

August 2005

## Potable Water

**Dennis L. Bryant**

In this age when it seems like everything related to ships has been regulated to an extreme, it comes as a surprise to learn that there are no general regulations relating to potable water on U.S. vessels. That is about to end, as the Coast Guard initiates a rulemaking project to establish such standards.

### **Rulemaking project**

The project seems to have begun with a 2002 letter from the Gulf Coast Mariners Association petitioning the Coast Guard for a rulemaking. The letter complained of the poor quality of drinking water on some of the vessels manned by members of the Association. It pointed out that the Coast Guard has general superintendence over the merchant marine and one of the agency's missions is to look after seamen's welfare.

In 2004, Congress amended the vessel inspection law to provide that, for U.S. vessels subject to inspection, the inspection process shall ensure an adequate supply of potable water for drinking and washing by passengers and crew. In determining the adequacy of the supply of potable water, the Coast Guard is to consider: (1) the size and type of vessel; (2) the number of passengers and crew on board; (3) the duration and routing of voyages; and (4) guidelines recommended by other federal agencies.

On July 11, 2005, the Coast Guard issued a notice soliciting public input on this issue. Comments should be submitted by September 9. In addition to the statutory requirements, the agency would like comments on: (a) other factors that should be considered in determining the amount of potable water that should be available on a vessel; (b) design practices and policies used for potable water systems on vessels; (c) periodic water tests conducted on vessels to determine continued potability; (d) protocols or test methods used for testing; and (e) industry standards that could be applied to the design and testing of potable water systems on vessels.

### **Vague Definition**

The word "potable" is defined as "fit to drink" and is as accurate as it is concise. The word is derived from the Latin word "potare", meaning "to drink". Thus, potable water is water

**E-mail**

[dennis.l.bryant@gmail.com](mailto:dennis.l.bryant@gmail.com)

**Internet**

<http://brymar-consulting.com/>

**Maritime Reporter & Engineering News**

<http://marinelink.com/en-US/magazines/Archive.aspx?MID=3>

that is fit to drink. The problem is that, like pornography, you may know it when you drink it, but it is difficult to write a regulation setting enforceable standards regarding potability.

### **Standards and Guidelines**

While there currently are no general U.S. regulations regarding potable water on U.S. vessels, that does not mean there is no available guidance. There is actually a wide variety of guidance documents available for adaptation into appropriate regulatory format.

The U.S. Centers for Disease Control and Prevention (CDC) issues guidelines on sanitary issues related to construction and operation of large passenger ships. These guidelines are applicable to the cruise ships (mostly foreign flag) that embark passengers at U.S. ports and may have limited applicability to non-passenger ships. The Food and Drug Administration (FDA) has promulgated regulations regarding the source and use of potable water on conveyances engaged in interstate traffic. Portions of those regulations apply to vessels, but they provide few specifics. Under the Safe Drinking Water Act, the Environmental Protection Agency (EPA) has issued regulations and guidance regarding standards for safe drinking water and maximum contaminant levels for drinking water. The EPA standards are focused on municipal water sources and similar land-based water systems.

The U.S. Coast Guard has standards applicable to potable water and wastewater systems at its units afloat and ashore, but has not utilized them outside the agency. The USCG Marine Safety Center has developed rudimentary guidelines for review of potable water systems when those systems are included in ship construction plans submitted for agency review. Unfortunately, there is no requirement that a potable water system be included in the construction plans submitted to the Coast Guard and not all ship construction plans are submitted to the Coast Guard for review.

The U.S. Navy, Bureau of Medicine and Surgery, has a Manual of Naval Preventive Medicine. One chapter of this manual is devoted to water supply afloat. It addresses such issues as receipt and transfer of potable water, storage and distribution, and disinfection, among other things. One section is devoted to potable water on smaller vessels (yard craft, in Navy parlance) that lack their own water production capability. The manual also addresses recommended amounts of potable water for various uses on a per person per day basis: drinking (0.5 to 1 gallon); galley and scullery (1.5 to 4 gallons); personal and hygiene (5 to 20 gallons); and laundry (5 to 10 gallons).

Norway promulgated guidelines and regulations for potable water systems and potable water supply on offshore units, such as platforms and drills ships, operating under Norwegian jurisdiction. The Norwegian Institute for Public Health issued a lengthy checklist for design of potable water systems on offshore units. For vessels and offshore units with water production systems, it recommends that there be at least two production units, each capable of producing at least 100% of the water needed, or three production units, each capable of producing at least 50% of the water needed. The number and size of potable water tanks is to be based on the

vessel's potable water production capability and the size of the crew. The agency provides minimum standards for the vessel's potable water manual. Finally, it includes a handy listing for a potable water quality criteria and recommended analysis program. This program addresses subjective factors such as smell, taste, and appearance, along with objective factors such as pH value, conductivity, free chlorine, color, e-coli count, copper, ammonia, benzene, lead, etc.

The International Organization for Standardization (ISO), located in Geneva, Switzerland, has developed standards for potable water supply on ships and marine structures. These standards come in two parts: (1) planning and design; and (2) method of calculation. Classification societies include potable water systems in their rules and regulations for building and classing ships. The American Bureau of Shipping (ABS) has also published a guide for crew habitability that addresses potable water systems and related issues.

### **Summary**

Potable water is a basic human necessity – more important than food. Crewmembers on ships have as much need for, and right to, potable water as persons ashore. It is assumed that the number of U.S. ships with inadequate potable water systems is very low, but the number should be zero. Guidance and basic regulations should resolve any problems. If nothing else, this rulemaking project can serve to focus the attention of the industry on this important issue and lead ship owners and operators to double-check the potable water systems on their vessels. This is a low cost effort that will pay important dividends – and one that everyone can fully support.

*Comments on the rulemaking project should be sent to:*

*Docket Management Facility (USCG-2005-20052)  
U.S. Department of Transportation  
400 Seventh Street, SW  
Washington, DC 20590-0001*