FACT SHEET FOR NPDES BOATYARD GENERAL PERMIT REISSUANCE

SUMMARY

This fact sheet is a companion document to the National Pollutant Discharge Elimination System (NPDES) General Permit for Boat Building and Repair Facilities. It explains the nature of the proposed discharge, history of the permit, Ecology's decisions on limiting the pollutants in the wastewater, and the regulatory and technical basis for those decisions. Public involvement information is contained in Appendix A.

The State of Washington, Department of Ecology (Ecology), has tentatively determined to reissue a general permit to the boatyard industry operating in the State of Washington for the discharge of wastewater resulting from the building and repair of boats 65 feet or less in length. This general permit controls wastewater from pressure washing and stormwater runoff.

This is the fourth issuance of this general permit. The proposed changes from the current general permit are: a lower benchmark for copper and a benchmark for zinc based on demonstrated performance of stormwater treatment, water quality-based limits and compliance schedule for those boatyards which currently can't finance stormwater treatment. The compliance schedule includes limits based on current performance of BMPs. An additional one-time monitoring is included for several parameters. This permit continues mandatory best management practices and to require "no direct discharge to surface waters" for the pressure wash wastewater.

The proposed terms, limitations, and conditions contained herein are tentative and may be changed as a result of public comment. Changes to the draft modification as a result of public comment are given in Appendix B.

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the United States Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State and EPA include procedures for issuing general permits (Chapter 173-226 WAC), water quality criteria for surface and ground waters (Chapters 173-201A, 40 CFR 131.36 and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit.

Public notice of the availability of the draft permit is required at least thirty days (30) before the final permit is issued (WAC 173-226-130). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures). After the public comment period has closed, the Department will summarize the substantive comments and respond to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. This fact sheet will not be revised except to correct factual errors. Comments and the resultant changes to the permit will be summarized in Appendix B--Response to Comments.

This permit regulates pollutant discharge primarily through prohibition of all pressure wash wastewater discharges to surface water, best management practices (BMPs) designed to minimize or eliminate the discharge of pollutants, stormwater treatment, and numeric benchmarks or limits to assure pollutant control.

BACKGROUND INFORMATION

HISTORY

Under task P-20 of the Puget Sound Water Quality Authority Plan, Ecology was directed to carry out a program for detection and identification of unpermitted discharge sources. One of the significant unpermitted point source discharge groups found by the Elliott Bay and Lake Union Urban Bay Action Teams was the boatyard industry.

Ecology signed a Memorandum of Agreement with the EPA for development and issuance of a general permit for small shipyards. During the development of the permit it was decided to describe facilities in this segment of the Ship and Boat Building and Repairing industry as boatyards. A general permit was issued in 1992, reissued in 1997 and again in December, 2005 (current permit). The 2005 permit was modified in 2006 to correct an error. The 2005 permit and 2006 modification were appealed by the Northwest Marine Trade Association (NMTA) and the Puget SoundKeeper Alliance (PSA). The appeal was heard by the Pollution Control Hearings Board in July 2006 and the Board issued a decision in January 2007. That decision was appealed to Superior Court by NMTA and PSA. The appeal to superior court was conditionally settled by incorporating some of the PCHB judgement orders into a second permit modification (January 2008) and the conduct of a pilot test of 3 stormwater treatment devices during the winter of 07/08. The January 2008 permit modification was appealed by PSA. The pilot test was funded by PSA, NMTA, and Ecology. A Settlement Steering Committee (steering committee) consisting of NMTA, PSA, their technical consultants and Ecology directed the study. A project manager was hired to oversee day-to-day operation of the pilot test. A contractor was hired to conduct the sampling of the pilot treatment apparatus. The pilot test was conducted for seven storm events and the contractor presented the data in a report to the steering committee (Taylor Associates, Inc. 2008). An order-of-magnitude economic analysis was conducted by the NMTA technical consultant to estimate cost of installing treatment at a typical boatyard (Arcadis 2008).

A draft permit modification produced by PSA and NMTA was conveyed to Ecology in August 2008 as an agreement between those two parties. Ecology released this draft for public comment in November 2008. The draft contained benchmarks based on the pilot stormwater treatment data. Based on the comments received, Ecology determined a small business and AKART economic analysis was required to proceed with the permit. That analysis showed some boatyards could not install stormwater treatment and remain in business (Ecy. Pub. No. 10-10-018). The economic analysis is released with this general permit as a separate but supporting document. Based on the economic analysis Ecology is imposing technology-based limitations on boatyards that can afford it and water quality-based limitations with a compliance schedule for others to allow time to fund treatment. Those boatyards with water quality-based limitations have performance-based limitations during the compliance period until treatment is installed.

This draft permit is substantially different than the draft issued for public comment in 2008 as a proposed modification. Therefore, Ecology is reissuing a draft for comment. This draft when final will be a reissuance for a 5 year period.

There are presently 88 boatyards under permit in Washington State.

DESCRIPTION OF THE INDUSTRY

INDUSTRY PROCESS

The applicable Standard Industrial Classifications (SIC) are:

> SIC No. 3731 (NAICS No. 336611) Ship Building and Repairing: "Establishments primarily engaged in building and repairing all types of ships, barges, and lighters, whether propelled by sail or motor power or towed by other craft. This industry also includes the conversion and alteration of ships."
>
> SIC No. 3732 (NAICS No. 336612) Boat Building and Repairing: "Establishments primarily engaged in building and repairing all types of boats."

A boatyard, as defined for purposes of this permit, is a service business primarily engaged in new construction and repair of small vessels 65 feet or less in length. Services provided may include, but are not limited to: pressure washing; bottom and top side painting; engine, prop, shaft, and rudder repair and replacement; hull repair, joinery, bilge cleaning; fuel and lubrication system repair or replacement; welding and grinding on the hull; buffing and waxing; top-side cleaning; MSD (marine sanitation device) repair or replacement, and other activities necessary to maintain a vessel.

A boatyard may employ one or more of the following to remove or return a vessel to the water: marine railway, drydock, crane, hoist, ramp, or vertical lift. Some yards may build a limited number of custom boats usually constructed of fiberglass or aluminum. Permanent moorage facilities are not usually a feature of a boatyard although a few boatyards do have such facilities.

Those boat repair activities, whether conducted by the vessel's owner or by an agent or contractor hired by the owner, which do not require coverage under this permit include the following:

- Engine repair or maintenance conducted within the engine space without vessel haul-out.
- Topsides cleaning, detailing and bright work.
- Electronics servicing and maintenance.
- MSD servicing and maintenance that does not require haul-out.
- Vessel rigging.
- Minor repairs or modifications to the vessel's superstructure and hull above the waterline which are not extensive (i.e. 25% or less of the vessel's surface area above the waterline).

