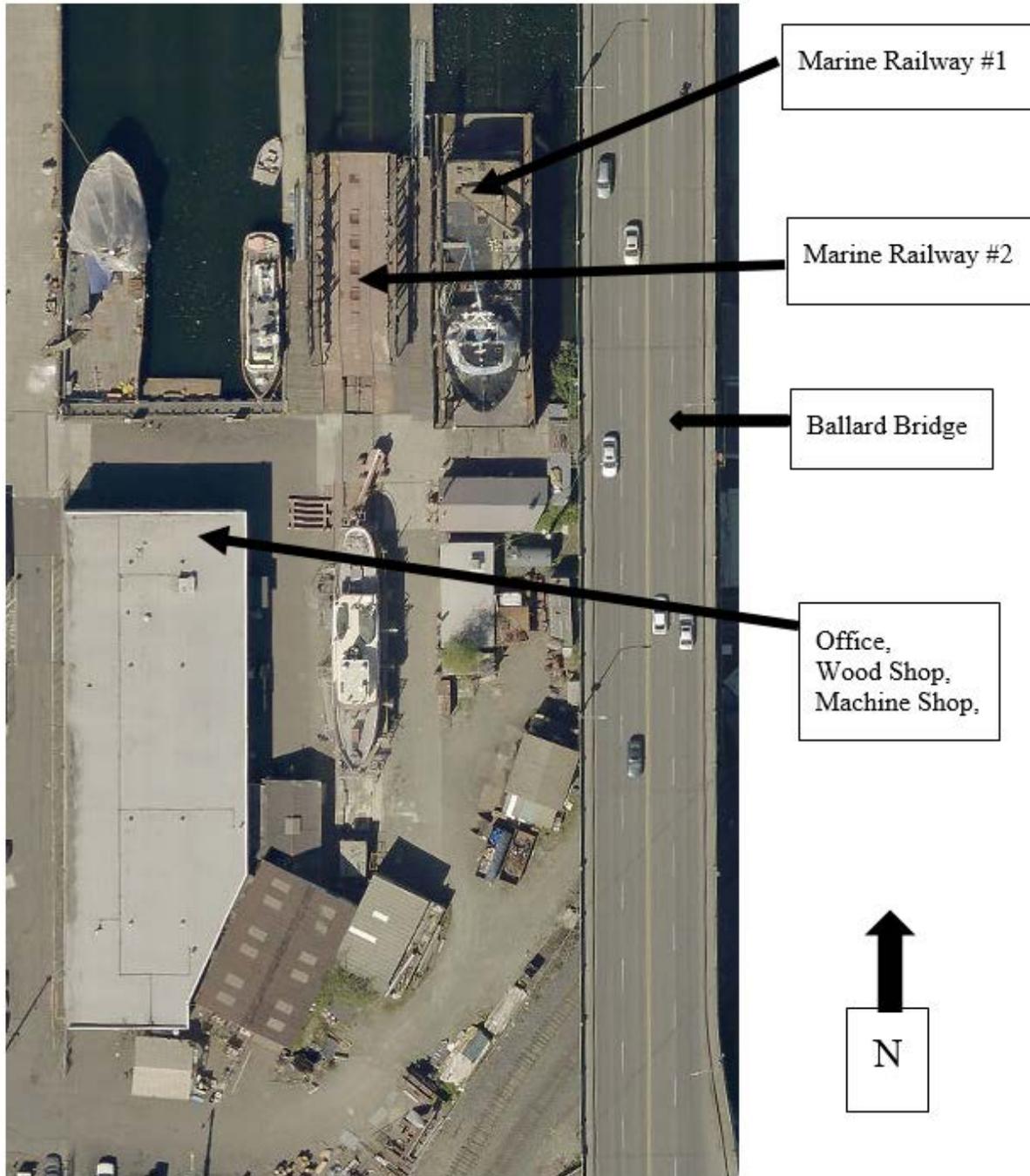


Figure 2. Facility Site



A. Facility description

History

FVO is located on the south shore of Salmon Bay parallel to the Ballard Bridge near the southeast end of the Port of Seattle's Fishermen's Terminal in Seattle. FVO leases the property from the Port of Seattle except for a small area under the Ballard Bridge leased from the city of Seattle. The site is located on alluvium in the valley between Queen Anne Hill to the east and Magnolia Hill to the west. The site was formerly a portion of a marine estuary extending from Puget Sound. When the Ballard Locks were constructed in the early 1900s, the area became a freshwater embayment of Lake Washington.

Marine maintenance and repair activities have been performed at this site since the early 1900s. The oldest building on-site is the winch house dating to 1917. Many of the buildings were at one time on piers which have since been filled in and over, but much of the pier wood debris apparently remains below ground surface.

Vessels repaired are chiefly small commercial fishing vessels. Hulls are predominately wood, steel, and aluminum. Fiberglass is not repaired. About 40-50 vessels a year are repaired. The two-acre yard is paved except for the area leased from the city of Seattle under the Ballard Bridge on the east side of the property.

As part of development of this permit, FVO reported that all its stormwater flows to the pervious and impervious areas of the site and infiltrates into the ground or collects and evaporates. Stormwater flows towards the middle of the site with the common low points for the northern half of the site being underneath building I-6, the winch room, and I-5, the warehouse. The south half of the site flows towards the south and stormwater collects along the southern boundary of FVO's site and the Burlington northern railroad where it is retained by a concrete berm for natural infiltration and evaporation.

The shipyard is adjacent to the southern shore of the canal, and groundwater flow is toward the west, as well as the northwest, and the discharge to state groundwater is within 200 feet of the canal under the winch house. Historically, the water in the canal has been separated from the soil at FVO with a concrete seawall approximately 2 feet in thickness extending approximately 13-15' down to the mud line. As of March of 2011, the Port of Seattle completed the south wall reconstruction project, which consisted of driving a sheet pile barrier in front of the existing sea wall into the glacial deposits approximately 30' below the mud line of the canal shoreline (overall height of the sheet pile barrier between 50' - 60'). The sheet pile wall extends from the east corner of FVO's site, west along the entire shoreline of the Port of Seattle's Fishermen's terminal.

