FACT SHEET

Public Comment Start Date: October 23, 2009
Public Comment Expiration Date: November 23, 2009

Technical Contact:
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Proposed Issuance of a National Pollutant Discharge Elimination System (NPDES) Permit to Discharge Pollutants Pursuant to the Provisions of the Clean Water Act (CWA) for

United States Department of Defense, Department of the Navy
Naval Base Kitsap Bangor

EPA Proposes To Issue NPDES Permit
EPA proposes to issue the NPDES permit for the facility referenced above. The draft permit places conditions on the discharge of pollutants with once through cooling water and drydock floodwater 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
EPA is requesting that the Washington 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
Phone: 425-649-7000

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 EPA as described in the Public Comments Section of the attached Public Notice.

After the Public Notice expires, and all comments have been considered, 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, 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.

Documents are Available for Review
The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting 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 permit, fact sheet, and other information can also be found by visiting the Region 10 NPDES website at "http://epa.gov/r10earth/waterpermits.htm."

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900, OWW-130
Seattle, Washington 98101
(206) 553-0523 or
Toll Free 1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The fact sheet and draft permit 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

1-DMax	The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.
1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
7-DADMax	Arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.
AML	Average Monthly Limit
BAT	Best Available Technology economically achievable
BCT	Best Conventional pollutant control Technology
BOD_5	Biochemical oxygen demand, five-day
BMP	Best Management Practices
BPT	Best Practicable
°C	Degrees Celsius
CFR	Code of Federal Regulations
CFS	Cubic Feet per Second
COD	Chemical Oxygen Demand
CSO	Combined Sewer Overflow
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved oxygen
EA	Environmental Assessment
Ecology	Washington State Department of Ecology
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FDF	Fundamentally Different Factor
FR	Federal Register
gpd	Gallons per day

lbs/day	Pounds per day
LTA	Long Term Average
mg/L	Milligrams per liter
ml	milliliters
ML	Minimum Level
µg/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit or Method Detection Limit
N	Nitrogen
NEPA	National Environmental Policy Act
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
O&M	Operations and maintenance
PCS	Permit Compliance System
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
RWC	Receiving Water Concentration
SIC	Standard Industrial Classification
SPCC	Spill Prevention and Control and Countermeasure
SS	Suspended Solids
SSO	Sanitary Sewer Overflow
s.u.	Standard Units
TMDL	Total Maximum Daily Load
TSD	Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001)
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey

WET	Whole Effluent Toxicity
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit
WQS	Water Quality Standards

I. Applicant

General Information

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

United States Department of Defense, Navy
Naval Base Kitsap Bangor
NPDES Permit # WA-002557-7

Physical Address:
7001 Finback Circle
Silverdale, WA 98315

Mailing Address:
Naval Base Kitsap Bangor
7001 Finback Circle, Room E300
Silverdale, WA 98315

Contact:
Carol MacKenzie, Water Program Manager
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360-315-1992

II. Facility Information

A. General Facility Information

The United States Department of Defense, Department of the Navy, has applied to EPA for an NPDES permit to discharge pollutants to Hood Canal from the Intermediate Maintenance Facility (IMF) at the Naval Base Kitsap Bangor. The base is located on the western side of the Kitsap Peninsula, on Hood Canal, just north of Silverdale, WA (west of Seattle). This facility's mission is to support the TRIDENT missile system. As part of this support, the facility performs repairs and renovations on Navy submarines. These operations are the subject of this NPDES permit. The focus is on the drydock (or graving dock) area and wastewater generated during such operations.

The drydock, properly known as a graving dock, is a narrow concrete basin, closed by gates or by a caisson, into which a vessel may be floated and the water pumped out, leaving the vessel supported on blocks. The keel blocks as well as the bilge block are placed on the floor of the dock in accordance with the "docking plan" of the ship. Vessels are in drydock at Bangor for approximately one month at a time and there is typically only a few days between taking a vessel out of drydock and putting another one in drydock. The drydock is 90 feet wide x 690 feet long x 63 feet deep and is situated 43 feet below MLLW (Mean Lower Low Water). Repairs in the graving dock take place below the surface level of Hood Canal. Submarines are floated into the dock, then the tide gates are shut and the water is pumped out

to create a dry work environment. Coverage under the multisector stormwater permit WAR-05A63F authorizes discharges of stormwater from upland areas. This is the first individual NPDES permit issued to Bangor and the first coverage for non-contact cooling water and drydock flood water.

B. Wastewater Description

Non-contact cooling water: Nuclear powered naval submarines require large volumes of single pass non-contact cooling water while in dry dock to maintain critical system cooling, to provide emergency startup capabilities, and to provide cooling for safe working conditions. The facility supplies once-through cooling water, taken from Hood Canal, to the submarines in the graving dock.

Water for the non-contact cooling system, known to the permittee as Auxiliary Salt Water (ASW), is pumped from Hood Canal, through heat exchangers in the submarine and is then returned to the canal. Cooling water at the facility is drawn from 10 feet below mean low water elevation in the canal at Facility No. 7427 by two ASW Pumps and is discharged at approximately 30 feet below mean low water elevation at the same location as the intake. Average cooling water flow is 878 gpm (1.3 MGD) with an observed range of approximately 500 – 1600 gpm (0.72 – 2.3 MGD).

The discharge of once-through cooling water is specifically authorized and regulated by the proposed NPDES permit.

The application states no additives are used with the cooling water. The Navy confirms additives are not used with the cooling water.

Drydock floodwater. When maintenance of a submarine is complete, and Hood Canal water is allowed to enter the drydock to float the vessel, the water which flows over the vessel and drydock surfaces is referred to as drydock floodwater. The discharge of drydock floodwater at Outfall 002 is specifically authorized and regulated by the proposed NPDES permit.

Caisson ballast water and drydock dewatering water: The caisson is a rectangular shaped structure used as a gate to prevent Hood Canal water from entering the drydock. Starting with an empty drydock, Hood Canal water is allowed to enter in a controlled manner. When the water level in the drydock is equivalent to that in Hood Canal, and a vessel is in place in the drydock, the caisson is closed to block Hood Canal water from entering and large dewatering pumps remove the water and discharge it back to Hood Canal. Discharges of ballast water from the caisson and drydock dewatering water are returning ambient water uncontaminated back to Hood Canal. Authorization to discharge is not required.

Salt Water Separation Discharge: Once the drydock caisson is seated and the drydock is dewatered, some Hood Canal water may leak at the interface between the caisson and drydock. There is a curb on the drydock floor near the caisson that keeps the leakage separate from other waters in the drydock. The leakage is pumped back into Hood Canal and does not contact the industrial activity of ship repair and authorization to discharge is not required.

Hydrostatic Relief (groundwater): By design, the drydock incorporates a system to lower the groundwater table adjacent to the drydock. This reduces hydrostatic pressure on the floors

and walls to maintain structural integrity. The uncontaminated groundwater is discharged into Hood Canal and is not an industrial activity and authorization is not required.

Vessel Discharges during Dewatering: When a vessel is brought into drydock it may discharge ballast or sonar dome water. The permit prohibits the discharge of ballast water from contacting the drydock floor where it is possible to pick up debris from ship repair.

Drydock Operations Water: Ship repair services include electrical and machine work, carpentry, steel fabrication, pipe-fitting, painting, sand blasting, and pressure washing. During normal drydock operation, all water from the drydock floor is directed to the Industrial Wastewater Pretreatment Facility (Building 7030). After treatment, the water is discharged into the sanitary sewer which discharges to the Central Kitsap Wastewater Treatment Plant per State Waste Discharge Permit ST-7363. Drydock floor drainage may consist of stormwater, pressure washer wastewater, hydroblast wastewater, potable water, rinse water, and steam condensate.

C. Summary of Discharge Quality

Effluent monitoring data for the discharge of Auxiliary Salt Water is summarized in the following table.

Table 1: Effluent Quality

Parameter	Units	Maximum Daily Value	Average Daily Value	No. of Measurements
Flow	gpm	1,600	878	145
Temperature (Winter)	°C	13.9	11.4	70
Temperature (Summer)	°C	18.3	14.5	68

III. Receiving Water

This facility discharges to Hood Canal, which flows into Puget Sound via Admiralty Inlet. `

A. Receiving Water Characterization

CWA Section 303(d) requires states to identify, at two year intervals, specific water bodies where water quality standards will not be met after implementation of technology-based effluent limitations on point sources. TMDLs (total maximum daily loads) must be developed for 303(d) listed waters to determine the maximum amount of the impairing pollutant that can be added to a water body from all sources without exceeding the applicable water quality standard. CWA Section 305(b) requires states to describe, also at two year intervals, the water quality of all waters of their states. EPA has developed guidance that includes a recommended format for a single document to satisfy the reporting requirements of CWA Sections 303(d) and 305(b) – *Guidance for 2006 Assessment, Listing, and Reporting Requirements Pursuant to Sections 303(d), 305(b), and 314 of the Clean Water Act.* Based on EPA's guidance document, which recommends designation of five categories of waters, Ecology has established the following scheme for categorization of its surface waters.

Table 2. State of Washington Water Quality Assessment Categories

Category	Description
1	Water body meets standards for all pollutants for which it has been tested.
2	Waters of concern – there is some evidence of a water quality problem, but not enough to require a TMDL at this time.
3	No data – water bodies that have not been tested and waters that do not appear in any other category
4	Polluted waters that do not require a TMDL, however, pollution is being addressed in one of three ways:
4a	A TMDL is in place and is actively being implemented actively implemented.
4b	A Pollution Control Plan is in place.
4c	Water is impaired by causes that cannot be addressed through a TMDL.
5	Polluted waters that require a TMDL – these waters are the State's 303(d) listed waters.

The following segments of Hood Canal in the vicinity of the Naval Base Kitsap Bangor are identified on Ecology's *2004 Integrated Water Quality Assessment*. Each of these segments is designated as Category 2 or 5. Several segments in the vicinity of the Naval Base Kitsap Bangor have also identified as Category 1 for temperature.

Table 3. 303(d) and 305(b) Listed Segments of Hood Canal

Listing ID Number	Category	Impairing Pollutant
38380	5	Dissolved Oxygen
38382	2	pH
10271	5	Dissolved Oxygen
10272	2	pH
40983	5	Dissolved Oxygen
40984	5	Dissolved Oxygen

B. Water Quality Standards

In accordance with NPDES regulations at 40 CFR 122.4, this permit, although issued by EPA, must ensure compliance with water quality standards of the State of Washington. A state's water quality standards include designated uses; water quality criteria to protect designated uses; an antidegradation policy; and policies to implement water quality standards. Water quality standards for surface waters of the State of Washington are established in Chapter 173-201A of the Washington Administrative Code (WAC) and are summarized below.

