Fact Sheet for State Waste Discharge Permit No. ST0007374

Puget Sound Naval Shipyard and Intermediate Maintenance Facility

Public Notice of Draft Date: October 25, 2019

Effective Date: November 1, 2020

Purpose of this fact sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed State Waste Discharge Permit for United States Navy – Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF) that will allow discharge of wastewater to the City of Bremerton Wastewater Treatment Plant.

State law requires any commercial or industrial facility to obtain a permit before discharging waste or chemicals to municipal sanitary sewer collection and treatment systems.

Ecology makes the draft permit and fact sheet available for public review and comment at least thirty (30) days before it issues the final permit to the facility operator. Copies of the fact sheet and draft permit for PSNS & IMF, State Waste Discharge permit ST0007374, are available for public review and comment from October 25, 2019, until the close of business November 25, 2019. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement Information**.

PSNS & IMF reviewed the draft permit and fact sheet for factual accuracy. Ecology corrected any errors or omissions about the facility's location, history, product type, production rate, or discharges prior to publishing this draft fact sheet for public notice.

After the public comment period closes, Ecology will summarize substantive comments and our responses to them. Ecology will include our summary and responses to comments to this fact sheet as **Appendix E - Response to Comments**, and publish it when we issue the final State Waste Discharge 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

Puget Sound Naval Shipyard and Intermediate Maintenance Facility is a major shipyard operated by the US Navy. The shipyard is located on Sinclair Inlet, a water body connected by a narrow passage to Puget Sound. The shipyard has six large drydocks that are mainly used for maintenance and refurbishing of naval vessels. Ship breaking operations, mainly performed on submarines, are also an important operation performed in drydocks. In addition, the shipyard operates a number of industrial facilities on shore side, including a large metal finishing/electroplating shop, forging facilities, a propeller shop, as well as many other specialty shops.

The proposed permit authorizes the discharge of industrial wastewater from these facilities to the sanitary sewer system operated by the City of Bremerton (Bremerton). The shipyard also discharges other waste streams directly to Sinclair Inlet. These discharges are authorized under an NPDES permit, which is administered by the United States Environmental Protection Agency (EPA).

Most of the discharges authorized by the proposed State Waste Discharge Permit consist of pretreated:

- Contaminated water from the drydocks (including both process water and contaminated stormwater).
- Bilge and balance water from ships.
- Rinsewater from the metal finishing/electroplating shop.
- Certain ship-board wastes, such as clean-in-place wastewaters.

The shipyard treats the metal finishing process water, bilge and balance water, and the most contaminated portion of the drydock waters prior to discharge to the sanitary sewer.The proposed permit contains technology-based limits that Ecology established after considering AKART, federal categorical limits, and Ecology derived local limits. In addition, the proposed permit applies local limits, established in ordinance by Bremerton, to the final wastewater stream discharged to Bremerton. This waste stream is a mixture of pretreated industrial wastewater and domestic wastewater.

Key changes in the proposed permit with respect to the existing permit include a significant increase in the approved daily maximum flow of contaminated stormwater from the drydock process water collection systems, removal of several sampling points due to the discontinuation of the processes that generate the wastewater, and the City of Bremerton's current local limits are significantly different from those applied in the 2011 permit. Bremerton's local limits are applied at the discharge points to the city, exiting PSNS & IMF. Ecology's local limits are applied at the point sources within the PSNS & IMF before mixing with other industrial wastestreams and domestic sewage. Hence Ecology's limits would inherently have to be generally higher than those of the city's limits assuming all point sources within the shipyard are accounted for because both sets are concentration based limits. The limits in the new permit are consistent with this presumption. The 2011 permit did not reflect this. The new permit requires PSNS & IMF to conduct a salinity study in order to propose a solution to mitigate saltwater interference with Bremerton's WWTP and other infrastructures. Some monitoring frequencies and parameters remain unchanged.

The new permit requires that PSNS & IMF submit its discharge sampling data and permit reports online via Ecology's Water Quality Permitting Portal as required by recently enacted federal regulations in 40 CFR Part 127. PSNS & IMF has already instituted electronic reporting of DMRs and other permit required submittals.

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I. Introduction

The Legislature defined Ecology's authority and obligations for the wastewater discharge permit program in the Water Pollution Control law, chapter 90.48 RCW (Revised Code of Washington).

Ecology adopted rules describing how it exercises its authority:

- State waste discharge program (chapter 173-216 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 a State Waste Discharge Permit before discharging wastewater to state waters. This rule includes commercial or industrial discharges to sewerage systems operated by municipalities or public entities which discharge into public waters of the state. They also help define the basis for limits on each discharge and for other performance requirements imposed by the permit.

Under the State Waste Discharge Permit Program and in response to a complete and accepted permit application, Ecology generally prepares a draft permit and accompanying fact sheet, and makes it available for public review before final issuance. If the volume of the discharge has not changed or if the characteristics of the discharge have not changed Ecology may choose not to issue a public notice. When Ecology publishes an announcement (public notice), it tells people where they can read the draft permit, and where to send their comments, during a period of thirty days. (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 State Waste Discharge 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	US Navy
Facility Name and Address	Puget Sound Naval Shipyard and Intermediate Maintenance Facility Code 106.3, Building 427, 2nd Floor 1400 Farragut Avenue Bremerton, WA 98314-5001
Contact at Facility	Name: Duy Pham Telephone No: (360) 476-0122 Email Address: duy.t.pham@navy.mil
Responsible Official	Captain Dianna Wolfson, U.S. Navy Commander, PSNS & IMF
Delegated Authority	M.S. Johnson, Director, Environmental, Safety, and Health Office Telephone No: (360) 476-1932 Email Address: mark.s.johnson3@navy.mil
Industrial User Type	Metal Finishing Categorical Significant Industrial User
Fee Category (WAC 173-224)	Combined Industrial Waste Treatment: 500,000 gpd and greater
Industry Type	Naval Shipyard
Categorical Industry	40 CFR Part 433
Type of Treatment by Industry	Cyanide oxidation, chromium reduction, chemically aided metals precipitation, pH neutralization, oil/water separation
SIC Codes	9711 (National Security), 3731 (Ship Building and Repairing)
NAIC Codes	982110 (National Security), 336611 (Ship Building and Repairing)
Facility Location (NAD83/WGS84 reference datum)	Latitude: 47.5611 N Longitude: 122.6344 W
Treatment Plant Receiving Discharge	City of Bremerton Wastewater Treatment Plant WA0029289
Discharge Location (NAD83/WGS84 reference datum) – Indirect discharge via the City of Bremerton WWTP to Sinclair Inlet	Latitude: 47.544670 N Longitude: 122.669907 W

Permit Status	
Issuance Date of Previous Permit	November 10, 2011
Application for Permit Renewal Submittal Date	May 9, 2016
Date of Ecology Acceptance of Application	August 30, 2016

Inspection Status	
Date of Last Non-sampling Inspection Date	January 30, 2018

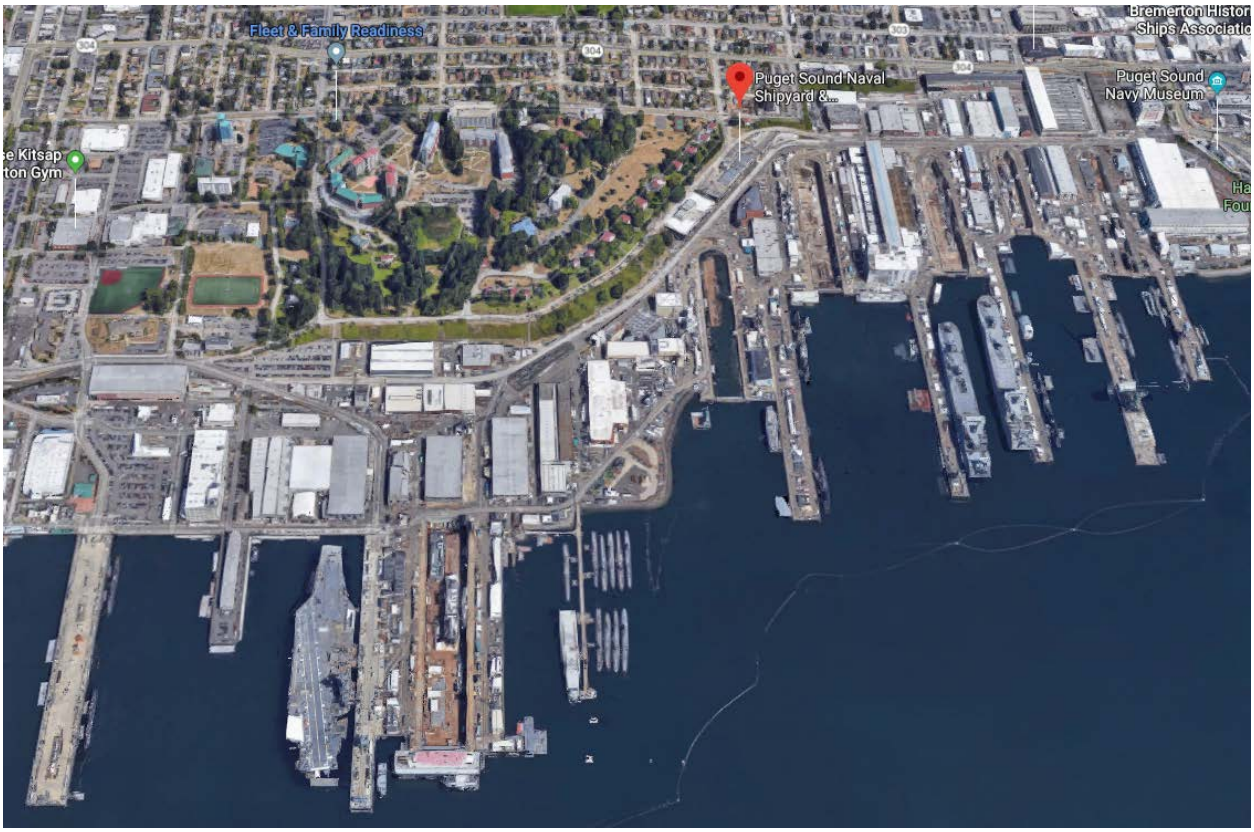


Figure 1. Aerial View of Vicinity of PSNS & IMF

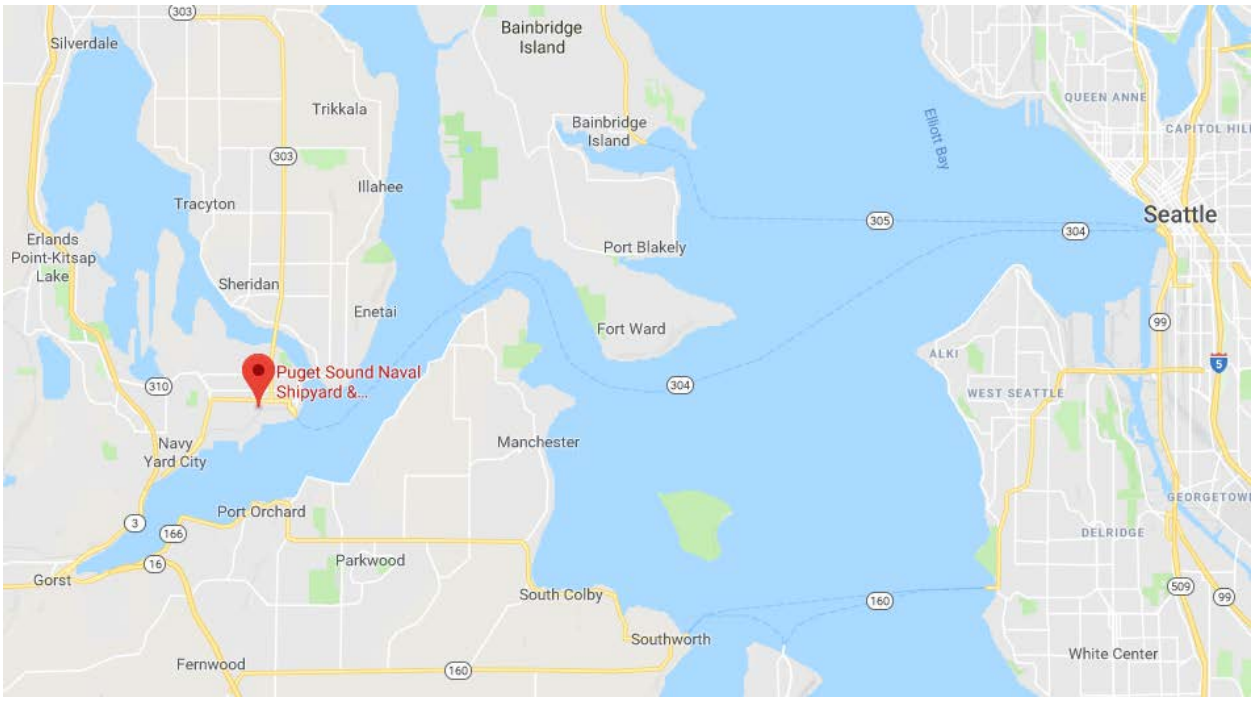


Figure 2. Map Indicating Location PSNS & IMF

A. Facility description

1. History

The Puget Sound Naval Shipyard was established in 1891. Although the shipyard has engaged in construction of vessels in the past, no new vessels are constructed at the yard now. The main activities performed by the shipyard include repairs, vessel refits, and breaking up (disposal and recycling) of ships and submarines, including those with nuclear-powered propulsion systems that have reached the end of their useful lives.

2. Industrial processes

The main industrial wastewater sources at the shipyard include the extensive metal plating shop, contaminated drydock storm water runoff, contaminated drydock process water (for example, pressure washing and hydroblasting), and bilge water. Many other minor sources of wastewater exist at the facility. Examples of these minor sources include photo-processing, grinding, valve cleaning, lagging tool cleaning, paint brush cleaning, hose cleaning, and braze flux flushing. In addition to the industrial discharges, the facility generates a large number of commercial/large scale semi-domestic

discharges including those from car washes, galleys, washing machines, and barracks heating boilers.

The shipyard discharges plating shop rinsewater, as well as other metal contaminated wastewaters, to the main pretreatment building where it removes metals and cyanide.

It discharges many of the other wastewater streams directly to the sanitary sewer. It designates some of these wastewater streams prior to disposal. Depending on the test results, it disposes of the wastewater as hazardous waste (ships to a TSD facility), transfers it to Building 1109 for pretreatment, or discharges it directly to the sanitary sewer.

Six oily water treatment systems (OWTS) located at various locations at the shipyard are used to treat bilge water. The bilge water is discharged to the sanitary sewer following treatment. The shipyard uses these same systems to treat certain other wastewaters such as drydock wastewater as well as hydroblast and pressure wash water, where appropriate. All of the bilge water treatment systems (OWTS) utilize vertical tube coalescer/clarifier sedimentation units with a 200-gallon-per-minute capacity. PSNS & IMF expects to have one additional OWTS in operation in 2020. This system will employ the same technology as in the existing six OWTS systems hence Ecology has not required submittal of an engineering report for the proposed system.

The discharges from Building 1109 are subject to the most stringent of local limits and the categorical pretreatment standards. The discharges from most other areas are only subject to local limits calculated by Ecology.

A number of stormwater and ship cooling water discharges are made directly to Sinclair Inlet. These direct discharges are covered under the NPDES permit issued by USEPA.

Listing of regulated industrial wastewater discharges and their associated flows

The following table contains a summary of the industrial flow authorized by the proposed permit and the associated maximum daily flow rates. The industrial processes are described in greater detail in later sections of this fact sheet.

Table 2. Listing of regulated industrial wastewater discharges and their associated flows

Listing of Discharges and Their Associated Flows as Authorized Under Proposed Permit for Puget Sound Naval Shipyard			
Ecology Sample Point No.	**Navy Discharge Designation (NDD)**	**Description of Source of Wastewater**	**Flows Based on Permit Application**
1	99-1109-001	Building 1109 IWPF Wastewater Treatment	30,000
2	99-1109-002	Building 1109 IWPF Cyanide Wastewater Treatment	20,000
3	99-OW1-001	Treated Bilgewater (Oily Water Treatment Plant Located SW of Drydock 1)	230,000
4	99-OW2-001	Treated Bilgewater (Oily Water Treatment Plant Located SW of Drydock 2)	230,000
5	99-OW3-001	Treated Bilgewater (Oily Water Treatment Plant Located SW of Drydock 3)	230,000
6	99-OW4-001	Treated Bilgewater (Oily Water Treatment Plant Located SE of Drydock 4)	230,000
7	99-OW5-001	Treated Bilgewater (Oily Water Treatment Plant Located SE of Drydock 5)	230,000
8	99-OW6-001	Treated Bilgewater (Oily Water Treatment Plant Located SW of Drydock 6)	230,000
9	99-OW7-001	Treated Bilgewater (Oily Water Treatment Plant Located NW of Pier D)	230,000
10	99-DD1-002	Drydock 1 Process Water Collection System	N/A for flow (Discharge through 99-DD16-002)
11	99-DD2-002	Drydock 2 Process Water Collection System	N/A for flow (Discharge through 99-DD16-002)
12	99-DD3-002	Drydock 3 Process Water Collection System	N/A for flow (Discharge through 99-DD16-002)
13	99-DD4-002	Drydock 4 Process Water Collection System	N/A for flow (Discharge through 99-DD1002)
14	99-DD5-002	Drydock 5 Process Water Collection System	N/A for flow (Discharge through 99-DD16-002)
15	99-DD6-002	Drydock 6 Process Water Collection System	N/A for flow (Discharge through 99-DD16-002)
16	99-DD16-002	Combined Drydock Process Water Collection System Discharge	950,000
77	17-857-011	Aluminum Sheet Metal Deburring	800
87	NBK-912-001	Steam Utility Plant Boiler Blowdown and Miscellaneous Discharges	300,000
105	WB-3 – West End	Municipal Lift Station WB-3 – West End	N/A
106	Lift Station Number 9	Lift Station Number 9	N/A

Building 1109 – Industrial Wastewater Pretreatment Facility (IWPF)

Industrial Wastewater Treatment Plant Building (99-1109-001 and 99-1109-002)

Building 1109, the Industrial Wastewater Pretreatment Facility (IWPF), receives wastewaters from numerous sources within the Bremerton Naval Complex, which include Puget Sound Naval Shipyard & Intermediate Maintenance Facility – Bremerton, and Naval Base Kitsap – Bremerton site. These wastewaters include metal preparation wastes, sheet metal shop wastes, pipe and boiler shop wastes, shipboard system chemical flush wastes, and other wastes generated from process areas that support the shipyard's function. Only the adjacent Building 873, the plating shop, is directly tied into Building 1109 by a short run of double-walled PVC pipelines. All other sources transport those wastewaters designated for treatment at Building 1109, to Building 1109's Unloading Area by means of various sizes of portable tanks and containers. Wastewaters received in the Unloading Area are transferred to Building 1109's process tanks by means of exterior double walled piping. The length of the piping run is approximately 150 feet. Building 1109 is located adjacent to Building 873, the base's main metal finishing shop.

The wastewater influents, including those from both the Building 873 plating shop (MPF) and the hauled wastes from other sources on base, are classified into three distinct wastestreams, each characterized by the following major pollutants:

- Hexavalent chromium wastewater
- Acid/alkaline wastewater (containing various metals)
- Cyanide rinsewater

All wastewaters transported to Building 1109 are first analyzed for waste characteristic and compatibility with Building 1109 treatment processes. Once it has been determined that it can be treated, a wastestream number is assigned for treatment at Building 1109. The wastewater load is transferred to the appropriate tank in Building 1109 only after the treatment plant operator has verified the wastestream number. Acid/Alkaline/Mixed Metal-bearing Wastewater: The shipyard uses two-each 5000-gallon and two-each 10,000-gallon tanks to treat mixed metals wastewaters.

Industrial Treatment Systems Branch writes Interface Engineering Instructions (IEIs) for wastewater transfer and treatment processes at Building 1109 IWPF. For example, IEI 3808-320 is for the treatment of chromium wastewater in Building 1109 IWPF tank 2A. Operators at Building 1109 follow the procedure in the IEIs exactly for any treatment or transfer. Prior to performing any treatment or transfer process any deviation from an IEI requires written approval from Industrial Treatment Systems Branch. At the completion of the treatment process, the operator signs the IEI and provides the completed IEI to Industrial Treatment Systems Branch for review. IEIs

are updated after these reviews as necessary, per feedback from Shop 99 operators, per changes to the facility, or per new safety, health, or environmental requirements.

- **Building 873 (Metal Preparation Facility):** Wastewaters generated in the Metal Preparation Facility, i.e. the plating shop, have historically contributed approximately 95% of the wastewaters treated at Building 1109. The wastewater generated at the plating shop (MPF), mainly consists of three types:
  - Hexavalent chromium wastewater
  - Acid, alkaline, and mixed metal-containing wastes
  - Cyanide rinsewater

  These waste streams are kept segregated in the plating shop and are separately directed to three retention tanks. Each tank has a dedicated short run of double-walled PVC pipeline to transfer the wastewater to Building 1109.
- **Building 857 (Sheet Metal Shop):** Wastewaters originating from this building include acidic and alkaline aluminum cleaning solutions, small quantities of miscellaneous wastes containing acids and alkalis, and photo-etch solution containing chromates. These wastewaters are brought to the IWPF using portable tanks.

  Label plates, placards, and signs are produced in the Photo Etch work area in Building 857, where photo etch rinsewater is generated. Photo etch wastewater is transferred to Building 1109 Industrial Wastewater Pretreatment Facility (IWPF) about once every two weeks in batches of 200 – 350 gallons.

  The aluminum passivation system that was housed in this building was recently decommissioned.
- **Building 460:** Wastewater in this building is generated as a result of a plasma arc cutting process. Wastewater from this building is transferred to the IWPF by means of portable tanks.
- **Building 978 (Battery Shop):** Wastewaters generated in the Battery Shop include sulfuric acid solutions containing lead which result from the draining of various types of batteries. An 11,500-gallon underground accumulation tank in an underground concrete vault is used to collect this wastewater. Sometimes this wastewater is hauled to Building 1109 in portable tanks. Alternatively, a contractor hauls it off-site. Occasionally, the shipyard uses acid from the Battery Shop to neutralize caustic wastewaters in Building 1109.
- **Shipboard Wastes:** Wastewaters generated from ships typically include shelf-life-expired chemicals which are amenable to treatment in Building 1109. The shipyard transfers these wastes to Building 1109, where they are dissolved on the contents of the appropriate tank. Some of the shelf-life-

expired chemicals, such a sodium sulfite and calcium hypochlorite, are used as reagents in Building 1109 for treatment of other wastes.

Wastewater Treatment Processes Conducted in Building 1109

Approximately ninety five percent of wastewater treated at the Industrial Wastewater Pretreatment Facility (IWPF) (Building 1109) originates in the Plating Shop (Building 873). The shipyard treats cyanide rinsewater using cyanide oxidation and metal precipitation. Miscellaneous acid/alkaline rinsewaters treatment processes include pH adjustment and metal precipitation. Hexavalent chromium rinsewater treatment processes include chromium reduction and metal precipitation. After metal precipitation all three wastestreams are subjected to clarification and sludge dewatering.

The following unit processes are employed in the treatment system in Building 1109:

- **Chromium Reduction:** In this treatment process, hexavalent chromium is converted to trivalent chromium in order that it be made more amenable to precipitation and removal from the wastewater. This process is carried out in one of the three 3000-gallon tanks which are dedicated to the chromium reduction process. The first step includes adjustment of the pH of wastewater, using sulfuric acid, to a range optimum for reducing hexavalent chromium to its trivalent state. Sodium metabisulfite (or sodium bisulfite) is then added to perform the actual reduction step. The treatment of chromium-bearing wastewater is conducted on a batch basis. If the hexavalent chromium is not adequately reduced, the facility retreats the batch. Following the reduction step, PSNS & IMF tests the wastewater, to ensure that the reduction from hexavalent chromium to trivalent chromium is complete, prior to subjecting the water to any further treatment processes.
- **Cyanide Oxidation by Means of Alkaline Chlorination:** Cyanide rinsewater from the Metal Preparation Facility is collected in the cyanide oxidation tanks (three-each of 1000-gallon capacity). The pH of the rinsewater is adjusted with sodium hydroxide to a range optimum for oxidation of the cyanide. Sodium hypochlorite or calcium hypochlorite is then mixed with the wastewater to oxidize cyanide to carbon dioxide and nitrogen. A sample of the treated wastewater is collected and analyzed in the shipyard's laboratory. If the treatment lowers the cyanide concentration to less than the permit limit, the wastewater is subjected to metal precipitation process if sample results show that this process is needed to bring the wastewater to within permit limits for metals. Once cyanide and metals concentrations are below permit limits, the waste stream is sent to the effluent holding tanks. If the cyanide concentration is too high, the shipyard retreats the batch. Up to 2000 gallons per day of wastewater from the plating shop are expected to be discharged in a single day. However, PSNS & IMF has requested authorization to discharge a total of up

to 20,000 gallons per day (daily maximum) from the cyanide treatment process in order to accommodate wastewater which would be needed to be treated if a submarine arrived with post-launch missile tube wastewater. A single submarine could contain up to 80,000 gallons of this wastewater. In this event, PSNS & IMF would perform the cyanide reduction process in one of its 10,000-gallon tanks, as opposed to the 1000-gallon tanks in which the cyanide reduction process is normally conducted to treat plating shop wastewater.

- **Chemically Aided Metals Precipitation:** This process is used for all three wastestreams at Building 1109. In the typical precipitation process, the pH of the wastewater is adjusted to between 9.5 and 10.0, by the addition of sodium hydroxide. PSNS & IMF has specific pH targets which it uses when specific batches of metal are treated. Lime is also sometimes used for pH adjustment. Sodium sulfide and polymers may also be employed in this process to aid the flocculation and settling process. These reagents are gently mixed prior to the precipitation step to prevent destruction of the flocs which immediately begin to form. Metal-bearing sludge precipitates to the bottom of the tank and is drawn off and directed to the sludge holding tank. The sludge is then dewatered in a filter press. Treated water (the supernatant) from the precipitation process is then pumped through the filtration system prior to being directed to the Treated Effluent Tank to await final analysis and discharge.
- **Filtration:** The filtration system achieves two purposes. For treated wastewater from the precipitation process, the filtration system acts as a polishing step by removing trace amounts of solids which were not removed during the metal precipitation process. For other wastewaters, the filtration systems remove suspended solids in order to enable the ion exchange system downstream to perform with greater efficiency. The filtration systems consist of bag filters, cartridge filters, and microfilters. The bag filter is designed to remove coarse particulate matter in the range of 75 to 100 microns in diameter. The cartridge filter assembly is used to remove particles sized in the range of 50, 25, and 10 microns successively. The microfilters, which are used only on certain waste streams, are specified as having ratings of 0.2 and 0.005 microns respectively. The microfilters can also be used to remove oil from oily water. Wastewaters are routed though the various filtration systems when necessary.

  The bag and cartridge filtration system is used almost always to polish wastewater after metal precipitation prior to sending it to the Treated Effluent Tank. The microfilters in general are not being used.
- **Metal Selective Ion Exchange:** The ion exchange system was originally intended to be the main treatment process conducted in the new IWPF building. The system was intended to be a main part of the system used for treatment of wastewaters containing dilute-to-moderate concentrations of metals. Due to technical problems encountered with operation of the ion exchange system, the shipyard now relies on chemically aided precipitation and clarification as the primary treatment technology for treatment of metals. The ion exchange system consists of two columns of resins arranged in a

lead-lag configuration. The wastewater is first treated in the lead column and then in the lag column. When the lead column becomes spent, the lag column becomes the lead column while the other column is regenerated. The treated wastewater is routed to the treated effluent tank for discharge. Sulfuric acid is used to regenerate the spent resins. The resulting sulfuric acid-metal solution is treated through an electrowinning process.

- **Electrowinning System:** The electrowinning system is essentially an electroplating tank used to capture metal from the ion exchange regenerant. As the regenerant enters the electrowinning cell, it is channeled through a series of electrolytic chambers. The metal ions in the solution plate out onto the disposable cathode sheets, which the facility disposes of as hazardous waste or recycles as scrap metal. Despite the fact (as noted above) that the shipyard does not treat chromium-bearing wastewaters in the ion exchange system, chromium may inadvertently be introduced in the system, resulting in chromium entering the electrowinning system. As the electrowinning system is ineffective in removing chromium, the electrowinning system effluent may occasionally bear significant concentrations of chromium. PSNS & IMF tests the electrowinning effluent, and routes it to the batch tanks for treatment if it detects significant concentrations of chromium in the electrowinning effluent.
- **Final pH Control Tank:** Wastewater that has not yet been treated to meet final pH standards is treated in a pH control system consisting of a 400-gallon flow-through pH adjustment tank equipped with an acid and caustic addition system controlled by a pH controller. However, most commonly, after metal precipitation treatment, wastewater is already within range of pH for discharge. Therefore, the final pH control tank is not used frequently.
- **Treated Effluent Tank:** Once a batch of wastewater has been treated, PSNS & IMF's treatment plant operator submits a process control sample to PSNS & IMF's accredited laboratory for determination of metals concentrations. If the metals concentrations meet required criteria, the wastewater is pumped through the cartridge and bag filters, and pH control tank, to the Treated Effluent Tank. Once the wastewater is in the Treated Effluent Tank, a compliance sample is collected and analyzed by PSNS & IMF's accredited laboratory. If this sample indicates that the treated wastewater does not meet permit limits, the wastewater is pumped back to one of the treatment tanks to be treated again. If the compliance sample indicates that the wastewater is in compliance with permit limits, the wastewater is discharged to the sanitary sewer. The total flow is measured by the tank level indicator in the Treated Effluent Tank.
- **Sampling Method:** A perforated standpipe inside the treated effluent tank is connected to an external sample valve at the bottom of the tank. When the tank is full, the standpipe holds three gallons. The operator drains approximately three gallons of treated effluent out of the perforated standpipe prior to collecting a grab sample. In the case of the cyanide tank, the treated cyanide wastewater is

collected by dipping a sample out of the top of the tank while the tank mixer is running.

Table 3. Treatment chemicals and quantities at the IWPF, Building 1109

Quantities of Treatment Chemicals Used on a Typical Day at Industrial Wastewater Pretreatment Facility (IWPF)			
Chemical	**Type/Concentration**	**Daily Amount**	**Uses**
Sulfuric Acid	50%	0.7 gallon	Chromium reduction, metal precipitation, ion exchange conditioning, final pH control
Sodium Hydroxide	25%	1 gallon	Cyanide destruction, metal precipitation, final pH control, microfilter membrane cleaning
Sodium Metabisulfite	Liquid	1.5 gallons	Chromium reduction
Sodium Hypochlorite	12%-15%	1.8 gallons	Cyanide destruction
Ferric Sulfate	Solid	1 pound	Metal precipitation
Sodium Sulfide	100%	0.1 gallon	Metal precipitation
Anionic Polymer	Liquid polymer	0.2 pounds	Improve settling in clarifier
Cationic Polymer	Liquid polymer	0.6 pounds	Improve settling in clarifier (used only rarely)

- **Sludge Management**: Sludge generated from the metal precipitation process is collected in the Sludge Holding Tank. The sludge is pumped from there to the filter press for dewatering. The sludge cake from the filter press is emptied into drums and disposed of off-station as hazardous waste. Wastewater from the filter press is collected in the filtrate tank and then sent back to the beginning of the treatment process.
- **Design Flow Capacity of IWPF System:** The IWPF located in Building 1109 was designed to treat a maximum of 10,000 gallons per batch. However, under normal circumstances, approximately 2400 gallons of wastewater are treated in a single day. The main discharges consist of single batches of up to 10,000 gallons once every two weeks. PSNS & IMF has requested that the maximum daily discharge flow limit be set at 30,000 gallons per day (for example, three batches in a single day) in order to accommodate wastewater generated during busy periods.
- **Spill Prevention at IWPF:** The process tank area in the northeast corner of the treatment plant contains 11 batch process tanks of 1000, 3000, 5000, and 10,000-gallon capacities, as well as two treated effluent tanks. These tanks are constructed of open-top fiberglass reinforced plastic (FRP), with conical or elliptical bottoms to facilitate sludge removal. All of these tanks are located in a depressed common secondary containment area, except for the cyanide process tanks, which have been provided with a separate dedicated spill containment area. The process tank secondary containment area includes two low-point containment sumps. Each of these sumps has a fiberglass insert equipped with a leak detection system capable of detecting the presence of liquid in the normally

dry fiberglass insert, as well as the presence of liquid between the fiberglass insert and the sump bottom.

PSNS & IMF uses the open area south of the process tanks and west of the treatment equipment for forklift traffic, as well as for the arrangement of flexible hoses used to connect process tanks with other treatment equipment. A floor trench in this area is used to drain any spilled liquid toward the process tank areas secondary containment system.

- **Sludge Storage:** Sludge collected from the filter press is collected in 55-gallon drums. The sludge accumulated in the drums is typically transferred to Building 944, The Hazardous Waste Accumulation area, within seven days. In some cases, accumulation of sludge at the IWPF prior to transfer to Building 944 may occur for longer periods. The sludge accumulation area at the IWPF is classified as a 45/90-day accumulation area.

Oily Water Treatment Systems (OWTS)

Oily Water Treatment Systems are wastewater treatment systems that remove oil and heavy metals. In addition to bilge water from naval ships, OWTSs also treat shipboard wastewaters that contain metals from corrosion, wastewater collected from the Dry Docks' Process Water Collection Systems (PWCS) (mainly dry dock stormwater contaminated with copper, including dry dock cleaning wastewater prior to flooding or after dewatering), ship's hull paint removal hydroblasting wastewater, and other miscellaneous wastewaters contaminated with oil and metals. Hydroblasting wastewater may contain up to hundreds of parts per million of copper. Shipboard seawater system chemical flush is collected for treatment at Building 1109 Industrial Wastewater Pretreatment Facility or taken off-station for disposal. However, the rinsewater phase from shipboard system's chemical flush may be collected for treatment at the OWTS. It may include lead up to 40 parts per million. These wastewaters are combined with bilge water in the 20,000-gallon OWTS's influent tanks prior to treatment by the OWTS.

OWTS Plant Capacity and Location

There are seven OWTS plants at PSNS & IMF. Their capacities and locations are provided below. The maximum daily flow is based on the maximum flow rate of the plant minus 20% of downtime for routine maintenance and replacement of bag filters.

Table 4. OWTS plant capacity and location

Oily Water Treatment Systems		
Waste Stream Number	**Location**	**Maximum Daily Flow (gpd)**
99-OW1-001	SW of Dry Dock 1	230,000
99-OW2-001	SW of Dry Dock 2	230,000
99-OW3-001	SW of Dry Dock 3	230,000
99-OW4-001	SE of Dry Dock 4	230,000
99-OW5-001	SE of Dry Dock 5	230,000
99-OW6-001	SW of Dry Dock 6	230,000
99-OW7-001	NE of Pier D	230,000

The oily water treatment systems were originally designed mainly for the purpose of treating bilgewater. However, over the last decade and half, PSNS & IMF has increasingly utilized the OWTS for the treatment of process water from the drydocks, and contaminated stormwater from the drydocks. The OWTS plants are used to treat bilge water from Navy's vessels, other miscellaneous oily wastewaters, and wastewater from the Dry Docks' Process Water Collection Systems (PWCS). At a pre-set high turbidity, the wastewater from the Dry Dock's PWCSs is sent to 40,000-gallon tanks located at each dry dock for treatment by the OWTS plants. In addition, wastewater generated during wet cleaning of the dry dock prior to flooding or after dewatering is also collected in the 40,000-gallon tanks for treatment. During heavy rain days, after the daily flow limits to the sanitary sewer from the Dry Docks' PWCS have been reached, the PWCS then diverts drydock rain water to the 40,000-gallon tanks until tank capacity is reached. This water is also treated by the OWTS plants.

Oily water treatment system 7 is expected to be operational in 2020, see Section II.A.2.

Treatment Technology

Oily wastewater is first sent through the coalescing oil/water separator. Oily droplets attach to the coalescing tubes or plates and rise to the surface. The water layer then flows to three compartments where cationic coagulants, sodium hydroxide, and anionic polymers (flocculants) are added. The coagulant neutralizes the electrical charges of the particles and allows them to coagulate or group together in large clumps that are easier to separate and remove from the wastewater. Sodium hydroxide is added to control pH between 9.3 and 9.8 to precipitate metal hydroxides. For example, any copper in the wastewater will precipitate out as copper hydroxide particles at pH around 9.0. The third chemical added is the anionic polymer (i.e., the flocculating agent). This polymer has an extremely long molecular structure. This allows the anionic polymer to attract and hold large quantities of precipitants, which results in large flocs that can easily settle in the clarifier. There is also a sulfide-based chemical to precipitate metals as metal sulfides that is not being used currently.

After the three compartments where the treatment chemicals are added, the wastewater flows to the clarifier where the metal precipitants settle as sludge and are pumped to the sludge tank. The wastewater then flows through bag filters for removal of small pin flocs that do not settle, prior to discharging to the sanitary sewer. In the future, if PSNS & IMF's NPDES permit from EPA is revised to allow OWTS's treated effluent to be discharged to Sinclair Inlet, the wastewater will also be routed through a polishing system containing organo-clay adsorbent or other adsorbent resins capable of removing copper.

Diatomaceous earth is added to the sludge to condition it prior to sludge dewatering at the filter press. Dry filter press sludge is sent to landfill as non-hazardous waste.

Sampling Locations

Treated effluent samples are collected from piping downstream of the bag filters.

