Technical Information
Fact Sheet
Public Notice July 23, 1993

A. APPLICANT

U.S.Department of Defense
Department of the Navy
Puget Sound Naval Shipyard
Bremerton, Washington 98314

B. FACILITY LOCATION

The Puget Sound Naval Shipyard (PSNS) is located along the northern shore of Sinclair Inlet and is bounded by the City of Bremerton. Attachments to this document include a map of the shipyard and location of the discharge outfalls. Other attachments show details of drydock and steamplant discharges.

C. BACKGROUND: ACTIVITY AND DISCHARGE DESCRIPTION

The Puget Sound Naval Shipyard (PSNS) is engaged in shipyard activities which primarily involve servicing, repairing and decommissioning naval vessels. The shipyard has been in operation since 1896. Historically, discharges of wastewaters were directly into nearby waters without treatment (until 1957). Presently, direct discharges from PSNS into receiving waters which may contain pollutants include stormwater, noncontact cooling waters, drydock drainage, salt water supply system, bilge and ballast water from dockside vessels, and steam plant wastewaters. A more detailed description of general shipyard/boatyard activities, associated waste generation, and treatment technologies may be found in Maritime Industrial Waste Project Reduction of Toxicant Pollution from the Maritime Industry in Puget Sound (Seattle Metro 3/92).

Domestic wastewaters and pretreated electroplating wastewaters are routed to the City of Bremerton Wastewater Treatment Plant where they receive secondary treatment and disinfection prior to discharge. Existing discharges are described below:

1. Outfall 018: Drainage from Drydocks 1 through 5 have been discharged by pumps from drydock pumpwells #4 (discharge 018) or #5 (discharge 018A) into Sinclair Inlet. Operation of the pumpwells are alternated, typically monthly. The character of the discharge does not change with alternation of the pumpwells, therefore, the permit refers to outfall 018 for either discharge location. This discharge includes groundwater and marine waters that infiltrate or seep into the drydocks, in addition to surface runoff from within the drydocks. A relatively small volume (estimated at 18,750 GPD per drydock) of

noncontact cooling water is also discharged through this outfall.

In a letter dated July 12, 1993, the permittee indicated that the shipyard had commenced using Drydock 2 pumpwell for direct discharge (via outfall 096) to relieve loading on pumpwell #4.

Infiltration into each of the five docks, except drydock 2, is estimated at 712,500 GPD. By design there is no infiltration into drydock 2. Stormwater volumes are of course variable. Total discharge from this outfall is reported in the application as approximately 7,240,000 GPD (maximum daily) and 2,510,000 GPD (average daily). More recent information submitted by the permittee (letter dated July 12, 1993) states that the average discharge from outfall 018 or 018A during the past two years is approximately 2.8 mgd. All pollutants were reported on the permit application as "believed absent" except for the following parameters:

Biochemical Oxygen Demand (BOD)	60	mg/l
Chemical Oxygen Demand (COD)	*713	
Total Organic Carbon (TOC)	5.9	
Total Suspended Solids (TSS)	10	
Ammonia	0.305	
Oil and Grease	1	
pH	7.2 to 7.8	S.U.
Temperature	14.1°C	(summer)
	57.4°F	

* The reported value of the COD test is questioned because of interferences caused by marine water on COD test methodology.

The discharge is through a 24 inch diameter pipe located just west of the opening to drydock #4 (depending upon which wetwell pump is being operated). The pipe depth (elevation) is minus 0.8 feet below mean low low water. The depth of water near the outfall(s) is approximately 42 feet.

During certain drydock flooding sequences, discharges of drydock drainage occur directly from drydock pumpwell 3 or 3a. These discharges are very infrequent and have a duration which typically does not exceed four or five hours.

2. Outfall 019: This outfall discharges groundwater infiltration (approximately 4,464,000 GPD), stormwater runoff, and noncontact cooling water (approximately 93,000 GPD) from drydock 6. Total discharge from this outfall was reported as 8,440,000 GPD (maximum daily) and 2,800,000 GPD (average daily). More recent information submitted by the permittee (letter dated July 12, 1993) states that the average discharge from outfall 019 had been misreported during the past five years and that the

actual volume of the discharge is approximately 50 percent greater than reported (estimated to be about 5.24 mgd). The application indicated all pollutants were "believed absent" except for the following parameters:

BOD	45	mg/l
COD	35.3	
TOC	16.7	
TSS	7.0	
Ammonia	8.49	
Oil and Grease	1	
pH	6.9	S.U.
Temperature	17.8°C 64.0°F	(summer)

This discharge is through a 36 inch diameter pipe located on the east side of the south end of drydock #6. The pipe depth is minus 5.17 feet at mean low low water. The depth of water near the outfall is approximately 43 feet.

3. Outfall 021: Wastewaters generated through the production of superheated steam include air compressor and diesel generator cooling tower blowdown, boiler blowdown, water treatment wastes, washdown drainage of coal handling facilities corrosive drains (e.g. acidic and caustic demineralizer for boiler feedwater), plant drains and demineralizer regeneration wastewater. Wastestreams which cannot be reused are treated prior to discharge using the following processes: oil-water separation, flow equalization, neutralization, chemical coagulation/flocculation, gravity filtration and final pH correction.

This discharge is through a 40 foot diffused port outfall. The 8 inch diameter outfall is located at a water depth of 37.4 feet mean low low water.

Effluent limitations, monitoring and reporting requirements were established for this discharge in the present permit according to federal effluent guidelines for the Steam Electric Generation Point Source Category (40 CFR 423). Discharge monitoring reports (DMRs) submitted by the permittee for discharge through outfall 021 showed the following summarized information for the period from January 1990 through December 1991:

Parameter	Monthly Average			Daily Maximum		
	Limit	Reported	Range	Limit	Reported	Range
Temp (°F)	70**	64	52 - 70	90	66	58 - 71
pH (S.U.)	-	6.6	-	6 to 9	-	4.0 - 9.1
TSS*	30	4.4	1 - 14.7	100	37.5	4.0 - 631
Oil & Grease*	10	3.3	<1.0 - 5.5	15	17.8	<1.0 - 198
Total Chromium*	0.2	0.1	<0.1 - 0.1	0.2	0.1	<0.1 - 0.2
Total Zinc*	1.0	0.4	<0.1 - 1.4	1.0	0.9	<0.1 - 2.0
Flow (MGD)	.109	.122	.038 - .155	-	-	- -
Total Chlorine*	-	-	- -	0.2	0.11	<0.1 - 1.17
Free Chlorine*	0.2	0.09	<0.1 - 0.09	0.5	0.10	<0.1 - 0.17

* measurements and limitations expressed as mg/l
** monthly avg. summer limit is 75°F

Note: The values listed under the "reported" columns represents an average of reported measurements during this period. The average of reported values for daily maximum Oil and Grease would be 4.3, instead of 17.8 mg/l, if two large values (180 mg/l from 11/90 and 198 mg/l from 10/91) are not included in this average.