FVO's site ends at the west side of the Ballard Bridge, but they have a permit from the city of Seattle to store select non-hazardous materials under the Ballard Bridge. The stormwater downspouts from the Ballard Bridge drain to the canal and land directly beneath the bridge. The stormwater discharged from the bridge downspouts to the land under the bridge partially flow towards the south end of FVO's site and towards the canal. FVO installed a gravel berm along the canal under the Ballard Bridge to prevent stormwater from directly entering the canal. The berm was installed in the 1990s, and increased its size in 2011. While the majority of downspouts from the Ballard Bridge empty directly into the canal, this increased gravel berm prohibits the flow of the stormwater from the downspouts over the land adjacent to FVO from

entering the canal. In the wet season during extreme rainfall the stormwater collects behind the berm and has been known to flow around the berm and enter the canal through the neighboring property to the east.

Industrial processes

The site consists of two marine railways, a crane, and five buildings.

Operation	Tonnage	Length	Width	Activity
Large Marine Railway (#1)	500 tons	115 feet	30 feet	~20 operations per year
Small Marine Railway (#2)	300 tons	85 feet	24 feet	~30 operations per year

The basic function of the marine railways is to allow access to the ships external parts below the waterline for repair, cleaning, and painting. The marine railway consists of a carriage (which holds keel blocks) that is positioned on a railway perpendicular to the shoreline and extends into the water. The carriage moves from being underwater, to allow a ship to move onto it, to inland far enough so that it is above the ordinary high water level. The carriage is operated by a large cable that is attached to the carriage and a winch run by a large engine. The keel blocks are initially set to a predetermined setting based on the ships size and the carriage is slowly brought inland until the vessel is above the ordinary high water level (or at least above the current water surface elevation) for servicing.

The carriage from the small railway can roll onto an onshore extension of the railway allowing work on two vessels. When there is a vessel onshore, the small railway can be used to bring another boat up shore.

Hydroblasting is conducted by pressure wash water of 1,000 to 3,000 pounds per square inch (psi). Hydroblasting is used to remove attached marine growth and prepare the hull for painting. Hydroblast water from each of the two marine railways is collected in a sump below the railway and pumped to an above ground storage tank and is hauled away by a contractor.

The other water flow from the marine railways is ambient water from the Ship Canal flowing over the platform deck as it is lowered into the water. Extensive best management practices (BMPs) listed in the permit (S10) are required to be implemented to remove pollutants accumulated during and after vessel haul work is complete on the marine ways, and to keep the marine ways clean and free of debris prior to lowering the marine ways to launch a vessel. The marine way is then flooded and prepared for the vessel's departure. This discharge is a wash of ambient water across a broad surface instead of a piped discharge, is shorter in duration than the times of exposure cited for the standards (1 hour for acute or 4 days for chronic) and cannot be accurately measured at a known point of compliance. The permit requires best management practices to control pollutant levels in the marine way launch water as provided at 40 CFR 122.44 (k)(3).

The yard has converted from sandblasting to hydroblasting or low pressure washing for hull preparation. Sandblasting is propelling a metallic or nonmetallic grit by compressed air to forcibly impinge on the surface being cleaned. Metallic grit includes utility slag, copper slag, or aluminum. The constituents of abrasive blast vary somewhat, but in general their primary components with approximate percentages are silicon dioxide 20-50 %, iron oxide 15-40 %, aluminum oxide 0-25 %, and calcium oxide 0-25 %. These four components comprise from

80 to 99 percent of the abrasive grit composition. Trace elements in these abrasive grits include potassium oxide, sodium oxide, copper, titanium, and sulfur. Nonmetallic grit includes recycled glass of various sizes and sodium bicarbonate. Dry blasting is only used to prepare hulls for paints that require a new profile for paint adherence such as polyethylene.

On the marine ways, 85 percent of blasting is on the superstructure and 15 percent is in the ship holds. Blasting is principally done to the ships brought onshore from the small marine way. Paint chips, caulking, and other debris can then be collected. The debris from the blasting operations is picked up by hand shovels or by vacuum truck or other methods for transfer to hoppers or to skip boxes. Spent sandblast grit is stored in a covered container.

Greater than 95% of overall grit use is in the sandblast grit shed. The sandblasting shed has recently been rebuilt and made from heavy canvas material and heightened to contain all blasting except for a plastic tarped door. A commercial recycler picks up spent sandblast grit for reuse as cement calciner feedstock.

Paint is stored in a steel enclosed shed. Waste oil is stored in a covered steel enclosed tray and recycled by a contractor. Two to four engines are serviced annually. Solvents are not distilled but sometimes are recycled after settling or disposed off-site.

Bilge water and waste paint are collected for disposal onshore by a contract disposal firm. Ships crew rarely stays onboard the ships and no ship sanitary wastes or gray waters are discharged.

Wastewater treatment processes

Wastewater from the hydroblast activities and from railway cradles are collected in an above ground storage tank and hauled away by a private contractor. Other stormwater from the yard is disposed of via natural infiltration on-site.

B. Description of the receiving water

The majority of contaminated stormwater runoff from FVO shipyard processing areas are collected in sumps below the marine ways and transferred to an above ground storage tank. Other stormwater from non-processing areas of the site flows and pools mostly on lower pervious sections of the site and infiltrates or evaporates. Significant nearby point and non-point sources of pollutants include municipal and industrial stormwater and combined sewer overflows.

