SOLICITATION / CONTRACT / ORDER FOR COMMERCIAL ITEMS

OFFEROR TO COMPLETE BLOCKS 12, 17, 23, 24, & 30

1. REQUISITION NUMBER	PAGE 1 OF 166
See Lines	

2. CONTRACT NO.	3. AWARD/EFFECTIVE DATE	4. ORDER NUMBER	5. SOLICITATION NUMBER	6. SOLICITATION ISSUE DATE
DTMA1C05001	12/03/2004		DTMA1B04004/0006	10/18/2004

7. FOR SOLICITATION INFORMATION CALL:	a. NAME	b. TELEPHONE NUMBER *(No collect calls)*	8. OFFER DUE DATE/ LOCAL TIME
	Barbara Gillum	(202) 366-5757 ext.	10/25/2004 12:00 pm

9. ISSUED BY — CODE 00091

DOT/Maritime Administration, MAR-380
400 Seventh Street, SW., Room 7310

Washington, DC 20590
TEL: (202) 366-5757 ext.
FAX: (202) 366-3237 ext.

10. THIS ACQUISITION IS

- [x] UNRESTRICTED
- [ ] SET ASIDE: 0.00% FOR
  - [ ] SMALL BUSINESS
  - [ ] HUBZONE SMALL BUSINESS
  - [ ] 8(A)

NAICS: 336611
SIZE STANDARD:

11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED
- [ ] SEE SCHEDULE

12. DISCOUNT TERMS

10 days	%
20 days	%
30 days	%
days	%

- [ ] 13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)

13b. RATING

14. METHOD OF SOLICITATION
- [ ] RFQ
- [x] IFB
- [ ] RFP

15. DELIVER TO — CODE HQ611

DOT/Maritime Administration, MAR-611
400 Seventh Street, SW., Room 2119

Washington, DC 20590
Attn: Carl A. Heck

16. ADMINISTERED BY — CODE 00091

DOT/Maritime Administration, MAR-380
400 Seventh Street, SW., Room 7310

Washington, DC 20590

17a. CONTRACTOR/ OFFEROR — CODE * — FACILITY CODE

Marinette Marine Corporation
1600 Ely St
Marinette, WI 54143-2434

TELEPHONE NO.(715) 735-9341 ext.

18a. PAYMENT WILL BE MADE BY — CODE HQ333

DOT/Maritime Administration, MAR-330
400 Seventh Street, SW., Room 7325
Washington, DC 20590

17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN
- [ ] OFFER

18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED
- [ ] SEE ADDENDUM

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
	(Use Reverse and/or Attach Additional Sheets as Necessary)				

25. ACCOUNTING AND APPROPRIATION DATA
See Line Item Detail

26. TOTAL AWARD AMOUNT (For Govt. Use Only)
$ 3,900,000.00

- [x] 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA [x] ARE [ ] ARE NOT ATTACHED
- [x] 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA [x] ARE [ ] ARE NOT ATTACHED

28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 2 COPIES
- [x] TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED HEREIN.

29. AWARD OF CONTRACT: REF. _____ OFFER
- [ ] DATED _____. YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS:

30a. SIGNATURE OF OFFEROR/CONTRACTOR
Signed copy on file

31a. UNITED STATES OF AMERICA *(SIGNATURE OF CONTRACTING OFFICER)*
Wayne W. Leong

30b. NAME AND TITLE OF SIGNER *(Type or print)*	30c. DATE SIGNED	31b. NAME OF CONTRACTING OFFICER *(Type or print)*	31c. DATE SIGNED
Bob Cassibry, Contracts Manager	12/3/2004	Wayne Leong	12/3/2004

19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES	21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT

32a. QUANTITY IN COLUMN 21 HAS BEEN

☐ RECEIVED ☐ INSPECTED ☐ ACCEPTED, AND CONFORMS TO THE CONTRACT, EXCEPT AS NOTED: _____

32b. SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE	32c. DATE	32d. PRINTED NAME AND TITLE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32e. MAILING ADDRESS OF AUTHORIZED GOVERNMENT REPRESENTATIVE	32f. TELEPHONE NUMBER OF AUTHORIZED GOVERNMENT REPRESENTATIVE 32g. E-MAIL OF AUTHORIZED GOVERNMENT REPRESENTATIVE

33. SHIP NUMBER PARTIAL FINAL	34. VOUCHER NUMBER	35. AMOUNT VERIFIED CORRECT FOR	36. PAYMENT ☐ COMPLETE ☐ PARTIAL ☐ FINAL	37. CHECK NUMBER

38. S/R ACCOUNT NUMBER	39. S/R VOUCHER NUMBER	40. PAID BY

41a. I CERTIFY THIS ACCOUNT IS CORRECT AND PROPER FOR PAYMENT		42a. RECEIVED BY *(Print)*	
41b. SIGNATURE AND TITLE OF CERTIFYING OFFICER	41c. DATE	42b. RECEIVED AT *(Location)*	
		42c. DATE REC'D *(YY/MM/DD)*	42d. TOTAL CONTAINERS

Total Funding: $3,900,000.00

FYs	Fund	Budget Org	Sub	Object Class	Sub	Program	Cost Org	Sub	Proj/Job No.	Sub	Reporting Category
See Line Item(s)											

Division **Closed FYs** **Cancelled Fund**

Line Item Number	Description	Delivery Date (Start Date to End Date)	Quantity	Unit of Issue	Unit Price	Total Cost (Includes Discounts)
0001	Shipyard Services	(12/03/2004 to 06/01/2005)	1.00	LOT	$594,166.960	$ 594,166.96

In accordance with attached statement of work

Funding Information:
- - - - - - - - - - - - - - - -
$594,166.96

0002	Mast Modifications 0001	(12/03/2004 to 06/01/2005)	1.00	JOB	$74,484.460	$ 74,484.46

Ref Req No: PR600040054/0002

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$74,484.46

0003	Relocate Rescue Boat System	(12/03/2004 to 06/01/2005)	1.00	JOB	$74,567.960	$ 74,567.96

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$74,567.96

0004	Convert MOC to Classroom and Offices	(12/03/2004 to 06/01/2005)	1.00	JOB	$356,194.096	$ 356,194.10

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$356,194.10

Total Funding: $3,900,000.00

FYs **Fund** **Budget Org** **Sub** **Object Class** **Sub** **Program** **Cost Org** **Sub** **Proj/Job No.** **Sub** **Reporting Category**

See Line Item(s)

Division **Closed FYs** **Cancelled Fund**

Line Item Number	Description	Delivery Date (Start Date to End Date)	Quantity	Unit of Issue	Unit Price	Total Cost (Includes Discounts)
0005	Revise Hospital Ward	(12/03/2004 to 06/01/2005)	1.00	JOB	$22,681.960	$ 22,681.96

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$22,681.96

0006	Damaged Stability Modifications	(12/03/2004 to 06/01/2005)	1.00	JOB	$438,606.960	$ 438,606.96

Base Item

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$438,606.96

0007	Install Sliding Watertight Doors	(12/03/2004 to 06/01/2005)	1.00	JOB	$297,207.960	$ 297,207.96

Base Item

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$297,207.96

0008	Install USCG Type II Approved MSD System	(12/03/2004 to 06/01/2005)	1.00	JOB	$474,513.960	$ 474,513.96

Base Item

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$474,513.96

Total Funding: $3,900,000.00

FYs	Fund	Budget Org	Sub	Object Class	Sub	Program	Cost Org	Sub	Proj/Job No.	Sub	Reporting Category
See Line Item(s)											