Whole effluent toxicity monitoring (biomonitoring) of this discharge was also required per condition I.C.3. of the existing permit. Dilution provided by the diffused outfall of this relatively small discharge are designed to be 100:1 receiving water to discharge. This dilution and results of this toxicity monitoring (quarterly for one year) indicate that this discharge is not expected to have adverse impacts on water quality within the authorized mixing zone. Results of this toxicity monitoring testing are listed below:

Test Organism	Test Endpoint	Test Results	
Rainbow Trout	mortality	100% survival	(96-hr)
Freshwater Algae (Selenastrum Capricornutum)	cell density	1.5% to 13%	NOEC
		6.0% to 25%	LOEC
Daphnid (Ceriodaphnia Dubia)	Mortality	100%	NOEC
	Reproduction	12.5% to 100%	NOEC
	Reproduction	25% to 100%	LOEC

Stormwater runoff from the vicinity of the steam plant is discharged (via outfall 022) separately from process wastewaters. This discharge is monitored for pH, Oil & Grease, and flow according to permit requirements.

4. Stormwater Runoff: PSNS encompasses an area of approximately 992 dryland and 355 tideland acres which includes about 270 acres of impervious surfaces. These surfaces include buildings, roads and drydocks. Essentially all rainfall onto such surfaces runs offs and drains into local receiving waters. Presently, stormwater is discharged from numerous outfalls, including most of the 96 outfalls enumerated by this permit (see Attachment 3). This runoff has the potential to carry pollutants common to urban runoff in addition to pollutants peculiar to general shipyard or PSNS specific activities. There are also concerns that rainfall runoff and groundwater infiltration from contaminated soils within PSNS may introduce pollutants into stormwater through the stormwater collection system.

The number, location and drainage areas of stormwater outfalls within PSNS are presently being evaluated by a contractor. Enumeration of the outfalls may be updated after completion of the contractor's study. Some drains located on the docks were not assigned numbers. It should be noted that some identified stormwater outfalls discharge only drainage from small areas which flow into single catchment basins. In contrast, some storm drains carry runoff from acres of paved surface area and discharge through 54 inch pipes. Discharges 014 and 025 are stormwater outfalls which originate within the City of Bremerton and discharge on the PSNS waterfront.

5. Sanitary Wastes: All sanitary wastewaters from the shipyard are routed to the City of Bremerton's Wastewater Treatment Plant (WWTP) for treatment prior to discharge into Sinclair Inlet. Nine pump (lift) stations are utilized to transport sanitary wastewaters to the city's collection system. The PSNS sanitary sewage collection system extends onto shipyard piers and drydocks to allow docked vessels to discharge shipboard wastewaters. This collection system includes pipes which are suspended under the piers. These pipes have occasionally broken or leaked wastewater directly into receiving waters. Replacement of this pipe to minimize unauthorized discharges is currently underway.

The City of Bremerton's collection system combines both stormwater and sanitary wastewaters. Sixteen combined sewer overflow (CSO) locations are identified within the City's collection system which discharge into both Sinclair and Dyes Inlets. PSNS outfalls 001 and 023 (Pacific Ave., CSO OF-15A), 015 (Callow Ave., CSO OF-17), and 095 (Pacific Ave., CSO OF-16)

are City CSO discharge outfalls located on the PSNS waterfront. Some stormwater drainage from within the shipyard also discharges through these outfalls. However, it does not appear that domestic or pretreated industrial wastewaters from the shipyard are included in CSO discharges (based upon surveys by shipyard staff and ongoing investigation by permittee's contractor).

6. Electroplating Wastewaters: PSNS operates a pretreatment facility to treat metal finishing wastewaters prior to discharge into the Bremerton WWTP collection system. The pretreatment facility was designed to provide wastewater treatment that would comply with metal finishing pretreatment standards. Pretreatment processes include chemical coagulation and precipitation, settling and filtration. Other sources of wastewater which may exceed categorical pretreatment standards are also treated at this facility prior to discharge to the City of Bremerton.

Design treatment capacity of the treatment facility is 0.36 mgd, however, influent flows do not support continuous operation of the plant. Therefore, discharges from the pretreatment facility occur in "batches" following sampling to determine pollutant concentrations. Sludges generated during treatment are handled as hazardous wastes and routed to the Arlington, Oregon landfill for disposal.

EPA delegated to Ecology permitting authority under the pretreatment program to regulate indirect discharges to publicly owned treatment works (POTWs). Ecology is presently preparing to issue a state waste discharge permit to PSNS to address discharges to the Bremerton POTW.

7. Discharges from Vessels within PSNS

Information regarding discharges from ships docked within PSNS was not available at the time of this draft permit. Discharges from docked vessels may include anti-corrosion treatment of ship boilers. Chemicals used for boiler treatment include trisodium phosphate, ammonium bifluoride and 1-3 diethylthiourea (1983 NACIP report).

The proposed permit does not prohibit nor authorize these or other discharges from ship propulsion systems. Ships discharging ballast or bilge water are required (by PSNS) to treat these discharges through oil/water separators according to shipyard local instruction 0505-903; Operation and Maintenance of Waste Oil Rafts.

D. RECEIVING WATERS

All discharges from PSNS are into Sinclair Inlet which is an embayment within Puget Sound. Washington State Water Quality Standards (WQS) included in Chapter 173-201A WAC classify Sinclair Inlet as Marine Class A waters. Beneficial or "characteristic uses" commonly associated with various classifications of waterbodies are listed in a state's WQS. Characteristic uses associated with Marine Class A waters are identified in Washington State WQS as: fish and shellfish rearing, spawning, harvesting and migration; wildlife habitat; recreation; commerce and navigation; and aesthetics.

Chapter 173-201A-030(2)(B)(vii) WAC also establishes that "Toxic, radioactive, or deleterious material concentration shall 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, as determined by the department (see WAC 173-201A-040 and 173-201A-050))".

The water and sediment quality of Sinclair Inlet has been degraded such that some of the characteristic uses are not presently supported. For example, commercial shellfish harvesting in Sinclair Inlet is prohibited by state health officials. This prohibition is primarily due to fecal coliform concentrations not attributed to PSNS discharges.

Sinclair Inlet (identified as Waterbody Segment No. WA-15-0040) was listed in Washington's 1992 Statewide Water Quality Assessment (305(B) Report) as water quality limited for exceeding the following parameters; fecal coliform, organics, metals, and temperature. This waterbody was also listed under Section 304(l)(A)(i) (mini list) and Section 304(l)(1)(A)(ii) (long list) for not meeting water quality standards for priority pollutants and not achieving the fishable/swimmable goals of the Clean Water Act. Pollutants (in marine sediments) for which this waterbody was listed include: arsenic, cadmium, copper, mercury, zinc, PAHs, phthalates, and PCBs.

Several activities have occurred or are underway which provide information about the receiving waters and PSNS. These activities include a Data Summaries and Problem Identification Report and an Action Plan prepared through the Sinclair and Dyes Inlets Urban Bay Action Program, Site Inspection Study conducted under State Toxics Cleanup and Federal Superfund Programs, and recent EPA inspections. A brief summary of findings of these activities is included below.

