The following provides the guidelines for dealing with seawater waste on the HEALY. It is followed by an example of what will work.

Dealing with seawater waste on the GEOTRACES Arctic cruise
Landing, William <wlanding@fsu.edu>
Fri 02/13/2015 2:10 PM

Greetings:

If you are not expecting to generate seawater waste or other chemical waste on the cruise, you do not need to read any farther.

If you are expecting to generate seawater or other chemical waste, we have a plan. Seawater waste will be divided into 3 categories:

1. If you will only be extracting or measuring something from the ship's seawater system or from seawater that you bring on board from a pump or a rosette, without adding any chemicals, you can discharge that seawater directly over the side or into a sink in the labs that has been identified for "seawater discharge". If your seawater waste falls into this category, you will need to submit an email or letter to me (wlanding@fsu.edu) containing the following information:

Project: GEOTRACES Arctic cruise, USCG HEALY

PI name:

Technician name (if PI is not going on the cruise):

Project identification: i.e. "Ra in seawater" or "Be-7 in seawater" or "Si isotopes, particles filtered from seawater"

2. If you will add chemicals to seawater for your extraction or analysis, you must have a plan to neutralize that chemical addition before being allowed to discharge over the side or into a sink. That would include, for example, acidification of seawater followed by neutralization back to pH ~8, or addition of a reducing reagent followed by neutralization of that reagent. The bottom line is that you will need to submit a statement from the EH&S group at your school or a commercial environmental/analytical lab that the seawater waste you are generating is "non-toxic and suitable for discharge into a municipal sewage treatment system". If you do not have an in-house EH&S group that can do this, you may want to contact:

John Teasley, Accounts & Projects Manager
Advanced Chemical Transport, Inc.,
2010 Mission Road, Escondido, CA 92029,
760-489-5600,
John Teasley <jtea@cox.net>
advancedchemical.net

John has agreed to help us arrange for your seawater waste to be tested. You should work with your EH&S group, or John Teasley, or any other commercial lab you might choose to find a way to have your seawater waste characterized as "non-toxic and suitable for discharge into a municipal sewage treatment

system". Any arrangements you make with John or another lab would be at your expense. If your seawater waste falls into this category, you will need to submit an email or letter to me (wlanding@fsu.edu) containing the following information:

Project: GEOTRACES Arctic cruise, USCG HEALY

PI name:

Technician name (if PI is not going on the cruise):

Project identification: i.e. "Th in seawater" or "Dissolved Zn in seawater"

An official statement (letter or lab report) from the EH&S group at your school (or organization) or a commercial environmental/analytical lab stating that the seawater waste you are generating is "non-toxic and suitable for discharge into a municipal sewage treatment system".

3. If you will add chemicals to seawater that cannot be neutralized and cannot be certified as "non-toxic and suitable for discharge into a municipal sewage treatment system", we will need to store it on the ship for return to Seattle and disposal by a hazmat agency there. The project team will cover the costs for this. If your seawater waste falls into this category please send an email or letter to me (wlanding@fsu.edu) with the following information:

Project: GEOTRACES Arctic cruise, USCG HEALY

PI name:

Tech name (if PI is not going on the cruise):

Project identification: i.e. "dissolved Fe and Al in seawater"

Expected total volume of waste to be generated (liters):

Names (common name and CAS registry numbers, please) and concentrations of added reagents (on a mass per liter or moles per liter basis):

Note that any actual HAZMAT you expect to bring on the ship will be handled separately, where you would provide the MSDS sheets etc. so that the information can be relayed to the ship. Right now, we are only dealing with the "seawater waste" issue.

Thanks!
Bill

WOODS HOLE OCEANOGRAPHIC INSTITUTION

Ron Reif
Director of Environmental Health & Safety
rreif@whoi.edu

March 4, 2015

SUBJECT: Neutralization of samples from GEOTRACES project

To whom it may concern,

Based on a review of the chemistry protocol that will be used by Dr. Buesseler's staff during the GEOTRACES Artic cruise project, I have determined that the seawater waste effluent produced will be non-hazardous and is safe for over the side disposal at sea. Specifically, the seawater waste effluent from this protocol will meet the following WHOI-approved, sink disposal criteria: aqueous, pH 6-9, no organic solvents, no toxic chemicals, and not a regulated hazardous waste. The WHOI-approved sink disposal criteria is described in Section 4.3 of WHOI's Hazardous Waste Generator Procedure (http://ehs.whoi.edu/ehs/envprotection/HazWasteGeneratorHW-1.pdf).

Dr. Buesseler's protocol includes a step for testing and recording the pH with a calibrated electronic pH instrument. The pH will be measured and recorded prior to disposal at sea. Dr. Buesseler will ensure that these records and the subject protocol will be available for inspection during this project.

If you have any questions, please contact Steve Pike at 508-289-2350 or me at 508-289-3788.

Sincerely,

Ronald Reif, P.E.
Director of Environmental, Health & Safety