Division **Closed FYs** **Cancelled Fund**

Line Item Number	Description	Delivery Date (Start Date to End Date)	Quantity	Unit of Issue	Unit Price	Total Cost (Includes Discounts)
0009	Modify Tanks and Piping Systems	(12/03/2004 to 06/01/2005)	1.00	JOB	$255,895.960	$ 255,895.96
	Base Item					
Funding Information: - 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - - $255,895.96						
0010	General Requirements for Fire and Smoke Detection	(12/03/2004 to 06/01/2005)	1.00	JOB	$109,458.960	$ 109,458.96
	System Modification and Test					
	Base Item					
Funding Information: - 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - - $109,458.96						
0011	Public Address System Modification and Test	(12/03/2004 to 06/01/2005)	1.00	JOB	$11,880.740	$ 11,880.74
	Base Item					
Funding Information: - 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - - $11,880.74						

Total Funding: $3,900,000.00

FYs	Fund	Budget Org	Sub	Object Class	Sub	Program	Cost Org	Sub	Proj/Job No.	Sub	Reporting Category
See Line Item(s)											

Division **Closed FYs** **Cancelled Fund**

Line Item Number	Description	Delivery Date (Start Date to End Date)	Quantity	Unit of Issue	Unit Price	Total Cost (Includes Discounts)
0012	General Alarm System Modification and Test	(12/03/2004 to 06/01/2005)	1.00	JOB	$16,625.750	$ 16,625.75
	Base Item					
Funding Information: - 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - - $16,625.75						
0013	Stability and Subdivision and Tonnage	(12/03/2004 to 06/01/2005)	1.00	JOB	$27,660.960	$ 27,660.96
	Base Item					
Funding Information: - 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - - $27,660.96						
0014	Weight and Center of Gravity Calculations	(12/03/2004 to 06/01/2005)	1.00	JOB	$31,186.960	$ 31,186.96
	Base Item					
Funding Information: - 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - - $31,186.96						

Total Funding: $3,900,000.00

FYs	Fund	Budget Org	Sub	Object Class	Sub	Program	Cost Org	Sub	Proj/Job No.	Sub	Reporting Category
See Line Item(s)											

Division **Closed FYs** **Cancelled Fund**

Line Item Number	Description	Delivery Date (Start Date to End Date)	Quantity	Unit of Issue	Unit Price	Total Cost (Includes Discounts)
0015	Inclining Experiment and Trim & Stability Booklet	(12/03/2004 to 06/01/2005)	1.00	JOB	$19,489.960	$ 19,489.96

Base Item

Funding Information:

- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$19,489.96

0016	Accomplish Sea Trials	(12/03/2004 to 06/01/2005)	1.00	JOB	$15,566.750	$ 15,566.75

Base Item

Funding Information:

- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$15,566.75

0017	Supplemental Work	(12/03/2004 to 06/01/2005)	0.00	MH	$.000	$ 0.00

Supplemental labor has been moved to CLIN 17AA.

Funding Information:

- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$0.00

Total Funding: $3,900,000.00

FYs	Fund	Budget Org	Sub	Object Class	Sub	Program	Cost Org	Sub	Proj/Job No.	Sub	Reporting Category
See Line Item(s)											

Division **Closed FYs** **Cancelled Fund**

Line Item Number	Description	Delivery Date (Start Date to End Date)	Quantity	Unit of Issue	Unit Price	Total Cost (Includes Discounts)
0017AA	Supplemental Labor	(12/03/2004 to 06/01/2005)	500.00	MH	$60.000	$ 30,000.00

Base Item

Funding Information:
- - - - - - - - - - - - - - - -
$30,000.00

0018	Supplemental Material	(12/03/2004 to 06/01/2005)	1.00	LOT	$20,000.000	$ 20,000.00

Base Item

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$20,000.00

0019	Maintenance and Update of Technical Manuals	(12/03/2004 to 06/01/2005)	1.00	N/A	$.000	$ 0.00

NOT A SEPARATELY PRICED ITEM. Base Item

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$0.00

0020	Modify Lifesaving Equipment	(12/03/2004 to 06/01/2005)	1.00	JOB	$43,231.960	$ 43,231.96

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$43,231.96

Total Funding: $3,900,000.00

FYs	Fund	Budget Org	Sub	Object Class	Sub	Program	Cost Org	Sub	Proj/Job No.	Sub	Reporting Category
See Line Item(s)											