These activities which do not require coverage under this permit are often conducted in marinas. Marinas or boat owners conducting boatyard activities may be subject to penalty for discharging pollutants without a permit. In addition, marinas must follow the in-water hull cleaning instructions in the Ecology Divers Advisory. Marinas on aquatic lands leased from the Washington Department of Natural Resources must, in accordance with RCW 90.48.386, maintain and follow of plan of operations detailing how all water pollution control requirements of state law will be met or risk losing the lease.

Historically boat repair has been done outdoors on the waterfront. The vessel was supported in a cradle, on barrels, or in a sling while work was done on the hull.

Some boatyard facilities are endeavoring to change operations in order to do the boat repair under cover. This will contribute to quality control, reduce or eliminate discharges, and improve worker safety.

If all activities are performed indoors, under cover, with no outside activities or exposure except haul-out, coverage under this permit may not be required.

This document will use the generic terms pressure washing and pressure wash wastewater for all pressure washing activities at boatyards.

This permit does not provide coverage for related, ancillary or related industrial or commercial facilities, such as a repair shop for marine engines. Those facilities may qualify for coverage under the Industrial Stormwater General permit, if necessary. This permit also does not cover in-water hull cleaning as conducted by contract divers. Ecology has issued guidelines for this type of work to prevent water pollution.

WASTEWATER CHARACTERIZATION

Wastes generated by boatyard activities include spent abrasive grits, spent solvent, spent oils, pressure wash wastewater, paint over-spray, paint drips, various cleaners and anti-corrosive compounds, paint chips, scrap metal, welding rods, wood, plastic, resins, glass fibers, and miscellaneous trash such as paper and glass. If not adequately controlled, these pollutants can enter the wastewater stream through the application and preparation of paints and the painted surface; the handling, storage and accidental spills of chemicals, leaks or drips of paints, solvents, thinners; the fracturing and breakdown of abrasive grits; and the repair and maintenance of mechanical equipment. Hull preparation for painting is commonly done by pressure washing, sanding, grinding or scraping and some abrasive blasting.

The two main wastewater streams from boatyards are 1) pressure wash wastewater and 2) stormwater runoff. Other minor potential sources are cooling water, pump testing, gray water, sanitary waste, wash-down of the work area, and engine bilge water. Gray water and sanitary waste go to municipal treatment or on-site treatment. Engine room bilge water and oily wastes

are typically collected and disposed of through a licensed contracted disposal company.

PRESSURE WASH WASTEWATER

Raw pressure wash wastewaters have been sampled by Ecology, local shipyards, boatyards and the Municipality of Metropolitan Seattle (METRO) (1992). The data on the untreated wastewater is presented in Table 1.

Table 1. Characterization of untreated boatyard pressure-washing wastewater

PARAMETER	UNITS	MEAN	HIGHEST VALUE OR RANGE
pH	Std. units	7.2	6.7 -8.2
Turbidity	NTU	469	1700
Suspended Solids	mg/L	800	3100
Oil/grease	mg/L	None visual	
Copper	µg/L	55,000	190,000
Lead	µg/L	1,700	14,000
Zinc	µg/L	6,000	22,000
Tin	µg/L	490	1,400
Arsenic	µg/L	80	100

These metal concentrations (copper, lead, zinc) in the raw wastewater exceed the typical standards for discharge to sanitary sewer by about a factor of 10 and exceed surface water quality ambient standards by a factor of about 1,000.

STORMWATER

The 2005 permit required monitoring of stormwater runoff from boatyards for copper, oil/grease and total suspended solids (TSS). The modification in 2008 required additional monitoring of stormwater for zinc and lead. The monitoring data reported by the boatyards on their discharge monitoring reports for copper is presented in Table 2. This monitoring data is for stormwater runoff controlled soley by best management practices (BMPs).

Table 2. Boatyard stormwater runoff data for copper (2006 through 2008)

Total copper(µg/L)		*lognormal transformed*		
Mean	492	Mean	4.85	128
Standard Error	91	Standard Error	0.08	
Median	110	Median	4.7	110
Mode	25	Mode	3.218875825	
Standard Deviation	1783.303985	Standard Deviation	1.524409474	
Sample Variance	3180173.103	Sample Variance	2.323824243	

Kurtosis	179.5745141	Kurtosis	0.037723111	
Skewness	12.03228062	Skewness	0.373658149	
Range	29098.55	Range	9.906929897	
Minimum	1.45	Minimum	0.371563556	
Maximum	29100	Maximum	10.27849345	
Sum	187482.91	Sum	1848.241134	
Count	381	Count	381	
Largest(50)	807	Largest(50)	6.693323668	
Confidence Level (95.0%)	179.6372501	Confidence Level (95.0%)	0.153558074	
This data is from monitoring reports. The data was edited to remove all values less than 1, presumed to be errors of analysis or reporting				

For comparison, the State water quality criteria, WAC 173-201A, for acute toxic effects due to copper in marine water is 4.8 µg/L (dissolved) and the fresh water acute criterion is 7.2 µg/L (dissolved) at a receiving water hardness of 40 mg/l which is a typical hardness for Lake Union. The median concentration of 110 µg/L total copper in boatyard stormwater may result in a dissolved copper concentration ranging from approximately 2 µg/L to 99 µg/L in the receiving water near the point of discharge depending upon the nature of the copper matrix and receiving water characteristics.

The median reported copper value for the period of 1998 to 2002 under the 1997 permit was 410 µg/L which is about four times higher than the median value reported from the current 2005 permit.

Table 3. January 2008 through January 2010 performance for copper for those facilities without treatment (µg/L)

Mean	191.7437
Standard Error	31.7012
Median	72
Mode	10
Standard Deviation	490.0887
Sample Variance	240186.9
Kurtosis	77.81003
Skewness	8.030839
Range	5649.35
Minimum	0.65
Maximum	5650
Sum	45826.74
Count	239

This showed a continued reduction in copper concentration (not tested for statistical significance).

Zinc and lead were required to be monitored by the permit modification of January 2008. That

summary monitoring data for zinc and lead for the period of January 2008 through January 2010 is shown below.

Table 4. Zinc in boatyard stormwater runoff January 2008 through January 2010 (µg/L).

Zinc (Total) 2008-2010		Ln Zinc	
Mean	344.2043	Mean	4.877
Standard Error	44.36351	Standard Error	0.106
Median	140	Median	4.942
Mode	200	Mode	5.298
Standard Deviation	636.7361	Standard Deviation	1.515
Sample Variance	405432.9	Sample Variance	2.295
Kurtosis	34.59117	Kurtosis	0.906
Skewness	5.028465	Skewness	-0.51
Range	6000	Range	8.7
Minimum	0	Minimum	0
Maximum	6000	Maximum	8.7
Sum	70906.09	Sum	999.8
Count	206	Count	205

For comparison, the State water quality criteria, WAC 173-201A, for acute toxic effects due to zinc in marine water is 90.0 µg/L (dissolved) and the fresh water acute criterion is 53 µg/L (dissolved) at a receiving water hardness of 40 mg/l. The median concentration of 140 µg/L total zinc in stormwater may result in a dissolved zinc concentration ranging from approximately 3 µg/L to 126 µg/L in the receiving water at the point of discharge depending on the nature of the zinc matrix and receiving water characteristics.