1. Designated Uses

WAC 173-201A-612 establishes the following designated uses for Hood Canal.

Aquatic Life Uses:	Extraordinary
Recreation Uses:	Primary Contact Recreation
Shellfish Harvesting	
Miscellaneous Uses:	Wildlife Habitat
	Harvesting
	Commerce and Navigation
	Boating
	Aesthetics

2. Water Quality Criteria

Water quality criteria, applicable to this receiving water, are summarized in the following table.

Table 4. Applicable Water Quality Criteria

Pollutant	Basis	Criteria
Temperature	Extraordinary Quality Aquatic Life Use	13°C (1-DMax) per WAC 173-201A-210 (1) (c) Table 210 (1)(c) When a water body's temperature is warmer than the criteria in Table 210 (1)(c) (or within 0.3°C (0.54°F) of the criteria) and that condition is due to natural conditions, then human actions considered cumulatively may not cause the 7-DADMax temperature of that water body to increase more than 0.3°C (0.54°F). per WAC 173-201A-210 (1) (c) (i)
Aesthetics	Shellfish Harvesting, Recreational Uses, and Miscellaneous Marine Water uses	Aesthetic values shall 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. per WAC 173-201A-210 (2 – 4) and WAC 173-201A-260 (2) (b)

3. Mixing Zones

WAC 173-201A-400(7)(b)(i) defines the mixing zone for estuarine receiving waters. The chronic mixing zone is determined by adding 200 feet to the depth of water over the discharge port as measured during Mean Lower Low Water (MLLW). A single eight inch port discharges ASW into Hood Canal directly downward at a depth of 30 ft MLLW. Therefore the allowable mixing zone is 230 feet.

Attainment of the 13°C water quality standard is achieved when the plume reaches vertically five feet and horizontally 1.5 feet. This is well within the allowable 230 foot horizontal thermal mixing zone. At this depth background temperatures do not exceed the water quality standard of 13°C any time during the year based on three years of background monitoring data. Therefore the alternate limit of 0.3°C over background is never applicable. See Appendix B.

IV. Effluent Limitations

A. Basis for Effluent Limitations

In general, the CWA requires that the effluent limitations for a particular pollutant be the more stringent of either technology-based limits or water quality-based limits. Technology-based limitations are established by EPA for many industries and are based on available pollution control technology. Because the IMF does not fit into an industrial category for

which EPA has developed technology-based requirements, EPA may use best professional judgment (BPJ) to establish technology-based permit requirements, pursuant to authority established by CWA Section 402 (a) (1) (B), and in accordance with requirements established at 40 CFR 125.3.

Water quality-based effluent limitations may be more stringent than technology-based effluent limits and are designed to ensure that applicable water quality standards are met.

In accordance with NPDES regulations at 40 CFR 122.44 (k), best management practices (BMPs) can be used to control or abate the discharge of pollutants in several circumstances, including, when numeric effluent limitations are infeasible. BMPs are defined at 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. The inclusion of BMPs as requirements in discharge permits is authorized by CWA Section 304 (e).

Bangor submitted an all known available and reasonable method of prevention, control and treatment (AKART) analysis on August 19, 2009. Based on this analysis and EPA's review and investigation EPA determines control technology for temperature is not technically or economically feasible for the 1.2 million gallon per day discharge of non-contact cooling water from Bangor and AKART and Best Available Technology economically achievable (BAT) is minimizing the thermal load to Hood Canal at the existing performance based level. The performance based limitation for the non-contact cooling water is 19°C. See Appendix B. This permit is a revision of the draft permit and fact sheet public noticed on April 22, 2009 requiring submission of an AKART analysis and mixing zone analysis. These have now been submitted and this permit utilizes the thermal dilution factor derived from the mixing zone that insures compliance with the temperature standards for Hood Canal at the edge of the mixing zone.

B. Proposed Effluent Limitations

Prohibitions and other requirements proposed by the permit to control the discharge of pollutants with once through cooling water and drydock floodwater are described below.

Limitations and Prohibitions

The proposed permit contains a final end of pipe temperature limit of 19°C. It is based on existing demonstrated performance using procedures in EPA's Technical Support Document and Washington's spreadsheet tsdcalAug08.

The permit prohibits the addition of chemicals to cooling water prior to discharge, discharges that contain cleaning solutions or solids and discharges that contain foam and oily wastes.

The permit prohibits all process water discharges and industrial stormwater discharges from the drydock. This is determined to be best available technology economically achievable (BAT).

The permit requires development and implementation of a BMP Plan to control the discharge of pollutants, including temperature, to Hood Canal.

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

- The addition of chemicals to cooling water prior to discharge is prohibited.
- The discharge of cleaning solutions or solids, which are residuals of cooling system cleaning efforts, are prohibited.
- The discharge shall not contain floating solids, visible foam, or oily wastes that produce a sheen on the surface of the receiving stream
- Section I.B. lists prohibitions, monitoring and BMPs for drydock flood water.

Best Management Practices

Section II.C of the permit requires the permittee, within 180 days of the effective day of the permit, to develop and implement a BMP Plan to prevent or minimize the discharge of pollutants, including elevated temperature from once-through cooling water and drydock floodwater to Hood Canal.

V. Monitoring Requirements

A. Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and NPDES regulations at 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to further characterize the discharge and receiving water, to determine if additional effluent limitations are required, or to monitor impacts of the discharge on receiving water quality.

The permittee is responsible for conducting the monitoring, as established by the permit, and for reporting results to EPA using Discharge Monitoring Reports (DMRs, EPA Form 3320-1).

B. Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutants of concern, 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 can be used for averaging if they are conducted using EPA-approved test methods (generally found in 40 CFR 136) and if the Method Detection Limits are less than the effluent limits.

Ecology's 2007 Temperature Guidance states:

"1. Temperature monitoring. Three to four years of effluent and upstream receiving water temperature data should be used."

"Temperature should be measured using continuous recording thermisters set at a one-half hour sampling interval. Guidance for using thermisters is available at http://www.ecy.wa.gov/pubs/0303052.pdf and technical assistance should be provided to permit holders when requested."

Copper has been detected from other naval cooling water discharges and the cooling water from Bangor must be characterized for copper. Results will be reviewed during the permit reissuance to determine if an effluent limitation is necessary.

Flood water monitoring is not possible due to the masking by the flood water. Monitoring of visible sheen, which is buoyant, is required for compliance with the no visible sheen effluent limitation.

Table 5 presents the proposed effluent monitoring requirements for Naval Base Kitsap Bangor. The effluent sampling location must be at Outfall 001 for noncontact cooling water or at any point preceding the outfall, before the discharge from the facility contacts the receiving water. Visible sheen monitoring from Outfall 002 is required for each launch. Effluent samples must be representative of the volume and nature of the monitored discharge. If no discharge occurs during a reporting period, "no discharge" shall be reported on the corresponding DMR.

Table 5. Effluent Monitoring Requirements

Parameter	Units	Sample Location	Sampling Frequency	Sample Type
Flow	GPD	Outfall 001	Continuous [A]	Meter
Temperature	°C	Outfall 001	Continuous [B]	Probe [B]
Total Recoverable Copper	µg/l	Outfall 001	Twice per month	grab
Visible sheen		Outfall 002	Each Docking/ Undocking Evolution	visual

[A] The permittee shall report for each calendar month the maximum and average daily flow. The flow meter sampling interval shall be set at a minimum of once every two hours.

[B] Permittee shall monitor on a continuous basis using a temperature probe. The seven day average of the daily maximums (7-day DADMax) shall be reported.

VI. Other Permit Conditions

A. Quality Assurance Plan

NPDES regulations at 40 CFR 122.41(e) require the permittee to develop procedures to ensure that monitoring data submitted to EPA is accurate and to explain data anomalies, if they occur. The permittee, the Department of the Navy, is required to develop a Quality Assurance Plan (QAP) for Naval Base Kitsap Bangor. Written notification of completion of this plan shall be submitted to EPA within 90 days of the effective date of the final permit. The permittee shall submit this letter to:

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OWW-130
Seattle, Washington 98101

The QAP shall include standard procedures, which the permittee must adhere to for sample collection, handling, storage, and shipping, as well as laboratory analyses and data reporting.

C. Best Management Practices

NPDES regulations at 40 CFR 122.44(k) require development of a Best Management Practices (BMP) Plan to control or abate the discharge of pollutants to achieve effluent limitations and standards or to carry out the purposes and intent of the Clean Water Act. The draft permit requires the permittee to develop and implement a BMP plan within 90 days of the effective date of the final permit, and it describes certain BMP conditions which must be included in the BMP Plan. The Plan must be kept on site and made available to EPA upon request.

D. Standard Permit Conditions

Sections III, IV and V of the draft permit contain standard regulatory language that must be included in all NPDES permits. Because these requirements are based directly on NPDES regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, and reporting requirements, compliance responsibilities, and other general requirements.

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.

The species list and critical habitat designations presented in Table 6, below, were compiled using the most current ESA listings from NOAA Fisheries list of Endangered Species Act Status of West Coast Salmon & Steelhead and U.S. Fish and Wildlife Service list of Endangered, Threatened, Proposed, and Candidate Species, Critical Habitat, and Species of Concern in Western Washington (USFWS 2007a).

Endangered and threatened species at the vicinity of the discharge subject to this NPDES permit were identified from the Federal Register Notice issued by NOAA-Fisheries and the U.S. Fish and Wildlife Service. The National Oceanic and Atmospheric Administration Fisheries (NOAA-Fisheries) lists Chinook Salmon, Chum Salmon, and Steelhead Trout as threatened and present in the vicinity of the discharge. The United States Department of the Interior (U.S. Fish and Wildlife Service - USFWS) lists Bull Trout as threatened and present in the vicinity of the discharge. Verbal communication on July 23, 2008 from Matt Longenbaugh, NOAA-Fisheries confirmed that Puget Sound Chinook salmon, Hood Canal summer run Chum salmon, and Steelhead trout are included for protection under this permit. Bull trout are also included for protection under this permit as designated by the USFWS. All other species with existing listings (e.g., birds and mammals) are considered to remain unaffected by the discharge, as they are rarely present in the area of Bangor Naval Base.