The Lake Washington Ship Canal adjoins Lake Union in the center of the city of Seattle. The extent and character of the Lake Washington/Lake Union system have been dramatically altered by human activity in the past 100 years. The 600-acre Lake Union receives water of relatively good quality from Lake Washington and discharges into Puget Sound through the industrialized Ship Canal and the Hiram Chittenden Locks. The Lake Union basin was originally carved by glaciers and until about 100 years ago, when the Montlake Cut was constructed, Lake Union was isolated from Lake Washington and was fed solely by runoff and springs. The Fremont Cut (the east end of the ship canal, where FVO is located), the Locks, and the ship canal were constructed between Portage Bay and Lake Union at the same time as the Montlake Cut and expanded the area of fresh water to include Salmon Bay. The Army Corps of Engineers dredges the ship canal, controls the water level in the Lake Washington/Lake Union system, and monitors saltwater intrusion through the locks.

Salmon Bay is included on the current EPA 303(d) list for exceeding Lead, pH, Aldrin and bacteria standards. A study published by Ecology in 1992, “Survey of Contaminated Sediments in Lake Union and Adjoining Waters,” and another study published in 1996, “Chemical Contaminants in Salmon Bay Sediments,” identified widespread sediment contamination throughout the water body from PCBs, polycyclic aromatic hydrocarbons (PAHs), and heavy metals. Sediment contamination reflects deposition of pollutants to the bottom of the lake and canal since the early part of the century from a variety of historic and current industrial point sources as well as non-point sources.

The Lake Washington Ship Canal is listed in Table 602, page 83, of WAC 173-201A as core summer salmonid habitat and extraordinary primary contact recreation. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

Other beneficial uses for the Lake Washington Ship Canal also include the following:

Water supply uses (domestic, industrial, agricultural, stock) and miscellaneous uses (wildlife habitat, harvesting, commerce/navigation, boating, aesthetics).

C. Wastewater characterization

The stormwater discharge that infiltrated on-site was characterized for Copper, Lead, Zinc, and Oil and Grease during the 2007 – 2012 permit by FVO. This water was a mix of stormwater on the site and stormwater flow from neighboring roadways. The table below shows concentrations of these pollutants reported for two infiltration locations during those 5 years.

Parameters	Stormwater to Ground FVO-1			Stormwater to Ground FVO- 2		
	Daily Max Permit Limits	Average	95 th Percentile	Daily Max Permit Limits	Average	95 th Percentile
Copper, µg/l	9,400	2,166	7,405	5,600	1,363	4,780
Lead, µg/l	2,000	203	1,071.5	1,100	178	860
Zinc, µg/l	11,000	1,958	4,445	9,900	1,907	5,985
Oil and Grease, mg/l	5	3.18	5.85	5	2.92	4.77
Oil and Grease	No Visible Sheen	-	-	No Visible Sheen		

Water quality for the Marine railway 1 & 2, launch water, were characterized for oil and grease over the most recent permit cycle (March 2014 – November 2018) by FVO.

Parameters	Stormwater to LWSC via Marine Railway 1			Stormwater to LWSC via Marine Railway 2		
	Daily Max Permit Limits	Average	95 th Percentile	Daily Max Permit Limits	Average	95 th Percentile
Oil and Grease, mg/l	5	3.29	5.2	5	3	3
Oil and Grease	No Visible Sheen	--	--	No Visible Sheen	--	--
Turbidity, NTU	5	0.43	0.92	5	0.515	1.175

D. Summary of compliance with previous permit issued March 17, 2014

The previous permit placed effluent limits on Oil and Grease and Turbidity for marine way launch floodwater.

FVO has largely complied with the effluent limits and permit conditions throughout the duration of the permit issued on March 17, 2014. Ecology assessed compliance based on its review of the facility's information in the Ecology Permitting and Reporting Information System (PARIS), discharge monitoring reports (DMRs), and on inspections.

E. State environmental policy act (SEPA) compliance

State law exempts the issuance, reissuance, or modification of any wastewater discharge permit from the SEPA process as long as the permit contains conditions that are no less stringent than federal and state rules and regulations (RCW 43.21C.0383). The exemption applies only to existing discharges, not to new discharges. This permit reissuance is for an existing discharge.

III. Proposed Permit Limits

Federal and state regulations require that effluent limits in an NPDES permit must be either technology- or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).
- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Groundwater Standards (chapter 173-200 WAC), Sediment Quality Standards (chapter 173-204 WAC), or the National Toxics Rule (40 CFR 131.36).
- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Ecology does not usually develop limits for pollutants not reported in the permit application but that may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology if significant changes occur in any constituent [40 CFR 122.42(a)]. Until Ecology modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

A. Design criteria

Under WAC 173-220-150 (1)(g), flows and waste loadings must not exceed approved design criteria. Ecology approved the engineering report for FVO's infiltration areas dated December 21, 2016 and prepared by Landau Associates. Shipyards are required to treat / infiltrate up to a design storm of ten year recurrence frequency. Storm events that exceed the hydraulic design criteria of stormwater treatment systems may bypass the treatment system when Ecology has determined the system meets AKART requirements. Ecology would not consider this a violation of the conditions of the permit, if the bypass can meet water quality criteria. AKART for stormwater is constantly progressing and, as technology advances, facilities will have more cost effective, more efficient, and higher capacity treatment system options available. Ecology expects the facility to meet AKART and make the necessary improvements to its treatment system as the treatment technology evolves.

B. Technology-based effluent limits

To date, the United States Environmental Protection Agency (USEPA) has not promulgated effluent guidelines for the shipyard industry. However, the Draft Development Document for Proposed Effluent Limitations Guidelines for Shipbuilding and Repair (EPA 440/1-79/76b) identified the following pollutant parameters as those which discharge or have the potential to be discharged to receiving water:

- Conventional pollutants: suspended and settleable solids, oil and grease, pH.
- Priority pollutant metals: chromium, copper, lead, zinc, and tin.
(Organotin anti-fouling compounds were banned internationally in 2008).

The following technology-based effluent limitations are established for FVO:

Collection, treatment and hauling, recycle or discharge of pressure wash wastewater and hydroblast wastewater to King County Sanitary Sewerage System or on-site storage and hauling off-site are available technology and are used by most shipyards in the area, and therefore are considered AKART for all constituents of concern.