Table 5. Lead in boatyard stormwater runoff January 2008 through January 2010 (µg/L).

Lead (Total) statistics	
Mean	20.63207
Standard Error	5.550319
Median	4
Mode	1
Standard Deviation	64.0094
Sample Variance	4097.203
Kurtosis	41.96326
Skewness	6.112842
Range	549.9
Minimum	0.1
Maximum	550
Sum	2744.065
Count	133
Mean	20.63207

For comparison, the State water quality criteria, WAC 173-201A, for acute toxic effects due to lead in marine water is 210 µg/L (dissolved) and the fresh water acute criterion is 24 µg/L (dissolved) at a receiving water hardness of 40 mg/L. The median concentration of 4 µg/L total lead in stormwater may result in a dissolved lead concentration ranging from approximately 0.08 µg/L to 3.6 µg/L in the receiving water at the point of discharge depending on the nature of the lead matrix and receiving water characteristics.

The 2005 permit also contained benchmarks for oil/grease and total suspended solids (TSS). The monitoring data collected from the 2005 permit is given in Table 4.

Table 6. Monitoring data summary for Jan. 06 to Sept. 08.

Oil/Grease Monitoring Data (mg/L)		**TSS Monitoring Data (mg/L)**	
Mean	4.71045	Mean	26.40481
Standard Error	0.21422	Standard Error	4.26393
Median	5	Median	10
Mode	5	Mode	5
Standard Deviation	3.029527	Standard Deviation	85.59781
Sample Variance	9.178031	Sample Variance	7326.984
Kurtosis	31.09414	Kurtosis	115.9953
Skewness	4.270707	Skewness	9.924212
Range	31	Range	1199.561
Minimum	0	Minimum	0.439
Maximum	31	Maximum	1200
Sum	942.09	Sum	10641.14
Count	200	Count	403
Confidence Level(95.0%)	0.422432	Confidence Level(95.0%)	8.382387

Based on this data Ecology removed the monitoring requirements for TSS and Oil/Grease in the 2008 modification.

Table 7. A full characterization of toxic pollutants (as µg/L) was conducted on stormwater runoff from three representative boatyards in the spring of 2006. (Ecology Publication 06-03-041). The water quality criteria are shown after the name of the chemical as (freshwater criteria/marine criteria) in µg/L.

Boatyard:	Swantown	Port Townsend	Seaview
Sample Number:	6144010/11 6154012	6214000	6144012
Date:	4/8, 4/13	5/23	4/8
Naphthalene	0.06 U 2.6	0.06 U	0.32
1-Methylnaphthalene	0.06 U 2.9	0.06 U	0.19
2-Methylnaphthalene	0.06 U 3.3	0.06 U	0.27
Acenaphthylene	0.06 U 3.9	0.06 U	0.42
Acenaphthene (670/990)	0.06 U 0.11	0.06 U	0.22
Fluorene (1300/1400)	0.06 U 0.29	0.06 U	0.33
Phenanthrene	0.13 0.12	0.15	2.1
Anthracene (9600/110,000)	0.06 U 0.07	0.06 U	0.58

Fluoranthene (300/370)	0.12		0.35		0.42		2.4	
Pyrene (960/11000)	0.10		0.63		0.38	J	1.3	
Benzo(a)anthracene (0.0028/0.031)	0.06	U	0.05	J	0.14		0.24	
Chrysene (0.0028/0.031)	0.07	J	0.08		0.26		0.82	
Benzo(b)fluoranthene (0.0028/0.031)	0.06	U	0.05	J	0.2		0.39	
Benzo(k)fluoranthene (0.0028/0.031)	0.06	U	0.07		0.15		0.4	
Benzo(a)pyrene (0.0028/0.031)	0.06	U	0.06	U	0.04	J	0.26	
Indeno(1,2,3-cd)pyrene (0.0028/0.031)	0.06	U	0.06	U	0.05	J	0.12	
Benzo(ghi)perylene	0.06	U	0.08		0.06	J	0.16	
Bis(2-Ethylhexyl) Phthalate (1.8/5.9)	2.8		1.3	UJ	2.1		15	
Di-N-Butylphthalate	2.6		0.54		0.16	J	4.3	
Dimethylphthalate (313000/2900000)	1.0		0.22		0.68		13 E	
Diethylphthalate	0.28 J		0.05	J	0.09	J	1.2	
Butylbenzylphthalate	0.39		0.14		0.03	J	2.1	
Phenols								
Phenol (21000/ 4600000	0.84		0.55		0.29		4.6	
2-Methylphenol	0.19		0.54		0.07		1.0	
4-Methylphenol	0.85		0.06	U	1.2		3.1	
2,4-Dimethylphenol (380/850)	0.16		3.0		0.06	U	1.1	
4-Chloro-3-Methylphenol	0.12	U	0.13	U	8.4		0.13	U

2-Nitrophenol	0.25	J	0.25	U	0.26	U	0.26	U
4,6-Dinitro-2-Methylphenol	0.59	J	0.63	U	0.64	U	0.64	U

Benzyl Alcohol	0.64		0.13	U	0.13	UJ	4.5
Dibenzofuran	0.06	U	0.08		0.06	U	0.29
Retene	0.08		0.06	U	0.06	U	0.58
Caffeine	2.7		0.61		0.46		15
Benzoic Acid	5.8		1.3	U	0.74	J	1.3 U
Isophorone (8.4/600)	0.06	U	0.06	U	0.06	U	0.35
Carbazole	0.06	UJ	0.06	UJ	0.06	UJ	1.2 J

J = Estimated concentration , REJ = Data rejected
U = Not detected at or above the reported value, E = Exceeds calibration range
UJ = Not detected at or above the reported estimated value

Table 8. Results of analyzing organotins in boatyard stormwater runoff collected during April-May 2006 (ug/L; parts per billion).

Boatyard	Sample Number	Date	Tributyltin (0.460/0.37)	Dibutyltin	Monobutyltin
Swantown	6144010/11 6154012 6224000	4/8 4/13 5/31	0.22 0.13 0.010 J	0.041 J 0.002 UJ 0.033 J	0.001 UJ 0.001 UJ 0.012 J
Port Townsend	6214000	5/23	0.18 J	0.010	0.006 J
Seaview	6144012 6214001	4/8 5/23	6.0 0.36	0.064 J 0.10	0.001 UJ 0.014

The EPA recommended acute criteria for tributyltin are 0.46 µg/L for fresh water and 0.37 µg/L for marine waters.

