Fact Sheet

The U.S. Environmental Protection Agency (EPA)
Proposes to Reissue a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA) to:

United States Department of Defense, Department of the Navy, Naval Supply Fleet Logistics Center Puget Sound, Manchester Fuel Department

Public Comment Start Date: October 11, 2018
Public Comment Expiration Date: November 13, 2018

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The EPA Proposes to Issue an NPDES Permit
The EPA proposes to reissue an NPDES permit for the facility referenced above. The draft permit places conditions on the discharge of pollutants from the Oily Wastewater Treatment Plant (OWWTP) to waters of the United States. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility.

This Fact Sheet includes:
- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations and other conditions for the facility
- a map and description of the discharge location
- technical material supporting the conditions in the permit

State Certification
The EPA is requesting that the Washington State Department of Ecology certify the NPDES permit for this facility, under Section 401 of the Clean Water Act. Comments regarding the certification should be directed to:

Department of Ecology, State of Washington
Northwest Regional Office
3190 160th Ave. SE
Bellevue, WA 98008-5452
Att: Jeanne Tran, PE
Phone: 425-649-7293

Public Comment
Persons wishing to comment on, or request a Public Hearing for the draft permit for this facility may do so in writing by the expiration date of the Public Comment period. A request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to the EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires, and all comments have been considered, the EPA's regional Director for the Office of Water and Watersheds will make a final decision regarding permit issuance. If no substantive comments are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If substantive comments are received, the EPA will address the comments and issue the permit. The permit will become effective no less than 30 days after the issuance date, unless an appeal is submitted to the Environmental Appeals Board within 30 days pursuant to 40 CFR 124.19.

Documents are Available for Review
The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting the EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday at the address below. The draft permits, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at https://www.epa.gov/npdes-permits/about-region-10s-npdes-permit-program.

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 155, OWW
Seattle, Washington 98101-3140
(206) 553-0523 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permits are also available at:

Department of Ecology, State of Washington
Northwest Regional Office
3190 160th Ave. SE
Bellevue, WA 98008-5452
Phone: 425-649-7000

Acronyms

AML	Average Monthly Limit
AWL	Average Weekly Limit
BAT	Best Available Technology economically achievable
BCT	Best Conventional pollutant control Technology
BMP	Best Management Practices
BPT	Best Practicable
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
CWA	Clean Water Act
DMR	Discharge Monitoring Report
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FR	Federal Register
gpd	Gallons per day
ICIS	Integrated Compliance Information System
LTA	Long Term Average
mg/L	Milligrams per liter
ml	milliliters
ML	Minimum Level
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
OWW	Office of Water and Watersheds
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
RWC	Receiving Water Concentration

SIC	Standard Industrial Classification
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
Water Quality Standards	Water Quality Standards

I. Applicant

A. General Information

This fact sheet provides information on the draft NPDES permit for the following entity:

United States Department of Defense, Department of the Navy, Naval Supply Fleet Logistics Center Puget Sound, Manchester Fuel Department (Logistics Center)
NPDES Permit No. WA-0002780

Physical Address:
7501 Beach Drive East
Manchester, WA 98353

Mailing Address:
Fleet Logistics Center-Puget Sound
7501 Beach Drive E
Port Orchard, WA 98366

Contact:
Doug Tailleur, Deputy Environmental Director, Manchester Fuel Department
360-476-2664

B. Permit History

The most recent NPDES permit for the United States Department of Defense, Department of the Navy, Naval Supply Fleet Logistics Center Puget Sound, Manchester Fuel Department (Logistics Center) was issued on December 7, 1995, became effective on January 8, 1996, and expired on January 8, 2001. An NPDES application for permit reissuance was submitted by the permittee on July 10, 2000. The EPA determined that the application was timely and complete. Therefore, pursuant to 40 CFR 122.6, the permit has been administratively extended and remains fully effective and enforceable. The application was updated on July 12, 2016.

II. Facility Information

A. Background

The Naval Supply (NAVSUP) Fleet Logistics Center (FLC), Puget Sound provides logistics support services and products to fleet and shore commands of the United States Navy and other military commands and governmental agencies in the Pacific Rim. NAVSUP FLC Puget Sound's Manchester Fuel Department is located on the Puget Sound just north of the community of Manchester, Washington.

The 234-acre facility supplies diesel and aircraft fuel to the Navy. This is the only Naval underground fuel bulk storage facility in the Northwest and the largest on the West Coast. It supplies 2.3 million barrels of fuel per year. The facility is not involved in the processing of fuels, only the transfer and storage of bulk fuels.

B. Facility Description

The NPDES permit authorizes discharges of treated wastewater from the Oily Wastewater Treatment Plant (OWWTP) as well as industrial stormwater.

The facility discharges from six outfalls: 001B, 002A, 004A, 006A, 007A and 008A. Line drawings of the outfalls and oil/water separators are shown in Appendix A.

1. Internal Outfall 001A

Discharges from Internal Outfall 001A are comprised of effluent from the OWWTP. Compliance monitoring for the OWWTP is at Internal Outfall 001A. The outfall is a sample port at the point immediately where the wastewater leaves the building housing the OWWTP. The oily wastes include wastewater from fuel tank cleaning, ship bilge cleaning and other oily wastewater generated by Naval maintenance activities. The OWWTP utilizes chemical flocculation and settling followed by sand and carbon filters. An ultraviolet peroxidation unit is utilized as needed to process oily wastewater. The existing facility was designed to have a treatment capacity of 0.195 mgd (yearly average flow). A flow diagram is shown in Appendix A.

Compliance monitoring for the OWWTP is at Internal Outfall 001A. The outfall is a sample port at the point immediately where the wastewater leaves the building housing the OWWTP. Discharges combine with stormwater discharged from Oil Water Separators 1B, 1C and 1D described below, and the combined flows are discharged through Outfall 001B, described in more detail below. (See Appendix A.)

2. Outfall 001B – Oil Water Separators 1B, 1C and 1D,

In addition to the OWWTP discharges, Outfall 001B also receives:

1. Groundwater filtered through French drains that are located around the perimeter of underground storage tanks buried 25 to 35 feet deep.
2. Paved area surrounding Buildings 1, 12 and 217
3. Roof drainage from Buildings 1 and 217
4. Stormwater runoff from around storage tanks 22 through 43,
5. Stormwater from roof drainage and from paved areas around Buildings 1 and 217
6. Berm drainage for tanks 115, 116
7. Pier sump drainage.

This wastewater enters three oil/water separators, combines with the discharge from Internal Outfall 001A and is discharged through Outfall 001B to Puget Sound, west of Orchard Point, through a single outfall pipe west of the Fuel Pier and about 150 feet from shore in 30 feet of water (MLLW)..

3. Outfall 002A

Discharges to this outfall are comprised of stormwater runoff from around storage tanks 16 through 21 and stormwater drains around buildings 178 and 194. Discharges are routed to Oil/Water Separator #2. The capacity of Oil/Water Separator #2 is 1,200 gpm. Discharge from Outfall 002A is to Rich Passage.

4. Outfall 004A

Discharges to Outfall 004A are comprised of all overland flow originating on the hill adjacent to Oil/Water Separator #4 and collected by a small containment dike. Tanks 141 and 49 are situated within this upper portion of the hill. The collected wastewater is routed through Oil/Water Separator #4. Based on historical performance, separator #4 receives up to 3 gpm during a heavy rain event. Oil/water Separator #4's maximum capacity is 150 gpm. The oil/water separator is closed during the summer and opened during the winter to allow rain water drainage to Clam Bay.

5. Outfall 006A

Discharges to Outfall 006A are comprised of natural drainage from Franco Pond and the hills surrounding it. Franco Pond forms a stream that flows into Puget Sound. Discharges are routed through Oil/Water Separator #6 located beside this stream, which can process up to 150 gpm. However, Oil/Water Separator #6 is occasionally bypassed to allow for natural fish migration and to prevent salmon from entering the separator and dying. Discharge from Outfall 006A is to Little Clam Bay.

6. Outfall 007A

Discharges to Outfall 007A are comprised of stormwater drainage from 180,000 square feet of impervious surface around storage tank 50 and a portion of stormwater around underground storage tank 142 and a tank truck loading rack. Discharges are sent to Oil/Water Separator #7 that is left shut during most of the year and is only being used as a contingency during a buildup of stormwater within the storage area. Based on historical data, the typical flowrate at Outfall 007A is less than 150 gpm. The capacity at separator #7 is 250 gpm. Discharge from Outfall 007A is to Little Clam Bay.

7. Outfall 008A

Discharges to Outfall 008A are from curtain drains around concrete underground storage tanks 26 through 29 as well as the floor drains for these tanks. The Outfall also receives stormwater runoff from approximately 520,000 sq. ft. of surface area including overland areas of tanks 27, 28, 29, and 30. The wastewater is routed to Oil/Water Separator #008 with a design capacity is 500 gpm. Discharge from Outfall 008A is to Little Clam Bay.

8. Discontinued Outfalls.

Outfall 003A no longer exists. Discharges to Outfall 003A were comprised of wastewater from oil water separator 003A. This oil water separator discharges directly into a dike. There is no longer a discharge from this outfall to Rich Passage.

Outfall 005A was comprised of wastewater from oil water separator 005. Discharge 005A once discharged through a gate valve to Outfall 005A. Now oil water separator 005 discharges to a sump that flows via a pipeline under Olympic Drive to oil water separator #2 and then through Outfall 002A.

Discharges to Outfall 009A were comprised of drainage from a parking lot area that was discharged through Outfall 009A to Puget Sound. An improvement now routes the discharge to a cistern with a sump pump installed behind Building 217, the Administration Building. Stormwater now collects from the parking lot and the building and drains into the cistern.

The sump pump in the cistern sends the collected stormwater to the sump at the head of the pier. Water that collects in this sump is pumped to oil water separator #1, which discharges to Outfall 001B.

C. Background Information

Effluent Characterization

In order to determine pollutants of concern for further analysis, the EPA evaluated the application form and additional discharge data.

The concentrations of pollutants in the discharge were reported in the NPDES application and discharge monitoring reports (DMRs) as of May 2016.

Table 1. Fleet Logistic Supply Effluent Quality

Parameter	Average Daily Value	Max Daily Value
TSS (mg/L) Internal Outfall 001A	1.8	5.4
Oil and Grease (mg/L)		
001B	1.2	3.6
002A	0.7	3
008A	1.1	5.1
Total Organic Compounds (TOC) (mg/L) Internal 001A	69	271
Chemical Oxygen Demand mg/L (COD) 001A	---	220
Phenolic compounds Internal Outfall 001A (mg/L)	0.22	0.99
pH (stnd units) (min-max)		
Outfall 001B	7.1-8.4	
Outfall 002A	7.0-7.5	
Outfall 004A	6.6-7.0	
Outfall 006A	7.1-7.5	
Outfall 007A	7.1-7.6	
Outfall 008A	6.8-7.9	
Zinc Internal Outfall 001A	37 µg/L	100 µg/L

TOC and COD

The Navy no longer deliberately treats bilge water. However, the Navy stated inadvertent mixing of tank cleaning wastewater and bilge water may occur leading to discharges of bilge water. Therefore, a portion of the discharge from Internal Outfall 001A is treated bilge water.

The Phase I Final Rule and Technical Development, Document of Uniform National Discharge, Standards (UNDS), Surface Vessel Bilge water/Oil Water Separator, Nature of Discharge April 1999 characterized bilge water on pages 2 and 3:

"The lowest inner part of the hull where liquid drains from the interior spaces and the upper decks of the vessel is referred to as the bilge. "The liquid collected in the bilge is known as 'bilge water' or 'oily waste water'".