Total toxic organics (TTO) and total petroleum hydrocarbon (TPH) samples are collected by grab method. Total metal composite samples are collecting compositing four aliquots during the daily discharge period.

Current Flow Rates from Oily Water Treatment Systems

During the two-year period comprising 2014 and 2015, the average annual total flow for all oily water treatment systems combined was 7.33 million gallons. Based on a 365-day per year operating schedule, the average daily flow for all OWTS combined has been 20,100 gallons per day. Normally, these systems are only operated Monday through Saturday. Based on this operating schedule, the average daily flow for all OWTS combined is 24,400 gallons per day. The maximum daily flow from all OWTS combined during 2014 and 2015 was 129,400 gallons per day.

Table 5. Wastewater characterization of the OWTS systems

Characteristics of Pollutants Discharged from Oily Water Treatment Systems as Reported in PSNS & IMF's DMRs, December 2011-October 2018			
Parameter	**Minimum**	**Maximum**	**Average**
Total Petroleum Hydrocarbons (mg/L)	5	32	6.25
Total Toxic Organics (TTO's) (mg/L)	<0.005	0.21	0.01
Copper, T (mg/L)	0.01	1.19	0.05
Nickel, T (mg/L)	0.04	1.03	0.09
Zinc, T (mg/L)	0.03	2.92	0.11

The pollutants of concern in the OWTS effluent include copper, nickel, zinc, total petroleum hydrocarbons, and TTOs. As explained in the 2011 fact sheet, sampling requirements for chromium, lead, and tin were determined not to be necessary based on sampling results from previous permit cycles. These metals were not

detected at concentrations greater than 0.1 mg/L at that time. The application of tri-butyl tin-containing bottom paint has been eliminated for enough years on Navy bottoms that the potential for introduction into the drydock systems in environmentally significant concentrations appears to be minimal. The proposed limits for these compounds are based on the lesser of the calculated local limits, the toxicity characteristic leaching procedure criteria for dangerous wastes, and in the case of TTOs, the federal categorical standards for TTOs in the Metal Finishing (Pretreatment Standards for New Sources) category. Thus, the proposed limits are listed in the following table:

Table 6. OWTS proposed discharge limits

Proposed Limits and Their Basis Applicable to Oily Water Treatment Systems	
Pollutant Parameter	**Proposed Limit and Basis**
Copper (T)	3.4 mg/L - based on Ecology's local limits calculation
Nickel (T)	0.92 mg/L – based on Ecology's local limits calculation
Zinc (T)	3.5mg/L - based on Ecology's local limits calculation
TTO	2.13 mg/L - adapted from federal categorical limit
TPH	100 mg/L - based on Best Professional Judgment AKART

The water passing through the OWTS is not subject to the Metal Finishing categorical standards of 40 CFR Part 433. However, Ecology adapted the TTO standard from these technology-based standards as a rationally based AKART-based standard.

The term "TTO" throughout this fact sheet shall indicate those organic chemical compounds listed in 40 CFR Part 433.11(e).

The permit authorizes PSNS & IMF to analyze and submit the results for the purgeable (volatile) subset of the TTO's, as listed in EPA Method 624.1 (2016) Table 1, in lieu of results for all TTOs, only for monitoring at the OWTS. This exception does not apply to the TTO monitoring at the IWTF. Acrolein and acrylonitrile have been excluded from monitoring as these two compounds were not detected in the last thirty three volatile organic compounds (VOCs) sample results submitted by PSNS & IMF upon request. Moreover, PSNS & IMF stated that "acrolein reduces the sample holding time down to three days and acrylonitrile is a peroxide former that is difficult to waste out, typically requiring a contractor to stabilize the material."

Drydock Process Water Collection Systems

Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF) has six large, graving docks that are used for drydocking Navy ships undergoing maintenance, repair, or ship recycling operations by PSNS & IMF. The drydock system includes the Process Water Collection System (PWCS), which is intended to collect

wastewater containing contaminants at concentrations which would cause PSNS & IMF to exceed its NPDES permit limits for discharge to Sinclair Inlet.

The PWCS is a system with troughs, sand traps, piping, pumps, and tanks to collect rain water falling on the drydock floor and miscellaneous industrial process waters generated in the drydock, to divert them to the sanitary sewer, or to send them to the OWTS for treatment as appropriate. Rain water collected in the drydock contains low levels of copper that could cause PSNS & IMF to exceed its NPDES permit's discharge limit if the rain water is routed to the drydock's outfall discharging to the bay. Therefore, it is diverted to the sanitary sewer via the PWCS. At low turbidity level, the water is sent to the sanitary sewer. At a preset high turbidity level, the water is collected in tanks for treatment at the OWTS.

From 2013 to 2015, drydock PWCS water contained on average 0.084 mg/L copper and 0.289 mg/L zinc. The maximum levels of metals in the water sent to the sanitary sewer are copper at 0.79 mg/L, zinc at 1.74 mg/L, and chromium at 0.06 mg/L. The discharge limits for copper, zinc, and chromium during this time were 3.2 mg/L, 4.0 mg/L, and 3.9 mg/L, respectively.

Process wastewater that may contain high levels of copper such as hull paint removal pressure washing/hydroblasting wastewater is always collected for treatment at the OWTS.

In the 2011 permit, the daily flow limit for all six drydocks' PWCSs combined was 550,000 gpd (waste stream 99-DD16-002), which is allocated among the six drydocks. In a letter dated February 29, 2016, PSNS & IMF requested for the increase of the daily maximum flow for the combined drydock PWCS to 950,000 gpd. The reasoning was in the period from 2013 to 2015, there were 14 days annually during which the water had to be diverted to Sinclair Inlet because flow exceeded 550,000 gpd. PSNS & IMF projects that with the proposed increase to 950,000, it otherwise only may have to discharge PWCS water Sinclair Inlet twice per year.

PWCS - Sources of Wastewater

- **Contaminated Stormwater:** Precipitation which falls on the drydock floor and comes into contact with pollutants from industrial processes. The contaminated stormwater may be the result of process water which is generated as the result of precipitation which occurs at the time it is conducting a pollutant generating process (for example, bottom painting, bottom blasting, bottom pressure washing, metal cutting associated with ship-breaking). However, most of the contaminated stormwater is generated at times when little or no pollutant-generating activities are occurring in drydocks. The contaminated water at such times largely results from residual material which escapes removal by drydock clean up procedures conducted after the pollution generating activities have been completed after a

drydock job. Concentrations of metals in this drydock stormwater are typically well below the limits established in this proposed permit for discharge to the sanitary sewer. However, these wastewaters, despite their dilute natures, often exceed standards for direct discharge to Sinclair Inlet. Copper concentrations are typically the limiting factor. Direct discharge limits for copper in the existing and proposed NPDES permits are in the tens of micrograms per liter. The limit for copper in the existing NPDES permit is 33 micrograms per liter. In contrast, the proposed limit for discharge to the sanitary sewer is in the range of several milligrams per liter. PSNS & IMF employs turbidity, at Drydocks 1 through 6, as a surrogate parameter for copper, thus enabling PSNS & IMF to estimate copper concentrations (and those for other metals as well) on a real time basis. PSNS & IMF uses direct discharge of wastewater from the PWCS to the bay as the last option when daily sewer discharge limit has been reached and tank capacity for treatment at the OWTS has also been reached.

- **Ship Non-Contact Cooling Water**: About 300 gpm during a short period right after the ship docks and right before it leaves the drydock.
- **Drydock Cleaning Water:** This wastewater consists of water used to wash the drydock before and after drydock flooding, as well as water used to wash the drydock during a project.
- **Drydock Fire Watch Water:** During vessel recycling projects, water is used to cool the cut lines.
- **Painting Overspray Contaminated Water:** Despite minimizing paint overspray by means such as spray curtains, some overspray reaches the drydock floor and is carried away with stormwater or other miscellaneous water.
- **Miscellaneous Water:**
    - Hydrostatic relief flow (groundwater) - The pumping of hydrostatic relief groundwater to Sinclair Inlet daily is a significant process to relieve the hydrostatic pressure on the drydock wall and floor to ensure its stability. For example, Drydock 6 pumps an average daily amount of 5 million gallons per day of groundwater to Sinclair Inlet. Due to corrosion of the hydrostatic relief piping system some groundwater intrudes onto the drydock floor causing the water collected by the drydock PWCS to have high salinity.
    - Gate (caisson) leakage of saltwater.
    - Ship piping system draining (saltwater, fresh water).
    - Air conditioning and steam condensate.
    - Emergency eye wash stations.
    - Freeze protection water (fresh water).

The shipyard designated the following drydock PWCS discharges from the listed drydocks as ‘drydock process water collection systems’ and the combined

drydock process water from all drydocks (90-DD16-002) in its 2016 permit application.

- Drydock 1 Process Water Collection System (90-DD1-002)
- Drydock 2 Process Water Collection System (90-DD2-002)
- Drydock 3 Process Water Collection System (90-DD3-002)
- Drydock 4 Process Water Collection System (90-DD4-002)
- Drydock 5 Process Water Collection System (90-DD5-002)
- Drydock 6 Process Water Collection System (90-DD6-002)
- Combined Drydock Process Water Collection System from all Drydocks (90-DD16-002).

PWCS – Treatment of Wastewater

Although these wastewaters are typically low in metal concentrations with respect to proposed limits for discharge to the Bremerton WWTP, the water is "contaminated" in the sense that it has the potential to have metal concentrations higher than those in the existing NPDES permit for discharges of drydock stormwater. At this time PSNS & IMF normally does not directly discharge (i.e. discharge to Sinclair Inlet) wastewater collected in the Process Water Collection System unless the 950,000 daily discharge limit is reached and there is no capacity in the 40,000-gallon holding tanks. Actual process water from activities such as hydroblasting and pressure washing operations is normally routed to treatment in the OWTS systems for treatment prior to discharge to the sanitary sewer.

The treatment sequence is described as follows: Water first flows through sand traps on the drydock floor, which settle out heavy sediment. A turbidity meter system is then used to monitor and divert the water to the sanitary or to tanks for treatment. At low turbidity, the water is sent to the sanitary sewer. At a preset high turbidity level, the water is collected in tanks for treatment at the OWTS. When sewer daily flow limit is reached or when sewer capacity is reached during a heavy rain event, the water is sent to tank if tank is available. If tank is not available or if tank capacity is reached, the water is sent to the drydock drainage system which discharges to Sinclair Inlet. When the water is collected in the 40,000-gallon tanks, it is treated by the OWTS. There is one 200 gpm OWTS at each drydock. The OTWS removes heavy metals from the wastewater via chemical precipitation treatment and discharges the treated effluent to the sanitary sewer. The treatment technology is described in greater detail in the OWTS section of this fact sheet.

PSNS & IMF has implemented drydock Best Management Practices (e.g. daily drydock floor cleaning at end-of-shift, overspray/overblast containment, application of tarps to contain painting drippage) at all of its drydocks. As a result of the adoption of these practices, drydock process water seldom exceeds a turbidity of 75 NTU. Nevertheless, PSNS & IMF has implemented procedures at the drydocks

under which it diverts drydock process water which exceeds a turbidity of 75 NTU to the OWTS systems for treatment prior to discharge to the sanitary sewer. Under these procedures, the drydock stormwater with a turbidity of less than 75 NTU is discharged to the sanitary sewer without treatment.

From January 2016 to September 2018, approximately 92.5 percent of the water collected from the drydock floors was diverted to the sanitary sewer. During this period 4.1 percent of the water collected from the drydock floors was sent to the bay and 3.4 percent of the water collected from the drydock floors was sent to the 40,000-gallon tanks for treatment by the OWTS, prior to being discharged to the sanitary sewer from the OWTS.

Quality of Drydock Contaminated Stormwater

The table below contains a summary of metal values measured for PWCS wastewater prior to discharge to the sanitary sewer.

Table 7. Characterization of drydock process water discharges

Concentrations of Drydock Process Water Effluent Discharged to the Sanitary Sewer as Measured from Dec. 2011 – Oct. 2018			
Parameter	**Minimum**	**Maximum**	**Average**
Chromium, T (mg/L)	<0.05	<0.05	<0.05
Copper, T (mg/L)	<0.05	2.94	0.362
Lead, T (mg/L)	<0.05	<0.05	<0.05
Nickel, T (mg/L)	<0.05	0.22	0.065
Zinc, T (mg/L)	<0.05	2.50	0.733

Monitoring is required for copper, zinc, nickel, lead, and chromium. The proposed limits are based on local limits, as this waste stream is not considered to be a categorical waste stream.

Table 8. Drydock Process Water Collection System (PWCS) proposed discharge limits

Proposed Limits and Their Basis Applicable to Drydock PWCS	
Pollutant Parameter	**Proposed Limit and Basis**
Chromium, T (mg/L)	5.0 mg/L - based on Ecology's local limits calculation
Copper, T (mg/L)	3.4 mg/L - based on Ecology's local limits calculation
Lead, T (mg/L	0.74 mg/L - based on Ecology's local limits calculation
Nickel, T (mg/L)	0.92 mg/L - based on Ecology's local limits calculation
Zinc, T (mg/L)	3.5 mg/L - based on Ecology's local limits calculation

Segregation of Process Wastewater

Water from certain processes (for example, hull pressure washing, hydroblasting) occurring in the drydock, which are associated with high pollutant concentrations, is sent to the collection tank for treatment, even if it otherwise meets the turbidity set-point for direct discharge to the sanitary sewer.

Segregation of High Turbidity Drydock Contaminated Stormwater for Treatment

Some drydock stormwater which is not in itself process water may contain high concentrations of metals. At Drydocks 1 through 6, PSNS & IMF separates this contaminated stormwater (normally diverted on the basis of having a turbidity greater than 75 NTU) to collection tanks the 40,000-gallon tanks for treatment in the OWTS prior to discharge to the sanitary sewer. The average daily volume collected in the collection tanks was 4,700 gallons per day during 2016 through September 2018. The volume from these flows is limited in the proposed permit by limits on discharges from the OWTS to the sanitary sewer. These wastewater streams are not included for purposes of flow measurement in the wastewater streams designated as "Drydock Contaminated Stormwater."

The wastewater which is diverted to the 40,00-gallon tanks for treatment in the OWTS is discharged to the City of Bremerton WWTP. If the maximum flow limit for discharge to the WWTP from the OWTS for the day has been reached, the process water in the 40,000-gallon tanks is retained for treatment in the OWTS prior to discharge to the sanitary sewer the next day or subsequent days.

PSNS & IMF has contemplated seeking authorization to discharge treated drydock contaminated stormwater collected by the Process Water Collection System and treated by OWTS directly to Sinclair Inlet. If PSNS & IMF's NPDES permit needs to be modified to authorize the discharge of such wastewaters directly, PSNS & IMF would discharge these wastewaters directly only after having obtained the final necessary NPDES permit modification.

Volume of Drydock Contaminated Stormwater Wastewater and Oily Water Treatment System to the Sanitary Sewer System

From January 2016 through June 2019, the average daily industrial wastewater discharge from all drydock process water collection systems (PWCS) combined (drydocks 1 through 6) and the oily water treatment systems (OWTS) was approximately 163,000 gallons per day. The table below summarizes discharges from the OWTS and PWCS to the sanitary sewer from all drydock in the specified period (01/2016 – 06/2019).

Table 9. Volume of OWTS and PWCS discharges to sanitary sewer

Average OWTS Flow	26245	gpd
Maximum OWTS Flow	199800	gpd
Average PWCS Flow	136668	gpd
Maximum PWCS Flow	954042	gpd
Average (OWTS & PWCS) Flow	162913	gpd
Maximum (OWTS & PWCS) Flow	990842	gpd

The maximum daily (as opposed to average daily) flow volume emanating from drydocks is of critical importance to the effective functioning of the WWTP. The maximum daily discharge within the period December 2011 through June 2018 occurred in November 2017 at 990,000 gallons and there were ten days during which the PWCS discharged more than 550,000 gallons in a day in the period specified above. Such days typically occur during heavy winter storm events. PSNS & IMF has noted that on such days of unusually heavy precipitation, the daily maximum limit in the current permit of 550,000 gallons per day is reached by 9:00 AM. Therefore, PSNS & IMF requested, in its February 2016 and May 2016 permit applications, that Ecology increase the maximum limit on the PWCS discharge from drydocks from 550,000 gallons per day to 950,000 gallons per day. Ecology's interpretation of the Temporary Permit provisions of RCW 90.48.200 is that the 950,000-gallon per day discharge requested in the application became the effective limit in the temporary permit, beginning within 60 days following the submittal of a completed application by PSNS & IMF.

Ecology stated in its letter response to PSNS & IMF dated September 8, 2016 that, in accordance with PSNS & IMF's written request for increases in flow volume limits for existing discharges and the provisions of RCW 90.48.200, PSNS & IMF had received (following the passage of 60 days) an authorization in the form of a temporary permit ("permit-by-rule") to discharge up to 950,000 gallons per day drydock process water. A copy of the letter was sent to the City of Bremerton for their approval.

Wastewater filtration equipment systems (WWFE)

Drydock 6 - Hydroblasting/Pressure Washing Water (WWFE) 99-DD6-005

The 2011 fact sheet has a detailed description of this system. It was used for a long time up until June 2013. The system was for hydroblasting wastewater generated at Dry Dock 6. However, since it only utilized physical filtration through diatomaceous earth, PSNS & IMF discontinued using it when the new Oily Water Treatment System was installed at Dry Dock 6, which employs a chemical/physical precipitation treatment.

The WWFE was last used in June 2013 and it no longer exists, hence sample point 99-DD6-005 will not appear in the proposed permit.

3. Additional sources of wastewater discharges to the sanitary sewer

The flows in the table below are intended to reflect the maximum daily flows associated with each discharge, as opposed to flow limit. The limit placed in the permit may be larger for some flows, particularly for minor discharges of limited environmental significance.

Table 10. Listing of additional discharges and their associated flows as authorized under proposed permit for Puget Sound Naval Shipyard

Ecology Discharge Point No.	Navy Discharge Designation (NDD)	Description of Source of Wastewater	Flows Based on Permit Application (gpd)
17	38-58-003	Oxygen System Cleaning With Non Ionic Detergent	200
18	38-58-004	Oxygen System Piping and Components Cleaning with Oxygen Cleaning Compound (OCC) Wastewater	810
19	38-58-006	Oxygen Clean Room Washers Wastewater	270
20	134-59-001	Metallurgical Sample Salt Water Bath Vapor Condensation	10
21	134-59-002	Dissolved Oxygen Ampoules Testing	10
22	134-59-004	Chemistry Laboratory Miscellaneous Sample Wastewater	110
23	134-59-005	IX (Ion Exchange) Resin Rinsewater	21
24	134-59-007	Hand Washing Water (Hand Washing of Labware and Apparatus)	120
25	64-78-001	Training Coverall Washing Wastewater	240
26	06-107-001	Respirator/Face Shield Washing	1,660
27	56-107-024	Tank Hydrotesting, Deionized Waster Trailer Flushing, Demineralizer Flushing	8010
28	56-107-026	Pipe Test Stand Area Common Sump (combined sample point for 56-107-008, -020, -021, -022, -025, -027, -028, -029)	1,440
29	56-107-030	Natural Gas Infrared Heater Condensate	15
30	56-107-031	Hose Flushing and Pump Hydrotesting	20
31	67-290-001	Electronics Parts Washing Sinks	60
32	06-431-004	Gauge and Torch Leak Testing	90
33	06-431-008	Air Filter Cleaning Washwater	20
34	06-431-009	Plug Parts Washing	56
35	31-431-A28-001	Ultrasonic Parts Cleaning Tank	40
36	31-431-DOOR1-002	Water Jet Cutting Wastewater	5,000
37	31-431-Mez-003	Parts Hydrotesting Water	300
38	31-431-004	Pump/Valve Test Closed Loop	12,000
39	31-431-006	Valve Hydrotesting Water	200
40	31-431-007	Fresh Water Pump Testing	500
41	31-431-023	Boiler Blowdown and Off-Specification Boiler Feedwater	29050
42	67-431-414B-004	Electronic Cabinet Washdown Water	200
43	67-431-Gauge Room 006	Gauge Cleaning Sink Water	20

Ecology Discharge Point No.	Navy Discharge Designation (NDD)	Description of Source of Wastewater	Flows Based on Permit Application (gpd)
44	67-431-Room 526-008	Gauge Cleaning Eductor Pump Water	5
45	67-431-009	Air Pump Washing Water	5
46	67-431-011	Flow Calibration Wastewater	15
47	67-431-012	Sonar Soak Tank	320
48	67-431-013	Sonar Hydrotest Vessels	1,160
49	67-431-014	ID-Mark Rinsewater	30
50	135-431-203-002	Non-Destructive Testing X-Ray Development Rinsewater	50
51	11-452-001	Forge Shop Heat Treating Quench Water	2500
52	NBK-455-001	Mechanical Car Wash Facility	6,600
53	NBK-455-004	Hand Car Wash Facility	3,300
54	98-455-001	Crane Parts Steam Cleaning	4,100
55	71-457-005	Ball Valve Quench Water	850
56	26-460-002	Deionized Water Production Backwash	300
57	26-460-003	Welding School Quenching	30
58	99-462-001	Regulator/Hose Test Steam Condensate	10
59	99-462-002	Pipe Brazing Quench Sink	25
60	99-462-003	Plumbing Valve Sterilization Water	200
61	99-462-004	High Pressure Potable Water Hose Testing and Sterilization Trough	400
62	99-462-005	Fresh Water Hose Flushing Water	400
63	99-462-007	High Pressure Air Hose Flushing Water	25
64	99-462-009	Fitting and Pipe Hydrotesting	300
65	26-495-001	Gas Hose Leak Testing Tank Water	20
68	64-851-001	Water Jet Cutting	3,000
69	56-856-001	Pipe/Tubing/Pump Hydrotesting and Flushing	2
70	99-856-003	Ultrasonic Parts Cleaner	30
71	38-Pier 6-001	Heat Exchanger Hydrolance Training	2,700
76	17-857-010	Air Compressor Condensation	2
78	17-857-012	Laser Bonding	20
79	ROTO-17-857-002	Rotoclone for Aluminum Passivation Room	10,700
80	31-873-002	Bandsaw/Buffer Rotoclone Water	50
81	31-873-003	Reverse Osmosis	300
82	99-874-001	Paper Shredder Wetdown	200
83	99-875-001	Salt Water/ Fresh Water/ Sewage Hose Cleaning and Sterilization Water	10,000
84	99-875-002	High Pressure Testing of Salt Water/Fresh Water/Sewage Hose	5,000
85	134-900-003	pH Analysis Wastewater	1
86	NBK-900-004	Off-Specification Steam Condensate from Building 900	214,000
88	NBK-971-001	Emergency Generator Oil/Water Separator Wastewater	5
89	760-980-002	Scuba Gear Maintenance Cleaning Wastewater	10
90	NBK-1107-001	Stormwater from Parking Garage at Building 1107, Oil/Water Separator	58,900
91	NBK-1140-001	Stormwater from Parking Garage at Building 1140	12,700
92	99-PW2-001	Drydock 2 Pump Station	3,600
93	99-PW4-001	Drydock 4 Pump Station	9,000

Ecology Discharge Point No.	Navy Discharge Designation (NDD)	Description of Source of Wastewater	Flows Based on Permit Application (gpd)
94	99-PW5-001	Drydock 5 Pump Station	7,200
95	99-PW6-001	Drydock 6 Pump Station	25,000
96	CD-IR-001	Construction Dewatering at Installation Restoration Sites	25,000
97	MWR-Carwash 001	Commercial Carwash Facility	1,500
98	SHPBD-001	Shipboard Wastewater	N/A
99	Tower-001	Cooling Tower Blowdowns	N/A
100	NCCW-001	Minor Sources of Non-Contact Cooling Water	N/A
101	DDGlrySmp-001	Drydock Utility Service Gallery Sumps	N/A
102	NonIREx-001	Utility Vaults and Excavation Groundwater Outside IR Sites	N/A
103	NPHydrTst-001	New Piping Hydrotesting and Disinfection Water	N/A
104	WISP-001	Miscellaneous Discharges under 1000 gallons (Waste Information Sheet Process)	N/A

Building 58 – Maintenance Building

Building 58 –Shop 38– Oxygen System Cleaning With Non-ionic Detergents (38-58-003)

Deionized water or non-ionic detergents are used to clean parts for oxygen systems (ratio of 0.1 oz. non-ionic detergent to 1 gallon water) either in a sink or in an ultrasonic cleaner. After washing, parts are rinsed and rinsewater is discharged to sanitary sewer. This process occurs about once per month.

The estimated daily maximum discharge of water from this sink is 200 gallons per day with 50 gallons per day average once per month. Ecology does not propose to require monitoring at this discharge point due to the low concentration of metals likely to be present in this discharge, the low volume of this discharge, and the infrequent occurrence of this discharge.

Building 58 –Shop 38– Oxygen System Piping and Components Cleaning With Oxygen Cleaning Compound (38-58-004)

Oxygen System piping is pre-flushed with deionized water. Then it is flushed with 100% Oxygen Cleaning Compound/Navy Oxygen Line Cleaner (OCC/NOC), a silicated alkaline cleaner (containing 11 - 12% sodium silicate). Deionized water from a tank is then recirculated through the piping to rinse out the OCC.

The OCC is reused until there is more than 10 ppm of either TSS or Petroleum Hydrocarbon. About once every four months when the OCC is no longer good it is collected for off-site disposal as hazardous waste.

The rinsewater is recycled through 3 columns of activated carbon and IX resins. About twice a year it has to be discharged to the sanitary sewer due to high level of OCC.

The Oxygen System components are also ultrasonic cleaned in the OCC/NOC tank and in the rinsewater tank.

In addition, about 1 pint a day of analysis wastewater is discharged. Phenolphthalein, potassium biphthalate, and isopropyl alcohol are the reagents used in testing for petroleum hydrocarbon and alkalinity of OCC/NOC, and for pH testing of OCC/NOC rinsewater.

The estimated volume of discharge from this sample point is 810 gallons per day maximum, and 180 gallons per day average. Ecology does not propose to require monitoring due to the low concentration of metals likely to be present in this discharge.

Building 58 – Shop 56 – Oxygen Clean Room Laundry Washers (38-58-006)

Two washing machines are employed in the Oxygen Clean Room for laundering gowns, booties, and rags that are used in the oxygen system cleaning processes. An average of three loads of laundry is laundered per week. The daily maximum discharge is estimated to be 270 gallons per day with 135 gallons per week average.

Due to the nature of the processes employed and the small volume of flow, Ecology does not propose to require monitoring for pollutants and flow at this sample point.

Building 59 – Code 134 – Laboratory Division

Building 59 – Code 134 – Salt Water Bath (134-59-001)

Salt water solution is heated and atomized to provide salt water vapor. Metal samples are subjected to salt water vapor. The discharge is a combination of condensation of salt water vapor (5% of total volume), feed tank 5% of salt water solution discharge (45% of total volume), feed tank and chamber cleaning/rinsing with DI water (50% of total volume). These percent volumes are approximate. The daily maximum discharge to sanitary sewer is estimated to be 10 gallons per day. On average, the discharge is estimated to be 5 gallons per day, 100 gallons per month and 1200 gallons per year total.

Due to the nature and small volume of this discharge, Ecology does not propose to require monitoring for this waste stream.

Building 59 – Code 134 – Dissolved Oxygen Ampoules Testing (134-59-002)

Dissolved oxygen ampoules are used to test for dissolved oxygen aboard ships. As part of a receipt inspection program, these ampoules are tested for conformance specifications. The waste stream consists of demineralized water with maximum concentrations of 40 ppm ammonia, 10 ppm hydrazine, and 5 ppm morpholine. pH varies from 9 to 10.

Due to the low concentrations of pollutants expected to be present, and the low volume of this discharge (estimated daily maximum of 30 gallons per day, 8 testing evolutions per year, and 200 gallons per year total), Ecology does not propose to require monitoring of this waste stream.

Building 59 – Code 134 – Chemistry Laboratory Miscellaneous Samples (134-59-004)

Miscellaneous standards, water, unpreserved wastewater, and process samples discharged include hose leaching samples, sodium chloride solution at less than 200 ppm, 0.5% bleach solution, pH adjusted deionized water with trace ammonia, metal samples cleaning by ultrasonic cleaning, leach samples, sewage wastewater samples, etc.

A complete list is available in PSNS & IMF's 2016 permit application package.

The total volume of the discharge from this sample point is estimated to be a maximum of 110 gallons per day with an average of 35 gallons per day. Due to the small volume of this discharge and the low likelihood that it contains significant concentrations of pollutants such as metals, Ecology does not plan to place sampling requirements in the proposed permit for this waste stream.

Building 59 – Code 134 – Ion Exchange Resin Rinsing (134-59-005)

1. After the ion exchange (IX) resin is regenerated with hydrochloric acid, it is rinsed out for 90 to 180 minutes with water. 5% of the rinsing water is acidic with starting pH of 3-4 and proceeding to neutral - 10 gallons each time.
2. After the IX resin regenerated with sodium chloride solution, it is rinsed out 90 to 180 minutes with water. All rinsing is neutral pH (where sodium chloride is rinsed from resin – 10 gallons each use.
3. IX resin capacity test effluent (trace calcium chloride) – 1 gallon each use.

The rinsewater is discharged to the sanitary sewer. As the metal ions removed from this process were those initially present in the tap water, Ecology expects that the ions in the water will largely consist of sodium, potassium, calcium, magnesium, strontium, iron, and other light to medium atomic weight metals. Therefore, Ecology does not propose to

require monitoring for this waste stream. The shipyard expects a maximum discharge from this process of 100 gallons per column and only rinses several columns in a single day.

Building 59 – Code 134 – Hand Washing Water (Hand Washing of Lab ware and Apparatus) (134-59-007)

1. The first rinse of glassware with water is collected in appropriate waste streams for off-site disposal. Subsequent rinsewater with deionized water or water with commercial detergent is discharged to sanitary sewer. This is about 30 gallons per day.
2. Certain glassware and apparatus are first triple-rinsed with solvent and collected in the appropriate waste streams for off-site disposal. They are then air dried and washed with deionized water and/or water with commercial detergent (primary solvents include hexane and acetone. Methanol is also used. This about 5 gallons per day.
3. Glassware and apparatus containing oil are first triple-rinsed with solvent and collected in the appropriate waste streams for off-site disposal. They are then dried and washed with deionized water and/or water with commercial detergent (primary solvent is petroleum ether and other solvents are acetone and isopropyl alcohol). This is approximately 25 gallons per day.

The total volume of the discharge from this sample point is estimated to be a maximum of 120 gallons per day, with 30 gallons per day average. Due to the small volume of this discharge and the low likelihood that it contains significant concentrations of pollutants such as metals, Ecology does not plan to place sampling requirements in the proposed permit for this waste stream.

Building 78 – Industrial Skills Center

Building 78 – Shop 64 – Training Coverall and PPE Washing Wastewater (64-78-001)

PSNS & IMF employs two regular clothes washing machines in Shop 64 for the washing of coveralls, rubber gloves, and cloth hoods used for training exercises. Ecology does not expect significant pollutant loadings to result from this activity as the coveralls are not used in production processes, and are washed for hygiene purposes only. The shipyard estimates a maximum daily discharge of approximately 240 gallons per day and average of 200 gallons per day. Due to the nature of this process Ecology does not propose to require monitoring for this sample point.

Building 107 - Pipe and Boiler Shops

Building 107 – Shop 06 – Respirator/Face Shield Washing (06-107-001)

Shop 06 washes respirators with three regular clothes washers. Each load of respirators is washed twice. Each washer uses 45 gallons of water per wash. A dishwasher is also used to clean face shield brackets, burning goggles, and welder hoods. It uses 20 gallons per wash cycle. Formula 409 and shockwave Disinfectant and Cleaner is used in the clothes washers. Only Shockwave is used in the dishwasher.

Analysis of the respirator wash water indicates that the only metal present is zinc at 0.09 mg/L.

The estimated maximum daily discharge from this shop is a maximum of 1,660 gallons per day and 820 gallons on the average day.

Building 107 – Shop 56 – New Tank Hydrotesting, Deionized Water Trailer Flushing, and Demineralizer Flushing Wastewater (56-107-024)

The hydrotesting of new tanks, deionized water trailer flushes, and 55-gallon demineralizer flushes are all done with deionized water. Deionized water temporary system components such as hoses, valves, connectors, adapters, are hydrotested or flushed with deionized water or potable water grade. The wastewater is expected to be very clean.

The discharge from this sample point could exhibit a daily maximum of up to 13,000 gallons per day and consists of wastewater from the following sources:

- The first source consists of up to 5,000 gallons per day from new tank hydro testing. An average of two batches per year are discharged.
- The second source consists of up to 3,000 gallons per day from the deionized water trailer piping flushes.
- The third source consists of up to 10 gallons per day of demineralizer flushes.
- The fourth source is deionized water components hydrotesting and flushing with an estimated daily maximum discharge of 5,000 gallons per day.

  Due to the nature of the processes employed above, the probability of discharge of metals at concentrations exceeding the local limits is minimal. Therefore, no monitoring is required for the above discharge point located in the pipe fitting shop.

Building 107 – Shop 56 – Pipe Test Stand Area-Common Sample Point for (56-107-008, 020, 021, 022, 025, 27, 28, and 29) (Designated as 56-107-026 in Permit)

The pipe fitting shop is engaged in pipe bending and pipe cleaning. In the bending area, bending wax, which is applied to the inside of the pipes, is removed by steam cleaning following bending. The steam/wax condensate is discharged through a screen located in the steam clean tank and is then followed by a duplex strainer located in the discharge pipe. The shipyard designates this discharge as 56-107-020, see below. The individual discharge sources in the pipe test stand area all discharge to a common sump, and are listed below. The estimated daily maximum discharge from the common sump is approximately 3,250 gallons per day.

- Discharge point 56-107-008 is associated with a utility sink located in this building which is used to flush hoses. The shipyard estimates a maximum daily discharge from this point of 60 gallons per day.
- Discharge point 56-107-020 receives wastewater resulting from the steam cleaning of piping during the bending process. The discharge from this point passes through a seventy-micron bag filter before reaching the common sump. Oil and grease concentrations at 56-107-020 have been measured at 15 mg/L and reported in the 2011 permit application. The shipyard estimates a maximum daily discharge from this point of 1,000 gallons per day.
- The discharge point designated as 56-107-021, is associated with the hydrotesting and flushing of pipe components. The daily maximum discharge is expected to be 100 gallons per day.
- The discharge point designated as 56-107-022 is associated with leak testing of welding hoses which is performed in a 250-gallon water tank. The shipyard estimates a maximum daily discharge from this activity of 250 gallons per day associated with draining this tank. The tank is discharged approximately one time each two months.
- The discharge point, designated as 56-107-025, receives the steam condensate from the generation of steam from heating for the Wave Guide process and the Dip Braze Cleaning Process. The daily maximum discharge from these processes is 300 gallons per day.
- Steam plant pump flushing is conducted with deionized water. The discharge point associated with this discharge is designated 56-107-27. The shipyard estimates a daily average discharge of 200 - 1000 gallons per day. This batch discharge occurs approximately two times per year.
- Heated water is discharged from the Bendaloy tank at a daily maximum of 100 gallons per day, at a frequency of approximately two times per month. This waste stream is designated as 56-107-028. The Bendaloy Tank Heated Water was analyzed and found to have no detectable metals as shown in the table below.

- Analytical results submitted with the permit renewal application, associated with the discharge from the Bendaloy tank are shown in the table below, Table 9:

Table 11. Characteristics of pollutants discharged from the Bendaloy Tank Heated Water

Characteristics of Pollutants Discharged from the Bendaloy Tank Heated Water, Sample Point (56-107-28) as Described in 2016 Permit Application	
Parameter	**Analytical Results**
Oil and Grease, T (mg/L)	<5
Total Petroleum Hydrocarbons (TPH) (mg/L)	<5
Arsenic, T (ug/L)	<2
Barium, T (ug/L)	<30
Cadmium, T (ug/L)	<5
Chromium, T (ug/L)	<10
Copper, T (ug/L)	<10
Lead, T (ug/L)	<25
Mercury, T (ug/L)	<0.4
Nickel, T (ug/L)	<10
Silver, T (mg/L)	<50
Zinc, T (mg/L)	<50

- Non-contact cooling water used for the Dip Braze Electrode is discharged at a maximum daily rate of 1440 gallons per day. This waste stream is designated 56-107-029.

  The discharges from the above sources are combined prior to being discharged to the sanitary sewer at a discharge point designated as 56-107-026. The above discharges are all directly or indirectly associated with a process in which Wave Guides (hollow metal tubes) are filled with Bendaloy, a low melting point alloy, to enable them to be bent while still retaining their interior shape.

  Due to the nature of the processes employed above, and based on the analytical results above, it is the opinion of Ecology that the probability of discharge of metals at concentrations exceeding the local limits is minimal. Therefore, no monitoring is required for the above three sample points located in the pipe fitting shop.

<u>Building 107 – Shop 56 – Natural Gas Infrared Heater Condensate (56-107-030)</u>

Natural gas infrared heaters produce condensate from the exhaust gas of the natural combustion process. The condensate will have a pH of 4 due mainly the presence of low levels of carbonic acid. The condensate from 20 units will be combined and sent to one drain. A total maximum flow of 15 gallons per day is expected to result from condensate from the 20-each natural gas-fired infrared heaters. Ecology does not

expect significant concentrations of pollutants to be present in this wastewater stream and does not propose to require monitoring.

