DEPARTMENT OF THE NAVY

PUGET SOUND NAVAL SHIPYARD
AND INTERMEDIATE MAINTENANCE FACILITY
1400 FARRAGUT AVENUE
BREMERTON, WASHINGTON 98314-5001

IN REPLY REFER TO:
5090
Ser 106.32/0492
NOV 07 2008

Mr. Michael J. Lidgard
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101
Attention: OWW-130

RECEIVED
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Ref: EPA letter Serial No. OWW-130, dated 5 May 2008

Dear Mr. Lidgard:

We would like to express our appreciation for allowing us to review and comment on the working draft National Pollutant Discharge Elimination System (NPDES) permit and fact sheet provided by the referenced letter.

We have a number of concerns with both the details contained in this draft permit and its overall organization. It is difficult to formulate comments when the direction we are heading to resolve basic problems with the draft are still under discussion. Our major concerns are listed in enclosure (1) and our detailed comments on the permit and fact sheet are listed in enclosures (2) and (3). Enclosure (4) provides information supporting our comments on the appropriateness of the arsenic limits. It is anticipated that once a direction for the permit is chosen, we can provide more detailed comments.

We look forward to working directly with your staff in resolving these comments. Please contact me at telephone number 360-476-1932 or Steven Rupp at telephone number 360-476-6009 with any questions or comments.

Sincerely,

L. A. Cole

L. A. COLE
Director, Environmental, Safety
and Health Office

Encl: (1) Working Draft NPDES Permit Major Comments
(2) Working Draft NPDES Permit Detailed Comments
(3) Working Draft Fact Sheet Detailed Comments
(4) Discussion of Arsenic Limits

Copy to:
Mr. Tom Eaton, EPA Region 10
Mr. Kevin Fitzpatrick, Washington Dept. of Ecology
Ms. Jeanne Tran, Washington Dept. of Ecology

Blind Copy to:
106.02
106.32(BB)
107
NRRO-Puget
NSRO-Puget
NAVSEA 04R (Kopack)

WORKING DRAFT NPDES PERMIT MAJOR COMMENTS

Enclosure (1)

Working Draft NPDES Permit Major Comments

1. Unreasonable and Unnecessarily Restrictive Final Limits

   Issue: As the permit is written, it is highly likely that at three years into the permit for dry docks and five years for stormwater the permittee will have unachievable limits even though studies may determine that these limits are not reasonable. The final limits in the permit for stormwater and dry dock discharges (Section I.A. page 7 of 57) do not reflect the findings of the AKART study, mixing zone report, or engineering studies. Having final limits based on water quality criteria alone is inconsistent with the allowance of a mixing zone and implementation of BMPs.

   Assigning a limit less than what can be achieved with AKART is inappropriate. Additionally, significant quantities of data demonstrate that Sinclair Inlet does not exceed the water quality standard for copper and is not impaired for copper. Pursuant to 33 U.S.C. § 1312, water quality based standards are only appropriate where discharges, after the implementation of technology based standards, "would interfere with the attainment or maintenance of that water quality." Significant data collected in Sinclair Inlet demonstrates that the Inlet is not only achieving the water quality criteria for copper, but is improving, both in the water column and in the sediment, with limits imposed in PSNS & IMF's current permit.

   Proposed Resolution: The final limits need to be based on the findings of the AKART and mixing zone studies.

2. Inappropriate Combination of Discharge Limits and BMPs

   Issue: The draft permit contains an inappropriate combination of extremely restrictive discharge limits for both dry docks and stormwater along with highly prescriptive BMPs. Discharges under the Clean Water Act can be regulated either with numerical discharge limits or with a combination of BMPs and performance sampling but not both. If, for instance, PSNS&IMF could meet the storm water discharge limits contained in the draft NPDES permit it would be irrelevant how we achieved those limits.

   Proposed Resolution: Rather than numerical discharge limits for storm water, PSNS & IMF considers that the most reasonable and effective course would be to have stormwater benchmark levels along with appropriate BMPs with performance monitoring to determine the need for new or

improved BMPs. In order to efficiently apply this type of adaptive management process to our storm water management, PSNS&IMF considers that appropriate BMPs should be submitted by PSNS&IMF in the form of a Storm Water Pollution Prevention Plan, subject to approval by the EPA, rather than have BMPs included directly into the permit so that a permit modification would not be required in order to modify BMPs. PSNS&IMF also considers that we are in a better position to design effective and efficient BMPs that still allow us to complete our critical mission related activities.

3. Department Of Defense Budget Process and Compliance Schedules

Issue: The permit indicates that changes to the facility needed to meet the copper limits of 2.4 ppb at dry docks and 5.8 ppb at storm drains must be completed within 3 and 5 years respectively. Even if those limits were physically possible to meet at PSNS & IMF, statutory requirements for the Department of Defense budget process make completing significant construction within 3 and 5 years highly unlikely at best. The only construction PSNS & IMF can engage in that is locally controlled is modernization of existing facilities costing less than $500,000 or the purchase of new equipment at less than $250,000. Modernization or new equipment exceeding those thresholds, or any new construction must be vetted through the Department of the Navy, the Department of Defense and to Congress in the President's budget. New construction exceeding $750,000 has additional congressional approval requirements. This process takes at a minimum three years and frequently longer and only then can design and construction begin. Only after our project is funded can PSNS &IMF begin design and construction. Design and, particularly construction at PSNS & IMF, can take longer than an average industrial facility. If changes driven by the AKART study involve collecting water, PSNS & IMF will be working with buried water lines. Digging will disturb contaminated soil and result in crane, railcar and utility outages all of which affect maintenance work on tightly scheduled Navy ships in the dry docks. Six of the Navy's eleven aircraft carriers are in the Pacific Fleet. Dry Dock 6 at PSNS &IMF is the only dock on the west coast where these six ships undergo docking maintenance and repair work. Most disruptions of cranes and utilities would disrupt scheduled docking availabilities for aircraft

carriers, submarines and/or surface ships. Affecting an undocking date affects the schedule of other carriers, submarines and ships and their crews in the Navy. All of this is to say that given statutory fiscal law constraints driving planning and budgeting out 3 - 5 years combined with the complexities of construction at PSNS & IMF, even if meeting 2.4 ppb and 5.8 ppb were physically possible, imposing a 3 year and 5 year deadline for dry dock and storm water discharges respectively is not realistic.

Proposed Resolution: When facility/equipment changes necessary are more defined by an approved AKART study, this issue can be addressed with more detail because we will know more about which budget(s) will be needed and realistic equipment or construction requirements and the disruptions involved.

4. Excessive Monitoring Requirements

Issue: The monitoring requirements in the draft permit, including both discharge and receiving waters, are excessive. The Navy, in conjunction with the ENVVEST stakeholders, has conducted one of the most systematic and comprehensive sampling programs in Puget Sound. The State using this data in conjunction with its own have not categorized any of the water quality segments adjacent to the shipyard impaired (Category 5). Additional monitoring to determine the impact of shipyard activities on the receiving water is not warranted. In addition, the permit contains sampling requirements that are redundant, not based on a reasonable potential for exceeding a water quality criteria and not justified considering the extreme costs of the mandated analysis (see comments 9, 11, 13, 16, 19, 20, 26, 27, 43, 45, 105, and 108 in Enclosure (2).) The discharge and surface water monitoring requirements for lead, mercury, arsenic, turbidity, chlorine, priority pollutants, tributyltin, salinity, and oil & grease are not supported by a reasonable potential evaluation. The monitoring and limits on both the dry dock drainage system outfalls and upstream at the water draining from the Whole Effluent Toxicity (WET) testing of dry dock drainage water is excessive. The WET testing specified in the permit will cost close to $1,000,000 based on four sampling events, two chronic tests and two acute tests, at six sampling locations (outfalls). The cost of these 96 tests is approximately $10,000 for each test.

Proposed Resolution: We recommend, under the framework of ENVVEST Phase II, that the existing data be evaluated for gaps and a comprehensive sampling program be implemented consistent with the goals and objectives of the Puget Sound Partnership.

5. Excessive and Redundant Studies and Reports

Issue: In addition to the monthly Discharge Monitoring Reports, Stormwater Pollution Prevention Plan, AKART study, and Mixing Zone Study; at least ten other reports and studies are required, some of which are required to be submitted annually. A number of these reports are redundant to the AKART study. The permit calls for feasibility studies, design reports, and construction reports for achieving compliance with overly restrictive and, likely, unachievable limits.

Proposed Resolution: The feasibility studies redundant to the AKART study in part I.D and I.E should be removed. The parties have not yet determined whether AKART will be completed as a condition of the permit or before the permit is renewed.

In our meeting with EPA and WDOE on October 2, EPA committed to reviewing PSNS & IMF's proposals for proceeding with the NPDES permitting process. We understand that EPA desires to proceed with Option 2. In Option 2 the final limits in the draft permit would either be removed or adjusted to include a projected dilution factor. In addition, the AKART study and mixing zone analysis would be part of a compliance schedule. When EPA incorporates this change into the working draft permit we will provide more focused comments with the goal of developing a permit that is protective of the environment and supports the mission of PSNS & IMF.