Ecology conducted a receiving water study during the winter of 2008- 2009 in Lake Union and Puget Sound (Ecy Pub No. 09-03-051). The study was mandated by the PCHB in its 2007 decision. The study parameters, sample sizes and locations were determined by the steering committee. The study focused on copper, zinc, and lead in the receiving water (total and dissolved), total suspended solids and hardness (fresh water). All Lake Union and ship canal samples were below acute and chronic criteria for copper, zinc and lead. Lake Union and ship canal sample stations were equivalent concentrations for the parameters measured. The marine stations showed some difference among stations with urban bay stations typically showing the highest concentration of metals. All sample locations met water quality criteria for the three metals and lead was typically below detection or quantitation. The data was used for calculating water quality-based limits which is discussed later.

PROPOSED PERMIT LIMITATIONS

Federal and State regulations require that effluent limitations set forth in an NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants and are cost modified. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). State laws (RCW 90.48.010, 90.52.040 and 90.54.020) require the use of all known, available and reasonable methods (AKART) to prevent and control the pollution of waters of the state.

Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36). The more stringent of these two limits (technology or water quality-based) must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Technology-based effluent limitations for discharges consisting of process wastewater typically are based on some type of treatment technology to reduce the pollutants in that wastewater. Stormwater differs from process wastewater in that it is not a continuous discharge, the pollutant sources are not continuous, and the pollutant concentrations are highly variable. EPA, in their stormwater permits, has determined that the use of structural controls and Best Management Practices (BMPs) to prevent the discharge of pollutants via stormwater runoff may be equivalent to BCT and BAT, which are the federally mandated technology-based treatment levels.

Title 40 CFR 122.2 defines BMPs as “schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce pollution of "waters of the United States." BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.” BMPs are techniques for pollution prevention or, in other words, preventing the pollutants from getting into the wastewater (stormwater).

EPA has defined shipyards as a point source category. This category includes the facilities that Ecology has separated out and call “boatyards”. The draft EPA "Development Document for Shipbuilding and Repair," EPA 440/1-70/076-b, recommends BMPs as the primary method of controlling waste discharges from shipyards to the waters of the state. BMPs achieve pollution control through careful management of the product streams, segregation of potential pollutants in waste streams, and preventing or minimizing contact between water and waste material. Shipyards and boatyards have similar operations.

The Development Document for Shipbuilding and Repair also determined that BMP’s constitute BPT (Best Practicable Control Technology) for the shipyard industry. Ecology concluded in the 2005 permit that BMPs constituted BCT for stormwater discharges in the boatyard industry and

that collection, recycle and treatment of pressure wash wastewaters constitutes BAT (Best Available Technology Economically Achievable).

METRO TREATMENT STUDY

BMPs to collect, and contain wastes and minimize waste generation during vessel repair and maintenance work have been researched, compiled and distributed in Washington by Ecology, the Lake Union Association Water Quality Committee and the Puget Sound Shipbuilders Association with funding assistance from the Puget Sound Water Quality Authority.

Many of the sources discussed in the Wastewater Characterization section can be contained, controlled or substantially reduced by the implementation of BMPs. BMPs are an essential component of this proposed general NPDES permit.
BMPs include structural controls including catch basins and drains, berms, dikes and other containment for oils, chemicals and wastes; roofed storage areas and wastewater treatment facilities. Facilities covered by a general permit requiring BMPs will be required to implement them. The BMPs in the boatyard general permit included requirements for:

Education of Employees and Customers
Yard Cleaning and Sweeping
Sediment Traps
Dust and Overspray Control
Maintenance of Hoses and Piping
Bilge Water Control
Paint and Solvent Use
Use of Antifouling Paints
Prohibition on use of Tributyltin
Cleanup of Debris and Spent Paint
Chemical Storage
Waste Disposal
Dangerous Waste Handling & Reporting
Recycling of Spilled Chemicals and Rinse Water
Accidental Oil Discharge
Oil, Grease, and Fuel Transfers
In-water hull cleaning
Zebra Mussels
Decontamination of the wash pad
Over water work

The 2005 permit contained an additional and mandatory permit requirement for the use of vacuum sanders and grinders for removing paint. An analysis of the cost of this technology (Appendix E of the 2005 permit fact sheet) indicated costs would be fully recovered by boatyards in a short period of time if they chose to own and rent out the sanders.

TECHNOLOGY-BASED LIMITATIONS FOR PRESSURE WASH WASTEWATER

The primary source of the heavy metals in pressure wash wastewater is from paint removed from boat hulls. As noted previously, the copper concentration in this wastewater exceeded the water quality criteria by several orders of magnitude. The next most common metals, by frequency and in magnitude, in boatyard and shipyard wastewater (or contaminated stormwater) are zinc and lead.

METRO (Municipality of Metropolitan Seattle) received a National Estuary Grant to do a treatment study of Puget Sound shipyard and boatyard wastewater and storm water. The study involved sampling of pressure washing wastewater from a number of these facilities, and testing prototype collection and treatment systems to determine which methods could consistently meet state and local water quality standards.

METRO produced an analytical report of their findings and developed a guidance manual which was distributed to shipyards, boatyards and publicly owned treatment works (POTW). The manual includes options for treatment and discharge of pressure wash wastewater, bilge and ballast water, and contaminated stormwater to receiving waters, municipal treatment plants, or off-site treatment facilities.

METRO's work clarified and expanded the list of options for treatment and disposal of boatyard wastewaters. The treatment study project was closely aligned with the initial development of the first general NPDES permit for boatyards. The study's project manager and project coordinator made valuable contributions to the general permit development by assisting Ecology in establishing standards for best available technology practices for boatyards.

More specifically, the alternatives for treating and disposing of pressure wash wastewater are:

(1) Recycle and Conservation,

(2) Collection and discharge (with pretreatment as necessary) of the wastewater to the sanitary sewer which may include chemical addition followed by sedimentation and possibly evaporation.

Option 1 - Recycle/conservation

The preferred means of preventing pollution from pressure washing hulls is recycling of the pressure wash wastewater. The typical configuration is multi-stage filtration with some storage capacity. Water lost from evaporation during pressure washing can be made up from rain water falling on the wash pad or from tap water. The solids collected from the filters or from sedimentation in the storage tank are air-dried under cover and handled as solid waste. The recycled water may eventually become contaminated, requiring disposal or treatment. In this case the wastewater may be collected by a licensed waste hauler and treated off-site.

Option 2 - Discharge to POTW

For boatyard facilities which have the ability to connect to a POTW (Publicly Owned Treatment Works), recycling, with occasional discharge of contaminated recycle water to the POTW, is the best treatment method. The recycled water may have to be treated with a polymer and settled

before discharge in order to meet the discharge limits of the permit.