Table 6. Threatened and Endangered Species

Species	Population	Status	Federal Register Notice
Fishes			
Chinook Salmon (Oncorhynchus tshawytscha)	Puget Sound ESU [a]	Threatened [c]	64 FR 14308 (03/24/99)
Chum Salmon (Oncorhynchus keta)	Hood Canal ESU [a]	Threatened [c]	64 FR 14528 (03/25/99)
Steelhead Trout (Oncorhynchus mykiss)	Puget Sound DPS [b]	Threatened [c]	72 FR 26722 (05/11/07)
Bull Trout (Salvelinus confluentus)	Coastal Puget Sound [b]	Threatened [d]	63 FR 31693 (06/10/98)
Mammals			
Killer Whale (Orcinus orca)	Southern Resident Population [b]	Endangered [c]	70 FR 69903 (11/18/05)
Steller Sea Lion (Eumetopias jubatus)	Western Distinct Population [b]	Threatened [c]	55 FR 12645 (04/05/90)

[a] Evolutionarily significant unit
[b] Distinct population segment
[c] NOAA 2008
[d] USFWS 2007a

EPA has determined that issuance of this permit will have no effect on threatened Bull Trout, Chinook salmon and steelhead populations due to the rapid dispersion of discharges in the receiving water and due to the terms and conditions of the permit, which will ensure compliance with applicable surface water quality criteria for temperature for the protection of aquatic life. The temperature effects from point source discharges generally diminish down gradient quickly as heat is added and removed from a waterbody through natural equilibrium processes. This is born out by the mixing zone analysis. The effects of temperature are unlike the effects of chemical pollutants, which may remain unaltered in the water column or accumulate in sediments and aquatic organisms.

Also, the permit insures Bangor will meet water quality standards at the edge of a mixing zone, prohibits process water discharged directly to Hood Canal by routing it to the sanitary sewer and requires best management practices for flood water and in water repair of vessels.

Essential Fish Habitat

Essential fish habitat (EFH) includes 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 EPA to consult with NOAA Fisheries when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. The EFH regulations define an adverse effect as any impact which reduces quality 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 principle pollutant of concern in discharges of once through cooling water from the Intermediate Maintenance Facility (IMF) is elevated temperature, where the applicable water quality criterion is 13°C for protection of aquatic life in extraordinary quality marine water.

The receiving water for this discharge is designated as Essential Fish Habitat (EFH) for Chinook salmon (NMFS 2005) and Coho salmon (personal communication, Matt Longenbaugh, NOAA-Fisheries on July 23, 2008). This critical-habitat designation includes the Puget Sound marine areas, including the south Sound, Hood Canal, and north Sound to the international boundary at the outer extent of the Strait of Georgia, Haro Strait, and the Strait of Juan de Fuca to a straight line extending north from the west end of Freshwater Bay, inclusive (NMFS 2005). The marine nearshore zone from extreme high tide to mean lower low tide within several Navy restricted zones has also been included in the final habitat designation (NMFS 2005).

EPA concludes that authorization to discharge from the IMF in accordance with the terms and conditions of the proposed permit will have no effect on Chinook salmon and Coho salmon EFH in the vicinity of the discharges for the same reasons as stated for the no effect determination for listed species. EPA will provide NOAA Fisheries and the U.S. Fish and Wildlife Service with copies of the draft permit and fact sheet during the public notice period. Any recommendations received from NOAA Fisheries regarding EFH will be considered prior to issuance of these permits.

B. State Certification

Section 401 of the CWA requires EPA to seek State certification before issuing a final permit. As a result of the certification, 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.

C. Permit Expiration

The permit will expire five years from the effective date.

VIII. References

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

U.S. Environmental Protection Agency. 2003. *EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards.* EPA 910-B-03-002. Region 10 Office of Water, Seattle, WA.

Washington State Legislature. Water quality standards for surface waters of the State of Washington, Chapter 173-201A WAC. Olympia, WA, last update November 2006.

Washington State Department of Ecology. *Water Quality Program Permit Writer's Manual*. Olympia, WA, revised 2006.

National Marine Fisheries Service (NMFS). 2005. Designation of Critical Habitat for 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead in Washington,

Oregon, and Idaho; Final Rule. National Marine Fisheries Service. Portland, OR. 2 September 2005. http://www.nwr.noaa.gov/Publications/FR-Notices/2005/upload/70FR52630.pdf

National Marine Fisheries Service (NMFS). 2008a. Recovery Plan for Southern Resident Killer Whales (Orcinus orca). National Marine Fisheries Service, Northwest Region, Seattle, Washington. 24 January 2008. http://www.nmfs.noaa.gov/pr/pdfs/recovery/whale_killer.pdf.

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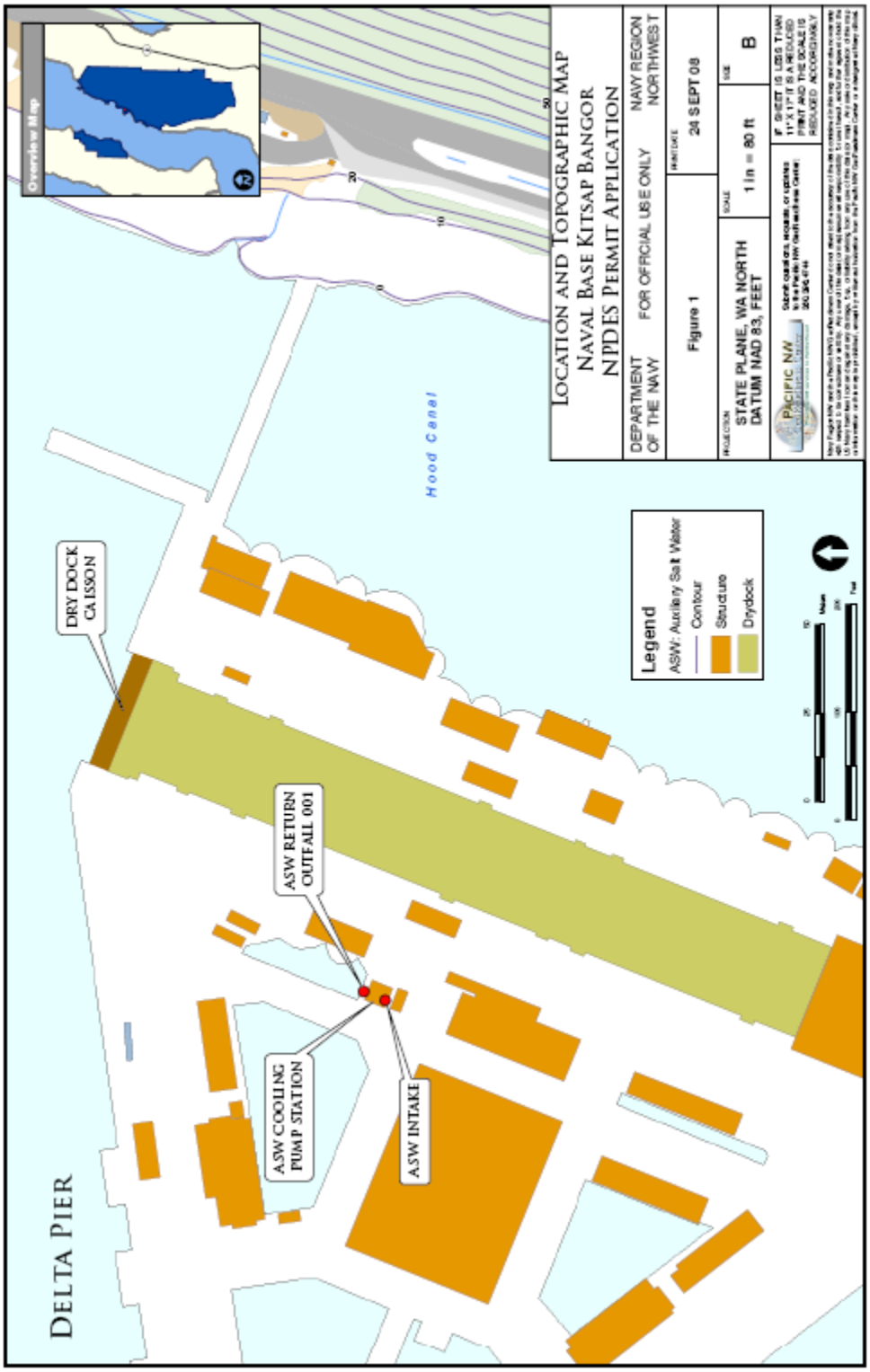
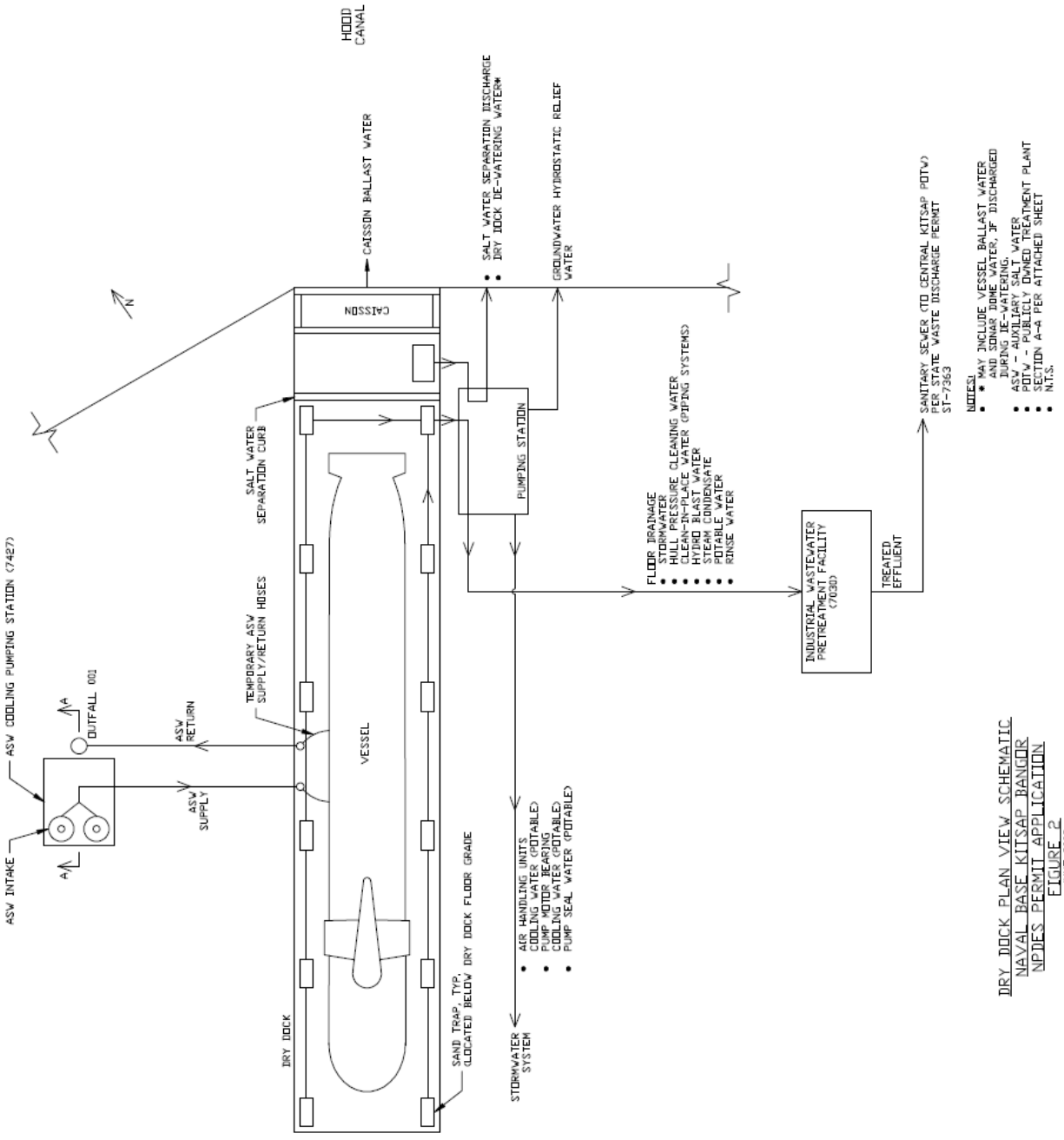
Appendix A: Facility Maps