1. Sinclair and Dyes Inlets Urban Bay Action Program

The Sinclair and Dyes Inlets Urban Bay Action Program was developed to assess the condition of these adjacent waterbodies and to formulate and implement a plan to improve water quality. An "Action Plan" was developed through the efforts of federal, state and local government agencies, PSNS, Suquamish Tribe and citizens. The objectives of Sinclair and Dyes Inlets Action Program, pertinent to the PSNS permit, are summarized below:

- Identify specific toxic areas of concern based on levels of contamination and associated adverse biological effects,
- Identify historical and ongoing sources of contamination,
- Rank polluted areas and sources (to the extent possible) to set priorities for development of corrective actions,
- Implement corrective actions to reduce or eliminate sources of ongoing pollution and restore polluted areas to support natural resources and beneficial uses.

The Action Plan focuses on source control to minimize ongoing inputs of toxic contaminants to the marine environment. It is difficult to differentiate sediment contamination that was caused by past discharges versus that occurring from ongoing discharges. However, it is believed that existing conditions are the result of past disposal practices. It is recognized that cleanup of contaminated sediments should occur only after achieving substantial source control of pollutants. Otherwise, recontamination would undermine the value of sediment cleanup.

Sampling data indicate that sediments nearshore to PSNS ~~are~~ "severely contaminated" by numerous organic and inorganic compounds according to this report. However, the data evaluated during development of the Action Plan may not be representative of existing sediment due to recent dredging. More recent sediment sampling data is available from the Site Investigation Report (discussed below).

A Ecology report (Contamination in Fish and Clams in Sinclair and Dyes Inlets, Cubbage, January 1992) reported findings of a study conducted to support the Sinclair and Dyes Inlets Action Program's efforts. The study concludes that several metals, most importantly mercury, are found in whole clams and edible (muscle) tissue of flatfish, at levels equivalent or higher than other urban bays in Puget Sound. Although PCBs have been detected at significant levels in Sinclair Inlet sediments, PCB levels in fish and shellfish were

not above analytic detection levels in this study. It is speculated that the low lipid weight of the samples affected PCB detection.

The Action Plan identified the most likely source of pollutants from PSNS as spills, leaks, surface water runoff, permitted discharges, and historic waste disposal practices. The City of Bremerton's combined sewer overflow locations on PSNS property, reportedly does not contain wastes other than stormwater runoff. Pollution control actions listed in the plan applicable to PSNS include:

- Evaluation of current discharges including stormwater, ship boiler light-up and ship boiler blowdowns.
- Implementation and review of effectiveness of BMPs for drydock operations and SPCC plan.
- Characterization of PSNS outfall(s) effluent.
- Conduct PSNS industrial drain and storm drain sampling, mapping, prioritization, and BMP development and implementation.
- Maintain PSNS storm drain systems including oil/water separators and catch basins.

All of the above actions are being addressed though the NPDES permit or ongoing state Toxic Waste Cleanup activities.

2. Site Inspection Report

Under Department of Defense (DOD) programs, a site inspection report was prepared for PSNS. This report provided information necessary to evaluate contamination at PSNS and to rank the site on state and federal priority ranking systems. Monitoring information included in this study was evaluated during preparation of this permit. Ten "sites" have been established within PSNS and nearshore areas. Washington Department of Ecology issued an administrative order to PSNS in May 1992 directing that remedial investigations and cleanup action plans be prepared for all sites within the facility. The Navy is presently conducting three or four Remedial Investigation/Feasibility Studies at PSNS with Ecology's concurrence.

Pollutants have been determined to be present at levels warranting attention because they may exceed typical ambient background levels in soils, sediment, groundwater or water. These pollutants include the following:

Site #	Pollutant
1	As, Be, Cd, Cr, Cu, Pb, Hg, Ni, Zn, PAH, PCB
2	Pb, Hg, Al, PCB, Acetone
3	Ni, Hg, Zn, As, Cr, Pb, Cu, Cd, Se, PAH, Pesticides, Herbicides
6 (sediment)	As, Cu, Pb, Hg, Zn, BaP, Acenaphthene, Chrysene, 2-4,Dimethylphenol, PCB
7	Cd, Cu, Ni, Pb, Hg, Zn, TCE
10 East	Cu, Zn, Hg, Ag, Pb, Benzo(a)anthracene, Chrysene, PAH, BaP
10 Central	Ba, Cr, Pb, Hg, Ni, As, Cd, PCB, PAH
10 West	As, Be, Cd, Cr, Cu, Pb, Ag, Naphthalene, Fluorene, 2-Methylnaphthalene, Acenaphthalene, Dibenzofuran, Pyrene
11	As, Cd, Hg, Ni, Zn, BTEX, TPH, Ba, Cu
12	Cu, Cd, Pb, Ni, Zn, Hg, Cr, Ba, As, PCB

Monitoring of reference stations was conducted to provide a benchmark with which to compare and contrast results of samples collected near PSNS and within Sinclair Inlet. In general, the sampling showed that sediment contamination near PSNS was significant and that inner Sinclair Inlet was also contaminated (to a somewhat lesser degree) when compared to reference stations one to two miles northeast of the shipyard. Although the report included ambient water column sampling data, the reported detection levels were above ambient water quality criteria. However, the water column data did not show exceedance of water quality criteria at the listed detection levels. At EPA's request, PSNS provided additional effluent and ambient water column information for certain metals of concern using very sensitive analytical techniques. This data is presented in the Water Quality Evaluation section of this fact sheet.

Historic operating and waste disposal practices at the shipyard have contaminated surface soils within PSNS. Ecology has expressed concerns that groundwaters which may be affected by contaminated soils could migrate into surface waters through the PSNS stormwater system. Therefore, monitoring of selected stormwater outfalls is proposed to determine if such migration is occurring. Information generated by this monitoring will be used to augment cleanup activities and/or establish NPDES permit effluent limitations.

Evaluation of contaminated sediments near PSNS is being addressed under a sampling plan contained in the Remedial

Investigation/Feasibility Study (draft January 1993, The URS Team). Contamination of sediment caused by historic discharges or waste disposal practices is presently be regulated under state and federal cleanup programs (state Model Toxics Control Act and federal Superfund Program). Chemical and biological testing of sediments near the shipyard and at appropriate reference stations are included in the proposed monitoring program. Washington's marine sediment standards will be used to gauge the severity of contamination and establish levels for any cleanup activities determined necessary.

It should be emphasized that the purpose of this NPDES permit is to protect receiving waters, which includes sediments, from existing or future discharges through monitoring requirements, effluent limitations and development and implementation of Best Management Practices. Environmental problems determined to have been caused by past practices are being addressed under other state and federal programs.