"Untreated bilge water is expected to contain oil and grease (O&G), an assortment of oxygen-demanding substances, and organic and inorganic materials. These materials include volatile organic compounds (VOCs), semi-volatile organic, inorganic salts, and metals. OWS [oil water separator] effluent releases to the environment contain the same constituents present in bilge water but with lower concentrations of O&G and oil-soluble components."

TOC will be used as an indicator parameter for organic compounds (e.g., lube and hydraulic oils).

Marine (salt) water is used for tank cleaning. The salinity of marine water adds its own inherent COD to the treatment system influent. Monitoring of the influent and effluent has demonstrated that the marine water elevates COD levels to higher values than characterized by non-chlorine wastewater analyses procedures. An engineering study conducted in 1990 revealed chloride levels were as high as 10,000 mg/l. As an example of how this is used in permit is the Federal regulations (40 CFR 419.12(e)(2)) that allows for the substitution of TOC for COD when the chloride ion exceeds 1000 mg/l concentration in the effluent**.**

EPA's *Interim Guidance for Performance - Based Reductions of NPDES Permit Monitoring Frequencies*, (Robert Perciasepe, Assistant Administrator Office of Water, April 19, 1996) states:

> "In situations where there are several parameters, each of which could be used to measure the performance of a given system, it will generally be appropriate to primarily monitor only the best indicator parameter. For example, if a biological treatment system can be evaluated by either BOD, CBOD, COD, or TOC measurements; it would be normally appropriate to require monitoring of only one of these oxygen demanding parameters."

Testing of the effluent using BOD_5 and COD has produced erratic results. Presumably, the high salinity of the wastewater affects the activity of the bacteria used in the BOD_5 test procedure. Therefore, because of the problems with BOD_5 and COD test procedures, EPA will also use TOC as the effluent parameter for measuring oxygen demand on the receiving waters.

Pollutants Reported Discharged on Application 2C, Part B.

The Navy reported Internal Outfall 001A monitoring in Application 2C, Part B shown in the table below.

Discharge Monitoring Reported in Application 2C Part B	
Benzene	2.4 µg/L
Ethylbenzene	1.6 µg/L
Toluene	9.3 µg/L

Compliance History

The EPA reviewed the last three years of effluent monitoring data from 2014 through 2016 from the discharge monitoring report (DMR). No violations were found.

III. Receiving Water

This facility discharges to Puget Sound as shown in Appendix A.

A. Water Quality Standards

Overview

Section 301(b)(1)(C) of the Clean Water Act (CWA) requires the development of limitations in permits necessary to meet water quality standards. Federal regulations at 40 CFR 122.4(d) require that the conditions in NPDES permits ensure compliance with the water quality standards of all affected States. A State's water quality standards are composed of use classifications, numeric and/or narrative water quality criteria and an anti-degradation policy.

The use classification system designates the beneficial uses that each water body is expected to achieve, such as drinking water supply, contact recreation, and aquatic life. The numeric and narrative water quality criteria are the criteria deemed necessary by the State to support the beneficial use classification of each water body. The anti-degradation policy represents a three-tiered approach to maintain and protect various levels of water quality and uses.

Designated Beneficial Uses

This facility discharges to Puget Sound. WAC 173-201A-612 (Table 612) describes designated uses for surface waters of the State of Washington. Designated uses for Puget Sound where the facility discharges are:

- extraordinary aquatic life uses
- shell fish harvesting
- fish migration, rearing, and spawning
- primary contact recreation
- wildlife habitat
- harvesting
- commerce and navigation
- boating

- aesthetic values

Surface Water Quality Criteria

Water quality criteria, applicable to this receiving water, are summarized in the Table 2.

Table 2. Applicable Water Quality Criteria

Pollutant	Basis	Criteria
pH	Extraordinary quality	pH must be within the range of 7.0 to 8.5
Zinc	173-201A-240 Toxic Substances	90 µg/L acute 81 µg/L chronic
DO	Extraordinary quality	7.0 mg/L Lowest One Day Average
Aesthetics	173-201A-260 Natural conditions and other water quality criteria and applications.	Aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste
Benzene	173-201A-240 Toxic Substances	1.6 µg/L
Ethylbenzene	173-201A-240 Toxic Substances	31 µg/L
Toluene	173-201A-240 Toxic Substances	130 µg/L
Phenol	173-201A-240 Toxic Substances	70,000 µg/L

Oil and Grease

The federal criteria for oil and grease in the *Quality Criteria for Water, 1986,* is "that surface waters shall be virtually free from floating non-petroleum oils of vegetable or animal origin." This same recommendation applies to floating oils of petroleum origin since they too my produce similar effects."

Antidegradation

The proposed issuance of an NPDES permit triggers the need to ensure that the conditions in the permit ensure that Tier I, II, and III of the State's antidegradation policy are met. An anti-degradation analysis was conducted by the EPA (see Appendix D), which concluded that the permit would not result in deterioration of water quality because there is no measurable change caused to the water quality of Puget Sound. See Appendix D for antidegradation analysis.

B. Water Quality Limited Waters

Any waterbody for which the water quality does not, and/or is not expected to meet, applicable water quality standards is defined as a "water quality limited segment."

Section 303(d) of the CWA requires states to develop a Total Maximum Daily Load (TMDL) management plan for water bodies determined to be water quality limited segments. A TMDL is a detailed analysis of the water body to determine its assimilative capacity. The

assimilative capacity is the loading of a pollutant that a water body can assimilate without causing or contributing to a violation of water quality standards. Once the assimilative capacity of the water body has been determined, the TMDL will allocate that capacity among point and non-point pollutant sources, taking into account natural background levels and a margin of safety. Allocations for non-point sources are known as "load allocations" (LAs). The allocations for point sources, known as "waste load allocations" (WLAs), are implemented through effluent limitations in NPDES permits. Effluent limitations for point sources must be consistent with applicable TMDL allocations.

The State of Washington's December 21, 2012 Integrated Report Section 5 (section 303(d)) lists the area of the receiving water as Category 5 for dissolved oxygen and bacteria as not meeting applicable water quality standards. A TMDL has not been developed.

IV. Effluent Limitations

A. Basis for Effluent Limitations

In general, the CWA requires that the effluent limits for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards applicable to a waterbody are being met and may be more stringent than technology-based effluent limits. The basis for the effluent limits proposed in the draft permit is provided in Appendix D and E.

B. Proposed Effluent Limitations

The following summarizes the proposed effluent limits that are in the draft permit.

Narrative Limitations to Implement Washington's Narrative Criteria for Floating, Suspended or Submerged Matter

Section I.B of the permit establishes the following discharge prohibitions.

- The discharges shall not contain floating solids, visible foam, or oily wastes that produce a sheen on the surface of the receiving water.
- Numeric Limitations

Table 3: Proposed Effluent Limits Internal Outfall 001A

Parameter	Units	Effluent Limits	
		Average Monthly Limit	Maximum Daily Limit
Total Suspended Solids (TSS)	mg/L	2.5	3.4
Oil and Grease	mg/L	3.9[1]	6.7
TOC	mg/L	343	900
pH	Standard Units	6.0 – 8.5	

[1] The limit for oil and grease are not quantifiable using EPA-approved analytical methods. The minimum level (ML) for oil and grease is 5 mg/L for this parameter. The EPA will use 5 mg/L as the compliance evaluation level for this parameter. The permittee will be in compliance with the oil and grease limitation if the average monthly concentration limits are less than 5.0 mg/L.

Table 4: Proposed Effluent Limits Outfall 001B			
Parameter	**Units**	**Effluent Limits**	
		Average Monthly Limit	**Maximum Daily Limit**
Oil and Grease	mg/L	3.4[1]	5.8
pH	Standard Units	6.0 – 8.5	

Table 5: Proposed Effluent Limits Outfall 002A			
Parameter	**Units**	**Effluent Limits**	
		Average Monthly Limit	**Maximum Daily Limit**
Oil and Grease	mg/L	2.3[1]	4.9[1]
pH	Standard Units	6.0 – 8.5	

[1] The limit for oil and grease are not quantifiable using EPA-approved analytical methods. The minimum level (ML) for oil and grease is 5 mg/L for this parameter. The EPA will use 5 mg/L as the compliance evaluation level for this parameter. The permittee will be in compliance with the oil and grease limitation if the average monthly concentration limits are less than 5.0 mg/L.

Table 6: Proposed Effluent Limits Outfall 008A			
Parameter	**Units**	**Effluent Limits**	
		Average Monthly Limit	**Maximum Daily Limit**
Oil and Grease	mg/L	4.3[1]	9.6
pH	Standard Units	6.0 – 8.5	

[1.] The limit for oil and grease are not quantifiable using EPA-approved analytical methods. The minimum level (ML) for oil and grease is 5 mg/L for this parameter. The EPA will use 5 mg/L as the compliance evaluation level for this parameter. The permittee will be in compliance with the oil and grease limitation if the average monthly concentration limits are less than 5.0 mg/L.

Table 7: Proposed Effluent Limits Outfalls 004A, 006A and 007A			
Parameter	**Units**	**Effluent Limits**	
		Average Monthly Limit	**Maximum Daily Limit**
Oil and Grease	mg/L	10	15
pH	Standard Units	6.0 – 8.5	

Proposed Effluent Limit for Visible Sheen Outfalls 001B, 002A,004A, 006A, 007A, 008A

The discharge shall not contain floating solids, visible foam, or oily wastes that produce a sheen on the surface of the receiving water. This is unchanged from the existing permit.

C. Changes in Limits from the Existing Permit

Table 8 illustrates the changes in effluent limits from the existing permit.

Table 8: Changes in Permit Effluent Limits

Parameter	Units	Averaging Period	Existing Permit	Draft Permit
Oil and Grease				
Internal Outfall 001A	mg/L	Maximum Daily Limit (MDL)	15	6.7
		Average Monthly Limit (AML)	none	3.9
001B	mg/L	MDL	15	3.4
	mg/L	AML	10	2.5
002A	mg/L	MDL	15	4.9
		AML	10	2.3
008A	mg/L	MDL	None	9.6
		AML	None	4.3
003A, 005A, 009, 009A	mg/L	MDL	15	Discontinued
		AML	10	Discontinued
	visual	Each Discharge	No visible sheen	Discontinued
TSS Internal Outfall 001A	mg/L	MDL	33	3.4
		AML	none	2.5
TOC Internal Outfall 001A	mg/L	AML	none	343
Total Recoverable Zinc Internal Outfall 001A	mg/L	MDL	0.678	none
Phenolic Compounds Internal Outfall 001A	mg/L	MDL	1.0	none
Flow Internal Outfall 001A	mgd	MDL	0.195	none
pH	Std. Units	Instantaneous	6.0 – 8.5	Discontinued
003A, 005A, 009, 009A				Discontinued

D. Anti-backsliding Provisions

Section 402(o) of the Clean Water Act and federal regulations at 40 CFR §122.44 (l) generally prohibit the renewal, reissuance or modification of an existing NPDES permit that contains effluent limits, permit conditions or standards that are less stringent than those established in the previous permit (i.e., anti-backsliding) but provides limited exceptions. Section 402(o)(1) of the CWA states that a permit may not be reissued with less-stringent limits established based on Sections 301(b)(1)(C), 303(d) or 303(e) (i.e. water quality-based limits or limits established in accordance with State treatment standards) except in compliance with Section 303(d)(4). Section 402(o)(1) also prohibits backsliding on technology-based effluent limits established using best professional judgment (i.e. based on Section 402(a)(1)(B)) with limited exceptions. In this case, the effluent limits being revised are technology-based effluent limits (TBEL). See Appendix D for a more detailed antibacksliding discussion.

V. Monitoring Requirements

A. Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality.