DRY DOCK PLAN VIEW SCHEMATIC
NAVAL BASE KITSAP BANGOR
NPDES PERMIT APPLICATION
FIGURE 2
JUNE 2008

Appendix B: Basis for Effluent Limits

The following discussion explains in more detail the statutory and regulatory basis for the technology and water quality-based effluent limits 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 facility specific water quality-based effluent limits.

A. Technology-Based Effluent Limitations

Technology-based limitations are established by EPA for many industries and are based on available pollution control technology. Because the Intermediate Maintenance Facility does not fit into an industrial category for which EPA has developed technology-based requirements, EPA may use best professional judgment (BPJ) to establish technology-based permit requirements, pursuant to authority established by CWA Section 402 (a) (1) (B), and in accordance with requirements established at 40 CFR 125.3.

Comparison of Similar Facilities

All known available and reasonable methods of prevention, control and treatment (AKART) is a requirement to apply methods to minimize the discharge of pollutants and is the state equivalent of Best Available Technology economically achievable (BAT). Under WAC 173-201A-400 AKART must be determined and fully applied before a mixing zone can be granted. It is based on a technical and economic feasibility analysis by two methods. A comparative analysis of similar facilities and a site specific evaluation.

One method of defining AKART for a specific facility is consideration of the treatment performance of a similar facility or group of similar facilities. If similar facilities applied cooling water control technology to achieve a reduction in cooling temperatures then that technology could be considered AKART. Control technology is not applied to non-contact cooling water at similar facilities.

Table 7. Comparison of Similar Facilities

Facility NBK Bangor	Cascade General Portland Shipyard	Electric Boat Shipyard	NASSCO – General Dynamics	Portsmouth Naval Shipyard	Pearl Harbor Naval Shipyard	Todd Shipyard
City	Portland	Groton	San Diego	Portsmouth	Pearl Harbor	Seattle
State	OR	CT	CA	ME	HI	WA
Permit #	101393	CT0003824	CA0109134	ME0000868	HI 0110230	WA-000261-5
Effective Date	Mar 31, 2004	July 4, 2006	February 5, 2003	May 5 2006	April 24, 2008	October 1, 2002
Permit Authority	ORDEQ	CTDEP	CRWQCB	MEDEP	HDOH	WDOE
Receiving Water	Willamette River (FW)	Thames River (FW)	San Diego Bay (MW)	Piscataqua River (MW)	Pearl Harbor (MW)	Elliot Bay (MW) Duwamish West Waterway

CRWQCB..... California Regional Water Quality Control Board
CTDEP..... Connecticut Department of Environmental Protection
FW..... ..... Fresh Water
HDOH.. ..... Hawaii Department of Health
MEDEP..... Maine Department of Environmental Protection
MW..... Marine Water
ORDEQ..... Oregon Department of Environmental Quality
WDOE ..... Washington Department of Ecology

General information about each facility as well as specific information about cooling water management and permit requirements is provided below.

Cascade General Portland Shipyard

The Cascade General Portland Shipyard (Cascade) is located in Portland, Oregon on a 60-acre site adjacent to the Willamette River. Cascade holds an NPDES permit associated with discharge from two dry docks. At Cascade, non-contact cooling water is discharged from four outfalls in two dry docks. Each dry dock has two outfalls from which non-contact cooling water can be discharged. The non-contact cooling water is not limited in terms of temperature, but in terms of heat (thermal) load. The limit at each outfall is 184 X 10^6 Kcal/day (daily maximum). This is equivalent to 15°F higher than surface water temperature for 11.6 MGD at each of the two dry docks. The limit was based on water quality standards with allowance for mixing. Cascade does not provide treatment to reduce effluent temperature.

Electric Boat Shipyard

The Electric Boat Shipyard is a General Dynamics business. Electric Boat provides design, construction, and support of submarines for the U.S. Navy. Electric Boat holds NPDES permit # CT0003824, primarily for discharges from their dry docks. The permit requires monitoring for

temperature but does not directly impose a limit. The permit generally requires: "The temperature of any discharge shall not increase the temperature of the receiving stream above 83oF, or, in any case, raise the temperature of the receiving stream by more than 4oF. The incremental temperature increase in coastal and marine waters is limited to 1.5°F during the period including July, August and September." Electric Boat does not employ any technology to reduce effluent temperature.

National Steel and Shipbuilding Company

National Steel and Shipbuilding Company (NASSCO), a General Dynamics company, holds NPDES permit CA0109134 issued by the California Regional Water Quality Control Board. Located in San Diego, NASSCO discharges dry dock groundwater infiltration and vessel non-contact cooling into San Diego Bay without treatment. The permit limits the discharge of cooling water to "Not more than 20°F greater than natural temperature of receiving waters." NASSCO does not employ any special methods to reduce effluent temperature.

Todd Pacific Shipyards Corporation

Todd Pacific Shipyards Corporations (Todd) located in Seattle, holds NPDES permit WA-000261-5 issued by Ecology. Concerning non-contact cooling water, the permit requires that shipboard cooling water shall be directed as to minimize contact with spent abrasives, paint chips, and other debris, but there is no temperature limit. Todd does not employ any mechanism to reduce effluent temperature.

Portsmouth Naval Shipyard

Portsmouth Naval Shipyard is located on a 278-acre site, two-thirds of which is covered by a high-density industrial area, containing 376 buildings. It is located on the southernmost tip of Maine adjacent to the Piscataqua River. Portsmouth Naval Shipyard operates three dry docks. The most recent NPDES permit, number ME0000868, was issued by the Maine Department of Environmental Protection in May 2006. The permit authorizes discharges from three dry dock outfalls into the Piscataqua River. Vessel non-contact cooling water is one source. Monitoring for temperature is not required nor is it limited. Portsmouth Naval Shipyard does not "treat" effluent to reduce temperature.

Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility

Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility is located five miles east of downtown Honolulu on a 112 acre site. The Shipyard operates 4 dry docks. Pearl holds NPDES permit HI 0110230 issued by the Hawaii Department of Health for discharges from the dry docks. The effective date was April 24, 2008. The permit authorizes discharge of hydro-testing water, pump test water, hull wash water, hydroblasting water, cooling water, air conditioner condensate, dehumidifier condensate, dry dock seepage water, and dry dock rain water. Dry dock hydrostatic relief groundwater (seepage water) and vessel cooling water are commingled with other dry dock process water such as pump test water, hull wash water prior to discharge via the dry dock outfalls. For the dry dock's discharge, the temperature cannot be higher than 1°C from ambient condition. Pearl Harbor Naval Shipyard exceeded its temperature limit 25% of the time (per telephone conversation with Richard Tanaka at Pearl Harbor Naval Shipyard's Environmental Office). Currently there is no temperature reduction effort associated with the discharge of vessel cooling water.

The facilities surveyed do not have diversion to the sanitary sewer, nor any temperature reduction treatment for non-contact cooling water prior to discharge. The likely reason for this is the large volume of the discharge, the high cost of any temperature reduction, and most shipyards are able to meet their discharge limits. Additionally, most shipyards are located adjacent to large bodies of water and the overall thermal contribution from a dry dock into a large volume of water is relatively small.

Site Specific Analysis

In addition to the comparative analysis a site specific feasibility analysis was performed. The section below provides information on treatment options, associated costs, their impact to operations and potential for implementation based on economic reasonableness.

Vessel Cooling Water Treatment - Evaporative Cooling Towers

In an evaporative cooling tower, a small portion of the water being cooled is evaporated by coming into contact with air from the atmosphere. This latent heat of evaporation due to the vaporization of a small portion of the water and the sensible heat transfer owing to the difference in temperatures of water and air provides cooling to the rest of the water. Approximately 80 percent of this heat transfer is due to latent heat and 20 percent to sensible heat. Theoretical possible heat removal depends on the temperature and moisture content of air. The moisture content of air is its wet-bulb temperature. The wet-bulb temperature is the lowest theoretical temperature to which the water can be cooled. Practically the cold water temperature approaches but does not equal the air wet-bulb temperature in a cooling tower. This is because it is impossible to contact all the water with fresh air as the water drops through the wetted fill surface to the basin. Important factors are air to water contact time, amount of fill surface and breakup of water into droplets. In actual practice, cooling towers are seldom designed for approaches closer than 2.8°C according to Perry's Chemical Engineers' Handbook, 8th Edition, Green, Don W. et al, McGraw-Hill, New York, 2007 and Unit Operations of Chemical Engineering, Third Edition, McCabe, W. et al, McGraw-Hill, New York, 1976,

Based on the Navy's analysis the wet-bulb temperature for the Seattle area, in the summer, is about 15.5°C. Considering a maximum summer effluent temperature of 18.3°C, the Navy concluded an efficient cooling tower could lower the effluent temperature to about 16.2°C or a reduction of 2.1°C.