3. Inspection Information

In 1992, EPA and Ecology inspectors conducted an inspection of PSNS which primarily focused on the shipyard's waste handling procedures. Findings in the inspection report that are relevant to NPDES regulated discharges include:

o Sediment (residue from shipyard activities) on the floor of the drydocks is in almost continuous contact with seepage and/or rainfall runoff. The sediment, if not collected, may wash into the drydock drainage tunnels and discharge into receiving waters. Inspection sampling results (in ug/l) are summarized below:

	Drydock Floor Sediment	Tunnel Sediment	Standing Water On Drydock Floor
Arsenic	ND(30) to 39	ND(30)	59
Barium	424 to 2540	456	--
Cadmium	48.1 to 233	ND(2)	--
Chromium	15.2 to 179	ND(2)	ND(5)
Copper	--	--	1580
Lead	492 to 2950	67	ND(20)
Mercury	ND(0.1)	ND(0.1)	ND(0.1)
Zinc	--	--	103

Note: Nondetectable concentrations are indicated as ND with the reported analytical detection level listed in parentheses.

o A broken sewage line was observed in a drydock discharge tunnel which was later determined to be abandoned and not discharging.

o The inspectors expressed concern about the adequacy of the shipyard's control over discharges from docked vessels and waste handling practices of the associated "Ship's Forces".

o Sampling of drydock sediments and discharges had not been routinely conducted for purposes of characterization. Such characterization was considered critical by the inspector for determining effectiveness of BMPs to control wastes and protect the environment.

o The shipyard is currently very heavily engaged in submarine decommissioning. BMPs developed for drydock operations may not adequately address control of pollutants generated by the current level of this activity.

A subsequent "Multimedia" inspection of the shipyard was conducted during March 1993. Although the findings of this inspection are not yet published, "house keeping" in the drydocks was observed by the inspectors to be dramatically improved from past practices. Procedures have been developed and implemented by the permittee to routinely check for removal of materials from the drydock floors during operation and prior to drydock flooding.

4. Ambient Monitoring Data

Washington Department of Ecology (Ecology) conducts ambient monitoring of marine waters and sediments at 34 "core" stations throughout Puget Sound. An Ecology report titled "Puget Sound Ambient Monitoring Program Marine Sediment Monitoring Task Annual Report" was published in May 1992 containing the results of recent sediment monitoring (1989 & 1990). This report identifies monitoring station 34 as being located in Sinclair Inlet (in middle of Inlet near PSNS).

Monitoring data for this station showed the highest sediment concentrations of all Puget Sound stations monitored, in one or both years, for arsenic (≈11.5), copper (≈130), lead (≈95), mercury (≈0.9), silver (≈1.9), zinc (≈175), Butylbenzyl Phthalate (≈21), and PCBs (Aroclor 1254 ≈49). These results are expressed in mg/kg dry weight. Mercury, butyl benzyl phytalate and PCBs exceeded state sediment quality criteria. Ecology's ambient water column data is primarily focused upon measuring nutrient parameters which evaluate eutrophication. Analyses of heavy metal concentrations in the water column were not conducted.

5. Other Puget Sound Shipyards

Ecology has issued NPDES permits to other shipyards in Puget Sound and is currently issuing a general permit for boatyards (facilities servicing vessels < 65 feet in length). These permits include both chemical specific limitations and Best Management Practices that are anticipated to protect receiving waters.

State permit requirements are considered in development of this permit because of the similarity of shipyard activities and associated wastewater generation. Differences between PSNS and the other shipyards should be considered in comparing operations. These differences include the 1) size of operations (PSNS is significantly larger than any other shipyard in Puget Sound); 2) type and size of vessels (PSNS only services military vessels which includes the largest aircraft carriers); 3) PSNS graving drydocks are not the floating type used by most local commercial shipyards; and 4) paint removal at PSNS is accomplished by dry sand blasting rather than with high pressure water (hydroblasting) which is typically used at the commercial shipyards.

E. COMPLIANCE STATUS

The existing permit was issued September 12, 1986 and contained effluent limitations and monitoring requirements for outfalls 003, 004, 008, 012, 018, 019, and 021. The permit also required PSNS to develop and implement a Best Management Practices (BMPs) plan to prevent and/or minimize the potential for discharges of toxic substances.

1. Effluent Limitations

Flow and temperature limitations for discharges from outfalls 003, 004, 008 and 012 were included in the existing permit to address the discharge of compressor cooling water from these locations. The permittee has since eliminated discharge, except for stormwater, from these outfalls. Therefore, monitoring for flow and temperature is being removed from the permit for these outfalls.

Flow and Oil & Grease limitations were included for discharges through outfalls 018 and 019. Discharge limitations for outfall 021 (steam plant) included pH, TSS, Oil & Grease, Total Residual Chlorine, Free Available Chlorine, flow, temperature, Total Chromium, Total Zinc and the 126 priority pollutants (except zinc and chromium). A mixing (dilution) zone was established at a radius of 150 feet from the outfalls for compliance with temperature limitations.

For the most part, the permittee has achieved significant compliance with limitations for flow, temperature and Oil & Grease at all outfalls. Discharges from the steam plant (outfall 021) have occasionally exceeded permit limitations, as summarized in part C.3.,above. Problems were encountered during startup of the new steamplant which contributed to noncompliance with effluent limitations. These startup problems were resolved but various parameters have been exceeded since that time. Use of chlorine at the steam plant has recently been eliminated and should therefore also eliminate potential exceedance of chlorine limitations. A "citizen suit" (authorized under the Clean Water Act) was recently filed against the shipyard for violations of permits limitations.

2. Spills

PSNS employs approximately 12,500 workers engaged in industrial shipyard activities on piers and drydocks located along the Sinclair Inlet waterfront. These industrial activities invariably result in spills of substances onto the ground or water. Discharges occurring as the results of spills, pipe breakage, and pump station failures represent a significant threat to the quality of receiving waters.

Spills represent unauthorized discharges of varying significance to Sinclair Inlet. The most commonly reported spill occurrences are from broken sanitary collection pipes, sanitary waste pump stations, and spills of materials that entered storm drains. PSNS staff have been diligent in reporting spills to EPA in accordance with permit requirements. In recent months, the number of reported spills has increased markedly. This increase is attributed, in part, to efforts by the permittee to educate workers about spill prevention and reporting procedures.

Condition I.C.2. of the existing permit directed the permittee to develop and implement BMPs which "prevents, or minimizes the potential for, the release of toxic substances from ancillary activities to the waters of the United States through plant site runoff; spillage or leaks; sludge or waste disposal; or drainage from raw material storage or dry docks". A Best Management Practices Plan for Drydocks 1 - 6 was submitted to EPA in 1987. PSNS also submitted a Spill Prevention Control and Countermeasure (SPCC) Plan in August 1991. PSNS has also developed Environmental Compliance Plans for Recycling Projects in the drydocks. EPA did not review or comment on these plans regarding their adequacy to protect receiving waters. Numerous other PSNS specific operating directives applicable to environmental issues have been developed.

The proposed permit requires the permittee to update existing BMPs to minimize the potential for discharges from spills. PSNS has also committed to preparing a summary document

which addresses the environmental protection elements contained in the various operating directives which comprise the shipyard's BMPs.

F. Permit Conditions

1. General Approach

Sections 101, 301(b), 304, 308, 401, 402 and 405 of the Clean Water Act provide the basis for the effluent limitations and other conditions in the draft permit. EPA evaluates discharges with respect to these sections of the Act and relevant NPDES regulations in determining which conditions to include in the permit.

