UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NOAA Marine and Aviation Operations
Marine Operations Center
439 W. York Street
Norfolk, VA 23510-1114

MEMORANDUM FOR: Lieutenant Commander Jeffrey Shoup, NOAA
Commanding Officer, NOAA Ship *Nancy Foster*

FROM: For Captain Anne K. Lynch, NOAA
Commanding Officer, NOAA Marine Operations Center-Atlantic

SUBJECT: Project Instruction for NF-15-10
EPA Region III Norfolk Ocean Disposal Site, Coastal Eutrophication, and Ocean Acidification Study

Attached is the final Project Instruction for NF-15-10 EPA Region III Norfolk Ocean Disposal Site, Coastal Eutrophication, and Ocean Acidification Study, which is scheduled aboard NOAA Ship *Nancy Foster* during the period of August 24 – 30, 2015. Of the 10 DAS scheduled for this project, 10 days are Other Agency funded by EPA. This project is estimated to exhibit a Medium Operational Tempo. Acknowledge receipt of these instructions via e-mail to **OpsMgr.MOA@noaa.gov** at Marine Operations Center-Atlantic.

Attachment

cc:
Sherilyn Lau

EPA Region III Project Instructions

Date Submitted: May 19, 2015

Platform: NOAA Ship *Nancy Foster*

Project Number: NF-15-10

Project Title: EPA Region III Norfolk Ocean Disposal Site, Coastal Eutrophication, and Ocean Acidification Study

Project Dates: August 24th, 2015 – August 30th, 2015

Prepared by: Sherilyn Lau Dated: 8-18-15
Sherilyn Lau
Acting Chief Scientist
EPA Region III

Approved by: Dated: 8-18-15
John R. Pomponio
Director
Environmental Assessment and Innovation Division

Approved by: for COE/NOAA Dated: 8-20-2015
Captain Anne K. Lynch, NOAA
Commanding Officer
Marine Operations Center - Atlantic

I. Overview

A. Brief Summary and Project Period

Below is a brief summary of each of the operations intended on being implemented during Region III's time aboard *NOAAS Nancy Foster*. The project period is from August 24th through the 30th, including time associated with ship transit, mobilizing, and demobilizing.
Mobilization Date: 24 August 2015
Mobilization Time: TBD
Location: Norfolk, VA
*Due to the 5.5 to 6 hour commute from Philadelphia to Norfolk, combined with severe cuts in travel funding, the scientists will be driving south to meet the ship on the morning of mobilization.

Planned Survey Duration (days): 5
Allowable Weather/Breakdown Days: 2
Demobilization Date: 30 August 2015
Demobilization Time: TBD
Location: Norfolk, VA

Prioritization of the projects is listed in order of most important to least important. Therefore, the collection of sediment samples and water samples at the Norfolk Ocean Disposal Site (NODS) is the most important aspect of this survey and must be completed prior to considering moving along the coast to collect the nutrient samples (lower priority) and/or the ocean acidification samples (lowest priority). The order of the stations can be discussed with the ship crew and chief scientist/project manager either prior to the survey or immediately after mobilization.

I. **Norfolk Ocean Disposal Site Survey**

The objective is to continue the monitoring of the biennial survey of the Norfolk Ocean Disposal Site, used for the disposal of dredged material from reaches other than Army Corps maintained channels, located southeast of the mouth of the Chesapeake Bay and approximately 10-30 nautical miles off the coast of Virginia. The survey is part of a requirement for use of the site under the Site Management and Monitoring Plan (SMMP) required under the Water Resources Development Act (WRDA).

II. **Coastal Eutrophication**

Region III continues to collect water quality samples along the Mid-Atlantic Bight. Almost 30 years of data have been collected and will be utilized to determine whether any long term statistically significant changes in nutrient concentrations can be noted and added to our existing dataset. This data is being prepared as part of a Region III Site Monitoring Assessment Report and will be available to the public once the report goes through the peer review process.