EPA found an approach of 2.8°C to the wet-bulb temperature is attainable using cooling towers. The maximum summer wet-bulb temperature determines the design of cooling equipment. The summer wet-bulb temperature is 58°F or 14.4°C according to NOAA's Western Regional Climate Center. Summer time cooling water discharge temperatures are 18.3°C. The non-contact cooling water could therefore be reduced to 17.2°C and a reduction of 1.1°C achieved.

Wet bulb + approach temperature = cooling achievable

14.4°C + 2.8°C = 17.2°C

Reduction in Temperature with cooling tower

18.3°C – 17.2°C = 1.1°C

These small reductions are not economically feasible with cooling towers and cooling towers are not AKART.

Another requirement of AKART is technical feasibility. Cooling towers are not technically feasible due to salt water fouling.

The physical problem of using a cooling tower relates to the salt and mineral content in saltwater. Vessel cooling water is saltwater from Hood Canal. Evaporative cooling can not remove heat from saltwater because the high mineral and salt content in saltwater would rapidly deposit onto the cooling tower packings, thus rendering them ineffective. The tower packing would become fouled with salt in a short period of time.

A related option would be to use cooling towers but have a closed loop system using non-saltwater to minimize buildup. However, there are complications with using non-saltwater. Sea growth attached to piping systems will die when subjected to fresh water and slough off and create blockages. In order to prevent this IMF would have to clean piping of sea growth prior to initiating non-saltwater cooling, resulting in a new wastestream requiring disposal. The time required to accomplish the cleaning is a concern with regard to overall schedule impacts. Cooling tower water must be treated to minimize scaling, fouling, and disease transmission, such as Legionnaires' disease1. Even with the addition of treatment chemicals the water can only be used for a limited amount of time. At that point the water must be disposed of; typically this is done by disposal into the sanitary sewer. This would be a new wastestream for Bangor.

Also, the additional time required to conduct the cleaning and cooling tower set-up and removal would impact production. A significant factor since vessels are typically dry docked for only about 30 days so any delays are significant in terms of overall schedule. Additional labor cost will also be required.

Having a cooling tower may also affect the vessel painting process. Cooling towers raise humidity in their immediate vicinity. Moist make-up air that is drawn into the paint containment structure will interfere with the painting process.

Vessel Cooling Water Treatment - Chillers

A chiller removes heat from a liquid via refrigeration. The design target is to use chillers to reduce ASW return (effluent) temperatures to roughly match that of ASW supply, which is ambient water. The temperature difference between the ASW supply and return can range as high as 8°F.

A chiller system can provide sufficient cooling to the ASW prior to being discharged. These chiller/chillers will be set on the dry dock floor and will be fed, for purposes of evaluation, using the existing pump system.

The ASW flow rate used in this evaluation is 1300 gpm, which, based on long-term operational records, is an elevated but not maximum flow. From the operational records, a discharge temperature of 60°F and an intake temperature of 52°F was chosen, yielding the highest temperature differential in the dataset.

Heat load calculations show that a 433 ton chiller will be required to provide required cooling. Given a chiller efficiency of 1.5 kilowatts(KW)/ton, the chiller will be powered by 700 KW at 460 volts. The chiller will be mounted on portable skids and weight approximately 30,000 lbs.

Order of magnitude costs are provided below:

• The chiller unit is approximately $460,000.

• Skid mounting the unit is approximately $35,000.

• Total unit cost is $495,000.

• Assuming an electricity cost of 10 cents per kWh, operational costs are determined to be $50,400 per month.

To meet lower temperatures or utilize a closed loop system would require even higher operating costs.

The physical size of these chillers is an additional concern from a production standpoint. They will take up space that may impact critical crane operations and loading and unloading operations around the dry docks.

Based on the high operating costs chillers and a zero discharge recirculation system are determined to be not economically feasible and are not AKART.

Cooling water is delivered to meet demand utilizing automatic process controllers. Excess non-contact cooling water is not delivered but only the minimum amount needed for cooling. Unlike other processes utilizing non-contact cooling water, no flexibility is available to minimize the discharge from the submarines.

The Tennessee Valley Authority (TVA) Cumberland Fossil Plant in Kentucky attempted to install four portable mechanical draft cooling towers to cool non-contact cooling water from their electric generating facility. After several attempts they proved to be technically infeasible and were removed. Similar to EPA's determination at Bangor, chillers at the Cumberland plant were rejected as a control technology and BAT because of their high operating costs.

Performance Based Limit

The proposed permit contains a final end of pipe temperature limit of 19°C. It is based on existing demonstrated performance using procedures in EPA's Technical Support Document and Washington's spreadsheet tsdcalAug08. The derivation of this interim limit is shown below.

PERFORMANCE-BASED EFFLUENT LIMITS	
USE EXCEL TO PERFORM THE LOGNORMAL TRANSFORMATION	
AND CALCULATE THE TRANSFORMED MEAN AND VARIANCE	
LOGNORMAL TRANSFORMED MEAN =	4.0100
LOGNORMAL TRANSFORMED VARIANCE =	0.0059
NUMBER OF SAMPLES/MONTH FOR COMPLIANCE MONITORING =	30
AUTOCORRELATION FACTOR(ne)(USE 0 IF UNKNOWN) =	0
E(X) =	55.3098
V(X) =	18.102
VARn	0.0002
MEANn=	4.0129
VAR(Xn)=	0.603
MAXIMUM DAILY EFFLUENT LIMIT =	65.935
AVERAGE MONTHLY EFFLUENT LIMIT =	56.588
56.59686 56.58763	
Fahrenheit	Celsius
65.93461 =	18.9

Column1	
Mean	4.01
Standard Error	0.01
Median	4.01
Mode	3.97
Standard Deviation	0.08
Sample Variance	0.0059
Kurtosis	-0.92
Skewness	0.29
Range	0.30
Minimum	3.87
Maximum	4.17
Sum	537.49
Count	134.00

Temp	Ln	Temp	Ln	Temp	Ln	Temp	Ln
54	3.99	60	4.09	51	3.93	52	3.95
55	4.01	62	4.13	51	3.93	52	3.95
54	3.99	62	4.13	52	3.95	52	3.95
54	3.99	64	4.16	52	3.95	49	3.89
53	3.97	64	4.16	57	4.04	49	3.89
53	3.97	57	4.04	56	4.03	49	3.89
52	3.95	55	4.01	57	4.04	49	3.89
54	3.99	55	4.01	58	4.06	49	3.89
53	3.97	55	4.01	58	4.06	48	3.87
53	3.97	56	4.03	58	4.06	50	3.91
53	3.97	56	4.03	63	4.14	50	3.91
53	3.97	54	3.99	65	4.17	50	3.91
56	4.03	52	3.95	62	4.13	50	3.91
60	4.09	52	3.95	58	4.06	50	3.91
58	4.06	53	3.97	58	4.06	50	3.91
57	4.04	53	3.97	60	4.09	50	3.91
59	4.08	52	3.95	59	4.08	51	3.93
59	4.08	53	3.97	59	4.08	50	3.91
60	4.09	52	3.95	59	4.08	50	3.91
60	4.09	51	3.93	58	4.06	54	3.99
60	4.09	52	3.95	57	4.04	55	4.01
59	4.08	51	3.93	57	4.04	52	3.95
60	4.09	50	3.91	56	4.03	53	3.97
59	4.08	50	3.91	55	4.01	53	3.97
60	4.09	51	3.93	54	3.99	55	4.01
60	4.09	51	3.93	53	3.97	58	4.06

Temp	Ln
59	4.08
60	4.09
58	4.06
64	4.16
63	4.14
64	4.16
64	4.16
64	4.16
64	4.16
60	4.09
60	4.09
62	4.13
60	4.09
60	4.09
57	4.04
55	4.01
56	4.03
55	4.01
55	4.01
55	4.01
53	3.97
54	3.99
52	3.95
51	3.93
51	3.93
50	3.91

B. Water Quality-Based Effluent Limitations

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 by July 1, 1977. 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 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.

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 water quality-based effluent limits are needed based on numeric criteria, EPA projects the receiving water concentration (downstream of where the effluent enters the receiving water) for each pollutant of concern. 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 chemical, then the discharge has the reasonable potential to cause or contribute to an exceedance of the applicable water quality standard, and a water quality-based effluent limit is required. In the case of Bangor the measured temperature exceeds the numeric criterion.

Sometimes it is 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 (thermal) 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 when the receiving water meets the criteria necessary to protect the designated uses of the water body. Mixing zones must be authorized by Ecology.

C. Facility-Specific Water Quality Based Limits

Temperature

The most stringent applicable water quality criterion for temperature in this portion of Hood Canal is established in WAC 173-201A-210 for protection of extraordinary water quality for aquatic life. The water quality standard classifies Hood Canal as extraordinary and temperature criteria of the receiving water is 13°C or lower, as a 1-DMax, which is a measure of the highest water temperature reached on any given day. If the background temperature is higher than 13°C the 7-DADMax temperature of that water body cannot be increased more than 0.3°C (0.54°F).

Visual Plumes Modeling

The Navy modeled the dilution at the edge of the chronic mixing zones using site-specific conditions and the Visual Plumes model. For Bangor the UM3 (Three-Dimensional Updated Merge) model version of Visual Plumes determined temperature dispersion. According to the Permit Writer's Manual the UM3 version of the Visual Plumes model should perform well for a majority of the critical condition scenarios encountered, particularly in tidally-influenced waters. Visual Plumes uses a series of dilution equations based on characteristics of the wastewater effluent and ambient receiving water to determine the physical dispersion of pollutants.

The model inputs are conservative. Conservative assumptions provide greater reasonable assurance the discharge will comply with the Water Quality Standards for Surface Waters of the State of Washington, Chapter 173-201A WAC**.**

Effluent parameters for the model include design flow rate, temperature, salinity and information on the diffuser, including the depth of the diffuser and the number of ports and their sizes, spacing, and angle-orientation. The ambient receiving water characteristics required by the model include temperature, current speed and current direction. The model enables users to model site-specific circumstances and calculate the chronic mixing zone dilution ratios.

The Permit Writer's Manual states "For analysis at the chronic boundary in tidally-influenced water, the critical velocity is defined as the 50th percentile current velocity derived from a cumulative frequency distribution analysis". This is the recommended method. The 50th percentile current velocity was determined to be 0.84 ft/s. The data used in this estimate is found at: http://tidesandcurrents.noaa.gov/currents08/tab2pc2.html#116 under the Foulweather Bluff station, which is the only station available in Hood Canal that provides representative ambient current velocity data. The manual recommends that current velocity frequency distribution analysis be conducted, at a minimum, over one tidal cycle. The 50th percentile current velocity was calculated from a cumulative frequency distribution based on a current velocity over one tidal cycle on July 2008.