For facilities with excess contaminated water, the contaminated water must be hauled to a treatment facility for proper treatment and disposal.

The guidance manual developed by METRO (1992) gives a more detailed discussion of recycling options for pressure wash wastewaters.

Since all boatyards have eliminated direct discharges of pressure wash wastewater to surface water, Ecology has determined that AKART for pressure wash wastewater is recycling, evaporation, or treatment and discharge to the sanitary sewer. Discharges to the sanitary sewer must meet the discharge requirements included in this permit for non-delegated POTWs or the requirements specified by delegated POTWs. Delegated POTWs are municipal wastewater treatment systems that have received federal pretreatment delegation, through Ecology, to restrict the pollutant loading or concentration of pollutants to their system by a permit system.

Monitoring of pressure wash wastewater in this permit is therefore restricted to discharges which go to a POTW without delegation. The following table gives the monitoring schedule and effluent limits in this draft permit. The POTW limits and monitoring frequency in this permit were adopted from METRO's pretreatment limits and the same as the current permit. Pretreatment limits established by delegated POTW's have similar limits and monitoring requirements for discharge into their systems.

Table 8. Limits and monitoring requirements for pressure wash wastewater discharges to non-delegated POTW's

PARAMETER	MINIMUM SAMPLING	SAMPLE TYPE	LIMIT
Flow	June, July, August and September each year	Meter or calculate	N/A
Copper[1]	"	Grab	2.4 mg/L
Zinc[1]	"	Grab	3.3 mg/L
Lead[1]	"	Grab	1.2 mg/L
pH	"	Grab	Within the range of 5 to 11

[1.] measured as total

TECHNOLOGY-BASED LIMITATIONS FOR STORM WATER DISCHARGES

As previously noted, EPA has determined that best management practices (BMP's) are Best Practicable Control Technology for stormwater discharges under the EPA Multisector Stormwater General permit and in their draft effluent guidelines for Shipyards. Ecology required mandatory BMPs in the 2005 permit and incorporated a process for additional BMPs when benchmarks were exceeded. The benchmarks in the 2005 permit were formulated as: (water quality criteria) times (dilution factor of 10 for some discharges) times (a receiving water effect) times (translator - a conversion factor to convert total metal to dissolved metal in the receiving water). The resultant benchmarks for existing boatyards discharging to surface water ranged from 38 (Lake Union and ship canal) to 384 (marine). The Pollution Control Hearing Board (PCHB 2007) required the dilution factor to be removed based on testimony by Ecology that boatyards were not implementing BMPs. The board ruled that the failure to implement BMPs meant that they were not meeting the AKART requirement for receiving a mixing zone (Order no.1 pg 33,34). The PCHB also ruled that copper was not a proper indicator for zinc and lead and that these parameters should be measured in boatyard stormwater (Order no.2). The PCHB also ruled that a translator typical of urban stormwater instead of shipyard stormwater should be used for the calculation of the benchmark (Order no.1).

The PCHB decision was appealed by NMTA and PSA to Superior Court. The appeal was conditionally settled by agreement of the NMTA, PSA and Ecology to conduct a pilot of stormwater treatment at several boatyards during the winter of 2007/2008. The settlement agreement also required Ecology to incorporate several PCHB rulings into a permit modification (2008 modification).

The pilot treatment was conducted. Three different types of treatment devices were installed at three boatyards in the Seattle area and multiple storm events were sampled. The results of the study are in a report entitled *Boatyard Stormwater Treatment Technology Study – Final Report March 2008* and is available on the Ecology web site at http://www.ecy.wa.gov/programs/wq/permits/boatyard/index.html . The cost of installing and operating each of the three treatment devices was estimated for three model boatyards. The net present value of the most cost-effective treatment device of the three pilot treatment devices was $255,000 per acre (Arcadis 2008). The estimated cost for treatment and the preparation work (grading and repaving) for a two acre boatyard is $400,000 to $900,000. This document is available at http://www.nmta.net/PDF/BoatyardCostAnalysis_051908.pdf .

The 2005 permit was modified as required by the settlement agreement in 2008 to incorporate PCHB orders numbered 3, 2, 7, and 8. This permit modification, as noted above, was appealed by PSA (appeal 2). The appeal was on the permit modification section S3.C *Receiving Water Studies*. This section was added according to the PCHB order 7.

Annual monitoring of stormwater was required in the first issuance of the Boatyard Permit (1992) to verify the effectiveness of best management practices. Compliance with the monitoring requirement was poor. The few discharges sampled at each boatyard failed to

provide the feedback necessary to verify the effectiveness of best management practices or to characterize discharges. Ecology then determined that more than one sample per year was necessary. Therefore, Ecology required four samples per year in the 1997 permit. The 2005 permit required five samples per year. Four samples were required during the times the boatyard activity is highest (spring and fall) and one sample was required in January, the time of highest rainfall. Ecology has determined that 5 samples collected from fall to spring are adequate to characterize pollutant control activities for stormwater.

Boatyards covered under this permit are required to adopt the BMPs listed in the permit if they are appropriate for their facility. Other BMPs which are specific for the facility are expected to be developed as required by the facility to meet the permit benchmark values. These BMP's are to be listed in a document called the Stormwater Pollution Prevention Plan (SWPPP). This plan is expected to be updated as necessary and it is a public document. The SWPPP also incorporates a monitoring plan, a spill plan, and weekly visual monitoring reports as required in the previous permit.

The draft permit released for public comment in November 2008 contained benchmarks of 14.7 and 29 µg/L copper based on the demonstrated average concentration and variance observed during the pilot study of multimedia filtration. Comments received on these benchmarks disputed that they represented the performance that could be expected when the apparatus was in actual operation as opposed to a test situation. In the period since the release of the 2008 draft, several boatyards have installed multimedia filtration stormwater treatment devices. The data from these was combined with the pilot test data from the boatyards and Pacific Fishermen pilot test to derive new benchmarks. The data is presented in Appendix C and is available as Excel spreadsheet (Boatyard Treatment Technology Calcs 7-5-08.xls) on the Ecology boatyard web site http://www.ecy.wa.gov/programs/wq/permits/boatyard/index.html. The benchmarks were calculated in the same manner as effluent limit derivation presented in the Technical Support Document, Appendix E (EPA/505/2-90-001). The copper data was not normally distributed so it was transformed by log normal transformation to derive benchmarks. The zinc data was normally distributed after removal of the outliers.

Lead is typically at or below measureable concentration in treated effluent so no benchmarks were calculated. The permit does continue to require monitoring for lead.