The permittee is responsible for conducting the monitoring and for reporting results on DMRs or on the application for renewal, as appropriate, to the EPA.

B. Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples must be used for averaging if they are conducted using the EPA-approved test methods (generally found in 40 CFR 136) or as specified in the permit.

Tables 9 and 10 below present the proposed effluent monitoring requirements in the draft permit. The sampling location must be after the last treatment unit and prior to discharge to the receiving water. The samples must be representative of the volume and nature of the monitored discharge. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

Table 9: Effluent Monitoring Requirements Internal Outfall 001A

Parameter	Units	Sample Location	Sample Frequency	Sample Type
TSS	mg/L	Effluent	1/day during discharge	grab
Oil and Grease	mg/L	Effluent	1/day during discharge	grab
pH	standard units	Effluent	1/day during discharge	grab
TOC	mg/L	Effluent	1/day during discharge	grab
Flow	mgd	Effluent	daily	Flow meter
Toxicity Testing	Chronic Toxicity Units (TU_c)	Effluent	Annually	24-hour composite

Table 10: Effluent Monitoring Requirements 001B, 002A, 004A, 006A, 007A and 008A

Parameter	Units	Sample Location	Sample Frequency	Sample Type
Oil and Grease	mg/L	Effluent	1/day during discharge	grab
Visible Sheen	Sheen	Effluent	1/day during rain event	Visual
pH	standard units	Effluent	1/day during rain event	grab

Internal Outfall 001A for OWWTP

The EPA's NPDES Permit Writers Manual states:

> "If all wastewaters regulated by effluent guidelines are treated separately but are combined before the discharge, the permit writer may establish internal outfalls and separately apply the effluent guidelines at the respective internal outfall as discussed in § 122.45(h)…"

40 CFR § 122.45(h) states :

> "(h) *Internal waste streams.*
>
> (1) When permit effluent limitations or standards imposed at the point of discharge are impractical or infeasible, effluent limitations or standards for discharges of pollutants may be imposed on internal waste streams before mixing with other waste streams or cooling water streams. In those instances, the monitoring required by § 122.48 shall also be applied to the internal waste streams.
>
> (2) Limits on internal waste streams will be imposed only when the fact sheet under § 124.56 sets forth the exceptional circumstances which make such limitations necessary, such as when the final discharge point is inaccessible (for example, under 10 meters of water), *the wastes at the point of discharge are so diluted as to make monitoring impracticable* (emphasis added), or the interferences among pollutants at the point of discharge would make detection or analysis impracticable."

For Fleet Supply the multiple processes that are combined before discharge are (1) the stormwater OWS 001, B, C and D and (2) the OWWTP. When stormwater mixes with the OWWTP wastewater the point of discharge will be so diluted as to make monitoring impracticable. To ensure compliance with the technology and water quality based effluent limitations an Internal Outfall 001A is established for the OWWTP upstream of mixing with stormwater from OWS 001 B, C and D. The mixing zone is applied only for the parameters for the OWWTP without benefit of dilution from the stormwater discharges providing worst case conditions to protect the criteria for Puget Sound.

Only effluent limits and monitoring associated with stormwater is established for Outfall OO1B since compliance for the OWWTP is ensured by limits and monitoring at Internal Outfall 001A.

Whole Effluent Toxicity Testing Requirements

Whole effluent toxicity (WET) tests are laboratory tests that measure the total toxic effect of an effluent on living organisms. Whole effluent toxicity tests use small vertebrate and invertebrate species and/or plants to measure the aggregate toxicity of an effluent. There are two different types of toxicity test: acute and chronic. An acute toxicity test is a test to determine the concentration of effluent or ambient waters that causes an adverse effect (usually death) on a group of test organisms during a short-term exposure (e.g., 24, 48, or 96 hours). A chronic toxicity test is a short-term test, usually 96 hours or longer in duration, in which sublethal effects (e.g., significantly reduced growth or reproduction) are usually measured in addition to lethality. Both acute and chronic toxicity are measured using statistical procedures such as hypothesis testing (i.e., no observable effect concentration,

NOEC and lowest observable effect concentration, LOEC) or point estimate techniques (i.e., lethal concentration to 50 percent of organisms, $LC_{50;}$ and inhibition concentration in a biological measurement to 25 percent of organisms, IC_{25}).

40 CFR 122.44(d) (1) require that NPDES permits contain limits on whole effluent toxicity when a discharge causes, has the reasonable potential to cause, or contributes to an excursion above a State's numeric or narrative water quality criteria for toxicity. Per WAC 173-205, an effluent demonstrates a reasonable potential for acute toxicity when the median survival rate for a series of tests is less than 80% survival in 100% effluent or if any single test results in less than 65% survival in 100% effluent. Per WAC 173-205, an effluent demonstrates reasonable potential for chronic toxicity when a statistically significant difference is observed between a control group and the acute critical effluent concentration (ACEC). The ACEC is the concentration of effluent at the boundary of the acute mixing zone during critical conditions. The ACEC is 11.1% effluent.

The available WET data demonstrates the effluent does not have reasonable potential for acute or chronic toxicity.

ACUTE TEST DATA

Test Start Date	Organism and Method	Endpoint	Percent Survival in 100% effluent	Reasonable Potential?
8/30/17	*Atherinops affinis*	Survival	100	No
8/31/17	*Americamysis bahia*	Survival	95	No
9/1/17	*Atherinops affinis*	Survival	90	No
9/1/17	*Americamysis bahia*	Survival	97.5	No
9/6/17	*Atherinops affinis*	Survival	100	No
9/6/17	*Americamysis bahia*	Survival	92.5	No
9/8/17	*Atherinops affinis*	Survival	100	No
9/8/17	*Americamysis bahia*	Survival	100	No

CHRONIC TEST DATA				
Test Start Date	Organism and Method	Endpoint	Percent Survival at ACEC	Reasonable Potential?
8/30/17	*Atherinops affinis*	Survival and Growth	100	No
8/31/17	*Americamysis bahia*	Survival and Growth	95	No
9/1/17	*Atherinops affinis*	Survival and Growth	100	No
9/1/17	*Americamysis bahia*	Survival and Growth	90	No
9/6/17	*Atherinops affinis*	Survival and Growth	100	No
9/6/17	*Americamysis bahia*	Survival and Growth	92.5	No
9/8/17	*Atherinops affinis*	Survival and Growth	100	No
9/8/17	*Americamysis bahia*	Survival and Growth	90	No

As no reasonable potential exists for either acute of chronic toxicity, no WET limits are included in the permit.

Annual WET monitoring is included in the permit to ensure the facility continues to meet Washington State's water quality criteria for toxicity. This is changed from the existing permit to ensure the toxicity monitoring is current if the permit is administratively extended.

VI. Other Permit Conditions

A. Quality Assurance Plan

In order to ensure compliance with 40 CFR 122.41(e) for proper operation and maintenance, the draft permit requires the permittee to develop procedures to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. The Navy is required to update the Quality Assurance Plan within 180 days of the effective date of the final permit. The Quality Assurance Plan must include of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The plan must be retained on site and be made available to the EPA and Ecology upon request.

B. Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, directs each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities." The EPA strives to enhance the ability of overburdened communities to participate fully and meaningfully in the permitting process for the EPA-issued permits, including NPDES permits. "Overburdened" communities can include minority, low-income, tribal, and indigenous populations or communities that potentially experience disproportionate environmental harms and risks. As part of an agency-wide effort, the EPA Region 10 will consider prioritizing enhanced public involvement opportunities for the EPA-issued permits that may involve activities with significant public health or environmental impacts on already overburdened communities. For more information, please visit http://www.epa.gov/compliance/ej/plan-ej/ .

As part of the permit development process, the EPA Region 10 conducted a screening analysis to determine whether this permit action could affect overburdened communities. The EPA used a nationally consistent geospatial tool that contains demographic and environmental data for the United States at the Census block group level. This tool is used to identify permits for which enhanced outreach may be warranted.

The facility is not located within or near a Census block group that is potentially overburdened. The draft permit does not include any additional conditions to address environmental justice.

Regardless of whether a facility is located near a potentially overburdened community, the EPA encourages permittees to review (and to consider adopting, where appropriate) Promising Practices for Permit Applicants Seeking EPA-Issued Permits: Ways To Engage Neighboring Communities (see https://www.federalregister.gov/articles/2013/05/09/2013-10945/epa-activities-to-promote-environmental-justice-in-the-permit-application-process#p-104). Examples of promising practices include: thinking ahead about community's characteristics and the effects of the permit on the community, engaging the right community leaders, providing progress or status reports, inviting members of the community for tours of the facility, providing informational materials translated into different languages, setting up a hotline for community members to voice concerns or request information, follow up, etc.

C. Standard Permit Provisions

Sections III, IV and V of the draft permit contain standard regulatory language that must be included in all NPDES permits. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

D. Outfall Assessment and Restoration – Outfall 001B

The dilution ratio calculations are based upon the proper function and integrity of the outfall pipe. On March 1, 2000 a dive inspection found only 18 feet of the outfall pipe were exposed about the sediment surface and approximately 20 feet of the pipe was broken off and was resting perpendicular to and up against the severed end of the intact pipe. Water discharging

from the end of the intact pipe appeared to rise toward the surface. The top of the pipe was flattened and most of the concrete is missing leaving only the reinforcing steel exposed.

The permittee must assess the condition of the Outfall 001B and restore it to proper operation within three years of the effective date of the permit. The permittee must inspect the submerged portion of the outfall line to document its integrity and continued function and report the condition to the EPA. The inspection shall evaluate the structural condition of the submarine portion of the outfall, determine whether portions of the outfall are covered by sediments and if it is flowing freely. If conditions allow for a photographic verification, it shall be included in the report. The condition also requires repair to restore the outfall to a fully functioning condition.

E. Stormwater BMPs

Requirements of 40 CFR 122.26 require that stormwater discharges from industrial activities must be permitted through the NPDES program. The EPA is proposing stormwater control conditions in this permit that are similar to the NPDES Multi-Sector General Permit for Stormwater Discharges Associated Industrial Activity (MSGP) effective June, 2015. This permit requires industrial dischargers to develop a plan to implement measures which identify, prevent, and control the contamination of point source discharges of stormwater. The plans are called Stormwater Pollutant Prevention Plans (SWPPP).

Essential elements of a SWPPP include:

- Assessment of activities and handling of material and equipment that causes or has the potential to cause contamination of stormwater.
- Development and implementation of BMPs to prevent surface, groundwater, or sediment contaminations. The permittee is directed to use guidance included in Ecology's 1992 Stormwater Management Manual for the Puget Sound Basin to develop these BMP's.
- Certification by the official responsible: for the facility, that the discharge(s) has been investigated for the presence of non-stormwater discharges.
- Preparation of an accurate site map showing stormwater conveyance and discharge structures, drainage areas for each stormwater discharge point, and activities within these areas.

VII. Other Legal Requirements

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with National Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered species.

A review of the threatened and endangered species regulated under the USFWS finds that Bull Trout (Salvelinus confluentus) and the similar species the Dolly Varden (S. malmaare) listed as threatened.

A review of the threatened and endangered species regulated under NOAA Fisheries finds that Puget Sound Chinook (Oncorhynchus tshawytscha) salmon and Puget Sound Steelhead (O. mykiss), the Southern District Population Segment of green sturgeon (acipenser medirostris) are listed as threatened. The Southern Resident killer (Orcinus orca) whale is listed as endangered and the Steller sea lions (Eumetopoias jubatus) is listed as threatened. The yelloweye rockfish and canary rockfish are listed as threatened and the bocaccio are listed as endangered.