Division **Closed FYs** **Cancelled Fund**

Line Item Number	Description	Delivery Date (Start Date to End Date)	Quantity	Unit of Issue	Unit Price	Total Cost (Includes Discounts)
0021	Revise Machinery Access Trunk	(12/03/2004 to 06/01/2005)	1.00	JOB	$50,448.960	$ 50,448.96

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$50,448.96

0022	Revise Exterior Access	(12/03/2004 to 06/01/2005)	1.00	JOB	$24,745.960	$ 24,745.96

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$24,745.96

0023	Convert Existing Ship's Office	(12/03/2004 to 06/01/2005)	1.00	JOB	$83,058.960	$ 83,058.96

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$83,058.96

0024	Modify Aft Deck	(12/03/2004 to 06/01/2005)	1.00	JOB	$107,999.960	$ 107,999.96

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$107,999.96

Total Funding: $3,900,000.00

FYs	Fund	Budget Org	Sub	Object Class	Sub	Program	Cost Org	Sub	Proj/Job No.	Sub	Reporting Category
See Line Item(s)											

Division **Closed FYs** **Cancelled Fund**

Line Item Number	Description	Delivery Date (Start Date to End Date)	Quantity	Unit of Issue	Unit Price	Total Cost (Includes Discounts)
0025	Convert Main Deck Staterooms	(12/03/2004 to 06/01/2005)	1.00	JOB	$233,145.960	$ 233,145.96

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$233,145.96

0026	Convert Foc'sle Deck Staterooms	(12/03/2004 to 06/01/2005)	1.00	JOB	$373,919.960	$ 373,919.96

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$373,919.96

0027	New and Modified Deck Heads	(12/03/2004 to 06/01/2005)	1.00	JOB	$30,584.960	$ 30,584.96

Funding Information:
- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$30,584.96

Total Funding: $3,900,000.00

FYs	Fund	Budget Org	Sub	Object Class	Sub	Program	Cost Org	Sub	Proj/Job No.	Sub	Reporting Category
See Line Item(s)											

Division **Closed FYs** **Cancelled Fund**

Line Item Number	Description	Delivery Date (Start Date to End Date)	Quantity	Unit of Issue	Unit Price	Total Cost (Includes Discounts)
0028	Create Smoke Boundary	(12/03/2004 to 06/01/2005)	1.00	JOB	$82,672.960	$ 82,672.96

Funding Information:

- 69 - X4303 - 9 - 04 - 50 - - 20MICO - 160000 - - 2523 - - 0450 - 00461 - - -
$82,672.96

Total Cost: $3,900,000.00

TABLE OF CONTENTS

COMMERCIAL CLAUSES

1 52.252-02 CLAUSES INCORPORATED BY REFERENCE

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

http://www.acqnet.gov/far/current/html/FARMTOC.html

Clause	Title	Date
1252.217-72	Performance	October 1994
1252.217-74	Subcontracts	October 1994
1252.217-77	Title	October 1994
1252.217-81	Guarantee	January 1996
1252.219-70	Small Business and Small Disadvantaged Business Subcontracting Reporting	June 1997
1252.223-70	Removal or Disposal of Hazardous Substances-Applicable Licenses and Permits	December 1997
1252.223-71	Accident and Fire Reporting	October 1994
1252.242-73	Contracting Officer's Technical Representative	October 1994
52.212-01	Instructions to Offerors--Commercial Items	January 2004
52.212-03 Alt III	Offeror Representations and Certifications - Commercial Items - Alternate III	February 2002
52.212-04	Contract Terms and Conditions--Commercial Items	October 2003
52.212-05	Contract Terms and Conditions Required to Implement Statutes or Executive Orders--Commercial Items.	May 2004
52.219-19	Small Business Concern Representation For The Small Business Competitiveness Demonstration Program	October 2000
52.233-02	Service Of Protest	August 1996