Copper and zinc limitations are imposed in the permit as benchmarks. Benchmarks are used instead of limitations because it appears that adaptive management is still a useful process in stormwater management. This is evident in the declining copper concentrations in the boatyard data. Some boatyards may be able to consistently meet the current benchmarks with source control BMPs or with additional alternative treatment devices. Benchmarks as used in this permit are effluent limits with a period of adaptive management. In this permit any exceedance of a parameter requires a level 1 report. This is an examination by the boatyard of the probable cause of exceedance and an action to be instituted that will cause the stormwater to meet the benchmark in the next period. After 4 exceedances of a parameter, the boatyard must submit a

level 2 report. This is intended to allow the boatyard time to plan for various options and finance treatment if BMPs are still unsuccessful. This is not a formal engineering report. After 6 exceedances, the boatyard must submit an engineering report. In most cases if the level 2 report was done correctly, then the level 3 report will be an analysis of the design of the treatment device, the grading of the yard, the pumps and stormwater collection system. This report must also include an analysis of how the treated wastewater will be conveyed to the receiving water or sanitary system, and the characteristics of the receiving water.

The permit contains a section addressing the circumstance of boatyards currently at the level 3 report stage. The time to submit engineering reports is relatively short but boatyards at this stage have had some period of advance notice. Boatyards will have interim limits during the time of level 3 report acceptance and installation of the treatment device. These limits are based on the 75th% copper and zinc boatyard data from January 2008 to January 2010. The data from boatyards with multimedia filtration installed was removed before analysis of BMP performance.

ECONOMIC ANALYSIS

The Department of Ecology's (Ecology) Waste Discharge General Permit Program rule (WAC 173-226-120) requires an economic impact analysis (EIA) of any draft wastewater general permit intended to directly cover small businesses. The analysis is required to serve the following purposes:

- A brief description of the compliance requirements of the draft general permit.
- The estimated costs for complying with the permit, based on existing data for facilities to be covered under the general permit.
- A comparison, to the greatest extent possible, of the cost of compliance for small businesses with the cost of compliance for the largest ten percent of the facilities to be covered under the general permit.
- Discuss what mitigation the permit provides to reduce the effect on small businesses (if a disproportionate impact is expected), without compromising the mandated intent of the permit.

RCW 19.85.020(4) defines a small business as any business entity, including a sole proprietorship, corporation, partnership, or other legal entity, that is owned and operated independently from all other businesses, and that has fifty or fewer employees.

Ecology also desired to deem the level of performance from multimedia filtration as all known, available and reasonable method of treatment (AKART). The term AKART has been defined as an engineering and economic decision process which is equivalent to the federal BCT, BAT determination (see Ecy Pub. No. 92-500, Permit Writers Manual, Chapter 4). Ecology combined the EIA with economic evaluation of AKART (Ecy Pub. No. 10-10-018).

The EIA determined the general permit had a disproportionate impact on small business but there were no opportunities for mitigation without compromising the mandated intent of the permit.

The AKART analysis showed that 9 to 21 of the 88 boatyards can't afford to install multimedia filtration and remain profitable. This permit contains a self-certification process that allows these Permittees to certify that the treatment necessary to meet the benchmarks in the permit is not currently affordable for their facility. Those facilities that certify will receive water quality-based effluent limits, a compliance schedule to meet the water quality-based limits, and interim performance-based limits during the time of the compliance schedule (see discussion in the next section).

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will not cause a violation of established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL). General permits may use a risk-based analysis to develop limitations.

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the maximum levels of pollutants allowed in receiving waters to be protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (40 CFR Part 131). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in

the State of Washington.

GROUND DISCHARGES

The treatment technology identified as an economical treatment method in an engineering report for shipyard stormwater was discharge to an infiltration trench lined with metal-absorbent material. This treatment was called enhanced filtration (Hart Crowser 1997). Any discharge to an infiltration trench must be far enough back from surface water so as not to be deemed a surface discharge due to hydraulic continuity. In addition, the discharge must meet the ground water standards. This permit continues to require that this type of discharge be 200 feet from the water surface and meet a copper limit of 1000 µg/L. This limit is the ground water criteria for copper and should be obtainable with proper BMP's at the facility. Meeting the limit at the point of discharge to the treatment device eliminates the need for ground water sampling. This condition is continued from the 2005 permit.

SURFACE WATER DISCHARGES TO IMPAIRED WATERS

Section 303(d) of the federal Clean Water Act requires Washington State periodically to prepare a list of all surface waters in the state for which beneficial uses of the water – such as for drinking, recreation, aquatic habitat, and industrial use – are impaired by pollutants. These are water quality limited estuaries, lakes, and streams that fall short of state surface water quality standards, and are not expected to improve within the next two years.

Waters placed on the 303(d) list require the preparation of Total Maximum Daily Loads (TMDLs), a key tool in the work to clean up polluted waters. TMDLs identify the maximum amount of a pollutant to be allowed to be released into a waterbody so as not to impair uses of the water, and allocate that amount among various sources.

Ecology's assessment of which waters to place on the 303(d) list is guided by federal laws, state water quality standards, and the state's 303(d) policy. This policy describes how the standards are applied, requirements for the data used, and how to prioritize TMDLs, among other issues. The goal is to make the best possible decisions on whether each body of water is impaired by pollutants, to ensure that all impaired waters are identified and that no waters are mistakenly identified.

This permit modification requires existing facilities and new facilities to meet water quality criteria in the stormwater discharge.

Lake Union is still on Ecology's 303(d) list for lead. It's expected that the new Ecology data will cause the listing to be removed. However, in the interim the limit for lead in stormwater discharges is continued. The numeric value for this limit was changed from 55.6 µg/L to 185 µg/L based on hardness, and translator values calculated from current Lake Union data. The limit was calculated as criteria/translator or 22.2/0.12 = 185. This value was used as the daily maximum and the seasonal average.

No other waters receiving boatyard stormwater are listed as impaired for metals on the current 303(d) list.

The permit gives the formulation of limits for any future listings. These limits would be issued as orders with revised coverage.

SURFACE WATER DISCHARGES TO NON-IMPAIRED WATERS
Boatyards may certify that the treatment which is necessary to meet the current benchmarks is not affordable are given water quality-based limits and a period of time (compliance schedule) to meet those limits in the permit. Affordable means the cost is too high to pay or finance at the current time and still remain in business. Ecology estimates there are 9 to 22 boatyards that may have to certify.

The water quality-based limits were calculated by a risk based model and by the EPA TSD method (Table 10). The permit contains the water quality-based limits for copper calculated by the EPA TSD method. For freshwater, Western Washington data, with a dilution factor (df) = 5 the limits are 26 µg/L seasonal average and 52 as the daily maximum. For marine waters, df =5, the limits are 14 µg/L as the seasonal average and 29 µg/L as the daily maximum. These values are lower than the current performance of in-place multimedia filtration but it is assumed the treatment performance will improve over time to equivalent of the pilot performance (long term average = 10 µg/L).