Building 107 – Shop 56 – Hose Flushing and Pump Hydrotesting Wastewater (56-107-031)

In Shop 56 Test Cage area, a sink is used for flushing 0.5 inch diameter water and air hoses. Steam plant hoses are also flushed with deionized water. Small steam plant pumps are also hydrotested with deionized water. The deionized water line is drained during each day for 10 minutes per usage. Estimated discharge is a maximum of 20 gallons per day and 10 gallons per day on the average. Ecology does not expect significant concentrations of pollutants to be present in this wastewater stream and does not propose to require monitoring.

Building 290 – Offices, Gyro Shop, and General Warehouse

Building 290 – Shop 67 – Electronics Parts Washing Sinks (67-290-001)

Small electronic parts are cleaned with Formula 409 All Purpose Cleaner in a sink. Parts are then rinsed with water. The facility estimates a maximum daily flow of 60 gallons per day. The discharge occurs at an average frequency of one day per week at 4 gallons per day.

Ecology has not included monitoring requirements for this location due to the small volume of this waste stream, and the low likelihood that it would contain environmentally significant concentrations of pollutants of concern.

Building 431 – Machine, Director and Central Tool Shops

Building 431 – Shop 06 – Gauge and Welding Torch Leak Test Tanks (06-431-004)

Gages and welding torches are submerged in a 30-gallon and 60-gallon tanks to check for leaks. The tanks are discharged about once a month. The shipyard estimates a daily maximum estimated flow to the sanitary sewer of 90 gallons per day for the two tanks together and normally discharges one time per month.

Due to the nature of the process and the small flow, Ecology does not propose to require sampling for this discharge point.

Building 431 – Shop 06 – Air Filter Wash Water (06-431-008)

Air filters for machinery air conditioning systems are first sprayed with Formula 409 All Purpose Cleaner and then rinsed with water to remove nuisance dirt and dust.

This process is performed in a large metal tank. The shipyard estimates a daily maximum estimated flow to the sanitary sewer of 20 gallons per day, at 10 gallons average per day and discharging about 8 times per year. Due to the nature of the process and the small flow there are no sampling requirements for this discharge point.

Building 431 – Shop 06 – Plug Parts Washing (06-431-009)

In the Plug Room new canvas bags used for covering inflatable plugs are washed in a clothes washer to remove bleach. General nonionic detergent is used at a ratio of half a teaspoon per load. In addition rags soaked with isopropyl alcohol used to wipe down parts already cleaned in the ultrasonic cleaner are also washed in the washer. On average 30 loads are washed a month (10 of these are for the rags). Maximum flow rate is based on three loads a day.

There is a sink for leak testing of the rubber bladder inflatable plugs; hand washing of plug metal parts such as nuts, screws, and corepins; rinsing of isopropyl alcohol rags used to wipe down parts; and rinsing off parts cleaned with Mirachem 500 Cleaner/Degreaser or isopropyl alcohol. Rinsewater is expected to contain only 100 ppm of isopropyl alcohol.

A 2.5-gallon ultrasonic cleaner is used for cleaning new stainless steel nuts, bolts, washers, with 1 cup of Mirachem 500 Cleaner/Degreaser per 2.5 gallons of water.

There is also a dishwasher used for washing plastic plugs, cress/stainless steel, monel plugs and nuts (this was waste stream 06-431-007). Two drops of nonionic detergent is used per wash cycle.

The estimated total maximum flow rate is 56 gallons per day.

Due to the nature of the process, its quasi-domestic character, and the small flow there are no sampling requirements proposed for this discharge point.

Building 431 – Shop 31 – Ultrasonic Parts Cleaning Tank (31-431-A28-001)

Small air valves are cleaned in an ultrasonic tank that contains 3% nonionic general purposed detergent in 30 gallons of water. After wash, parts are transferred to a 10-gallon tank for rinsing. After rinsing, parts are placed in a drying tank.

The maximum daily flow is 40 gallons per day. Due to the small flow and nature of the process, there are no sampling requirements proposed for this sample point.

Building 431 – Shop 31 – Water Jet Cutting (31-431-DOOR1-002)

The water jet cutting machine is used to cut aluminum, rubber, mild steel, cork, fibrous glass, HY80 (a high-strength low carbon steel containing nickel, molybdenum and chromium in alloying quantities consistent with its designation as a low allow steel), and stainless steel. There are two water cutting jet units. In the older waterjet cutter, the wastewater is filtered through a 10-micron filtration system prior to discharge to the sanitary sewer. In the new waterjet cutter, about half of the wastewater is recycled for reuse through a filtration system including 0.35 micron filter. Since there is no sewer discharge connection for the new waterjet cutter, about 360 gallons a day are pumped to the older waterjet cutter for discharge to the sanitary sewer. The discharge flow includes 2 gpm noncontact cooling water.

The maximum daily discharge is expected to be 5,000 gallons per day for both systems combined including 2,880 gallons per day of noncontact cooling water. The average discharge per day is estimated to be 2,800 gpd. Based on the results of past sampling and the nature of the process, sampling requirements are not proposed for the above discharge point in the proposed permit.

Building 431 – Shop 31 – Parts Hydrotesting (31-431-Mez-003)

A hydro stand station is used for testing valves, pumps, and fittings. These parts are extremely clean prior to this testing process. In order to keep these parts clean, only Grade A water (deionized water) is used to pressurize and test these parts. Testing water is collected in the sump under the test stand and is then pumped to the sanitary sewer. The maximum daily flow is estimated to be 50 gallons per day. Daily average discharge volume is negligible at one gallon per day. Once every three years, a large volume flush of 300 gallons may occur.

Due to the nature of the process, as well as the small flow volume, no monitoring requirements are proposed for this discharge point in the proposed permit.

Building 431 – Shop 31 – Pump/Valve Test Closed Loop (31-431-004)

Two pump/valve testing closed loops are used to pressurize and test equipment. One loop is associated with the oil test stands and one loop associated with the water/steam test stands. Water flows to sump, then is pumped through the oil/water separator to the sanitary sewer. Water used for pump testing is stored in two tanks with capacity of 4,600 and 12,000 gallons and is rarely changed out.

The maximum daily flow is estimated to be 200 gpd, except for the annual draining. Once each year, the tanks storing water used for pump testing may be discharged to the sanitary sewer resulting in a one day discharge of 12,000 gallons. The water

generated from pump and valve testing in this process is sent through an oil/water separator prior to discharge.

In the previous permit application, analytical results have indicated the presence of oil and grease at a concentration of 33 mg/L.

Due to the nature of the pollutants and small flow from this sample point, no testing is proposed in the proposed permit.

Building 431 – Shop 31 – Valve Hydrotesting (31-431-006)

Water is used to test valves in this area. Heat exchangers are also tested about 5 times a year. Some parts are also steam cleaned for the removal of dust and dirt. Wastewater goes into the sump beneath the test stations and is then pumped to sanitary sewer. The daily maximum discharge is expected to be 200 gallons per day.

Due to the nature of the pollutants and small flow from this sample point, no testing is required.

Building 431 – Shop 31 – Fresh Water Pump Testing (31-431-007)

Fresh water pumps are tested to ensure they are operation and are flushed at this location. The pumps are very clean. Fresh water is used for operational testing. Deionized water is used for flushing. Less than 10 pumps are tested/flushed per year. About 300 gallons of water are generated each time. The maximum daily discharge estimated is 500 gallons per day.

Due to the nature of the pollutants and small flow from this sample point, no monitoring is required in the proposed permit.

Building 431 – Shop 31 – Boiler Blowdown and Off-Specification Feed water (31-431-023)

At this facility steam is produced for pump testing at the Pump Test Stands (Waste Stream 31-431-004). Deionized water from the shipyard's Steam Plant is used as boiler feed water. The only discharges are boiler blowdown and off-spec feed water. The boiler blowdown consists of minute amounts of hardness and corrosion inhibitors.

Feed water that is stored in the two storage tanks prior to entering the boiler rarely needs to be discharged. Any discharge would be because the feed water is out of spec. The tank capacity is 5,000 gallons.

The maximum daily flow is 5,000 gallons when a feed tank needs to be discharged. The average daily flow for boiler blowdown is estimated to be 10 gallons per day. The maximum daily flow for boiler blowdown is estimated to be 50 gallons per day. In addition, residue of boiler treatment chemicals are rinsed off PPE such as gloves and face shields in a sink about once a week when boiler treatment chemical day tanks are prepared.

There is also a freshwater cooling water used to cool the boiler blowdown and samples (to check for boiler water quality). Maximum daily flow from this cooling water is around 24,000 gallons. Average daily flow from this cooling water is 1,090 gallons per day.

Due to the nature of the pollutants expected from this sample point, Ecology is not proposing monitoring requirements at this discharge point.

Building 431 – Shop 67 – Electronic Cabinet Wash Down (67-431-414B-004)

Shop 67 uses San-Del #2 Hard Surface Cleaner to wash electronic cabinets. Contaminants from this waste stream include dirt and general grime. The maximum daily flow is estimated to be 200 gpd.

Based on the nature of the process, no monitoring requirements have been included in the permit for this discharge point.

Building 431 – Shop 67 – Gauge Cleaning Sink (67-431-Gauge Room-006)

Shop 67 cleans gauge exteriors with nonionic detergent. Contaminants include general grime such as dust, and airborne cooking oil. Gauge parts are also cleaned in a one-gallon ultrasonic cleaner with non-ionic detergent. The discharge is estimated to exhibit a daily maximum flow of 20 gpd.

Based on the nature of the process, no monitoring is required at this sampling point.

Building 431 – Shop 67 – Gauge Cleaning with Vacuum Pump (67-431-Room 526-008)

In this process gauges are cleaned with either detergent or Freon 113 (Trichlorotrifluoroethane) under a vacuum created by an oil-free vacuum pump made by Airtech Vacuum Inc. This vacuum is air-cooled, and therefore, there is no discharge of water. Once a year, there may be draining of the small water tank (about 5 gallons), that will be the maximum daily discharge.

Based on the nature of the process, no monitoring is required at this discharge point.

Building 431 - Shop 67 – Air Particulate Detector Components Washing Water (67-431-009)

In this process air pumps are washed with nonionic detergent in an ultrasonic cleaner.

The maximum daily rate of discharge to the sanitary sewer is estimated to be 5 gallons per day. PSNS expects this discharge to occur approximately 100 times per year. Based on the small volume of the flow, the nature of the process, and a review of the analytical data, no monitoring is proposed to be required at this discharge point.

Building 431 – Shop 67 – Flow Calibration (67-431-011)

A daily maximum of 15 gallons per day is generated from the calibration of flow meters using two calibrators.

Based on the small quantity of flow and the nature of the process, no monitoring is required at this discharge point.

Building 431 – Shop 67 – Sonar Soak Tank (67-431-012)

This process moved from Building 500 to Building 431; it was Waste Stream 67-500-001. Transducers, hydrophones, and antennas are submerged in a 320-gallon tank for 24 hours for leak testing. The tank is discharged twice a year, about 320 gallons each time.

Based on the small quantity of flow and the nature of the process, no monitoring is required at this discharge point.

Building 431 – Shop 67 – Sonar Hydrotest Vessels (67-431-013)

This process moved from Building 500 to Building 431; it was Waste Stream 67-500-002. Shop 67 uses two hydrotest vessels to hydrotest transducers, hydrophones, antennas, valves, and cables. A pump using fresh water is used to pressurize the hydrotest vessels to simulate underwater conditions. The big hydrotest vessel is normally used about 4 times a week. Maximum number of usage would be two hydrotests a day, resulting in a maximum daily flow of 300 gallons. Once a year the whole vessel of 1,160 gallons is drained for maintenance. The small hydrotest vessel is used once every two weeks, with the total discharge of 64 gallons. The maximum daily estimated discharge to the sanitary sewer is about 400 gallons per day.

Based on the small quantity of flow and the nature of the process, no monitoring is required at this discharge point.

Building 431 – Shop 67 – ID-Mark Rinsewater (67-431-014)

ID-Mark is a process to develop images on polyester sheets. ID-Mark polyester sheets with images are exposed to UV light. Areas exposed to UV light harden. Pigmented modified polyvinyl alcohol polymer from unexposed areas is rinsed away with water. The rinsewater contains copper at 0.565 mg/L, nickel at 0.029 mg/L, and zinc at 0.176 mg/L. Chromium is less than 0.01 mg/L and lead is less than 0.025 mg/L.

Table 12. Characteristics of pollutants discharged from the ID-Mark Rinsewater

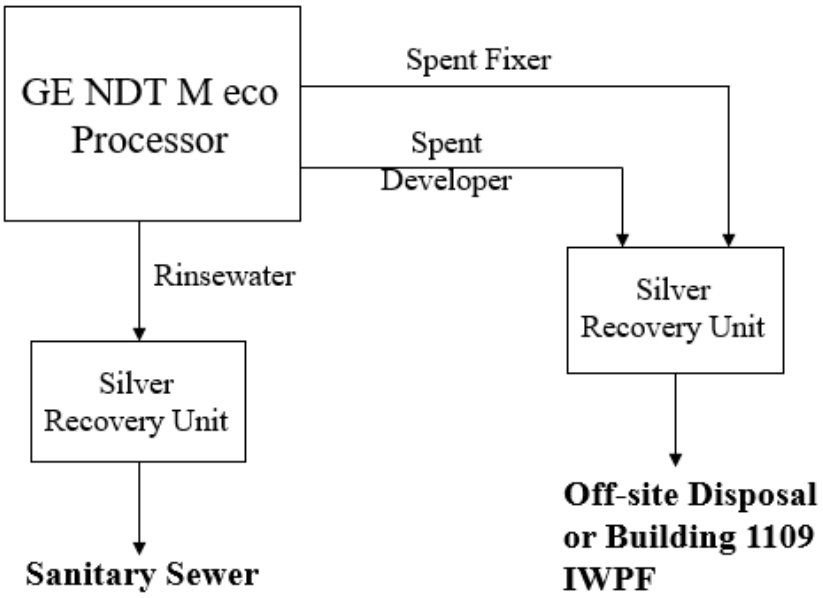
Characteristics of Pollutants Discharged from the ID-Mark Rinsewater (67-431-014) as Described in 2016 Permit Application	
Parameter	**Analytical Results (Maximum)**
Copper, T (mg/L)	0.565
Chromium, T (mg/L)	< 0.01
Lead, T (mg/L)	< 0.025
Nickel, T (mg/L)	0.029
Zinc, T (mg/L)	0.176

The above table shows detectable levels of copper and zinc but given the maximum daily discharge being at 30 gallons per day, no monitoring is required at this discharge point.

Building 431 – Code 135 – Non-Destructive Testing X-ray Development (135-431-203-002)

Code 135 has an x-ray development process. The wastewaters from this x-ray development process consist of spent photographic developer, spent fixer, and rinsewater. Spent developer and fixer are sent off-site for disposal as HW. They could also be collected for treatment at Building 1109 IWPF. Rinsewater from film rinsing after development is discharged into the sanitary sewer. An algae reduction product is also added to the rinsewater. In addition, for maintenance, rollers and parts in the unit may be rinsed once every six months in a sink.

The shipyard has measured silver in the rinsewater at a detectable concentration of 0.33 mg/L in the past. The maximum daily discharge from this process used to be 565 gallons per day. With the new process and two silver recovery units, one for each of the spent fixer/developer and rinsewater, and an estimated maximum discharge volume of 50 gallons per day, Ecology will not require silver monitoring of the rinsewater waste stream in the proposed permit.



Estimated Discharge:
50 gallons per day maximum
15 gallons per day average

Building 452 – Forge Shop

Building 452 – Shop 11 – Forge Shop Quench Water (11-452-001)

There are six water quench tanks (three 20-gallon, one 50-gallon, one 740-gallon, and one 1,500-gallon) that are used in the forge shop for heat treating process. There are also oil quench tanks. Most of the oil quench tanks have double-walled protection including the biggest, which has capacity of 740 gallons. The oil and water quenching processes do not mix. Therefore, there is no contamination of the quench water. Only quench water is discharged to the sanitary sewer. The biggest water quench tank normally only discharges about once every two weeks with average daily flow of 1,200 gallons.

The daily maximum flow is estimated to be 2500 gallons per day.

Based on the nature of the process, and the results of analysis, Ecology does not propose to include monitoring requirements in the permit for this process.

Building 455 – Equipment Shop 02

Building 455 – Mechanical Car Wash Facility (NBK-455-001)

This waste stream is generated by drive-through car washing and some surface water runoff on the west side of Building 455. The washwater is reused once prior to discharge to an oil/water separator. The effluent from the oil/water separator goes to the sanitary sewer. The oil/water separator is inspected twice a year and cleaned as necessary.

Daily maximum discharge is estimated to be 6600 gallons per day based on a 3-inch rain day. The discharge characteristics based on analytical results, submitted with the 2016 permit application, are shown in the table below:

Table 13. Characteristics of pollutants discharged from Mechanical Car Wash Facility

Characteristics of Pollutants Discharged from Mechanical Car Wash Facility (NBK-455-01) as Described in 2016 Permit Application	
Parameter	**Analytical Results (maximum)**
Total Oil and Grease (mg/L)	76.8 mg/L
Total Petroleum Hydrocarbon Compounds (mg/L)	48.8 mg/L
Chromium, T (mg/L)	<0.05 mg/L
Copper, T (mg/L)	0.08 mg/L
Lead, T (mg/L)	<0.05 mg/L
Nickel, T (mg/L)	<0.05 mg/L
Zinc, T (mg/L)	0.4 mg/L

Oil and grease sampling is not required for this discharge point, as the main effects of excessive oil and grease are expected to be borne by the shipyard, as opposed to the WWTP due to grease adhering to the inner surface of sewer lines within the shipyard property. Quarterly oil and grease monitoring is required at the municipal lift stations receiving Puget Sound Naval Shipyard's flow, and the shipyard's discharge is subject to 100 mg/L maximum daily limit based on best professional judgment (BPJ) of the permit writer. The City of Bremerton has a TPH limit of 50 mg/L but not a limit for oil and grease. Most POTWs these days have a limit of 100 mg/L for nonpolar fats, oils, and greases.

Building 455 – Hand Car Wash Facility (NBK-455-004)

This waste stream is generated by a hand car wash process and some surface water runoff on the west side of Building 455. The washwater is discharged to an oil/water separator. Vehicles too big for the mechanical car wash (waste stream NBK-455-001) such as dump trucks are washed here. Steam cleaning of forklifts or car engines with

Big Orange is also performed. This cleaner contains d-limonene. The effluent from the oil/water separator goes to the sanitary sewer. The oil/water separator is inspected twice a year and cleaned as necessary.

The daily maximum flow is estimated at 3300 gpd, which is based on a 3-inch storm. The oil/water separator is inspected twice per year and cleaned as necessary.

The discharge characteristics based on analytical results, submitted with the 2016 permit application, are shown in the table below:

Table 14. Characteristics of pollutants discharged from the Transportation Shop

Characteristics of Pollutants Discharged from Transportation Shop Hand Car Wash Facility (NBK-455-04) as Described in 2016 Permit Application	
Parameter	**Analytical Results (maximum)**
Total Oil and Grease (mg/L)	175 mg/L
Total Petroleum Hydrocarbon Compounds (mg/L)	106 mg/L
Chromium, T (mg/L)	<0.05
Copper, T (mg/L)	0.91
Lead, T (mg/L)	0.22
Nickel, T (mg/L)	0.11
Zinc, T (mg/L)	1.49

Oil and grease sampling is not required for this discharge point as the main effects of excessive oil and grease is expected to be borne by the shipyard, as opposed to the WWTP due to grease adhering to the inner surface of sewer lines within the shipyard property. Quarterly oil and grease monitoring is required at the municipal lift stations receiving Puget Sound Naval Shipyard's flow, and the shipyard's discharge is subject to 100 mg/L maximum daily limit based on best professional judgment (BPJ) of the permit writer. The City of Bremerton has a TPH limit of 50 mg/L but not a limit for oil and grease. Most POTWs these days have a limit of 100 mg/L for nonpolar fats, oils, and greases.

Building 455 – Shop 98 – Crane Parts Steam Cleaning (98-455-001)

This waste stream is generated by a steam cleaning process and surface water runoff on the east side of Building 455. The cleaner used is Dusqueeze Natural Industrial Solvent Cleaner. It contains d-limonene, diethanolamine, and linear alcohol ethoxylate. The wastewater is directed to an oil/water separator. The effluent from the oil/water separator goes to the sanitary sewer. The oil/water separator is inspected twice a year and cleaned as necessary.

The discharge characteristics based on analytical results, submitted with the 2016 permit application, are shown in the table below:

Table 15. Characteristics of pollutants discharged from Crane Parts Steam Cleaning

Characteristics of Pollutants Discharged from Crane Parts Steam Cleaning (98-455-001) as Described in 2016 Permit Application	
Parameter	**Analytical Results (maximum)**
Total Oil and Grease (mg/L)	196
Total Petroleum Hydrocarbon Compounds (mg/L)	134
Chromium, T (mg/L)	<0.05
Copper, T (mg/L)	0.61
Lead, T (mg/L)	0.1
Nickel, T (mg/L)	<0.05
Zinc, T (mg/L)	0.68

Oil and grease sampling is not required for this discharge point as the main effects of excessive oil and grease would be borne by the shipyard, as opposed to the POTW due to grease adhering to the inner surface of sewer lines within the shipyard property. However, quarterly oil and grease monitoring is required at the municipal lift stations receiving Puget Sound Naval Shipyard's flow, and the shipyard's discharge is subject to 100 mg/L maximum daily limit based on best professional judgment (BPJ) of the permit writer. The City of Bremerton has a TPH limit of 50 mg/L but not a limit for oil and grease. Most POTWs these days have a limit of 100 mg/L for nonpolar fats, oils, and greases.

Building 457 – Riggers/Paint Shop

Building 457 – Shop 71 – Ball Valve Quenching (71-457-005)

A daily maximum daily discharge of 850 gallons per day (based on the discharge of five batches) is generated from the ball valve quench tank. Titanium, stainless steel, and Monel ball valves are coated with Teflon, heated in a baking oven, then quenched in a tank of water. The estimated discharge volumes are as shown below:

Discharge per batch is 170 gallons

850 gallons per day maximum (5 batches)

About 12 batch discharges per year

2,050 gallons per year total

Based on the small quantity of flow and the nature of the process, no monitoring is required at this discharge point.

Characteristics of the ball valve quenching wastewater are shown in the table below:

Table 16. Characteristics of pollutants discharged from the Ball Valve Quenching Operation

Characteristics of Pollutants Discharged from the Ball Valve Quenching Operation (71-457-005) as Described in 2016 Permit Application	
Parameter	**Analytical Results (Maximum)**
Chromium, T (mg/L)	<0.1 mg/L
Copper, T (mg/L)	<0.1 mg/L
Lead, T (mg/L)	<0.2 mg/L
Nickel, T (mg/L)	<0.1 mg/L
Zinc, T (mg/L)	<0.1 mg/L

Building 460 – Shipfitters and Welder Shop

Building 460 – Deionized Water Production Backwash (26-460-002)

Potable water is processed through mixed-media filter, activated carbon filter, water softener, and reverse osmosis units to make makeup water for a thermal cutting machine. The backwash water and concentrate contain hardness (e.g., calcium carbonate) and chloride.

The daily maximum flow is estimated to be 300 gallons per day.

Due to the nature of the above discharge, no monitoring requirements are proposed to be placed in the permit for the above sample point.

Building 460 – Deionized Water Production Backwash (26-460-002)

A small 10-gallon quench tank is used in the welding school for quenching of welded metal parts during training. Silver, arsenic, barium, cadmium, chromium, copper, lead, and selenium were all less than 0.5 mg/L. Nickel was at 0.6 mg/L. Zinc was at 1.39 mg/L.

The daily maximum flow is estimated to be 30 gallons per day.

Due to the small discharge volume of the above discharge, no monitoring requirements are proposed to be placed in the permit for the above sample point.

Building 462 – Temporary Service Warehouse

Hose hydrotesting, braze quenching, chlorinated valve sterilizing water, and chlorinated hose testing and sterilizing water are generated at this building. Hoses hydrotested are those used for gas welding.

Building 462 – Shop 99 – Regulator/ Hose Test Steam Condensate (99-462-001)

Steam condensate is discharged from steam regulator testing. The maximum daily flow is estimated to be 10 gpd.

Due to the nature of the above process, no monitoring requirements have been included in the permit for the above discharge point.

Building 462 – Shop 99 – Brazed Pipe Quench Sink (99-462-002)

A 25-gallon tank is used to quench brazed pipe joints. The maximum daily flow is estimated to be 25 gpd. The tank is discharged two times per year.

Due to the nature of the above process and small flow volume, no monitoring requirements have been included in the permit for the above discharge point.

Building 462 – Shop 99 – Plumbing Valve Sterilization Tank (99-462-003)

A 200-gallon tank is used to sterilize plumbing valves with chlorinated water. The daily maximum flow is estimated to be 200 gallons per day.

Based on the nature of the above process and the small volume of water discharged, no sampling requirements have been included in the permit for the above discharge point.

Building 462 – Shop 99 – Potable Water Hose Hydrotesting and Sterilization Trough (99-462-004)

High pressure water with 500 ppm chlorine is used for hydrotesting and sterilization of potable water hoses.

The daily maximum flow is estimated to be 400 gallons per day.

Based on the nature of the above process, no monitoring is required in the permit at the above discharge point.

Building 462 – Shop 99 – Fresh Water Hose Flushing (99-462-005)

This is a fresh water hose flushing process. Deionized water is used for flushing clean hoses that are used for deionized water only. The daily maximum flow is estimated to be 400 gallons per day.

Due to the nature of the above process and the small flow, no monitoring requirements are proposed to be placed in the proposed discharge point.

Building 462 – High Pressure Air Hose Flush (99-462-007)

HP (high pressure) air hoses are flushed with a nonionic detergent solution (1.5 ounce detergent in 25 gallons water). About two batches are discharged every month.

Due to the nature of the above process and the small flow, no monitoring requirements are proposed to be placed in the proposed discharge point.

Building 462 – Shop 99 – Fitting and Piping Hydrotesting (99-462-009)

Clean fitting and piping are hydrotested in this process.

The daily maximum flow is estimated to be 300 gallons per day. Approximately three batches are discharged in a typical week at an average of 200 gallons per day.

Due to the nature of the above process and the small flow, no sampling requirements are proposed to be placed in the proposed permit for this discharge point.

Building 495 – Welding Shop

Building 495 – Shop 26 – Gas Hose Leak Test Tank (26-495-001)

Argon gas hoses are checked for leaks by submerging them in a sink filled with water. The water is discharged once every two months. About 20 gallons are discharged each time.

Due to the nature of the above process and the small volume of flow, no monitoring requirements are proposed to be placed in the proposed permit for this discharge point.

Building 506 – Naval Dental Clinic

Building 506 – Dental Wastewater (NDC-506-002)

The dental facility at PSNS&IMF has been decommissioned. There are no discharges from a dental facility at PSNS&IMF.

Building 506 – Washer/Disinfector for Dental Instruments (NDC-506-003)

The dental facility at PSNS&IMF has been decommissioned.

Building 856 - Repair Shop

Building 856 – Shop 56 – Pipe/Tubing/Pump Hydrotesting and Flushing (56-856-001)

Shop 56 is the pipe fitting shop. Pre-cleaned pumps, copper tubing, stainless steel tubing and tygon and nylon braided tubing is hydrotested and/or flushed in two test benches with deionized water.

In addition, a small 2-gallon ultrasonic cleaner is used to clean small fittings with nonionic detergent.

The maximum daily discharge is estimated to be 200 gallons per day.

Due to the nature of the above process and the small volume of flow, no monitoring requirements have been placed in the permit for this discharge point.

Building 856 – Shop 99 – Ultrasonic Parts Cleaner (99-856-003)

Nonionic detergent is used in a 30-gallon ultrasonic cleaner to clean metal fittings such as elbows.

The daily maximum discharge is estimated to be 30 gallons per day. The annual discharge is estimated to be 750 gallons based on an average discharge of 30 gallons once every two weeks.

Based on the nature of the above process, the small volume of the discharge, and the intermittency of the discharge, no monitoring requirements are proposed to be placed in the proposed permit for the above discharge point.

Building 857 – Sheet Metal Shop

Photographic development rinsewater is generated at this building. PSNS&IMF has removed the aluminum passivation system in this building and no longer has a metal finishing discharge from this location.

Building 857 – Shop 17 – Condensate from Air Compressors (17-857-010)

The Amada Laser Cutting Machine requires the usage of nitrogen gas. Nitrogen gas is separated from atmospheric air and stored in a cylinder. The operation of an air compressor in this process of storing the nitrogen gas results in the generation of air moisture condensation, which is contaminated with minute amount of oil from the air compressor. Provided that the compressor is properly maintained, the oil

concentration in the condensate is expected to be less than 15 mg/L. Therefore, no monitoring is proposed to be required in the permit for this discharge point.

Building 857 – Shop 17 - Aluminum Sheet Metal Deburring (17-857-011)

A dry deburring machine is used to deburr aluminum sheet metal. Aluminum metal dust generated is sent to a wet dust collector. The water used in the wet dust collector is pumped to the sanitary sewer once every two weeks through a 50-micron or smaller pore size filter. This is a mechanical process to scrub the surface of aluminum sheet metal and thus no chemicals are used in the process.

This process is not expected to become operational until late 2019 or 2020 due to current power shortage at this location.

The Permittee will be required to monitor for total suspended solids (TSS) with a limit of 100 mg/L based on professional judgment. TSS monitoring will help evaluate the effectives of the filtration system.

The estimated Discharge is 500 gallons once every two weeks. 800 gallons is the maximum allowable flow per day.

Building 857 – Shop 17 – Laser Bonding (17-857-012)

Stainless steel label plates are marked by the laser bonding process. In this process a ceramic coating paste is applied to the stainless steel label plates and laser is used to bond the ceramic coating image to the substrate metal label plates. Water is then used to rinse off the coating paste where it's not bonded to the metal. The coating paste material that gets rinsed off with water contains minute amount of molybdenum trioxide, mica, and quartz. Although molybdenum is a source of concern for biosolids quality, based on this information provided by PSNS & IMF which indicates negligible molybdenum in solution, no monitoring is proposed to be required in the permit for this discharge point.

Estimated Discharge:

20 gallons per day maximum

10 gallons per day average

No more than 40 gallons per week average

Rotoclone for Aluminum Passivation Room (ROTO-17-857-002)

This rotoclone provides ventilation for the aluminum passivation area. Rotoclone is a wet air pollution control device. It discharges water which may become

contaminated with process contaminants removed from the air. The chemical process tanks in this area contain mainly sodium hydroxide, nitric acid, ferric sulfate, and sodium carbonate. Air removed from this area may contain mist and vapor from these heated process tanks.

The estimated daily maximum discharge from this rotoclone is 10,700 gallons per day.

Due to the nature of this process, no sampling requirements are proposed to be included for this discharge point in the proposed permit.

Building 873 – Metal Preparation Building

Building 873 – Shop 31 – Rotoclone Dust Collector for Bandsaw and Buffer (31-873-002)

The rotoclone cleans air of dust and particles from buffers and a bandsaw. Particulates from the bandsaws and buffers/grinders used on aluminum, bronze, stainless steel, copper, and nickel, are vacuumed into the rotoclone dust collector.

The maximum daily discharge is estimated to be 50 gallons per day. Analytical data from the 2011 permit application indicated a copper concentration of 0.4 mg/L. No other priority pollutant metals were detected at the 0.1 mg/L detection limit.

Due to the small volume of the discharge, Ecology does not propose to include monitoring requirements.

Building 873 – Shop 31 – Ion Exchange Resin Regeneration Rinsewater/Reverse Osmosis System Concentrate Water (31-873-003)

Potable water is processed through a reverse osmosis system to make deionized water for usage as rinsewater in the plating shop. The concentrate (reject) water, basically concentrated potable water, is sent to the sanitary sewer.

The RO system replaced an older ion exchange system. Due to the age of ion exchange system, and due to a need to increase the capacity of the system, PSNS & IMF replaced the ion exchange system with a Reverse Osmosis (RO) system. The IX system resin regeneration used strong acids and bases, which resulted in the requirement for pH monitoring. In the new RO system, no pH monitoring is required.

Building 873 – Shop 31 – Electroplating Shop (disposal of metal finishing wastewater through 99-1109-001 and 99-1109-002)

This building contains approximately 130 process and rinse tanks. The rinsewater from this shop is piped directly to the pretreatment system in Building 1109. Important processes conducted in the plating shop are:

Caustic Cleaning
Hydrochloric Pickling of Non Ferrous Metals
Hydrochloric Pickling of Ferrous Metals
Nitric Acid Bright Dip
Chrome Plating
Pickling Tank for Stripping
Cadmium Plating
Silver Plating
Cyanide Dip
Nickel Sulfamate for Nickel Plating
Copper Cyanide for Copper Plating
Zinc Cyanide for Zinc Plating
Acid Copper Tank (Copper Sulfate and Sulfuric Acid)
Manganese Phosphate (a conversion coat)
Aluminum Etch
Deox
Copper Iridite
Sulfuric Etch (preparation tank for nickel tank)
Tin Plating

The chemical storage room for the plating building is sloped to the center of the floor, and the drains have been sealed.

Waste retention tanks are in the basement of the plating building. The cyanide retention tank has a capacity of 1,585 gallons and is automatically pumped to the treatment plant in Building 1109. The acid/alkaline tank has a capacity of 1,780 gallons and is pumped directly to Building 1109. The chrome waste retention tank has a capacity of 1,780 gallons and is plumbed directly to the treatment plant in Building 1109. Waste streams associated with silver, copper, zinc, and cadmium plating contain cyanide. The

description of the wastewater treatment processes used to treat the wastewater generated in Building 873 is contained in the portion of this fact sheet pertaining to Building 1109.

Building 874 – Industrial Waste Disposal Facility

Paper shredder dust suppression water and rainwater runoff are generated at this building.

Building 874 – Paper Shredder Dumpster Dust Suppression Water (99-874-001)

Shop 99 operates the paper shredder about 4 days per week. The shredded paper is separated in a cyclone then the heavy debris is dropped into a dumpster. The dumpster is wetted down to suppress airborne particulates. This wet down water and also the weekly washdown water from the area are sent to the sanitary sewer.

The maximum daily flow is estimated to be 200 gpd.

Based on the nature of the above process, no monitoring requirements are proposed to be included in the proposed permit.

Building 875 – Hose Cleaning And Test Facility

Building 875 – Shop 99 – Salt Water, Fresh Water Sewage Hose Cleaning (99-875-001)

Salt water, fresh water, sewage hoses, fittings, and portable tanks are cleaned with steam, salt water at 175 degrees F, and detergent. Sterilization cycle uses fresh water with chlorine - 1 gallon bleach to 150 gallons water. Cleaning water and rinsewater are pumped to sewer from sump.

The daily maximum discharge is estimated to be 10,000 gallons per day. The maximum discharge of 10,000 gallons per day typically occurs approximately four times per year. However, this process happens on a regular basis at a lower daily flow of approximately 1000 gallons per day.

Based on the nature of the above process, and the occasional nature of the discharge, no monitoring requirements have been proposed to be included in the permit for this sample point.

Building 875 – Shop 99 – High Pressure Testing of Hoses (99-875-002)

Hoses are pressure tested with fresh water. After the test the water is drained to sump. Water is then pumped to sewer. Hose hydrotesting is intermittent in nature. The shop works on a batch of hoses for a week straight during which they generate 2,500 gallons per day for a whole week. Then, three weeks will go by with no work. Therefore, estimated discharge is as follows.

The maximum flow expected to be generated in a day is expected to be 5,000 gallons per day, four times per year, and 625 gallons per day on the average.

Due to the nature of this process, as well as the intermittent nature of the discharge, and relatively low flow, no monitoring requirements are proposed to be placed in the proposed permit for this sample point.

Building 900 – Steam Plant

The boiler water supply treatment system is a reverse osmosis system. Reject water from the reverse osmosis system is discharge to surface water under an NPDES permit administered by USEPA. The process wastewater associated with the boiler is discharged to the sanitary sewer through discharge point NBK-912-001. In addition, steam condensate from local stations throughout the shipyard is returned to the Building 900 Steam Condensate Return Tank. The discharges from this tank are designated as NBK-900-004. These discharges are made as they exceed hardness or conductivity criteria for boiler feedwater. The maximum daily discharge for NBK-900-004 is estimated to be 214,000 gpd.

Building 900 – Code 134 – pH Analysis Water (Waste Stream 134-900-003)

In the process of analyzing PSNS & IMF's NPDES permit Outfall 021 pH samples, which are samples of a Reverse Osmosis system's concentrate (reject) water, the following samples are discharged to the sanitary sewer:

1. Samples for pH testing (250 ml).
2. pH buffer of pH 4, 7, 9, 10 (300 – 500 ml a day) (contain 1% salts of sodium or potassium with phosphate, carbonates, borate, or phthalates).
3. 3N potassium chloride pH electrode storage solution (20 ml a day).

The pH analysis wastewater consists of 250 mL samples. pH buffer is also discharged from this point. Buffer solutions of pHs 4, 7, 9, and 10 are also disposed of to the sanitary sewer. The buffer solutions are composed of sodium, potassium, phosphate, carbonate, and borate ions, as well as phthalates. The maximum daily discharge is estimated to be one gallon per day. Due to the nature of this wastewater, its limited

volume, and intermittent nature of the flow, monitoring is not proposed to be required in the proposed permit.