2 1252.204-81 ELECTRONIC TRANSMISSION OF CONTRACTUAL DOCUMENTS FEBRUARY 2000

During the administration of this contract the Government anticipates the use of the National Business Center's (NBC) electronic commerce infrastrcture at http://ideasec.nbc.gov to to make electronic award of any resultant contact, contract modification, or orders to the contractor. In turn, the NBC site uses the Central Contract Register (CCR) Database at http://www.ccr.gov to obtain contractor email addresses and point of contact information. Accordingly the contractor must register and maintain their company information at the CCR site in the most up-to-date manner.

3 1252.210-80 PRE-AWARD SURVEY FEBRUARY 2000

A pre-award survey may be held with the apparent low bidder at the Contractor's facility at a time determined by the Contracting Officer after bid opening. As requested by the Contracting Officer, the bidder shall be prepared at the Preaward survey to present to the survey team, in a minimum of five (5) copies(or other number of copies established by the Contracting Officer and specified in the solicitation), the following items:

(a) A list of major projects in progress or completed by him or his proposed subcontractors within the past 5 years.

(b) A list of present commitments, including the dollar value thereof; estimated start and completion dates; the dollar value or percentage of subcontracting on each job; the organization under which the work is being performed; and name and telephone number of the Contracting Officer.

(c) A copy of Bidder's latest financial statement, including the names of banks or other financial institutions with which the bidder conducts business, a bank contact (name and phone number), and consent for release of financial information from each institution (in writing, if necessary). If the financial statement is more than 60 days old, a certification must be furnished, signed by a company official responsible for financial and accounting matters, stating that the financial condition is substantially the same, or if not the same, the changes that have taken place. Such statement will be treated as confidential. In addition, a financial contact within the company (name and phone number) must be provided.

(d) A preliminary schedule showing all major work features. This schedule is to show major milestones the Bidder intends to meet on the site work, buildings, mechanical and electrical services.

(e) A preliminary plan showing how the Bidder intends to perform the various features of the work. This plan is to include, but be not limited to, labor resources, material sources, and the capability of meeting material delivery and installation schedules, as well as the estimated dollar value or percentage of subcontracting to be performed. The Bidder shall discuss, in writing, his accomplishments on similar projects. The discussion shall include all key personnel, their experience and responsibility assignments during the course of the project, and how the Contractor plans to meet the Quality Assurance/Inspection requirements of the contract.

4	1252.211-80	EVALUATION OF BRAND NAME OR EQUAL	MARCH 2000

This clause establishes procedures and standards for determining equivalence of Contractor Furnished Material (CFM).

A. Commercial Brand Names or Equivalent Equipment. When CFM is required, the Contractor may propose equivalents pursuant to the "Brand Name or Equal" provision of the solicitation. The Contractor shall submit a feature by feature comparison of the functions and features of the specified material and the Contractor proposed equivalent for determining equivalency of alternate material. The salient physical, functional, and other characteristics which "equal" products shall meet include but are not limited to:

(1) Compliance of proposed item, equipment, component, or material with regulatory body requirements and other design standards.

(2) Data that demonstrates that the proposed item, equipment, component, or material meets the specified performance requirements, either through a history of performance on like vessels, or an equivalent measure as approved by the COTR. In all cases, such CFM must be approved for the intended service by all applicable regulatory bodies.

