



MANAGEMENT SYSTEM MANUAL

ARM 7.5.7 Quality of Potable Water

Originator:	Approved By:
Gary McGrath	Albert F. Suchy

1. Purpose

The purpose of this procedure is to set forth the guidelines for the quality of potable water aboard the R/V Armstrong.

2. References

- Drawing 65411- 532-01, Auxiliary Systems Drawing, Potable Water
- Technical Manual – Chem-Free Water Treatment Systems Model CD-18-0/WQA

3. Responsibility

It is the responsibility of the Chief Engineer to maintain adequate potable water quality.

3. General

Armstrong is equipped with 2 independent potable water tanks with a total water capacity of 14,629 gallons. The tanks are located between frames 46 – 49 port and starboard. The tanks extend from the inner bottom, hold level to the 1st platform. The gauge glass for the port tank can be viewed in the aft outboard section of the transformer room extending down into the transducer room. The starboard gauge glass can be viewed from the aft, outboard corner of the transceiver room extending down to the transducer room.

Ozone is provided to the potable water tanks from a Chem-Free Purification Systems unit, Model CD-18-0/WQA2, (CD – Corona Discharge, 18 – output class – approximately 14 g/h of run time). This system relies on an external source of pure oxygen for process gas as denoted by '0'. Consequently, an external oxygen concentrator OXU-85 is used. WQA stands for water quality assurance and the '2' indicates it can treat and maintain water quality in two separate holding tanks. External ozone injector booster pumps located in the transducer room draw water from a low point in the tank and returns it to a point higher in the tank. Ozone is injected into the circulating potable water. This circulation helps reduce the areas of static, untreated water. The system cycles between the two tanks to reach the required level of ozone.

It is important to regularly monitor the concentration of dissolved ozone in the potable water. Determining the level of ozone output can be measured using an Oxygen Reduction Potential (ORP) meter. Ozone concentration is measured and is expressed in mV. The World Health Organization (WHO) standard for potable water is an ORP value of at least 650 mV. This monitoring ensures that the ozone supply units are functioning as designed thereby keeping the water well dosed to kill off any harmful organisms. On Armstrong, the test is performed with a hand held ORP meter. Test strips that read in parts per million (PPM) are available for determining Ozone levels and may also be used. The conversion table is provided below:

Conversion Table for PPM of Ozone to mV:

200 – 400 millivolts	= <0.06 Ozone PPM
500 – 600 millivolts	= <0.15 Ozone PPM
600 – 800 millivolts	= <0.4 Ozone PPM

Additionally a UV sterilizer, located in the Elec/Mech. Room on the main deck, is utilized in the potable water system prior to potable water distribution.

Perform all required periodic maintenance in accordance with ref b) and as prescribed in the shipboard maintenance system NS5.



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4. Sampling and Reporting Procedure

In accordance with ISM Procedure 7.5.7, Quality of Potable Water, a sample of water in each tank is to be tested and recorded weekly. On Armstrong, the procedure below is to be followed for each tank:

1. Secure the isolation valve at the top of the sight glass.
2. Open the bottom most petcock and allow 1 gallon of water to flow into a container.
3. Using a different container, draw and test a sample in accordance with ORP meter technical manual
4. Record the test results in NS5 in the Standard Job.
5. Open the upper isolation valve and secure the area.