The ambient data employed in the model was established from the Long-Term Marine Water Quality Database located on the Washington State Department of Ecology's website under the Environmental Assessment Program page. This database displays ambient marine water quality data at different sampling points in the surrounding Puget Sound area. Salinity, temperature and depth of the ambient water data was retrieved from the HCB008 Hood Canal- King Spit/Bangor Post 9/11 station. A salinity data point was found at a depth of approximately 30 feet, which corresponds to the discharge depth (Long-Term Marine Water Quality Data ed. Julia Bos, 26 Aug. 2003, Washington Department of Ecology, 25 Aug. 2008

http://www.ecy.wa.gov/apps/eap/marinewq/mwdataset.asp?ec=no&scrolly=378&htmlcsvpref=html&estuarycode=1&theyear=2008&themonth=8&staID=72.)

The temperature data reported by the selected station is related to subsequent depth measurements in reference to the surface, and has been modified to MLLW standards in order to fit the requirements set forth by the model. The ambient data is contained below in the Input Table. This analysis showed that ambient water is stratified and the plume achieves the 13°C water quality standard at five feet below the outfall and approximately 1.3 feet down gradient which is prior to reaching the allowable 230 foot chronic mixing zone boundary.

The analysis conservatively used the dataset from July 2005 to represent the critical ambient conditions. The July 2005 dataset displayed the warmest ambient water temperatures of any other set in recorded history for this particular station. Ambient velocity was chosen for the critical summer period. Conservative assumptions provide greater assurance the discharge will comply with water quality standards at all times.

Results

Following data input the model is run and the results are presented below.

Input

CURRENT SPEED 0.84 ft/s (50th Percentile derived from a Cumulative Frequency Distribution) Summer time critical period

Ambient Table:

Depth	Amb-cur	Amb-dir	Amb-sal	Amb-tem	Amb-pol	Decay	Far-spd	Far-dir	Disprsn	Density
m	m/s	deg	psu	C	kg/kg	s-1	m/s	deg	m0.67/s2	sigma-T
0.0	0.256	-90.0	29.32	16.56	0.0	0.0	0.256	-90.0	0.0003	21.29
0.445	0.256	-90.0	29.32	16.33	0.0	0.0	0.256	-90.0	0.0003	21.34
0.945	0.256	-90.0	29.32	16.22	0.0	0.0	0.256	-90.0	0.0003	21.37
1.445	0.256	-90.0	29.32	15.94	0.0	0.0	0.256	-90.0	0.0003	21.43
1.945	0.256	-90.0	29.32	15.83	0.0	0.0	0.256	-90.0	0.0003	21.45
2.445	0.256	-90.0	29.32	15.33	0.0	0.0	0.256	-90.0	0.0003	21.56
2.944	0.256	-90.0	29.32	14.83	0.0	0.0	0.256	-90.0	0.0003	21.67
3.444	0.256	-90.0	29.32	13.67	0.0	0.0	0.256	-90.0	0.0003	21.9
3.944	0.256	-90.0	29.32	13.11	0.0	0.0	0.256	-90.0	0.0003	22.01
4.444	0.256	-90.0	29.32	13.0	0.0	0.0	0.256	-90.0	0.0003	22.03
4.947	0.256	-90.0	29.32	13.0	0.0	0.0	0.256	-90.0	0.0003	22.03
5.447	0.256	-90.0	29.32	12.94	0.0	0.0	0.256	-90.0	0.0003	22.04
5.947	0.256	-90.0	29.32	12.94	0.0	0.0	0.256	-90.0	0.0003	22.04
6.447	0.256	-90.0	29.32	12.83	0.0	0.0	0.256	-90.0	0.0003	22.06
6.946	0.256	-90.0	29.32	12.61	0.0	0.0	0.256	-90.0	0.0003	22.1
7.446	0.256	-90.0	29.32	12.39	0.0	0.0	0.256	-90.0	0.0003	22.14
7.946	0.256	-90.0	29.32	12.33	0.0	0.0	0.256	-90.0	0.0003	22.15
8.446	0.256	-90.0	29.32	12.28	0.0	0.0	0.256	-90.0	0.0003	22.16
8.946	0.256	-90.0	29.32	12.22	0.0	0.0	0.256	-90.0	0.0003	22.17
9.446	0.256	-90.0	29.32	12.17	0.0	0.0	0.256	-90.0	0.0003	22.18
										Point of Discharge

Diffuser table:

P-dia (in)	P-elev (ft)	V-angle (deg)	H-angle (deg)	Ports ()	AcuteMZ (ft)	ChrncMZ (ft)	P-depth (ft)	Ttl-flo (m3/s)	Eff-sal (psu)	Temp (F)	Polutnt (kg/kg)
8.0	18.5	-90.0	180.0	1.0	23.0	230.0	30.0	0.082	29.32	65.0	0.0

Output

Simulation:

Froude number: 50.26 effluent density (sigma-T): 20.88 Effluent velocity 2.529(m/s);

Step	**Depth (ft)**	Amb-cur (ft/s)	**Amb-tem** (F)	P-dia (in)	**Temp** (F)	Polutnt (kg/kg)	Dilutn ()	x-posn (ft)	**y-posn** (ft)	
0	**30.0**	0.84	**53.96**	8.0	65.0	0.0	1.0	0.0	0.0;	**Point of Discharge**
2	32.47	0.84	53.81	21.93	59.6	0.0	1.985	0.0	-0.0981;	
17	32.99	0.84	53.78	32.05	57.74	0.0	3.032	0.0	-0.177;	
18	33.05	0.84	53.77	33.11	57.61	0.0	3.148	0.0	-0.188;	
27	33.76	0.84	53.73	47.09	56.43	0.0	4.957	0.0	-0.41;	
28	33.85	0.84	53.73	48.98	56.32	0.0	5.238	0.0	-0.453;	
33	34.42	0.84	53.69	59.29	55.84	0.0	6.994	0.0	-0.758;	
34	34.59	0.84	53.68	62.4	55.73	0.0	7.595	0.0	-0.877;	
37	**35.09**	**0.84**	**53.65**	**70.94**	**55.46**	**0.0**	**9.403**	**0.0**	**-1.28; 55.4°*F(* 13°C) Water Quality Std.**	
39	35.39	0.84	53.63	76.1	55.33	0.0	10.6	0.0	-1.579;	
43	36.07	0.84	53.59	87.36	55.09	0.0	13.47	0.0	-2.396;	
44	36.31	0.84	53.58	91.38	55.02	0.0	14.58	0.0	-2.746;	
49	37.35	0.84	53.51	108.3	54.76	0.0	19.75	0.0	-4.609;	
51	37.7	0.84	53.49	113.9	54.69	0.0	21.66	0.0	-5.386;	
58	39.46	0.84	53.38	141.5	54.41	0.0	32.45	0.0	-10.63;	
61	40.09	0.84	53.35	151.0	54.33	0.0	36.72	0.0	-13.11;	
68	42.08	0.84	53.22	180.6	54.15	0.0	51.88	0.0	-24.01;	
69	42.32	0.84	53.21	184.1	54.13	0.0	53.83	0.0	-25.7; acute zone;	
70	42.54	0.84	53.2	187.3	54.11	0.0	55.7	0.0	-27.39; bottom hit;	
82	45.08	0.84	53.04	223.6	53.96	0.0	78.88	0.0	-64.8;	
86	44.9	0.84	53.05	229.4	53.9	0.0	83.1	0.0	-92.07;	
94	40.45	0.84	53.32	291.3	53.41	0.0	134.3	0.0	-160.1;	
95	39.7	0.84	53.37	301.8	53.36	0.0	144.1	0.0	-170.7; trap level;	
139	36.7	0.84	53.55	343.9	53.22	0.0	186.9	0.0	**-230.4**; **chronic zone**	
140	36.66	0.84	53.5	344.4	53.22	0.0	187.5	0.0	-231.8;	
210	37.55	0.84	53.5	370.0	53.32	0.0	216.5	0.0	-327.0;	
236	39.0	0.84	53.41	390.1	53.42	0.0	240.7	0.0	-362.3;	
362	39.84	0.84	**53.36**	441.5	53.34	0.0	308.2	0.0	-533.6;	

The 13°C water quality standard is achieved 1.3 feet horizontally and 5 feet vertically from the point discharge. This is at a depth of 35.09 feet. Column 4 of the Output table is the ambient temperature at varying depths for the hottest day of the year and varies between 53.96°F and 53.36°F depending on depth. These temperatures are all below the water quality standard of 55.4°F including at the 53.65 feet depth of compliance. Therefore the 0.54°F (0.3°C) alternate standard is not applicable at any time. Compliance with the 13°C standard is well within the allowable horizontal (y-position) 230 foot chronic mixing zone.

Appendix C: Response to Comments During Initial Comment Period

United States Department of Defense, Department of the Navy
Naval Base Kitsap Bangor
NPDES Permit #WA-002557-7

On April 22, 2009 the U.S. Environmental Protection Agency (EPA) issued a public notice for the United States Department of Defense, Department of the Navy, Naval Base Kitsap Bangor**.** The public notice was for the draft National Pollutant Discharge Elimination System (NPDES) Permit No. WA-002557-7 for discharges from once-through cooling water to Hood Canal and the discharge of graving dock floodwater.
This Response to Comments provides a summary of significant comments of this first public comment period and provides corresponding EPA responses. Where indicated, EPA has made appropriate changes to the draft NPDES permit.

Based on comments from the Navy, the submission of monitoring data from two ambient stations, submission of a mixing zone, and the submission of an AKART study EPA is issuing a second public notice incorporating a mixing zone and a final effluent limitation.

M. J. Olson, Captain, U.S. Navy, Commanding Officer, Naval Base Kitsap Bangor commented.

1. **Comment:** The 13°C (55.4 °F) temperature standard is unobtainable unless applied at the edge of a mixing zone that is an acceptable application of the regulations. If ambient intake water from Hood Canal is 13°C and the discharge limit is 13°C then cooling with Hood Canal water is not allowed. Our intake temperature data (ambient water) shows that Hood Canal water is regularly around 13°C during the summer months. We request the temperature standard apply at the edge of the mixing zone.