III. **Ocean Acidification Study**

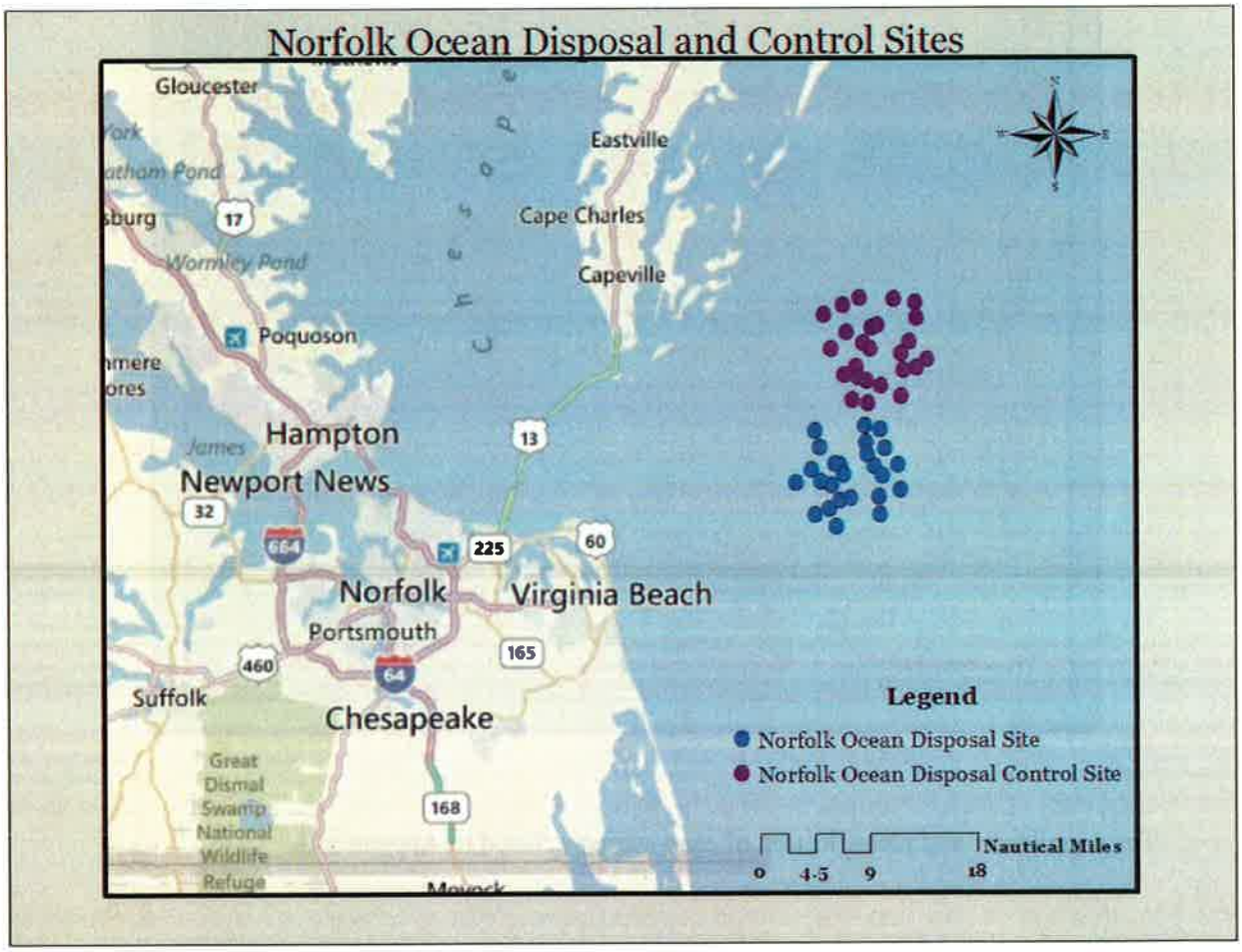
The ocean plays an important role in regulating the amount of carbon dioxide (CO2) in the atmosphere. As atmospheric concentrations increase, the ability for the ocean to absorb more CO2 decreases. Surface, mid-thermocline, and bottom samples will be collected along three identified transects. The objective is to collect baseline data for pH, total alkalinity (TA) and dissolved inorganic carbon (DIC) in the Mid-Atlantic Bight near the mouth of the Delaware and Chesapeake Bays in addition to select nutrient stations.

B. Days at Sea (DAS)

Of the 10 DAS scheduled for this project, 0 DAS are funded by an OMAO allocation, 0 DAS are funded by a Line Office Allocation, 0 DAS are Program Funded, and 10 DAS are Other Agency funded. This project is estimated to exhibit a Medium Operational Tempo.