In general, EPA first determines which technology-based limitations are required, as well as best management practices or other requirements. EPA then evaluates the effluent quality expected to result from these controls, to see if it could result in any violations of applicable WQS in the receiving waters. If violations could occur, EPA must include water quality-based limitations in the permit. The permit limitations will thus reflect whichever limits (technology-based or water quality-based) are most stringent.

EPA must also include monitoring requirements in the permit to determine compliance with effluent limitations. Effluent and ambient monitoring may also be required to gather data for future limitations, evaluating the effectiveness of BMPs to control pollutants in the discharge(s), or monitoring effluent impacts on receiving water quality. The basis for permits conditions is described in the following sections.

2. Technology-Based Evaluation

a. Statutory Basis for Technology-Based Limitations

The Act requires particular categories of industrial dischargers to meet effluent limitations established by EPA. The Act initially focuses on the control of "traditional pollutants (conventional pollutants and some metals) through the use of Best Practical Treatment Economically Achievable (BPT). Industrial dischargers were required by section 301(b)(1)(A) of the Act to meet this level of control by July 1, 1977. Section 301(b)(3) of the Act allowed a deadline of March 31, 1989, under certain circumstances, but that deadline has also passed. Thus, permits issued after March 31, 1989, must include any conditions necessary to ensure that the BPT level of control is achieved.

In many cases, limitations are based on effluent guidelines developed by EPA for specific industries. Where EPA has not yet

developed guidelines for a particular industry or a particular pollutant, permit conditions must be established using Best Professional Judgement (BPJ) procedures (40 CFR 122.43, 122.44, and 125.3).

Section 301(b)(2) of the Act requires further technology-based controls of effluents. After March 31, 1989, all permits are required by section 301(b)(2) and (3) of the Act to contain effluent limitations for all categories and classes of point sources which: (1) control the use of Best Available Technology Economically Achievable (BAT), and (2) represent BCT. BCT effluent limitations apply to conventional pollutants (pH, BOD, oil and grease, suspended solids, and fecal coliform). Nonconventional pollutants include all pollutants not included in the toxic and conventional pollutant categories. In no case may BCT or BAT be less stringent than BPT.

Like BPT requirements, BAT and BCT permit conditions must be established using BPJ procedures in the absence of effluent limitations guidelines for a particular industry or pollutant.

As required by section 304(b)(2)(B) of the Act, when developing BPJ/BAT permit conditions, the Agency must consider the age of equipment and the application of various types of control techniques, process changes, and cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the director deems appropriate.

b. Statutory Basis for Monitoring Requirements

Under Section 308 of the Act and 40 CFR 122.44(i), the Director must require a discharger to conduct monitoring whenever necessary to determine compliance with effluent limitations or to assist in the development of effluent limitations. EPA has included several monitoring requirements in this permit related to technology-based permit conditions.

c. Effluent Limitation Guidelines

There is only one PSNS discharge for which discharge limitations are based upon federal Effluent Limitation Guidelines (guidelines). Guidelines for the Steam Electric Point Source Category (40 CFR 423) were used in developing the limitations of the existing permit for discharges from the steam plant (discharge outfall 021). The fact sheet for the existing permit noted that although these guidelines are not directly applicable, they were used because the process technology used at the steam plant were very similar to those addressed in the steam electric guidelines. The existing limitations were based upon New Source Performance Standards, which are equivalent to BAT for this category.

The proposed technology-based limitations and monitoring requirements for discharge 021 are, for the most part, consistent with the existing limitations. The only change is to increase the flow limitations. Flow limitations in the existing permit were based upon projected discharges from the steam plant water treatment system when the steam plant was under construction. Actual discharge flows are higher because steam condensate returns to the plant are lower than originally expected and more make-up water must be generated (requires greater than anticipated use of demineralizer). Also, although chlorine usage has been eliminated at the steam plant, the existing limitations are maintained in case use of chlorine is determined to be necessary in the future.

A water quality evaluation was conducted when these limitations were originally developed for the existing permit issued in 1986. This evaluation determined that discharges in compliance with (then proposed) effluent limitations should not result in any water quality impacts.

d. Best Management Practices

Best Management Practices (BMPs) in addition to numerical effluent limitations are required to control or abate the discharge of pollutants in accordance with 40 CFR 122.44(k). The permit requires the development and implementation of a Best Management Practices Plan which prevents or minimizes the generation of pollutants, their release, and potential release from the facility to the waters of the United States through normal operations and ancillary activities, including material storage areas, plant site runoff, storm water, in-plant transfer, process and material handling areas, loading or unloading operations, spillage or leaks, sludge and waste disposal, or drainage from raw material storage. The BMP Plan should incorporate elements of pollution prevention as set forth in the Pollution Prevention Act of 1990. (42 U.S.C. 13101).

Excepting discharges from the steam plant and noncontact cooling water, the remaining discharges from PSNS are from stormwater runoff and accidental spills. Implementation of BMPs designed to prevent or minimize pollutants from being discharged are expected to provide a practical and effective method for controlling these discharges.

During development of permits recently issued by the Washington Department of Ecology to commercial shipyards, the state established Best Management Practices for Drydock, Vessel, and Yard Operations and Maintenance. These BMPs have been included in permits issued to several commercial shipyard operations. PSNS is required to develop and implement BMPs which provide environmental protection equivalent to state

requirements, at a minimum, for any activities which are similar to commercial shipyard operations.

EPA has agreed with the permittee's proposal to prepare and maintain a document which summarizes all local instructions, guidance and policies which constitute the shipyard's BMPs (applicable to environmental concerns). A requirement to prepare and maintain this document is included in the permit.

1) Drydocks Operation BMPs

As discussed above in this fact sheet, BMPs have been established in the shipyard's SPCC plan and for dry dock operations plan. A specific EPA concern is that spent sandblasting material be cleaned from drydock floors as expeditiously as possible to prevent it entry into receiving waters. Additionally, the existing BMPs may need updating to address changes in the type and/or level of current activities, such as submarine decommissioning.

2) Stormwater BMPs

Requirements of 40 CFR 122.26 require that stormwater discharges from industrial activities must be permitted through the NPDES program. A "group application" was submitted by DOD to cover a large number of facilities nationally, including PSNS, on September 25, 1992. EPA has not yet issued a permit for this group of dischargers. Application (form 2F) was received from PSNS on May 5, 1993 for coverage of stormwater discharges under an individual permit. Shipyard representatives state that PSNS is presently operating to meet conditions established in the EPA issued General Permit No.: WA-R-00-000F. However, permanent coverage of PSNS stormwater discharges under a general permit is inappropriate because of the site specific concerns discussed above.

Stormwater control requirements in this permit that are similar to state and federal general industrial stormwater permits. The statutory authorities are discussed at length in the fact sheets for these permits and referenced, but not reiterated in this fact sheet. These general permits require industrial dischargers to develop a plan to implement measures which identify, prevent, and control the contamination of point source discharges of stormwater. Also, the federal permit requires certain categories of industries to conduct monitoring of stormwater discharges.