WORKING DRAFT NPDES PERMIT DETAILED COMMENTS

Enclosure (2)

Working Draft NPDES Permit Detailed Comments

Com'nt No	Permit Para. No.	Permit	Comment
1.	Page 3	**4. Compliance Schedule** Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date (see Part III.J)	Delete. This is a qualifier on the date for submitting reports. It is not a required report. The requirement is also confusing. For example, it would imply that DMRs which must be submitted on 15th day of the following month would be due 14 days after the scheduled date or the 24 hour telephone reporting requirement could be done within 15 days.
2.	Page 6	**Table of Contents**	Table of contents does not include "Appendix A"
3.	Page 7 I.A	**A. Prohibited Discharges** The following discharges are prohibited under this permit: Pressure washwater, hydroblast water, washdown water, bilge water, sanitary wastes, condensate from steam-cleaning and from powering of equipment, freeze protection water that contacts the dry dock floor, contaminated storm water that exceeds water quality standards, hydraulic fluid, oily wastes, gray water, solvents, ballast water while a ship is in the dry dock, and cooling tower blowdown at the steam generation plant.	Delete the following from the list of prohibited discharges: • washdown water, • freeze protection water that contacts the dry dock floor, • contaminated storm water that exceeds water quality standards, • ballast water while a ship is in the dry dock Washdown Water: While a dry dock is flooded, a significant amount of bay silt is deposited on the dock floor. We currently wash this silt back to the bay. This is a common practice at other shipyards. Collecting this washdown water is not practical since the washdown takes place while noncontact cooling water is discharging onto the dock floor. Before the dock is flooded, it is cleaned extensively. Additionally, this washdown is completed prior to commencing industrial operations. Pavement washdown is allowed by the MSGP. (See comment on allowable discharges I.B.3) Freeze Protection Water: There is no difference between freeze protection water that contacts the dry dock and freeze protection water that is discharged directly to the drainage system. Contaminated Storm Water: The prohibition on the discharge of "contaminated stormwater that exceeds water quality standards." (see general comment above) Ballast Water: Clarify by changing, "bilge water" and "ballast water" to, "ballast water exposed to oil or other industrial pollutants and all bilge water."
4.	Page 7 I.B.1	Permit authorizes discharge of "uncontaminated hydrostatic relief water."	Contamination is a matter of interpretation. PSNS&IMF monitors and the permit contains limits on the amount of contamination of the dry dock drainage which includes hydrostatic relief water. Delete "uncontaminated."
5.	Page 7 I.B.1	Dry Dock Outfalls	Add the following authorized discharges: • discharges incidental to normal ship's operations included in the UNDS program • initial washdown of bay silt from the dock floor following dewatering UNDS discharges are discussed in the fact sheet.

Com'nt No	Permit Para. No.	Permit	Comment
6.	Page 7 I.B.3	Stormwater outfalls (see Appendix A): Stormwater and miscellaneous non-stormwater discharges including discharges from fire-fighting activities, fire hydrant flushings, water line flushings, uncontaminated air conditioning and uncontaminated compressor condensate.	Add the following allowable discharges to be consistent with EPA's Multi-Sector General Permit • Irrigation drainage; • Landscape watering; • Pavement wash waters where no detergents are used and no spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed); • Routine external building wash down which does not use detergents; • Uncontaminated ground water or spring water; • Foundation or footing drains;
7.	Page 7 I.B.3	Stormwater outfalls	Add the following authorized discharges: • "steam condensate". (The same steam condensate that is allowed to be discharged in the dry-docks is also discharged to the storm drains and directly to the bay.) • small amounts of single-pass cooling water from portable equipment Steam condensate and cooling water are discussed in the fact sheet.
8.	Page 7 I.B.?	Miscellaneous Discharges	Add the following authorized discharges: • caisson ballast water, • dry-dock dewatering water • discharges incidental to normal ship's operations included in the UNDS program Caisson ballast water, dewatering water, and UNDS discharges are discussed in the fact sheet.
9.	Page 7 I.C.1.a)	The permittee must limit and monitor discharges from the outfalls as specified in Table 1: Dry Docks 1 – 5 (Outfalls 018A, 018B, 096, AAA, and BBB) Effluent Limits, Table 2: Dry Dock 6 (Outfall 019) Effluent Limits, and Table 3: Dry Dock Outfalls Monitoring Requirements (Outfalls 018A, 018B, 096, AAA, BBB and 019).	Delete outfalls AAA and BBB from monitoring requirement. These outfalls are rarely used. The water that would discharge from these outfalls is from dry dock 3 and is equivalent with the water from dry docks 1, 2, 4, and 5. This water is normally combined with the water from these docks and is discharged from outfalls 18A or 18B. Typically the four pumps do not operate for more than 30 minutes total during a year. They may be used while docking evolutions are taking place in dry docks 1 & 2, however 99% of the time they are in "stand-by" in case of emergent conditions. Discharge from 096 is infrequent. The permit needs to clarify that 096 will only be sampled if it is discharging on the day samples are collected from the dry docks.
10.	Page 8 Table 1	Table 1: Dry Docks 1 – 5 (Outfalls 018A, 018B, 096, AAA, and BBB) Effluent Limits	Loading limits (lbs/day) should apply to the combined discharges from outfalls 18A, 18B, and 96 as they are in the current permit.

Com'nt No	Permit Para. No.	Permit	Comment
11.	Pages 8-10 Table 1 Table 2	Table 1: Dry Docks 1 – 5 (Outfalls 018A, 018B, 096, AAA, and BBB) Effluent Limits Table 2: Dry Dock 6 (Outfall 019) Effluent Limits	Delete the monitoring requirements for lead, arsenic, zinc, and mercury. Available data does not support the finding that there is a reasonable potential for exceeding water quality criteria. Data from '94-'95 is too limited to demonstrate a reasonable potential. In addition, the reasonable potential calculations in the fact sheet did not use the correct information from the permit application. We will submit current data from our outfalls for lead and zinc. The arsenic reasonable potential applied the WQC incorrectly. See enclosure (3).
12.	Pages 8-10 Table 1 Table 2	Oil and Grease	Delete the limit for O&G. We have never measured a quantifiable amount of O&G. There is no reasonable potential for exceeding criteria. This term is outdated – "Hexane Extractable Material (HEM)" is currently used for this testing parameter
13.	Pages 8-10 Table 1 Table 2	Oily Sheen	Delete the limit on oily sheen. Past data would indicate that there is not a reasonable potential for finding a oily sheen in a monthly sample based on every weekly sample for O&G has been less than measurable.
14.	Pages 8-10 Table 1 Table 2	Temperature	Delete the limit on temperature. Addressed in AKART study.
15.	Pages 8-10 Table 1 Table 2	Total Residual Chlorine	Change the requirement to monitor for chlorine only if chlorine is being using for bio-fouling prevention. Also change the footnote in Table 3. Note: There are several Standard Method (SM) testing procedures approved for total residual chlorine testing in 40 CFR part 136. The lowest published detection limit for the SM testing procedures is 10 μg/L. This is greater than the daily allowed limit of 6.1 μg/L. Therefore, meeting the listed reporting limit will be difficult, especially in the partial seawater matrix. This limit may require revision, especially given the 50% seawater composition of the samples analyzed.
16.	Pages 8-10 Table 1 Table 2	Turbidity 5 NTU above background If background turbidity is greater than 50 NTU, the turbidity shall not exceed 10 percent over background.	Delete the requirement to measure turbidity. The fact sheet does not demonstrate or even address the reasonable potential to exceed the turbidity criteria. There is no reasonable potential to exceed the limit based on years of operation without observing any visible discoloration in the discharge.
17.	Page 8 I.C.1.d)	The permittee must record the contributing wastestreams at time of sample, i.e. note whether the sample includes ship cooling water or dry dock floor drainage in addition to groundwater infiltration.	Delete this requirement. The requirement is excessively burdensome and doesn't provide a significant benefit. This research project is conducted when an exceedance occurs to determine the cause. Then, the information has been and will be provided as necessary to explain exceedances of limits.
18.	Pages 8-10 Table 1 Table 2	Footnotes: 1 - Reporting for copper, lead, mercury, zinc, arsenic and chlorine is required within 24 hours of a maximum daily limit violation. See Part III.G	Delete requirement to report exceedances within 24 hours. Reports of exceedances are included with our monthly DMR submittals. Reporting violations within 24 hours is not practical due to the time required to perform the chemical analysis. (See comment on Part III.G)
19.	Pages 9-10 Table 3		Based on the reasons listed in comments 11,12 and 13, delete monitoring for lead, mercury, zinc, arsenic, oil & grease, oily sheen.
20.	Pages 9-10 Table 3	Priority pollutants Tributyltin	Delete monitoring. Tributyltin is not utilized at PSNS & IMF Note: There is no 40 CFR 136 method for Tributyltin.

Com'nt No	Permit Para. No.	Permit	Comment
21.	Page 9-10 Table 3		Add the provision that monitoring at Outfall 19 is not required when there is no industrial work in dry dock 6.
22.	Page 9-10 Table 3	24-hour composite	Add allowance to substitute a grab sample when a composite sample is not possible.
23.	Page 10-11 I.C.2	**Dry Dock Floor Drainage and Stormwater from Dry Dock Floor**	Delete requirement to monitor dry-dock floor runoff. This permit already requires compliance at the end-of-pipe.
24.	Page 11 I.C.3.c)	The sample type must be grab or time-proportionate sample. Grab samples must be taken within the first hour after discharge begins. Time-proportionate composite samples must be started within the first 30 minutes after discharge begins and are taken over a two hour period. All samples must be taken at the sampling point specified in the permit, or as close to the point of discharge as reasonably practical.	Taking a sample in the first hour of the time of discharge is rarely possible in a tidally influenced storm drain. The QAP (Section II.D) will specify how to obtain representative samples taking into account differences in the configuration of each outfall.
25.	Page 11-12 I.C.3	**Non-Dry Dock Stormwater**	Having final limits based on water quality criteria is inconsistent with the allowance of a mixing zone and implementation of BMPs. The final limits need to be based on the findings of the AKART study and mixing zone. Assigning a limit less than what can be achieved with AKART is inappropriate. Limits should be replaced with the benchmark levels of the MSGP. The sampling requirements need to be modified to reflect that these are tidally influenced outfalls (see above comment). Also the frequency of sampling needs to reflect that the majority of the storm water flow is during the winter.
26.	Page 11-12 I.C.3	The permittee must monitor and limit stormwater in accordance with this part. The permittee must monitor the following outfalls: 001, 002, 003, 006, 008, 010, 012, 013, 014, 015, 022, 023, 025, 028, 030, 040, 052, 089, and 095.	The list of outfalls selected for sampling needs to be revised. Several of these outfalls are from very small drainage basins, have been eliminated by recent construction, or may be impractical to sample due to tidal influence. The requirements for stormwater sampling will need to be agreed upon prior to selecting the specific monitoring locations. The Fact Sheet states that the permit only applies to "Puget Sound Naval Shipyard" and that another stormwater permit will be issued to the "Naval Base Kitsap (NBK) – Bremerton Site". Several stormwater outfalls listed in the permit are from the NBK site. If EPA intends to issue a separate permit for NBK, delete these outfalls. (See fact sheet comment 2).
27.	Page 12 I.C.3 Table 5	Mercury Arsenic Turbidity	Delete monitoring for mercury, arsenic, and turbidity. There is no reasonable potential for mercury and arsenic. Turbidity is not a concern for shipyard runoff since the facility is completely paved.
28.	Page 13 Table 6	pH Between 7.0 to 8.5	The Effluent Limit Guideline for Steam Electric Power Generating Point Source Category pH is 6 - 9 not 7 - 8.5. There is no basis for the more restrictive limit.
29.	Page 13 Table 6	TSS load limit of 68 lbs/day max and 21 lbs day average	There is no basis for the reduction in the load limit.
30.	Page 13 I.C.5.d)	The resulting average value must be compared to the compliance level, the ML, in assessing compliance.	The intent of this sentence is unclear. This sentence needs to be clarified or corrected.