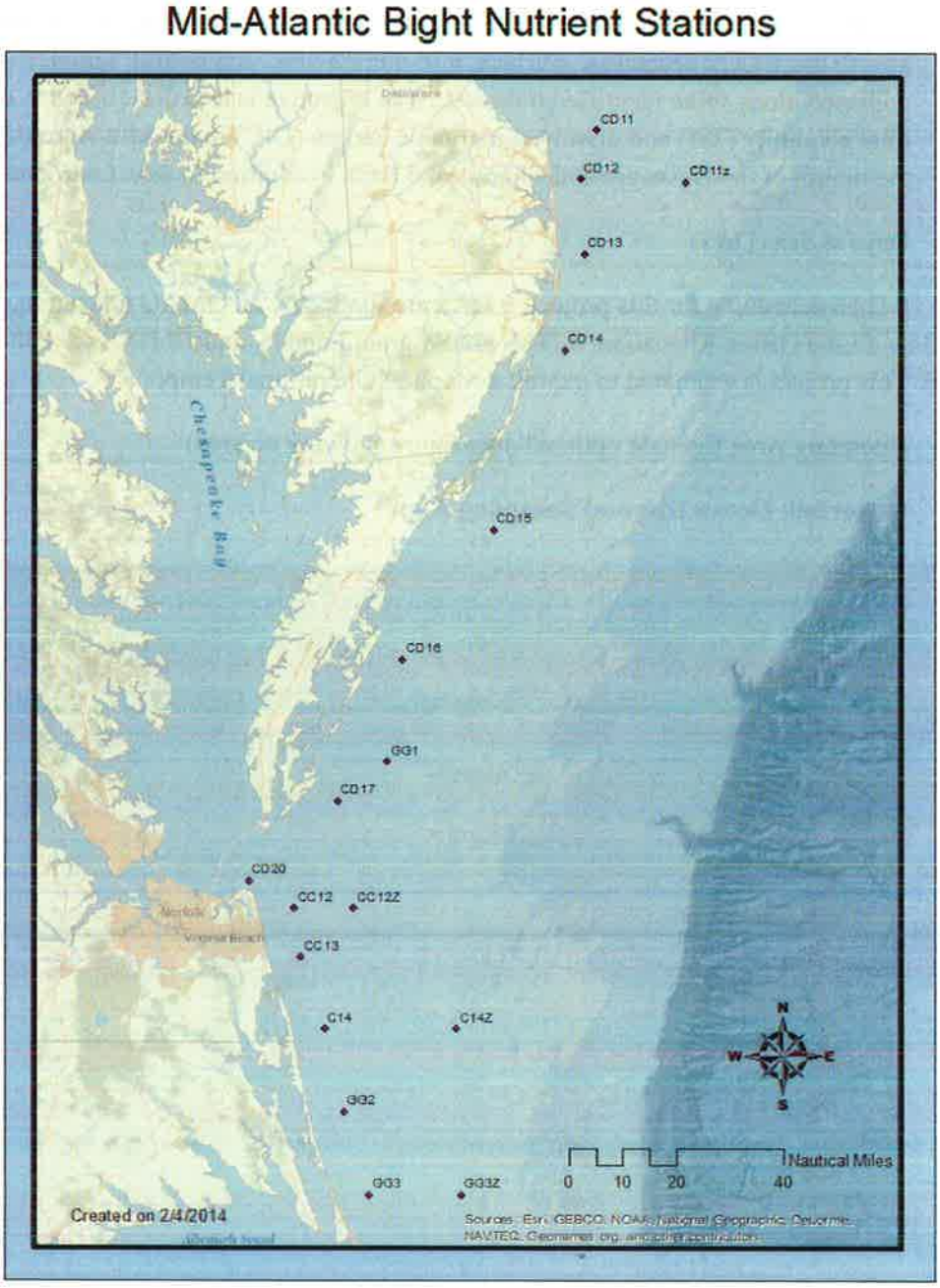
C. Operating Area (include optional map/figure showing op area)