The plans are called Stormwater Pollutant Prevention Plans (SWPPP). EPA considers implementation of a SWPPP to represent application of BAT. Essential elements of a SWPPP include:

o Assessment of activities and handling of material and equipment that causes or has the potential to cause contamination of stormwater.

o 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 BMPs.

o Certification by the official responsible for the facility, that the discharge(s) has been investigated for the presence of non-stormwater discharges.

o Preparation of an accurate site map showing stormwater conveyance and discharge structures, drainage areas for each stormwater discharge point, and activities within these areas.

3) Spill Prevention and Control Countermeasure Plan

The permittee is required to maintain a current SPCC plan to control discharges that may occur as the result of spills. EPA recognizes that many of the SPCCs BMPs (to control and prevent spilled substances from entering receiving waters) are the same practices developed to address pollution prevention from discharges of stormwater and from drydock operations.

3. Water Quality Evaluation

a. Statutory Basis for Water Quality-Based Limitations

Section 301(b)(1) of the Act requires the establishment of limitations in permits necessary to meet water quality standards by July 1, 1977. All discharges to state waters must comply with state water quality standards, including the states antidegradation policy. Discharges to state waters must also comply with limitations imposed by the state as part of its certification of NPDES permits under section 401 of the Act.

The NPDES regulation at 40 CFR 122.44(d)(1) require that permits include limitations on 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 water quality standard, including State narrative criteria for water quality"(54 Fed. Reg. 23868-23899; June 2, 1989).

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

The regulations also specifically address when toxicity and chemical-specific limitations are required. A toxicity limit is required whenever toxicity is at a level of concern (as discussed above) relative to either a numeric or narrative standard for toxicity. The only exception is where chemical-specific limitations will fully achieve the narrative standard. A chemical-specific limitations is required whenever an individual pollutant is at a level of concern (as described above) relative to the numeric standard for that pollutant. The regulations also provide three options for developing a chemical-specific limitation needed to control a pollutant which does not have a numeric standard, but is contributing to a problem with the narrative standard.

b. Statutory Basis for Monitoring Requirements

Under Section 308 of the Act and 40 CFR 122.44(i), the Director must require a discharger to conduct monitoring whenever necessary to determine compliance with effluent limitations or to assist in the development of effluent limitations. EPA has included several monitoring requirements in this permit related to water quality-based permit conditions.

c. Applicable Water Quality Standards

As discussed in section E of this fact sheet, PSNS discharges impact waters of Washington State. Washington WQS specify specific numeric criteria for certain pollutants (Chapter 173-201A-040 WAC). Effluent limitations must be included in a permit if a discharge threatens (has a reasonable potential) to cause these criteria to be exceeded in receiving waters.

State standards for temperature specify marine water temperature shall not exceed 16.0°C due to human activities. Also, temperature increases shall not, at any time, exceed $t=12/(T-2)$. "t" represents the permissive temperature change across the dilution zone; and "T" represents the highest existing temperature in this water classification outside of any dilution zone. When natural conditions exceed 16°C, no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°C.

Marine sediment criteria have also been adopted as regulation by the state. However, as mentioned above, cleanup of existing sediment contamination near PSNS is being addressed by the state's Toxic Cleanup Program EPA's Superfund Program.

Under Washington's WQS, a mixing zone may be authorized which takes into account the effects of immediate dilution of the discharges with receiving waters. State WQS (Chapter 173-201A-100 WAC) specifies the sizing of mixing zones and how acute and chronic water quality criteria are to be applied within these zones. Sizing of mixing zones for applying human health criteria is not addressed. Permit writers utilize these standards to establish mixing zone sizes (where appropriate) for state NPDES permitting activities. These standards are used to establish mixing zone sizes in this proposed permit.

The regulation states (in summary form), in part, that:

(1) Mixing zones, if authorized, shall be established in permits, as appropriate.

(2) A discharger shall be required to fully apply AKART prior to being authorized a mixing zone.

(3) Mixing zones shall be established in consideration of critical discharge conditions.

(4) No mixing zone may be authorized if adverse environmental or human health impact will result.

(5) Water quality criteria shall not be violated outside the boundaries of a mixing zone as a result of the discharge.

(6) The size of the mixing zone and concentration of pollutants shall be minimized.

(7) The size of a mixing zone shall comply with the following:

(c) In estuarine waters, mixing zones, singularly or in combination with other mixing zones, shall not extend in any horizontal direction from the discharge port(s) for a distance greater than two hundred feet plus the depth of water over the discharge ports as measured during mean lower low water. For the purpose of this section, all marine waters not classified as estuarine in this subsection shall be categorized as oceanic.

(8) Acute criteria are to be met as near as possible to the point of discharge. A "zone of acute criteria exceedance" may be authorized provided the duration and frequency of the discharge does not create a barrier to migration of aquatic species. The maximum size of this zone shall not be greater than ten percent of the distance to the mixing zone boundary.

In light of this regulation, a mixing zone of 200 feet was used for evaluation of the potential of the discharges through outfalls 018 and 019 to cause violations of state WQS. A zone of acute criteria exceedance is proposed at 20 feet for evaluation of potential acute toxicity effects. Chronic and acute criteria will apply at the boundary of these respective zones. A mixing zone of 150 feet was established in the existing permit for outfall 021 and is maintained in this permit.

Another condition of Washington's WQS states "Whenever the natural conditions of said waters are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria (WAC 173-201A-070(2) Antidegratation). This standard is a consideration in developing effluent limitations as discuss later in this fact sheet.

Sediment impact zones may be authorized per Chapter 173-204 WAC. Such a zone may be established by the state after completion of site evaluation and cleanup activities.

If the state approves and certifies the above mixing zone(s), EPA believes that the requirements and effluent limitations in this proposed permit will ensure that water quality standards are met at the edge of that zone. Also, in issuing this permit, EPA has considered Washington's antidegradation policy. Compliance with terms and conditions of the proposed permit should result in decreased discharge of pollutants into waters of the state and therefore complies with the state's antidegredation policy.

d. Effluent/Receiving Water Mixing

Receiving water conditions must be considered in determining "worst case" (or critical) receiving water conditions in establishing water quality-based limitations. In this case, temperature, high salinity and stratification are primary conditions affecting effluent mixing. A previous dilution study* determined worst case conditions in the vicinity of PSNS and they were used in this evaluation.

Parameters used in the computer model for determining mixing include:

	Outfall 018	Outfall 019	Receiving Water
Flow (1)	2.5 mgd	2.8 mgd	
Temperature	14.1°C	17.8°C	*16°C at 0 feet *15°C at 33 feet
Salinity (g/l)	29	22.1	*30 at 0 feet *30.9 at 33 feet
Depth of pipe	0.8 feet	5.17 feet	
Water Depth (near outfall)	42 feet	43 feet	
Discharge Pipe (Diameter)	24 inches	36 inches	
Mixing Zone	200 feet	200 feet	
Acute Criteria Exceedance Zone	20 feet	20 feet	

(1) Daily average discharge flows were used for evaluating effluent/receiving water mixing. Although daily maximum discharges from these outfalls are higher than daily average flows, critical mixing (maximum stratification) is anticipated to occur during summer months when discharges are below daily average values. Outfall salinity values were obtained from sample measurements collected July 2, 1992 by PSNS staff. The permittee's recent submittal of revised flow information for outfalls 018 and 019 do not significantly change the estimated mixing obtained within authorized mixing zone boundaries.