Com'nt No	Permit Para. No.	Permit	Comment
31.	Page 13 I.C.5	**5. Additional Effluent Limit and Monitoring Conditions**	This section needs to be clarified. It would make more sense to change ML to an agreed-upon RL (reporting level). That way, the RLs can be defined up-front so that it is known and the MDLs for the various testing methods can be required to be 1/3 RL or lower. The minimum level as defined on page 53 is equivalent to the lowest calibration standard. This contradicts NELAC 2003 5.5.5.2.2.1 h. which allows for LLCV (see explanation below under Page 53, 20). Based upon this definition, the low calibration standard must be less than or equal to the effluent limitations. Additionally, this definition may be dropped if the previous comment is adopted.
32.	Page 13 I.D.1	The permittee must achieve compliance with the final dry dock effluent limitations of Table 1 … Table 2 … within three years of the effective date of the permit.	This requirement is inconsistent with the requirement to conduct an AKART study. The AKART study may show that technology does not exist to meet the final limits.
33.	Page 13-14 I.D.2	Until compliance with the effluent limits is achieved, at a minimum, the permittee must complete the tasks and reports:	This statement is ambiguous. Remove "at a minimum" and "as soon as possible". The qualifiers don't add anything and could be confusing. Same comment applies to I.E.2.
34.	Page 14 I.D.2.a)(1)	Within one year of the effective date of the permit, the permittee must investigate the feasibility of measures to meet the effluent limits for 018A, 018B, 096, AAA, BBB, and 019. At a minimum, the investigation must include collecting all waters that contact the dry dock floor including dry dock floor drainage and stormwater and either sending the flows to the sanitary sewer system, providing on-site treatment, or a combination thereof.	Current data for vessel cooling water, fire main water, and ground water indicate that the final permit limits can not be achieved even if all water from the dry dock floor is diverted to sewer or treatment. The AKART study will most likely conclude that it is not practical to treat cooling and ground water which makes this report irrelevant.
35.	Page 13-15 I.D	**Dry Dock Effluent Treatment Schedule of Compliance**	If final limits are imposed by the permit to take effect on a given date, this section can be deleted. Our actions during the period of time covered by the interim limits will be driven by the final limits. This section is only applicable if the final limits are based on the outcome of the studies included in the compliance schedule. Those actions should be tied to the AKART and not a separate feasibility study. We can submit an annual report covering the actions we have taken and our progress toward meeting the final limits. See initial discussion of the conflict between EPA's compliance schedule timing requirements and legal constraints on the Navy's ability to program funding.
36.	Page 15 I.D.2.e)(1)	The permittee is required to implement all Technology-Based Stormwater Controls specified under Part II.C.2.	Delete this paragraph. Complying with II.C.2 is required regardless of compliance with permit limits.
37.	Page 15 I.D.2.e)(2)	The permittee must minimize the discharge of dry dock floor drainage and storm water through maximizing discharge to the sanitary sewer and/or discharge to temporary storage and treatment.	Remove this requirement. This issue will be addressed by the AKART study and implementation. The POTW is attempting to minimize stormwater going to their plant. Therefore, PSNS & IMF believes finding the appropriate balance, through the AKART study, is more appropriate than a permit requirement to send as much as possible.

Com'nt No	Permit Para. No.	Permit	Comment
38.	Page 15 Table 7	**Benchmark Levels for Stormwater Monitoring and Dry Dock Floor Drainage**	Stormwater benchmark levels should be consistent with the State's and EPA's industrial permits (MSGP and Industrial General Stormwater Permit). All indications are that Sinclair Inlet meets water quality criteria, therefore the following statement from the Industrial General Stormwater Permit should be applicable: *Benchmark values are not water quality criteria or effluent limits but they are intended to identify discharges that are at low risk of violating water quality standards. Discharges that do not exceed the benchmark values are not likely to violate water quality standards.*
39.	Page 15-16 I.E.1	The permittee must achieve compliance with the stormwater effluent limitations of Table 5: Stormwater Monitoring Requirements and Final Effluent Limitations within 5 years of the effective date of the permit.	ENVVEST studies show that PSNS's discharges are not causing Sinclair Inlet to exceed water quality criteria. Having final limits based on water quality criteria is inconsistent with the allowance of a mixing zone and implementation of BMPs. The final limits need to be based on the findings of the AKART study and mixing zone. Assigning a limit less than what can be achieved with AKART is inappropriate. It is inappropriate for a permit to contain limits and BMPs. We recommend that the permit contain a requirement the BMPs determined appropriate by the AKART study along with stormwater monitoring and benchmark levels.
40.	Page 15 I.E.2	Until compliance with the effluent limits is achieved, at a minimum, the permittee must complete the following tasks:	Comment 35 made to dry dock compliance schedule is also applicable to stormwater.
41.	Page 16 I.E.2.b)(1)	**Contaminated Stormwater Collection and Treatment**	Delete. This requirement is redundant to the AKART study and required implementation of II.A. Also, the requirement to identify areas that might exceed WQC is not possible until the mixing zone and dilution factor are determined.
42.	Page 16 I.E.2.c)(2)	A report on progress made towards meeting the effluent limitations, including the applicable deliverables required under paragraph I.D.2.	This requirement is redundant to I.D.2.c)(2)
43.	Pages 16-17 I.F	**Whole Effluent Toxicity Testing Requirements**	EPA needs to justify the large amount of testing required. As noted in the initial comments, the total cost of this testing is near $1,000,000. Mary Ann Rempel-Hester, Ph.D., at Nautilus Environmental. Nautilus provided the following information: – West Coast mysid are difficult to get. Typically, permits have a choice of West coast mysid or Americamysis bahia. Both are not typically required. – Giant kelp are a California species. They don't grow around here and are very sensitive. If we asked Nautilus to do this testing, they would ship the sample to their San Diego lab. Since they are non-native, the test is not locally available, and this is not a typical test, recommend we ask EPA to delete the requirement. – The Sand Dollar test can only be done in the summer. Clearly, this won't work for quarterly testing year round. Typically, permits will allow purple sea urchin as an alternate.

Com'nt No	Permit Para. No.	Permit	Comment
44.	Page 17 I.F.5	The toxicity testing on each organism must include a series of five test dilutions and a control. The dilution series must include 6.25, 12.5, 25, 50, and 100% effluent.	If the lab needs to raise salinity as required by the test procedure they won't be able to achieve the 100% effluent requirement.
45.	Page 19 I.G.	**Surface water monitoring**	Delete this requirement or substitute it for stormwater sampling. ENVVEST has already collected a comprehensive set of data for Sinclair and Dyes Inlet.
46.	Page 20 Table 8	**Surface Water Monitoring Requirements**	EPA needs to justify why each parameter is included and specifically state how it relates to the discharges from PSNS&IMF. For example, there is no reasonable potential for detectable Oil & Grease or turbidity as a result of shipyard operations. Note: There is no 40 CFR part 136 testing method for salinity.
47.	Page 20 II.A	**All Known, Available, and Reasonable Methods of Prevention, Control, and Treatment (AKART)**	The requirement to apply AKART is not consistent with the final limits in the permit which do not include a mixing zone. The final limits need to either include a mixing zone or the requirement to apply AKART needs to be deleted. (See the initial discussion)
48.	Page 22-23 II.B.4.c)(2)	Pollutants. A list of the associated pollutant(s) or pollutant constituents (e.g., crankcase oil, zinc, sulfuric acid, and cleaning solvents) for each identified Puget Sound Naval activity. The pollutant list must include all significant materials that have been handled, treated, stored, or disposed, and that have been exposed to stormwater in the 3 years prior to amendment of the SWPPP as well as any additional significant materials that the facility plans to use during the life of this permit.	Delete. This information is covered by the AKART study.
49.	Page 21-26 II.B	**Stormwater Pollution Prevention Plan (SWPPP)**	As noted in the general comments, delete sections II.B and II.C on pages 21 -38 and instead include a condition to prepare a BMP and SWPPP for EPA approval. Most of comments 50 - 99 demonstrate problems associated with EPA attempting to write these plans in our permit. This section in confusing in that it intermingles dry dock requirements along with stormwater [e.g., II.B.4.d), II.B.4.e) (1), II.B.5.e), II.B.6.a](2)]. The SWPPP should only apply to stormwater.
50.	Page 23 II.B.4.c)(3)	Significant spills and leaks include but are not limited to, releases of oil or hazardous substances in excess of quantities that are reportable…	Including the phrase, "but not limited to" makes this definition meaningless.
51.	Page 23 II.B.4.c)(4)	Within 2 years of the effective date of the permit, the permittee must submit a certification that all storm sewers have been inspected for the presence of non-stormwater and sanitary sewer cross connections, and that all unauthorized discharges and sanitary sewer cross connections have been eliminated.	Please delete. We have already submitted this certification as part of our permit application (Form 2F.V)
52.	Page 24 II.B.4.c)(5)(d)	Allowable non-stormwater discharges are subject to all of the provisions of this permit.	Too vague. What does this mean?