(3) Data that demonstrates that the proposed item, equipment, component, or material has functionally equivalent:

a. Dimensions
b. Weight
c. Power, HVAC, cooling water, and other required services
d. Suitability for marine service
e. Material
f. Maintenance features and requirements
g. Vendor furnished training
h. Life cycle cost and maintenance costs
i. Structureborne and airborne noise characteristics
j. Warranty provisions
k. Maintenance manpower requirements
l. Worldwide support and service infrastructure
m. Spare parts availability
n. Prior provisioning through the Naval Supply System
o. Estimated spare parts costs for one year's use
p. Compatibility with interrelated systems and arrangements.

B. If approved, the Contractor shall take full contractual and technical responsibility from a cost and performance standpoint for installing the components, equipment, or systems and ensuring their compatibility with interrelated components, equipment, or systems.

5	1252.216-80	SUPPLEMENTAL WORK REQUESTS	JANUARY 2003

(a.) In the complex world of ship repairs, supplemental work often emerges as a result of test, inspection, or discovery of unknown or otherwise differing conditions. The extent and nature of such supplemental work can neither be identified in bid or proposal specifications, and both parties recognize the possibility that such work may arise. Notwithstanding the possibility of the identification of such work, MARAD does not guarantee the award of any supplemental work during contract performance.

(b.) Although MARAD shall be under no obligation to award supplemental work during contract performance, MARAD has provided an estimate for labor (in labor hours) and material (in dollars) for such work in the Schedule (Section B of the solicitation under applicable supplemental work contract line item numbers (CLIN or CLINs)). The offeror shall specify an hourly composite billing rate in its bid or proposal for supplemental work labor. The composite labor-billing rate shall be the rate applicable to labor for all supplemental work that MARAD orders under the applicable supplemental CLIN of the resulting contract. Any supplies or subcontracts required to complete supplemental work will be charged as a direct cost reimbursable under the applicable supplemental work CLIN; additional indirect charges for materials and subcontracts will not be allowed.

(c.) During the performance of the contract, when conditions indicate a need for supplemental work, the Contracting Officer's Technical Representative (COTR) is empowered to provide technical direction, negotiate the amount of labor and material, and authorize the contractor to perform supplemental work through the issuance of a written authorization. The COTR will issue authorizations for supplemental work in accordance with the following:

(1.) When conditions make supplemental work appropriate, the COTR shall submit to the contractor a supplemental work request that identifies the work to be accomplished.

(2.) The Contractor shall promptly review each supplemental work request upon receipt and shall, within seventy-two (72) hours of issuance, or sooner, as specified by the COTR, provide the COTR with a proposed price for the supplemental work. Price proposals for all supplemental work must be broken down by labor hours, materials, and subcontracts and allocated to the applicable supplemental work CLIN as appropriate. The contractor shall price the supplemental work to be performed in accordance with the composite labor rate bid or proposed under the supplemental work CLIN in the contract. If necessary, the Contractor shall submit prices for subcontractors, which will be negotiated and treated as direct materials. Once the COTR and contractor agree on the technical direction and price to accomplish the supplemental work, the contractor and COTR shall sign the authorization for supplemental work, which shall be final and binding on the contractor and MARAD. Subject to paragraphs (c.)(3.) through (c.)(6.), if urgent circumstances do not permit waiting for a written authorization, the parties may orally agree and follow up with written confirmation.

(3.) Notwithstanding the preceding, the COTR shall not authorize and the contractor shall not accept individual supplemental work authorizations from the COTR in excess of the price ceiling established by the Contracting Officer pursuant to paragraph (d.)(10.). In addition, the COTR shall not authorize and the contractor shall not accept a supplemental work authorization from the COTR that, when combined with all previously authorized supplemental work under the contract, exceeds the amount of labor hours and materials specified in the applicable supplemental work CLINs.

(4.) If the contractor requests an adjustment to the contract completion date in its proposal for the supplemental work, the COTR must refer the issue to the Contracting Officer for resolution, which could include modifying the performance period of the contract. All supplemental work must be accomplished within the contract performance period. The COTR shall not authorize and the contractor shall not accept supplemental work authorizations from the COTR that cannot be completed within the contract performance period.