Building 900 – Steam Condensate (Waste Stream NBK-900-004)

Steam condensate is returned to the steam plant for usage as boiler feed water if it is within specifications for dissolved solids, hardness, and pH. Steam condensate return are tested twice daily by Public Works personnel at the steam plant. It is normally out of specification about 50 days a year, often at the beginning of the heating season due to start-up of buildings' heating systems. When steam condensate return at the steam plant is out of specification for conductivity or hardness it is discharged to the sanitary sewer and further sampling is done at multiple upstream return system collection points.

The normal parameters for steam condensate are as follows:

- conductivity less than 25 umho/cm
- pH between 8.0 and 9.5
- hardness at 0
- temperature between 120 and 190 degree F, average of 155 F

Out of specification steam condensate may have pH between 4.4 and 8.0, and between 9.5 and 10.

Steam condensate return contains copper at 0.74 mg/L and zinc at 0.54 mg/L. Chromium, lead, and nickel are all less than 0.05 mg/L.

Due to the largely innocuous nature of this discharge as indicated by the sampling results above, and the practical difficulty of sampling this discharge from many points, Ecology has not included monitoring requirements for the discharge. This decision is discussed in more detail in the response to comments appendix of the 2011 fact sheet.

Steam condensate is collected at the following different locations: Lateral 2, Utility Building 1, Utility Building 2, Utility Building 3, and Building 923. It is then pumped back to Building 900 steam condensate return tank. Steam condensate can be discharged to the sanitary sewer from any of these locations as well as directly from a building. The daily maximum discharge to the sanitary sewer was estimated to be 214,000 gallons per day, with an average of 84,000 gallons per day per discharge event. PSNS & IMF estimated the maximum daily flow of 214,000 gallons per day based on the highest volume of good (in compliance with specifications) steam condensate return to Building 900, and assuming that as a worst case scenario, 100% of this volume of steam condensate was off-specification.

Building 912 – Steam Utility Plant

Building 912 – Steam Utility Plant Boiler Blowdown, RO Concentrate, and Miscellaneous Discharges (Waste Stream NBK-912-001)

The steam utility plant produces steam for shipyard's heating and industrial uses. Potable water is first filtered through activated carbon to remove chlorine. Then it is pumped through the Reverse Osmosis (RO) unit to produce deionized water. The RO's permeate (deionized water) goes into the boiler as feed water to make steam. The RO's reject water (concentrated potable water) is sent to the 25,000-gallon B Basin, from which it is pumped into the Primary Basin, prior to being sent to the sanitary sewer.

The boiler needs to be blown down periodically to remove built up dissolved solids. The boiler blowdown is sent to the 25,000-gallon Primary Basin. Other wastewaters sent to the Primary Basin include the activated carbon filters backwash, off-spec steam condensate return, pure water plant initial start-up rinse water, and infrequent sources of wastewaters such as the RO maintenance cleaning wastewater and the sand filter backwash. Water leakage from mechanical spaces in the steam plant, discharge from the concrete/cement work area, the storm drain solids dewatering hoppers, and the steam utility tunnel sump pump discharge are sent through a coalescing oil/water separator first prior to being pumped into the Primary Basin.

Copper and zinc, the pollutants of concern, are generally not detected. From December 2011 through October 2018, the Primary Equalization Basin's average and maximum copper concentrations were 0.091 and 0.52 mg/L, respectively. Average and maximum zinc concentrations were 0.063 and 0.24 mg/L, respectively. For pH, there is a control system to ensure the Primary Equalization Basin water is not outside the range of 6 to 11.

The estimated discharge volumes associated with this process are as shown below:

Estimated Discharge:

300,000 gallons per day maximum

69,000 gallons per day average (average of the days with discharge)

Building 970 – Shipping Containers

Shipping containers are pressure washed for the removal of shipping container labels. Only water is used in this process. There are no contaminants of concern from this process and materials involved, hence the proposed permit requires no monitoring for this discharge point.

Estimated Discharge:

300 gallons per day maximum

100 gallons per day average

Building 971 – Emergency Generator For Data Processing Center

Building 971 – Shop 971 – Emergency Diesel Generator (NBK-971-001)

Building 971 is Building 943's Emergency Generator Facility, which provides power to the Data Processing Center should the normal power supply be interrupted. Building 971 contains two large, diesel-fired emergency generators, a 300-gallon aboveground diesel storage tank that serves as the day tank, and a 4,000-gallon diesel fuel underground storage tank located outside the building that feeds the day tank. The day tank sits within a 30" high containment that holds 400 gallons. If oil were to overflow the day tank containment system it would flow to the floor trench and be routed to the oil/water separator. The separator discharges water to the sanitary sewer and routes oil to the 128-gallon oil containment tank, which sits within a concrete vault on the floor in the building. Normally, the oil/water separator only discharges about 5 gallons of water a week to the sanitary sewer, which are generated from the weekly testing of the eye wash station.

Due to the intermittent and small flow expected from this location, monitoring requirements are not proposed to be placed in the proposed renewal permit.

Building 980 – Ocean Engineering Facility

Building 980 – Shop 760 – Scuba Gear Maintenance Sink (760-980-002)

Scuba diving gear such as head gear, face masks, regulators are cleaned in a sink with general purpose detergent and water. About 2 teaspoons of detergent are used for every half gallon of water. Daily average discharge is 5 gallons about twice a week. Daily maximum discharge is 10 gallons. There is also a 1-gallon ultrasonic cleaner using 50% vinegar for small head gear parts. About half a gallon is discharged once every two weeks.

Ecology considers this discharge to be similar in character and strength to domestic wastewater and no sampling is proposed to be required in the proposed permit.

Building 1107 – Parking Garage

Parking Garage Stormwater (NBK-1107-001)

Building 1107 Parking Garage is a 3-story parking garage. Stormwater on the top floor and any sideway stormwater collected on the middle floors are directed to a 2,200-gallon capacity baffle type oil/water separator that discharges to the sanitary sewer. Average flow is 2,800 gallons per day based on 54 inches of rain per year and assuming that 25% of the rain got into a 10 feet wide strip along one side of the parking garage. Maximum daily flow of 58,900 gallons is based on a 3-inch rain day and assuming that 50% of the rain got into a 10-foot wide strip along one side of the parking garage. The oil/water separator is inspected once every six months and cleaned at least once a year by the base operation support contractor.

Ecology has not proposed monitoring requirements on these systems, as the associated discharge is expected to contain environmentally insignificant concentrations of pollutants.

Building 1140 – Parking Garage

Parking Garage Rainwater (NBK-1140-001)

Building 1140 Parking Garage is a 10-story parking garage. Stormwater on the top floor is directed to a detention pond prior to discharge to storm drain system. Any sideway stormwater collected on the middle floors are directed to a 450-gallon capacity baffle type oil/water separator that discharges to the sanitary sewer. Average flow is 310 gallons per day based on 54 inches of rain per year and assuming that 25% of the rain got into a 10-foot wide strip along the south side of the parking garage. Maximum daily flow of 12,700 gallons is based on a 3-inch rain day and assuming that 50% of the rain got into a 10 feet wide strip along the south side of the parking garage. The oil/water separator is inspected once every six months and cleaned at least once a year by the base operation support contractor.

Ecology has not proposed monitoring requirements on this discharge, as the associated discharge is expected to contain environmentally insignificant concentrations of pollutants.

Drydock Pump Wells

- Drydock 2 Pump Station Miscellaneous Water (99-PW2-001) – estimated max daily flow 3,600 gpd
- Drydock 4 Pump Station Miscellaneous Water (99-PW4-001) – estimated max daily flow 9,000 gpd

- Drydock 5 Pump Station Miscellaneous Water (99-PW5-001) – estimated max daily flow 7,200 gpd
- Drydock 6 Pump Station Miscellaneous Water (90-PW6-001) – estimated max daily flow 25,000 gpd

A sump pump inside each of Drydocks 2, 4, 5, and 6 pumping station is used for dewatering miscellaneous sources of water collected inside the station. These miscellaneous sources of water include drydock drainage pumps' leakage, drydock drainage pumps' bearing cooling water, and dehumidifiers' water. About four times a year, the drydock is dewatered after docking evolution. During these times, the drydock dewatering pumps leak and this water is also pumped into the sanitary sewer.

Due to the nature of this wastewater, no sampling is proposed to be required at these discharge points in the proposed permit.

Installation Restoration (IR) Sites

Construction Excavation Groundwater/Stormwater Dewatering (CD-IR#-001)

Installation restoration sites are areas within PSNS & IMF and Naval Base Kitsap-Bremerton that have soil or groundwater contamination. Petroleum hydrocarbons and metals constitute the majority of the contaminants. Depending on the suspected severity of the contamination, the shipyard will sample groundwater from some such sites encountered during a construction project prior to discharge to the sanitary sewer to ensure that local limits are met.

Wastewater generated from the various installation restoration sites is subjected to treatment by settling tanks or filtration depending on the pollutant suspected or demonstrated by sampling. PSNS & IMF has requested that Ecology authorize a daily maximum discharge for each such site of 25,000 gallons per day to provide for operational flexibility for construction projects. Actual flow from each site is typically not more than 5,000 gallons per day.

Due to varying degrees of existing information and changes in the number of installation restoration sites, the proposed permit requires that the shipyard sample those installation restoration sites for parameters which have been identified as having a reasonable potential to exceed limits. The proposed permit requires that the facility report results in an annual report due on March 15 of each year for the samples collected each preceding calendar year. As previous data have indicated a good compliance history for installation restoration site discharges, Ecology reduced the sampling frequency to once each-100,000 gallons in the 2011 permit. This permit also proposes that the shipyard does not need to sample if the rate of

flow from an individual site is less than 1000 gallons per day, or if the total flow from a project is less than 100,000 gallons.

Car Wash Facility

Commercial Car Wash Facility Oil/Water Separator (MWR-Carwash-001)

This facility is a four-bay commercial coin-operated car wash. Wash water is treated by a coalescing oil water separator that has a design flow of 35 gallons per minute. The treated water is expected to have less than 15 mg/L oil & grease. The oil/water separator is inspected two times a year and cleaned out at least once a year by the base operations support contractor.

Ecology does not typically require sampling of typical commercial car wash facilities located off-base, and has not included monitoring for this car wash facility in the proposed permit. Quarterly oil and grease monitoring is required at the municipal lift stations receiving Puget Sound Naval Shipyard's flow, and the shipyard's discharge is subject to 100 mg/L maximum daily limit based on best professional judgment (BPJ) of the permit writer. The City of Bremerton has a TPH local discharge limit of 50 mg/L but did not include a limit for oil and grease. Most POTWs these days have a limit of 100 mg/L for nonpolar fats, oils, and greases, which are of petroleum or mineral origin.

Food Waste

Waste Stream (NBK Food Waste-001) - Restaurant and Cafeteria Grease Traps

Grease Trap Cleaning Frequency and Exterior Collection Container Service Frequency

Food preparation and services facilities collect cooking oil and grease and recycle it through exterior collection containers. The grease trap cleaning and exterior collection container service frequency is provided in the table below.

Table 17. Grease trap cleaning frequency and exterior collection container service frequency

Building Number & Description	Grease Trap Capacity/ Service Frequency	Exterior Collection Container/ Service Frequency
434 – Sam Adams Eatery	No	Yes/ 4 times a year
435 – Cafeteria	135 gallons/ 12 times a year	Yes/ 12 times a year
866 – All American Restaurant	Two 135-gallon grease traps, 1 in kitchen, the other in scullery/ 2 times a year	Yes/ 12 times a year
2080 – Wendy's Fast Food Restaurant	3,000-gallon/ monthly	Yes/ 2 days a week
990 – Commissary Store	480 gallons/ monthly	Yes/ once every two weeks
1015 – Olympic Lodge Dining and Reception Center	1,690 gallons/ 1 time a year	Yes/ 12 times a year

Ecology does not normally require food service establishments (FSEs) to have State Waste Discharge Permits under the exemption for wastewaters which are similar in character and strength to domestic wastewaters. The restaurants identified in the table above do not appear to be of unusual scale for restaurants. Ecology is not including these discharges under the proposed permit due to the fact that Ecology considers the discharges to be similar in character and strength to domestic wastewater. The permit, however, lists appropriate Best Management Practices (BMPs) that must be considered by the food service establishments within PSNS. The list includes the following: maintain all grease traps and oil/water separators, which discharge to the Bremerton WWTP, in good working order; inspect grease traps on at least a monthly basis and clean as necessary; maintain a log of each such inspection and cleaning performed and make the log available, upon request, to Ecology during any inspection of the facility it conducts; wastewater must not be discharged to sanitary sewer if free floating polar fats, oils, and greases (FOG) are visible on the surface or adhering to the sides of storage containers.

Shipboard Discharges (SHPBD-001)

PSNS & IMF controls shipboard discharges with an Industrial Process Instruction. This instruction provides the disposal methods for liquids drained from ship systems; for liquids generated from testing, cleaning, soaking, and flushing evolutions; and liquids from voids and bilges, etc.

The majority of these liquids, which contain low concentrations of metals from corrosion of piping systems, are collected for treatment by the Oily Water Treatment Systems (OWTS). In most cases they are drained to the bilges and are then pumped to the OWTS for treatment. Wastewaters generated from flushing sea water systems with acid solution to remove sea growth are collected for treatment by Building 1109 Industrial Wastewater Pretreatment Facility or disposed of off-site. Rinsewater phases from acid solution to remove sea growth may be taken to OWTS

for treatment. A small number of system liquids are also sent off-site for disposal, such as monoethanolamine solution in carbon dioxide scrubber system. Some system liquids are tested to see if they can be discharged to the sanitary sewer. For example, sea water that has been inside a piping system for more than one year is required to be tested for Total Metals (Cr, Cu, Pb, Ni, Zn) to see if it meets all the discharge limits. It is then pumped to the sanitary sewer only if all metals are below the discharge limits. Other very clean system liquids, such as boiler feed water or potable water, are allowed to be discharged directly to the sanitary sewer.

Cooling Tower Discharges (TOWER-001)

There are two types of cooling towers at PSNS & IMF and Naval Base Kitsap-Bremerton. The indirect, or closed circuit cooling towers, involve no direct contact of the air and the fluid being cooled. The closed-loop fluid is cooled by the water in the cooling tower, which is in turn cooled by air in the atmosphere. In the direct, or open-circuit cooling towers, the fluid being cooled circulates through the cooling tower and is cooled by the air in the atmosphere.

The water in the cooling tower is discharged to the sanitary sewer periodically as blowdown to prevent buildup of solids, which could cause scaling.

In some cooling towers, biocides and corrosion inhibitors are used. For Buildings 900, 818, and 923 cooling towers, Nalco H-550 microbiocide is used at 90 ppm maximum one day a week, Nalco Stabrex ST70 is used at 1 ppm maximum 5 days a week for a couple hours for disinfection, and Nalco 3D Trasar 3DT230 is used at 100 ppm for corrosion inhibitor.

The 2011 permit required PSNS & IMF to identify all cooling towers with discharges greater than 5000 gallons per day maximum (including any annual drainings for maintenance), and sample the discharges from those cooling towers for total copper and total zinc, once during the life of this permit.

In compliance with that requirement, PSNS & IMF provided the following information with the 2016 permit application.

Table 18. Cooling tower discharge locations and volumes

Building	Estimated Cooling Tower Blowdown in gallons per day
427	100
452	9
818	1136 – 1586
850	131
850A	574
898	2880
900 – Air Compressors	618 – 918
900 – Diesel Generators	1435 – 1735
923	1109 – 1559
943	8427
985	29

As shown in the above table, Building 943 was identified as producing cooling tower blowdown of greater than 5000 gpd hence it was sampled once during the permit cycle for copper and zinc. The reported results in the 2016 permit application are 0.095 mg/L and 0.038 mg/L for copper and zinc, respectively.

Ecology proposes to retain the requirement for identifying cooling towers with blowdown of 5000 gpd and sampling those towers for copper and zinc once during the five-year permit cycle. Cooling towers are known to be a source of molybdenum in wastewater systems as it is used to supplement standard air conditioning and refrigeration systems. PSNS&IMF presented molybdenum data from Lift Stations WB-3 and 9 which show very low levels of molybdenum discharging to Bremerton, well below Bremerton's local limit. Therefore, Ecology will not include molybdenum monitoring at cooling towers at this time. The discharges from the cooling towers are not subject to permit discharge limits for molybdenum, copper, and zinc.

VARIOUS BUILDINGS – Gas Fired Boilers

Boiler blowdown/leakage occurs at various domestic and minor commercial buildings, such as bachelor officer's quarters, bowling alleys, and cafeterias. Due to the limited flows discharged and the nature of boiler blowdown, Ecology has not listed the individual discharge points for each of these small boilers in the fact sheet or proposed permit. As the discharges from these small boilers are substantially equivalent to domestic wastewater in strength and character, Ecology finds that, due to the largely domestic nature of these sources, as well as the similar-to-domestic-in-character-and-strength nature of these discharges authorization under a State Waste Discharge Permit is not necessary to discharge these wastewaters. Therefore, the discharges from the blowdown and maintenance of the miscellaneous small boilers on the base have not been listed as a separate authorization in the list of discharges listed on the proposed permit. This finding of exemption is not

applicable to ship-based boiler water systems, regardless of whether such boilers are fired by conventional or nuclear means.

Non-Contact Cooling Water Sources in Various Buildings (NCCW-001)

PSNS & IMF has listed a number of cooling water discharges in its permit application, which are in general, minor discharges compared to the cooling tower discharges which are described in the section on sample point "Tower-001." The discharges are "once-through" cooling systems. Ecology considers a number of these waste streams to be similar, with respect to their sources and characteristics, to domestic waste streams. Although the volumes wastewater contributed by each source individually are modest, the combined discharge in volume is substantial. PSNS & IMF is presently working on replacing some of these cooling systems with closed-loop cooling systems. Ecology has not proposed monitoring requirements on the discharge from these systems as it is expected to contain environmentally insignificant concentrations of pollutants.

The table below (submitted with the 2016 permit application) provides the noncontact cooling water sources, estimated daily flows, and the proposed water reduction measures if it is cost effective and when funding is available.

Table 19. Noncontact cooling water sources and flow volumes

Noncontact Cooling Water Source	Estimated Flow	Water Reduction Measure
Heat exchanger for electrical equipment in the Naval Tactical Data System (NTDS) area in Building 431	1,260 gallons per day (gpd) when it's being used.	This noncontact cooling water usage will be evaluated and replaced with a closed loop system if it's cost effective.
Eight hydraulic test stands in Building 431 Hydraulic Test Room	Total flow of 700 gpd for 5 days per week for the three older hydraulic test stands. For the new hydraulic test stands cooling water flow rate varies as needed and can be as high as 140 gallons per minute. At times the new hydraulic test stands can remain idle for up to two weeks.	For the three older hydraulic test stands cooling water usage will be evaluated and replaced if it's cost effective. Cooling water for the new test stands only comes on when the oil used in the test stand needs cooling.
One rubber mill in Rubber Room at Building 431	30 gpm only when it's being used.	None since the noncontact cooling water usage in this process is very low.
Ice machine in Building 435	1,440 gpd	None.
Seven walk-in coolers in Building 435	Total flow of 25,920 gpd	None.
Furnaces # 3, 5, and 9 in Building 452	Furnace #3 – 1,400 gpd Furnace #5 – 2,900 gpd Furnace #9 – 6,500 gpd	There is a project being planned to replace these noncontact cooling water with a closed-loop cooling system that is handled by Building

Noncontact Cooling Water Source	Estimated Flow	Water Reduction Measure
		452's cooling tower, unless it is cost prohibitive.
Hydraulic Presses #1 and 2 in Building 460	Total flow of 18,700 gpd	Noncontact cooling water may be replaced with forced air heat exchanger if it is found to be cost effective.
Spot Welders NID 019892 and NID 037440 in Building 857	Spot Welder NID 019892 – 450 gpd Spot Welder NID 037440 – 600 gpd	None.
Vapor Degreaser in Building 873	4,300 gpd maximum (only during operation)	There is a plan to replace this vapor degreaser with one that does not use water for cooling.
10,000 amps Rectifier in Building 873	9,400 gpd maximum (only during operation, it is normally used once every two years for about two weeks straight)	There is a plan to replace this rectifier with an air-cooled rectifier.
Thermotron Environmental Test Chambers (2) in Building 661 Calibration Laboratory	2X480 gpd (960 gpd maximum)	None. Estimated to be purchased operational in 2020

Dry Dock, Pier, and Street Utility Service Galleries, Tunnels, and Trenches Sumps

Utility Service Sumps Discharge

Fresh water, sea water, domestic wastewater, oily wastewater, and steam piping can be located in various dry dock, pier, and street utility service galleries, tunnels, and trenches. These galleries, tunnels, and trenches may have sump pumps for pumping out rain water, condensation, steam condensate, and any minor leakage from the various piping systems. Oily wastewater piping is double-walled and has leak detection. Therefore, there is no leakage of oily wastewater to these galleries, tunnels, and trenches. The following dry docks, piers, and street utility service galleries, tunnels, and trenches have sump pumps to the sanitary sewer (Pier D utility trenches have to be pumped out when there is water accumulation). The average daily flow is about 100 gallons per day per gallery/tunnel.

- Dry Docks 1, 2, 3, and 6.
- Piers 3, 7, and C utility tunnels.
- Piers B and D utility trenches.
- Tunnel 752.

The discharge volume and characteristics from the sump pumps described above have little to no potential to cause any issues with the collection system or the WWTP hence no monitoring is required from these discharges.

Utility Vaults Rain Water and Excavations Outside IR Sites Rainwater/Groundwater

Utility Vaults Rain Water and Excavations Outside IR Site Rain Water/Groundwater (NonIRExc-001)

Rain water accumulated in utility vaults and rain water and/or groundwater in excavations located outside Installation Restoration (IR) sites are typically discharged to the storm drain system. It can also be pumped to the sanitary sewer after sediment removal, if necessary, by settling or by filtration. Estimated average flow is about 50 gallons per day for about 60 days per year.

New Piping Hydrotesting and Disinfection Water (NPHDRTST-001)

New Water Piping Hydrotesting

New water piping needs to be hydrotested prior to usage. The water generated is discharged to the sanitary sewer at the flow rate of less than 100 gallons per minute (gpm).

New Water Piping Disinfection

New water piping needs to be disinfected with chlorine prior to usage. The typical process is to fill the new water line with 100 parts per million (ppm) chlorine for 24 hours prior to draining the system. The initial chlorinated water at less than 100 ppm is discharged to the sanitary sewer at the flow rate of 100 gpm or less. Subsequently, fresh water that is used to flush the line to get chlorine to less than 2 ppm is discharged to the sanitary sewer at the flow rate of 200 gpm or less.

Ecology has not proposed monitoring requirements on these systems, as the associated discharge is expected to contain environmentally insignificant concentrations of pollutants.

Pier 6 – Shop 38

Heat Exchanger Hydrolance Training (38-Pier 6-001)

Fresh water is used to hydrolance new stainless steel heat exchanger tubing for training purposes. The wastewater is filtered through a 1-micron filter prior to discharging to the sanitary sewer. Since the heat exchanger is stainless steel and the wastewater will be filtered, metals are not expected to be present. A small amount of wastewater with residual oil droplets from the pump will be collected separately and routed to the OWTS at Pier 6. There are approximately 30 days of training per year with a maximum daily discharge of 2,700 gallons.

Ecology has not proposed monitoring requirements on this process, as the associated discharge is not expected to contain significant concentrations of pollutants.

Miscellaneous Discharges to the Sanitary Sewer Under the Waste Information Sheet Process (WISP-001)

At PSNS & IMF and Naval Base Kitsap-Bremerton, there are other wastewaters that are either of a temporary nature, or they could be generated in many locations. Examples of these wastewaters include expired shelf-life saline solution from shipboard, expired portable eyewash station water, and concrete saw cutting water, etc. When the wastewaters are generated, the generators of these wastewaters submit Waste Information Sheets (WIS) to Code 106.33. Waste designation is then performed by Code 106.33. If the designation is non-hazardous and if the wastewater meets all applicable discharge limits per the SWDP, then the wastewater is approved for discharge to the sanitary sewer. Wastewaters which do not meet WISP criteria for disposal to the sanitary sewer are either hauled to Building 1109 for treatment or hauled off-site as hazardous waste.

The list below provides examples of miscellaneous wastewaters that have been approved for discharge to the sanitary sewer per this process.

- Miscellaneous rinsing, flushing, washing wastewaters containing Formula 409, citric acid, trisodium phosphate, sodium hypochlorite 5 – 7%, dishwashing compound, or Devprep 88 at 10% or less.
- Wastewater generated from training on usage of hydrolance (hydroblasting gun). (This training only happens once every two years.)
- Latex paint brushes/rollers washing and rinsewater.
- Excess/expired/unused liquid medicine such as Dextrose & sodium chloride 1% solution, hydrogen peroxide 3% solution, enema from C.B. Fleet Inc., Hespen, Trutol 100, sterile water, gram diluent, buffer, Hetastarch from Abbott Labs, lactated solution injection.
- Test/inspection products such as sodium thiosulfate solution, iodide-iodate reagent, pH buffer solutions.
- Unused distilled battery water.
- Water from deliquescent air dryers.
- IR sites monitoring well purge water.
- Miscellaneous wastewater from spill clean-up.
- Water from handwash stations.
- Portable eyewash station expired solution.
- Incidental rainwater collected in clean drums or containment.

- Concrete saw cutting water.
- Sewage wastewater from working on sewage piping or from leakage from sewage piping.
- Emergency shower and eyewash station weekly functional testing water.
- 3D printer soluble support material dissolving solution.
- Respirator washer wastewater.
- Ultrasonic cleaner wastewater.
- AFFF with halogenated organic carbon (HOC) content less than 100 pm. For calculating HOC, see the persistent dangerous waste table at the bottom of WAC 173-303-100.

Ecology has not proposed monitoring requirements or flow limits for the WISP discharges in the proposed permit.

4. Brief description of City of Bremerton Wastewater Treatment Plant

The City of Bremerton treats its wastewater using two treatment plants, the West Plant and the East Plant, and operates under NPDES permit number WA0029289. The latest permit is effective from December 1, 2018, through November 30, 2023.

West Plant: The West Plant receives domestic sewage from residential and light commercial activities in Bremerton. The plant also receives domestic and industrial wastewater from PSNS & IMF. The West Plant receives and treats combined sewage during wet weather periods.

The West Plant operates as a conventional activated sludge secondary treatment system. The liquid stream treatment components include three mechanical bar screens, two aerated grit chambers, two primary clarifiers, a biofilter, two aeration basins with fine bubble diffusers, two secondary clarifiers, two chlorine contact basins for disinfection with sodium hypochlorite solution, and a sodium bisulfite solution dechlorination system. Treated and disinfected effluent discharges to Sinclair Inlet.

The solids stream treatment system includes two rotating drum thickeners (RDTs), two anaerobic digesters, and two centrifuges. The plant also has a gravity thickener that is currently not in use. Pumps transfer primary sludge from the primary clarifiers directly to the anaerobic digesters for stabilization. Waste activated sludge pumps direct secondary sludge to the RDTs for thickening. The thickened secondary sludge is then pumped to the anaerobic digesters. The centrifuge dewaters the digested sludge before it is shipped out as a Class B biosolids to city-owned forest lands for silviculture purposes. Water removed from solids by the RDT and the centrifuge, along with supernatant decanted from the digesters, return to the head of the plant for treatment. The facility uses vertical packed bed absorption towers to remove odors generated by various treatment units, including

the headworks (bar screens and grit removal units), primary clarifiers, gravity thickener, digester complex, centrifuge area, biofilter, return activated sludge wet well and primary and secondary scum boxes.

East Plant: The East Plant operates intermittently during wet weather periods to treat combined sewage from East Bremerton that exceeds the capacity of the conveyance system to the West Plant. On average, the East Plant operates less than ten days a year. Treatment components include a storage tank, a bar screen, a Ballasted Sand High Rate Clarification system, and an ultraviolet light disinfection system. Treated and disinfected effluent discharges to the Port Washington Narrows. Screenings and sludge removed at the East Plant are conveyed to the West Plant for treatment.

5. Solid wastes

The sludge from Building 1109 is sent off-site as hazardous waste. Sludge from the Oily Water Treatment Systems (OWTS) goes to landfill as industrial waste. Per the landfill acceptance criteria, the sludge is sampled twice a year.

B. Discharge location to the City of Bremerton Wastewater Treatment Plant

PSNS & IMF uses two lift stations for sending sewage and industrial wastewater to the City of Bremerton. Lift station 9 pumps about 7% of the total flow from the shipyard to the east of the shipyard. This includes the minor industrial discharges from Buildings 857, 290, 460, 495, and any domestic wastewater discharges from these buildings and from vessels being worked on in Drydock 3 if the eastside utility gallery of the drydock is being used. Lift station WB-3, which is a municipal lift station owned and operated by Bremerton, is the shipyard's main discharge point to the city as it pumps the other approximately 93% of the shipyard's domestic and industrial wastewater to Bremerton. PSNS & IMF samples from the shipyard influent line before the connection is made to the Bremerton sewer lines. The shipyard is required to meet Bremerton's local discharge limits at both lift stations.

C. Wastewater characterization

Puget Sound Naval Shipyard and Intermediate Maintenance Facility reported the concentration of pollutants in the permit application and in discharge monitoring reports. The tabulated data represents the quality of the effluent discharged from December 2011 through October 2018 effluent is characterized as follows:

Table 20. Wastewater characterization based on DMR data

Parameter	Units	# of Samples	Monitoring Point Code [a]	Maximum Value	Average Value
Cadmium	mg/L	68	1	0.08	0.051
Chromium	mg/L	68	1	0.91	0.163
Copper	mg/L	68	1	2.05	0.411
Lead	mg/L	68	1	0.07	0.05
Mercury	mg/L	68	1	0.005	0.0009
Nickel	mg/L	68	1	1.39	0.323
Silver	mg/L	68	1	0.15	0.052
Tin	mg/L	68	1	0.05	0.05
Zinc	mg/L	68	1	0.63	0.0875
Cyanide	mg/L	68	1	0.18	0.056
TTO	mg/L	68	1	0.225	0.061
PCBs (total aroclors)	ug/L	11	1	0.51	0.36
Flow	Gallons per day	68	1	19200	9760

Parameter	Units	# of Samples	Monitoring Point Code	Minimum Value	Maximum Value
pH	Std units	68	1	6.9	11.0

[a] Monitoring Point Code 1 designates discharges from Building 1109, Industrial Wastewater Pretreatment Facility, Navy Discharge Designation 99-1109-01

Parameter	Units	# of Samples	Monitoring Point Code [a]	Maximum Value	Average Value
Cyanide	mg/L	11	2	1.12	0.587
Flow	Gallons per day	25	2	19800	3015

[a] Monitoring Point Code 2 designates discharges from Building 1109, Industrial Wastewater Pretreatment Facility, Cyanide Wastewater Treatment. Navy Discharge Designation 99-1109-02

Monitoring Point Code, Monitoring Point Description	Statistical Basis	Parameter, units					
		Flow, gpd	Copper, mg/L	Nickel, mg/L	Zinc, mg/L	TPH, mg/L	TTO, mg/L
3, 99-OW1-001	Max	125800	0.109	0.960	1.48	14.2	0.010
	Average	23137	0.024	0.147	0.107	6.35	0.010
4, 99-OW2-001	Max	70800	0.202	0.150	0.350	11.6	0.014
	Average	20950	0.030	0.068	0.080	6.23	0.011
5, 99-OW3-001	Max	50300	0.475	0.350	0.820	15.0	0.000
	Average	26108	0.103	0.099	0.099	6.0	0.000
6, 99-OW4-001	Max	96500	1.190	0.230	0.650	20.5	0.011
	Average	35800	0.072	0.078	0.095	6.41	0.010
7, 99-OW5-001	Max	62300	0.863	1.030	2.92	27.3	0.210
	Average	28043	0.077	0.119	0.181	6.19	0.038
8, 99-OW6-001	Max	106500	0.480	0.200	1.090	9.00	0.148
	Average	58000	0.030	0.065	0.111	5.21	0.027
9, 99-OW7-001	Max	33500	0.096	0.370	0.220	32.0	0.000
	Average	20000	0.019	0.065	0.067	7.54	0.000

Monitoring Point Code, Monitoring Point Description	Statistical Basis	Parameter, units				
		Chromium, mg/L	Copper, mg/L	Lead, mg/L	Nickel, mg/L	Zinc, mg/L
10, 99-DD1-002	Max	0.050	0.290	0.050	0.050	2.050
	Average	0.050	0.102	0.050	0.050	0.482
11, 99-DD2-002	Max	0.050	2.940	0.050	NA	2.500
	Average	0.050	0.209	0.050	NA	0.673
12, 99-DD3-002	Max	0.050	0.460	0.050	0.220	1.120
	Average	0.050	0.092	0.050	0.067	0.253
13, 99-DD4-002	Max	0.050	0.650	0.050	0.050	1.870
	Average	0.050	0.097	0.050	0.050	0.439
14, 99-DD5-002	Max	0.050	0.340	0.050	0.050	1.080
	Average	0.050	0.100	0.050	0.050	0.434
15, 99-DD6-002	Max	0.050	0.790	0.050	0.080	1.580
	Average	0.050	0.152	0.050	0.054	0.413

Parameter	Units	# of Samples	Monitoring Point Code, Monitoring Point Description	Maximum Value	Average Value
Flow	Gallons per day	79	16, 99-DD6-002	954,000	154,000

Parameter	Units	# of Samples	Monitoring Point Code, Monitoring Point Description	Maximum Value	Average Value
Silver	mg/L	10	50, 135-431-203-002	0.27	0.101

Monitoring Point Code, Monitoring Point Description [a]	Statistical Basis	Parameter, units				
		Chromium, mg/L	Copper, mg/L	Lead, mg/L	Nickel, mg/L	Zinc, mg/L
99-856-001	Max	0.050	0.31	0.050	NA	0.2
	Average	0.050	0.31	0.050	NA	0.2
99-856-002	Max	0.050	0.56	0.050	0.050	0.050
	Average	0.050	0.325	0.050	0.050	0.050

[a] These monitoring points have been removed as the processes are no longer carried out at PSNS & IMF.

Monitoring Point Code, Monitoring Point Description	Statistical Basis	Parameter, units				
		Flow, gpd	Copper, mg/L	Nickel, mg/L	Zinc, mg/L	TTO, mg/L
71, 17-857-002	Max	3760	0.05	0.05	0.05	0.011
	Average	3243	0.05	0.05	0.05	0.010
72, 17-857-004	Max	7500	0.05	0.05	0.05	0.032
	Average	3000	0.05	0.05	0.05	0.02
73, 17-857-006	Max	3450	1.03	0.050	0.050	0.034
	Average	2700	0.57	0.050	0.050	0.016
74, 17-857-007	Max	7600	0.05	0.05	0.1	0.014
	Average	2500	0.05	0.05	0.0625	0.011
75, 17-857-008	Max	62300	NA	NA	NA	NA
	Average	28043	NA	NA	NA	NA

Parameter	Units	# of Samples	Monitoring Point Code, Monitoring Point Description	Maximum Value	Minimum Value
pH	Std. Units	34	77, 17-857-008	8.8	6.5
pH	Std. Units	3	80, 31-873-003	8.1	8.6

Monitoring Point Code, Monitoring Point Description	Statistical Basis	Parameter, units		
		Flow, gpd	Copper, mg/L	Zinc, mg/L
87, NBK-912-001	Max	74900	0.52	0.24
	Average	50780	0.091	0.063

Monitoring Point Code, Monitoring Point Description	Statistical Basis	Parameter, units				
		Cadmium, mg/L	Chromium, mg/L	Copper, mg/L	Cyanide, mg/L	Lead, mg/L
105, Lift Station Number WB-3	Max	0.058	0.05	0.555	0.2	0.05
	Average	0.015	0.02	0.186	0.046	0.03
106, Lift Station Number 9	Max	0.05	0.05	0.453	0.49	0.05
	Average	0.015	0.019	0.054	0.057	0.031

Monitoring Point Code, Monitoring Point Description	Statistical Basis	Parameter, units				
		Mercury, mg/L	Nickel, mg/L	Zinc, mg/L	TPH, mg/L	Salinity, PSU*
105, Lift Station Number WB-3	Max	0.005	0.21	0.549	24	12.77
	Average	0.0011	0.043	0.183	5.5	5.51
106, Lift Station Number 9	Max	0.005	0.052	1.5	87	10.85
	Average	0.001	0.020	0.13	6.3	3.3

*PSU stands for practical salinity units.

PSNS & IMF reported no discharges from the Non Destructive Testing X-Ray Development Rinsewater (135-147-001). Since this Non Destructive Testing X-Ray Development unit at Building 147 was the back-up unit to the one at Building 431 and was never started up and used, PSNS requested removal of this discharge point from the permit. The proposed permit doesn't list this discharge point.

D. Summary of compliance with previous permit issued November 10, 2011

PSNS & IMF has complied with the effluent limits and permit conditions throughout the duration of the permit issued on November 10, 2011, with the exception of the following violations listed in Table 25. 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 conducted by Ecology.

The following table summarizes the violations that occurred during the permit term.