* Receiving water temperature and salinity were selected to represent maximum stratification conditions from the worst 10th percentile of monthly data collected from Ecology's ambient monitoring of Sinclair Inlet (per dilution study by Burns and McDonnell Engineering Company, March 1982).

Dilution within the authorized mixing zones for existing outfall 018 and 019 was estimated using the ERL-N Plumes Program (June 10, 1992). This model predicts that mixing within the boundaries of the authorized zones (200 feet) will provide approximately 4:1 dilution for both outfalls. Effluent to receiving water mixing at the boundary of the authorized zones of

acute criteria exceedance (20 feet) are calculated to be approximately 2:1 for both outfalls.

e. Permit Limitation Derivation

In addition to existing water quality-based effluent limitations for temperature and pH, limitations are proposed for copper, zinc, and lead from discharge outfalls 018 and 019. BMPs and/or treatment necessary to achieve compliance with limitations for these pollutants are expected to also control other pollutants potentially present in these discharges.

In determining these limitations, EPA used a statistical permit limitation derivation approach described in the EPA guidance documents, "Permit Writers Guide to Water Quality-Based Permitting for Toxic Pollutant" (U.S. EPA, 1987) and "Technical Support Document for Water Quality-Based Toxics Control" (U.S. EPA 1991). The latter document is commonly referred to as the "TSD". This approach takes into account effluent variability in setting limitations which are low enough to ensure that water quality standards are met. The approach also takes into account the difference in timeframes and frequency of sampling between the water quality standards and monthly average and daily maximum limitations.

EPA used the following values in deriving concentration limitations using the formulas in the guidance documents:

Coefficient of variation		0.6
Probability value for long-term average calculation		99%
Probability value for AML calculation		95%
Probability value for MDL calculation		99%
Frequency of monitoring		weekly
State Water Quality Standard		
Copper (dissolved)	marine acute	2.5 ug/l
(background)*		6.0 ug/l
Lead (dissolved)	marine acute	151.1 ug/l
	marine chronic	5.8 ug/l
Zinc (dissolved)	marine acute	84.6 ug/l
	marine chronic	76.6 ug/l

* Based upon monitoring conducted in December 1992.

These values are used to derive both acute and chronic wasteload allocations, with the most stringent used to derive monthly average and daily maximum limitations.

f. Water Quality-Based Limitations

In developing the existing permit EPA considered potential water quality impacts from discharge 021 with a mixing zone of 150 feet (per then existing state guidance on mixing zones). EPA determined that no adverse impacts should occur. The existing mixing zone size for discharge 021 is maintained in the proposed permit.

Mixing zones for discharges of temperature from outfalls 003, 018 (inclusive of 018A and 096) and 019 are included in the proposed permit. Large amounts of marine and ground water infiltrate into the drydocks and constitutes most of the drydock discharges during dry weather. Temperature of the discharge is typically near or below the ambient receiving water temperature in the vicinity of the outfalls. Therefore, temperature limitations are not proposed for discharges 018 and 019 because there appears to be little chance that water quality standards for temperature will be exceeded within the authorized mixing zone.

Oil and grease limitations are also consistent with existing permit limitations. Water quality-based limitations are not proposed for the remaining stormwater discharge outfalls and therefore no mixing zone is established for these discharges, at this time.

1) Metals

Results of wastewater characterization of discharges from PSNS (and of shipyard operations, in general) indicated a reasonable potential exists for copper, lead and zinc to be present at concentrations which may cause exceedances of water quality standards in receiving waters. Monitoring of discharges 018, 019 and receiving waters were conducted in December 1992 by the permittee at EPA's request. This monitoring improved the limited existing data base for evaluating potential water quality impacts because very sensitive analytical methods were used. The following results of this obtained from this monitoring (in ug/l):

	Receiving Waters		Outfall 018		Outfall 019	
	total	dissolved	total	dissolved	total	dissolved
Copper						
minimum	14	5	25	13	13	32
maximum	30	8	39	22	23	15
*average	22	6	35	16	19	7
Lead						
minimum	≤2	≤2	3	≤2	3	≤2
maximum	8	≤2	120	2	11	3
*average	7	1	28	1	5	1
Zinc						
minimum	15	≤20	180	≤20	180	≤20
maximum	680	≤20	2800	110	1560	≤20
*average	256	10	1176	32	708	10

* Values reported below analytic quantification levels were assigned a value of one-half of that level in calculating averages.

The above information was collected during wet weather and consisted of five sampling events. The ambient station was located mid-Sinclair Inlet, approximately one-half mile from the shipyard, off of drydock 6. This ambient station should be representative of current "natural conditions" in the receiving waters and far enough away from PSNS to be unaffected by existing PSNS discharges.

These data indicate that both the total and dissolved background concentrations in receiving waters exceed ambient water quality criteria for copper. As authorized by state WQS, the background concentration of 6 ug/l was use as the standard for establishing effluent limitations. There is always concern that a limited data base may be insufficient for making permit decisions. Therefore, the permit requires PSNS to conduct additional ambient and effluent monitoring using "clean" techniques identified in the Puget Sound Estuary Programs Recommended Protocols for Measuring Metals In Puget Sound Water, Sediment and Tissue Samples. EPA intends to evaluate such monitoring data, if available, prior to making final permit determinations on effluent limitations for this permit.

Proposed permit limitations for metals are based upon state WQS which are based upon the dissolved form of the metal. Definitive guidance regarding implementation of these new WQSs into NPDES permits is presently being developed by Ecology. The guidance will establish procedures for translating the dissolved metals standards into total recoverable effluent limitations as required by 40 CFR 122.45(c). This translation may be accomplished by applying the ratio of dissolved to total

recoverable metals to the calculated water quality-based limitations for dissolved metals. Ambient monitoring information clearly demonstrating seasonal partitioning will be necessary to apply the translation factor. Because existing data does not provide this necessary information, a 1:1 ratio was used.

The permittee is required to conduct ambient monitoring of dissolved and total recoverable copper, lead and zinc for twelve months from permit issuance. The permittee will also be required to monitor outfalls 018 and 019 for the dissolved metal concentrations for one year. The proposed recoverable and dissolved metals monitoring information will be used in future considerations about dissolved vs total recoverable metals limitations and the environmental fate of these pollutants.