Recycling of solvents on-site or off-site disposal is AKART for solvents. Zero discharge from maintenance shops and all outdoor repair activities is determined to be AKART.

Discharge of bilge and ballast water to the King County Sanitary Sewerage System after characterization and approval or on-site storage and hauling off-site for treatment are determined to be AKART for these wastewaters.

FVO will be required to continue to follow and improve as necessary best management practices (BMPs). Prior to undocking, the drydock will be returned to a clean condition using dry cleanup methods (i.e., brooms, vacuums, etc.). No visible change in turbidity between the clean drydock floodwater and the ambient water will be allowed. Also, no visible sheen will be allowed.

FVO must clean the drydock thoroughly to remove spent blasting abrasives and other solid wastes, including paint chips, scrap metal, wood, plastic, paper, and welding rods. FVO must minimize the amount of water used to flush the marine ways to return them to a clean condition as a final cleanup step. It must not directly discharge the resulting wastewater to the Lake Washington Ship Canal. FVO must take photographs to document the condition of the marine way floors prior to launching a vessel and maintain them in a logbook.

C. Surface water quality-based effluent limits

The Washington State surface water quality standards (chapter 173-201A WAC) are designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet the surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily load study (TMDL).

Numerical criteria for the protection of aquatic life and recreation

Numerical water quality criteria are listed in the water quality standards for surface waters (chapter 173-201A WAC). They specify the maximum levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical criteria for the protection of human health

In 1992, U.S. EPA published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State in its National Toxics Rule (40 CFR (EPA, 1992)). Ecology submitted a standards revision for 192 new human health criteria for 97 pollutants to EPA on August 1, 2016. In accordance with requirements of CWA section 303(c)(2)(B), EPA finalized 144 new and revised Washington specific human health criteria for priority pollutants, to apply to waters under Washington's jurisdiction. EPA approved 45 human health criteria as submitted by Washington. The EPA took no action on Ecology submitted criteria for arsenic, dioxin, and thallium. The existing criteria for these three pollutants as adopted in the National Toxics Rule (40 CFR 131.36) remain in effect.

These newly adopted criteria, located in WAC 173-201A-240, are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The water quality standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2006) and of all marine waters (WAC 173-201A-210, 2006) in the state of Washington.

Antidegradation

Description--The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three tiers of protection (described below) for surface waters of the state.

Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

Facility Specific Requirements--This facility must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology must not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

Ecology's analysis described in this section of the fact sheet demonstrates that the proposed permit conditions will protect existing and designated uses of the receiving water.

Mixing zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may exceed water quality numeric standards, so long as the discharge doesn't interfere with designated uses of the entire receiving water body (for example, recreation, water supply, and aquatic life and wildlife habitat, etc.) The pollutant concentrations outside of the mixing zones must meet water quality numeric standards.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish. Since floodwater on the drydocks and containment systems is expected to be indistinguishable from the ambient surface water except for easily discernible oil and grease no mixing zone has been established for this facility.

D. Designated uses and surface water quality criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (EPA 1992). The table included below summarizes the criteria applicable to this facility's discharge.

- Aquatic Life Uses are designated based on the presence of, or the intent to provide protection for the key uses. All indigenous fish and non-fish aquatic species must be protected in waters of the state in addition to the key species. The Aquatic Life Uses for this receiving water are identified below.

Table 2. Freshwater Aquatic Life Uses and Associated Criteria

Core Summer Salmonid Habitat	
Temperature Criteria – Highest 7-DAD MAX	16°C (60.8°F)
Dissolved Oxygen Criteria	9.5 mg/L
Turbidity Criteria	<ul style="list-style-type: none"> • 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU.
Total Dissolved Gas Criteria	Total dissolved gas must not exceed 110 percent of saturation at any point of sample collection.
pH Criteria	The pH must measure within the range of 6.5 to 8.5, with a human-caused variation within the above range of less than 0.2 units.

- The *recreational uses* for this receiving water are identified below.

Table 3. Recreational Uses and Associated Criteria

Recreational Use	Criteria
Extraordinary Primary Contact Recreation	Fecal coliform organism levels must not exceed a geometric mean value of 50 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 100 colonies/100 mL.

- The *water supply uses* are domestic, agricultural, industrial, and stock watering.
- The *miscellaneous freshwater uses* are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

E. Water quality impairments

Salmon Bay is listed on the current 303(d) and is impaired for Lead, pH, Aldrin and Bacteria. Ecology is not currently conducting a Total Maximum Daily Load (TMDL) Analysis nor is one planned in the near future for the Lake Washington Ship Canal / Salmon Bay water way.

F. Evaluation of surface water quality-based effluent limits for narrative criteria

Ecology must consider the narrative criteria described in WAC 173-201A-160 when it determines permit limits and conditions. Narrative water quality criteria limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge which have the potential to adversely affect designated uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health.

Ecology considers narrative criteria when it evaluates the characteristics of the wastewater and when it implements all known, available, and reasonable methods of treatment and prevention (AKART) as described above in the technology-based limits section. When Ecology determines if a facility is meeting AKART it considers the pollutants in the wastewater and the adequacy of the treatment to prevent the violation of narrative criteria.

In addition, Ecology considers the toxicity of the wastewater discharge by requiring whole effluent toxicity (WET) testing when there is a reasonable potential for the discharge to contain toxics. Ecology's analysis of the need for WET testing for this discharge is described later in the fact sheet.

G. Evaluation of surface water quality-based effluent limits for numeric criteria

Oil and Grease / No Visible Sheen – WAC 173-201A-260(2) requires that aesthetic values not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the sense of sight, smell, touch, or taste. The national criteria listed by the Environmental Protection Agency in *Quality Criteria for Water 1986* requires surface waters virtually free from floating oils of petroleum origin. The no visible sheen and 5 mg/L effluent limitations for marine way floodwater are established to protect this water quality criteria.