Table 21. Effluent and reporting violations in the previous permit cycle

Parameter Type	Max Limit	Measurement Value Quantity	Monitoring Period Begin Date	Monitoring Point Code [a]	Violation
Flow	550000	560000	2/1/2014	16	Numeric effluent violation
Flow	550000	553000	3/1/2014	16	Numeric effluent violation
Copper	3.2	None	5/1/2014	4	Analysis not Conducted
Nickel	1.95	None	5/1/2014	4	Analysis not Conducted
Zinc	4	None	5/1/2014	4	Analysis not Conducted
Petroleum Hydrocarbons	50	87	8/1/2015	107	Numeric effluent violation
pH (Hydrogen Ion)	11	None	11/1/2015	76	Analysis not Conducted
Copper	3.2	None	3/1/2016	3	Analysis not Conducted
Nickel	1.95	None	3/1/2016	3	Analysis not Conducted
Zinc	4	None	3/1/2016	3	Analysis not Conducted
pH (Hydrogen Ion)	11	None	1/1/2017	76	Analysis not Conducted

[a] These Ecology assigned monitoring codes are associated with the new permit. Navy designated discharge codes are unchanged. For cross reference, refer to Table 1.

The most common violation is missed sampling events.

PSNS & IMF submitted DMRs later than the due date for most of the year 2012. Since then, there has been only one late submittal in January 2017. PSNS & IMF, however, stated that "we have checked our records and they all met the requirement of being postmarked on or prior to the due dates."

E. National environmental policy act (NEPA) compliance

Federal law exempts the issuance, reissuance or modification of any wastewater discharge permit from the NEPA 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. The discharges from Puget Sound Naval Shipyard & Intermediate Maintenance Facility are existing discharges authorized by an existing permit, which is categorically excluded from a detailed environmental analysis because this federal agency has previously been determined as having no significant environmental impact.

III. Proposed Permit Limits

State regulations require that Ecology base limits in a State Waste Discharge permit on the:

- Technology and treatment methods available to treat specific pollutants (technology-based). Technology-based limits are set by the EPA and published as a regulation (40 CFR 400 - 471), or Ecology develops limits on a case-by-case basis (40 CFR 125.3, and RCW 90.48).

Dischargers must treat wastewater using all known, available, reasonable methods of prevention, control, and treatment (AKART).

- Effects of the pollutants on the publicly-owned treatment works (POTW). Wastewater must not interfere with the operation of the POTW. Ecology considers local limits in developing permit limits.
- Applicable requirements of other local, state and federal laws.

Ecology applies the most stringent of these limits to each parameter of concern and further describes the proposed limits below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, monitoring, 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, and are not listed in regulation.

Ecology does not usually develop permit limits for pollutants not reported in the permit application but may be present in the discharge. The permit does not authorize the 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. Until Ecology modifies the permit to reflect additional discharge of pollutants, a permitted facility could be violating its permit.

A. Technology-based effluent limits

Waste discharge permits issued by Ecology specify conditions requiring all available and reasonable methods of prevention, control, and treatment (AKART) of discharges to waters of the state (RCW 90.48).

Existing federal categorical limits for this facility are found under 40 CFR Part 433.17. The Department of Ecology considers the federal standards set forth in 40 CFR Part 433.17 (Metal Finishing, Pretreatment Standards for New Sources) to be consistent with state of Washington AKART requirements.

The state waste discharge permit regulations include restrictions and prohibitions to protect publicly owned sewerage systems. A facility may not discharge any wastewater having a pH less than 5.0 or greater than 11.0 or having any other corrosive property capable of causing damage or hazard to structures, equipment, or personnel unless the:

- System is specifically designed to accommodate such discharge.
- Discharge is authorized by a permit (WAC 173-216-060).

Federal regulations (40 CFR 403.5b) also prohibits the discharge of pollutants which will cause corrosive structural damage to the POTW, but in no case discharges with pH lower than 5.0, unless the collection and treatment system is designed to accommodate such discharges.

The following permit limits are necessary to satisfy the requirement for AKART:

Table 22. Technology-based effluent limits

Effluent Limits Based on 40 CFR 433.17, Pretreatment Standards for New Sources		
Parameter	**Average Monthly (mg/L)**	**Maximum Daily (mg/L)**
Cadmium, total	0.07	0.11
Chromium, total	1.71	2.77
Copper, total	2.07	3.38
Lead, total	0.43	0.69
Nickel, total	2.38	3.98
Silver, total	0.24	0.43
Zinc, total	1.48	2.61
Cyanide, total	0.65	1.20
Cyanide (A) – amenable to chlorination	0.32	0.86
Total toxic organics	N/A	2.13

Parameter	Daily Minimum	Daily Maximum
pH	5.0 standard units	11.0 standard units

These limits are applicable at Sample Point 001 (except Cyanide (A)) as the industrial wastewater pretreatment system in Building 1109 is designed to treat categorical metal bearing wastewater. The cyanide – amenable to chlorination (Cyanide (A)) limit is applicable to Sample Point 002. There are no federal categorical pretreatment standards for pH applicable to metal finishing pretreatment. For all discharge points except the two lift stations exiting the shipyard (Sample Points 105 and 106), Ecology proposes to impose a pH limit of 5.0 – 11.0, in accordance with WAC 173-216-060 (2)(b)(iv). Given that Bremerton's local limits for pH, applicable at the lift stations, is 6.0 – 10.0, it is safe to assume that dilution will bring the pH to well within the city's local limits at the final discharge point.

Given the major environmental significance of polychlorinated biphenyls (PCBs) to the state and average values reported from Sample Point 001 being above the detection limit, Ecology proposes to retain the semiannual monitoring of PCBs (as total aroclors) at Sample Point 001 with the same limit of 15 ug/L based on professional judgment that appeared on the 2011 permit.

As in the previous permit, total petroleum hydrocarbons monitoring requirements in the oily water separator systems are proposed with a limit of 100 mg/L based on professional judgment.

Quarterly oil and grease monitoring is required at the municipal lift stations receiving Puget Sound Naval Shipyard's flow, and the shipyard's discharge is subject to 100 mg/L maximum daily limit based on best professional judgment (BPJ) of the permit writer. The City of Bremerton has a TPH limit of 50 mg/L but not a limit for oil and grease. Most POTWs these days have a limit of 100 mg/L for nonpolar fats, oils, and greases (FOG).

B. Effluent limits based on local limits

To protect the Bremerton Wastewater Treatment Plant from pass-through, interference, concentrations of toxic chemicals that would impair beneficial or designated uses of sludge, or potentially hazardous exposure levels, Ecology believes it necessary to impose limits for certain parameters. Ecology based these limits on local limits established by the City of Bremerton and codified in ordinance and local limits that Ecology developed for Bremerton. Ecology's pretreatment program delegation agreement with EPA includes language in which Ecology agreed to enforce limits adopted by non-delegated programs (local limits). The limits calculated by Bremerton are intended to be applicable following mixture of industrial wastewaters with non-industrial waters in the base (hence, applicable at the lift stations which carry PSNS & IMF's wastewater to Bremerton, Lift Stations Number 9 and WB-3). Applicable limits for this discharge include the following:

Table 23. Local discharge limits established in City of Bremerton Ordinance No. 5374 as adopted on August 8, 2019

Local Discharge Limits Established in City of Bremerton Ordinance, Chapter 15.03 BMC	
Pollutant Parameter	**Daily Maximum Limit**
Arsenic, Total (mg/L)	0.10
Cadmium, Total (mg/L)	0.10
Chromium, Total (mg/L)	1.0
Hexavalent Chromium (mg/L)	0.25
Conductivity (mS/cm) [a]	6.00 Rolling 30-day average
Copper, Total (mg/L)	0.75
Lead, Total (mg/L)	0.25
Mercury, Total (mg/L)	0.010
Molybdenum, Total (mg/L)	1.0
Nickel, Total (mg/L)	0.60
Selenium, Total (mg/L)	0.10
Silver, Total (mg/L)	0.20
Zinc, Total (mg/L)	2.0
Cyanide, Total (mg/L)	0.64
Cyanide, Free (mg/L)	0.20
Ammonia, mg/L	50.0
Benzene, mg/L	0.07
Ethyl Benzene, mg/L	1.70

Local Discharge Limits Established in City of Bremerton Ordinance, Chapter 15.03 BMC	
Pollutant Parameter	**Daily Maximum Limit**
Toluene, mg/L	1.40
Total petroleum hydrocarbons, mg/L	50.0
pH, standard units	6.0 - 10.0
[a] The salinity monitoring that appeared in the 2011 permit is replaced by conductivity in the proposed permit in keeping with Bremerton's adoption of this conductivity limit. See approximate conductivities below for comparison (source Wikipedia, accessed March 14, 2019): Deionized water = 5×10^{-5} mS/cm Drinking water = 0.05-0.5 mS/cm Sea water = 50 mS/Cm	

These limits were adopted in the City of Bremerton's Municipal Code, Chapter 15.03 BMC, on August 8, 2019.

Ecology calculated local limits for the City of Bremerton WWTP using data supplied to Ecology by Bremerton and PSNS&IMF and certain literature values where local data wasn't available. The calculated local limits were generally consistent with those from the 2011 permit. The method Ecology used to develop the local limits is discussed in detail in Appendix D of this fact sheet. Ecology applied these local limits to the industrial discharges at the *"end of process"* prior to mixing with other flows whereas the local limits established by Bremerton apply to all wastewater flows from the plant and are applied at the *"end of pipe"* which is the lift stations.

The table below contains a summary of the local limits calculated by Ecology, recommended to be used in this permit for industrial discharges within PSNS & IMF that are metal bearing non-categorical sources. Categorical sources are limited by those pretreatment standards appearing in 40 CFR 433.17.

Table 24. Summary of local limits calculated by the Department of Ecology in 2019

Summary of Local Limits Calculated by the Department of Ecology in 2019	
Daily Maximum Limit	**Monthly Average Limit**
Arsenic, total (mg/L)	0.10
Cadmium, total (mg/L)	0.10
Chromium, total (mg/L)	5.0
Copper, total (mg/L)	3.4
Cyanide, total (mg/L)	2.3
Lead, total (mg/L)	0.74
Mercury, total (mg/L)	0.12
Nickel, total (mg/L)	0.92
Selenium, total (mg/L)	0.92
Silver, total (mg/L)	0.92
Zinc, total (mg/L)	3.5

Salinity discharges from PSNS&IMF and resulting issues at the Bremerton WWTP

Salinity is an estimate of the level of salt in a water sample. There is a direct correlation between salinity and conductivity; salinity can be derived from a conductivity reading using a conversion factor (usually 0.5) which is dependent on temperature. Drinking water conductivity ranges from 0.05 to 0.5 mS/cm and seawater conductivity is typically around 50/cm.

High and greatly fluctuating saline concentrations have been known to inhibit biological activity, particularly associated with nitrification. High effluent ammonia nitrogen and total suspended solids may result from incomplete nitrification and changes in floc characteristics (S.M. Yu *et al*., 2002). However, microorganisms may be able to acclimate to salt concentrations and achieve the same activity as before salt introduction (M. Linaric *et al.*, 2013).

Bremerton has stated that high saline discharges from PSNS&IMF have caused adverse effects to their collection system and treatment system. On April 7, 2015, Bremerton requested technical assistance from Ecology when the City's Westside WWTP had shown high effluent biochemical oxygen demand (BOD_5) fluctuations for the previous six months. In April 2015, Bremerton was unable to meet its 30 mg/L monthly average effluent limit for BOD_5. Bremerton stated that PSNS instituted major changes in using more of Sinclair Inlet water rather than the city's tap water in its operations which resulted in salinity spikes and fluctuations thereby interfering with Bremerton's WWTP and causing the city to violate its permit limits. As stated above, elevated salinity concentrations have the effect of inhibiting nitrification.

As part of the technical assistance, Ecology reviewed the BOD_5 analysis conducted by Bremerton. One of the main findings of the investigation was that BOD_5 analysis conducted by Bremerton showed higher estimated BOD_5 values for more dilute sample preparations than the less dilute samples after serial dilutions. This indicated that there was a matrix interference with the analytical method. At the time of inspection, Ecology recommended influent samples be split among three accredited laboratories; City of Bremerton WWTP, Analytical Resources, Inc. (ARI), and Manchester Environmental Laboratory. A review of split sample analytical results showed discrepancies in BOD_5 measurements between laboratories. Bremerton's results were significantly higher than those of ARI or Manchester. Ecology recommended Bremerton and PSNS to resolve this discrepancy before further evaluation of possible interferences.

Ecology changed the Bremerton WWTP carbon limit from BOD_5 to carbonaceous BOD_5 ($CBOD_5$). BOD results are based on DO depletion from both carbonaceous and nitrogenous actors in wastewater, while CBOD measures DO depletion only from carbonaceous sources. The city has been able to meet the $CBOD_5$ limit in its effluent but

has informed Ecology that it would still be unable to meet a BOD_5 limit of 30 mg/L consistently.

As the only Ecology-permitted industrial user in the City of Bremerton service area, Ecology conducted a partial inspection of PSNS's discharge practices to investigate potential industrial wastewater sources with the ability to adversely affect BOD_5 removal, as experienced by Bremerton. At the time of the inspection, there was no clear connection between a specific industrial wastestream, or overall wastewater discharge, and the BOD_5 removal issues at Bremerton.

Bremerton also has the following concerns about high saline discharges entering into their system,

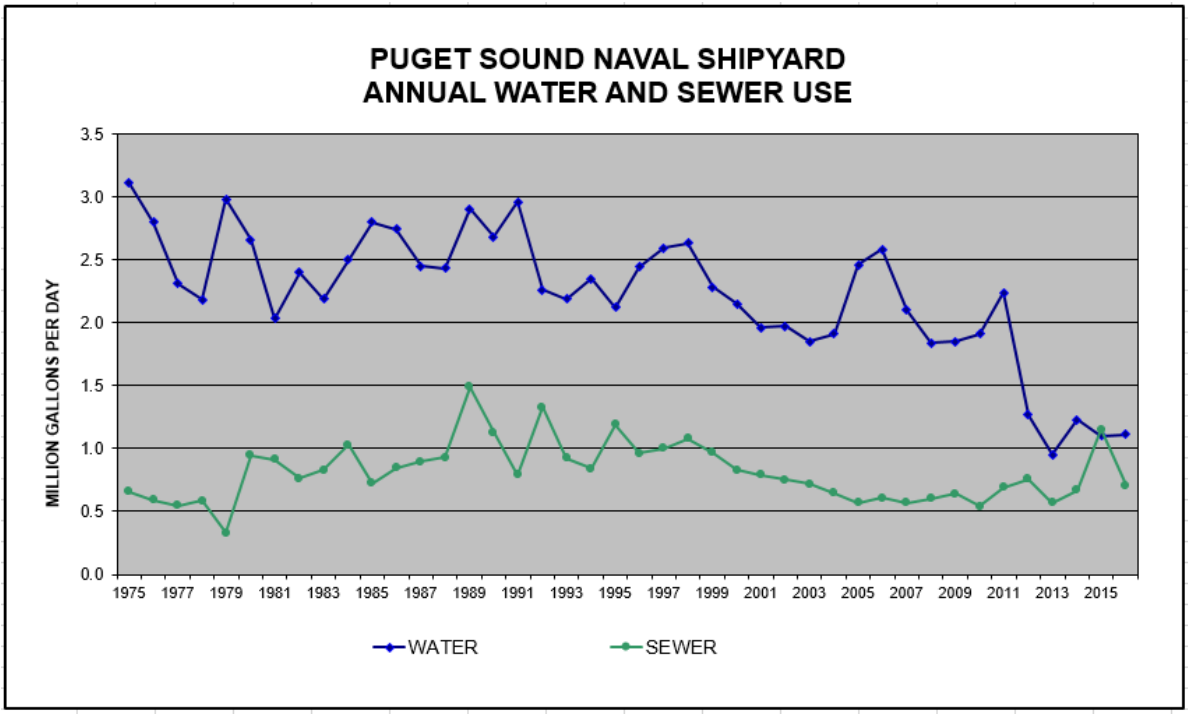
1. Wastewater treatment plants are a significant source of human-caused nutrients to Puget Sound. Water is treated before being discharged into the Sound, but nutrient removal is not part of the typical treatment process. Ecology is working collaboratively with Puget Sound stakeholders through the Puget Sound Nutrient Source Reduction Project and Puget Sound Nutrient Forum to find solutions for reducing excess nutrients. Bremerton has raised concerns that if new requirements are put in its NPDES permit or in the form of a general permit for nutrient removal, the high conductivity influent water may potentially hamper any efforts to meet future nutrient effluent requirements.

2. Bremerton has also reported to Ecology in various occasions that it has had rebuild the pumps carrying PSNS wastewater due to corrosion. Bremerton said that due to the damage being caused by the saltwater, all three pumps at WB-3 have to be retrofitted and converted to external closed loop cooling system for the pump station. Pump cooling in this case is affected by the high conductivity as the three pumps use sewage to also cool the pump, instead of using a glycol solution. This is a standard method of cooling for a Fairbanks-Morse dry-pit submersible pump, which Bremerton uses. These are the three large pumps that are located at the city's pump station WB-3, which receives the majority of the PSNS industrial flows.

   According to Rick Zimburean, City of Bremerton Maintenance Supervisor, the effects of corrosion have cost the Bremerton tax payers more than $202,000 and Bremerton still needs to have the last large pump pulled and sent in for repair and conversion, with the first two averaging $41,200 each.

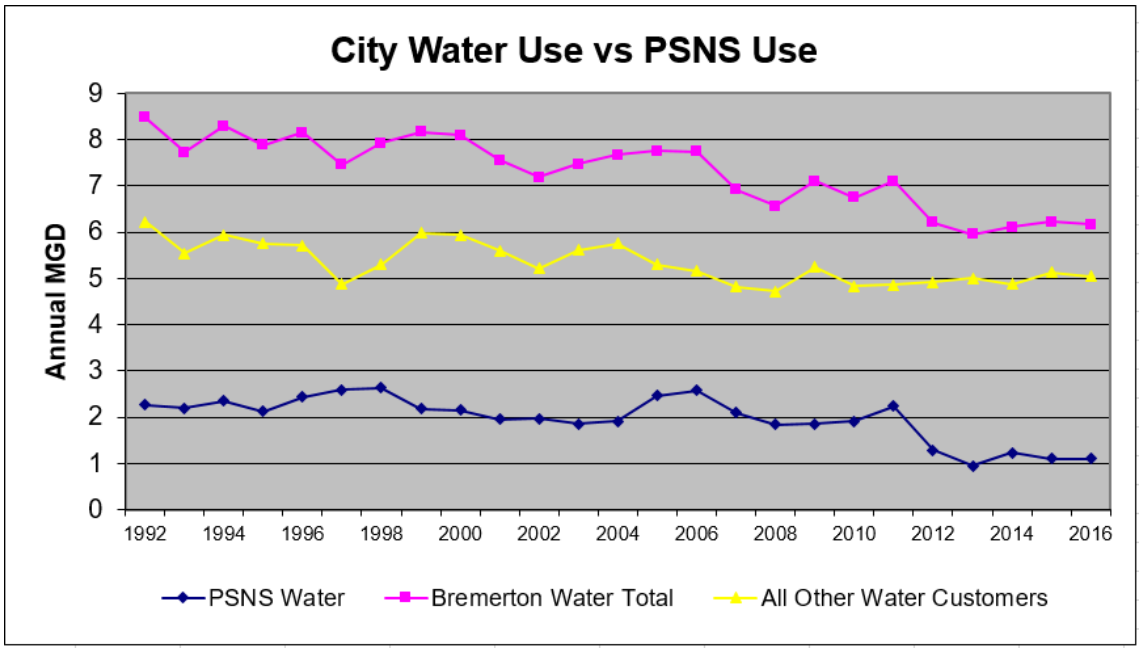
The plots below were provided by the City of Bremerton. These graphs show that the annual water use by PSNS ranged between 2 MGD to 3 MGD until about 2012 when a sharp decline is observed. Average water use from all other customers appears steady from 2006 onwards. The plot below shows that sewer use at PSNS increased from 2010 onwards, with the biggest increase in 2015. This discrepancy or water imbalance is what

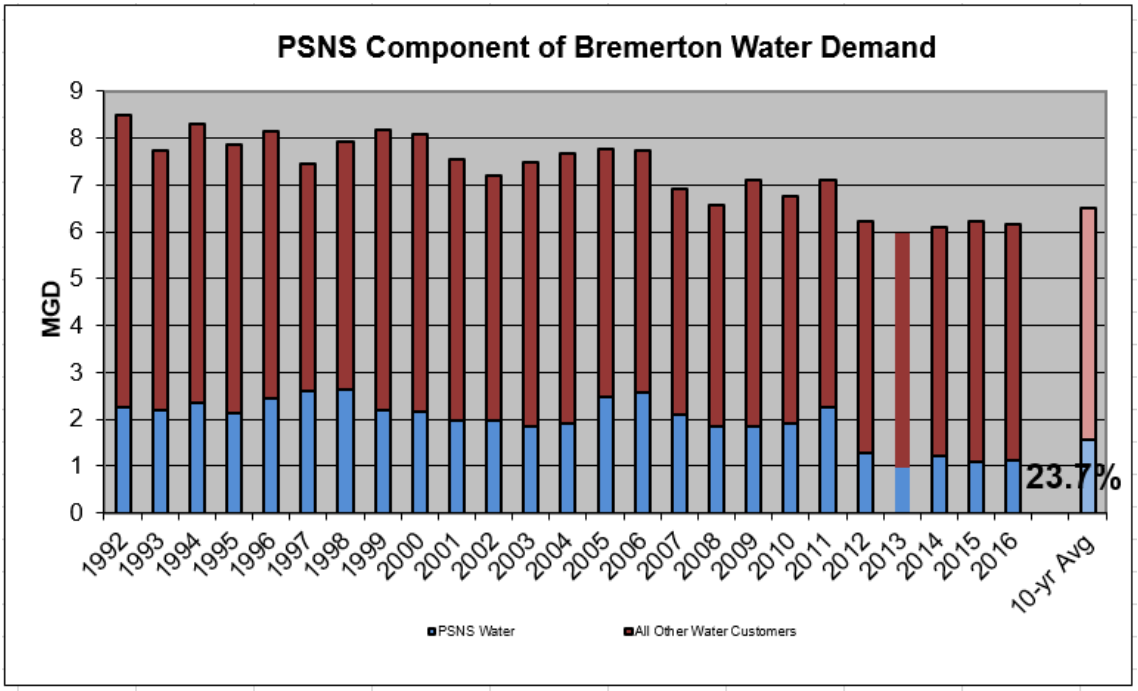
Bremerton argues to be coming from Sinclair Inlet salty water, supplied to vessels and flushing water in ships docked for service and barges.



However, in a letter to PSNS&IMF from the City of Bremerton, dated February 2019, Bremerton acknowledged overbilling PSNS for sewer use by approximately $755,000 in 2015. Updated data shows an annual average sewer use rate of 0.61 MGD during 2015. This is in contrast to the above graph which shows an annual average sewer use rate of >1.0 MGD, and is based off of incorrect data associated with the overbilling.

In light of this new information, it appears that PSNS sewer use has steadily declined since the late 1990s, with only a potential slight increase in 2012/2013. This data, although based on an annualized average, does not indicate a water imbalance of decreased potable water use and increased sewer use. On the contrary, sewer use did not increase with the decreasing potable water use.





The City of Bremerton submitted 1-minute conductivity measurements taken at Lift Station WB-3 from July 2016 through 2018. The data shows frequent spikes that reach, and potentially exceed, the upper detection range of their instrument which is 25 mS/cm. Bremerton uses Endress+Hauser CM442 – Meter and Endress+Hauser CLS50D – Digital Sensor for measuring the continuous conductivity at Lift Station WB-3.

The conductivity data show that the discharges from PSNS&IMF exhibit high variability on a 5-minute average basis. There were up to 4200 spikes per month exceeding 6.0 mS/cm on a 5-minute rolling average basis, see graphs below.

Moreover, the data show that high flow rates (ranging 100 – 300 CFM when pumps kick in) generally result in high conductivity (greater than 25 mS/cm) and low flow rates (which drop to ~ 1/100th of a CFM when pump is off) display low conductivity but it is not a linear relationship. The conclusion is that higher conductivity is observed as a result of high discharge rates and not as a result of low flow rates which may concentrate the wastewater and thus resulting in high conductivity. PSNS&IMF concurs with the statement that higher flows more likely indicate higher conductivity levels and provided the following information in the public comment period.

> Lift Station WB-3 receives flow from PSNS&IMF Lift Station 1 and 10. PSNS&IMF states that approximately 95% of the wastewater that flows to WB-3 is from Lift Station 1. Lift Station 1 normally operates only one pump at a flow rate of 1,300-1,400 gpm. The second pump only comes on when a large amount of water is coming into Lift Station 1, which would push the flow rate up to 2,100 gpm. The majority of process wastewater discharge from the OWTSs and the dry docks PWCSs flow through Lift Station 1. PSNS&IMF included that conductivity levels at Lift Station 1 range from 3-16 mS/cm. Lift Station 10 generally only pumps about 100 gpm, when in operation. Conductivity at Lift Station 10 would generally be lower because it is predominately boiler blowdown from the Steam Plant. Therefore, at WB-3, lower conductivity levels during low flows could be connected to periods when only Lift Station 10 is pumping wastewater versus when Lift Station 1 is pumping.

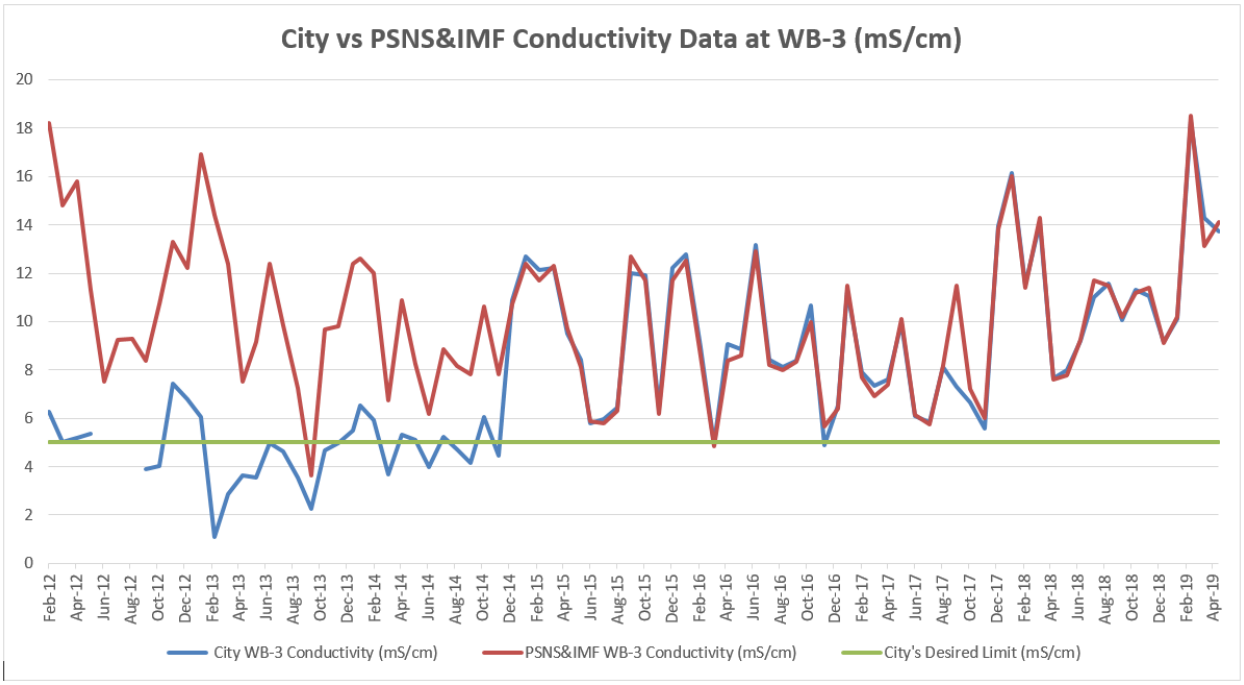
In contrast, PSNS & IMF argues that the naval shipyard has not made any changes in its operations, including increased use or discharges of sea water, in the more than two decades that it has had its state waste discharge permit that could raise salinity to such extent that it causes interference with Bremerton's WWTP operations.

PSNS's graph below shows that its conductivity measurements have stayed consistent over the years as measured in Bremerton's westside lift station WB-3. The sample is a 24-hour composite sample split with the city. Up to late 2014, Bremerton's conductivity measurements were much lower than that of PSNS's but after that period, the measurements read consistently the same.

PSNS&IMF also stated that the shipyard has implemented water conservation projects in the past several years to decrease potable water usage. The following are a list of water conservation projects,

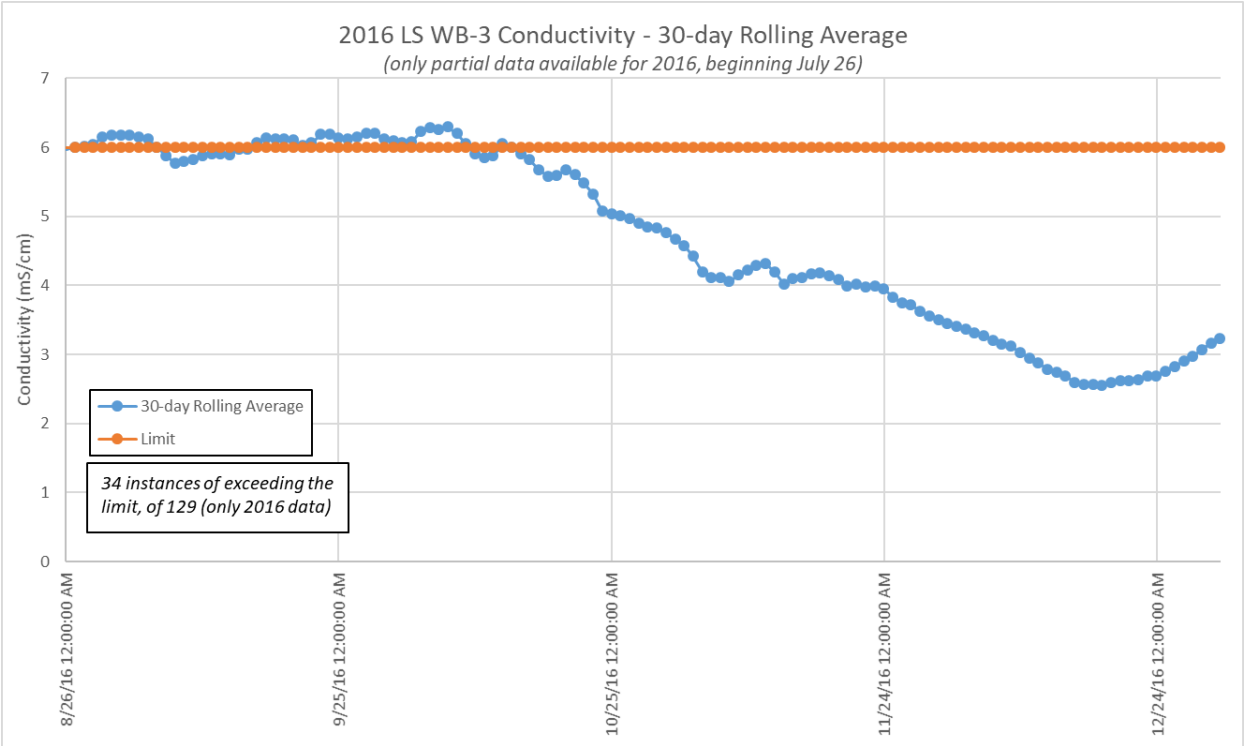
- Conversion to low-flow toilets.
- Changing the freeze protection methods on piers and dry docks to temperature control automatic freeze protection. Prior to these changes in 2011, manual freshwater freeze protection bleed valves used up to 5 gpm per connection. At 300 connections, potable

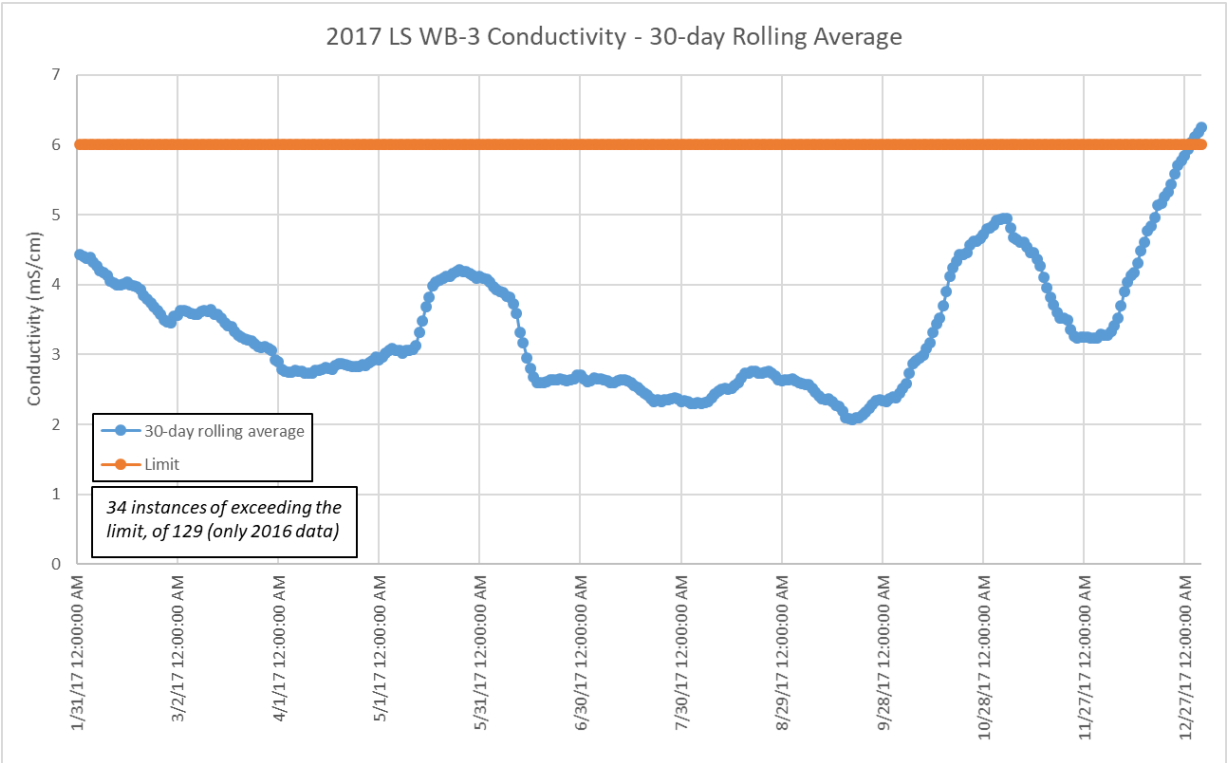
water use was up to a possible 2.16 gpd just for freeze protection. Important to note here, the potable water used in the manual freeze protection bleed valves was discharge to Sinclair Inlet, so the decrease in water use associated with this change would not have a corresponding decrease in sewer use.



The data supplied by the City of Bremerton, and historical data, clearly show that PSNS&IMF discharges wastewater with conductivity levels higher than domestic wastewater, associated from discharges of high salinity wastewater. Bremerton states that the high salinity discharges have negatively affected their collection system and treatment process. As a result, in August 2017, the Bremerton City Council passed a resolution to limit saltwater discharges into its WWTP to a conductivity of 6.0 mS/cm on a continuous 30-day average basis. The Bremerton City Council adopted an amended ordinance with these limits on August 8, 2019.

Ecology calculated the 30-day rolling average conductivity, using the 2016 through 2018 1-minute conductivity measurements submitted by Bremerton, to compare to the new limit. (This comparison is not a measure of compliance since Bremerton had not yet adopted the conductivity limit nor had Ecology included a conductivity limit in the PSNS&IMF permit.)