Average monthly and daily maximum limitations were calculated based upon the 95th and 99th percentile level, respectively, as recommended in TSD guidance. The proposed monitoring for these parameters is weekly. The average flows used for calculation of the mass limitations are 2.82 and 5.24 mgd for 018 and 019, respectively. The following limitations are proposed for discharges through outfalls 018 (inclusive of 018A and 096) and 019:

Parameter	Daily Maximum	Monthly Average
Copper (Total Recoverable)	0.006 mg/l	0.003 mg/l
018	0.14 lbs/day	0.07 lbs/day
019	0.26 lbs/day	0.13 lbs/day
Lead (Total Recoverable)	0.038 mg/l	0.019 mg/l
018	0.89 lbs/day	0.45 lbs/day
019	1.66 lbs/day	0.83 lbs/day
Zinc (Total Recoverable)	0.169 mg/l	0.084 mg/l
018	3.97 lbs/day	1.98 lbs/day
019	7.38 lbs/day	3.67 lbs/day

Monthly monitoring of outfalls 018 and 019 is proposed during the first year for total recoverable mercury, and PCBs to verify that discharges are not presently contributing to the existing elevated concentrations of these pollutants in Sinclair Inlet sediments. Shipyard activities in and around the drydocks involve handling PCB materials. This monitoring will also verify the effectiveness of handling practices developed to prevent discharges of PCBs. After this data is collected, the permit may be reopened, if necessary, to establish limitations, require additional monitoring, or impose additional BMP requirements to control discharges of these pollutants.

2) Toxicity Testing

Whole effluent toxicity (WET) testing is proposed for outfalls 018 and 019 to determine if the discharge may be causing acute or sublethal (chronic) effects in receiving waters. WET testing or limitations must be included in a permit in accordance with 40 CFR 122.44(d) and EPA policy and guidance for cases where a reasonable potential for violation of water quality standards exists. The presence of metals in these effluents at concentrations which may cause exceedance of WQSs indicates the potential for whole effluent toxicity to also exist. Testing requirements specify that toxicity sampling occur coincidental with the proposed chemical specific monitoring of stormwater for these outfalls. The information provided by this monitoring will be used to establish additional requirements or permit limitations, if necessary, to protect water quality.

3) Sediment

Sediment monitoring is not a requirement of this permit because extensive monitoring near PSNS was recently completed as part of the site investigation. Additional chemical specific and toxicity monitoring of sediments is being conducted under the Remedial Investigation/Feasibility Study of the site. Monitoring and evaluation of sediment quality under state and federal programs is anticipated to continue throughout the five year duration of this NPDES permit.

The permit requires that findings of sediment sampling be submitted annually, as results become available, to EPA's Water Division. This permit may be reopened to establish monitoring requirements or effluent limitations based upon evaluation of the sediment testing results. It is anticipated that discharges in compliance with the proposed permit should not significantly contribute to additional sediment contamination.

4) Stormwater Monitoring

Monitoring of selected stormwater outfalls is proposed. This monitoring should provide valuable information regarding general contamination of stormwater runoff from the shipyard and also determine if pollutants associated with PSNS soil contamination are entering receiving waters through this pathway. Monitoring will also help indicate the effectiveness of PSNS BMPs. Monitoring is proposed for outfalls representative of stormwater discharges from the various areas identified in the Site Investigation Report. This monitoring is to be conducted during the first two years of the permit.

The draft RI/FS identified certain pollutants with potential to be present in soil or groundwater within the various shipyard "sites". Proposed monitoring requirements in this permit specify

that designated stormwater outfalls which provide drainage of rainfall runoff from these sites are to be monitored for pollutants which have a reasonable potential to be present in the discharge. Accordingly, stormwater monitoring is proposed for outfalls 001, 003, 006, 010, 012, 014, 015, 022, 023, 025, 030, 038, and 052 (formerly designated 007b).

Required testing is specified in a monitoring matrix in the permit which includes conventional pollutants, metals, total petroleum hydrocarbons, cyanide and semi-volatile organics. The proposed frequency of monitoring is designed to evaluate discharges from these outfalls during different seasonal climatic and soil conditions. One sample from each identified outfall will be collected during the first significant rainfall event after September 1. Another sample will be collected during a significant rainfall event after March 1 and before April 30. A third sample will be collected (if discharge is occurring) during August. Monitoring may be discontinued for parameters not detected (at CRDL levels) in an outfall after the first three monitoring events.

Stormwater monitoring information will be used to evaluate the effectiveness of BMPs. After these data are collected, the permit may be reopened, if necessary, to establish limitations, require additional monitoring, or impose additional BMP requirements to control discharges of any pollutant which threatens to cause a violation of state water quality standards.

g. Best Management Practices

The proposed permit requires the discharger to update existing or develop new BMPs to control pollutants in discharges from the entire shipyard. The permit identifies objectives of BMPs and includes a schedule for completion of BMP update and implementation.

Overflows from the nine sanitary lift stations which pump wastes from PSNS to the Bremerton WWTP have occasionally occurred. Power failure/high level alarms have been installed by the permittee on all nine sanitary waste lift stations. These alarms were operational during the March 1993 multi-media inspection.

G. OTHER LEGAL REQUIREMENTS

1. Endangered Species Act

EPA has requested listings of any endangered species in the vicinity of PSNS from the U.S. Fish and Wildlife Service (USFWS) and from the National Marine Fisheries Service (NMFS). In a letter dated July 15, 1987, the Olympia field office of the USFWS

stated that there are no listed or proposed endangered species at PSNS. The spotted owl and bald eagle were identified as the only federally listed endangered species known to exist in Kitsap County. More recently, USFWS responded to EPA's listing request in a letter dated April 19, 1993. This update included the following listed species:

Bald eagle (Haliaeetus leucocephalus) - wintering bald eagles may occur in the vicinity of the project from October 31 through March 31.

Marbled murrelet (Brachyramphus marmoratus) - nesting murrelets may occur in the vicinity of the project from about March 1 through mid-September.

Peregrine falcons (Facco peregrinus) - spring and fall migrant falcons may occur in the vicinity of the project.

NMFS responded to EPA's listing request in a letter dated March 31, 1993. In that letter, NMFS stated that "Two species of threatened and/or endangered marine mammals, stellar sea lion (Eumetopias jubatus) and gray whale (Eschrichtius robustus), occur in the vicinity of Sinclair Inlet".

EPA has determined that discharges from the shipyard which are in compliance with requirements and limitations of the permit are not likely to adversely effect the listed endangered species. Past waste/wastewater disposal practices by the shipyard are believed to have contributed to sediment contamination in Sinclair Inlet. As mentioned earlier in this fact sheet, assessment (via monitoring) of contaminated sediments is presently being addressed by PSNS in consultation with the state's Toxic Cleanup Program and EPA's superfund program.

The proposed permit regulates discharges from existing facilities and shipyard activities located within an industrial area that has been fully developed during the last century. The proposed permit is not associated with any particular construction project or increase in general or special activities at the shipyard that may cause any additional impacts on listed species.

Copies of the proposed permit and fact sheet will be provided to USFSW and NMFS during the public notice period, and concurrence with EPA's no adverse effect determination will be requested as part of informal consultation.

2. State Water Quality Standards and State Certification

Since state waters are involved in the draft permit, the provisions of Section 401 of the Act apply. Furthermore, in

accordance with 40 CFR 124.10(c)(1), public notice of the draft permit has been provided to the State of Washington Department of Ecology and Washington state agencies having jurisdiction over fish, shellfish, and wildlife resources. This public notice is intended to also serve as notice of the state's intention to certify the permit.

3. Interstate Waters

Under 40 CFR 124.10 (c)(1)(iii), EPA must give notice of this permit action to any affected state. Notice has been given to Washington Department of Ecology and other Washington state agencies (as defined in this regulation) impacted by this action.