Com'nt No	Permit Para. No.	Permit	Comment
53.	Page 24 II.B.4.d)	Description of Control Measures. The permittee must identify and describe the control measures that the permittee has implemented at the site to comply with the limits set forth in Part I, address the pollutant sources identified in Part II.B.4.c), and address stormwater run-on that commingles with the discharges associated with industrial activity. The SWPPP must include sufficient detail to identify and describe the implementation of the mandatory control measures identified and described in Part II.C.2.	The requirement to, "identify and describe the control measures that the permittee has implemented at the site to comply with the limits set forth in Part I" is too general. "Part I" includes industrial discharges including dry docks and steam plant. The SWPPP should be limited to stormwater controls.
54.	Page 24 II.B.4.e)(1)	The permittee must document in the SWPPP the planned procedures for performing analytical monitoring as appropriate for the analytical monitoring for stormwater specified by this permit (see Parts I.C.2 and I.C.3). For each sample to be collected, the SWPPP must identify:	Delete "I.C.2". See comment on section I.C.2.
55.	Page 24 II.B.4.e)(1)	*See above*	This is redundant to II.D. "Quality Assurance Plan (QAP)".
56.	Page 25 II.B.5.d)	Documentation of maintenance and repairs of control measures, including the date(s) of regular maintenance, date(s) of discovery of areas in need of repair/replacement, and for repairs, the date(s) that control measure(s) returned to full function, and the justification for any extended maintenance/repair schedules;	This requirement is not feasible in a facility of this size. Our facility has several very extensive preventive maintenance programs that include thousands of maintenance items for dry docks, steam plant, storm water, sanitary sewer, etc.
57.	Page 25 II.B.5.g)	Findings and dates of the review of control measures and/or SWPPP document following any samplings results showing an exceedance of applicable limitations (see Table 5: Stormwater Monitoring Requirements and Final Effluent Limitations).	The requirement to review control measures are not consistent in sections II.B.5.g) and III.G.d). II.B.5.g) requires a report when Benchmark Levels of Table 7 are exceeded and III.G.d) requires a report when discharge limits of Table 5 are exceeded. The requirements for compliance with stormwater benchmarks and limits make the permit confusing. At a minimum, this paragraph does not apply for the first five years of the permit.

Com'nt No	Permit Para. No.	Permit	Comment
58.	Page 26 II.B.6.b)	If any of the circumstances described above occur at the site, the permittee must address these changes or deficiencies to ensure compliance with the permit conditions and applicable limits. The SWPPP must be kept up-to-date with any of these changes. Changes to the SWPPP document must be made no later than 14 days from the date the permittee discovers or observes an event requiring a modification and must be signed and dated by an authorized representative in accordance with Part V.E. Consistent with Part II.C.4, if the permittee finds that any of these circumstances make it necessary to change the control measures to further reduce pollutants in the discharge, the permittee must do so before the next storm event if possible, or as soon as practicable following that storm event.	This requirement is confusing. After having implemented AKART, it is highly unlikely that any change that would be effective in bringing the facility into compliance could be identified within 14 days and implemented before the next storm.
59.	Page 26 II.C	**Stormwater Controls, Inspections, and Evaluations**	This section is confusing in that it contains BMPs for stormwater, in-water work, and dry-dock work
60.	Page 26 II.C.1	**Selection, Design, and Installation Requirements.**	These requirements are redundant to the AKART requirements of II.A.2. Also they do not specify that we have two years to implement the control measures allowed in II.A.2.
61.	Page 27 II.C.2.a)	**Prevent Exposure**. The permittee must, to the extent achievable, either locate industrial materials and activities inside, or protect them with storm-resistant coverings in order to prevent exposure to rain, snow, snowmelt and runoff.	This requirement is vague and redundant to the rest of the BMPs.
62.	Page 27 II.C.2.b)(1)(b)	Any washwater must be directed to the sanitary sewer.	See comment on I.B.3.
63.	Page 27 II.C.2.b)(1)(c)	Clean regularly all accessible work, service and storage areas to remove debris, spent sandblasting material, and any other potential pollutants.	Redundant to II.C.2.b)(1)(d) Delete.
64.	Page 27 II.C.2.b)(3)	**Blasting and Painting Area**. Implement measures to prevent spent abrasives, paint chips, and overspray from discharging into Sinclair Inlet or the storm sewer system including the following measures:	These BMPs apply to more than just blasting and painting They should be tailored for our facility in an approved plan outside of the permit.
65.	Page 27 II.C.2.b)(3)(a)	Enclose, cover, or contain all blasting and sanding activities to the maximum extent practicable to prevent abrasives, dust, and paint chips, from reaching storm sewers or Sinclair Inlet.	Delete. Redundant to (3)(c)
66.	Page 27 II.C.2.b)(3)(c)	Perform all dry-blasting operation within an enclosure with adequate dust collection. Remove all spent blast grit within 72 hours.	Requirement to remove spent blast grit within 72 hours is ambiguous. Remove it from what?

Com'nt No	Permit Para. No.	Permit	Comment
67.	Page 28 II.C.2.b)(3) (f)	Use fixed platforms with appropriate plastic or tarpaulin barriers as work surfaces and for containment when work is performed on a vessel in the water to prevent blast material or paint overspray from contacting stormwater of the receiving water. Use of such platforms will be kept to a minimum and at no time be used for extensive repair or construction (anything in excess of 25 percent of the surface area of the vessel above the waterline).	Delete the "25% limitation. It is confusing. Restricting overwater work to 25% of the vessel hull above the water line could impact Ship Force and inactive fleet work. Blasting and spray painting is already included in item (d) above. The 25% restriction is arbitrary where the real issue is the containment system. Overwater work is very expensive due to the costs associated with the extensive containment systems required. Therefore, it is already strongly disincentivized. Nonetheless, it is sometimes required because docks are scheduled years in advance and dockings can interfere with the ability of ships to meet their operating schedule.
68.	Page 28 II.C.2.b)(3) (g)	Use plastic or tarpaulin barriers beneath the hull and between the hull and dry dock walls to contain and collect waste and spent materials.	This is confusing. Wording implies that this applies to work in a dry dock. Use of tarps in the dry dock is not necessarily protective and can create a safety hazard.
69.	Page 28 II.C.2.b)(3) (h)	Clean and sweep frequently to remove debris, spent sandblasting material, and any other potential stormwater pollutants prior to exposure to rainfall and/or other sources of runoff.	Redundant to II.C.2.b) (1).(d)&(f)
70.	Page 28 II.C.2.b)(3) (i)	Clean paint operation work areas at the end of each work shift to prevent pollutant exposure to rainfall and/or other sources of run off. Cleaning should be accomplished using vacuums equipped with appropriate filters and/or other cleaning methods that prevent the escape of the overspray to the environment.	All ready covered in II.C.2.b) (3).(a) through (c). The cleaning methods mandated by this BMP are not appropriate to all situations. For example, a vacuum does not work when the surface is wet. PSNS has cleaning methods that vary with the conditions.
71.	Page 28 II.C.2.b)(3) (j)	Store spent abrasives under cover. Prevent any contact between process or stormwater and sandblast grit and spent abrasives.	Redundant to item 3.(c)
72.	Page 28 II.C.2.b)(3) (l)	Consideration should also be given to feasible innovative procedures as appropriate to improve the effectiveness of controlling dust emissions and paint overspray.	Redundant to above items .
73.	Page 28 II.C.2.b)(4)	**Material Storage Areas.** Implement measures to prevent or minimize the contamination of precipitation or surface runoff from the storage areas, including the following measures:	Redundant with II.C.2.d) .
74.	Page 29 II.C.2.b)(5) (c)	Minimize contaminants from these areas (e.g. drip pans under equipment, indoor storage, use of berms or dikes, or other equivalent measures.)	Redundant to II.C.2.b)(5)(a)&(b)
75.	Page 29 II.C.2.b)(5) (e)	Maintain an organized inventory of materials used in the shop.	Not applicable to stormwater pollution prevention. The concept is covered by the SPCCC and Hazardous Material programs.

Com'nt No	Permit Para. No.	Permit	Comment
76.	Page 29 II.C.2.b)(6)	**Material Handling Area.** Implement measures to prevent or minimize the contamination of precipitation or surface runoff from material handling operations and areas (e.g., fueling, paint and solvent mixing, disposal of process wastewater streams from vessels), including the following measures:	Redundant with section II.C.2.b)(4)
77.	Page 29 II.C.2.b)(6) (b)	Immediately repair, replace or isolate leaking connections, valves, pipes, and hoses, carrying wastewater, fuel, oil or other hazardous fluids.	Redundant with II.C.2.b)(1)(e)
78.	Page 29 II.C.2.b)(6) (c)	Mix paints and solvents in a designated area (preferably indoors or under a shed), under conditions such that no spill shall enter stormwater system or Sinclair Inlet. Use drip plans, drop cloths, tarpaulins and other protective devices in all paint mixing and solvent operations unless carried out in impervious contained and covered areas.	Redundant with II.C.2.b)(3)
79.	Page 30 II.C.2.b)(7) (a)	Conduct fueling only in designated areas. Prohibit any mobile fueling.	Not practical and more risk to the environment. We have a large number of forklifts, man lifts, gas and diesel powered equipment such as compressors, dust collectors, paint pumps, etc distributed across a mile of waterfront and six dry-docks. Moving all this equipment to a central fueling location is impractical and would include an inherent risk of lifting equipment in and out of dry-docks. We have a well regulated mobile fueling program that includes trained operators and spill prevention requirements.
80.	Page 30 II.C.2.b) (8)	**Dry dock Activities.**	Dry-dock activities need to be evaluated differently from general stormwater BMPS. Delete specific requirements and replace with the requirement for the permittee to implement procedures necessary to comply with the limits of Part I. Procedures are currently in 5090.30 App E
81.	Page 30 II.C.2.b) (8)(a)	Use sweeping and vacuums for general dry dock clean up.	This is less protective than current practice. Needs to be in separate plan to allow for improvements without a permit modification.
82.	Page 30 II.C.2.b)(8) (c)	Thoroughly clean the dry dock prior to flooding. Cleaning must be accomplished with manual or mechanical sweeping with vacuuming to remove fine grit and debris.	This is less protective than current practice. Needs to be in separate plan to allow for improvements without a permit modification
83.	Page 30 II.C.2.b)(8) (e)	All dry dock floor drainage and stormwater must be collected and conveyed to the sanitary sewer in accordance with Part I.D.	Delete – being addressed with AKART This is also inconsistent with other parts of the permit which allow discharge of stormwater from the dock floor.
84.	Page 30 II.C.2.b)(8) (g)	Any freeze protection water that contacts the dry dock floor must be conveyed to the sanitary sewer.	Impractical and unnecessary. Most of the freeze protection water discharged in the dry-docks is routed directly to the drainage system however due to an number of reasons this is not always possible. The amount of contaminates washing off the floor and ending up in the bay is minimal. All water contacting the dock floor, including freeze protection water, is routed through the PWCS and discharged appropriately.