The water quality-based limits for zinc are higher than the current demonstrated performance of multimedia filtration so the lower numbers were used (Table 10).

The water quality-based limits will become effective at the close of the compliance period allowance. In the interim those facilities will be subject to limits based on the 75th % 2008 – 2010 data for copper, zinc and lead as discussed above.

Table 10. Comparison of boatyard limitation for discharge to surface waters.

Limits based on demonstrated current performance of multimedia filtration.

EPA TSD Appendix E (ref. Boatyard Treatment Technology Calcs7-5-08.xls)

Copper		Zinc		Lead	
Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.
50	147	176	228	NA	NA

Limits based on water quality criteria (marine and fresh) calculated with two methods.

Water Quality-Based freshwater – EPA TSD methodology (Ecology data- Lk Union df=5, ref)

Copper		Zinc		Lead	
Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.
16	33	307	615	553	1109

Water Quality-Based freshwater – Monte Carlo method 10% exceed with df =5 (West WA data – ref Herrera, WQMonteCarlo.xlsm)

Copper		Zinc		Lead	
Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.
14		200		300	

Water Quality-Based freshwater - EPA TSD methodology df = 5 (West WA data – ref Herrera, WQMonteCarlo.xlsm)

Copper		Zinc		Lead	
Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.
26	52	326	653	467	938

Water Quality-Based marine – EPA TSD methodology df = 5 (Ecology data ref. WQMonteCarlo.xlsm)

Copper		Zinc		Lead	
Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.
14	29	279	559	2617	5250

Water Quality-Based marine – Monte Carlo method df = 5 (ref. WQMonteCarlo.xlsm)

Copper		Zinc		Lead	
Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.
19		430		3000	

Limits based on historic performance (2008-2010) at three levels.

BMP performance of best 50th % 2008-2010 - EPA Appendix E method (ref. CuZnBMP.xlsm)

Copper		Zinc		Lead	
Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.
64	155	168	517	5	14

BMP performance of best 75th % 2008-2010 - EPA Appendix E method (ref. CuZnBMP.xlsm)

Copper		Zinc		Lead	
Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.
129	358	386	1276	10	33

Current BMP performance 2008-2010.- EPA Appendix E method (ref. CuZnBMP.xlsm)

Copper		Zinc		Lead	
Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.	Seasonal Avg	Daily Max.
430	1397	1344	4571	62	216

Sediment Quality Criteria

There is little data to judge the impact of boatyard activity on sediment quality. One study found sediment quality in two Puget Sound boatyard/marinas was well below current sediment quality criteria for copper, lead and zinc (Crecelius, E. et al 1989). Ecology collected sediment samples at three boatyards in 2006 to determine the impact of boatyard stormwater runoff to sediment quality (Ecology 2006a). Sediment contamination appears correlated to stormwater contamination. Ecology believes that controlling the pollutants in stormwater will cause a reduction of pollutants in the sediments.

ECONOMIC IMPACT ANALYSIS

A two part analysis was conducted on a 2008 draft permit modification (Ecy. Pub. No. 10-10-018). The analysis examined small business impacts and treatment options and costs. That analysis was used in the formulation of this permit and is discussed above.

ZEBRA MUSSELS

The permit contains reporting and treatment requirements for zebra mussels. Zebra mussels (*dreissena polymorpha*) have spread throughout the Great Lakes and other waterways in 18 states and two Canadian provinces think they were accidentally introduced into Lake Erie and St. Clair in the 1980's. This introduction has been attributed to a discharge of ballast water from a commercial freighter but other introductions are known to have come from hull biofouling.

Zebra mussels will continue to expand their range as naturally flowing water carries their young, known as veligers, downstream. Commercial and recreational vessels and equipment can also spread zebra mussels when they move from infested waters to uninfested waters. Adult mussels may attach to any hard surface and the veligers may be transported in water.

A list of potential carriers includes:

* boats, trailers and other equipment
* scientific equipment
* Scuba and snorkel gear
* live wells
* raw water
* plants and animals

Placing these items in uninfested waters without following precautions may lead to an accidental introduction of mussels. Any boats or vessels from outside the State of Washington should be carefully examined and all boats or vessels from east of the Rocky Mountains should be

considered infected.

Water hotter than 110 degrees F will kill veligers and 140 degrees F will kill adult mussels.

Therefore the permit contains inspection, reporting and quarantine requirements to minimize the infestation of zebra mussels.

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Hart Crowser. 1997. Final Report, Shipyard AKART Analysis for Treatment of Storm Water.

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Taylor Associates. 2008. Boatyard Stormwater Treatment Technology Study.

USEPA. 1978"Development Document for Shipbuilding and Repair - Draft," EPA 440/1-70/076-b.

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APPENDIX A – PUBLIC INVOLVEMENT INFORMATION

Revising the Boatyard General Permit
The current boatyard NPDES and State Waste Discharge General Permit was issued by the Washington State Department of Ecology (Ecology) on November 2, 2005. The permit was appealed by Northwest Marine Trade Association (NMTA) and the PugetSoundkeeper Alliance (PSA). The permit has been under appeal and settlement discussion since that time. Ecology is now proposing to reissue the permit. This is notice of a draft permit available for public comment. The review and comment period will run from April 21, 2010 until close of business on May 28, 2010. Ecology will host two informational workshops and two public hearings on the draft permit. Oral comments may be given at the public hearing. Ecology will also accept written comments on the draft permit modification and fact sheet.

Purpose of the Boatyard General Permit
The Boatyard General Permit provides coverage for industries located in Washington State that discharge stormwater from areas used to renew the bottom paint on boats. Under Federal and State water quality law (Federal Clean Water Act and State Water Pollution Control Act), a permit is required for the discharge of wastewater, including stormwater. The proposed general permit addresses these legal requirements and controls the discharge of pollutants to protect surface water and ground water quality in Washington State.

A general permit is similar to an individual wastewater discharge permit except that it covers a group of facilities with similar operations. It implements the Federal Clean Water Act and State Water Pollution Control Act in a single permit. Individual facilities that receive coverage under the general permit are required to comply with the terms and conditions of the permit. Currently, 88 facilities are covered under the Boatyard General Permit.

Applying for a Boatyard Permit
Facilities covered under the existing Boatyard General Permit and have made timely application for renewal will continue to be covered under the reissued permit.

Requesting Copies of the Permit
Beginning April 21, 2010 you can request copies of the draft permit modification and fact sheet or you can download copies from the website below:
http://www.ecy.wa.gov/programs/wq/permits/boatyard/index.html

Contact Ecology: Gary Bailey
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600
Telephone: (360) 407-6433
FAX: (360) 407-6426
E-Mail: gary.bailey@ecy.wa.gov

Submitting Written and Oral Comments

Ecology will accept written and oral comments on the draft Boatyard General Permit Modification. Written comments must be postmarked no later than close of business, May 28, 2010. Oral comments may be presented by attending and testifying at the public hearing. Comments may be submitted by email if the commenter includes name, address and telephone number in the comment email. Comments should reference specific text when possible. Comments may address the following:

- technical issues,
- accuracy and completeness of information,
- the scope of facilities proposed for coverage,
- adequacy of environmental protection and permit conditions, or
- any other concern that would result from issuance of the modified permit.