2016 LS WB-3 Conductivity - 30-day Rolling Average
(only partial data available for 2016, beginning July 26)
Conductivity (mS/cm)
0
1
2
3
4
5
6
7
30-day Rolling Average
Limit
34 instances of exceeding the limit, of 129 (only 2016 data)
8/26/16 12:00:00 AM
9/25/16 12:00:00 AM
10/25/16 12:00:00 AM
11/24/16 12:00:00 AM
12/24/16 12:00:00 AM


2017 LS WB-3 Conductivity - 30-day Rolling Average
Conductivity (mS/cm)
0
1
2
3
4
5
6
7
30-day rolling average
Limit
34 instances of exceeding the limit, of 129 (only 2016 data)
1/31/17 12:00:00 AM
3/2/17 12:00:00 AM
4/1/17 12:00:00 AM
5/1/17 12:00:00 AM
5/31/17 12:00:00 AM
6/30/17 12:00:00 AM
7/30/17 12:00:00 AM
8/29/17 12:00:00 AM
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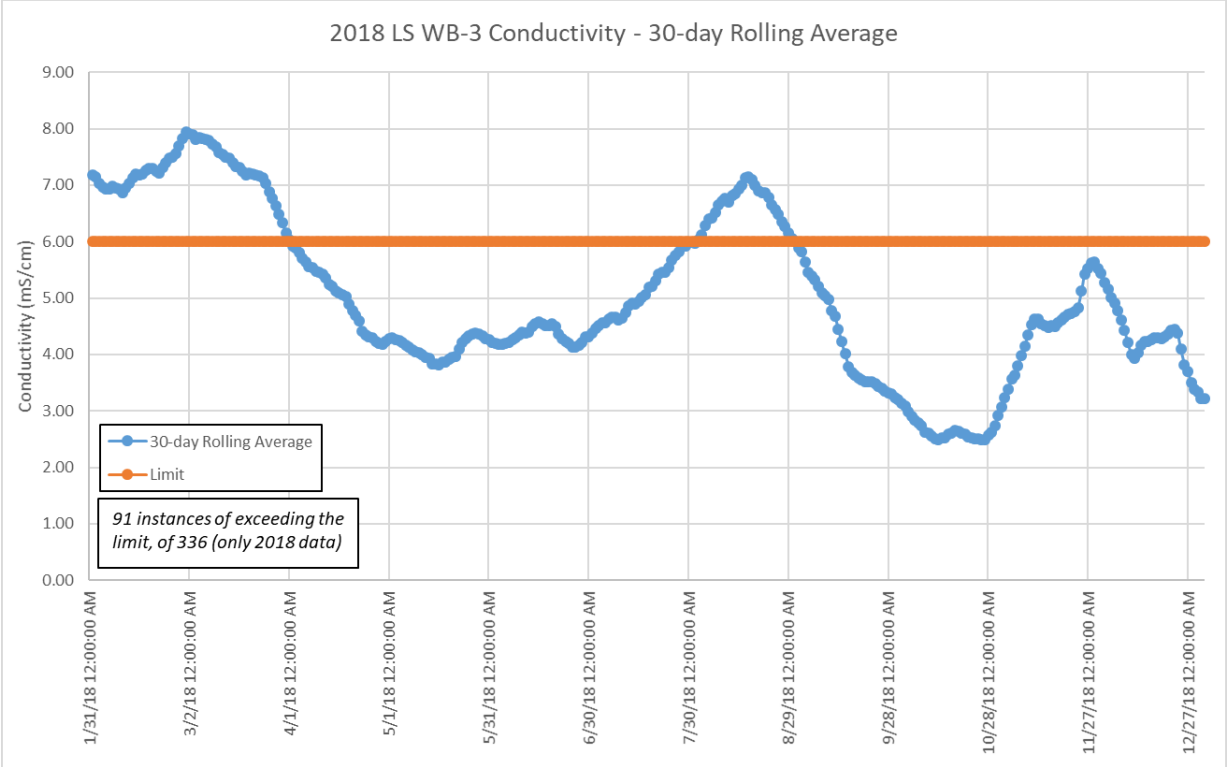
11/27/17 12:00:00 AM
12/27/17 12:00:00 AM



Both the City of Bremerton and PSNS&IMF previously investigated salinity discharges into the Bremerton sewer system.

In 1998, the City of Bremerton released the final *Water Reuse Feasibility Study Report* (September 17, 1998 and prepared by Brown and Caldwell). The intent of the report was to evaluate the feasibility of municipal wastewater reuse in an effort to maximize potable water resources. The investigation found that the salinity of the Bremerton WWTP effluent was of particular concern for reuse in irrigation applications. However, the report did not investigate the impact of the salinity on existing treatment systems. The report identified two major sources of salinity into the collection system: salt water infiltration and wastewater discharged from PSNS. Data collected for the study confirmed that between 30 to 40 percent of the salinity measured in the Bremerton WWTP influent can be attributed to PSNS&IMF.

PSNS&IMF released the final *Results of Sanitary Sewer Salinity Study – Puget Sound Naval Shipyard – Bremerton, Washington* (December 7, 2015 and prepared by EMCON). Although the report is dated 2015, this report is an amendment of a previous report completed in 1998. The majority of the information presented in this 2015 report is from data collected in 1997 through 1998. The report identified the significant salinity sources: high salinity groundwater infiltration, ship wastewater discharge, and treated bilge and ballast water discharge.

Ecology's Determination

40 CFR Part 403.5(c)(2) requires POTWs without delegated pretreatment programs to develop and enforce specific effluent limits for industrial users in cases where pollutants contributed by users result in interference or pass through. Local limits are necessary to ensure renewed and continued compliance with the POTW's NPDES permit or sludge use or disposal practices. The rule also defines POTW to include any devices and systems used in the storage and treatment of municipal sewage or industrial wastes. The POTW also includes sewers, pipes, and other conveyances if they convey wastewater to the treatment plant. Changing conditions within a POTW's service area and new NPDES requirements may prompt a POTW to develop a local limit for a pollutant that did not previously have a limit.

Likewise, 40 CFR Part 403.5(d) states that where specific prohibitions or limits on pollutants are developed by a POTW, such limits shall be deemed pretreatment standards.

Therefore, since Bremerton adopted a conductivity local limit through City Council resolution, Ecology must include the limit in discharge permits issued to industrial users within the Bremerton service area.

As shown in the graphs above, applying the limit to previous conductivity data, PSNS&IMF will most likely be unable to consistently meet the 6.0 mS/cm on a continuous rolling-30 day average basis. Also as stated above, the conductivity and salinity levels discharged from PSNS&IMF have not changed significantly in the past several decades. In order to comply with the limit to protect the Bremerton collection system and WWTP, but recognizing the considerable effort necessary for PSNS&IMF to come into compliance, Ecology is proposing a compliance schedule as outlined in the permit special condition S12. The compliance schedule includes submission of a salinity study report and annual marine (salt) water use summaries.

In this particular situation, it is important to note that while this proposed permit is laying out a compliance schedule for PSNS&IMF to come into compliance with Bremerton's conductivity limit, the City of Bremerton must also be investigating remedies to decrease salinity inputs from other areas of their collection system. 40 CFR 403.5(c)(2), as stated above, allows non-delegated POTWs to develop local limits but also requires appropriate changes in the POTW treatment plant's facilities or operation. As stated in the Bremerton Feasibility Study, PSNS&IMF contribute 30 to 40 percent of the total salinity load to the WWTP, therefore, the additional 60 to 70 percent comes from infiltration or other sources within Bremerton's collection system. Improvements at PSNS&IMF alone to meet Bremerton's local conductivity limit may not solve the interference issue at the WWTP.

In accordance with permit general condition G3, Ecology may modify the permit, including the compliance schedule or other conditions, based on new information. Particularly, Ecology will review the PSNS&IMF salinity study report and a City of Bremerton salinity study report upon completion to determine if good cause exists to modify any permit conditions.

C. Comparison of effluent limits with the previous permit issued November 10, 2011

In its 2016 permit renewal application, PSNS & IMF requested for a number of parameters to be removed from monitoring in particular from the lift stations and reduction in frequency of monitoring for a number of parameters at various sampling points. Due to the complexity of the activities that generate wastewater at the shipyard and detections of all the parameters listed at least in some monitoring periods between 2011 and 2018, Ecology has decided to keep the parameters and monitoring frequencies for the most part as in the 2011 permit.

The following table shows the existing and proposed limits for the discharge from Building 1109, categorized as metal finishing point source category.

Table 25. Comparison of discharge limits applied to Building 1109, Sample Points 001 and 002

Comparison of Discharge Limits Applied to Sample Point 001 in the Proposed Permit Compared to Limits Applied to Sample Point 001 in the Permit Issued in November 2011				
Pollutant Parameter	**Previous Effluent Limits**		**Proposed Effluent Limits**	
	Monthly Average Limit	**Daily Maximum Limit**	**Monthly Average Limit**	**Daily Maximum Limit**
Cadmium, T (mg/L)	0.07	0.11	0.07	0.10
Chromium, T (mg/L)	1.71	2.77	1.71	2.77
Copper, T (mg/L)	2.07	3.2	2.07	3.38
Lead, T (mg/L)	0.43	0.69	0.43	0.69
Mercury, T (mg/L)	N/A	0.06 (M.N.R)*	N/A	0.12 (M.N.R)*
Nickel, T (mg/L)	2.38	1.95	0.92	0.92
Silver, T (mg/L)	0.24	0.43	0.24	0.43
Zinc, T (mg/L)	1.48	2.61	1.48	2.61
Tin, T (mg/L)	N/A	N/A (M.N.R.)*	N/A	N/A (M.N.R.)*
Cyanide, T (mg/L) -applied to mixed waste stream	0.65	1.20	0.65	1.20
TTO (mg/L)	N/A	2.13	N/A	2.13
Polychlorinated biphenyls (PCBs), total aroclors, (µg/L)	N/A	15	N/A	15
pH (std pH units)		Not outside the range 6.0- 9.0		Not outside the range 5.0-11.0

Comparison of Discharge Limits Applied to Sample Point 002 in the Proposed Permit Compared to Limits Applied to Sample Point 002 in the Permit Issued in November 2011				
Pollutant Parameter	**Previous Effluent Limits**		**Proposed Effluent Limits**	
	Monthly Average Limit	**Daily Maximum Limit**	**Monthly Average Limit**	**Daily Maximum Limit**
Cyanide, T (mg/L)	0.65	1.20	NA	NA
Cyanide (A) (mg/L) -applied to cyanide-bearing waste stream	N/A	N/A	0.32	0.86
Note: In cases in which the calculated local limit was more stringent than the categorical limit, the local limit was placed in the table above.				

*M.N.R. stands for 'monitoring not required.' DMR data from 2011 to 2018 show that these pollutants (total mercury and total tin) were rarely detected. See Table 23, Section II.C. Hence, the proposed permit eliminates monitoring requirements for these parameters.

In accordance with 40 CFR 433.17 (b), the proposed permit will apply the cyanide amenable to chlorination (CATC) limit to the separate cyanide wastewater treatment system in Building 1109 (Sample Point 002) instead of total cyanide. CATC refers to cyanide complexes that dissociate and oxidize when exposed to chlorine under alkaline conditions. CATC consists of free cyanide and weak acid dissociable cyanide complexes. To determine CATC, a sample is split into two portions, with one portion tested for total cyanide and the second portion treated with sodium hypochlorite (to destroy cyanide) prior to a total cyanide test. The difference in total cyanide contents constitutes CATC cyanide. PSNS & IMF requested to test for CATC instead of total cyanide at Sample Point 002, which is more suitable because this measurement shows the effectiveness of the cyanide destruction process. PSNS & IMF stated that some waste streams were not amenable to chlorination and the facility could not isolate which waste streams were not amenable. However, PSNS & IMF has observed that the wastestreams thought to be non-amenable to treatment by alkaline chlorination are ultimately treatable after multiple passes through the alkaline chlorination system.

The following table shows the existing and proposed limits for the discharge from non-categorical discharge points within PSNS & IMF.

Table 26. Comparison of discharge limits applied to non-categorical discharge points

Comparison of Discharge Limits Applied to Non-Categorical Discharge Points (all discharge points except Building 1109 and the lift stations) in the Proposed Permit Compared to Limits Applied to Non-Categorical Discharge Points in the Permit Issued in November 2011				
Pollutant Parameter	**Previous Effluent Limits**		**Proposed Effluent Limits**	
	Monthly Average Limit	**Daily Maximum Limit**	**Monthly Average Limit**	**Daily Maximum Limit**
Cadmium, T (mg/L)	N/A	0.11	N/A	0.10
Chromium, T (mg/L)	N/A	3.9	N/A	5.0
Copper, T (mg/L)	N/A	3.2	N/A	3.4
Lead, T (mg/L)	N/A	0.79	N/A	0.74
Mercury, T (mg/L)	N/A	0.06	N/A	0.12
Nickel, T (mg/L)	N/A	1.95	N/A	0.92
Silver, T (mg/L)	N/A	2.0	N/A	0.92
Zinc, T (mg/L)	N/A	4.0	N/A	3.5
Tin, T (mg/L)	N/A	N/A	N/A	NA
Cyanide, T (mg/L)	N/A	5.9	N/A	2.3
Total Petroleum Hydrocarbons (mg/L)	N/A	100	N/A	100
pH (std pH units)	N/A	Not outside the range 6.0-11.0	N/A	Not outside the range 5.0-11.0

At the two lift stations carrying all discharges from PSNS & IMF to Bremerton's WWTP, all of the city's local limits apply but the list in Table 31 shows only parameters for which monitoring is required. Ecology may request monitoring for those parameters which monitoring is not included in permit condition S2 during permit application.

Table 27. Comparison of discharge limits applied to final discharge from the lift stations

Comparison of City of Bremerton Discharge Limits Applied to Final Discharge from the Lift Stations (Number WB-3 and Number 9) in the Proposed Permit Compared to Limits Applied in the Permit Issued in November 2011				
Pollutant Parameter	2011 Permit Effluent Limits		2019 Proposed Effluent Limits	
	Monthly Average Limit	Daily Maximum Limit	Monthly Average Limit	Daily Maximum Limit
Cadmium, T (mg/L)	N/A	0.17	N/A	0.10
Chromium, T (mg/L)	N/A	5.0	N/A	1.0
Copper, T (mg/L)	N/A	5.2	N/A	0.75
Lead, T (mg/L)	N/A	1.3	N/A	0.25
Mercury, T (mg/L)	N/A	0.09	N/A	0.010
Molybdenum, T (mg/L)	N/A	N/A	N/A	1.0
Nickel, T (mg/L)	N/A	3.2	N/A	0.60
Silver, T (mg/L)	N/A	N/A	N/A	0.20
Zinc, T (mg/L)	N/A	5.0	N/A	2.0
Cyanide, T (mg/L)	N/A	0.57	N/A	0.64
Oil and Grease (mg/L)	N/A	100	N/A	100
Total Petroleum Hydrocarbons (mg/L)	N/A	50	N/A	50
Salinity (psu)	Report	Report	NA	N/A
Conductivity (mS/cm)	N/A	N/A	6.0	N/A

IV. Monitoring Requirements

Ecology requires monitoring, recording, and reporting (WAC 173-216-110) to verify that the treatment process functions 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. 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). Ecology accredited the laboratory at this facility for:

Table 28. Naval chemistry lab accredited parameters

Parameter Name	Category	Method Name	Matrix Description
Cyanide, Total	General Chemistry	ASTM D7511-12	Non-potable water
Total recoverable petroleum hydrocarbons (TRPH)	General Chemistry	EPA 1664B (SGT-HEM)	Non-potable water
n-Hexane Extractable Material (O&G)	General Chemistry	EPA 1664B -10 (HEM)	Non-potable water
Specific Conductance	General Chemistry	SM 2510 B-2011	Non-potable water
Solids, Total Suspended	General Chemistry	SM 2540 D-2011	Non-potable water
pH	General Chemistry	SM 4500-H+ B-2011	Non-potable water
Volatile Organic Compounds (VOCs)	Mass Spectrometry	EPA 624.1	Non-potable water
Arsenic	Metals	EPA 200.7_4.4_1994	Non-potable water
Barium	Metals	EPA 200.7_4.4_1994	Non-potable water
Cadmium	Metals	EPA 200.7_4.4_1994	Non-potable water
Chromium	Metals	EPA 200.7_4.4_1994	Non-potable water
Copper	Metals	EPA 200.7_4.4_1994	Non-potable water
Lead	Metals	EPA 200.7_4.4_1994	Non-potable water
Nickel	Metals	EPA 200.7_4.4_1994	Non-potable water
Silver	Metals	EPA 200.7_4.4_1994	Non-potable water
Tin	Metals	EPA 200.7_4.4_1994	Non-potable water
Zinc	Metals	EPA 200.7_4.4_1994	Non-potable water
Mercury	Metals	EPA 245.1_3_1994	Non-potable water

B. Wastewater monitoring

Ecology details the proposed monitoring schedule under Special Condition S2. 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.

V. Other Permit Conditions

A. Reporting and record keeping

Ecology based Special Condition S3 on its authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges [WAC 173-216-110 and CFR 403.12 (e),(g), and (h)].

B. Operations and maintenance

Ecology requires dischargers to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state regulations (WAC 173-240-080 and WAC 173-216-110). Implementation of the procedures in the operation and maintenance manual ensures the facility's compliance with the terms and limits in the permit.

C. Prohibited discharges

Ecology prohibits certain pollutants from being discharged to the POTW. These include substances which cause pass-through or interference, pollutants which may cause damage to the POTW or harm to the POTW workers (chapter 173-216 WAC) and the discharge of designated dangerous wastes not authorized by this permit (chapter 173-303 WAC).

D. Dilution prohibited

Ecology prohibits the facility from diluting its effluent as a partial or complete substitute for adequate treatment to achieve compliance with permit limits.

E. Solid waste control plan

Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF) could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste.

PSNS & IMF is required to maintain a solid waste control plan under its NPDES permit to prevent leachate from polluting waters of the state. Ecology has eliminated the requirement that PSNS & IMF maintain a solid waste control plan under this permit as it is expected that the measures undertaken to protect state surface waters under its existing NPDES will suffice to protect state groundwaters and the WWTP.

F. Non-routine and unanticipated wastewater

Occasionally, this facility may generate wastewater not characterized in the permit application because it is not a routine discharge and the facility did not anticipate it 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 water.
- Require the facility to treat the wastewater.
- Require the facility to reuse the wastewater.

The proposed permit authorizes temporary discharges with a volume of less than 1,000 gallons and which are evaluated and found not to be a dangerous waste, hazardous waste, or a categorical discharge as defined under 40 CFR Parts 403-699, and are determined not to contain pollutants in concentrations greater than the local limits. The proposed permit proposes to authorize such temporary discharges without prior notice from PSNS & IMF to Ecology and Bremerton WWTP. PSNS&IMF must evaluate all miscellaneous and temporary discharges using the Waste Information Sheet (WIS) process. PSNS&IMF must report all temporary discharges found not to require immediate notification, using the WIS process, with the permit application.

Some examples of non-routine and unanticipated wastewater that PSNS & IMF requested approval by the City of Bremerton and Department of Ecology in the past include leak testing of new tanks and piping system during installation of a brand new Oily Water Treatment System; Building 900 boiler maintenance clean-in-place wastewater (which has been then added to the normal discharge from the building); wastewaters from various building upgrade construction projects such as hand washing and respirator rinsing during a dust abatement project, and outer building surface brick washing.

G. Spill plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution and/or interference or pass-through at the receiving POTW 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].

The proposed permit requires this facility to maintain and implement a slug discharge control plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. As the slug discharge control plan is intended to provide for control of accidental spills, the separate requirement for a spill control plan has been eliminated from the permit.

H. Slug discharge plan

Ecology has determined that PSNS & IMF has the potential for a batch discharge or a spill that could adversely affect the treatment plant, therefore the proposed permit requires a slug discharge control plan [(40 CFR 403.8 (f)(l) (iii)(B)(6) and (f) (2)(vi)].

A plan fulfilling the slug discharge related requirements was submitted by PSNS & IMF under the provisions of the State Waste Discharge Permit issued in 2011. The proposed permit requires that the Permittee review and update it Slug Discharge Control Plan by **August 31, 2025**.

I. Continuous monitoring of petroleum hydrocarbons at PSNS & IMF lift stations

Due to the extensive and complex nature of industrial operations at Puget Sound Naval Shipyard, a potential exists for the release of environmentally significant quantities of petroleum hydrocarbons to the sanitary sewer, through discharge points which were either not identified, or which were considered to have minimal potential for inadvertent discharge of petroleum hydrocarbons to the sanitary sewer. Therefore, the Permittee is required to maintain continuous petroleum monitoring at the two lift stations which carry wastewater from Puget Sound Naval Shipyard to the Bremerton POTW. The following language has been included in the proposed permit:

> "*The Permittee must operate and maintain equipment suitable for the real time detection of fuel oil and gasoline spills at Lift Station #WB-3 and Lift Station #9). The fuel oil/gasoline spill detector must be equipped with a warning system which will alert spill response personnel immediately upon detection of a fuel oil or gasoline spill."*

J. General conditions

Ecology bases the standardized general conditions on state law and regulations. They are included in all state waste discharge permits issued by Ecology.

VI. Public Notification of Noncompliance

Ecology may annually publish a list of all industrial users in significant noncompliance with pretreatment standards or requirements during any of the previous four quarters in a local newspaper. Accordingly, this permit Special Condition informs the facility that noncompliance with this permit may result in publication of the noncompliance.

VII. Permit Issuance Procedures

A. Permit modifications

Ecology may modify this permit to impose or change the numerical limits, if necessary, to comply with changes in the pretreatment requirements, conditions in local sewer ordinances, or based on new information from sources such as inspections and effluent monitoring. It may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed permit issuance

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limits and conditions believed necessary to control toxics. Ecology proposes that the permit be issued for 5 years.

VIII. References for Text and Appendices

Washington State Department of Ecology.

Laws and Regulations https://ecology.wa.gov/About-us/How-we-operate/Laws-rules-rulemaking

Permit and Wastewater Related Information https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance

January 2015. *Permit Writer's Manual*, Publication Number 92-109 (https://fortress.wa.gov/ecy/publications/SummaryPages/92109.html)

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/SummaryPages/0710024.html

City of Bremerton NPDES Permit Issued October 30, 2018.

Puget Sound Naval Shipyard and Intermediate Maintenance Facility's State Waste Discharge Permit Renewal Applications (May 2016).

Puget Sound Naval Shipyard and Intermediate Maintenance Facility's State Waste Discharge Permit and Fact Sheet (ST0007374), Issued November 10, 2011.

S.M. Yu, W.Y. Leung, K.M. Ho, P.F. Greenfield, W.W. Eckenfelder; The impact of sea water flushing on biological nitrification-denitrification activated sludge sewage treatment

process. *Water Sci Technol* 1 December 2002; 46 (11-12): 209–216. doi: https://doi.org/10.2166/wst.2002.0740

M. Linaric, M. Markic, L. Sipos; High salinity wastewater treatment. *Water Sci Technol* 1 September 2013; 68(6): 1400-1405. doi: https://doi.org/10.2166/wst.2013.376

Appendix A--Public Involvement Information

Ecology proposes to reissue a permit to Puget Sound Naval Shipyard and Intermediate Maintenance Facility. The permit includes wastewater discharge limits and other conditions. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology will place a Public Notice of Draft on October 25, 2019, in the *Kitsap Sun* to inform the public and to invite comment on the proposed draft State Waste Discharge permit and fact sheet.

The notice:

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Urges people to submit their comments, in writing, before the end of the Comment Period.
- Tells how to request a public hearing of comments about the proposed state waste discharge permit.
- Explains 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 Biniam Zelelow with later edits by Maia Hoffman.

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
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel RD SW STE 301 Tumwater, WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

Appendix C--Glossary

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).

Alternate point of compliance -- An alternative location in the groundwater from the point of compliance where compliance with the groundwater standards is measured. It may be established in the groundwater at locations some distance from the discharge source, up to, but not exceeding the property boundary and is determined on a site specific basis following an AKART analysis. An "early warning value" must be used when an alternate point is established. An alternate point of compliance must be determined and approved in accordance with WAC 173-200-060(2).

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.

Average monthly (intermittent) discharge limit -- The average of the measured values obtained over a calendar months' time taking into account zero discharge days.

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

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

Categorical pretreatment standards -- National pretreatment standards specifying quantities or concentrations of pollutants or pollutant properties, which may be discharged to a POTW by existing or new industrial users in specific industrial subcategories.

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.

Critical condition -- The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

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.

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.

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

Industrial user -- A discharger of wastewater to the sanitary sewer that is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

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.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

- Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
- Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Local limits -- Specific prohibitions or limits on pollutants or pollutant parameters developed by a POTW.

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 the maximum discharge of a pollutant measured during a calendar day.

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

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.

Pass-through -- A discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

Point of compliance -- The location in the groundwater where the enforcement limit must not be exceeded and a facility must comply with the Ground Water 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, or 5) x 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.

Significant industrial user (SIU) --

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; and

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement [in accordance with 40 CFR 403.8(f)(6)].

   Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

   *The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

Slug discharge -- Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge to the POTW. This may include any pollutant released at a flow rate that may cause interference or pass through with the POTW or in any way violate the permit conditions or the POTW's regulations and local limits.

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

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.

Appendix D--Technical Calculations

Effluent limits based on local limits

In order to protect the City of Bremerton WWTP from pass-through, interference, concentrations of toxic chemicals that would impair beneficial or designated uses of sludge, or potentially hazardous exposure levels, effluent limits for certain parameters are necessary. Ecology calculated local limits for the Bremerton WWTP. The section below describes the method Ecology used to develop the local limits. Ecology applied these local limits to the industrial discharges prior to mixing with other flows. The local limits established by Bremerton apply to all wastewater flows from the naval shipyard which are applied at the lift stations.

Calculation of Local Discharge Limits

The 2011 permit contains discharge limits based on local limits developed by Ecology. Ecology reevaluated the local discharge limits for the proposed permit using the same methodology and taking into account some conditions which have changed since issuance of the 2011 permit.

Dilution Factors (City of Bremerton WWTP): The Bremerton WWTP now has dilution factors of 20 (acute) and 127 (chronic) in its permit with effective date of December 1, 2018.

Total Flows to the Bremerton WWTP: Daily influent flows to the Bremerton WWTP vary from 1.8 mgd to 28.6 mgd and average monthly influent flows vary between 3.7 mgd and 9.3 mgd, which are, respectively, associated with dry and wet weather flows. The combined average is 5.7 mgd with a 90th percentile of 8.67 mgd from January 2016 through June 2019.

Ecology used a flow of 6.3 mgd to calculate the local limits. This value is higher than the combined average flow. Although it may be presumed that the shipyard would more likely exceed the concentration-based effluent standards during periods of lower flow, drydock discharges are more closely associated with higher precipitation events and in turn with the higher influent flows to the WWTP.

Industrial Flows to the Bremerton WWTP from PSNS & IMF

Flows from Building 1109: PSNS & IMF requested that Ecology authorize it to discharge up to 30,000 gallons per day from the Industrial Wastewater Pretreatment Facility, Building 1109. Therefore, Ecology used 30,000 gallon per day to calculate local limits.

Discharges from Drydock Process Water Collection Systems (PWCS) and Oily Water Treatment Systems (OWTS): PSNS & IMF provided daily flow data from the drydock

process water collection systems (PWCS) and the associated Oily Water Treatment Systems (OWTS) in the respective drydocks.

From 2016 to 2019, the average OWTS daily flow rate was 26,000 gpd, the average PWCS flow rate was 137,000 and the combined average (OWTS&PWCS) was 163,000 gpd. Ecology used this combined average plus 30,000 gpd from the IWTP, plus an estimated 20,000 gallons from smaller sources as discussed below, for local limits calculation. The estimated average industrial flow from all sources at PSNS&IMF to the City of Bremerton WWTP is 213,000 gallons per day.

Smaller Discharges from Other Locations: PSNS & IMF directly discharges wastewater to the sanitary sewer from many smaller shops located on the shipyard. The nature of the total discharge is highly variable in volume and pollutant characteristics. The great majority of the flows are intermittent in nature. Ecology has not explicitly itemized or added the flows from these locations in the local limits calculations. Instead, it has assumed the smaller flows with potential to bear an environmentally significant concentration of metals to be 20,000 gallons per day.

Ecology used a total flow from these facilities (i.e. OWTS, PWCS, Building 1109, and any remaining potentially metal-bearing wastewaters) of 213,000 gallons per day to calculate local limits.

POTW Removal Efficiencies: Ecology used influent/effluent data supplied by Bremerton for the years 2013 to 2018 to determine removal efficiencies. Influent data was collected in January and July 2013; effluent data is available for each year. When local data was not available, Ecology used typical values based on those contained in EPA Local Limits Development Guidance Appendices, July 2004 – Appendix R, Priority Pollutant Removal Efficiencies.

Arsenic: Due to limited data on arsenic for the Bremerton WWTP, Ecology used a median removal rate of 45% from Appendix R of EPA Local Limits Development Guidance Appendices.

Cadmium: Ecology calculated a cadmium removal rate of 27% using influent/effluent data supplied by Bremerton.

Chromium: Ecology calculated a chromium removal rate of 50% using influent/effluent data supplied by Bremerton.

Copper: Ecology calculated a copper removal rate of 90% using influent/effluent data supplied by Bremerton.

Cyanide: Due to absence of site-specific data, Ecology used a removal rate of 69% from the above EPA reference.

Lead: Ecology calculated a lead removal rate of 93% using influent/effluent data supplied by Bremerton.

Mercury: Bremerton reported influent mercury concentrations of 0.11 ug/L and 0.16 ug/L for January and July 2013 but did not analyze for mercury in its effluent. Therefore, Ecology used a removal rate of 60% taken from the above-cited EPA document.

Nickel: Ecology calculated a nickel removal rate of 43% using influent/effluent data supplied by Bremerton.

Selenium: Due to a lack of site-specific data for selenium, Ecology used a removal rate of 50% from the above-referenced EPA document.

Silver: Due to a lack of site-specific silver influent/effluent data, Ecology used the median removal value of 75% from the above-referenced EPA document.

Zinc: Ecology calculated a zinc removal rate of 78% using influent/effluent data supplied by Bremerton.

Water Quality Criteria: Since the issuance of the 2011 permit, the state has not changed the marine water quality criteria for all the parameters listed below. Ecology used the current chronic water quality criteria in WAC 173-201A (current August 2016) as shown in the table below:

Water Quality Criteria Based on WAC 173-201A (current August 2016)	
Pollutant Parameter	**Aquatic Life Criteria - Marine Water (mg/L) Based on WAC 173-201A (current August 2016)**
Arsenic	0.036
Cadmium	0.0093
Chromium	0.05
Copper	0.0031
Cyanide	0.0028
Lead	0.0081
Mercury	0.000025
Nickel	0.0082
Selenium	0.071
Silver	0.0019
Zinc	0.081

Sludge Disposal Criteria: Ecology obtained the following sludge disposal criteria from Table 3 of the federal "503 Regulations" (40 CFR Part 503.13), which are criteria used for

bulk application to agricultural lands, forests, public contact sites, reclamation sites, lawns, and home gardens:

Summary of Sludge Disposal Criteria Taken from 40 CFR Part 503.13 For Use in 2019 Local Limits Calculations	
Pollutant Parameter	**Concentration, Dry Weight Basis, mg/kg**
Arsenic	41
Cadmium	39
Chromium	No criterion
Copper	1500
Cyanide	No criterion
Lead	300
Mercury	17
Nickel	420
Selenium	36
Silver	No criterion
Zinc	2800

The City of Bremerton's September 2018 sludge production was 203 tons for the month. This is typical average production rate. Hence, Ecology used a sludge production value of 6.77 dry metric tons/day (203 ton/30 days = 6.77 T/D).

Activated Sludge Inhibition: Ecology used literature activated sludge inhibition threshold values to calculate local limits as there is no history of secondary inhibition at Bremerton WWTP from toxic pollutants. The inhibition levels were obtained from Appendix G of EPA Local Limits Development Guidance Appendices, July 2004, and are based on lowest values reported.

Activated Sludge Inhibition Threshold Values Based on EPA Guidance	
Pollutant Parameter	**Activated Sludge Inhibition Threshold Values (mg/L) Based on EPA Guidance**
Arsenic	0.1
Cadmium	1.0
Chromium	1.0
Copper	1.0
Cyanide	0.1
Lead	1.0
Mercury	0.1
Nickel	1.0
Selenium	Insufficient available data
Silver	Insufficient available data
Zinc	0.3

Anaerobic Digestion Inhibition: Ecology used literature anaerobic digestion inhibition threshold values in the table below to calculate local limits as there is no history of anaerobic digestion inhibition at Bremerton WWTP. The values used were taken from the inhibition threshold values reported in Appendix G of EPA Local Limits Development Guidance Appendices, July 2004.

Anaerobic Digestion Inhibition Thresholds (mg/L) Based on EPA Guidance	
Pollutant Parameter	**Anaerobic Digestion Inhibition Threshold (mg/L) Based on EPA Guidance**
Arsenic	1.6
Cadmium	20
Chromium	110
Copper	40
Cyanide	4
Lead	340
Mercury	Insufficient available data
Nickel	10
Selenium	Insufficient available data
Silver	13
Zinc	400

Bremerton supplied digester feed data covering 2013-2018. The average total sludge flow rate to the plant's anaerobic digesters (AD 1 and AD 2) is approximately 12,800 gpd with average percent solids of ~ 2.3%. Ecology used this flow value to calculate the allowable headworks loading based on inhibition of anaerobic sludge digestion as the criterion.

Water Quality Criteria Used as a Basis for Determination of Local Limit

Ecology obtained all of the equations stated below from the *Guidance Manual on the Development and Implementation of Local Discharge Limits under the Pretreatment Program (USEPA, July 2004)*.

Due to the absence of numeric limits for metals in the Bremerton NPDES permit, Ecology used the following equation to determine allowable headworks loading (AHL) based on water quality criteria. Ecology used marine water, aquatic life criteria for all parameters.

$$\mathbf{AHL_{wq}=8.34[C_{wq}(Q_{str}+Q_{potw})-(C_{str}*Q_{str}]/(1-R_{potw})}$$

Where:

AHLwq = AHL based on water quality criteria, lb/day

Cstr = Receiving stream background concentration, mg/L

Cwq = State WQS, mg/L

Qstr = Receiving stream (upstream) flow rate, MGD

Qpotw = POTW flow rate, MGD

Rpotw = Plant removal efficiency from headworks to plant effluent (as decimal)

8.34 = Conversion factor

Ecology assumed a background concentration of metals in the receiving water of zero as it expects much smaller values than the concentrations found in POTW effluent.

Sludge Disposal Criteria Used as a Basis for Determination of Local Limits

Ecology used the following equation to calculate the AHL based on sludge disposal criteria. The sludge disposal criteria are based on the most stringent of the two tables appearing in 40 CFR Part 503.

$$\mathbf{AHL_{sldg} = (C_{sldgstd})*(Q_{sldg})*(0.0022)/R_{potw}}$$

where:

AHL_{sldg} = AHL based on sludge (lbs./day)

$C_{sldgstd}$ = Sludge standard (mg/kg dry sludge)

Q_{sldg} = Total sludge flow rate to disposal (dry metric tons per day)

R_{potw} = Plant removal efficiency from headworks to plant effluent (decimal)

0.0022 = Unit Conversion factor [1 metric ton = 2200 lb, 1 mg/kg = 10^{-6}]

Activated Sludge Inhibition Criteria Used as a Basis for Determination of Local Limits

Ecology used the following equation to calculate the AHL using activated sludge process inhibition criteria and obtained the sludge threshold inhibition values from the EPA local limits guidance document.

$$\mathbf{AHL_{AS\_In} = 8.34*C_{AS\_In}*Q_{potw}/(1-R_{prim})}$$

where:

AHL_{AS_In} = AHL based on activated sludge inhibition, lb/day

C_{AS_In} = Inhibition criterion for activated sludge, mg/L

Q_{potw} = POTW flow rate, MGD

R_{prim} = Removal efficiency across primary treatment (decimal)

8.34 = Conversion factor

Anaerobic Sludge Digestion Inhibition Used as a Basis for Determination of Local Limits

Ecology used the following equation to calculate the AHL based on inhibition of anaerobic sludge digestion as the criterion. The sludge threshold inhibition values were obtained from the USEPA local limits guidance document.

$$AHL_{dgdtr} = 8.34 * C_{dgstinhib} * Q_{dig} / R_{potw}$$

where:

AHL_{dgdtr} = AHL based on sludge digestion inhibition (lb/day)

$C_{dgstinhib}$ = Sludge digester inhibition criterion (mg/L)

Q_{dig} = Sludge flow rate to digester, MGD

R_{potw} = Plant removal efficiency from headworks to plant effluent (decimal)

8.34 = Conversion factor

Method of Calculating Local Limits from Allowable Headworks Loading

Ecology calculated the allowable headworks loadings (AHLs) based on each of the above criteria for each of the metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, and zinc), as well as cyanide, using the above equations. These AHLs are compared and the lowest one is designated as the maximum allowable headworks loading (MAHL).

A MAHL is an estimate of the upper limit of pollutant loading to a POTW intended to prevent pass through or interference. MAHLs are the basis for local limits. In summary, Ecology calculated the MAHL for each pollutant of concern (POC) in three steps:

- Calculate POTW removal efficiency for the POC
- Calculate allowable headworks loadings (AHLs) for each environmental criterion
- Designate as the MAHL the most stringent AHL for the POC

The number of pounds contributed by non-industrial users was subtracted from the number of pounds per day reflecting the MAHL. The result is the maximum allowable industrial loading (MAIL) available to PSNS & IMF. Ecology then divided the resulting number of pounds of capacity available for industrial discharge (MAIL) by the total PSNS & IMF industrial flow to yield a concentration, which is the local limit for the given POC applicable to PSNS & IMF.

Results of Local Limits Calculation

Arsenic: The arsenic limit of 0.10 mg/L was based on sludge quality criteria.

Cadmium: The cadmium limit of 0.10 mg/L was based on sludge quality criteria.

Chromium: The calculated local limit for chromium was 13.2, which is above the maximum concentration of contaminants for the toxicity characteristic listing, WAC 173-303-090. Hence, the proposed permit will have a limit of 5.0 mg/L at the characteristic toxicity designation level for chromium.

Copper: The calculated copper limit was 0.24 mg/L based on anaerobic digestion inhibition. However, Ecology has determined that using a copper limit of 3.4 mg/L based on sludge quality criteria meets AKART. Moreover, this limit is very close to the 2011 permit limit and that it is generally much better to use site specific data than literature inhibition values. The anaerobic inhibition value for copper is 40 mg/L, which is much lower than the other metals, and using an arbitrary value of 60 mg/L yields copper limit more than 10 times the calculated value of 0.24 based on anaerobic digestion inhibition, which renders this inhibition based limit unreliable.

Cyanide: The cyanide limit of 2.3 mg/L is based on activated sludge inhibition. Literature inhibition is used for cyanide as the other AHLs were unreasonably high.

Lead: The lead limit of 0.74 mg/L is based on sludge quality criteria.

Mercury: The mercury limit of 0.12 mg/L is based on sludge quality criteria.

Nickel: The nickel limit of 0.92 mg/L is based on sludge quality criteria.

Selenium: The selenium limit of 0.92 mg/L is based on sludge quality criteria, but is not important in this permit, as the shipyard does not discharge selenium in environmentally significant quantities, and therefore, no selenium limits have been placed in the proposed permit.