I. **Norfolk Ocean Disposal Sampling Area**



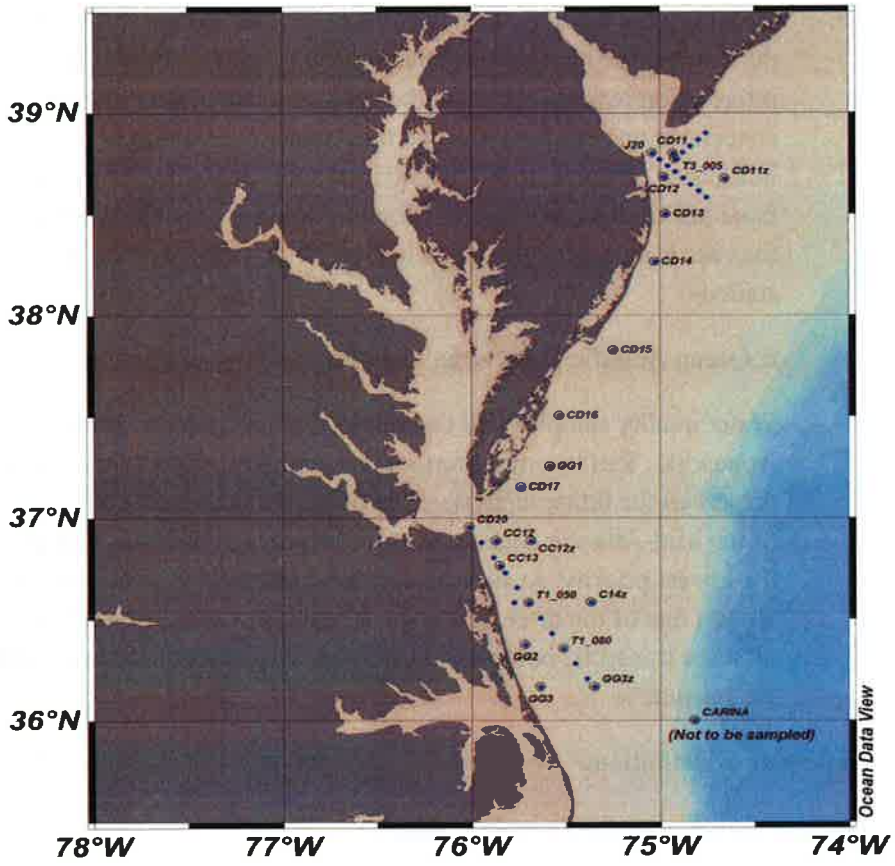
*The locations on the Norfolk ocean disposal map are for reference only and do not reflect the actual locations of the sampling points for this survey. The actual coordinates are located in Appendix A.

II. **Coastal Eutrophication Locations**



The coordinates and identification of each station is listed in Appendix B.

III. **Ocean Acidification Study**



D. Summary of Objectives

I. Collect data in order of highest to lowest priority:

a. Norfolk Ocean Disposal Site (water and sediment samples)

The objective of the data collection at the Norfolk disposal site is to collect sediment samples for total organic carbon (TOC), metals, grain size and benthic organisms. Water quality parameters are also recorded at the site. This data will be compared to data collected to the year before to determine if the conditions at the site are degrading as a result of the placement of dredge material as there has been an increase in disposal activity. If degradation is detected, environmental management decisions will need to be made regarding the use of the site and the protection against further degradation. Success is measured by collecting all 50 samples at the approximate locations for further analysis.

b. Coastal Eutrophication (water samples)

Water quality samples will be collected at the surface and middle of the thermocline along the Mid-Atlantic Bight. These samples provide EPA with information regarding total and dissolved nutrient concentrations. These concentrations can help provide the Agency with information regarding estuarine influences on the near coastal environment. It also helps in determining whether there has been an increase or decrease in nutrient concentrations over the years. Success is measured by the collection of all of the samples at the identified stations.

c. Ocean Acidification (water samples)

Water quality samples will be collected at the meter increments identified in the Appendix. Surface, mid-thermocline, and bottom samples will be collected and preserved for future analysis. The objective is to create baseline data of the pH of the Mid-Atlantic Bight waters for future comparison. This project is ranked as the lowest priority, so success will be characterized as collecting information for at least one of the three transects. Ideally, it would be beneficial to collect data in all three transects, but time and weather will most likely make that determination for science.

E. Participating Institutions

The U.S. Environmental Protection Agency.