   Response: An AKART study, receiving water study and mixing zone analysis must be completed and approved prior to Ecology granting a mixing zone to Bangor. (See WAC 173-201A-400). EPA cannot incorporate into the NPDES permit a dilution factor from a mixing zone that does not exist. Based on comments from the Navy, the submission of monitoring data from two ambient stations, submission of a mixing zone, and the submission of an AKART study EPA is issuing a second public notice incorporating a mixing zone and a final effluent limitation.

2. **Comment:** Ecology's 2008 Water Quality Assessment 305(b) Report listing 10273 states there are excursions about the 13°C standards but "these exceedances are due to natural conditions and there is insufficient human influences in this area to produce significant temperature increases". The temperature standard applies to the water body as a whole and not to a specific discharge.

   Response: The temperature standard applies everywhere in the water body and to each NPDES authorized discharge.

3. Comment: Is the temperature limit 13°C or 0.3°C over background.

Response: As stated in the Fact Sheet the final effluent limitation is taken from the marine water quality standards of the State of Washington in WAC 173-201A-400:

Pollutant	Basis	Criteria
Temperature	Extraordinary Quality Aquatic Life Use	13°C (1-DMax) per WAC 173-201A-210 (1) (c) Table 210 (1)(c) When a water body's temperature is warmer than the criteria in Table 210 (1)(c) (or within 0.3°C (0.54°F) of the criteria) and that condition is due to natural conditions, then human actions considered cumulatively may not cause the 7-DADMax temperature of that water body to increase more than 0.3°C (0.54°F). per WAC 173-201A-210 (1) (c) (i)

4. Comment: Table 2 requires a 7-DADMax averaging period. This averaging is typically used in the context of ambient water but Table 2 is only applicable to effluent. Should we report the 7-DADMax for the effluent?

Response: See Response to Comments 2 and 3. The monitoring averaging period is in terms of the standard which is both daily maximum and 7-DADMax. Discharge and background monitoring must be averaged over 7-DADMax to comply with the second paragraph of the standard in the table above. The revised draft permit requires 7-DADMax as the averaging period because that is the averaging period for the data used in the performance based limit. In subsequent discussions the Navy agreed to this averaging period.

5. Comment: The 7-DADMax is the max daily average for the 3 days prior and 3 days after the date in question. So for example, the 7-DADMax for Sept 1 would include the date from Aug 29, 30, 31 and September 2, 3 and 4. At the end of the month the 7-DADMax for September 30 would include data from September 27, 28 and 29 and October 1, 2 and 3. Is this what is intended?

Response: Yes, that is what is required by the water quality standards. The reporting date is moved from the 15th to the 20th day of the following month to account for the extra three days.

6. Comment: Request that EPA make the permit limits apply during the warmer months (say May thru October) of the year. There is no reasonable potential to impact water quality in the colder

months when Hood Canal is cooler. This would reduce our reporting effort and lessen EPA's DMR processing effort.

Response: No analysis was submitted to justify elimination of the limit. Under the new draft permit monitoring is required to insure compliance with technology based effluent limitation all year. Monitoring will determine impacts all year and the control technology minimizing and controlling temperature discharges to Hood Canal.

7. **Comment:** Section I.B.8., Effluent Limitations and Monitoring require immediate implementation of readily apparent and readily achievable operation or equipment modifications to reduce the temperature of cooling water discharged to Hood canal. The Navy does not anticipate any readily apparent modifications to reduce the cooling water temperatures. The flow is uncomplicated and high volume. This is not bound by economic or technical considerations of the AKART study. Please remove from the permit.

   Response: EPA has now determined AKART and Section I.B.8. will be removed.

8. **Comment**: Section II.B.4.b)(ii) the first paragraph states "Feasible methods of control included conducting the work in a sandblast/spray paint shed or installing plastic barriers around the vessel". The noted feasible methods do not take into consideration that the dry dock collects and treats stormwater. Due to this capability, the dry dock itself is a feasible method of control for work done below the lip of the dock. Please amend the last sentence of the first paragraph to read as follows: "Feasible methods of control include conducting the work in a sandblast/spray shed, installing plastic barriers around the work area, confining any open spray painting operations to the drydock, and curtailing operations during windy condition when control methods are proven ineffective. The drydock is a feasible method of control provided that work practices allow no paint dust or abrasive blasting debris to be released above the lip of the dry dock."

   Response: EPA concurs with the comment and the language is accepted.

9. **Comment:** Section II.B.4.b)(ii) the second sentence of the second paragraph should be amended as follow: "The bottom edge of tarpaulins and plastic sheeting shall be weighted or fastened to remain in place during windy conditions. Operation shall be curtailed during windy conditions when control methods prove ineffective."

   Response: The added condition curtailing operations during windy conditions is added.

10. **Comment:** The last sentence of the third paragraph refers to the flooding and sinking of dry docks with standing piles of spent abrasive on the dry dock floor is prohibited. The statement related to floating dry docks. Please delete the quoted sentence.

    Response: The term sinking is removed. Piles of spent abrasive remains prohibited during flooding.

11. Comment: Section II.B.4. b)(vi) requires photographs of all in-water vessel maintenance BMPs. Section II.B.4.b)(ii) requires photographs as a means to document a clean dry dock. For security reasons photographs are not allowed in the pier/dry dock area. Please remove all reference to photographs and video. As an alternative we propose completion of a form to document cleaning and our pre-flood checklist (or similar document) would have a formal sign-off confirming the dry dock was inspected and is adequately clean. This process is already directed by the Dry Dock Bill and has been in place for years.

Response: A pre-flood inspection and checklist with formal sign-off will be substituted for the prohibited photographic documentation.

12. Comment: Section I.B.4. states "Ballast water shall not be discharged directly onto the floors of the dry dock and then discharged directly to Hood Canal." During docking/undocking evolutions when water is in the dry dock a vessel may, as needed, discharge ballast water. Please modify the requirements as follows, "Ballast water shall not be discharged directly onto the floors of a drydock and then discharged directly to Hood Canal except during docking/undocking evolutions."

Response: EPA recognizes it is necessary to trim a vessel during docking and undocking. The language will be modified as requested.

13. Comment: Section I.B.5. similar to ballast water, this requirement is "Non-contact cooling water shall not be discharged directly onto the floors of a drydock and then discharged directly to Hood Canal." Time is required to allow transition from the vessel's cooling water system to dry dock system. For example, it may take up to 72 hours after a vessel is brought into dry dock to connect cooling water hoses. Please change the requirement to: "Non-contact cooling water shall not be discharged directly onto the floors of a dry dock and then discharged directly to Hood Canal, except for a period of up to 72 hours after a docking /undocking evolution."

Response: The requirement is changed to allow the Navy 72 hours to connect cooling water hoses.

14. Comment: Section II.B.1., AKART Study, The first paragraph noted the AKART Study must include a proposed schedule for..." The statement assumes an AKART solution will be determined which may not be the case. Please change the sentence to read "must include, if applicable, a proposed schedule..."

Response: See Response 7.

15. Comment: The first paragraph of Section II.B.4. b) (iii) restricting cleaning of the hull below the water line is unacceptable, These are active naval vessels and are regulated under the Uniform National Discharge Standards (UNDS). UNDS regulates discharges incidental to the normal operation of Navy vessels and specifically include underwater ship husbandry. Please remove this paragraph.

Response: UNDS does not regulate construction of vessels. In addition, EPA has completed only Phase I of UNDS development but not Phases II and III.

The Phase I rule identified all discharges incidental to the normal operation of armed forces vessels, and characterized each discharge to determine if it required control, based on its potential to have an environmental impact. Phase II to promulgate performance standards is under development.

In Phase III, DOD, in consultation with EPA and the U.S. Coast Guard, will establish regulations governing the design, construction, installation and use of control technology onboard armed forces vessels. These regulations will be required to meet the performance standards promulgated in Phase II. The Phase II performance standards do not become effective until Phase III requirements are in place. Therefore neither does the preemption of state regulation of armed forces vessel discharges become effective until Phase III requirements are in place. Since they are not in place EPA is not preempted from establishing site specific BMPs at Bangor under the individual NPDES permit.

Acceptable restrictions have been negotiated between the Navy and EPA on in-water hull cleaning. Unpainted surfaces such as propellers and cleaning small areas for hull inspections by hand with wooden or plastic tools with any debris collected will be allowed under the final permit. These activities are not hull cleaning that will violate the water quality standards of the State of Washington.

16. **Comment:** Section II.B.4. b)(iii), last paragraph and Section II.B.4.b)(iv) requiring EPA approval prior to use of innovative blasting systems and painting is unworkable as written. Who, or what department, at EPA would we demonstrate the system? Could that "demonstration" also constitute a written/e-mail submission describing the process? How long does EPA have to approve or deny the request? What if EPA cannot afford the time to attend a demonstration? Please modify the paragraph to require notification to EPA at least 30 days prior to use of an innovative system. If EPA does not respond the process can commence as scheduled.

    Response: Hood Canal is especially vulnerable to in-water blasting and painting. In Section II.B.4.b)(iii) blasting is prohibited from in-water ship repair until an innovative blasting system is demonstrated before hand to EPA's satisfaction to prevent pollutant discharges to Hood Canal. This requirement will remain. In Section II.B.4.b)(iv) conventional spray-paint or spray-coating applications to a vessel's hull while that vessel is in the water are prohibited until an innovative method is demonstrated before hand to EPA's satisfaction to prevent pollutant discharges to Hood Canal. This requirement will also remain. A demonstration is by prior notification to EPA by letter. The contact is EPA Region 10 Office of Water and Watersheds, NPDES Permits Unit. The permit does not restrict the time EPA has to respond to the request but EPA will work with the Navy to meet any reasonable timetable. Written notification is required and EPA must be given the opportunity to observe the demonstration.

17. **Comment:** Section I.B. Table 1 requires continuous flow monitoring using a meter. We do monitor flow on a continuous basis; however, we do not log continuously. Current procedure is

to log flow approximately every two hours. We believe our current procedure very adequately captures flow information to statistically describe flow variation over time. Please replace "continuous" with a log or sample frequency of daily.

Response: The cooling water flow rate is steady state. The practice of approximately two-hour flow logging will be allowed.

18. **Comment:** Total recoverable copper monitoring is required twice per month or 48 samples over four years. For a statistical standpoint, this level of monitoring is excessive. Please change the sample frequency to once per quarter. This will result in 16 monitoring events. This is a reasonably robust dataset to help EPA determine if copper limits should be implemented the follow-on permit.