The U.S. Fish and Wild Service *Species Fact Sheet* for the bull trout states:

"The following activities or types of land use have contributed to the bull trout's decline: dams, forest management practices, livestock grazing, agricultural practices, transportation networks, mining, residential development and urbanization, fisheries management activities, and any of a host of general practices as well as some natural events (e.g., fire or flood under certain circumstances) that may contribute to historical and current isolation and habitat fragmentation. Nonnative species, forest management practices, and fish passage issues are the top factors limiting bull trout populations at the range-wide level, both currently and historically."

Recovery Plan for the Coterminous United States Population of Bull Trout, Pacific Region, U.S. Fish and Wildlife Service, Portland Oregon, September 28, 2015, provides a similar list of activities and land use contributions to the bull trout's decline.

The EPA concludes the Logistics Center permit is not likely to adversely affect Bull Trout or the Dolly Varden, species regulated by the USFWS. The EPA is preparing a Biological Evaluation and will request concurrence from USFWS. This finding is preliminary based on the following:

- Point source discharges such as the Logistics Center are not mentioned in either the *Recovery Plan for the Coterminous United States Population of Bull Trout*, or the *Species Fact Sheet* as causes of the bull trout's or Dolly Varden's decline
- The extensive treatment system for the OWWTP including carbon filtration
- This permit requires compliance with the State of Washington Surface Water Quality Standards, that protect aquatic organisms including threatened and endangered species
- Batch Discharges
- High dilution rates into the Puget Sound receiving water and the relatively small size of the mixing zone
- The relatively low levels of pollutants discharged
- The Logistics Center effluent concentration of zinc has no reasonable potential to violate the water quality standards protecting listed and other aquatic life species. No other metal has a reasonable potential to violate the water quality standards.
- All other pollutants on Form 2C Part B were non-detect except for benzene, ethylbenzene and toluene which are well below the water quality standards.

- Few juveniles and adult salmonids and other fish will enter the mixing zone because of its small size.

With regard to the species under NOAA jurisdiction, the EPA concludes that this permit action is not likely to adversely affect these species for the following reasons. The EPA is also preparing a Biological Evaluation and will request concurrence from NOAA:

- The southern resident killer whale is a resident marine mammal in Puget Sound. Considering the size of the Logistics Center action area in comparison to the large range of the southern resident killer whale, it is unlikely that the killer whale would spend a significant portion of time within the action area or consume a significant portion of its prey from the action area.
- The Steller sea lion is a resident marine mammal in Puget Sound, however, the size of the Logistics Center batch discharge is significantly smaller than their range within Puget Sound and it is unlikely that the Steller sea lion would spend a significant portion of time within the action area or consume a significant portion of its prey from the action area. The potential effects due to bioconcentration of the effluent through the food chain from Logistics Center would be insignificant and discountable to the Steller sea lion. Therefore, EPA has determined that the permit action is not likely to adversely affect the Steller sea lion.

B. Essential Fish Habitat

Essential fish habitat (EFH) is the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires the EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect EFH (i.e., reduce quality and/or quantity of EFH). The EFH regulations define an adverse effect as any impact which reduces quality and/or quantity of EFH and may include direct (e.g. contamination or physical disruption), indirect (e.g. loss of prey, reduction in species' fecundity), site specific, or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

The NOAA website shows the area of the discharge is EFH for West Coast Salmon, Puget Sound Chinook Salmon, Coho Salman and Puget Sound Pink Salmon.

For the same reasons as listed for the EPA's determination of that the permit action will not likely adversely affect the threatened species, the EPA determines the permit action will not adversely affect EFH.

C. State Certification

Section 401 of the CWA requires the EPA to seek State certification before issuing a final permit. The State may require more stringent permit conditions or additional monitoring requirements to ensure that the permit complies with water quality standards, or treatment standards established pursuant to any State law or regulation.

D. Permit Expiration

The permit will expire five years from the effective date.

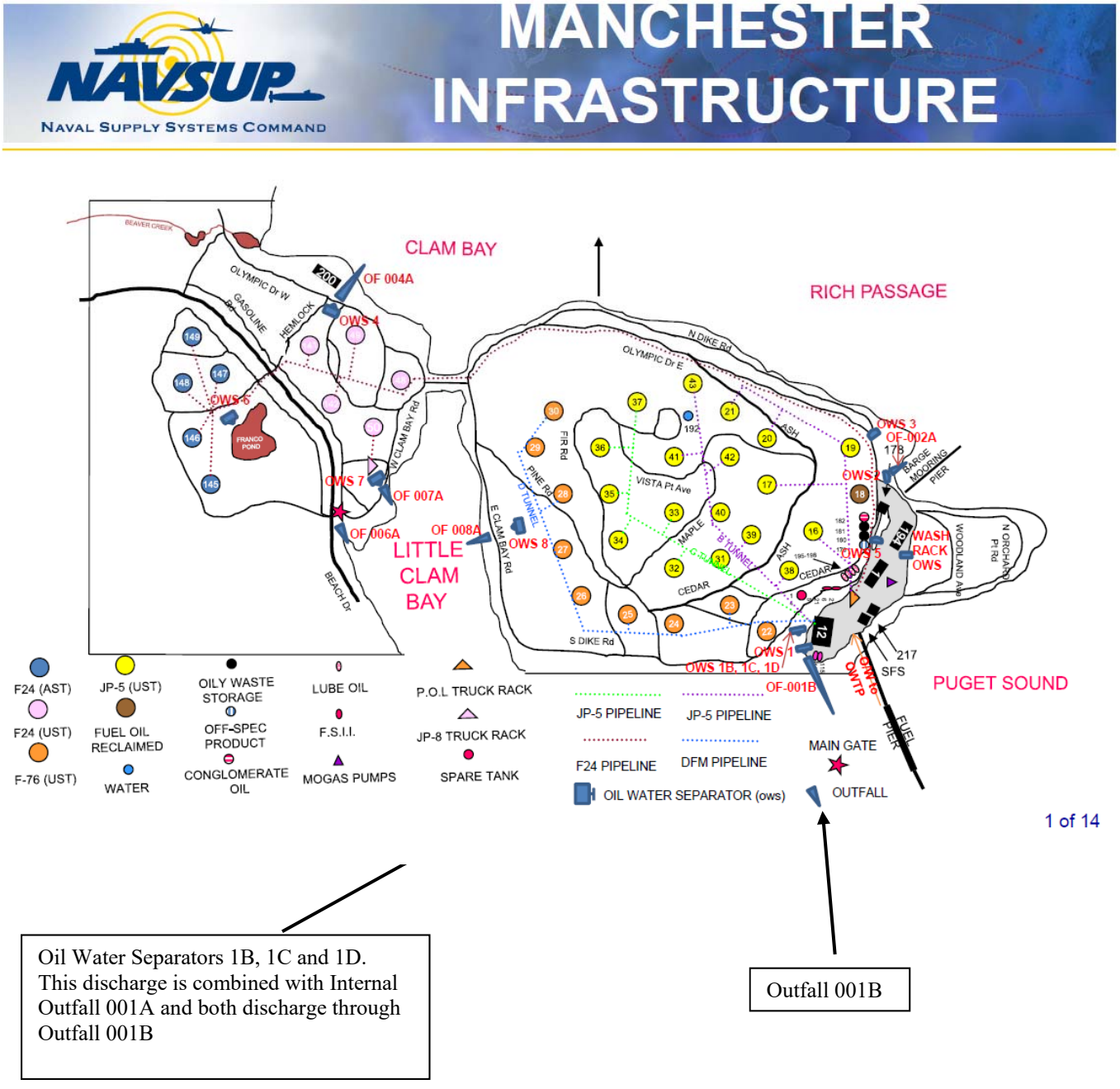
VIII. References

EPA. 1991. *Technical Support Document for Water Quality-based Toxics Control.* US Environmental Protection Agency, Office of Water, EPA/505/2-90-001.

EPA. 2010. *NPDES Permit Writers' Manual.* Environmental Protection Agency, Office of Wastewater Management, EPA-833-K-10-001.

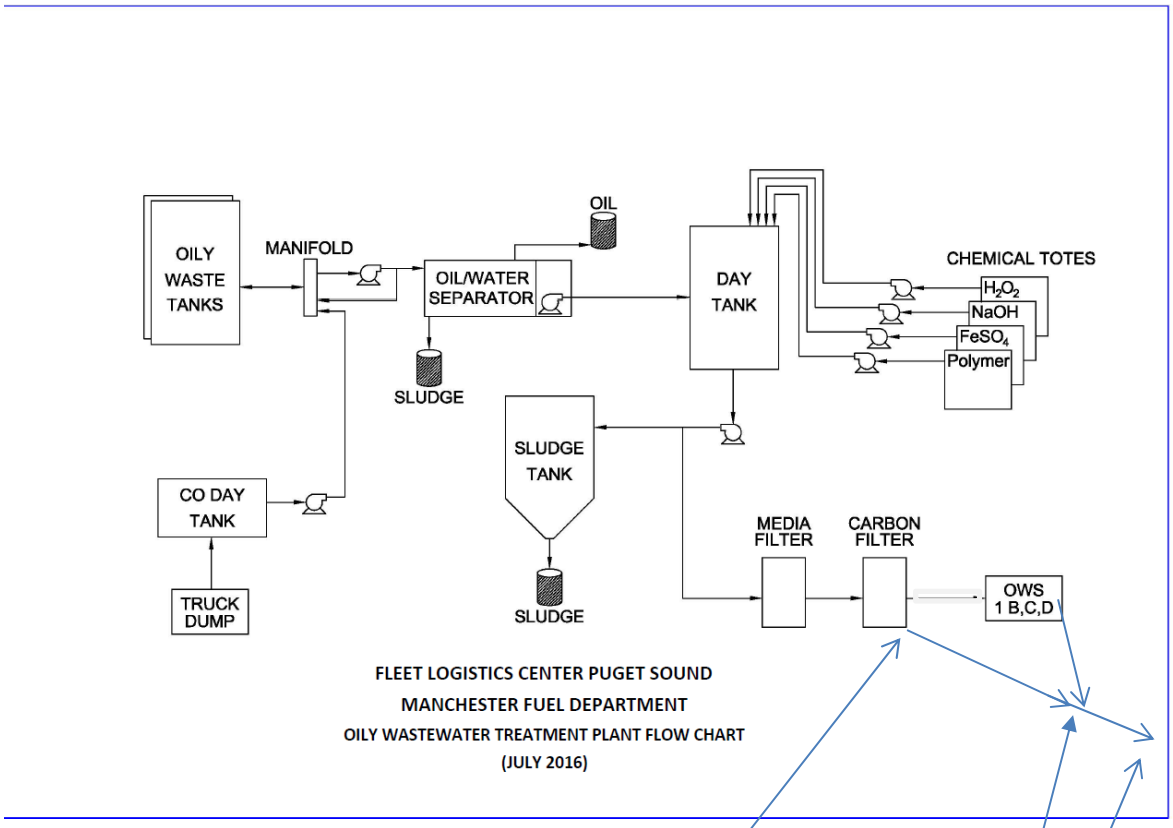
EPA. 1996. *Interim Guidance for Performance - Based Reductions of NPDES Permit Monitoring Frequencies*, Robert Perciasepe, Assistant Administrator Office of Water,

Appendix A: Facility Information



Oil Water Separators 1B, 1C and 1D. This discharge is combined with Internal Outfall 001A and both discharge through Outfall 001B

Outfall 001B



Internal Outfall 001A from a tap in the outfall line

To Outfall 001B

OWWTP discharge enters outfall line downstream of Oil Water Separators 1B, 1C and 1D. Combined flows discharge through Outfall 001B.

Appendix B: Water Quality Criteria Summary

This appendix provides a summary of water quality criteria applicable to the Logistics Center.