F. Personnel/Science Party: name, title, gender, affiliation, and nationality

Name (Last, First)	**Title**	**Date Aboard**	**Date Disembark**	**Gender**	**Affiliation**	**Nationality**
Sherilyn Lau	Acting Chief Scientist	08-24-15	08-30-15	F	EPA	American
Renee Searfoss	Chief Scientist	08-24-15	08-30-15	F	EPA	American
John Forren	Scientist	08-24-15	08-30-15	M	EPA	American
Kris DeNardi	Scientist	08-24-15	08-30-15	M	EPA	American
David Rider	Scientist	08-24-15	08-30-15	M	EPA	American
Dave Byro	Scientist	08-24-15	08-30-15	M	EPA	American
Ken Hendrickson	Scientist	08-24-15	08-30-15	M	EPA	American
Matt Taynor	Scientist	08-24-15	08-30-15	M	EPA	American

Kristin Koroncai	Scientist	08-24-15	08-30-15	F	EPA	American
Kelly Somers	Scientist	08-24-15	08-30-15	F	EPA	American
Cathleen Kennedy	Scientist	08-24-15	08-30-15	F	EPA	American
John Markovich	Scientist	08-24-15	08-30-15	M	EPA	American
Steve Donohue	Scientist	08-24-15	08-30-15	M	EPA	American

G. Administrative

1. Points of Contacts:

I. Sherilyn Lau, Chief Scientist
1650 Arch St. Philadelphia, PA 19103
215-814-2137
Searfoss.renee@epa.gov

II. Renee Searfoss, Chief Scientist, Second in Command
1650 Arch St. Philadelphia, PA 19103
215-814-2786
Lau.sherilyn@epa.gov

III. LT Lyndsey Davis, Operations Officer
NOAA Ship *Nancy Foster*
439 W York Street
Norfolk, VA 23510
843-991-6326

2. Diplomatic Clearances

This project involves Marine Scientific Research in waters under the jurisdiction of the United States of America. Diplomatic clearance is not necessary.

3. Licenses and Permits

None of these projects require any state or federal permits.

II. Operations

The Chief Scientist is responsible for ensuring the scientific staff are trained in planned operations and are knowledgeable of project objectives and priorities. The Commanding Officer is responsible for ensuring all operations conform to the ship's accepted practices and procedures.

A. Project Itinerary

Date	Time	Activity
8/21/15	TBD	*Nancy Foster* departs Charleston, SC
8/23/15	TBD	*Nancy Foster* arrives in Norfolk, VA, MOC-A pier
8/24/15	1400	EPA Scientific crew arrives in Norfolk, Virginia and Board the *Nancy Foster*
8/24/15	1500	Leave Norfolk, Virginia
		Begin transit to EPA nutrient stations (CC12 & CC12z)
		Complete welcome aboard/ risk management / health and safety briefings
8/24/15	1900	Begin EPA nutrient sampling (CC12 & CC12z)
8/25/15	0400	Temporarily halt nutrient sampling
		Begin Norfolk Ocean Disposal Site sample collection
08/26/15	1100	Finish NODS sample collection
08/26/15	1130	Begin transit up the north for EPA nutrient sampling
08/29/15	1300	Continue collecting nutrient samples and ocean acidification samples until it is time to head into port
08/30/15	1830	Arrive in Norfolk, Virginia and disembark EPA crew
09/02/15	TBD	*Nancy Foster* departs Norfolk, Virginia

B. Staging and De-staging

Staging and destaging should be relatively simple. The most cumbersome device brought on board will be the Van Veen sediment sampler. This is typically brought up the gangway unless NOAA directs EPA otherwise. All other pieces of equipment are brought onboard by hand, including sampling jars and travel bags. Staging will take approximately 1 – 1.5 hours.

De-staging is similar to staging and should also take approximately 1.5 – 2 hours, due to the heavy nature of all of the samples.

C. Operations to be conducted

Norfolk Ocean Disposal Site Survey

1. A total of fifty (50) locations will be sampled at the disposal (study) site and the designated control site. Sediment samples will be collected for the following analyses: grain size, total organic carbon (TOC), metals, and benthics. A minimum of two sediment grabs will be collected at each sampling location for sediment. A minimum of 7cm of sediment in the Van Veen is considered an acceptable sample for the benthic sample. Sediment <7cm will be used for the other analyses. Multiple drops will be deployed until 7cm or greater is collected, or until a decision is made to move the station location.

