Surface Vessel Bilgewater/Oil-Water Separator (OWS) Discharge Summary

Description of Discharge

How is this discharge generated? The surface vessel bilgewater/OWS discharge consists of a mixture of wastewater and leakage from a variety of sources that are allowed to drain to the lowest inner part of the hull, known as the bilge. The sources of surface vessel bilgewater are generally similar to those discussed above for submarines. An additional source of bilgewater for surface vessels is water from the continual blowdown of boilers (i.e., boiler blowdown). On surface vessels, bilgewater is usually transferred to an oily waste holding tank, where it is stored for shore disposal or treated in an oil-water separator (OWS) to remove oil before being discharged overboard. Some vessels also have an oil content monitor (OCM) installed downstream from the OWS to monitor bilgewater oil content prior to discharge. Vessels with OCMs have the capability to return bilgewater not meeting a preset oil concentration limit to the OWS for reprocessing until the limit is met. Oil collected from the OWS separation process is held in a waste oil tank until transferred to shore facilities for disposal.

Which vessels generate this discharge? All vessels of the Armed Forces produce bilgewater and most of the larger vessels have OWS systems. Small craft bilgewater is collected and transferred to shore facilities while pierside.

How often and where is this discharge generated? Bilgewater accumulates continuously; however, vessels of the Armed Forces do not discharge untreated bilgewater. Under current policy, bilgewater treated by an OWS can be discharged as needed within 12 n.m., while untreated bilgewater is held for transfer to a shore facility for treatment. For vessels with an OWS and OCM, oil concentrations in the treated bilgewater must be less than 15 ppm prior to overboard discharge.

Preliminary Analysis

Nature of Discharge: Sampling data for OWS effluent show oil, copper, iron, mercury (a bioaccumulative chemical of concern), nickel, and zinc exceed acute Federal criteria or State acute water quality criteria. Sampling data also show concentrations of nitrogen (in the form of ammonia, nitrates and nitrites, and total Kjeldahl nitrogen) and phosphorus exceed the most stringent State water quality criteria. The estimated mass loading for oil is considered to be large.

Preliminary Analysis (continued)

The following table lists the concentrations of the discharge's constituents and the resulting annual fleet-wide mass loading of the constituents that are expected to exceed acute Federal criteria or State water quality criteria (based on aircraft carrier data).

Constituent	Concentration	Annual Mass Loading (lbs)
Classicals	**(mg/L)**	
Ammonia as nitrogen	BDL - 0.17	67
Nitrate/Nitrite	0.2 - 0.4	202
Total Nitrogen[A]	1.77*	1,304
Total Phosphorus	1.2 - 2.7	1,353
TPH[B]	6 - 16	7,208
Mercury	**(ng/L)**	
Mercury	32.05 - 79.8	0.04
Metals	**(µg/L)**	
Copper		
Dissolved	116 - 201	122
Total	277.5 - 426	255
Iron		
Total	432 - 531	353
Nickel		
Dissolved	109 - 247	132
Total	97.75 - 245	126
Zinc		
Dissolved	511 - 1,260	640
Total	514 - 1,330	657

** Log normal mean concentration.*

[A] Total nitrogen is the sum of nitrate/nitrite and total Kjeldahl nitrogen.

[B] TPH = Total petroleum hydrocarbons

Discussion and Preliminary Discharge Determination

Discussion: The existing policies prohibiting the discharge of untreated bilgewater, and the extensive use of oil-water separators and oil content monitors demonstrate the availability of pollution controls for bilgewater. The data in the administrative record to the rule indicate that untreated bilgewater would likely cause adverse environmental impacts. Therefore, EPA and DOD have determined that it is reasonable and practicable to require the use of a MPCD for this discharge.

Preliminary Determination: A marine pollution control device is required.

Note

The analysis presented in this summary is based on information currently available. As such, this analysis is preliminary in nature, and is subject to change as additional information becomes available. Likewise, the determination presented in this summary is preliminary in nature and may change prior to final rulemaking.