Silver: The silver limit calculated to be 0.92 mg/L is based on anaerobic digestion inhibition.

Zinc: The zinc limit calculated to be 3.5 mg/L is based on by sludge quality criteria.

The table below contains a summary of the local limits calculated by Ecology, recommended to be used in this permit.

Summary of Local Discharge Limits Calculated by the Department of Ecology - 2019	
Parameter	**Daily Maximum Limit**
Arsenic, total (mg/L)	0.10
Cadmium, total (mg/L)	0.10
Chromium, total (mg/L)	5.0
Copper, total (mg/L)	3.4
Cyanide, total (mg/L)	2.3
Lead, total (mg/L)	0.74
Mercury, total (mg/L)	0.12
Nickel, total (mg/L)	0.92
Selenium, total (mg/L)	0.92
Silver, total (mg/L)	0.92
Zinc, total (mg/L)	3.5

Appendix E--Response to Comments

Comments from Department of the Navy – Puget Sound Naval Shipyard and Intermediate Maintenance Facility

DEPARTMENT OF THE NAVY
PUGET SOUND NAVAL SHIPYARD
AND INTERMEDIATE MAINTENANCE FACILITY
1400 FARRAGUT AVENUE STOP 2090
BREMERTON WASHINGTON 98314-2090

IN REPLY REFER TO:
5090
Ser 106.32/293
22 NOV 2019

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

Dear Ms. Miller:

Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF) is hereby providing our comments on the State Waste Discharge Permit and fact sheet provided to the public on October 25, 2019. Our main comments are:

Concerning the requirement in section S5.A to "minimize to the maximum extent possible" the "use of marine (salt) water", the draft permit and fact sheet do not establish the basis for this prohibition by identifying how these discharges result in "pass through" or "interference" as defined by WAC 173-216-030.

Concerning the requirements in sections S3.F.2.a (immediate reporting of domestic wastewater spills), S3.F.2.b.5 (24-hour reporting of overflow prior to treatment works), S3.F.2.c.5 (5-day written report of overflow prior to treatment works), they are duplications of requirements in our National Pollutant Discharge Elimination System permit and spill prevention and contingency programs.

All of our comments, including the ones discussed above, are included in the enclosures for your review.

If you have any questions, please contact Mr. Duy Pham, State Waste Discharge Permit Program Manager (Code 106.32), at (360) 476-0122.

Sincerely,

C Matheson

C. S. MATHESON
Head, Environmental Division
Environment, Safety, and
Health Office
By direction of the Commander

Enclosures: (1) PSNS&IMF's Comments on Draft State Waste Discharge Permit ST0007374
(2) PSNS&IMF's Comments on Draft State Waste Discharge Permit Fact Sheet

PSNS&IMF's Comments on Draft State Waste Discharge Permit No. ST-7374 of October 2019

Comment Number	Permit Paragraph/Page Number	Comment
1	Section S1, Table 1, Sample Points 071 – 075, Aluminum Passivation	PSNS & IMF requests these sample points be deleted. We have decided to eliminate this aluminum passivation process. Aluminum passivation will now be done with dry deburring process, Sample Point 077.
2	Section S1, Table 1, Sample Point 077, Aluminum Sheet Metal Deburring	PSNS & IMF requests the flow-monitoring requirement be deleted. The aluminum sheet metal deburring process will only discharge batches of 500 gallons each once every two weeks. If we are required to report daily maximum flow we would like the Sample Type to be "Estimate" since the maximum flow will be no higher than 800 gallons a day and we only discharge infrequently at the rate of once every two weeks.
3	Section S1, Table 1, Sample Point 105	Please change "Lift Station Number 1 (West End)" to "Lift Station WB-3 (West End)". This sample point is the combined industrial and domestic wastewater discharge from the west end of Naval Base (NAVBASE) Kitsap, Bremerton to the City of Bremerton's wastewater collection system.
4	Section S1, Table 1, Sample Point 106	Please change "Lift Station Number 9 (1st Street Station)" to "Lift Station Number 9". This sample point is the combined industrial and domestic wastewater discharge from the east end of NAVBASE Kitsap, Bremerton to the City of Bremerton's wastewater collection system. The sample point is at Lift Station Number 9, which is a NAVBASE Kitsap, Bremerton lift station. First Street Station is a City of Bremerton monitoring vault outside our fence on the east end, which has other wastewaters outside our fence in addition to our wastewater.
5	Section S1, Table 1, Sample Points 105 and 106, Lift Station WB-3 and Lift Station 9	PSNS & IMF requests the deletion of sampling requirement for molybdenum at Sample Points 105 and 106, Lift Station WB-3 and Lift Station 9. Our industrial processes do not discharge any significant amount of molybdenum. The City of Bremerton's local limit for molybdenum is 1 mg/L. The last four batches of treated effluent from our Industrial Wastewater Pretreatment Facility, Sample Point 001, ranged from 0.007 to 0.021 mg/L molybdenum. The last six compliance samples from the treated effluent from our Oily Water Treatment Systems, Sample Points 003 to 009, ranged from 0.005 to 0.033 mg/L molybdenum. The last six compliance samples from the Dry Dock Process Water Collection Systems, Sample Points 010 to 015, ranged from 0.004 to 0.013 mg/L molybdenum. Lift Station 9, Sample

Comment Number	Permit Paragraph/Page Number	Comment
		Point 106, where the molybdenum limit is imposed, had molybdenum average and maximum concentration of 0.003 mg/L and 0.005 mg/L, respectively, during the last 12 months. Lift Station WB-3, Sample Point 105, where the molybdenum limit is imposed, had molybdenum average and maximum concentration of 0.005 mg/L and 0.021 mg/L, respectively, during the last 12 months. The highest level of molybdenum at the lift stations is only at 2 percent of the local limit. Since molybdenum is not present at significant amount in our industrial discharges and in the combined industrial and domestic wastewater at the lift stations, we request that the molybdenum-monitoring requirement be deleted.
6	Section S3.A.7	Should "S2" be "S1"?
7	Section S3.F.2.a	PSNS & IMF requests that the immediate reporting requirement in section S3.F.2.a only apply to noncompliance that may endanger health or the environment as applied to discharges to the sanitary sewer. PSNS & IMF is already subject to requirements to immediately report collection system overflows that discharge to marine waters or areas open to public access, collection system overflows that discharge to fresh water bodies, and plant bypasses discharging to marine waters in our National Pollutant Discharge Elimination System (NPDES) permit and spill prevention and contingency programs. Concerning the list of agencies to which we must report we have added the two agencies not yet on our list for reporting unauthorized discharges to the bay.
8	Section S3.F.2.b.5	PSNS & IMF requests that this requirement to report overflow of discharges to our surface water be deleted. This is a duplication of requirement in our NPDES permit. Any unauthorized discharges to surface water at our facility is regulated under our NPDES permit.
9	Section S3.F.2.c.5	This section requires submittal of a written report for noncompliance, including overflow to surface water. Similar to the comment above we request that this requirement be deleted. Discharges to surface water at our facility are already regulated under our NPDES permit.

10	Section S4.C.14	PSNS & IMF believes that we do not discharge to the Bremerton's East Plant, which uses UV disinfection. Therefore, should this requirement of section S4.C.14 be deleted?
11	Section S5.A	Concerning the requirement to minimize to the maximum extent possible usage of saltwater for sources that discharge to the City of Bremerton sewer, including using potable water on docked vessels that have the capability to connect to potable water for any water use that is discharged to sanitary sewer, PSNS & IMF is currently utilizing potable water to supply sanitary sewer needs on these vessels "to the maximum extent possible" within the infrastructure limits of the shipyard systems. First, PSNS & IMF understands City of Bremerton has expressed concern that saltwater may potentially affect the City of Bremerton Wastewater Treatment Plant operations. PSNS & IMF is implementing measures to reduce usage of saltwater where possible. For example, ship-to shore hose connections for pumping sewage from ships to our sewer system used to have constant saltwater flow for freeze protection during the winter. We have started to use heat tapes and insulation for these hoses. In addition, tank level indicator testing that used to be done with saltwater has been switched to potable water. Second, the current wording in section S5.A lacks clarity as to what is required. What is "possible" in terms of reducing saltwater usage of docked vessels is not limited to shipyard infrastructure; it must also consider vessel infrastructure and the Navy mission impacts. Navy vessels differ in their configurations and requirements, but normally draw saltwater from surrounding waters for sanitary facility flushing. While in a drydock a vessel must be connected to shore systems. This is not possible for all vessels, as some require larger amounts of water and higher pressure than can be supplied by existing NAVBASE Kitsap, Bremerton potable water infrastructure. For example, aircraft carriers require 12,000 gallons per minute at 125 pounds per square inch when in a dry dock. This is not possible at Bremerton, as significant NAVBASE Kitsap, Bremerton upgrades would be needed. PSNS & IMF is currently utilizing potable water to supply sanitary sewer needs of docked vessels "to the maximum extent possible" within these limitations.

		Third, the technical basis for prohibiting "use of marine (saltwater) for sources" is not clear in the draft permit. The Fact Sheet does not include information that the City of Bremerton has experienced pass through or interference as defined in WAC 173-216-030 as a result of this "pollutant". The treatment plant did experience two violations in 2015 but those were later determined to be caused by "possible unknown toxics in influent affecting BOD5 analysis", as cited in the City of Bremerton NPDES permit fact sheet. This resulted in the City of Bremerton permit monitoring being changed to a statistically equivalent CBOD value as allowed in WAC 173-221-050. In conclusion, the current requirement on saltwater in section S5.A should be deleted as PSNS & IMF is already reducing use of saltwater sources "to the maximum extent possible" within the infrastructure limits of the shipyard (including vessel) systems and the PSNS & IMF discharges have not been shown to be the cause of pass through or interference as defined in WAC 173-216-030.
12	Section S9.1.g	The word "discharged" should be deleted.
13	Section S11.B.7	Should "description of any unauthorized discharges which occurred during the 36-month period preceding the effective date of this permit" be changed to "description of any unauthorized discharges which occurred during the 36-month period preceding the date the plan is updated"?
14	Section S15	The purpose of this section is to determine whether the discharges from the cooling towers are significant sources of molybdenum, copper, and zinc. Concerning the presence of molybdenum in our wastewater, please see comment #5 on molybdenum limit at the lift stations. Concerning whether discharges from cooling towers are significant sources of copper and zinc, during the last permit cycle we sampled cooling towers from 9 buildings, even though only one out of 11 buildings needed to be sampled due to discharges exceeding 5,000 gallons per day. PSNS & IMF decided to sample even those cooling towers with daily flow of less than 5,000 gallons per day to have a better understanding of whether the discharges from cooling towers are significant sources of copper and zinc. Copper ranged from 0.0031 to 0.8 mg/L.

		Zinc ranged from 0.019 to 0.79 mg/L. Building 943 cooling tower was the only one with discharges greater than 5,000 gallons per day. Its copper and zinc concentrations were 0.095 and 0.038 mg/L, respectively. Since there was only one out of 11 buildings with cooling towers with flow greater than 5,000 gallons per day and copper and zinc levels in 9 building cooling towers were all below copper and zinc discharge limits, these discharges are not significant sources of copper and zinc, in comparison to higher flow discharges from our dry dock process water collection systems or oily water treatment systems. In addition, NAVBASE Kitsap, Bangor's permit includes many cooling tower discharges with four at flow of 5,000 gallons per day with no sampling requirement. In summary, our sampling results of cooling tower discharges during the last permit and the concentrations of molybdenum in our wastewaters as provided in comment #5 show that this requirement is not needed. Therefore, PSNS & IMF requests that this requirement be deleted.
15	Appendix B, Ecology Discharge Point No. 45	Please change the name of the process from "Air Pump Washing Water" to "Air Particulate Detector Components Washing Water".
16	Appendix B, New Process	Please add the new process as described in the comments to the fact sheet.

PSNS&IMF's Comments on Draft SWDP Fact Sheet of October 2019

Comment Number	Fact Sheet Paragraph/Page Number	Comment
1	Page 13, Cyanide Oxidation by Means of Alkaline Chlorination	In the last sentence of this section, please delete the reference to the 5,000-gallon tanks. Cyanide reduction process cannot be performed in the 5,000-gallon tanks.
2	Page 14, Final pH Control Tank	The Final pH Control Tank is not being used as described and is not currently being used. During the metal precipitation treatment process, pH of the wastewater after treatment is already within the normal range of pH for discharge and is therefore not required to be adjusted in this Final pH Control Tank.
3	Page 16, Sludge Storage	The period between "944" and "The" should be a comma. Please change "45/90-day sludge accumulation area" to "45/90-day Accumulation Area"
4	Page 17, Treatment Technology	For the last sentence on this page please add to the end of the sentence "or other adsorbent resins capable of removing copper."
5	Page 21, Painting Overspray Water	For this bullet please change "Painting Overspray Water" to "Painting Overspray Contaminated Water". Change "this source of water" to "paint overspray". These changes should make it more clear this is about water on the dry dock floor that is contaminated with paint overspray.
6	Page 21, PWCS – Treatment of Wastewater	Please change "Process Wastewater Collection System" to "Process Water Collection System".
7	Page 35, Building 431 – Shop 67 – Air Pump Washing Water	Please change the process name from "Air Pump Washing Water" to "Air Particulate Detector Components Washing Water". The frequency of discharge is not described in the fact sheet. However, we would like to note that it will be discharged about 100 times a year. The maximum daily rate of discharge is still 5 gallons per day.
8	Page 42, Building 506 – Dental Wastewater	"DNRA" should be "DRNA".
9	Pages 44 to 46, Aluminum Passivation Process	PSNS & IMF has decided to eliminate this aluminum passivation process. Please delete information associated with waste streams 17-857-002, 17-857-004, 17-857-006, 17-857-007, and 17-857-008.
10	Page 46, Table 20	Zinc maximum concentration should not be lower than average concentration.

Comment Number	Fact Sheet Paragraph/Page Number	Comment
11	Page 49, Building 900 – Steam Plant	The first sentence is unclear as written. We don't have a wastewater treatment plant at the Steam Plant anymore. The only wastewater being discharged to surface water under our NPDES permit is the reject water from the Reverse Osmosis system that is used for making boiler feed water.
12	Page 51, Building 912 – Steam Utility Plant	In the second paragraph "coalesching" should be "coalescing".
13	Page 99, Building 873 (Plating Shop)	There is an extra quotation mark after "873-13".
14	New Process	Please add the following description for a new process that will start about six months from now. Pier 6 – Shop 38 – Heat Exchanger Hydrolancing Training (38-Pier 6-001) Freshwater is used to hydrolance new stainless steel heat exchanger tubing for training purposes. Since it's brand new stainless steel tubing, the resultant hydrolance water is not expected to contain any metals. There will be about 30 days of training per year. The average daily discharge is around 1,800 gallons. The maximum daily discharge is estimated to be 2,700 gallons.
15	Pages 69 and 70, Water Use and Sewer Use	The Fact Sheet in this section contains the graphs of Naval Base (NAVBASE) Kitsap, Bremerton water use and sewer use. These graphs show that annual water use had a sharp decline after 2012 and sewer use increased from 2010 onwards. 1) There is an error in the graph titled "Puget Sound Naval Shipyard Annual Water and Sewer Use" on page 70. It shows a spike in wastewater usage in 2015, going from an average of around 0.67 MGD for 2014 to 1.2 MGD for 2015. That spike is due to a billing error by the City, the actual wastewater usage in 2015 is about 0.68 MGD, virtually the same usage as the year before. According to sewer billing data from the City, NAVBASE Kitsap, Bremerton's annual sewer usage from 2008 to 2018 ranges from 0.59 (2010) to 0.75 MGD (2012), with an average of 0.65 MGD. Correcting the 2015 value is important as the paragraph proceeding this table states that "The plot shows that sewer

Comment Number	Fact Sheet Paragraph/Page Number	Comment
		use at PSNS increased from 2010 onwards." The corrected plot will not show an upward trend from 2010 onwards. 2) Concerning water use reduction, NAVBASE Kitsap, Bremerton has implemented water conservation projects in the past few years to decrease water usage; such as the conversion to low-flow fixtures listed in the Fact Sheet. However, the largest reductions to the use of potable water have come from changes to freeze protection methods (temperature control automatic freeze protection) on piers and dry docks. Prior to these changes in 2011, manual freshwater freeze protection bleed valves used up to 5 gallons per minute (gpm) per connection; at 300 connections up to a possible 2.16 million gallons per day could be used just for freeze protection. Therefore, our water usage was up to 3 million gallons per day in the winter. Because the potable water used in these systems is discharged to Sinclair Inlet, it is important to note that sewer use levels did not experience a corresponding change.
16	Page 69	Concerning the third paragraph on page 69 where "Bremerton stated that PSNS instituted some major changes in using more of Sinclair Inlet water rather than the city's tap water in its operations which resulted in salinity spikes and fluctuations thereby interfering with Bremerton's WWTP and causing the city to violate its permit limits", we request that the paragraph be removed since it is not correct as explained in comment number 15. If it's not removed "Bremerton stated…" should be changed to "Bremerton believes…"
17	Page 71	Concerning the City of Bremerton's 1-minute conductivity measurements at WB-3 from July 2016 to the present PSNS & IMF data reflects a different picture. The PSNS & IMF data is collected at Lift Station 1 (LS1), which represents 95% of the wastewater at WB-3. Lift Station 1 normally only operates one pump at constant flow rate around 1,300 – 1,400 gpm. The second pump only comes on when a large amount of water is coming into LS1 such as during a heavy rainstorm, which would push the flow rate up to around 2,100 gpm. During a normal day when only one pump is running at constant flow rate at LS1 our conductivity sensor shows that conductivity levels range from 3 millisiemens per centimeter (mS/cm) to 16 mS/cm.

Comment Number	Fact Sheet Paragraph/Page Number	Comment
		One thing that could explain the non-linear relationship between flow volumes and conductivity at WB-3 is the two sources. The lower conductivity levels during low flows at WB-3 could be connected to periods when only Lift Station 10, which is downstream of LS1, is pumping (100 gpm); this lift station has a lower conductivity than LS1, since it is mostly boiler blowdown from the Steam Plant.
18	Page 74	In support of PSNS & IMF's assertion that our wastewater salinity levels have not changed much over two decades, the recent annual average conductivity levels at WB-3 of 8.3, 8.5, 8.5, and 11.0 mS/cm for 2015 to 2018 are similar to the conductivity levels of 8.4, 9.3, and 8.4 mS/cm from 1997 to 1999. Another source, the 1998 City of Bremerton Water Reuse Feasibility Study showed an average conductivity at WB-3 from August 1996 to March 1997 of 8.6 mS/cm.
19	Page 74	Concerning the last sentence on this page that discusses conversion to low-flow toilets alone may not fully explain the dramatic decrease in water use (hundreds of thousands of gallons per day), prior to the implementation of temperature control automatic freeze protection projects, manual freeze protection bleed valves used up to 5 gpm per connection; at 300 connections up to a possible 2.16 million gallons per day could be used just for freeze protection. Therefore, our winter water usage changed from 3 million gallons per day to about 1.2 million gallons per day.
20	Page 75	Concerning the 2nd paragraph under Ecology's Determination that discusses the proposed permit Special Condition S5.A that requires PSNS & IMF to minimize the use of marine (salt water), for sources that discharge to the Bremerton sewer, to the maximum extent possible, please refer to comment number 11 on section S5.A of the proposed permit.
21	Page 75	Concerning the first sentence under Ecology's Determination, "conductivity values are above 3.0 mS/cm" should be changed to "conductivity values are above 3.0 mS/cm at the WWTP".
22	Page 75	Concerning the first sentence under Ecology's Determination, "The data supplied by the City of Bremerton clearly shows that PSNS discharges high salinity wastewater to the Bremerton WWTP, which Bremerton stated has impacted their operations gravely since late 2014, particularly when conductivity values are above 3.0 mS/cm", Bremerton's Water Reuse Feasibility Study of 1998 showed

Comment Number	Fact Sheet Paragraph/Page Number	Comment
		that the WWTP average conductivity for 1994, 1995, and 1996 were 4.3, 3.3, and 3.3 mS/cm, respectively. This means the level of conductivity at the WWTP has been constant at least since 1994. Therefore, it is not clear that PSNS&IMF discharges, or any alleged change in those discharges occurring in 2014, impacted operations.
23	Page 75	Concerning the second sentence under Ecology's Determination, it would be clearer to state that the Bremerton City Council's resolution conductivity limit of 6.0 mS/cm applies to discharges into the Bremerton sewer system as opposed to the Bremerton WWTP.

Ecology response to the Navy PSNS-IMF comments

Enclosure #	Comment #	Response
1 (permit)	1	Sample points 071 through 075 have been deleted from the proposed permit. Likewise, discussion of the aluminum passivation system in the fact sheet has been updated to reflect this change.
1	2	The SP077 flow monitoring sampling frequency has been changed to 1/batch.
1	3	All references of "Lift Station 1 (West End)" were changed to "Lift Station WB-3 (West End)" in the proposed permit and associated fact sheet.
1	4	All references of "Lift Station Number 9 (1st Street Station)" were changed to "Lift Station Number 9" in the proposed permit and associated fact sheet.
1	5	Ecology has reviewed molybdenum data submitted by PSNS&IMF for Lift Stations WB-3 and 9, sample points 105 and 106 respectively, and Bremerton WWTP biosolids molybdenum data from 2018-2019. PSNS&IMF data shows an average molybdenum concentration of 0.003 mg/L and 0.005 mg/L at SP 105 and 106, respectively. The Bremerton local limit for molybdenum is 1 mg/L. Likewise, Bremerton WWTP biosolids molybdenum data shows an average of 12 mg/kg, with a biosolids ceiling limit for molybdenum of 75 mg/kg. From the data, it appears that molybdenum is not a pollutant of high concern for City of Bremerton, nor has PSNS&IMF discharged high concentrations in the past. Therefore, Ecology has removed the required molybdenum monitoring for SP 105 and 106. In addition, Ecology has removed the requirement for molybdenum monitoring of cooling tower water, as outlined in permit condition S13. Ecology may request molybdenum monitoring for the next permit application.
1	6	The error has been corrected.
1	7	The current PSNS & IMF NPDES permit (WA0002062) authorizing certain process wastewater and stormwater discharges to Puget Sound, issued by USEPA on March 2, 1994, requires 24-hour reporting for certain noncompliances. However, the NPDES permit does not include immediate reporting or the same contact list for reporting. Therefore, no change was made to the immediate or 24-hour reporting requirements in this proposed permit. In addition, repetitive requirements in permits does not cause an excess burden to

Enclosure #	Comment #	Response
		the Permittee. PSNS & IMF is able to develop procedures to meet the reporting requirements from all issued permits.
1	8	The response to enclosure 1-comment 7 is applicable to this comment. No change was made to the proposed permit.
1	9	The response to enclosure 1-comment 7 is applicable to this comment. No change was made to the proposed permit.
1	10	In addition to not interfering with Bremerton East Plant's UV disinfection system, special condition S4.C.14 also prohibits the discharge of colored materials or other low-transmittance material to the sanitary sewer in such amounts as to cause pass-through resulting in impairment of aesthetic character or designated uses of the receiving water. This pass through could also occur at Bremerton's primary WWTP, the West Plant. Therefore, no changes will be made to this proposed best management practice permit condition.
1	11	Ecology has moved the permit condition to "minimize use of marine (salt) water" from the prohibited discharges to the best management practices section, see permit condition S4.C. In addition, Ecology has incorporated reporting of efforts to reduce use of marine water into the compliance schedule to meet the conductivity local limit at sample points 105 and 106. See permit condition S11 for more information.
1	12	The error has been corrected.
1	13	The permit condition S9.B has been updated to require a brief description of any unauthorized discharges which occurred during the "past 36-months".
1	14	Ecology recognizes that PSNS&IMF went above and beyond a similar cooling tower sampling requirement during the previous permit term by sampling more cooling tower discharges than required. However, a once per permit term sampling requirement of cooling tower discharges 5000 gallons per day or greater (including maintenance activities) will continue to characterize this discharge, including any additional cooling towers that may exceed the 5000 gpd threshold for sampling.
1	15	Appendix B, discharge point no. 45 description has been updated.
1	16	Ecology received a complete application addendum from PSNS&IMF for this new process on June 3, 2020. Ecology subsequently issued an authorization to PSNS&IMF to discharge from this process through a temporary permit until Ecology could incorporate the new process into the permit.

Enclosure #	Comment #	Response
		Ecology has added this new process into the permit. See permit Appendix B for more information. Please note, in response to comment 1, Ecology has removed the aluminum passivation processes discharge authorizations. Sample point 071, previously for Tank 2-aluminum passivation hot water rinse, has been repurposed to authorize this new discharge.
2 (fact sheet)	1	The reference to the 5,000 gallon tank was deleted.
2	2	The description of the final pH control tank has been updated to reflect current operations.
2	3	Edits were made to the Sludge Storage description to correct errors and to improve clarity.
2	4	The requested wording was added to the Treatment Technology description.
2	5	Edits were made to the Painting Overspray Contaminated Water description to improve clarity.
2	6	Most commonly, “process waste collection system” was used, so any remaining “process wastewater collection system” references were changed in the fact sheet and permit.
2	7	Edits have been made to the Air Particulate Detector Components Washing Water description.
2	8	The error was corrected.
2	9	References to the aluminum passivation system have been deleted from the fact sheet.
2	10	Table 20 has been deleted since it was associated with the aluminum passivation system, which is no longer in operation.
2	11	The “Building 900 – Steam Plant” description has been updated for clarity.
2	12	The spelling error was corrected.
2	13	The error has been corrected.
2	14	Ecology has added this new process into the fact sheet Table 10 and included a process description. Please also refer to the enclosure 1-comment 16 response.
2	15	Ecology has reviewed the information presented in this comment and confirmed the sewer use and billing error. The discussion of water and sewer use was amended appropriately. Likewise, the discussion in this section has been edited to include the other water conservation project PSNS&IMF presented in this comment.

Enclosure #	Comment #	Response
2	16	As stated in the comment response above, Ecology has modified this discussion to incorporate the overbilling and misrepresentation of actual sewer use during 2015. In addition, this section also presents an argument from PSNS&IMF countering Bremerton's statements. Therefore, Ecology does not find it necessary to change the word "stated" to "believes".
2	17	Ecology has incorporated the PSNS&IMF operation information into the discussion on correlating lower flows with lower conductivity levels.
2	18	Ecology acknowledges that the salinity levels, measured as conductivity, from PSNS&IMF have not changed significantly in at least the past two decades. Ecology has rewritten the salinity discussion in the fact sheet and believes this comment is adequately reflected in the rewrite.
2	19	Please see the response to enclosure 2-comment 15.
2	20	Please see the response to enclosure 1-comment 11.
2	21	Ecology has rewritten the salinity discussion in the fact sheet. The statement in question has been removed.
2	22	Ecology has rewritten the salinity discussion and determination in the fact sheet. Ecology believes the rewritten determination explains the reason for the conductivity local limit and application to the PSNS&IMF discharge.
2	23	Ecology has rewritten the salinity discussion in the fact sheet and has corrected the statement that the Bremerton City Council passed the resolution for the conductivity limit.

Comments from the City of Bremerton

December 6, 2019

Water Quality Permit Coordinator
Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, WA 98008-5452
Email: tricia.miller@ecy.wa.gov

RE: Draft Wastewater Discharge Permit ST0007374
Puget Sound Naval Shipyard and Intermediate Maintenance Facility

Dear Ms. Miller,

The City of Bremerton appreciates the opportunity to comment on the subject draft wastewater discharge permit for the Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF). As the recipient of PSNS & IMF wastewater discharge, we have a vested interest in ensuring that PSNS & IMF wastewater does not interfere with our ability to reliably and effectively treat wastewater and meet our National Pollutant Discharge Elimination System (NPDES) permit requirements. We take great pride in our nearly annual receipt of the Department of Ecology's (Ecology's) Outstanding Wastewater Treatment Plant Award, which serves as evidence of the value we place in protecting the health of Puget Sound.

As you are aware, the wastewater discharges by PSNS & IMF to our collection and treatment systems contain elevated levels of salinity. We believe that the saline wastewater discharge from PSNS & IMF has adversely impacted our wastewater collection and treatment infrastructure, treatment process efficiency and/or capabilities, and long-term viability of biosolids land application. We have brought this issue to Ecology's attention and have been engaged in ongoing dialogue with PSNS & IMF and Ecology on this matter of concern.

We are pleased to see that the draft permit includes several provisions that begin to address our concerns. For reference, these provisions are summarized below:

- Special Condition S13 requires PSNS & IMF to submit a Salinity Study Report to Ecology. In the draft fact sheet, Ecology indicates that the study is to be completed within 1 year of the permit's effective date. The study appears to be intended to be a comprehensive study requiring sampling, identification of high-salinity wastewater sources, and analysis of potential measures to reduce the high-salinity sources. The study

must also specifically address potential saline groundwater intrusion and pipeline corrosion issues.

- Special Condition S5.A requires that PSNS & IMF minimize the use of salt water to the maximum extent possible for sources that discharge to Bremerton. Required corrective actions are limited to readily available nonstructural management modifications such as using potable water where connections exist. The deadline for meeting this requirement is not specified. The draft fact sheet indicates that Ecology will make a determination on how, to what extent, and presumably the schedule by which PSNS & IMF must be required to control saline water discharges based on the PSNS & IMF Salinity Study Report.

- Special Condition S.11.B.5 requires the Slug Discharge Control Plan to include measures for controlling sources of salt water to the Bremerton sewer system.

- Table 1 of the draft permit requires conductivity monitoring at lift stations discharging to our collection system. In particular, the draft permit increases the frequency of monitoring at Sample Point 105 (Lift Station No. 1, West End) from monthly to weekly.

The City of Bremerton offers the following comments on the draft permit and fact sheet, with particular focus on considerations related to saline wastewater discharge:

Comment 1

Reference: Draft Permit, Table 1, "Effluent Limits and Monitoring Requirements" (pages 9–12)

Comment: For Sampling Points 105 and 106, lift stations discharging to Bremerton's collection system, composite samples may be time- or flow-proportional according to the table notes. We understand that PSNS & IMF lift station pumps at these sample points operate intermittently in an on-off pumping regime. Therefore, time-proportional composite samples may not be representative of the composite discharge. We request that flow-proportional composite samples be required at these sampling points.

Comment 2

Reference: Draft Permit, Table 1, "Effluent Limits and Monitoring Requirements" (pages 9–12)

Comment: We request that Sampling Points 105 and 106 include a requirement for continuous metered conductivity sampling with reporting of daily instantaneous maximum conductivity. This information will supplement composite sampling requirements and provide insight on the variability of the PSNS & IMF discharge. We understand that PSNS & IMF lift stations at Sampling Points 105 and 106 are currently equipped with in-line conductivity meters; therefore, existing infrastructure should readily accommodate this monitoring and reporting requirement. We ask that Ecology include a note or special condition that requires PSNS & IMF to provide continuous conductivity monitoring data described above in a timely manner upon request from the City of Bremerton.

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Comment 3

References: Draft Permit, Table 1, "Effluent Limits and Monitoring Requirements" (pages 9–12) and Draft Fact Sheet, Table 31 (page 78)

Comment: The draft permit does not specify a conductivity limit for Sampling Points 105 and 106, PSNS & IMF lift stations discharging to Bremerton's collection system. However, Table 31 in the draft fact sheet appears to be inconsistent with the draft permit and indicates a monthly average conductivity limit of 6 millisiemens per centimeter (mS/cm), which corresponds to the limit recently adopted in City of Bremerton ordinances. This apparent inconsistency may need to be clarified, absent other revisions to the draft permit and fact sheet.

Comment 4

References: Draft Fact Sheet, Ecology's Determination on Salinity Issues (page 75)

Comment: Ecology indicates that it will make a determination on saline wastewater discharge control measures, which presumably may include future numerical discharge limits, following submittal of the PSNS & IMF Salinity Study Report. We believe that Bremerton has provided Ecology with substantive evidence of adverse impacts arising from saline wastewater discharges from PSNS & IMF. Ecology's determination on salinity issues at our WWTP acknowledges this to be the case. We are therefore compelled to request that Ecology establish local numerical limits on salinity and/or conductivity as part of the PSNS & IMF discharge permit.

Comment 5

Reference: Draft Permit, Section S3.K, "Notice of Temporary Changes in Discharges" (page 19)

Comment: The current and draft permit requires the permittee to notify Ecology and the City of Bremerton of temporary changes in discharge quantity or quality at least 3 days prior to the proposed discharge, using a form provided by the City of Bremerton. We have rarely received such notifications from PSNS & IMF despite the variable nature of PSNS & IMF operations and corresponding wastewater production and quality. Although the permit cannot necessarily do more to require PSNS & IMF to notify us of changes in discharges, we would like to be on record that more diligent and open communication from PSNS & IMF would assist our wastewater treatment efforts and is required by permit.

Comment 6

Reference: Draft Permit, Section S5, "Salinity Study Report" (page 27)

Comment: We request that Ecology require PSNS & IMF to provide documentation of water conservation measures and changes in management practices resulting in decreased potable water demand as described in the draft fact sheet (page 70). This documentation should address chronology and changes in infrastructure and/or management practices along with estimated reduction in potable water demand associated with each change. The requested documentation could be included as part of the Salinity Study Report or a separate standalone report.

Comment 7

Reference: Draft Permit, Section G3, "Permit Actions" (page 31)

Comment: We request that language regarding permit modifications be amended to include specific reference to the required Salinity Study Report. We propose the following modification in italics:

"Ecology may also modify this permit, including the schedule of compliance or other conditions, if it determines good and valid cause exists, including promulgation or revisions of regulations or new information. *In particular, such information includes but is not limited to the Salinity Study Report required under Section S13 and additional information that may be presented by the City of Bremerton pertaining to salinity issues at the Bremerton WWTP."*

Comment 8

Reference: Draft Fact Sheet, "Salinity Issues at the Bremerton WWTP" (page 69)

Comment: Item Number 2 asserts that there is no empirical data to support our concern that high conductivity influent wastewater may adversely impact nitrogen removal capability. It is not clear if Ecology is referring to empirical data from the Bremerton West WWTP itself or the broader literature. Bremerton West WWTP is not designed or operated for nitrification or nitrogen removal; thus plant-specific data are not available. However, inhibition of biological treatment from saline wastewater conditions is widely shown in the scientific literature. Nitrification, the critical first step to biological nitrogen removal, is particularly sensitive to saline wastewaters when the biology is not acclimated to such conditions. For non-acclimated biology, the degree of inhibition from exposure to saline wastewater tends to increase linearly with salt concentration. For low to moderate levels of salinity that may result from a blend of saline wastewater and typical domestic wastewater, biological nitrogen removal activities are reduced to a certain degree but not necessarily lost completely. Absent control of saline wastewater discharges into the collection system, designs for biological nitrogen removal may need to account for reduced biological activity. Consequently, larger tanks and a higher cost for biological nitrogen removal upgrades would be required. Recognizing the potential for saline wastewater discharges to our WWTP and corresponding adverse impacts to biological nitrogen removal capacity and/or cost of biological nitrogen removal upgrades, we request that Ecology remove or otherwise clarify the following statement, "However, there is no empirical data at the present to support this concern."

Comment 9

Reference: Draft Fact Sheet, "Activated Sludge Inhibition" (page 92)

Comment: The draft fact sheet states, "Ecology used literature activated sludge inhibition threshold values to calculate local limits as there is no history of secondary inhibition at Bremerton WWTP from toxic pollutants. The inhibition levels were obtained from Appendix G of EPA Local Limits Development Guidance Appendices, July 2004, and are based on lowest values reported."

We believe that Bremerton West Wastewater Treatment Plant (WWTP) effluent 5-day biochemical oxygen demand (BOD5) discharge violations that occurred in the first quarter of 2015 were caused by secondary inhibition. In particular, we believe salinity and/or other compounds discharged from PSNS & IMF to be the cause of secondary inhibition, resulting in the violations. Salinity or related constituents such as chloride are not included in Appendix G of the U.S. Environmental Protection Agency (EPA) guidance document but may be inhibitory to biological wastewater treatment processes.

To avoid potential misinterpretation of this section of the fact sheet, we propose the following modifications:

"Ecology used literature activated sludge inhibition threshold values to calculate local limits ~~as there is no history of secondary inhibition at Bremerton WWTP from toxic pollutants~~. The inhibition levels were obtained from Appendix G of EPA Local Limits Development Guidance Appendices, July 2004, and are based on lowest values reported *and limited to constituents listed in the EPA guidance document.*"

Comment 10

Reference: Not applicable / general comment

Comment: Lack of communication from PSNS & IMF regarding ongoing operations, modifications, and plans for potential future operations makes it challenging for the City of Bremerton to plan its own wastewater treatment operations and anticipate impacts that may arise from changes in PSNS & IMF operations. In particular, PSNS & IMF has not informed the City of Bremerton of studies related to PSNS & IMF water use and/or wastewater characteristics. We request that Ecology add a special condition requiring PSNS & IMF to share documents of this nature with the City of Bremerton in a timely manner. The documents of interest, or portions thereof, may address subjects including but not limited to water/wastewater use, generation, water quality, facility planning, and other topics that are relevant to the City of Bremerton's ability to manage and plan for treatment of PSNS & IMF wastewater discharges.