2. A Hydrocast will also be performed at 10-20% of the randomly selected locations within each of the two study areas to determine physical/chemical water quality characteristics in the water column.

Coastal Eutrophication Locations

1. A series of coastal stations will be sampled from the North Carolina border to southern New Jersey. This project includes water quality samples only. Surface and samples in the middle of the thermocline (determined by each watch captain) will be collected at each of the stations to support and determine long-term nutrient trends. Hydrographic profiles will also be conducted and recorded at each station. Most of the stations are located approximately three miles away from the coastline, with the exception of four sample locations (control sites) that are situated approximately 20 miles off the coast. The offshore samples are used to determine background concentrations.

Ocean Acidification Study

1. Three transect areas for ocean acidification have been identified. This project includes water quality samples only. The transects are numbered by order of priority, the first being the highest priority. Surface, mid-thermocline samples, and bottom samples will be collected at each of the locations along the transect. Hydrographic profiles will also be conducted and recorded at each station.

D. Dive Plan

I. Not Applicable.

E. Applicable Restrictions

EPA will follow the sea state and operating protocol that NOAA has in place for its vessels as the guidelines for all EPA operations while out to sea.

III. Equipment

A. Equipment and Capabilities provided by the ship (itemized)

a. CTD (with capabilities for recording temperature, depth, salinity, dissolved oxygen (mg/L), pH), including rosette, niskin bottles, and ability to observe and record data electronically
b. Winch operator
c. Assistance with CTD operations
d. Large freezer for samples
e. Large refrigerator for samples
f. A protected area to store 10 to 12 large Tupperware totes containing samples

B. Equipment and Capabilities provided by the scientists (itemized)

a. Van Veen sediment sampler
b. Associated weights for sampler
c. All sampling will be done by scientists
d. All supplies will be provided by scientists
e. Assistance with CTD operations
f. YSIs (6600 series)
g. PPE (e.g. lab coat and goggles)
h. Judgment calls on what is a "good sample"
i. distilled water

IV. Hazardous Materials

A. Policy and Compliance

The Chief Scientist is responsible for complying with FEC 07 Hazardous Materials and Hazardous Waste Management Requirements for Visiting Scientific Parties (or the OMAO procedure that supersedes it). By Federal regulations and NOAA Marine and Aviation Operations policy, the ship may not sail without a complete inventory of all hazardous materials

by name and quantity, MSDS, appropriate spill cleanup materials (neutralizing agents, buffers, or absorbents) in amounts adequate to address spills of a size equal to the amount of chemical brought aboard, and chemical safety and spill response procedures. . Documentation regarding those requirements will be provided by the Chief of Operations, Marine Operations Center, upon request.

Per OMAO procedure, the scientific party will include with their project instructions and provide to the CO of the respective ship 30 days before departure:

- List of chemicals by name with anticipated quantity
- List of spill response materials, including neutralizing agents, buffers, and absorbents
- Chemical safety and spill response procedures, such as excerpts of the program's Chemical Hygiene Plan or SOPs relevant for shipboard laboratories
- For bulk quantities of chemicals in excess of 50 gallons total or in containers larger than 10 gallons each, notify ship's Operations Officer regarding quantity, packaging and chemical to verify safe stowage is available as soon as chemical quantities are known.

Upon embarkation and prior to loading hazardous materials aboard the vessel, the scientific party will provide to the CO or their designee:

- An inventory list showing actual amount of hazardous material brought aboard
- An MSDS for each material
- Confirmation that neutralizing agents and spill equipment were brought aboard sufficient to contain and cleanup all of the hazardous material brought aboard by the program
- Confirmation that chemical safety and spill response procedures were brought aboard

Upon departure from the ship, scientific parties will provide the CO or their designee an inventory showing that all chemicals were removed from the vessel. The CO's designee will maintain a log to track scientific party hazardous materials. MSDS will be made available to the ship's complement, in compliance with Hazard Communication Laws.

Scientific parties are expected to manage and respond to spills of scientific hazardous materials. Overboard discharge of hazardous materials is not permitted aboard NOAA ships.