H. Human health

Washington's water quality standards include numeric human health-based criteria for 97 priority pollutants that Ecology must consider when writing NPDES permits.

Ecology determined the applicant's discharge does not contain chemicals of concern based on existing effluent data or knowledge of discharges to the system.

I. Sediment quality

The aquatic sediment standards (chapter 173-204 WAC) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400). You can obtain additional information about sediments at the Aquatic Lands Cleanup Unit website. <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Sediment-cleanups>

Salmon Bay is an industrial area without high sediment mobility or sediment deposition, so it is not expected that concentrations would have changed dramatically since the 1996 sampling effort. The data shows Sediment Quality Standards (SQS) and/or Sediment Screening Level (SSL) exceedances of Arsenic, Copper, Zinc, and Tributyltin which are common pollutants associated with facilities that repair and construct ships. HPAHs and Phthalates, PCBs, and Phenol were other chemicals that exceeded the Sediment Management Standards (SMS). There were also SSL amphipod biological exceedances at all three stations. Therefore based on existing information, Salmon Bay is considered a suspected hazardous site for sediment contamination, and has been defined as such in Ecology's Integrated Site Information System (ISIS).

The purpose of NPDES sediment monitoring is to demonstrate that discharges and Best Management Practices (BMPs) are sufficient to prevent sediment contamination. Under the NPDES permit, the facility has implemented BMPs to reduce the potential for contaminants to enter the water. Ecology recommends sediment testing to evaluate BMPs be delayed until after cleanup is completed. After the site is cleaned up, ongoing sediment monitoring will be needed in the NPDES permit to ensure that BMPs are working and the site is not being recontaminated.

J. Groundwater quality limits

The groundwater quality standards (chapter 173-200 WAC) protect beneficial uses of groundwater. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

Ecology determined FVO's discharge has the potential to cause a violation of the groundwater quality standards. The proposed permit includes the following conditions to protect groundwater:

- Maintain, update as necessary, and follow the site-specific Stormwater Pollution Prevention Plan (SWPPP).
- Monitor stormwater discharges to groundwater quarterly, identify and apply corrective actions as appropriate for any exceedances of benchmark values.

Water quality-based effluent limits (WQBELs) are required when a discharge contains a pollutant that has reasonable potential to exceed an applicable water quality standard for that pollutant. There are many different ways to include more effective WQBELs in permits. WQBELs can be expressed in numeric or non-numeric form to reduce the discharge of the pollutant of concern as necessary to meet applicable water quality standards. High variability of stormwater quality, volume, duration and frequency make application of the traditional approaches for calculating discharge limits (which are based on steady state conditions and a continuous discharge) infeasible and requires a different approach to managing stormwater pollutants. EPA recommends permitting authorities consider including numeric benchmarks for BMPs and associated monitoring protocols for evaluating BMP effectiveness in stormwater permits, as the necessary WQBELs, where traditional numeric WQBELs are determined to be unnecessary or infeasible. Benchmarks support an adaptive approach to meeting applicable water quality standards. Over time, benchmarks also drive technology improvements. Benchmarks, BMPs, and adaptive management are often used as metrics to control stormwater pollution by decreasing loading from a facility into the receiving water body.

Ecology is proposing to require benchmarks for FVO stormwater discharges to groundwater. The discharge must comply with the groundwater standards. The permit requires that this type of discharge meet maximum daily limits of 1,000 µg/L for total copper, and 1,200 ug/L for total zinc. The limit for copper is the groundwater criterion for copper, and the limit for zinc is technology-based. Both limits should be obtainable with proper BMPs at the facility. Meeting the limits at the point of discharge to the infiltration basin or trench (the treatment device) eliminates the need for groundwater sampling.

K. Whole effluent toxicity

The water quality standards for surface waters forbid discharge of effluent that has the potential to cause toxic effects in the receiving waters. Many toxic pollutants cannot be measured by commonly available detection methods. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Using the screening criteria in chapter 173-205-040 WAC, Ecology determined that toxic effects caused by unidentified pollutants in the effluent are unlikely. Therefore, this permit does not require WET testing. Ecology may require WET testing in the future if it receives information indicating that toxicity may be present in this effluent.

L. Comparison of effluent limits with the previous permit issued on March 17, 2014.

Table 4. Comparison of Previous and Proposed Effluent Limits

Parameter	Basis of Limit	Previous Effluent Limits: Marine Ways 1 & 2	Proposed Effluent Limits: Marine Ways 1 & 2
		Maximum Daily	Maximum Daily
Oil and Grease	Technology	5 mg/L	5 mg/L
Oil and Grease	Technology	No Sheen	No Sheen
Turbidity	Water Quality	5 NTU	5 NTU

Benchmarks for Stormwater Discharges to Ground			
Parameter	Basis of Limit	Maximum Daily	Maximum Daily
Oil and Grease	Groundwater	N/A	5 mg/L
Oil and Grease	Groundwater	N/A	No Sheen
Copper	Groundwater	N/A	1000 µg/L
Zinc	Groundwater	N/A	1200 µg/L

IV. Monitoring Requirements

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit’s effluent limits.

If a facility uses a contract laboratory to monitor wastewater, it must ensure that the laboratory uses the methods and meets or exceeds the method detection levels required by the permit. The permit describes when facilities may use alternative methods. It also describes what to do in certain situations when the laboratory encounters matrix effects. When a facility uses an alternative method as allowed by the permit, it must report the test method, detection level (DL), and quantitation level (QL) on the discharge monitoring report or in the required report.

A. Wastewater monitoring

The monitoring schedule is detailed in the proposed permit under Special Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

B. Lab accreditation

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of chapter 173-50 WAC, Accreditation of Environmental Laboratories, to prepare all monitoring data (with the exception of certain parameters).

V. Other Permit Conditions

A. Reporting and record keeping

Ecology based Special Condition S3 on its authority to specify any appropriate reporting and record keeping requirements to prevent and control waste discharges (WAC 173-220-210).