(5.) If the COTR and contractor cannot agree upon the price, the time required, or any other term of a supplemental work request, the matter shall be referred to the Contracting Officer who may resolve the issue in accordance with the procedures contained in the Changes clause incorporated in the contract. Specifically, the Contracting Officer shall have the option of (i) directing that the Contractor perform the work at a price and within a time period determined by the Contracting Officer to be reasonable, or (ii) withdrawing said supplemental work request. The Contractor's refusal to perform the work as directed by the Contracting Officer

shall constitute an event of default under the default clauses of the contract. Disputed issues resulting from supplemental work unilaterally directed by the Contracting Officer may be handled under the disputes clause of the contract.

(6.) If the Contracting Officer directs the Contractor to perform the work at a price and within a time period determined by the Contracting Officer to be reasonable, the Contractor shall maintain and submit to MARAD on a daily basis, report sheets itemizing materials used, the costs and man hours of all labor (direct, indirect, and impact), production schedule activities affected by and/or related thereto, and charges for equipment, whether furnished by the Contractor, subcontractors or others. Material charges shall be substantiated by valid copies of materials and/or suppliers invoices. Such invoices shall be submitted with the daily report sheets or, if not available, as soon as reasonably practicable thereafter. Said daily reports shall also include an indication as to which specific schedule activity(ies) are affected by the order which are the subject of the daily report sheets. To the extent the contractor fails or refuses to submit the aforementioned daily report sheets on a daily basis, such failure or refusal shall constitute a basis for the Contracting Officer to suspend payment for work completed under the supplemental work until appropriate documentation required by the contract is provided.

(d.) The following rules apply to supplemental work authorizations:

(1.) The COTR shall authorize supplemental-work only during the period of performance of the contract.

(2.) All authorizations for supplemental work are subject to the terms and conditions of the contract and must be within the scope of the contract.

(3.) If mailed, an authorization is considered "issued" when MARAD deposits the order in the mail. Authorizations may also be issued orally, or by written communications, that is hand-delivered or sent by facsimile or electronic transmission. Oral orders must be followed up by written confirmation as soon as practicable thereafter.

(4.) Unless otherwise explicitly noted in the authorization for supplemental work, all authorizations for supplemental work are firm fixed price. The agreed upon price shall cover all costs including, but not limited to, direct and indirect labor and material, overhead, delay, acceleration, and disruption caused by the supplemental work. Where the parties are unable to agree that an order establishes mutually agreeable terms, the parties shall note the specific differences that are not agreed upon in the text of the proposed work authorization and refer the matter to the Contracting Officer for resolution pursuant to paragraph (c.)(5.).

(5.) Unless the contractor otherwise explicitly notes in the supplemental work authorization, in consideration of the price of the order, the Contractor remises, releases, and forever discharges MARAD, its officers, agents, employees, and sureties from any and all civil claims and requests for equitable adjustment whatsoever, relating to, arising out of, or connected with said supplemental work authorization. Such release is full and final settlement of all claims and requests for equitable adjustment relating to, arising out of, or connected with the work authorization, as modified, including, but not limited to, all impact claims such as delay, acceleration, disruption, and cumulative effects of the instant and all previously issued supplemental work authorizations. The executed work authorization constitutes a complete and final adjustment of the price and the delivery schedule.

(6.) When MARAD requires supplies or services covered by the contract in an amount less than the total value of the contract, MARAD is not obligated to award supplemental work for the balance of the price bid or proposed for supplemental work. The Contractor is not obligated to honor additional supplemental work in excess of the estimated labor hours identified in the Schedule. This subparagraph does not affect or change the Contracting Officer's authority under the changes clause of the contract.