Washington State water quality standards include criteria necessary to protect designated beneficial uses. The standards are divided into three sections: General Water Quality Criteria, Surface Water Quality Criteria for Use Classifications, and Site-Specific Surface Water Quality Criteria. The EPA has determined that the criteria listed below are applicable to the Logistics Center. This determination was based on (1) the applicable beneficial uses (2) the type of facility, (3) a review of the application materials submitted by the permittee, and (4) the quality of the water in Puget Sound.

- extraordinary aquatic life uses,
- shell fish harvesting,
- fish migration, rearing, and spawning,
- primary contact recreation,
- wildlife habitat,
- harvesting,
- commerce and navigation,
- boating,
- aesthetic values

Toxics and aesthetics criteria. The following narrative criteria apply to all existing and designated uses for fresh and marine water:

Toxic, radioactive, or deleterious material concentrations must be below those which have the potential, either singularly or cumulatively, to adversely affect characteristic water uses, cause acute or chronic conditions to the most sensitive biota dependent upon those waters, or adversely affect public health (see WAC 173-201A-240, toxic substances, and 173-201A-250, radioactive substances).

Aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste.

Oil and Grease

The federal criteria for oil and grease in the Quality Criteria for Water, 1986, is: "that surface waters shall be virtually free from floating non-petroleum oils of vegetable or animal origin.. This same recommendation applies to floating oils of petroleum origin since they too my produce similar effects."

Those effects are described. Bioaccumulation of petroleum products presents two especially important public health problems: (1) the tainting of edible, aquatic species, and (2) the possibility of edible marine organisms incorporating the high boiling, carcinogenic polycyclic aromatics in their tissues. Oils of any kind can cause drowning of water fowl because of loss of

buoyancy, exposure because of loss of insulating capacity of feathers and starvation and vulnerability to predators because of lack of mobility, lethal effects on fish by coating epithelial surfaces of gills, thus preventing respiration, asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom and adverse aesthetic effects of fouled shorelines and beaches. Oil pollutants may also be incorporated into sediments.

Turbidity

The EPA evaluated the impact of turbidity based on the range of total suspended solids in the effluent and turbidity of the receiving water. The EPA expects no violations of the turbidity criteria outside the designated mixing zone provided the facility meets its technology-based total suspended solids permit limits. These TSS limits are 2.5 mg/L AML and 3.4 mg/L MDL. The design flow is 0.194.

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. The Washington water quality criterion for Extraordinary Quality Marine Waters specifies a pH range of 7.0 to 8.5 standard units, with human-caused variation within the above range of less than 0.2 units (WAC 173-201A-210(1)(f)).

DO

Natural decomposition of organic material in wastewater effluent impacts dissolved oxygen in the receiving water at distances far outside of the regulated mixing zone. The BOD_5 of an effluent sample indicates the amount of biodegradable material in the wastewater and estimates the magnitude of oxygen consumption the wastewater will generate in the receiving water. Technology-based TOC limits will ensure that dissolved oxygen criteria are met in the receiving water.

Temperature

In WAC 173-201A-210(1)(c), the Washington water quality standards limit ambient water temperature to 13.0 degrees C for marine water; when natural conditions exceed 13.0 degrees C, no temperature increases will be allowed which will raise the receiving water temperature by greater than 0.3 degrees C. The Logistics Center discharge is not characterized for temperature and does not discharge heat.

The following toxic pollutants are present in the discharge: benzene, ethylbenzene, phenol, zinc and toluene. EPA conducted a reasonable potential analysis (see Appendix E) on these parameters to determine whether it would require effluent limits in this permit. None of the toxics had a reasonable potential to exceed the water quality standard in WAC 173-201A.

Surface Water Criteria To Protect Human Health (WAC 173-201A-240)

Washington's water quality standards include 91 numeric human health-based criteria that must be considered when writing NPDES permits. These criteria were established in 1992 by EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

EPA determined the effluent may contain chemicals of concern for human health, based on the facility's application. These chemicals are benzene, phenol, ethylbenzene, zinc and toluene.

EPA evaluated the discharge's potential to violate the water quality standards as required by 40 CFR 122.44(d) by following the procedures published in the *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001) to make a reasonable potential determination. The evaluation showed that the discharge has no reasonable potential to cause a violation of water quality standards for human health, and an effluent limit is not needed.

Appendix C: Low Flow Conditions and Dilution

Mixing Zones and Dilution

In some cases a dilution allowance or WET is permitted. A mixing zone is an area where an effluent discharge undergoes initial dilution and is extended to cover the secondary mixing in the ambient water body. A mixing zone is an allocated impact zone where the water quality standards may be exceeded as long as acutely toxic conditions are prevented (the EPA, 1994). The federal regulations at 40 CFR 131.13 states that "States may, at their discretion, include in their State standards, policies generally affecting their application and implementation, such as mixing zones, low flows and variances."

The Washington Water Quality Standards at WAC 173-201A-400 provides a mixing zone policy for point source discharges. The policy allows Ecology to authorize a mixing zone for a point source discharge if circumstances meet regulations in the Washington Water Quality Standards for granting a mixing zone. Pertaining to WAC 173-201A-400(7)(a), the following code states:

(7) The maximum size of a mixing zone shall comply with the following:
(a) In rivers and streams, mixing zones, singularly or in combination with other mixing zones, shall comply with the most restrictive combination of the following (this size limitation may be applied to estuaries having flow characteristics that resemble rivers):
(i) Not extend in a downstream direction for a distance from the discharge port(s) greater than three hundred feet plus the depth of water over the discharge port(s), or extend upstream for a distance of over one hundred feet;
(ii) Not utilize greater than twenty-five percent of the flow; and
(iii) Not occupy greater than twenty-five percent of the width of the water body.

Since the 0.195 mgd flow from Outfall 001A is unchanged the EPA is carrying forward the mixing zone calculated for the existing permit that used Visual Plumes. The dilution factor is calculated with the effluent flow rate set equal to the maximum flow of 0.195 mgd. The dilution factors are listed in Table C-2.

Table C-2 Dilution Factors Internal Outfall 001A

Flows	Parameter	Dilution Factor
Acute	zinc	9.0
Chronic	zinc	29

Discharges from the Outfall 001A have no reasonable potential to violate the water quality standard for zinc at these dilution factors.

The minimum dilution factors required for no reasonable potential for zinc or benzene to violate the water quality standards are shown in Table C-3. See Appendix E.

Table C-3 Minimum Dilution Factors Internal Outfall 001A

Flows	Parameter	Dilution Factor
Acute	zinc	1.1
Chronic	zinc	1.2
Chronic	benzene	2.3

Appendix D: Basis for Effluent Limits

The following discussion explains the derivation of technology and water quality based effluent limits proposed in the draft permit. Part A discusses technology-based effluent limits, Part B discusses water quality-based effluent limits in general and Part C discusses the effluent limits imposed due to the State's anti-degradation policy.

A. Technology-Based Effluent Limits

Federal Secondary Treatment Effluent Limits

The CWA requires that the limits for a particular pollutant be the more stringent of either technology based effluent limitations (TBELs) or water quality-based effluent limits (WQBELs). TBELs are generally established through Effluent Limitation Guidelines (ELGs) and correspond to the level of treatment that is achievable using best available technology. There are currently no ELGs applicable to bulk fuel terminals. In situations where ELGs have not been developed, or have not considered specific discharges or pollutants, a regulatory agency can develop TBELs using best professional judgment (BPJ) on a case-by-case basis.

A WQBEL is designed to ensure that WQS are maintained and the waterbody as a whole is protected. WQBELs may be more stringent than TBELs. In cases where both TBELs and WQBELs have been generated, the more stringent of the two limits will be selected as the final permit limit. The permit contains TBELs based on BPJ and WQBELs for TSS, pH, TOC, oil and grease and visible sheen.

There are currently no ELGs applicable to bulk fuel terminals. Because Fleet Supply does not fit into an industrial category for which the EPA has developed technology-based requirements, the EPA may use BPJ to establish technology-based permit requirements, pursuant to authority established by CWA 301(b)(2), Section 402(a)(1)(B), and in accordance with requirements established at 40 CFR 125. Therefore, the EPA is using BPJ to determine TBELs for the Fleet Supply Facility.

AKART

AKART, as defined by the Washington State Department of Ecology (Ecology Permit Writer's Manual, 2011) is "represent(ing) the most current methodology that can be reasonably required for preventing, controlling, or treating pollutants associated with a discharge."

The OWWTP utilizes chemical flocculation and settling followed by sand and carbon filters and the use of the ultraviolet peroxidation unit as needed to process oily waste is determined to be AKART for the treatment of tank cleaning wastewater.

TOC and COD - Internal Outfall – 001A

The EPA will use TOC as an indicator parameter for other organic compounds (e.g., lube and hydraulic oils) discharged from the OWWTP. Since TOC can be used as a substitute for COD this limit will also minimize the discharge of COD. The performance based effluent limitation for TOC is 930 mg/L MDL and 343 mg/L AML based on the monitoring data submitted from December, 2012 through November, 2017 and EPA's Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001. However do to backsliding rules the existing TOC limit of 900 mg/L will remain the MDL.

Performance-based Effluent Limits

INPUT	
LogNormal Transformed Mean:	3.4250
LogNormal Transformed Variance:	2.1490
Number of Samples per month for compliance monitoring:	1
Autocorrelation factor (n_e) (use 0 if unknown):	0
OUTPUT	
E(X) =	89.9721
V(X) =	61329.855
VARn	2.1490
MEANn=	3.4250
VAR(Xn)=	61329.855
RESULTS	
Maximum Daily Effluent Limit:	**929.6**
Average Monthly Effluent Limit:	**342.6**
342.5722124	497.3541657

LogNormal Transformed Mean and Variance

Data	Ln()
25.	3.219
41.	3.714
45.	3.807
58.	4.060
271.	5.602
89.	4.489
83.	4.419
65.	4.174
100.	4.605
2.1	0.742
3.	1.099
9.7	2.272
17.	2.272
20.	2.833
21.	2.996
300.	3.045
300.	5.704
2.3	5.704
16.	0.833
35.	2.773
47	3.555
	3.425
	2.149

TSS – Internal Outfall 001A

As a measure of performance of the OWWTP system the EPA is establishing a performance based effluent limitation for TSS 3.4 mg/L MDL and 2.5 mg/L AML based on the monitoring data submitted from May, 2013 through April, 2016 and EPA's Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001.

Performance-based Effluent Limits

INPUT	
LogNormal Transformed Mean:	0.1540
LogNormal Transformed Variance:	0.2170
Number of Samples per month for compliance monitoring:	1
Autocorrelation factor (n_e) (use 0 if unknown):	0
OUTPUT	
E(X) =	1.3002
V(X) =	0.410
VARn	0.2170
MEANn=	0.1540
VAR(Xn)=	0.410
RESULTS	
Maximum Daily Effluent Limit:	**3.4**
Average Monthly Effluent Limit:	**2.5**

Transformed Mean and Variance

Enter data in yellow

Data	Ln()
1	0.000
0.7	-0.357
2.7	0.993
1.4	0.336
1.4	0.336
1.8	0.588
1	0.000
0.6	-0.511
1	0.000
Mean	**0.154**
Variance	**0.217**

Phenolic Compounds – Internal Outfall 001A

The EPA established effluent limitations and monitoring for phenolic compounds using best professional judgement (BPJ) in the existing permit because the facility treated used oil and fuel and phenolic compounds were considered to be a typical constituent of used oil products. Further, the facility was considered similar to a Petroleum Refining Point Source Category that contains effluent limit guidelines for phenolic compounds. The treatment plant no longer receives used oil and fuel and the discharge is not wastewater generated at a petroleum refinery. Also, the water quality standards do not list phenolic compounds as a pollutant. However, phenol is listed as a pollutant and is included in the larger set of organic phenolic compounds. The EPA conservatively used phenolic compounds to determine if phenols have a reasonable potential to violate the water quality standards. Phenols do not have a reasonable potential to violate the water quality standards for phenols. The 50th percentile of phenolic compounds is 0.086 percent of the water quality standard at the end of pipe. For these reasons, the permit will prohibit the treating of used oil and fuel and the phenolic compound effluent limitation of 1.0 mg/L and the monitoring for phenolic compounds is discontinued.