B. Non-routine and unanticipated wastewater

Occasionally, this facility may generate wastewater which was not characterized in the permit application because it is not a routine discharge and was not anticipated at the time of application. These wastes typically consist of waters used to pressure-test storage tanks or fire water systems or of leaks from drinking water systems.

The permit authorizes the discharge of non-routine and unanticipated wastewater under certain conditions. The facility must characterize these waste waters for pollutants and examine the opportunities for reuse. Depending on the nature and extent of pollutants in this wastewater and on any opportunities for reuse, Ecology may:

- Authorize the facility to discharge the wastewater.
- Require the facility to treat the wastewater.
- Require the facility to reuse the wastewater.

C. Spill plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [Section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080].

FVO developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the facility to update this plan as necessary and submit it to Ecology with the permit renewal.

D. Solid waste control plan

FVO could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste.

This proposed permit requires this facility to update the approved solid waste control plan designed to prevent solid waste from causing pollution of waters of the state. The facility must submit the updated plan to Ecology with the permit renewal. You can obtain an Ecology guidance document, which describes how to develop a Solid Waste Control Plan, at: <https://fortress.wa.gov/ecy/publications/documents/0710024.pdf>

E. Stormwater pollution prevention plan

In accordance with 40 CFR 122.44(k) and 40 CFR 122.44 (s), the proposed permit includes requirements for the continued implementation of a SWPPP along with BMPs to minimize or prevent the discharge of pollutants to waters of the state. BMPs constitute Best Conventional Pollutant Control Technology (BCT) and Best Available Technology Economically Achievable (BAT) for stormwater discharges. Ecology has determined that FVO must maintain their SWPPP and continue to implement adequate BMPs in order to meet the requirements of “all known, available, and reasonable methods of prevention, control, and treatment” (AKART). A SWPPP requires a facility to implement actions necessary to manage stormwater to comply with the state’s requirement under chapter 90.48 RCW to protect the beneficial uses of waters of the state.

The SWPPP must identify potential sources of stormwater contamination from industrial activities and identify how it plans to manage those sources of contamination to prevent or minimize contamination of stormwater. FVO must continuously review and revise the SWPPP as necessary to assure that stormwater discharges do not degrade water quality. It must retain the SWPPP on-site or within reasonable access to the site and available for review by Ecology.

Best management practices (BMPs)

BMPs are the actions identified in the SWPPP to manage, prevent contamination of, and treat stormwater. BMPs include schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment systems, operating procedures, and practices used to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage. FVO must ensure that its SWPPP includes the operational and structural source control BMPs listed as “applicable” in Ecology’s stormwater management manuals. Many of these “applicable” BMPs are sector-specific or activity-specific, and are not required at facilities engaged in other industrial sectors or activities.

Ecology-approved stormwater management manuals

Consistent with RCW 90.48.555 (5) and (6), the proposed permit requires the facility to implement BMPs contained in the *Stormwater Management Manual for Western Washington* (2014 edition), or any revisions thereof, or practices that are demonstrably

equivalent to practices contained in stormwater technical manuals approved by Ecology. This should ensure that BMPs will prevent violations of state water quality standards, and satisfy the state AKART requirements and the federal technology-based treatment requirements under 40 CFR part 125.3. The SWPPP must document that the BMPs selected provide an equivalent level of pollution prevention, compared to the applicable stormwater management manuals, including:

- The technical basis for the selection for all stormwater BMPs (scientific, technical studies, and/or modeling) which support the performance claims for the BMPs selected.
- An assessment of how the BMPs will satisfy AKART requirements and the applicable technology-based treatment requirements under 40 CFR part 125.3.

Operational source control BMPs

Operational source control BMPs include a schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the pollution of waters of the state. These activities do not require construction of pollution control devices but are very important components of a successful SWPPP. Employee training, for instance, is critical to achieving timely and consistent spill response. Pollution prevention is likely to fail if the employees do not understand the importance and objectives of BMPs. Prohibitions might include eliminating outdoor repair work on equipment and certainly would include the elimination of intentional draining of crankcase oil on the ground. Good housekeeping and maintenance schedules help prevent incidents that could result in the release of pollutants. Operational BMPs represent a cost-effective way to control pollutants and protect the environment. The SWPPP must identify all the operational BMPs and how and where they are implemented. For example, the SWPPP must identify what training will consist of, when training will take place, and who is responsible to assure that employee training happens.

Structural source control BMPs

Structural source control BMPs include physical, structural, or mechanical devices or facilities intended to prevent pollutants from entering stormwater. Examples of source control BMPs include erosion control practices, maintenance of stormwater facilities (e.g., cleaning out sediment traps), construction of roofs over storage and working areas, and direction of equipment wash water and similar discharges to the sanitary sewer or a dead end sump. Structural source control BMPs likely include a capital investment but are cost effective compared to cleaning up pollutants after they have entered stormwater.

Treatment BMPs

Operational and structural source control BMPs are designed to prevent pollutants from entering stormwater. However, even with an aggressive and successful program, stormwater may still require treatment to achieve compliance with water quality standards. Treatment BMPs remove pollutants from stormwater. Examples of treatment BMPs are detention ponds, oil/water separators, biofiltration, and constructed wetlands.

F. Best management practices

Best management practices (BMPs) are the actions identified to manage, prevent contamination of, and treat stormwater. BMPs include schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment systems, operating procedures, and practices used to control plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage.

G. Corrective actions

The proposed permit includes a framework of stormwater sampling, benchmarks, and corrective actions to ensure compliance with water quality standards. Any FVO exceedance of water quality-based numeric benchmark values (Special Condition S5.A&B) trigger incremental revisions to the facilities stormwater pollution prevention plan (SWPPP) to include additional best management practices (BMPs).

The adaptive management mechanism requires monitoring, evaluation, and reporting requirements to ensure that stormwater discharges are controlled by adequate best management practices (BMPs) that prevent violations of water quality standards.