    Response: EPA with Ecology concurrence has allowed one sample every two months to characterize copper discharges. This frequency will be required and will collect 30 samples over five years.

19. **Comment**: Remove the prohibition of discharges that offend the senses of sight , smell, touch or taste. This is highly subjective. Paragraph 5 in the same section has substantially similar requirement. It states: "The discharge shall not contain floating solids, visible foam or oily wastes that produce a visible sheen on the surface of the receiving water."

    Response: EPA agrees to the change.

20. **Comment:** Request using the Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP) as an acceptable QAPP format.

    Response: The Uniform Federal Policy for Quality Assurance Project Plans is an acceptable QAPP format.

21. **Comment:** Section III.D. requires the Navy to submit results of any other sampling, regardless of the test method used upon request by EPA. This statement is overly broad and beyond the scope of the permit. We conduct sampling for a wide variety of purposes including health and safety, materials and supplies quality assurance, non-destructive testing and process testing.

    Response: Section III.D. refers to reporting discharge monitoring.

22. **Comment:** The last sentence of Section I.A. Discharge Authorization states "Dry dock floodwater is that water which ships are immersed after repairs have been completed." Floodwater or dewatering water is discharged after a vessel is brought into dry dock This would be prior to commencement of any repair work. No change in permit language is requested.

    Response: Comment noted.

23. Comment: We request replacing the exiting draft paragraph on caisson leakage with: "Whenever a vessel is in the drydock the direct discharge of stormwater from the dry dock area (dry dock side of curb) is prohibited. Accumulated caisson leakage and stormwater, on the caisson-side of the curb, not in contact with ship repair activity, may be discharged directly to Hood Canal." The intent remains unchanged; however, the modified paragraph uses terms we are more familiar with.

Response: EPA agrees the requirement is unchanged with the terms the Navy is familiar with and will use the suggested terms.

24. Comment: Section I.B., Table 3 requires observation of visible sheen "each launch" Please change "each launch " with " Docking/undocking Evolution" We should also relay that at times dockings do, and will continue to occur at night, when observing sheen is less likely.

Response: EPA agrees the requirement is unchanged with the terms the Navy is familiar with and will be use the suggested language.

25. Comment: This permit duplicates conditions in the Multi-Sector General Permit (MSGP), State Waste Discharge permit ST 7363 and Puget Sound Clean Air Agency permit, Order of Approval Notice of Construction Permits, Naval Base Kitsap at Bangor, Oil Spill Prevention, Control, and Countermeasure Plan (SPCC Plan), Hazardous Material Control and Management (HMC&M), Commander Navy Region Northwest Instruction 5100.7 Chapter 7, Hazardous Material Control and Management (HMC&M), Oil and Hazardous Substance Integrated Contingency (OHSICP) and Naval Base Kitsap Bangor Hazardous and Industrial Waste Management Plan (HWMP). The permit should focus on just the floodwater BMPs and the cooling water**.**

Response: The State Waste Discharge permit authorizes discharges to the Central Kitsap sewage treatment plant. Certain discharges are prohibited under Special Condition S5 to the sewage treatment plant. They are not prohibited to Hood Canal. Although an operation and maintenance plan is required for facilities or systems of control, best management practices are not required under the state permit.

Regulatory authorities do not permit or condition waste water discharges with air permits.

If the BMPs are not required by the individual NPDES permit and only listed in the SWPPP, the SPCC Plan, HMC&M, OHSICP or HWMP then these BMPs can be discontinued by the Navy at any time.

Any BMP plan under the Multi-Sector General Permit can be incorporated under a best management plan under this individual permit. Section II.B.2. of the draft individual NPDES permit states, "Any existing BMP plans may be modified for compliance with this section."

The individual permit does not duplicate MSGP requirements but is more stringent.

The MSGP requires "considerations" such as:

"*Blasting and Painting Area.* Minimize the potential for spent abrasives, paint chips and overspray to discharging into the receiving water or the storm sewer systems. Consider containing all blasting and painting activities, or use other measures to prevent the discharge of the contaminants (e.g., hanging plastic barriers or tarpaulins during blasting or painting operations to contain debris). When necessary, regularly clean stormwater conveyances of deposits of abrasive blasting debris and paint chips.

The individual permit goes beyond requiring considerations of BMPs and clearly requires the implementation of BMPs such as:

"Dust and overspray shall be confined to the shipyard repair and construction areas to the maximum extent feasible during abrasive blasting and spray painting of vessels and modules." Emphasis added.

The MSGP requires:

Material Storage Areas. Store and plainly label all containerized materials (e.g., fuels, paints, solvents, waste oil, antifreeze, batteries) in a protected, secure location away from drains. Minimize the contamination of precipitation or surface runoff from the storage areas.
"In minimizing exposure, you should pay particular attention to the following:
use grading, beaming, or curbing to prevent runoff of contaminated flows and divert run-on away from these areas; - locate materials, equipment, and activities so that leaks are contained in existing containment and diversion systems (confine the storage of leaky or leak-prone vehicles and equipment awaiting maintenance to protected areas);"

The individual permit is more specific and stringent requiring:

all liquid products stored on impervious surfaces and within bermed containment capable of containing 110 % of the largest single container in the storage area. The individual permit also requires drip pans for all paint mixing and solvent transfer operations that are not required in the MSGP.

Exposed piles of copper slag abrasives have contaminated stormwater discharges from Washington shipyards for years.

The MSGP requires:

"If abrasive blasting is performed, discuss the storage and disposal of spent abrasive materials generated at the facility. Consider implementing an inventory control plan to limit the presence of potentially hazardous materials onsite."

The individual permit is more stringent and requires:

"Collected sandblasting debris shall be stored under cover in a designated area with the spent abrasive grit."

The individual permit provides greater assurance these BMPs will be implemented.

To address the Navy's concern the final permit will allow BMP Plan elements to reference elements in other plans.

26. Comment: The BMP committee, description of potential pollutant sources, risk identification and assessment, SOPs to achieve BMPs, reporting of BMP incidents, material compatibility, good housekeeping, inspections, preventative maintenance and repair, employee training, record keeping and reporting, control of large solid materials, control and cleanup of paint dust and abrasive blasting debris are all covered by the above mentioned plans.

Response: See Response to Comment 25**.**

27. 40CFR 122.44(k) referenced in the fact sheet is in error. It requires BMPs if authorized under section 304(e) of the CWA for the control or abatement of pollutants when the pollutants are toxic, authorized under section 402(p) of the CWA for the control of storm water discharges, numeric effluent limitations are infeasible or the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

Response: The BMPs are to insure compliance with the water quality standards of the State of Washington during ship repair activities at Bangor. This is the intent of the CWA. The metals can be toxic to fish. Stormwater is controlled by this NPDES permit under issued under Section 402 of the CWA and can potentially be discharged from Bangor to Hood Canal from both work done on the piers and from in-water preparation and painting of ships. Numeric effluent limitations are infeasible for these areas as well as the flood water. These BMPs are necessary to carryout the purpose and intent of the CWA.

28. Comment: All the conditions regulating In-Water Vessel Maintenance-Surface Preparation BMPs should be removed from this NPDES permit because it does not speak to the ASW process or the flooding and dewatering processes at the dry dock.

Response: Submarine Base Kitsap Bangor is a shipyard under SIC Code 3231 and the Navy correctly applied for a shipyard NPDES permit. Hood Canal is especially vulnerable to shipyard activities such as over water surface preparation. Discharges of paint chips from preparing the vessel for painting in water such as sand blasting, scraping, wire brushing, grinding and mechanical abrading have a reasonable potential to violate the water quality standards of the State of Washington for copper

29. Comment: In-Water Vessel Maintenance – Paint and Coating Application BMPs should be removed from this NPDES permit because it does not speak to the ASW process or the flooding and dewatering processes at the dry dock.

Response: Hood Canal is especially vulnerable to over water painting. Discharges from painting vessels in water such as spray painting, application by roller or by brush have a reasonable potential to violate the water quality standards of the State of Washington for copper. The BMPs will prevent the violations of the standard.

30. Comment: BMPs for floats and documentation requirements should be removed from this NPDES permit because it does not speak to the ASW process or the flooding and dewatering processes at the drydock

Response: See Responses to Comments 15, 28 and 29.

31. Comment: Section II,B.4. b)(vii) Oil, grease, paint and fuel spill prevention and containment is thoroughly covered in the SPCC, the OHSICP and the SWDP. No additional BMPs are needed.

Response: See Responses to Comment 25 and 29.

32. Comment: Section II,B.4. b)(viii) Paint and Solvent Use and Containment is thoroughly covered in the SPCC and SWPPP. No additional BMPs are needed.

Response: See Responses to Comments 25 and 29.

33. Comment: Section II,B.4. b)(ix) Contact between water and debris and non-contact cooling water is covered by Dry Dock Manual and the Dry Dock Bill. There is no contact between cooling water and any kind of debris. No additional BMPs are needed.

Response: See Response to Comments 25. Without this restriction the Navy can allow contact between non-contact cooling water and debris.

34. Comment: Section II,B.4. b)(ix) Chemical Storage is covered by the HMC&M and the HWMP. No additional BMPs are needed.

Response: See Response to Comment 25 and 29.

35. Comment: Section II,B.4. b)(xii) Recycling of Spilled Chemicals and Rinse Water is thoroughly covered in the HWMP. No additional BMPs are needed.

Response: See Response to Comment 25 and 29.

36. Comment: Please remove the bulleted item in Section II.B.4.b.(vii) that required transporting spilled chemicals off-site. Depending on the material spilled and the nature of the spill, (1) it still may be a usable product so there is no need for disposal and (2) we may treat it in our industrial wastewater treatment facility. Additionally, the BMP conflicts with BMP (xii) Recycling of Spilled Chemicals and Rinse water.

Response: EPA concurs and the bulleted item is removed. Condition BMP (xii) prohibits the discharge to waters of the United States.

37. Comment: Section II,B.4. b)(xiii) Education of Employees Contractors, and Customers. Recycling of Spilled Chemicals and Rinse Water is thoroughly covered in the HWMP. No additional BMPs are needed. This is already covered in II.B.4.a)(xii).

Response: Section II,B.4. a)(xii) requires training of employees not contractors. Many water pollution problems occur when contractors, ship owners, or their employees work at permitted shipyards or boatyards without any training or inadequate training.

38. Comment: Condition I.B. under Outfall 002 Drydock, requires a Best Management Practices (BMP) Plan. This BMP is already covered in the Dry Dock Manual and the Dry Dock Bill, please delete.

Response: See Response to Comment 25.