Com'nt No	Permit Para. No.	Permit	Comment
85.	Page 32 II.C.2.e)	**Erosion and Sedimentation Controls**	Only applicable to construction, not shipyard activities.
86.	Page 32 II.C.2.f)(1)	The permittee must divert, infiltrate, reuse, contain or otherwise reduce stormwater runoff, to minimize or, to the extent achievable, eliminate pollutants in the discharges. The permittee must implement stormwater runoff management practices, e.g., permanent structural control measures that are necessary to minimize or, to the extent achievable, eliminate pollutants in the discharge. Nothing in this permit relieves the permittee of the obligation to implement additional control measures required by other Federal authorities, or by a State or local authority. Structural control measures, which involve the discharge of dredge or fill material into any receiving waters (e.g., wetlands) may require a separate permit under section 404 of the CWA before installation.	Delete - Being addressed in AKART
87.	Page 33 II.C.2.i)(3)(a)	Promptly repair any deterioration threatening the structural integrity of the facilities. These include replacement of clean-out gates, catch basin lids, and rock in emergency spillways.	Not applicable to this facility. Delete requirement to repair rock in "emergency spillways"
88.	Page 33 II.C.2.i)(3)(b)	Ensure that storm sewer capacities are not exceeded and that heavy sediment discharges to the sewer system are prevented.	Not applicable to this facility. There is no risk of heavy sediment discharges to the sewer. The facility is completely paved.
89.	Page 33 II.C.2.i)(3)(c)	Regularly remove debris and sludge from BMPs used for peak-rate control, treatment, etc.	Redundant to II.C.2.i)(3)(f) Delete
90.	Page 33 II.C.2.j)(1)	The permittee must take corrective action(s) to modify the control measures as appropriate to address deficiencies found pursuant to Part II.C.4	Redundant to II.C.4.b) Delete

Com'nt No	Permit Para. No.	Permit	Comment
91.	Page 34 II.C.2.k)	(1) The permittee must implement controls to ensure that no solid materials, including floatable debris, are discharged to receiving waters, except as authorized by a permit issued under section 404 of the CWA; (2) The permittee must minimize or, to the extent achievable, eliminate the generation of dust, along with off-site vehicle tracking of raw, final or waste materials, or sediments; (3) The permittee must minimize, or to the extent achievable, eliminate the introduction of raw, final, or waste materials to exposed areas; (4) The permittee must place flow velocity dissipation devices at discharge locations and along the length of any outfall channel if the flows would otherwise create erosive conditions; (5) The permittee must implement control measures that are necessary to avoid the likelihood of adversely impacting federally-listed species or federally-designated critical habitat under the Endangered Species Act, and to minimize effects on historic properties; and (6) The permittee must implement any additional control measures that are necessary to minimize or, to the extent achievable, eliminate pollutants in the stormwater discharges.	Other than item (5), these items are redundant to other areas of the permit. Delete all items except for (5)
92.	Page 34-35 II.C.3.a)(2)	Include the following in all weekly inspections: pressure washing areas; blasting, sanding, and painting areas; material storage areas; engine maintenance and repair areas; material handling areas; dry docks and surrounding areas; and general yard area.	Too prescriptive. As written this would require at least weekly inspections of the whole 200-acre facility.
93.	Page 34-35 II.C.3.a)(6)(i)	A signed certification statement in accordance with Part V.E.	This paragraph requires that inspection reports be signed in accordance with Part V.E which requires the report to be signed by the principal executive officer or authorized representative. Inspection reports should be signed by the inspector.
94.	Page 35 II.C.3.c)(1)	The permittee must conduct comprehensive site inspections at least twice per year for the entire permit term. Comprehensive site inspections must be conducted by qualified personnel with at least one member of the Pollution Prevention Team participating in the comprehensive site inspections.	This is redundant to the weekly inspection.

Com'nt No	Permit Para. No.	Permit	Comment
95.	Page 35-36 II.C.3.c)(2)	Elements to Cover in a Comprehensive Site Inspection. The comprehensive site inspections must cover all relevant requirements in this permit, including the areas identified in Part II.B.4.c) where industrial materials or activities (e.g., pressure washing, blasting and sanding, painting, material storage, engine maintenance and repair, material handling, and dry dock areas) are exposed to stormwater, stormwater controls identified in Part II.C.2, and areas where spills and leaks have occurred in the past 3 years. The inspections must also include a review of monitoring data collected in Part I.C. Inspectors must consider the results of the past year's analytical monitoring when planning and conducting inspections. Inspectors must examine the following:	This is redundant to the weekly inspection.
96.	Page 36 II.C.3.c)(2)	(a) Industrial materials, residue, or trash that may have or could come into contact with stormwater; (b) Leaks or spills from industrial equipment, drums, tanks, and other containers; (c) Offsite tracking of industrial or waste materials, or sediment where vehicles enter or exit the site; (d) Tracking or blowing of raw, final, or waste materials from areas of no exposure to exposed areas; (e) Evidence of, or the potential for, pollutants entering the drainage system; and (f) Evidence of pollutants discharging to receiving waters at all facility outfall(s), and the condition of and around the outfall, including flow dissipation measures to prevent scouring.	(f) is not applicable in the Shipyard. The vast majority of stormwater outfalls are sub-tidal and the rest discharge directly to the bay. There is no need for dissipation measures.
97.	Page 36 II.C.3.c)(4)	When comprehensive site inspection schedules overlap with routine facility inspections required under Part II.C.3.a), the comprehensive site inspection may also be used as one of the routine inspections, as long as all components of both types of inspections are included.	Delete. See comment on II.C.3.c)(2).
98.	Page 36-37 II.C.4.	**Corrective Actions**	Redundant to II.C.2.j)(1) Delete II.C.2.j)(1)
99.	Page 37 II.C.5.	**Contaminated Stormwater Collection and Treatment**	Redundant to I.E.2.b) and II.C.2.f)(1) Delete

Com'nt No	Permit Para. No.	Permit	Comment
100.	Page 38-39 II.D.	**Quality Assurance Plan (QAP)**	180 days is not enough time considering the complexity of the permit. Rather than specifying a few QAP requirements in the permit, the permit should reference the requirements of the Uniform Federal Policy for Quality Assurance Plans Paragraph 4 is too prescriptive. For instance, do we need a map of every sampling point? Stormwater "yes" but not for those in the pumpwells.
101.	Page 39 II.E.1.a)	The permittee must determine the degree of effluent and receiving water mixing which occurs within the mixing zones for the dry dock, steam generation plant, and storm water outfalls.	It is unrealistic to do a mixing zone study for each of the stormwater outfalls
102.	Page 39-40 II.E.	**Effluent Mixing Study**	The requirements for doing a mixing zone study do not incorporate the allowance for an expanded mixing zone. Without knowing the size of the expanded zone, it is impossible to determine the dilution ration. The dilution ration will be a function of the level of contaminates that can be achieved through application of AKART and the size of the mixing zone will be determined by the dilution ratio.
103.	Page 39-40 II.E. Page 8 I.C.c)	**Effluent Mixing Study**	The permit requires a mixing study, but doesn't incorporate the findings of this study into the final limits of the permit. In fact there is nothing in the permit that provides guidance on how the mixing will affect the final limits. The fact sheet does say that the permit can be reopened based on the findings of the mixing study, however there is insufficient time between completing the mixing study (30 months) and the effective date for the final limits (36 months) to reopen the permit.
104.	Page 40 II.E.2.a)	The permittee must include the results of the effluent mixing study in the Effluent Mixing Report, and must submit it to Ecology and EPA within 30 months of the effective date of the permit.	The due date for the Effluent Mixing Report should be a number of days following Ecology's approval of the Plan of Study rather than the effective date of the permit. As written, we can not proceed with the study until Ecology approves the plan.
105.	Page 41 III.A.2	In order to ensure that the effluent limits set forth in this permit are not violated at times other than when routine samples are taken, the permittee must collect additional samples at the appropriate outfall whenever any discharge occurs that may reasonably be expected to cause or contribute to a violation that is unlikely to be detected by a routine sample. The permittee must analyze the additional samples for those parameters limited in Part I.A. of this permit that are likely to be affected by the discharge.	Delete. This is an impossible standard with which to demonstrate compliance. PSNS & IMF Instructions are written to constrain production so that they do not do something that could reasonably be expected to cause a violation of our permit. If something like that were to be planned far enough in advance to enable sampling by Code 106, it would be halted before it occurred.
106.	Page 41 III.A.2	The permittee must analyze the additional samples for those parameters limited in Part I.A. of this permit that are likely to be affected by the discharge.	The reference to "Part I.A." is incorrect.
107.	Page 41	**Report of Monitoring Results**	Is it correct that all reports required by this permit should be sent to the "PCS Data Entry