The adaptive management mechanism includes the following elements designed to result in permit compliance:

- (i) An adaptive management indicator, such as monitoring benchmarks;
- (ii) Monitoring;
- (iii) Review and revisions to the storm water pollution prevention plan;
- (iv) Documentation of remedial actions taken; and
- (v) Reporting to the department.

The permit includes an adaptive management approach that requires FVO to monitor stormwater quality against several water quality-based benchmarks (indicator values).

This adaptive management program constitutes alternate water quality-based numeric effluent values, as provided for in 40 CFR 122.44(k).

If the benchmark for a particular pollutant parameter is met, the discharge is presumed to not cause or contribute to a violation of water quality standards for that parameter. If a water quality-based benchmark is exceeded numerous times, the potential for a violation of water quality standards increases, and the facility is required to implement escalating levels of SWPPP review and the implementation of additional BMPs.

Since benchmark values are not numeric effluent limitations, discharges that exceed a benchmark value are not considered a permit violation or a violation of water quality standards. However, if a permittee exceeds benchmarks that trigger a corrective action, but does not comply with the specific corrective action requirements in S11, it would be considered a permit violation.

If a benchmark is exceeded in a stormwater discharge, the draft permit requires the Permittee to take appropriate actions to identify and correct the problem(s) causing the benchmark exceedance. Compliance with these adaptive management actions ensures that:

1. Aquatic life and the other beneficial uses of state waters are likely protected by minimizing the concentrations and volumes of stormwater pollutants discharged into groundwater;
2. The Permittee meets AKART; and
3. The Permittee's stormwater discharges meet the intent of the Clean Water Act and Chapter 90.48 RCW.

Level 1, 2 and 3 SWPPP Review and Certification

S8 requires Permittees who trigger a Level 1, 2 or 3 corrective action to review their SWPPP and ensure it is in full compliance with S9 (SWPPP), and contains the correct BMPs from the applicable stormwater management manual. This requirement is consistent with standard NPDES permit conditions described in 40 CFR 122.22 and is intended to ensure that the permittee understands its responsibility to create and maintain a complete and accurate SWPPP. The Permittee is allowed to appoint an authorized representative consistent with the regulations. Therefore, if FVO feels it is more appropriate for a member of the stormwater pollution prevention plan team to sign the documentation, that option is available under the permit. The signature requirement includes an acknowledgment that there are significant penalties for submitting false information.

H. General conditions

Ecology bases the standardized general conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

VI. Permit Issuance Procedures

A. Permit modifications

Ecology may modify this permit to impose numerical limits, if necessary, to comply with water quality standards for surface waters, with sediment quality standards, or with groundwater quality standards, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed permit Issuance

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of 5 years.

VII. References for Text and Appendices

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.
1991. *Technical Support Document for Water Quality-based Toxics Control*. EPA/505/2-90-001.
1988. *Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling*. USEPA Office of Water, Washington, D.C.
1985. *Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water*. EPA/600/6-85/002a.
1983. *Water Quality Standards Handbook*. USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

1972. *Characterization of Stream Reaeration Capacity*. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

July 2018. *Permit Writer's Manual*. Publication Number 92-109

(<https://fortress.wa.gov/ecy/publications/documents/92109.pdf>)

September 2011. *Water Quality Program Guidance Manual – Supplemental Guidance on Implementing Tier II Antidegradation*. Publication Number 11-10-073

(<https://fortress.wa.gov/ecy/publications/summarypages/1110073.html>)

October 2010 (revised). *Water Quality Program Guidance Manual – Procedures to Implement the State's Temperature Standards through NPDES Permits*. Publication Number 06-10-100 (<https://fortress.wa.gov/ecy/publications/summarypages/0610100.html>)

November 1996. *Chemical Contaminants in Salmon Bay Sediments – Results of Phase II Sampling*. Publication Number 96-343.

<https://fortress.wa.gov/ecy/publications/SummaryPages/96343.html>

August 1992. *Survey of Contaminants in Sediments in Lake Union and Adjoining Waters*. Publication Number 92-e10.

<https://fortress.wa.gov/ecy/publications/SummaryPages/92e10.html>

Laws and Regulations (<http://leg.wa.gov/LawsAndAgencyRules/Pages/default.aspx>)

Permit and Wastewater Related Information

<https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance>

February 2007. *Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees*, Publication Number 07-10-024.

<https://fortress.wa.gov/ecy/publications/documents/0710024.pdf>

Wright, R.M., and A.J. McDonnell.

1979. *In-stream Deoxygenation Rate Prediction*. Journal Environmental Engineering Division, ASCE. 105(E2). (Cited in EPA 1985 op.cit.)

Appendix A--Public Involvement Information

Ecology proposes to reissue a permit to Fishing Vessel Owners Marine Ways, Inc. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Draft on April 4, 2019, in the *Seattle Times* to inform the public and to invite comment on the proposed draft National Pollutant Discharge Elimination System permit and fact sheet.

The notice:

- Told where copies of the draft Permit and Fact Sheet were available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website).
- Offered to provide the documents in an alternate format to accommodate special needs.
- Urged people to submit their comments, in writing, before the end of the Comment Period.
- Told how to request a public hearing of comments about the proposed NPDES permit.
- Explained the next step(s) in the permitting process.

Ecology has published a document entitled *Frequently Asked Questions about Effective Public Commenting* which is available on our website at

<https://fortress.wa.gov/ecy/publications/SummaryPages/0307023.html>

You may obtain further information from Ecology by telephone, 425-649-7201, or by writing to the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452

The primary author of this permit and fact sheet is Robert Nolan.

Appendix B--Your Right to Appeal

You have a right to appeal this permit to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of the final permit. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. “Date of receipt” is defined in RCW 43.21B.001(2) (see glossary).