Submit written comments to:

Gary Bailey
Department of Ecology
PO Box 47600
Olympia, WA 98504-7600
gary.bailey@ecy.wa.gov

Public Workshops and Hearings

Two public workshops and hearings on the draft general permit are scheduled to be held in May. The purpose of the workshops is to explain the general permit, explain the changes from the previous permit, and answer questions in order to facilitate meaningful testimony during the hearing. The purpose of the hearings is to provide an opportunity for people to give formal oral testimony and comments on the proposed permit. Written comments will receive the same consideration as oral testimony. The public workshop and hearing will begin at 1:00 p.m. and conclude when public testimony is completed.

The May 24, 2010 (1 p.m.) workshop and hearing will be held at:
Ecology Headquarters Building (360) 407-6400
300 Desmond Drive SE
Lacey, WA 98503
Map: http://www.ecy.wa.gov/images/offices/map_hq_swro.pdf

The May 26, 2010 (1 p.m.) workshop and hearing will be held at:
Main Library
2702 Hoyt Ave.
Everett, WA 98201
Map: http://epls.org/mlmap.asp

Issuing the Final Boatyard General Permit Modification
The final modified permit will be issued after Ecology receives and considers all public comments. If public comments cause a substantial change in the permit conditions from the original draft permit, another public notice of draft and comment period may ensue.

Ecology expects to issue the modified general permit on or about March 1, 2009 if there is no substantial change to the draft. It will be effective 30 days later on April 1, 2009. When issued, a copy of the notice of issuance and Ecology's responses to the comments will be sent to all persons who submitted written comment or gave public testimony. The response to comments will also be posted on Ecology's boatyard web site at: http://www.ecy.wa.gov/programs/wq/permits/boatyard/index.html.

APPENDIX B – RESPONSE TO COMMENTS

APPENDIX C - DATA

Operational data

Boatyard	Date	Cu	Zn	Pb
Seaview E.	4/09	12.5	<0,2	<5
	5/09	31.2	<0,2	<5
	9/09	45	<0,2	<5
	10/09	65	<0,2	<5
	1/10	58	98	<5
Seaview W.	4/09	91.2	57.3	<5
	9/09	150	160	<5
	10/09	33	290	<5
Canal	4/09	113		
	4/09	50		
	5/09	22.3		
	10/09	37	55.6	4.15
South Park Marina	5/09	<5	<0.2	< 1
	9/09	85	330	1.2
	10/09	63	28	2.5
	1/10	41	83	0.4
Pac. Fishermen Pilot	1/24/08	13.6	31.4	2.59
	1/31/08	12.9	18.7	1.5
	2/11/08	<10	<20	<10
	3/19/08	29.3	442	2.41
	6/3/2008	76.7	157	6.49

Operational and 07/08 pilot data

Rx Copper combined	Ln Copper combined	Rx Zinc combined	Ln Zinc combined
12.5	2.5	0.1	-2.3
31.2	3.4	0.1	-2.3
45	3.8	0.1	-2.3
65	4.2	0.1	-2.3
58	4.1	98	4.6
91.2	4.5	57.3	4.0
		160	5.1
33	3.5	290	5.7
113	4.7	55.6	4.0
50	3.9	1	0.0
22.3	3.1		
37	3.6	28	3.3
2.5	0.9	83	4.4
85	4.4	31.4	3.4
63	4.1	18.7	2.9
41	3.7	10	2.3
13.6	2.6		
12.9	2.6	157	5.1
5	1.6	79.0	4.4
29.3	3.4	85.0	4.4
76.7	4.3	153.0	5.0
21.0	3.0	49.0	3.9
16.2	2.8	61.0	4.1
18.6	2.9	58.0	4.1
21.0	3.0	59.0	4.1
5.5	1.7	64.0	4.2
5.2	1.6	75.0	4.3
5.8	1.8	76.0	4.3
6.1	1.8	78.0	4.4
8.6	2.2	76.0	4.3
10.9	2.4	70.0	4.2
10.2	2.3	81.0	4.4
9.9	2.3	82.0	4.4
6.0	1.8	77.0	4.3
7.6	2.0	70.0	4.2
7.0	1.9	66.0	4.2
5.3	1.7	64.0	4.2
8.7	2.2	76.0	4.3
5.4	1.7	103.0	4.6
4.0	1.4	104.0	4.6
10.3	2.3	127.0	4.8
14.0	2.6	122.0	4.8
15.0	2.7	66.0	4.2
12.0	2.5	46.0	3.8

14.0	2.6	49.0	3.9
8.4	2.1	50.0	3.9
5.0	1.6		
4.5	1.5		
18.6	2.9		

Copper combined		**Ln Copper**	
Mean	24.416667	Mean	2.720664
Standard Error	3.7839484	Standard Error	0.139516
Median	13.25	Median	2.583649
Mode	5	Mode	1.609438
Standard Deviation	26.215963	Standard Deviation	0.966598
Sample Variance	687.27674	Sample Variance	0.934311
Kurtosis	2.5146362	Kurtosis	-0.79381
Skewness	1.7517203	Skewness	0.394261
Range	110.5	Range	3.811097
Minimum	2.5	Minimum	0.916291
Maximum	113	Maximum	4.727388
Sum	1172	Sum	130.5919
Count	48	Count	48

Zinc combined		**Ln Zinc**	
Mean	85.38043	Mean	3.604514
Standard Error	12.2892	Standard Error	0.321744
Median	70	Median	4.248495
Mode	0.1	Mode	-2.30259
Standard Deviation	83.34942	Standard Deviation	2.182177
Sample Variance	6947.126	Sample Variance	4.761896
Kurtosis	8.331885	Kurtosis	3.728113
Skewness	2.618537	Skewness	-2.18137
Range	441.9	Range	8.393895
Minimum	0.1	Minimum	-2.30259
Maximum	442	Maximum	6.09131
Sum	3927.5	Sum	165.8077
Count	46	Count	46

Zn -outliers	
Mean	71.73636
Standard Error	7.872554
Median	68
Mode	0.1
Standard Deviation	52.22061
Sample Variance	2726.993
Kurtosis	6.147385
Skewness	1.745611
Range	289.9
Minimum	0.1
Maximum	290
Sum	3156.4
Count	44

Avg. Seasonal Limit = X + 1.645 σ = 71.7 + 1.645*7.9 =84.7
Daily max. = X + 2.326 σ = 71.7 + 2.326*7.9 = 90