Com'nt No	Permit Para. No.	Permit	Comment
	III.B		Team"?
108.	Page 42 III.D.2	Upon request by EPA, the permittee must submit results of any other sampling, regardless of the test method used.	Delete. This can be dealt with on a case-by-case basis and raises too many complications with conflicting laws to deal with generically.
109.	Page 42 III.F	This period may be extended by request of EPA or Ecology at any time.	Change to "This period may be extended by reasonable request of EPA."
110.	Page 42-43 III.G	**Twenty-four Hour Notice of Noncompliance Reporting**	As written, exceedances of dry dock or stormwater limits would require a telephone report within 24 hours and a written report within 5 days. In the past, information on exceedances of permit limits has been submitted with the DMR. Is it the intention of EPA that this information will be sent in a separate letter rather than with the DMR?
111.	Page 49 V.C.	The permittee must furnish to EPA and Ecology, within the time specified in the request, any information that EPA or Ecology may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee must also furnish to EPA or Ecology, upon request, copies of records required to be kept by this permit.	EPA is the permitting authority. If Ecology wants data or information pertaining to this permit, they should submit their request through EPA.
112.	Page 50 V.E.2	All reports required by the permit and other information requested by EPA or Ecology must be signed by a person described above or by a duly authorized representative of that person.	Delete "or Ecology". All reports should be officially signed but the "other information" signature requirement would tend to inhibit effective communication. Does this apply to e-mails? If so how? What about phone calls?
113.	Page 53, VI.16	Interim Minimum Level (IML)	We suggests that this be changed to reflect that the reporting level (RL) will be set at 3 x MDL (or state the agreed-upon RL up-front and the method used must have an MDL equal to 1/3 RL or less).
114.	Page 53 VI.20	Minimum Level (ML)	The statement that the ML is equal to the low calibration standard is incorrect for ICP-OES & ICP-MS. The statement contradicts NELAC 2003 5.5.5.2.2.1 h: "Exception is made for instrument technology (ICP or ICP/MS) with validated techniques from manufacturers or methods employing standardization with a zero point and a single calibration standard. A standard corresponding to the limit of quantification must be analyzed with each analytical batch." Using this technology, the laboratory analyzes a low-level calibration verification (LLCV) standard at the required reporting level to validate the calibration at the reporting level. No allowance is made for this in the draft permit.
115.	Page 56 Appendix A	**Stormwater Outfalls**	We will supply an updated list of stormwater outfalls.

WORKING DRAFT FACT SHEET DETAILED COMMENTS

Enclosure (3)

Working Draft Fact Sheet Detailed Comments

Com'nt No	Fact Sheet Para. No.	Permit	Comment
1.		*General Comment*	Replace "Puget Sound Naval Shipyard" with "Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS&IMF)". The coverage of this permit needs clarification.
2.	Page 6 II. 4th para	Discharges to receiving waters from the PSNS come from dry dock operations, stormwater runoff and treated wastewater from the steam generation plant. Discharges from the Bremerton Naval Complex include stormwater. This NPDES permit covers only discharges from the PSNS. Authorization from the support areas will be addressed under a separate permitting activity (either coverage under a general permit or issuance of an individual permit).	The Fact Sheet states that the permit only applies to "Puget Sound Naval Shipyard" however the permit includes stormwater and industrial outfalls that belong to "Naval Base Kitsap (NBK) – Bremerton Site". These commands have different commanders and functions. This permit should apply to PSNS&IMF operations. The NBK operations are equivalent to operations at other naval bases in the area including Bangor, Whidbey Island, Everett, and Keyport. These facilities are covered by EPA's multi-sector general storm water permit. NBK's steam plant could be covered under an individual permit specific to the steam plant operation. There are a number of discrepancies related to the coverage of the permit including the description of the facility in the introduction and references to the "Bremerton Naval Complex" throughout the fact sheet. A decision to issue separate permits to PSNS & IMF and NBK will require coordination with several Navy commands in addition to PSNS & IMF
3.	Page 8 III.A	1st paragraph	Delete the sentence, "This occurs only at dry dock 6." Although this can occur in any dry dock, it is only significant in dry dock 6 since the discharges of dry docks 1-5 are combined.
4.	Page 8 III.A	3rd paragraph, last sentence	Correct to read, "…the hydroblast water is <u>treated and</u> sent to the Bremerton POTW."
5.	Page 8 III.A	4th paragraph, 4th sentence	Delete, "on the floor of the dry dock." Blast grit is always contained to prevent contact with water.
6.	Page 8 III.A	WELDING, BURNING, CUTTING AND GRINDING The PSNS cuts up and disposes and/or recycles Navy vessel hulls and copper-nickel alloy piping.	Change to, "The PSNS cuts up and disposes and/or recycles Navy vessel." The disposal includes the whole vessel including all piping not just the copper-nickel piping.
7.	Page 9 III.A	PAINTING OPERATIONS	Add, "All vessel spray painting outside of the dry docks or above the ground level of the dock is done in side containment."

Com'nt No	Fact Sheet Para. No.	Permit	Comment
8.	Page 9 III.A	Steam Condensate The PSNS has an on-site stream generation plant. The PSNS uses additives to control stream generator chemistry and prevent corrosion in the steam and condensate lines.	Change "stream" to "steam".
9.	Page 9 III.A	Steam Condensate The PSNS has an on-site stream generation plant. The PSNS uses additives to control stream generator chemistry and prevent corrosion in the steam and condensate lines. Three chemicals that may be added are: ChemTreat BL-1283, BL-1544, and BL-1752.	The steam plant has switched vendors of boiler and steam system additives. The plant now uses: Garratt-Callahan Formula 1153: A formulation containing a blend of polymers, copolymers and alkalinity treatment. Formula 1153 is designed to inhibit mineral scale, condition and disperse boiler sludge, complex metal ions and passivate the internal metal surfaces of the steam generating section of the boiler. Formula 1153 is fed directly into the boiler's feedwater line. Garratt-Callahan Formula 1158: A liquid blend containing a catalized oxygen scavenger and polymetric dispersant. Formula 1158 scavenges dissolved oxygen to reduce corrosion and pitting. Formula 1158 is fed directly to the deaerator. Garratt-Callahan Formula 4023: A liquid blend of neutralizing amines combined with a volatile oxygen scavenger and metal passivator. Formula 4023 provides protection of the condensate return system. Formula 4023 is fed directly in to the main steam distribution header.
10.	Page 10 III.A	All condensate from processes such as steam-cleaning or used to power equipment is sent to the sewer. The permit prohibits the discharge of the condensate from steam-cleaning, or used to power equipment.	Correct to read: "All condensate from processes such as steam-cleaning is sent to the sewer, treated, or evaporated. The permit prohibits the discharge of the condensate from steam-cleaning or used to power equipment."
11.	Page 10 III.A	4th paragraph	Delete, "The permit prohibits the discharge of freeze protection water that contacts the dry dock floor." There is no difference between freeze protection water that contacts the dry dock and freeze protection water that is discharged directly to the drainage system.
12.	Page 10 III.A	Paragraph titled "Hydrostatic Relief Water"	Note: There are times when cooling water exceeds the amount of relief water.
13.	Page 11 III.A	1st paragraph	– Increase the maximum amount of cooling water from 4 MGD to 8 MGD. – Change to, "This cooling water does not normally contact the dry dock floor, however it will be discharged to the dock floor following dewater of the dry dock and before flooding;

Com'nt No	Fact Sheet Para. No.	Permit	Comment
14.	Page 12 III.A	Partially Flooded Dry Dock Discharge During partially flooded dry dock conditions, drainage pumps are used to expel Sinclair Inlet water that enters through the pump well sump. The outfalls through which the water is discharged are the same as those listed under dewatering. The outfalls from the partially flooded discharge are not monitored.	Change to, "During partially flooded dry dock conditions, drainage pumps are used to expel Sinclair Inlet water that enters the pump well sump from the flooded dry dock. For Dry Dock 6, the drainage pump discharge is not monitored when the dock is flooded."
15.	Page 12 III.A	Caisson Ballast Water During the docking/undocking operation, the caisson is moved by pumping Sinclair Inlet water from the caisson boxes attached to the gate until the caisson floats. Once the caisson floats, it is pushed aside. The caisson ballast water is discharged twice during each flooding event, once to move the gate after flooding, then to close the gates. The maximum volume of the caisson water for each of the dry docks is summarized in *Table 3: Volume of Caisson Ballast Water*. The ballast water does not flow through the dry dock outfalls. The caisson ballast water is not monitored.	Change to, "During the docking/undocking operation, the caisson is raised by pumping Sinclair Inlet water from the caisson ballast tanks. Once the caisson floats, it is pushed aside. The maximum volume of the caisson water for each of the dry docks is summarized in *Table 3: Volume of Caisson Ballast Water*. The ballast water does not flow through the dry dock outfalls. The caisson ballast water is not monitored." Note: Water is only discharged once during each flooding.
16.	Page 13 III.A		1st paragraph – Delete "washdown water, freeze protection water, and contaminated stormwater" from the list of prohibited discharges. These items are discussed in the comments to the working draft permit.
17.	Page 13 III.A	Table 4	– add building 431 as described on page 11. –The total average discharge for OFs 18A/B&96 has increased from 3.1 to 3.55 MGD based on data since 2003. The average flow for OF 19 is still 5.9 MGD
18.	Page 15 III.A	Table 7	It doesn't make sense to separate the dry dock outfalls since the contaminates discharged varies with the project not with the dry dock.
19.	Page 17 III.A	**DRY DOCK FLOOR DRAINAGE SYSTEM** …The dry dock floor drainage system is piped to allow the Navy to direct the flows from the dry dock floor to one of three locations: directly to Sinclair Inlet, to the sanitary sewer, or to tanks for further treatment prior to discharge to the sanitary sewer…	Change to, "…The dry dock floor drainage system is piped to allow the Navy to direct the flows from the dry dock floor to one of three locations: directly to Sinclair Inlet, to the sanitary sewer, or to, in some of the docks, tanks for further treatment prior to discharge to the sanitary sewer…."