B. Inventory

See attached Appendix E for Mercuric Chloride and Appendix F for NOTOXhisto

B. Chemical safety and spill response procedures

See attached Appendix D

C. Radioactive Materials

No Radioactive Isotopes are planned for this project.

V. Additional Projects

A. NOAA Fleet Ancillary Projects

No NOAA Fleet Ancillary Projects are planned.

VI. Disposition of Data and Reports

A. Data Responsibilities

EPA requests that all electronic data collected by the ship's CTD be accessible and transferred to EPA at the end of the survey.

VII. Meetings, Vessel Familiarization, and Project Evaluations

A. Pre-Project Meeting: The Chief Scientist and Commanding Officer will conduct a meeting of pertinent members of the scientific party and ship's crew to discuss required equipment, planned operations, concerns, and establish mitigation strategies for all concerns. This meeting shall be conducted before the beginning of the project with sufficient time to allow for preparation of the ship and project personnel. The ship's Operations Officer usually is delegated to assist the Chief Scientist in arranging this meeting.

B. Vessel Familiarization Meeting: The Commanding Officer is responsible for ensuring scientific personnel are familiarized with applicable sections of the standing orders and vessel protocols, e.g., meals, watches, etiquette, drills, etc. A vessel familiarization meeting shall be conducted in the first 24 hours of the project's start and is normally presented by the ship's Operations Officer.

C. Post-Project Meeting: The Commanding Officer is responsible for conducted a meeting no earlier than 24 hrs before or 7 days after the completion of a project to discuss the overall success and short comings of the project. Concerns regarding safety, efficiency, and suggestions for future improvements shall be discussed and mitigations for future projects will be documented for future use. This meeting shall be attended by the ship's officers, applicable crew, the Chief Scientist, and members of the scientific party and is normally arranged by the Operations Officer and Chief Scientist.

D. Project Evaluation Report

Within seven days of the completion of the project, a Customer Satisfaction Survey is to be completed by the Chief Scientist. The form is available at http://www.omao.noaa.gov/fleeteval.html and provides a "Submit" button at the end of the form. Submitted form data is deposited into a spreadsheet used by

OMAO management to analyze the information. Though the complete form is not shared with the ships', specific concerns and praises are followed up on while not divulging the identity of the evaluator.

VIII. Miscellaneous

A. Meals and Berthing

The ship will provide meals for the scientists listed above. Meals will be served 3 times daily beginning one hour before scheduled departure, extending throughout the project, and ending two hours after the termination of the project. Since the watch schedule is split between day and night, the night watch may often miss daytime meals and will require adequate food and beverages (for example a variety of sandwich items, cheeses, fruit, milk, juices) during what are not typically meal hours. Special dietary requirements for scientific participants will be made available to the ship's command at least seven days prior to the survey.

Berthing requirements, including number and gender of the scientific party, will be provided to the ship by the Chief Scientist. The Chief Scientist and Commanding Officer will work together on a detailed berthing plan to accommodate the gender mix of the scientific party taking into consideration the current make-up of the ship's complement. The Chief Scientist is responsible for ensuring the scientific berthing spaces are left in the condition in which they were received; for stripping bedding and linen return; and for the return of any room keys which were issued. The Chief Scientist is also responsible for the cleanliness of the laboratory spaces and the storage areas utilized by the scientific party, both during the project and at its conclusion prior to departing the ship.

All NOAA scientists will have proper travel orders when assigned to any NOAA ship. The Chief Scientist will ensure that all non NOAA or non-Federal scientists aboard also have proper orders. It is the responsibility of the Chief Scientist to ensure that the entire scientific party has a mechanism in place to provide lodging and food and to be reimbursed for these costs in the event that the ship becomes uninhabitable and/or the galley is closed during any part of the scheduled project.

All persons boarding NOAA vessels give implied consent to comply with all safety and security policies and regulations which are administered by the Commanding Officer. All spaces and equipment on the vessel are subject to inspection or search at any time. All personnel must comply with OMAO's Drug and Alcohol Policy dated May 7, 1999 which forbids the possession and/or use of illegal drugs and alcohol aboard NOAA Vessels.