To appeal you must do the following within 30 days of the date of receipt of this permit:

- File your appeal and a copy of this permit with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this permit on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION	
Street Addresses	Mailing Addresses
<p>Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503</p>	<p>Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608</p>
<p>Pollution Control Hearings Board 1111 Israel RD SW STE 301 Tumwater, WA 98501</p>	<p>Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903</p>

Appendix C--Glossary

Acute toxicity -- The lethal effect of a compound on an organism that occurs in a short time period, usually 48 to 96 hours.

AKART -- The acronym for “all known, available, and reasonable methods of prevention, control and treatment.” AKART is a technology-based approach to limiting pollutants from wastewater discharges, which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Ambient water quality -- The existing environmental condition of the water in a receiving water body.

Ammonia -- Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual average design flow (AADF) -- The average of the daily flow volumes anticipated to occur over a calendar year.

Average monthly discharge limit -- The average of the measured values obtained over a calendar month's time.

Background water quality -- The concentrations of chemical, physical, biological or radiological constituents or other characteristics in or of groundwater at a particular point in time upgradient of an activity that has not been affected by that activity [WAC 173-200-020(3)]. Background water quality for any parameter is statistically defined as the 95% upper tolerance interval with a 95% confidence based on at least eight hydraulically upgradient water quality samples. The eight samples are collected over a period of at least one year, with no more than one sample collected during any month in a single calendar year.

Best management practices (BMPs) -- Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD5 -- Determining the five-day Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD₅ is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass -- The intentional diversion of waste streams from any portion of a treatment facility.

Chronic toxicity -- The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean water act (CWA) -- The federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance inspection-without sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance inspection-with sampling -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite sample -- A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite" (collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction activity -- Clearing, grading, excavation, and any other activity, which disturbs the surface of the land. Such activities may include road building; construction of residential houses, office buildings, or industrial buildings; and demolition activity.

Continuous monitoring -- Uninterrupted, unless otherwise noted in the permit.

Date of receipt -- This is defined in RCW 43.21B.001(2) as five business days after the date of mailing; or the date of actual receipt, when the actual receipt date can be proven by a preponderance of the evidence. The recipient's sworn affidavit or declaration indicating the date of receipt, which is unchallenged by the agency, constitutes sufficient evidence of actual receipt. The date of actual receipt, however, may not exceed forty-five days from the date of mailing.

Detection limit -- The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Dilution factor (DF) -- A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction, for example, a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Early warning value -- The concentration of a pollutant set in accordance with WAC 173-200-070 that is a percentage of an enforcement limit. It may be established in the effluent, groundwater, surface water, the vadose zone or within the treatment process. This value acts as a trigger to detect and respond to increasing contaminant concentrations prior to the degradation of a beneficial use.

Enforcement limit -- The concentration assigned to a contaminant in the groundwater at the point of compliance for the purpose of regulation [WAC 173-200-020(11)]. This limit assures that a groundwater criterion will not be exceeded and that background water quality will be protected.

Engineering report -- A document that thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal coliform bacteria -- Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab sample -- A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Groundwater -- Water in a saturated zone or stratum beneath the surface of land or below a surface water body.

Industrial wastewater -- Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business; from the development of any natural resource; or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated stormwater and, also, leachate from solid waste facilities.

Maximum daily discharge limit -- The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method detection level (MDL) -- See Detection Limit.

Mixing zone -- An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The permit specifies the area of the authorized mixing zone that Ecology defines following procedures outlined in state regulations (chapter 173-201A WAC).

National pollutant discharge elimination system (NPDES) -- The NPDES (Section 402 of the Clean Water Act) is the federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

pH -- The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7 is defined as neutral and large variations above or below this value are considered harmful to most aquatic life.

Point of compliance -- The location in the groundwater where the enforcement limit must not be exceeded and a facility must comply with the Groundwater Quality Standards. Ecology determines this limit on a site-specific basis. Ecology locates the point of compliance in the groundwater as near and directly downgradient from the pollutant source as technically, hydrogeologically, and geographically feasible, unless it approves an alternative point of compliance.

Quantitation level (QL) -- Also known as Minimum Level of Quantitation (ML) – The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that the lab has used all method-specified sample weights, volumes, and cleanup procedures. The QL is calculated by multiplying the MDL by 3.18 and rounding the result to the number nearest to $(1, 2, \text{ or } 5) \times 10^n$, where n is an integer (64 FR 30417).

ALSO GIVEN AS:

The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision & bias) achieves the objectives of the intended purpose. (Report of the Federal Advisory Committee on Detection and Quantitation Approaches and Uses in Clean Water Act Programs Submitted to the US Environmental Protection Agency, December 2007).

Reasonable potential -- A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible corporate officer -- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Sample Maximum -- No sample may exceed this value.

Soil scientist -- An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5, 3, or 1 year(s), respectively, of professional experience working in the area of agronomy, crops, or soils.

Solid waste -- All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

State waters -- Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater -- That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a stormwater drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based effluent limit -- A permit limit based on the ability of a treatment method to reduce the pollutant.

Total coliform bacteria -- A microbiological test, which detects and enumerates the total coliform group of bacteria in water samples.

Total dissolved solids -- That portion of total solids in water or wastewater that passes through a specific filter.

Total maximum daily load (TMDL) -- A determination of the amount of pollutant that a water body can receive and still meet water quality standards.

Total suspended solids (TSS) -- Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset -- An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water quality-based effluent limit -- A limit imposed on the concentration of an effluent parameter to prevent the concentration of that parameter from exceeding its water quality criterion after discharge into receiving waters.

Appendix D--Response to Comments

Ecology received one comment from Doug Lyons of Poulsbo, WA.

Comment: Please see that all possible latitude is given in this permit execution to Marine Ways. It is very important to our economy and tax base.

Response: The Department of Ecology acknowledges receipt of your comment in regards to the draft permit for Fishing Vessel Owners Marine Ways.

The permit was drafted with protection of the environment in mind and at the same time we put every effort to make the permit the least onerous possible on the company and with confidence that Fishing Vessel Owners has the mechanisms in place to comply with the terms and conditions of the permit during its life cycle.