Com'nt No	Fact Sheet Para. No.	Permit	Comment
20.	Page 17 III.A		Change 260,000 to 400,000 gallons. Our waste discharge permit contains the increased sewer allotment.
21.	Page 18 III.A	As discussed above, several wastestreams from the dry docks do not flow through the dry dock drainage system. These include: dock de-flooding water, partially flooded dry dock discharge, and caisson ballast water. These are discharged through other outfalls.	Change to, "As discussed above, several wastestreams from the dry docks do not flow through the dry dock drainage system. These include: dock de-flooding water and caisson ballast water. These are discharged through other outfalls."
22.	Page 18 III.A	Table 8: Dry Dock Outfalls	Some of this information is incorrect. We will provided corrected data separately.
23.	Page 19 III.A	Outfalls AAA and BBB	These outfalls are only used during docking evolutions at DDs 1 & 2. The rest of the time they are left in standby for contingency backup. The typical operating time of all four pumps is less than 30 minutes total per year.
24.	Page 20 III.B	B. STREAM GENERATION PLANT AND MISCELLANEOUS INDUSTRIAL WASTE	Change "Stream" to "Steam". Also in the last paragraph on page 20 and table of contents.
25.	Page 20-22 III.B	B. STREAM GENERATION PLANT AND MISCELLANEOUS INDUSTRIAL WASTE	It is highly likely that the current pure water plant at the steam plant will be converted to reverse osmosis. The plan is to direct discharge the reject water from the RO unit to the bay and send all the other waste streams to the sanitary sewer. The reject water will be "concentrated" potable water. The design work is nearly complete and construction should start in the next year. I would suggest using a separate permit for the RO units.
26.	Page 21 III.B	Table 9	This information is currently out-of-date (and irrelevant when the plant converts to reverse osmosis.) The coal handling building has been converted to a network server farm.
27.	Page 22 III.B	Table 11 "Water depth: ??? from floor"	The water depth is the depth of the discharge pipe.
28.	Page 23 III.C 1st para	The Naval Station is a non-industrial, relatively open access area with both paved and unpaved areas. Land use in this area includes mostly residential housing and restaurants.	See comment number 1. This area also includes warehouses, office buildings, parking lots, piers, and steam plant.
29.	Page 23 III.C 2nd para	In addition to the stormwater collected from the entire Complex, there are five pipe connections from the City of Bremerton's storm sewer drainage system and two connections from the City of Bremerton's combined sewer collection system.	The City has disconnected all of their CSO that connect to PSNS&IMF storm drains. There is one CSO overflow connected to storm drains in the Naval Base. The City has four stormwater lines that run through Naval Station property and several small residential areas that drain to Naval Base storm drains.

Com'nt No	Fact Sheet Para. No.	Permit	Comment
30.	Page 23 III.C 3rd para.	The permittee requires the permittees to certify that all storm sewers have been inspected for cross-connections.	Typo. Change, "The permittee…" to the "The permit…" The comment on the working draft permit was to delete this requirement. The shipyard already included this certification in the permit application.
31.	Page 23 III.C 4th para	There is no distinct stormwater collection system from the piers.	As piers are rebuilt, stormwater collection and treatment systems are being installed that meet the criteria of WDOE's Western Washington Stormwater Management Manual. Pier D stormwater is collected and drains through an Oil and Separator. Pier B is currently being rebuilt and will include basic treatment.
32.	Page 24-27 III.C	Table 12	The table includes several errors including listing the dry-dock outfalls along with the stormwater outfalls. We will supply an updated list of stormwater outfalls.
33.	Page 27-28 III.C	STORAGE OF PARTS, CONTAINERS, AND MATERIALS Several locations at PSNS contain materials that are treated, stored or disposed of in a manner that may allow exposure to stormwater. These may include: scrap metals, electrical and mechanical equipment, heavy equipment awaiting maintenance (such as forklifts, cranes, garbage trucks), treated lumber, scrap wood, sealed hazardous waste containers, metal ship parts awaiting spray processing, cut up submarine hulls and components, cutting debris, empty submarine batteries, PCB waste and contaminated transformer oil, sand and gravel, paint shop equipment, reactor compartment disposal (RCD) rollers.	Correct to read: Several locations at PSNS contain materials that are stored in a manner that may allow exposure to stormwater. These may include: scrap metals, electrical and mechanical equipment, treated lumber, scrap wood, sealed hazardous waste containers, metal ship parts, cut up submarine hulls and components, sand and gravel, and heavy equipment awaiting maintenance (such as forklifts, cranes, garbage trucks).
34.	Page 28 III.C	CRANES By design, some older cranes discharge grease from the wheels onto the ground in order to lubricate their wheels.	Delete. These older cranes have been eliminated.

Com'nt No	Fact Sheet Para. No.	Permit	Comment
35.	Page 28-30 III.C	**Table 13: Stormwater Outfalls of Concern**	The information in this table is out of date. The AKART study covers the areas that are stormwater concerns. The majority of the areas no longer exist or the problems have been rectified. The following areas still contain stormwater concerns and are addressed in the AKART study: Outfall 081.1: This is the area where heavy equipment is awaiting maintenance. Outfall 124.1: Dry dock 3 Cutting Facility: Exposed materials-recycling scrap, metal cutting debris, cut-up submarine components, etc. Outfall 126: Metal cutting area. Covered lead storage. Outfall 82.5: Have exposed scrap metal storage. Outfall 022: Stock piles of gravel and sand. Outfall 011: Carbon steel metal sheets uncovered. Outfall 126.4: Carbon steel metal sheets uncovered.
36.	Page 33 III.C	**TREATMENT** The PSNS has BMPs in place to minimize the contact of pollutants in the stormwater runoff. The PSNS has a SWPPP as the key strategy to assure compliance with the standards. Specific stormwater treatment at the PSNS includes some oil/water separators, catch basin filters, and one retention swale. Additional discussion on BMPs is provided on Page 48.	Stormwater treatment also includes a CDS/StormFilter treatment train and Vortech stormwater treatment unit.
37.	Page 33 III.D	Bilge water from the vessels are pretreated at the WWTL then routed to the Bremerton POTW.	"WWTL" should be, "OWTS."
38.	Page 33 III.D	The PSNS paint removal operations primarily use high and ultra-high pressure water; dry abrasive blasting has been used in the past. The PSNS employs two methods of collecting the high-pressure wastewater. The ultra high-pressure units have integral wastewater recovery and treatment systems. Once treated, the water is reused. For those systems without integral wastewater recovery capability, secondary containment is constructed or the PWCS is used.	Paint removal methods vary from project to project. Dry abrasive blasting is still used on a regular basis. In all cases, whether high-pressure water or abrasive blasting, all debris is contained.

Com'nt No	Fact Sheet Para. No.	Permit	Comment
39.	Page 33 III.D	Water and water with detergent is sprayed at the hull at a pressure of approximately 2,000 to 3,000 pounds per square inch (psi). The hull pressure washing is intended to remove sea growth, slime, and salt from ship hulls.	Detergent is not used during hull washing. All water from pressure washing hulls is collected, treated, and discharged to the POTW.
40.	Page 33 III.D	Ballast water may be carried by ships for added stability as they travel. The water may pick up residual oil contaminants in a ship's hull. The ballast water is pumped to a tanker for treatment then sent to the Bremerton POTW.	All bilge water is collected and treated at an OWTS plant. Ballast water not exposed to oil contaminates (for example, submarine main ballast tanks) is drained to the dry dock drainage system.
41.	Page 36	**Table 16: Monitoring Requirements in 1994 Permit**	PCBs monitoring is not required for dry dock discharges. Chlorine monitoring for OF 21 is only required if used. Chromium and zinc monitoring has not been done since this waste stream is discharged to the sanitary sewer.
42.	Page 40 V.C	If Ecology grants a mixing zone for the discharge, the permit could be reopened and modified to incorporate the mixing zone.	This is inconsistent with the direction from Kevin Fitzpatrick. Mr. Fitzpatrick made the statement that it was up to EPA to authorize a mixing zone.
43.	Page 40-47 VI – VII	Effluent Limits and Monitoring	Comments on the limits and monitoring requirements are included in the comments to the draft permit.
44.	Page 43 VII.A	Flow is revised from weekly estimate to a continuous recording. The PSNS has already equipped the outfalls with flow meters to more accurately measure the flows.	The flow meter does not record flow continuously. Totalized flow is manually recorded weekly.
45.	Page 44 VII.A	Oil and grease. There have been no detectable concentrations of oil and grease from the dry dock outfalls. The permittee requested that monitoring for oil and grease be eliminated. The monitoring frequency is instead reduced from weekly to monthly.	The oil and grease monitoring should be reduced to once/2 months per Interim Guidance For Performance-Based Reduction of NPDES Permit Monitoring Frequencies. EPA 833/B-96-001, April 1996.
46.	Page 44 VII.A	Chlorine	The shipyard does not add chlorine in the shipyard's saltwater supply system, however some vessels undergoing work in a dry dock have installed chlorine injection systems and the shipyard may use temporary equipment to provide the same function.
47.	Page 46 VII.A	Table 25 TSS - Three per week	The TSS monitoring should be reduced to once/week per Interim Guidance For Performance-Based Reduction of NPDES Permit Monitoring Frequencies. EPA 833/B-96-001, April 1996.
48.	Page 46 VII.A	chlorine at the stream plant	Change "stream" to "steam".