Oil and Grease – Internal Outfall 001A

As a measure of performance of the Oily Wastewater Treatment System the EPA is establishing a performance based effluent limitation for oil and grease of 6.7 mg/L (6,719 µg/L) MDL and 3.9 mg/L (3,900 µg/L) AML based on the monitoring data submitted from May, 2013 through April, 2016 and EPA's Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001.

Performance-based Effluent Limits

INPUT	
LogNormal Transformed Mean:	6.9490
LogNormal Transformed Variance:	0.6420
Number of Samples per month for compliance monitoring:	1
Autocorrelation factor (n_e) (use 0 if unknown):	0
OUTPUT	
E(X) =	1436.5505
V(X) =	1857882.436
VARn	0.6420
MEANn=	6.9490
VAR(Xn)=	1857882.436
RESULTS	
Maximum Daily Effluent Limit:	**6719.1**
Average Monthly Effluent Limit:	**3893.5**
3893.464457	3678.753905

LogNormal Transformed Mean and Variance

Enter data in yellow cells.
Insert / delete rows as needed.

Data ug/L	Ln()
1400	7.244
1700	7.438
100	4.605
1200	7.090
2100	7.650
900	6.802
1100	7.003
1200	7.090
3000	8.006
600	6.397
900	6.802
1400	7.244
1100	7.003
900	6.802
3100	8.039
3700	8.216
1200	7.090
1800	7.496
100	4.605
600	6.397
1000	6.908
Mean	**6.949**
Variance	**0.842**

Oil and Grease – Outfall 001B

As a measure of performance of the Oily Wastewater Treatment System the EPA is establishing a performance based effluent limitation for oil and grease of 5.7 mg/L (5,700 µg/L) MDL and 3.4 mg/L (3,400 µg/L) AML based on the monitoring data submitted from May, 2013 through April, 2016 and EPA's Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001.

Performance-based Effluent Limits

INPUT	
LogNormal Transformed Mean:	6.8330
LogNormal Transformed Variance:	0.6150
Number of Samples per month for compliance monitoring:	1
Autocorrelation factor (n_e) (use 0 if unknown):	0
OUTPUT	
E(X) =	1262.0593
V(X) =	1353327.576
VARn	0.6150
MEANn=	6.8330
VAR(Xn)=	1353327.576
RESULTS	
Maximum Daily Effluent Limit:	**5750.8**
Average Monthly Effluent Limit:	**3371.3**
3371.256634	3175.730668

LogNormal Transformed Mean and Variance

Enter data in yellow cells.
Insert / delete rows as needed.

Data ug/L	Ln()
1700	7.438
2400	7.783
1200	7.090
200	5.298
300	5.704
600	6.397
1500	7.313
400	5.991
3600	8.189
1000	6.908
1400	7.244
1300	7.170
1400	7.244
800	6.685
1400	7.244
2300	7.741
500	6.215
300	5.704
1200	7.090
1200	7.090
1000	6.908
900	6.802
200	5.298
2500	7.82
1100	7.00
1500	7.31
1000	6.91
200	5.30
2700	7.90
700	6.55
900	6.80
1000	6.91
900	6.80
600	6.40
1000	6.91
Mean	**6.833**
Variance	**0.615**

Oil and Grease Outfall 002A

As a measure of performance of the oil water separators the EPA is establishing a performance based effluent limitation for oil and grease of 4.9 mg/L (4,900 µg/L) MDL and 2.3 mg/L (2.300 µg/L) AML based on the monitoring data submitted from May, 2013 through April, 2016 and EPA's Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001.

Performance-based Effluent Limits

INPUT	
LogNormal Transformed Mean:	5.8589
LogNormal Transformed Variance:	1.2878
Number of Samples per month for compliance monitoring:	1
Autocorrelation factor (n_e) (use 0 if unknown):	0
OUTPUT	
E(X) =	666.9731
V(X) =	1167617.997
VARn	1.2878
MEANn=	5.8589
VAR(Xn)=	1167617.997
RESULTS	
Maximum Daily Effluent Limit:	**4907.0**
Average Monthly Effluent Limit:	**2265.6**

LogNormal Transformed Mean and Variance

Enter data in yellow cells.
Insert / delete rows as needed.

Data ug/L	Ln()
700	6.551
100	4.605
300	5.704
100	4.605
100	4.605
100	4.605
100	4.605
1000	6.908
1200	7.090
1100	7.003
2800	7.937
200	5.298
200	5.298
200	5.298
300	5.704
100	4.605
1100	7.003
200	5.298
1000	6.908
600	6.397
200	5.298
2800	7.937
100	4.605
100	4.61
100	4.61
100	4.61
100	4.61
600	6.40
900	6.80
3000	8.01
1300	7.17
1600	7.38
200	5.30
Mean	**5.859**
Variance	**1.288**

Oil and Grease Outfall 008A

As a measure of performance of the oil water separators the EPA is establishing a performance based effluent limitation for oil and grease of 9.6 mg/L (9,600 µg/L) MDL and 4.3 mg/L (4.300 µg/L) AML based on the monitoring data submitted from May, 2013 through April, 2016 and EPA's Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001.

Performance-based Effluent Limits

INPUT		
LogNormal Transformed Mean:		6.4400
LogNormal Transformed Variance:		1.3770
Number of Samples per month for compliance monitoring:		1
Autocorrelation factor (n_e) (use 0 if unknown):		0
OUTPUT		
E(X) =		1247.0051
V(X) =		4607520.929
VARn		1.3770
MEANn=		6.4400
VAR(Xn)=		4607520.929
RESULTS		
Maximum Daily Effluent Limit:		**9599.4**
Average Monthly Effluent Limit:		**4317.1**
	4317.085636	4778.02004

LogNormal Transformed Mean and Variance

Enter data in yellow cells.
Insert / delete rows as needed.

Data ug/L	Ln()
400	5.991
100	4.605
2100	7.650
300	5.704
200	5.298
100	4.605
1100	7.003
3000	8.006
900	6.802
3000	8.006
1500	7.313
1300	7.170
100	4.605
400	5.991
800	6.685
2200	7.696
900	6.802
5100	8.537
2600	7.863
900	6.802
500	6.215
600	6.397
200	5.30
200	5.30
100	4.61
300	5.70
1000	6.91
300	5.70
300	5.70
2600	7.86
700	6.55
800	6.68
Mean	**6.440**
Variance	**1.337**

Oil and Grease Outfalls 004A, 006A, 007A.

Because of the infrequent discharges there are insufficient data to calculate an oil and grease performance based limit for outfalls 004A, 006A and 007A. Therefore, the existing oil and grease limit of an AML of 10 and MDL of 15 remain as the effluent limitations.

pH

The MSGP requires pH limits of 6.0 to 9.0 for site specific dischargers although is not required for this facility's Petroleum Bulk Terminal source category. This level of control has been achieved for each discharge. The EPA is using best professional judgement to determine the best available technology economically achievable (BAT) for pH is 6.0 to 9.0 s.u.. The effluent limits for pH in the reissued permit have been kept in the range of 6.0 to 8.5 standard units in keeping with the previous permit to avoid backsliding. Meeting these permit limits will continue to assure compliance with the water quality standards of surface waters at the edge of the mixing zone because of the high buffering capacity of marine water (See Appendix E for the calculation). The 401 Certification includes the pH limits of 6.0 to 8.5 as meeting the water quality standards for Puget Sound.

B. Water Quality-based Effluent Limits

Statutory and Regulatory Basis

Section 301(b)(1)(C) of the CWA requires the development of limitations in permits necessary to meet water quality standards. Discharges to State or Tribal waters must also comply with limitations imposed by the State or Tribe as part of its certification of NPDES permits under section 401 of the CWA. Federal regulations at 40 CFR 122.4(d) prohibit the issuance of an NPDES permit that does not ensure compliance with the water quality standards of all affected States.

The NPDES regulation (40 CFR 122.44(d)(1)) implementing Section 301(b)(1)(C) of the CWA requires that permits include limits for all pollutants or parameters which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State or Tribal water quality standard, including narrative criteria for water quality, and that the level of water quality to be achieved by limits on point sources is derived from and complies with all applicable water quality standards.

The regulations require the permitting authority to make this evaluation using procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant in the effluent, species sensitivity (for toxicity), and where appropriate, dilution in the receiving water. The limits must be stringent enough to ensure that water quality standards are met, and must be consistent with any available wasteload allocation.

Reasonable Potential Analysis

When evaluating the effluent to determine if the pollutant parameters in the effluent are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State/Tribal water quality criterion, the EPA projects the receiving water

concentration (downstream of where the effluent enters the receiving water) for each pollutant of concern. The EPA uses the concentration of the pollutant in the effluent and receiving water and, if appropriate, the dilution available from the receiving water, to project the receiving water concentration. If the projected concentration of the pollutant in the receiving water exceeds the numeric criterion for that specific pollutant, then the discharge has the reasonable potential to cause or contribute to an excursion above the applicable water quality standard, and a water quality-based effluent limit is required.

Sometimes it may be appropriate to allow a small area of the receiving water to provide dilution of the effluent. These areas are called mixing zones. Mixing zone allowances will increase the mass loadings of the pollutant to the water body and will decrease treatment requirements. Mixing zones can be used only when there is adequate receiving water flow volume and the concentration of the pollutant in the receiving water is less than the criterion necessary to protect the designated uses of the water body. Mixing zones must be authorized by the State.

The reasonable potential analysis for zinc was based on a mixing zone based on Visual Plumes and minimizing the mixing zone necessary to achieve water quality standards. If Ecology revises the allowable mixing zone in its final certification of this permit, reasonable potential analysis will be revised accordingly.

Procedure for Deriving Water Quality-based Effluent Limits

The first step in developing a water quality-based effluent limit is to develop a wasteload allocation (WLA) for the pollutant. A wasteload allocation is the concentration or loading of a pollutant that the permittee may discharge without causing or contributing to an exceedance of water quality standards in the receiving water. Wasteload allocations are determined in one of the following ways:

1. TMDL-Based Wasteload Allocation

   Where the receiving water quality does not meet water quality standards, the wasteload allocation is generally based on a TMDL developed by the State. A TMDL is a determination of the amount of a pollutant from point, non-point, and natural background sources that may be discharged to a water body without causing the water body to exceed the criterion for that pollutant. Any loading above this capacity risks violating water quality standards.

   To ensure these waters will come into compliance with water quality standards Section 303(d) of the CWA requires States to develop TMDLs for those water bodies that will not meet water quality standards even after the imposition of technology-based effluent limitations. The first step in establishing a TMDL is to determine the assimilative capacity (the loading of pollutant that a water body can assimilate without exceeding water quality standards). The next step is to divide the assimilative capacity into allocations for non-point sources (load allocations), point sources (wasteload allocations), natural background loadings, and a margin of safety to account for any uncertainties. Permit limitations are then developed for point sources that are consistent with the wasteload allocation for the point source.

2. Mixing zone based WLA

When the State authorizes a mixing zone for the discharge, the WLA is calculated by using a simple mass balance equation. The equation takes into account the available dilution provided by the mixing zone, and the background concentrations of the pollutant.