B. Medical Forms and Emergency Contacts

The NOAA Health Services Questionnaire (NHSQ, NF 57-10-01 (3-14)) must be completed in advance by each participating scientist. The NHSQ can be obtained from the Chief Scientist or the NOAA website http://www.corporateservices.noaa.gov/noaaforms/eforms/nf57-10-01.pdf.

All NHSQs submitted after March 1, 2014 must be accompanied by NOAA Form (NF) 57-10-02 - Tuberculosis Screening Document in compliance with OMAO Policy 1008 (Tuberculosis Protection Program).

The completed forms should be sent to the Regional Director of Health Services at the applicable Marine Operations Center. The NHSQ and Tuberculosis Screening Document should reach the Health Services Office no later than 4 weeks prior to the start of the project to allow time for the participant to obtain and submit additional information should health services require it, before clearance to sail can be granted. Please contact MOC Health Services with any questions regarding eligibility or completion of either form. Ensure to fully complete each form and indicate the ship or ships the participant will be sailing on. The participant will receive an email notice when medically cleared to sail if a legible email address is provided on the NHSQ.

The participant can mail, fax, or email the forms to the contact information below. Participants should take precautions to protect their Personally Identifiable Information (PII) and medical information and ensure all correspondence adheres to DOC guidance (http://ocio.os.doc.gov/ITPolicyandPrograms/IT_Privacy/PROD01_008240).

The only secure email process approved by NOAA is Accellion Secure File Transfer which requires the sender to setup an account. Accellion's Web Users Guide is a valuable aid in using this service, however to reduce cost the DOC contract doesn't provide for automatically issuing full functioning accounts. To receive access to a "Send Tab", after your Accellion account has been established send an email from the associated email account to accellionAlerts@doc.gov requesting access to the "Send Tab" function. They will notify you via email usually within 1 business day of your approval. The 'Send Tab" function will be accessible for 30 days.

Contact information:

Regional Director of Health Services
Marine Operations Center – Atlantic
439 W. York Street
Norfolk, VA 23510
Telephone 757-441-6320
Fax 757-441-3760
E-mail MOA.Health.Services@noaa.gov

Prior to departure, the Chief Scientist must provide an electronic listing of emergency contacts to the Executive Officer for all members of the scientific party, with the following information: contact name, address, relationship to member, and telephone number.

C. Shipboard Safety

Wearing open-toed footwear or shoes that do not completely enclose the foot (such as sandals or clogs) outside of private berthing areas is not permitted. Hard hats are also required when working with suspended loads. Work vests are required when working near open railings and during small boat launch and recovery operations. Hard hats and work vests will be provided by the ship when required.

D. Communications

A progress report on operations prepared by the Chief Scientist may be relayed to the program office. Sometimes it is necessary for the Chief Scientist to communicate with another vessel, aircraft, or shore facility. Through various means of communications, the ship can usually accommodate the Chief Scientist. Special radio voice communications requirements should be listed in the project instructions. The ship's primary means of communication with the Marine Operations Center is via e-mail and the Very Small Aperture Terminal (VSAT) link. Standard VSAT bandwidth at 128kbs is shared by all vessels staff and the science team at no charge. Increased bandwidth in 30 day increments is available on the VSAT systems at increased cost to the scientific party. If increased bandwidth is being considered, program accounting is required it must be arranged at least 30 days in advance.

E. IT Security

Any computer that will be hooked into the ship's network must comply with the OMAO Fleet IT Security Policy prior to establishing a direct connection to the NOAA WAN. This policy applies to all operating systems. Requirements include, but are not limited to:

(1) Installation of the latest virus definition (.DAT) file on all systems and performance of a full system virus scan on each system.
(2) Installation of the latest critical operating system security patches.
(3) No external public Internet Service Provider (ISP) connections.

Completion of these requirements prior to boarding the ship is required.

Non-NOAA personnel using the ship's computers or connecting their own computers to the ship's network must complete NOAA's IT Security Awareness Course within 3 days of embarking.

F. Foreign National Guests Access to OMAO Facilities and Platforms

No foreign nationals are participating in this project.

Appendices

A. Norfolk Ocean Disposal Coordinates

B. Nutrient Sample Locations

C. Ocean Acidification Station Locations

D. Spill Plan for Mercuric Chloride

E. MSDS for Mercuric Chloride

F. MSDS for NOTOXhisto

G. EPA Chain of Command and Emergency Notification