Com'nt No	Fact Sheet Para. No.	Permit	Comment
49.	Page 47-48 VII.A	The benchmark values are from the 2000 MSGP and Ecology's draft Industrial Stormwater General Permit (Ecology, 2007). Table 27	WDOE issued their Industrial Stormwater General Permit in October 2008. The benchmark level for copper should be 63.6 ug/L based on the State permit.
50.	Page 57 App A	Figure 5	The fact sheet needs to include the more recent stormwater data collected as part of the ENVVEST project. See the draft AKART study.
51.	Page 63 App C	The Navy has submitted study results for site-specific copper criteria for the facility using the Water Effects Ratio (WER) procedures. A WER is required to be adopted by Washington into rule and submitted and approved by EPA prior to use in an EPA-issued permit. The site specific criteria are not part of this permit reissuance. If site specific criteria are approved for the PSNS, the permit may be reopened and modified to incorporate the site specific criteria.	We disagree that a WER must be adopted by Washington into rule prior to use. The Washington State Water Quality Standard, WAC 173-201(A), clearly states in 173-201A-240, Table 240(3), Note dd, "Metals criteria may be adjusted on a site-specific basis when data are made available to the department clearly demonstrating the effective use of the water effects ratio approach established by USEPA … Information which is used to develop effluent limits based on applying … the water effects ratio approach shall be identified in the permit fact sheet … and shall be made available for the public comment period required…" This is consistent with WDOE's application of this standard in permits issued by the State.
52.	Page 67 App C	**Reasonable Potential Summary** … Based on the analysis, the dry dock effluent showed reasonable potential to exceed water quality criteria for the following parameters: arsenic, copper, lead, mercury, zinc, and temperature. Outfall 021 data showed reasonable potential to exceed the water quality criteria for temperature.	The Water Quality Criteria for temperature was misapplied in determining the reasonable potential for exceeding temperature at the dry dock outfalls and outfall 021. It is inappropriate to apply the temperature criteria for marine water at the end of pipe. WAC 173-201A-210(1)(c)(iv) defines where the temperature is to be monitored as follows; "Temperature measurements should be taken to represent the dominant aquatic habitat of the monitoring site. This typically means samples should not be taken … at the surface, or at the water's edge." See the comments to the Working Draft Permit concerning the monitoring requirements for arsenic, lead, and mercury.
53.	Page 68 App C	**Table C-6: Summary of Data Used to Determine Reasonable Potential Calculations**	The number of samples listed in the table (and used to determine the reasonable potential calculation) are incorrect for majority of the parameters. The "4" samples listed does not match the data submitted in the permit application. For copper, it appears that samples reported as less than the quantification level were inappropriately excluded from the analysis.

Com'nt No	Fact Sheet Para. No.	Permit	Comment
54.	Page 74 App C	step 2	Incorrectly states that a mixing zone is allowed
55.	Page 75 App C	$\sigma^2 = \ln(CV^2+1)$ CV = coefficient of variation (= 0.88) $\sigma^2 = 0.76$ z = normal distribution value = 2.326 for the 99th percentile = 1.62 for the 95th percentile $C_{99} = \exp(2.326 \times 1.62 - 0.5 \times 0.76)$ $= 4.37$ $C_{95} = \exp(1.62 \times 1.62 - 0.5 \times 0.76)$ $= 2.56$	Several typo's. Should read: $\sigma^2 = \ln(CV^2+1)$ CV = coefficient of variation (= 0.88) $\sigma_2 = 0.76$ $\sigma^2 = 0.57$ z = normal distribution value = 2.326 for the 99th percentile = 1.62 for the 95th percentile $C_{99} = \exp(2.326 \times 0.57 - 0.5 \times 0.76)$ $= 4.37$ $C_{95} = \exp(1.62 \times 0.57 - 0.5 \times 0.76)$ $= 2.56$

DISCUSSION OF ARSENIC LIMITS

Enclosure (4)

Discussion of Arsenic Limits

The draft working fact sheet for PSNS&IMF (USEPA 2008) lists the standards applicable to human health, including Arsenic (As) as 0.14 ug/L inorganic As (see Table C - 4: Human Health for Consumption of Organism). Seafood including fish and shellfish contain relatively high amounts of As, but most of the As is present as organic As (e.g., arsenobetaine, arsenochloline, dimethylarsinic acid) and is "essentially nontoxic" (ASTDR 2007). In general, about 85-95% of the As in seafood is organic As and typically less than 10% is inorganic Arsenic (EPA 2003). The concentration of inorganic As in fish and shellfish from Sinclair and Dyes Inlet was evaluated by Johnson and Roose (2002). They found that inorganic arsenic comprised only 0.01% of total arsenic in English sole from Sinclair Inlet (Table 1) and ranged from 1.2 - 0.1% in clams and crabs from Sinclair and Dyes Inlets (Table 2). Ecology's 303(d) listing criterion for arsenic in edible fish and shellfish tissue is 0.006 ug/g wet weight, which is calculated using a bioconcentration factor of 44 L/Kg for inorganic As and the water column criterion 0.14 ug/L (Johnson and Roose 2002). Results from the study by Johnson and Roose (2002) showed that the listing criterion of 0.006 ug/g inorganic arsenic was exceeded in all clam samples analyzed. However, the authors concluded that "this appear[ed] to be due to natural conditions in Puget Sound. All crab and fish samples were at or below the listing criterion. It is therefore recommended that these waterbodies be taken off the 303(d) list for arsenic exceedances in edible tissue (12 listings in all)" (Johnson and Roose 2002).

Because the permit limit for As is based on total As, the As criterion needs to be adjusted for the amount of inorganic As present in seafood from Sinclair and Dyes Inlets. Using the maximum measured fraction of inorganic As in fish and crab of 0.1% reported by Johnson and Roose for crabs from Ostrich Bay (Table 2) the criterion becomes:

$$\text{Human Health Criterion} = 0.14 \text{ ug/L Inorganic As} \times \frac{1 \text{ Total As}}{0.001 \text{ Inorganic As}}$$

$$= 140 \text{ ug/L Total As}$$

Based on the Summary of Data Used to Determine Reasonable Potential Calculations Table 6-C, there is no reasonable potential that As would exceed the human health criterion.

Table 1. Results of arsenic and inorganic arsenic measured in fish samples from the Puget Sound (from Johnson and Roose 2002).

Table 3. Results of Battelle Marine Sciences Laboratory's Analysis of Total and Inorganic Arsenic in Archived WDFW Fish and Crab Composites [ug/g wet weight; parts per million]

Species and Location	Date Collected	No. of Individuals	Ecology Sample No.	Total Arsenic	Inorganic Arsenic		Percent Inorganic
English sole							
Sinclair Inlet	2000	15	498080	10	0.0013	NJ	0.01
Commencement Bay	2000	15	498081	12	0.00086	NJ	0.01
Elliott Bay	2000	15	498082	8.5	0.044	NJ	0.5
Hood Canal	2000	15	498083	10	0.0035	NJ	0.04
Quillback rockfish							
Elliott Bay	1998	12	498084	0.89	0.011	NJ	1.2
Foulweather Bluff	1997	12	498085	2.4	0.032	NJ	1.3
E. Juan de Fuca Str.	2001	8	498086	2.0	0.0013	NJ	0.1
Dungeness crab							
Hood Canal	2001	11	498087	5.0	0.0026	NJ	0.1
Port Gardner	2001	11	498088	3.3	0.0013	NJ	0.04
Commencement Bay	2001	12	498089	3.8	0.0024	NJ	0.1
Coho salmon							
Skagit River	2000	12	498090	0.35	0.00062	NJ	0.2
Duwamish River	2000	12	498091	0.29	0.0018	NJ	0.6
Nisqually River	2000	12	498092	0.34	0.00073	NJ	0.2
Pacific herring							
Cherry Point	2001	15	498093	0.98	0.00080	NJ	0.1
Port Orchard	2001	15	498094	1.8	0.00047	NJ	0.03
Squaxin Pass	2001	15	498095	2.0	0.00099	NJ	0.05

NJ = There is evidence that the analyte is present. The associated numerical result is an estimate.

Table 2. Results of arsenic and inorganic arsenic measured in clams and crabs from Sinclair and Dyes Inlets (from Johnson and Roose 2002).

Table 5. Results of Brooks Rand's Analysis of Inorganic Arsenic in Clam and Crab Edible Tissue Composites; Total Arsenic Analysis by Ecology Manchester Laboratory
[ug/g wet weight; parts per million]

Location	Species	Date Collected	No. of Individuals	Ecology Sample No.	Total Arsenic	Inorganic Arsenic	Percent Inorganic
Dyes Inlet							
Silverdale	Clam*	5/15/02	30	238087	2.4	0.020	0.8
Ostrich Bay NW	Clam	6/13/02	34	238084	3.2	0.017	0.5
Ostrich Bay W	Clam	6/13/02	35	238085	4.2	0.018	0.4
Ostrich Bay SW	Clam	6/13/02	31	238086	2.9	0.018	0.6
Ostrich Bay	Crab**	9/6/01	9	428086	12	0.008	0.1
"	"	9/6/01	9	428087	8.4	0.009	0.1
Oyster Bay	Clam	7/19/01	30	428082	4.2	0.021	0.5
Port Washington Narrows							
Lions Park	Clam	7/19/01	30	238090	2.2	0.015	0.7
Evergreen Park	Clam	8/31/01	20	428085	1.9	0.022	1.2
Sinclair Inlet							
Port Orchard	Clam	5/1/02	30	238088	2.8	0.025	0.9
Annapolis	Clam	5/1/02	30	238089	2.3	0.022	1.0
Eagle Harbor							
Wing Point	Clam	4/28/02	30	238082	3.0	0.021	0.7
Winslow Park	Clam	4/28/02	30	238083	2.1	0.020	1.0
Hood Canal (reference area)							
Twanoh State Park	Clam	5/29/02	30	238081	2.3	0.015	0.7
Sequim Bay (reference area)							
Sequim Bay State Park	Clam	4/29/02	30	238080	3.4	0.035	1.0

* mixed native and Japanese littleneck clams

**graceful crab

References

ATSDR 2007. Agency for Toxic Substances and Disease Control, Toxicology Profile for Arsenic. Center for Disease Control, Atlanta, GA. http://www.atsdr.cdc.gov/toxprofiles/tp2.html

Johnson, A. and M. Roose 2002. Inorganic Arsenic in Puget Sound Fish and Shellfish from 303(d) Listed Waterbodies and Other Areas. Department of Ecology, Environmental Assessment Program, Publication No. 02-03-057. http://www.ecy.wa.gov/biblio/0203057.html

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