3. Criterion as the Wasteload Allocation

In some cases a mixing zone cannot be authorized, either because the receiving water is already at, or exceeds, the criterion, the receiving water flow is too low to provide dilution, or the facility can achieve the effluent limit without a mixing zone. In such cases, the criterion becomes the wasteload allocation. Establishing the criterion as the wasteload allocation ensures that the effluent discharge will not contribute to an exceedance of the criteria.

4. Aesthetics Criteria WAC 173-201A-260(2)(b)

The Washington WQS states aesthetic values must not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell or touch, The draft permit contains a narrative limitation prohibiting the discharge of such materials.

5. Oil and Grease

The federal criteria for oil and grease in the *Quality Criteria for Water, 1986,* is:

"that surface waters shall be virtually free from floating non-petroleum oils of vegetable or animal origin. This same recommendation applies to floating oils of petroleum origin since they too my produce similar effects."

Those effects are described. Bioaccumulation of petroleum products presents two especially important public health problems: (1) the tainting of edible, aquatic species, and (2) the possibility of edible marine organisms incorporating the high boiling, carcinogenic polycyclic aromatics in their tissues. Oils of any kind can cause drowning of water fowl because of loss of buoyancy, exposure because of loss of insulating capacity of feathers and starvation and vulnerability to predators because of lack of mobility, lethal effects on fish by coating epithelial surfaces of gills, thus preventing respiration, asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom and adverse aesthetic effects of fouled shorelines and beaches. Oil pollutants may also be incorporated into sediments.

Once the wasteload allocation has been developed, the EPA applies the statistical permit limit derivation approach described in Chapter 5 of the Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001, March 1991, hereafter referred to as the TSD) to obtain monthly average, and weekly average or daily maximum permit limits. This approach takes into account effluent variability, sampling frequency, and water quality standards.

C. Anti-backsliding Provisions

Section 402(o) of the Clean Water Act and federal regulations at 40 CFR §122.44 (l) generally prohibit the renewal, reissuance or modification of an existing NPDES permit that contains

effluent limits, permit conditions or standards that are less stringent than those established in the previous permit (i.e., anti-backsliding) but provides limited exceptions. Section 402(o)(1) of the CWA states that a permit may not be reissued with less-stringent limits established based on Sections 301(b)(1)(C), 303(d) or 303(e) (i.e. water quality-based limits or limits established in accordance with State treatment standards) except in compliance with Section 303(d)(4). Section 402(o)(1) also prohibits backsliding on technology-based effluent limits established using best professional judgment (i.e. based on Section 402(a)(1)(B)), but in this case, the effluent limits being revised are technology based effluent limits (TBEL).

Section 303(d)(4) of the CWA states that, for water bodies where the water quality meets or exceeds the level necessary to support the water body's designated uses, WQBELs may be revised as long as the revision is consistent with the State's antidegradation policy. Additionally, Section 402(o)(2) contains exceptions to the general prohibition on backsliding in 402(o)(1). According to the EPA NPDES Permit Writers' Manual (EPA-833-K-10-001) the 402(o)(2) exceptions are applicable to WQBELs (except for 402(o)(2)(B)(ii) and 402(o)(2)(D)) and are independent of the requirements of 303(d)(4). Therefore, WQBELs may be relaxed as long as either the 402(o)(2) exceptions or the requirements of 303(d)(4) are satisfied.

Even if the requirements of Sections 303(d)(4) or 402(o)(2) are satisfied, Section 402(o)(3) prohibits backsliding which would result in violations of water quality standards or effluent limit guidelines.

Phenolic Compounds Internal Outfall 001A

An anti-backsliding analysis was done for phenolic compounds. As a result of the analysis the limitations in the Logistics Center permit for phenolic compounds are not being retained in the proposed permit.

CWA section 402(o)(2) outlines specific exceptions to the general prohibition against revising an existing TBEL that was developed on a case-by-case basis using BPJ as follows.

- Technical mistakes or mistaken interpretations of the law were made in issuing the permit under CWA section 402(a)(1)(b).
- There have been material and substantial alterations or additions to the permitted facility that justify the relaxation.

In the 1988 permit and in the 2009 permit, BPJ case-by-case TBELs for phenolic compounds were developed using effluent limit guidelines contained in the Petroleum Refining Point Source Category, Title 40 Code of Federal Regulations (40 CFR) Part 419. This facility does not conduct any petroleum refining nor does the facility treat used oils; therefore, these ELGs do not apply to this facility.

1. Using the Petroleum Refining Point Source Category as the basis for establishing effluent limitations for discharges from tank cleaning is a technical mistake in issuing the previous permits that justifies relaxation of effluent limitation and monitoring of phenolic compounds.
2. Also, justifying relaxation of the phenolic compounds limitation and monitoring requirements is the cessation of the treatment of used oil and fuel. This constitutes a

material and substantial alteration to the facility that justifies relaxation of the effluent limitation and monitoring of phenolic compounds.

The Navy stated, "Oils containing phenols are not processed by the treatment plant, and phenols are not used in any of the treatment processes."

Therefore, the effluent limitation and monitoring of phenolic compounds are removed from the draft permit.

Flow Internal Outfall 001A

The flow effluent limitation for Internal Outfall 001A is discontinued. The flow limit was established to ensure the efficiency of treatment and to minimize the potential for flow augmentation through the introduction of non-process wastewater. Flow monitoring and the effluent limitations for TOC, oil and grease, TSS and pH ensure the efficiency of the treatment system and any interference with the treatment system from non-process wastewater flow. The establishment of a flow effluent limitation does not and is a technical mistake that justifies its removal.

TOC Internal Outfall 001A

The performance based limit for the TOC MDL resulted in a limit of 930 mg/L and a TOC AML of 343 mg/L. None of the exceptions to the general prohibition on backsliding apply to TOC. Therefore, the existing TOC limit of a MDL of 900 mg/L is unchanged in the draft permit. The existing permit did not have an AML for TOC and an AML of 343 mg/L is established.

D. Antidegradation

The EPA is required under Section 301(b)(1)(C) of the Clean Water Act (CWA) and implementing regulations (40 CFR 122.4(d) and 122.44(d)) to establish conditions in NPDES permits that ensure protection of the downstream State water quality standards, including antidegradation requirements. The EPA has prepared an antidegradation analysis consistent with Ecology's antidegradation implementation procedures. The EPA referred to Washington's antidegradation policy (WAC 173-201A-300) and Ecology's 2011 Supplemental Guidance on Implementing Tier II Antidegradation https://fortress.wa.gov/ecy/publications/SummaryPages/1110073.html.

The purpose of Washington's Antidegradation Policy is to:

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

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

The receiving water from the outfall is Puget Sound and the anti-degradation analysis was completed for this receiving water body. Accordingly, EPA will use the designated criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses because the facility is unchanged from the previous permit, and all the beneficial uses are intact.

In consideration of the anti-degradation analysis in Puget Sound, the facility is considered an existing facility because the last permit is administratively extended, and there has not been any changes in the process of the facility, and there is no change in the design flow. Therefore, EPA concludes that the discharge does not trigger the need for any further anti-degradation analysis beyond Tier I Protection.

The effluent limits in the draft permit ensure compliance with applicable numeric and narrative water quality criteria. The numeric and narrative water quality criteria are set at levels that ensure protection of the designated uses. As there is no information indicating the presence of existing beneficial uses other than those that are designated, the draft permit ensures a level of water quality necessary to protect the designated uses and, in compliance with WAC 173-201A-310 and 40 CFR 131.12(a)(1), also ensures that the level of water quality necessary to protect existing uses is maintained and protected.

If EPA receives information during the public comment period demonstrating that there are existing uses for which the Puget Sound is not designated, EPA will consider this information before issuing a final permit and will establish additional or more stringent permit conditions if necessary to ensure protection of existing uses.

Tier II Protection – Protection of waters of higher quality than the standards

EPA determined that analysis for a Tier II Protection is not necessary because the facility is not a new or expanded action that has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

According to WAC 173-210A-320(2), a facility must prepare a Tier II analysis when the facility is planning a new or expanded action that has the potential to cause measurable degradation to the physical, chemical, or biological quality of the water body. A Tier II analysis consists of an evaluation of whether or not the proposed degradation of water quality that would be associated with a new or expanded action would be both necessary and in the overriding public interest. A Tier II analysis focuses on evaluating feasible alternatives that would eliminate or significantly reduce the level of degradation. The analysis also includes a review of the benefits and costs associated with the lowering of water quality. New discharges and facility expansions are prohibited from lowering water quality without providing overriding public benefits.

The effluent from the Logistics Center is not considered a new discharge and therefore is not considered a new or expanded source of pollution. Accordingly, EPA determined that a Tier II antidegradation analysis would not be necessary.

Tier III Protection – Protection of Outstanding Resource Waters

EPA determined that a Tier III antidegradation analysis is not necessary because the receiving water does not meet the conditions as an Outstanding Resource Waters pertaining to WAC 173-201A-330(1).

Appendix E: Reasonable Potential and Water Quality-Based Effluent Limit Calculations

Part A of this appendix explains the process the EPA has used to determine if the discharge authorized in the draft permit has the reasonable potential to cause or contribute to a violation of Washington's federally approved water quality standards. Part B demonstrates how the water quality-based effluent limits (WQBELs) in the draft permit were calculated.

A. Reasonable Potential Analysis

The EPA uses the following method from the Department of Ecology as described in the *Technical Support Document for Water Quality-based Toxics Control* (EPA, 1991) to determine reasonable potential. To determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of water quality criteria for a given pollutant, the EPA compares the maximum projected receiving water concentration to the water quality criteria for that pollutant. If the projected receiving water concentration exceeds the criteria, there is reasonable potential, and a water quality-based effluent limit must be included in the permit. This following section discusses how the maximum projected receiving water concentration is determined

Mass Balance

For discharges to flowing water bodies, the maximum projected receiving water concentration is determined using the following mass balance equation:

$$C_d Q_d = C_e Q_e + C_u Q_u \qquad \text{Equation 1}$$

where,

- C_d = Receiving water concentration downstream of the effluent discharge (that is, the concentration at the edge of the mixing zone)
- C_e = Maximum projected effluent concentration
- C_u = 95th percentile measured receiving water upstream concentration
- Q_d = Receiving water flow rate downstream of the effluent discharge = Q_e+Q_u
- Q_e = Effluent flow rate (set equal to the design flow of the WWTP)
- Q_u = Receiving water low flow rate upstream of the discharge (1Q10, 7Q10 or 30B3)

When the mass balance equation is solved for C_d, it becomes:

$$C_d = \frac{C_e \times Q_e + C_u \times Q_u}{Q_e + Q_u} \qquad \text{Equation 2}$$

The above form of the equation is based on the assumption that the discharge is rapidly and completely mixed with 100% of the receiving stream.

If the mixing zone is based on less than complete mixing with the receiving water, the equation becomes:

$$C_d = \frac{C_e \times Q_e + C_u \times (Q_u \times \%MZ)}{Q_e + (Q_u \times \%MZ)} \qquad \text{Equation 3}$$

Where:

% MZ = the percentage of the receiving water flow available for mixing.

If a mixing zone is not allowed, dilution is not considered when projecting the receiving water concentration and,

$$C_d = C_e \qquad \text{Equation 4}$$

A dilution factor (D) can be introduced to describe the allowable mixing. Where the dilution factor is expressed as:

$$D = \frac{Q_e + Q_u \times \%MZ}{Q_e} \qquad \text{Equation 5}$$

After the dilution factor simplification, the mass balance equation becomes:

$$C_d = \frac{C_e - C_u}{D} + C_u \qquad \text{Equation 6}$$

If the criterion is expressed as dissolved metal, the effluent concentrations are measured in total recoverable metal and must be converted to dissolved metal as follows:

$$C_d = \frac{CF \times C_e - C_u}{D} + C_u \qquad \text{Equation 7}$$

Where C_e is expressed as total recoverable metal, C_u and C_d are expressed as dissolved metal, and CF is a conversion factor used to convert between dissolved and total recoverable metal.