Comment 11

Reference: Draft Fact Sheet, Water Quality Criteria (page 91)

Comment: The fact sheet states, "Since issuance of the 2011 permit, the state has not changed the marine water quality criteria for all the parameters listed below." Although this may be the case for Aquatic Life Marine Water Quality Criteria, significant changes in Human Health Water Quality Criteria have occurred since issuance of the 2011 permit. Washington's recently-adopted Human Health Water Quality Criteria are very low receiving water concentrations that may result in new effluent limits for Bremerton's WWTP and have not been considered in Local Limits calculations. The Human Health Water Quality Criteria include nearly 100 constituents, including compounds that are challenging to remove and/or recalcitrant to removal in conventional wastewater treatment processes.

PSNS & IMF appear to be a source of many toxic metals and organics. At some level, these may impact the quality of the City's WWTP effluent and ability to comply with potential effluent

limits based on new Human Health Water Quality Criteria. The City's NPDES permit was renewed in 2018 and expires in 2023. There may be the need to synchronize the City's NPDES permit and PSNS & IMF's permit to ensure that Local Limits for PSNS & IMF appropriately control all toxics discharged to the City's system that could adversely impact treatment, effluent quality, and biosolids quality.

We appreciate your consideration of our comments and look forward to communicating with Ecology during the PSNS & IMF permit renewal process.

Sincerely,

Tom Knuckey, PE
Director of Public Works and Utilities

1912-01

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Ecology response to the City of Bremerton comments

Comment #	Response
1	It is Ecology's understanding that SP105 is outside of the PSNS&IMF property. Samples for SP105 are taken and collected by City personnel and split with the Navy. Therefore, Ecology is leaving the option for either time-proportional or flow-proportional composite sampling at this location. Bremerton and the Navy may come to an agreement on the proper type of composite sample at Lift Station WB-3 (SP105). The permit has been updated to require flow-proportional sampling at Lift Station 9 (SP106). The requirement allows for time-proportional sampling only when flow-proportional sampling is unattainable, see permit Table 1 footnote l for more information.
2	Ecology has changed the conductivity monitoring at SP105 and SP106 to continuous. Please see permit Table 1 for more information on the conductivity results that must be reported.
3	Ecology has included the conductivity limit for SP105 and SP106, effective year five of the permit. Permit condition S12 outlines a compliance schedule to track compliance of PSNS&IMF meeting the limit. Refer to the permit and the rewritten salinity discussion in the fact sheet for more information.
4	The response to comment 3 addresses this comment.
5	The proposed permit authorizes many discharges that may occur on an intermittent basis, as explained in the fact sheet. The permittee is not required to notify Ecology or the City of Bremerton of any intermittent but permitted discharges. However, permit condition S3.K requires notification of any temporary changes in discharges which includes a temporary discharge of wastewater not otherwise permitted.
6	This permit authorizes process wastewater discharges from PSNS&IMF to the Bremerton WWTP. It does not regulate all water use at PSNS&IMF. Reporting required by permit conditions S2, S3.K, S9, and S12 cover any changes to wastewater discharge practices that may affect operations at the Bremerton WWTP. Therefore, Ecology will not be adding a specific permit condition for reporting of changes in potable water use. As the potable water provider, the City of Bremerton may have other avenues to request notification of potable water use at PSNS&IMF.
7	Ecology does not typically modify the General Conditions language. The existing language in General Condition G3 is satisfactory to reopen the permit if new information is presented. Therefore, no modifications were made.
8	Ecology has removed the statement in question. In addition, Ecology has added a discussion and citation to this section confirming saline wastewater inhibiting nitrification under certain scenarios.

Comment #	Response
9	Although there is evidence of high saline wastewaters inhibiting biological activity in wastewater treatment activated sludge processes, there are no clear studies that provide an inhibition value for salinity or conductivity. From research available for review, the concentration of salinity and duration of high saline influent has a large impact on the inhibition observed at a wastewater treatment plant. Site specific studies must address salinity inhibition. Therefore, Ecology will continue to use the inhibition values provided by EPA.
10	Ecology believes the proposed permit conditions are adequate for evaluating changes to the wastewater characterization and discharge practices at PSNS&IMF which may impact the Bremerton WWTP and sewer system.
11	Synchronizing the issuance of this permit and the City of Bremerton's NPDES permit is not necessary to address changes in water quality or impacts to the City of Bremerton WWTP. Ecology has the ability to modify the PSNS&IMF permit if it determines a good and valid cause exists, such as to address changes to City of Bremerton NPDES permit limits.

Comments from EPA Region 10

EPA Comments on PSNS State Waste Discharge Permit ST0007374
December 10, 2019

Michael Le, EPA, Region 10
Puget Sound Naval Shipyard (PSNS) and Intermediate Maintenance Facility (IMF)

EPA Comments regarding the State Waste Discharge Permit Number ST0007374.

Comment 1
Permit Provision:
Page 14. S3. Reporting and recording requirements

Comment:
The permit should require PSNS and IMF to notify the EPA and the State if the facility is discharging hazardous waste to the POTW as required under 40 CFR 403.12(p).

Comment 2
Permit Provision:
Page 17. d. Waiver of written reports
Ecology may waive the written report required in subpart c, above, on a case-by-case basis upon request if the Permittee has submitted a timely oral report.

Comment:
The EPA assumes that, a "timely oral report" refers to an oral report performed in accordance with the immediate reporting or twenty-four reporting requirements in Part S.3.F.2.a and b of the permit. However, this is not clear from the permit language. Please define "timely oral report" either directly or by referencing the appropriate oral reporting requirements.

Comment 3
Permit Provision:
Page 23. S5.A. General prohibitions
The Permittee must not introduce into the POTW pollutant(s), which cause pass through or interference. The use of marine (salt water) for sources that discharge to the Bremerton sewer must be minimized to the maximum extent possible. By XX XX, 20XX, PSNS & IMF must limit the use of marine (salt) water for uses of water that discharge to the Bremerton sewer to the maximum extent possible through potable water use management measures that require little or no structural modifications to the shipyard infrastructure. Provisions to meet this requirement include using potable water on docked vessels that have the capability to connect to potable water for any water use that is discharged to sanitary sewer including, but not limited to toilet flushing, cleaning, and cooling water.

Comment:
The Fact Sheet indicates that the POTW has been experiencing interference due to marine (salt water) from PSNS. The permit conditions must comply with 40 CFR 403.5(c)2) which requires that the Control Authority develop local limits in cases where pollutants result in interference.

Comment 4
Permit Provision:
Page 24. S5.C. Prohibited unless approved
Any of the following discharges are prohibited unless approved by Ecology under extraordinary circumstances (such as a lack of direct discharge alternatives due to combined sewer service or a need to augment sewage flows due to septic conditions):

EPA Comments on PSNS State Waste Discharge Permit ST0007374
December 10, 2019

1. Noncontact cooling water in significant volumes.
2. Storm water and other direct inflow sources.
3. Wastewaters significantly affecting system hydraulic loading, which do not require treatment or would not be afforded a significant degree of treatment by the system.
4. The discharge of dangerous wastes as defined in Chapter 173-303 WAC (Unless specifically authorized in this permit).

Comment:
The permit should state that a user shall not introduce pollutant(s) that violate general and specific prohibitions or national pretreatment standards under 40 CFR 403.5. There are exceptions. They are identified under 40 CFR 403.5(a)(2) and 403.16. Also, the permit should define what is considered significant volumes. For example, would 25,000 gallons per day constitute significant volumes?

Comment 5
Permit Provision:
Page 25. S9. Non-routine and unanticipated discharges
4. However, temporary discharges with a volume of less than 1,000 gallons per day and which are evaluated and found not to be a dangerous waste, hazardous waste, or a categorical discharge as defined under 40 CFR Parts 403-699, and are determined not to contain pollutants in concentrations greater than the local limits, may be made without prior notice to the City of Bremerton and Ecology.

Comment:
The permit should define what constitutes "temporary discharges." For example, would a daily discharge of 1,000 gallons per day be considered a temporary discharge or once a year or once a quarter. Please explain how the Control Authority (CA) evaluates the temporary discharges to determine if the wastewater meets all the requirements listed in this section.

The POTW and/or CA must comply with the requirements under 40 CFR 403.8(f)(2)(ii). The regulation requires the POTW to "Identify the character and volume of pollutants contributed to the POTW by the Industrial Users." For example, if the facility is discharging contaminated wastewater with PFAS/PFOA, the CA is required to determine the volume and characteristic of the wastewater and/or require the IU to provide such information.

EPA Comments regarding the fact sheet of the State Waste Discharge Permit Number ST0007374.

Comment 6
Fact Sheet:
Page 2. The new permit requires PSNS & IMF to conduct a salinity study in order to propose a solution to mitigate saltwater interference with Bremerton's WWTP and other infrastructures.

Comment:
A User may not introduce into a POTW any pollutant(s) which cause Pass Through or Interference. If the POTW has been experiencing interference, the CA should consider developing local limits to address the Interference as defined under 40 CFR 403.5(c)(1-2) in addition to conducting a salinity study.

EPA Comments on PSNS State Waste Discharge Permit ST0007374
December 10, 2019

Comment 7

Fact Sheet:

Page 8. Many other minor sources of wastewater exist at the facility. Examples of these minor sources include photo-processing, grinding, valve cleaning, lagging tool cleaning, paint brush cleaning, hose cleaning, and braze flux flushing. In addition to the industrial discharges, the facility generates a large number of commercial/large scale semi-domestic discharges including those from car washes, galleys, washing machines, and barracks heating boilers.

Comment:

The fact sheet should explain how the CA has evaluated and documented each process stream to determine if the wastewater is subject to pretreatment standards/requirements. For example, has the photo-processing activities and associated wastewater been evaluated against the effluent guidelines for Photographic Processing, 40 CFR 459?

Comment 8

Fact Sheet:

Page 20. The water passing through the OWTS is not subject to the Metal Finishing categorical standards of 40 CFR Part 403.

Comment:

The citation in the Fact Sheet is incorrect, the Metal Finishing Effluent Guidelines are set forth in 40 CFR 433 not 40 CFR 403.

Comment 9

Fact Sheet:

Page 20. The permit authorizes PSNS & IMF to analyze and submit the results for the purgeable (volatile) subset of the TTO's, as listed in EPA Method 624.1 (2016) Table 1, in lieu of results for all TTOs. Acrolein and acrylonitrile have been excluded from monitoring as these two compounds were not detected in the last thirty three volatile organic compounds (VOCs) sample results submitted by PSNS & IMF upon request. Moreover, PSNS & IMF stated that "acrolein reduces the sample holding time down to three days and acrylonitrile is a peroxide former that is difficult to waste out, typically requiring a contractor to stabilize the material."

Comment:

The Industrial User (IU) may request an alternative to TTO monitoring. The CA may waive TTO monitoring requirements only if the indirect discharge meets the requirements under 40 CFR 433.12.

Comment 10

Fact Sheet:

Page 21. In the 2011 permit, the daily flow limit for all six drydocks' PWCSs combined was 550,000 gpd (waste stream 99-DD16-002), which is allocated among the six drydocks. In a letter dated February 29, 2016, PSNS & IMF requested for the increase of the daily maximum flow for the combined drydock PWCS to 950,000 gpd. The reasoning was in the period from 2013 to 2015, there were 14 days annually during which the water had to be diverted to Sinclair Inlet because flow exceeded 550,000 gpd. PSNS & IMF projects that with the proposed increase to 950,000, it otherwise only may have to discharge PWCS water Sinclair Inlet twice per year.

EPA Comments on PSNS State Waste Discharge Permit ST0007374
December 10, 2019

Comment:
The increased flow to the POTW, nearly double the current limit, has the potential to impact the Bremerton WWTP. The fact sheet should explain how the CA has evaluated the potential flow impact(s), alone or in-conjunction with other discharges, to insure pretreatment standards and requirements are met. See 40 CFR 403.8(f)(v) and 40 CFR 403.8(f)(2)(i-v).

Comment 11
Fact Sheet:
Page 24. Segregation of Process Wastewater
Water from certain processes (for example, hull pressure washing, hydroblasting) occurring in the drydock, which are associated with high pollutant concentrations, is sent to the collection tank for treatment, even if it otherwise meets the turbidity set-point for direct discharge to the sanitary sewer.

Comment:
The fact sheet should document which industrial processes in the drydocks are categorical industrial processes subject to ESPS and NSPS under the EPA effluent guidelines.

Comment 12
Fact Sheet:
Page 26. Table 10. Listing of additional discharges and their associated flows as authorized under proposed permit for Puget Sound Naval Shipyard

Comment:
If the PSNS and/or IMF is discharging any hazardous wastewater to the POTW from any sources listed in Table 10, it must comply with the requirement to notify the POTW, State and the EPA in accordance with 40 CFR 403.12(p).

Comment 13
Fact Sheet:
Page 59. The discharges from the cooling towers are not subject to permit discharge limits for molybdenum, copper, and zinc.

Comment:
Please explain why the discharges from cooling towers are not subject to permit discharge limits for molybdenum, copper, zinc or local limits.

Comment 14
Fact Sheet:
Page 62. AFFF with halogenated organic carbon (HOC) content less than 100 ppm. For calculating HOC, see the persistent dangerous waste table at the bottom of WAC 173-303-100. Ecology has not proposed monitoring requirements or flow limits for the WISP discharges in the proposed permit.

Comment:
The fact sheet should explain potential sources of PFAS/PFOA from PSNS and IMF. Ideally, this information should come from the facility. The CA is obligated to determine the characteristics and volume of pollutants that are discharged to the POTW per 40 CFR 403.8(f)(2)(i-iii).

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The EPA has a web page that summarizes the status of SW 846 Method 8327. This includes a link to the draft method for PFAS:
https://www.epa.gov/hw-sw846/validated-test-method-8327-and-polyfluoroalkyl-substances-pfas-using-external-standard

Comment 15

Fact Sheet:

Page 67. Table 25. Effluent and reporting violations in the previous permit cycle

Parameter Type	Max Limit	Measurement Value Quantity	Monitoring Period Begin Date	Monitoring Point Code [a]	Violation
Flow	550000	560000	2/1/2014	16	Numeric effluent violation
Flow	550000	553000	3/1/2014	16	Numeric effluent violation
Copper	3.2	None	5/1/2014	4	Analysis not Conducted
Nickel	1.95	None	5/1/2014	4	Analysis not Conducted
Zinc	4	None	5/1/2014	4	Analysis not Conducted
Petroleum Hydrocarbons	50	87	8/1/2015	107	Numeric effluent violation
pH (Hydrogen Ion)	11	None	11/1/2015	76	Analysis not Conducted
Copper	3.2	None	3/1/2016	3	Analysis not Conducted
Nickel	1.95	None	3/1/2016	3	Analysis not Conducted
Zinc	4	None	3/1/2016	3	Analysis not Conducted
pH (Hydrogen Ion)	11	None	1/1/2017	76	Analysis not Conducted

[a] These Ecology assigned monitoring codes are associated with the new permit. Navy designated discharge codes are unchanged. For cross reference, refer to Table 1.

Comment:
Please explain why the "analysis not conducted." Also, do the data include any violations that were the result of independent sampling and analysis of the facility by the POTW and/or control authority. See 40 CFR 403.8(f)(v) and 40 CFR 403.8(f)(2)(i-v).

Comment 16

Fact Sheet:

Page 71. These limits were adopted in the City of Bremerton's Municipal Code, Chapter 15.03 BMC, on August 8, 2019. Ecology calculated local limits for the City of Bremerton WWTP using data supplied to Ecology by Bremerton and PSNS&IMF and certain literature values where local data wasn't available. The calculated local limits were generally consistent with those from the 2011 permit. The method Ecology used to develop the local limits is discussed in detail in Appendix D of this fact sheet. Ecology applied these local limits to the industrial discharges at the "end of process" prior to mixing with other flows whereas the local limits established by Bremerton apply to all wastewater flows from the plant and are applied at the "end of pipe" which is the lift stations.

Comment:
The fact sheet should explain how Ecology developed the current and/or proposed local limits. For categorical processes at PSNS and IMF, the fact sheet should explain if the Combined Wastestream Formula was used to calculate local limits and account for dilution from different waste streams (both categorical and non-categorical). See 40 CFR 403.6(e).

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Comment 17

Fact Sheet:

Page 72. *Salinity issues at the Bremerton WWTP*

The City of Bremerton submitted extensive conductivity data showing that the discharges from PSNS exhibit high variability with up to 4200 spikes per month exceeding 6 mS/cm on a 5-minute average basis. Bremerton has adopted a conductivity limit, which is a continuous average of 6.0 mS/cm for any thirty day period. Seawater typically exhibits a conductivity of 50 mS/cm and drinking water ranges from 0.05 to 0.5 mS/cm. There is a direct correlation between conductivity and salinity. Salinity is an estimate of the level of salt in a water sample and it is derived from the conductivity reading using a conversion factor (usually 0.5) which is dependent on temperature. The main issues concerning the Bremerton WWTP and the city's infrastructure, as a result of discharge of wastewater with high salt concentration, are listed below.

1. *Elevated salinity concentrations have the effect of reducing dissolved oxygen solubility at equilibrium. Bremerton first requested technical assistance from Ecology in April 2015 when the city's westside WWTP had shown high effluent biochemical oxygen demand (BOD_5) fluctuations for the previous six months. Bremerton was unable to meet its 30 mg/L effluent limit for BOD_5. In the summer of 2015, Ecology conducted a partial*

inspection of PSNS's discharge practices and investigated the causes of the high BOD_5 that was experienced by Bremerton. One of the main findings of the investigation was that BOD_5 analysis conducted by Bremerton showed higher estimated BOD_5 values for more dilute sample preparations than the less dilute samples after serial dilutions. This indicated that there was a matrix interference with the analytical method. However, a review of the existing sample split analytical results at that time showed discrepancies in BOD_5 measurements between laboratories. Bremerton's results were significantly higher than those of the PSNS contractor or Ecology's Manchester laboratory results. Ecology recommended Bremerton and PSNS to resolve this discrepancy before further evaluation of possible interferences can occur.

Ecology subsequently required Bremerton to monitor for carbonaceous BOD (CBOD) instead of BOD_5, with a $CBOD_5$ limit of 25 mg/L. The city has been able to meet the $CBOD_5$ limit in its effluent but has informed Ecology that it would still be unable to meet a BOD_5 limit of 30 mg/L consistently.

Bremerton stated that PSNS instituted some major changes in using more of Sinclair Inlet water rather than the city's tap water in its operations which resulted in salinity spikes and fluctuations thereby interfering with Bremerton's WWTP and causing the city to violate its permit limits.

Nutrients, nitrification/denitrification process impacts – Wastewater treatment plants are the largest source of human-caused nutrients to Puget Sound. Water is treated before discharged into the Sound, but nutrient removal is not part of the typical treatment process.

Ecology is working collaboratively with Puget Sound stakeholders through the Puget Sound Nutrient Source Reduction Project and Puget Sound Nutrient Forum to find solutions for reducing excess nutrients. Bremerton has raised concerns that if new requirements are put in its NPDES permit or in the form of a general permit for nutrient removal, the high conductivity influent water may potentially hamper any efforts to meet any future effluent requirements for nutrients. However, there is no empirical data at the present to support this concern.

2. *Bremerton has also reported to Ecology in various occasions that it has had to rebuild the pumps carrying PSNS wastewater frequently due to corrosion. Bremerton said that due to the damage being caused by the saltwater, all three pumps at WB-3 have to be retrofitted and converted to external closed loop cooling system for the pump station. Pump cooling in this case is affected by the high conductivity as the three pumps use sewage to also cool the pump, instead of using a glycol solution. This is a standard method of cooling for a Fairbanks-Morse dry-pit submersible pump, which Bremerton uses. These are the three large pumps that are located at the city's pump station WB-3, which receives all of the PSNS industrial flows.*

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According to Rick Zimburean, Maintenance Supervisor, all of this has cost the Bremerton tax payers more than $202,000 and Bremerton still needs to have the last large pump pulled and sent in for repair and conversion, with the first two averaging $41,200 each. The plots below were provided by the City of Bremerton. These graphs show that the annual water use by PSNS ranged between 2 MGD to 3 MGD up to about 2012 and then a sharp decline is observed which has not turned upwards to the previous normal levels. Average water use from all other customers appears steady from 2006 onwards. The plot below shows that sewer use at PSNS increased from 2010 onwards. This discrepancy or water imbalance is what Bremerton argues to be coming from Sinclair Inlet salty water, supplied to vessels and flushing water in ships docked for service and barges.

Comment:
The Bremerton WWTP has been experiencing interference due to salt water from PSNS & IMF. The CA should develop local limits to address the problem in accordance to 40 CFR 403.5(c).

Comment 18
Fact Sheet:
Page 79. The proposed permit requires PSNS to conduct a study to identify major sources of saltwater that is discharged to the sanitary sewer and to propose remedies to reduce saltwater discharges so that PSNS can meet Bremerton's conductivity local limits on a consistent basis. The study is to be completed within one year of permit effective date.

Comment:
The CA should conduct a local limit study in addition to conducting a study to identify the major sources of saltwater to address the interference at the Bremerton WWTP. In addition, the fact sheet should lay out the remedies necessary to ensure compliance with pretreatment standards and requirements in accordance to 40 CFR 403.8(f)(1)(B)(vi)(A-B).

Comment 19
Fact Sheet:
Page 82. IV. Monitoring Requirements

Comment:
There is no discussion that Ecology, as the Control Authority, will independently inspect and sample the facility at least once a year as required under 40 CFR 403.9(f)(v) and 40 CFR 403.8(f)(2)(v). The fact sheet should explain how it intends to comply this pretreatment provision.

Ecology response to EPA Region 10 comments

Comment #	Response
1	Permit Special Condition S3.I. requires a dangerous waste discharge notification at least 90 days prior to the date the permittee proposes to initiate the discharge. This permit condition meets the intent of 40 CFR 403.12(p). No changes were made to the proposed permit.
2	A statement has been added to clarify “timely oral report”.
3	The City of Bremerton has developed a conductivity local limit, intended as a measure of salinity. Ecology has incorporated the conductivity limit into the permit, with compliance to the limit outlined in a compliance schedule. See permit conditions S1 and S12 for more information.
4	General and specific discharge prohibitions, as outlined in 40 CFR 403.5, are included in permit section S5. As for defining “significant volumes”, the prohibition of discharging noncontact cooling water in significant volumes comes directly from state regulation, WAC 173-216-060.
5	The draft permit incorrectly stated “1,000 gallons per day”. The permit language has been updated to reflect that only discharges with a total volume of less than 1,000 gallons, and following the other provisions, may be discharged without prior notification. Ecology also incorporated permit condition S3.L requiring reporting of these discharges with the permit application.
6	Refer to the response to comment 3.
7	Photographic point source category (40 CFR 459) does not have pretreatment standards promulgated and therefore is not relevant to this facility. Pages 24-60 of the fact sheet explain the numerous, smaller volume discharges from the site. These explanations include evaluation of federal and state regulations, any necessary monitoring, and other potential permit requirements applicable to the specific discharge.
8	The correction has been made.
9	The explanation of TTO sampling on page 19 of the fact sheet is regarding TTO monitoring of the oily water treatment systems (OWTS). The OWTS is not subject to metal finishing pretreatment standards. However, Ecology adapted the TTO standard from these technology-based standards as a rationally based AKART standard. Therefore, Ecology can make appropriate modifications to the list of TTOs to be sampled from the OWTS sample points without requiring a toxic organic management plan.
10	State waste discharge permit application was reviewed, signed, and approved by the receiving POTW prior to approval by Ecology in 2016. This provided the first opportunity for the POTW to determine if the increased flow from the drydock operations is hydraulically compatible with their system. The draft permit has been reviewed by Bremerton staff, they raised no

Comment #	Response
	objection to the increased flow from the drydock. The increased flow volume is required for large storm events. Ecology issued the latest NPDES permit WA0029289 to Bremerton in December, 2018. The fact sheet states that the West plant is designed to treat peak hour flows up to 22.8 MGD with comment that the City provides treatment up to 32.5 MGD. The flow increase from the dry docks is in response to large stormwater events, is dilute, and is an increase of 2% in relation to the WWTP peak hour design flow. The Bremerton WWTP fact sheet explains more about the current status of the plant capacity and is available at https://apps.ecology.wa.gov/paris/PermitLookup.aspx under permit WA0029289. Sinclair Inlet is a Superfund site due to historic discharges from PSNS (see EPA/ROD/R10-00/516 2000). Preventing new contamination of Sinclair Inlet from drydock discharges remains a priority to consider when weighing decisions about PSNS, Bremerton, and discharge limits.
11	EPA has not published effluent guidelines for drydocks or shipyards. The permit has identified industrial processes that are covered by effluent guidelines in the fact sheet. As explained in the fact sheet, process wastewater and some contaminated stormwater generated in the dry docks is collected in each dry dock's process water collection system (PCWS). The fact sheet outlines the sources of process wastewater that contribute to the PCWS, see pages 20-21. The referenced section is meant to document that some activities that generate process wastewater in the dry docks are automatically routed for treatment in the OTWS, even if the turbidity set point is met.
12	The responses to comments 1 and 7 adequately address this comment.
13	As outlined in the fact sheet, the proposed permit retains the requirement for the permittee to identify cooling towers with blowdown of 5,000 gallons per day or greater and sampling those towers for copper and zinc once during the permit term. Representative sampling of cooling towers with blowdown volumes exceeding 5,000 gpd during the previous permit term showed low levels of copper and zinc, see the fact sheet for data. The levels were well under local limits, as outlined in Table 27 of the fact sheet. Therefore, Ecology believes it is sufficient to retain a monitoring requirement for cooling towers once per permit term. Ecology will evaluate the monitoring data during the next permit reissuance and, if necessary, establish limits. There are no federal categorical standards regulating this discharge.
14	Appendix G of the fact sheet summarizes hazardous/dangerous waste related information. Within Appendix G, there is over a page of information dedicated to AFFF, and more generally PFAS, and requirements on use of PFAS-containing products on site.

Comment #	Response
15	Ecology believes the information on violations presented in Table 25 is sufficient. Interested parties are able to look up more information on this and other facilities by searching the permit number on the Water Quality Permitting and Reporting Information System (PARIS). You can access PARIS at https://apps.ecology.wa.gov/paris/PermitLookup.aspx. Table 25 does not include any violations that were the result of independent sampling and analysis.
16	Appendix D explains the method Ecology used to develop the limits; Sentence 4 of the referenced fact sheet language already states, "*The method Ecology used to develop the local limits is discussed in detail in Appendix D of this fact sheet*".
17	Refer to the response to comment 3.
18	Refer to the response to comment 3.
19	The fact sheet explains the requirements in the proposed permit. Independent inspection and sampling of the facility by the Control Authority is not a permit requirement for the Navy, therefore, no explanation is given in this proposed permit or fact sheet.

Comment from Doug Lyons

"This Navy facility needs extra scrutiny. They have been responsible for a recent major sewage spill."

Ecology response to Doug Lyons' comment

Ecology reviews compliance with its State Waste Discharge permit conditions for PSNS & IMF industrial wastewater discharges to the Bremerton sanitary sewer system as well as state water quality regulations for other discharges. Ecology has encouraged the Navy to report sewage spills from any of its facilities to both Ecology and Kitsap County Health to allow appropriate response to the spills for shellfish impacts and other public health considerations.

EPA Permit No. WA000206-2 directly regulates discharges from the shipyard to Sinclair Inlet under the federal Clean Water Act. That permit is currently being updated by EPA Region 10 in Seattle. The federal Clean Water Act directs the military to work cooperatively with EPA for compliance with the Act and related permits.

Appendix F--Applicability of Water Quality and Dangerous Waste Regulations

On August 29, 2011, PSNS & IMF submitted an amendment to its application in which it described sumps and conveyance areas generally located under the floor of the main process areas. PSNS & IMF submitted this information in an effort to delineate which areas of the shipyard are subject to regulation under the Resource Conservation and Recovery Act (RCRA) and which areas of the shipyard are subject to regulation under the Clean Water Act. In fact, many of these areas are subject to regulation under both RCRA and Clean Water Act provisions. Ecology offers the following general guidelines to clarify the relationship between the RCRA-based and Clean Water Act-based regulations in the context of this permit.

- As the purview of the state waste discharge permit for discharges to the Publicly Owned Treatment Works (POTW), or WWTP, is mainly the characteristics and conditions of what is discharged to the POTW, such conditions are not rendered invalid by RCRA requirements. For example, a spill to the POTW from a sump or hazardous waste storage facility must still be reported to the POTW and the Ecology Water Quality Program as required under the conditions of the state waste discharge permit. As another example, standards for discharge set forth in the permit for discharge to the POTW apply regardless of whether the discharge originated in an area subject to HWTR regulation.

- HWTR regulations regarding storage are generally more prescriptive than the conditions in the state waste discharge permit. Therefore, the shipyard can be reasonably confident that if it complies with HWTR storage and containment requirements in HWTR regulated areas, it will also be compliant with provisions of the state waste discharge permit. Standards for sump capacity, engineering of impervious berms and foundations, allowed duration of storage of hazardous waste, are all examples of areas in which compliance with HWTR requirements can be expected to result in compliance with requirements of the state waste discharge permit.

- Spill Prevention Plans and Slug Discharge Control Plans are requirements of the state waste discharge permit, which are intended to prevent spills to the sanitary sewer, and spills which enter state ground waters. The submittal and purview of Spill Prevention Plans and Slug Discharge Control Plans under the state waste discharge permit, is not dependent on whether the discharge is hazardous waste, or not hazardous waste, and is also not dependent on whether the source of the potential spill or slug discharge is from an area regulated under HWTR-administered regulations. PSNS & IMF can submit plans prepared for the HWTR program, in total or partial fulfillment of state waste discharge permit requirements for such plans, to the extent that such plans fulfill both HWTR and state waste discharge permit requirements.

- HWTR and Water Quality regulations are seldom in conflict, although one of the two regulations will often be more prescriptive, or more stringent. In areas subject to

administration under both regulations, PSNS & IMF can generally be confident that it will be in compliance with both regulations by adhering to the most prescriptive or stringent of requirements related to the two programs.

- Ecology's HWTR and Water Quality programs realize that occasionally an area may arise in which the HWTR and Water Quality regulations appear to present mutually exclusive options to achieve compliance. Ecology's HWTR and Water Quality Programs intend to work cooperatively with each other, as well as with PSNS & IMF to give guidance to PSNS & IMF when such occasions arise.

Appendix G--Summary of Hazardous/Dangerous Waste-Related Information

This information was derived from the 2011 fact sheet with some of the information updated to reflect new conditions at PSNS & IMF.

PSNS & IMF presented the following information in its permit application amendment of August 25, 2011, which included more detailed descriptions of the lower floor areas in Building 873, as well as additional information regarding wastes transferred to the Building 1109 IWPF. Much of this information has already been presented in the factsheet text above.

Building 873 (Plating Shop): Process rinse water tanks have dedicated piping that takes the rinse water directly to the appropriate Chrome Retention Tank, Cyanide Retention Tank, and Acid/Alkaline Retention Tank. The lower floor areas underneath the plating and chemical cleaning process tanks capture normal drips during plating and chemical cleaning and routine washdowns at the end of the day. The flooring within each segregated bermed area is sloped so that the wastewater flows directly to a sump, or to a trench that conveys it to a sump. The flooring is secondary containment for plating process tanks and is managed under the Resources Conservation and Recovery Act and WAC 173-303. The trenches and sumps are permit-by-rule wastewater management systems managed under the Clean Water Act. Wastewaters collected in a sump are automatically pumped by means of piping to three retention tanks, one for each of the separate waste streams. From each retention tank, the wastewater is pumped through a dedicated short run of double-walled PVC piping to the adjacent Industrial Wastewater Pretreatment Facility, Building 1109.

The hexavalent chromium wastewater in the Chrome Retention Tank is piped directly from air scrubber 3, air scrubber 7, and air scrubber 9, as well as sump 873-6, sump 873-15 and sump 873-16.

The Cyanide Retention Tank receives wastewater piped from air scrubber number 6, sump 873-8, sump 873-10 with associated trench, and sump 873-13. The Acid/Alkaline Retention Tank receives wastewater piped from air scrubber number 5, sump 873-7, sump 873-9 (with associated trench), sump 873-12, sump 873-14 (which also receives wastewater from air scrubber number 8 and air scrubber number 10), and sump 873-15.Sump 873-15 is the spill containment sump for both Chrome Retention Tank and the Acid/Alkaline Retention tank, and therefore, can be pumped to either of these two retention tanks.

About once a year wastewater from maintenance of a rotoclone in Building 873 is also taken to Building 1109 IWPF for treatment.

Building 857: (Sheet Metal Shop): As discussed in the separate section above, certain wastewaters, mainly constituting dilute rinsewaters generated in this building, namely those

from the aluminum passivation process, are discharged to the sanitary sewer under the shipyard's state waste discharge permit. Other wastewaters from this building, acidic and alkaline aluminum passivation solutions, rinse water from photo etching processes, photo etching solutions containing acids, alkalies, and chromates, are disposed of by being hauled to Building 1109 IWPF in portable tanks. The aluminum passivation system was decommissioned in 2019. Ecology will retain this description in the fact sheet for the next permit term for information purposes.

Building 460: Certain wastewaters generated from plasma arc welding processes are hauled to IWPF in portable tanks.

Building 978: The Battery Shop generates wastewaters that include sulfuric acid solution containing lead which are generated from draining various types of batteries. An 11,500-gallon underground accumulation tank in an underground concrete vault is used to collect this wastewater. Sometimes this wastewater is hauled to Building 1109 in portable tanks. Wastewater from the Battery Shop may alternatively be hauled off-site by a contractor. The wastewater volume from the Battery Shop has decreased significantly. PSNS & IMF may not have this process anymore in a few years.

Shipboard Wastes: Wastewaters generated from ships typically include cleaning/flushing solutions and corrosive wastes containing metals. On rare occasions, post-launch missile tube water containing cyanide may be generated in a large batch. These wastes are transported to Building 1109 in portable tanks.

Other Wastes: Additional wastes treated at the facility include shelf-life expired chemicals, pH buffer solution, wastewater generated during laboratory analyses, which are amenable to treatment in Building 1109.

Permit conditions S4.C.12 is based on the information below regarding AFFF and halogenated organic compounds (HOC).

AFFF: In March 2018, two laws passed in Washington regarding the use of per- and polyfluoroalkyl substances (PFAS) in firefighting foam and food packaging. PFAS is defined in the two laws as "a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom." **Ecology is the lead agency for implementation of both laws…**" (Chapters 70.75A RCW and 70.95G RCW)

RCW 70.75A.005 Definitions. The definitions in this section apply throughout this chapter unless the context clearly requires otherwise. …(3) **"Department" means the Department of Ecology**.

RCW 70.75A.010 Discharge or use for training purposes of certain class B firefighting foam prohibited. Beginning July 1, 2018, a person, local government, or state agency **may**

not discharge or otherwise use for training purposes class B firefighting foam that contains intentionally added PFAS chemicals.

Materials containing PFAS after use are, like other halogenated compounds, subject to the state's Dangerous Waste regulations at Chapter 173-303 WAC for their disposal if they exceed the threshold of 100 ppm of halogenated content in the concentrate. State waste discharge permits must reinforce DW regulations (per WAC 173-216-060(1)), and permit contents are specifically required to include provisions which reinforce the state's DW rules (WAC 173-216-110).

While during an emergency situation (such as during a fire) discharges are given leeway from Clean Water Act (CWA) requirements, if the discharge could not have reasonably been anticipated, due to the recent understanding of the extremely persistent and toxic nature of PFAS, what Ecology believes is reasonable is changing. It now appears increasingly reasonable to require measures be taken before such emergencies to contain such wastes to the greatest extent possible. Should a discharge occur, it would be for the discharger to demonstrate through contemporaneous documentation that exigent circumstances caused the discharge and there were no feasible alternatives to the discharge. While federal facilities are exempt from rules prohibiting use of AFFF with PFAS content, the discharge of such wastes to a POTW is not similarly exempt.

Such AFFF wastes containing PFAS are considered "incompatible" with a POTW as they are not biodegraded and are not considered 'treatable' at the POTW (wastes which exhibit toxic properties must be treatable at a POTW as a prerequisite for being allowed to be discharged to a POTW under the state's version of the Domestic Sewage Exclusion (reference 173-303-071 WAC). And after the fire is over, all materials which can be contained would need to be properly characterized and managed in keeping with the State's DW laws.

WAC 173-216-110 "Permit terms and conditions. (1) **Any permit issued by the department shall specify conditions necessary to prevent and control waste discharges into the waters of the state, including the following**, whenever applicable: (a) All known, available, and reasonable methods of prevention, control, and treatment; (b) Pretreatment requirements; (c) **Requirements pursuant to other laws, including the state's Hazardous Waste Disposal Act**, chapter 70.105 RCW, the Solid waste management—Recovery and recycling, chapter 70.95 RCW, the Resource Conservation and Recovery Act of 1976, Public Law 95.190 or **any other applicable** local ordinances, **state, or federal statute, to the extent that they pertain to the prevention or control of waste discharges** into the waters of the state;…"

WAC 173-216-060 **Prohibited discharges. (1) The discharge restrictions and prohibitions of dangerous waste regulations, chapter 173-303 WAC shall apply to this chapter**…"

Interim Chemical Action Plan for PFAS's (updated 1/19):

https://fortress.wa.gov/ecy/publications/documents/1804005.pdf

Footnote on page 18 of the ICAP: "Requirements for the disposal of PFAS-containing AFFF would depend on the waste designation under the Dangerous Waste Regulations (WAC 173-303). **Fluorinated firefighting foam would designate as a state-only dangerous waste if concentrations of halogenated organic carbons exceed 100 parts per million in the concentrate**."

To determine halogen organic carbon content, see the persistent dangerous waste table at the bottom of WAC 173-303-100.