The above equations for C_d are the forms of the mass balance equation which were used to determine reasonable potential and calculate wasteload allocations.

Maximum Projected Effluent Concentration

The EPA determined the projected receiving water zinc concentration in Puget Sound from the Internal Outfall 001A effluent discharge using procedures in Ecology's Permit Writer's Manual, December, 2011, and using Ecology's spreadsheet PermitCalMarch9-2015 with the 99th percentile effluent as shown below.

Maximum Projected Effluent Concentration

When determining the projected receiving water concentration downstream of the effluent discharge, the EPA's Technical Support Document for Water Quality-based Toxics Controls (TSD, 1991) recommends using the maximum projected effluent concentration (Ce) in the mass balance calculation (see equation 3, page C-5). To determine the maximum projected effluent concentration (Ce) the EPA has developed a statistical approach to better characterize the effects of effluent variability. The approach combines knowledge of effluent variability as estimated by a coefficient of variation (CV) with the uncertainty due to a limited number of data to project an estimated maximum concentration for the effluent. Once the CV for each pollutant parameter has been calculated, the reasonable potential multiplier (RPM) used to derive the maximum projected effluent concentration (Ce) can be calculated using the following equations:

First, the percentile represented by the highest reported concentration is calculated.

$p_n = (1 - \text{confidence level})^{1/n}$ Equation 8

where,

p_n = the percentile represented by the highest reported concentration
n = the number of samples
confidence level = 99% = 0.99

and

$$RPM = \frac{C_{99}}{C_{P_n}} = \frac{e^{Z_{99} \times \sigma - 0.5 \times \sigma^2}}{e^{Z_{P_n} \times \sigma - 0.5 \times \sigma^2}}$$ Equation 9

Where,

σ^2 = $\ln(CV^2 + 1)$
Z_{99} = 2.326 (z-score for the 99th percentile)
Z_{Pn} = z-score for the P_n percentile (inverse of the normal cumulative distribution function at a given percentile)
CV = coefficient of variation (standard deviation ÷ mean)

The maximum projected effluent concentration is determined by simply multiplying the maximum reported effluent concentration by the RPM:

$C_e = (RPM)(MRC)$ Equation 10

where MRC = Maximum Reported Concentration

Maximum Projected Effluent Concentration at the Edge of the Mixing Zone

Once the maximum projected effluent concentration is calculated, the maximum projected effluent concentration at the edge of the acute and chronic mixing zones is calculated using the mass balance equations presented previously.

Reasonable Potential

The discharge has reasonable potential to cause or contribute to an exceedance of water quality criteria if the maximum projected concentration of the pollutant at the edge of the mixing zone exceeds the most stringent criterion for that pollutant.

Results of Reasonable Potential Calculations

Internal Outfall 001A

It was determined zinc from Internal Outfall 001A does not have a reasonable potential to violate the water quality standards. The results of the calculation are presented in Table E-1 and the minimum sized mixing zone for no reasonable potential is shown in Table E-2. The effluent limitation and monitoring are discontinued.

The effluent limits and monitoring for phenol, ethylbenzene, toluene and benzene are dropped because discharges have no reasonable potential to violate the water quality standards even with no mixing zone or in the case of benzene a mixing zone resulting in a dilution ratio of only 2.3.

Outfalls 001A, 001B, 002A, 004A, 006A, 007A and 008A – pH

The effluent limits for pH from the existing permit are retained in the range of 6.0 to 8.5 standard units. Meeting these permit limits will continue to assure compliance with the water quality standards of surface waters at the edge of the mixing zone because of the high buffering capacity of marine water (See below for calculation). The 401 Certification includes the limits of 6.0 to 8.5 as meeting the water quality standards for Puget Sound.

Over the last five years discharges these Outfalls 001A, 001B, 002A, 004A, 006A, 007A and 008A have achieved these limits. Therefore using best professional judgement, the EPA establishes 6.0 to 8.5 as the effluent limit for Outfalls 001A, 001B, 002A, 004A, 006A, 007A and 008A.

Table E-1, below, details for Outfall 001A the calculations for zinc reasonable potential based on the monitoring data submitted from December, 2012 through November, 2017 and EPA's Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001 and using the maximum allowable dilution factors of 9.0 acute and 29.0 chronic.

Table E-1 Reasonable Potential Calculation

Facility	Logistics Center Outfall 001A
Water Body Type	Marine

Dilution Factors:	Acute	Chronic
Aquatic Life	9.0	29.0
Human Health Carcinogenic		
Human Health Non-Carcinogenic		

Pollutant, CAS No. & NPDES Application Ref. No.			ZINC- 7440666 13M hardness dependent									
Effluent Data	# of Samples (n)		22									
	Coeff of Variation (Cv)		0.938	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)		98									
	Calculated 50th percentile Effluent Conc. (when n>10)											
Receiving Water Data	90th Percentile Conc., ug/L		0									
	Geo Mean, ug/L											
Water Quality Criteria	Aquatic Life Criteria, ug/L	Acute	90									
		Chronic	81									
	WQ Criteria for Protection of Human Health, ug/L		-									
	Metal Criteria Translator, decimal	Acute	0.946									
		Chronic	0.946									
	Carcinogen?		N									

Aquatic Life Reasonable Potential

Effluent percentile value		99%	0.990									
s	$s^2=\ln(CV^2+1)$		0.794									
Pn	$Pn=(1\text{-confidence level})^{1/n}$	99%	0.811									
Multiplier			1.00									
Max concentration (ug/L) at edge of…		Acute	10.301									
		Chronic	3.197									
Reasonable Potential? Limit Required?			**NO**									

Table E-2, below for Outfall 001A, details the calculations for the minimum required dilution factors of 1.1 acute and 1.2 chronic that result in no reasonable potential for zinc. The effluent limit and monitoring is therefore discontinued.

Also shown is the reasonable potential for detected human health pollutants without the benefit of a mixing zone except for benzene that needs a mixing zone for a dilution factor of 2.3.

Table E-2

Reasonable Potential Calculation

Facility	Js Navy Fleet Logistics Supply
Water Body Type	Marine

Dilution Factors:	Acute	Chronic
Aquatic Life	1.1	1.2
Human Health Carcinogenic	1.0	1.0
Human Health Non-Carcinogenic	1.0	1.0

Pollutant, CAS No. & NPDES Application Ref. No.		ZINC- 7440666 13M hardness dependent	PHENOL 108952 10A	ETHYLBENZENE 100414 19V	TOLUENE 108883 25V	BENZENE 71432 3V					
Effluent Data	# of Samples (n)	22	17	3	3	3					
	Coeff of Variation (Cv)	0.938	1.38	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
	Effluent Concentration, ug/L (Max. or 95th Percentile)	98		1.6	9.3	2.3					
	Calculated 50th percentile Effluent Conc. (when n>10)		60								
Receiving Water Data	90th Percentile Conc., ug/L	0									
	Geo Mean, ug/L		0	0	0	0					
Water Quality Criteria	Aquatic Life Criteria, ug/L Acute	90	-	-	-	-					
	Aquatic Life Criteria, ug/L Chronic	81	-	-	-	-					
	WQ Criteria for Protection of Human Health, ug/L	1000	70000	31	130	1.6					
	Metal Criteria Translator, decimal Acute	0.946	-	-	-	-					
	Metal Criteria Translator, decimal Chronic	0.946	-	-	-	-					
	Carcinogen?	N	N	N	N	Y					

Aquatic Life Reasonable Potential

Effluent percentile value	99%	0.99									
s	$s^2=\ln(CV^2+1)$	0.794									
Pn=(1-confidence level)$^{1/n}$	99%	0.811									
Multiplier		1.00									
Max concentration (ug/L) at edge of...	Acute	84.280									
	Chronic	77.257									
Reasonable Potential? Limit Required?		**NO**									

Human Health Reasonable Potential

s	$s^2=\ln(CV^2+1)$	0.7945	1.0326	0.5545	0.5545	0.554513029					
Pn=(1-confidence level)1/n	99%	0.811	0.763	0.215	0.215	0.215					
Multiplier		0.4962	0.4779	1.5477	1.5477	1.547709274					
Dilution Factor		1	1	1	1	2.3					
Max Conc. at edge of Chronic Zone, ug/L		48.627	60	2.4763	14.394	1.5					
Reasonable Potential? Limit Required?		**NO**	**NO**	**NO**	**NO**	**NO**					

Oil and Grease- All Outfalls

The EPA determines no visible oil sheen, discoloration or turbidity meets the federal criteria for oil and grease "that surface waters shall be virtually free from…floating oils of petroleum origin…" Monitoring will be by visual observation, logging and noncompliance notification.

Table E-3, below, details for the Outfalls calculations for pH reasonable potential based on the effluent limitations of 6.0 and 8.5 and EPA's Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001 and using the maximum allowable dilution factors of 9.0 acute and 29.0 chronic. The technology based effluent limit do not result in a violation of the water quality standards for pH.

Table E-3 Calculation of pH of a Mixture in Marine Water

Based on the CO2SYS program (Lewis and Wallace, 1998), http://cdiac.esd.ornl.gov/oceans/co2rprt.html

INPUT	
1. MIXING ZONE BOUNDARY CHARACTERISTICS	
Dilution factor at mixing zone boundary	29.0
Depth at plume trapping level (m)	9.00
2. BACKGROUND RECEIVING WATER CHARACTERISTICS	
Temperature (deg C):	7.60
pH:	7.90
Salinity (psu):	27.20
Total alkalinity (meq/L)	1.90
3. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	7.60
pH:	8.50
Salinity (psu)	27.20
Total alkalinity (meq/L):	1.90
4. CLICK THE 'Calculate" BUTTON TO UPDATE OUTPUT RESULTS -->	Calculate
OUTPUT	
CONDITIONS AT THE MIXING ZONE BOUNDARY	
Temperature (deg C):	7.60
Salinity (psu)	27.20
Density (kg/m^3)	1021
Alkalinity (mmol/kg-SW):	1.86
Total Inorganic Carbon (mmol/kg-SW):	1.8
pH at Mixing Zone Boundary:	**7.93**

Table E-3 Calculation of pH of a Mixture in Marine Water

Based on the CO2SYS program (Lewis and Wallace, 1998), http://cdiac.esd.ornl.gov/oceans/co2rprt.html

INPUT	
1. MIXING ZONE BOUNDARY CHARACTERISTICS	
Dilution factor at mixing zone boundary	29.0
Depth at plume trapping level (m)	9.00
2. BACKGROUND RECEIVING WATER CHARACTERISTICS	
Temperature (deg C):	7.60
pH:	7.90
Salinity (psu):	27.20
Total alkalinity (meq/L)	1.90
3. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	7.60
pH:	6.00
Salinity (psu)	27.20
Total alkalinity (meq/L):	1.90
4. CLICK THE 'Calculate" BUTTON TO UPDATE OUTPUT RESULTS -->	Calculate
OUTPUT	
CONDITIONS AT THE MIXING ZONE BOUNDARY	
Temperature (deg C):	7.60
Salinity (psu)	27.20
Density (kg/m^3)	1021
Alkalinity (mmol/kg-SW):	1.86
Total Inorganic Carbon (mmol/kg-SW):	1.9
pH at Mixing Zone Boundary:	**7.58**