(7.) Except for limitations of labor hours estimated in the Schedule, there is no limit to the number of supplemental work authorizations that may be issued. MARAD may issue supplemental work authorizations requiring delivery or performance in multiple locations, if the contract contemplates multiple locations.

(8.) In the event a supplemental work authorization covers a series of related procedures, the Contracting Officer may request the Contractor to furnish separate prices for each item of the work.

(9.) If not otherwise provided, the Contracting Officer may request at any time during performance of supplemental work a list of subcontractors performing work covered by the supplemental work, the dollar value of the respective subcontracts, and a description of the subcontracted work, and the contractor shall promptly provide the requested information.

(10.) The COTR shall not issue and the contractor shall not accept supplemental work authorizations from the COTR that exceeds $2,500.00. (Contracting Officer fills in amount up to $5000.)

6	1252.217-82	INDEMNITY AND INSURANCE	NOVEMBER 2002

The Contractor shall indemnify and save and keep harmless the Government against any or all loss, cost, damage, claim, expense or liability whatsoever because of accident or injury to persons or property of others occurring in connection with the operations under this contract. The Contractor shall secure, pay the premiums for and keep in force until the expiration of this contract, and any renewal thereof, adequate insurance. Such insurance to specifically include liability assumed by the Contractor under this contract.

Each policy of insurance shall contain an endorsement that any cancellation or material change in the coverage adversely affecting the Government's interest shall not be effective unless the insurer or the Contractor gives written notice of cancellation or change as required to the Contracting Officer. When the coverage is provided by self-insurance, the Contractor shall not change or decrease the coverage without the Administrative Contracting Officer's prior approval.

A certificate of each policy of insurance shall be furnished to the Contracting Officer within ten (10) days after notice of award certifying, among other things, that the policy contains the aforesaid endorsement. The insurance companies providing the above insurance shall be satisfactory to the Government. Notices of policy changes shall be furnished to the Contracting Officer.

The contractor shall provide at the Contractor's expense, within five days of request from the MARAD contracting officer, a copy of all original insurance policies. These may be sent by mail or facsimile machine.

7	1252.217-83	INDEMNITY AND INSURANCE (ADDITIONAL)	JANUARY 2001

(a) INDEMNITY

(1) The Contractor shall exercise reasonable care and use its best efforts to prevent accidents, injury or damage to all employees, persons and property in and about the work, and to the vessel or portion thereof upon which work is done.

(2) Except as provided elsewhere in this contract, including any guarantee clause, the MARAD assumes the risk of physical loss or damage to any part of the vessel, its machinery, equipment, stores, and other property including cargo if owned by the Government except to the extent that such loss or damage is caused by the negligence, fault, error, act or omission of the Contractor, its subcontractors, agents, or employees. The burden of proving freedom from fault shall be borne by the Contractor. Unless the loss or damage was caused by the willful misconduct of the Contractor, its executive officers, or superintendents the Contractor's liability under this Contract shall not exceed total damage to the ship or ships including total loss up to $5,000,000 per accident or occurrence per vessel, and shall not exceed in the aggregate per accident or occurrence the sum of total damage to the ship or ships including total loss up to $5,000,000 multiplied by the number of MARAD's vessels in the care, custody or control of the Contractor at the location and at the time of the accident or occurrence giving to the loss or damage.

(3) As to third parties, including, but not limited to, agents, employees or servants of the Contractor, or any subcontractor, the Contractor will defend, indemnify and hold harmless the Government, the vessel, its owners and charterers, from all claims, actions, suits, costs, demands and expense of all descriptions arising out of disease, illness, personal injury, death or property damage to any third party in any way related to or arising out of the performance of work under this contract except to the extent caused by the fault, error, act or omission, or negligence of the Government, its agencies or employees. The burden of proving fault of the Government, its agencies or employees shall be borne by the Contractor.

(4) As to loss and damage which are the responsibility of the Government, the Government shall be subrogated to any claim, demand, or course of action against third parties which exists in favor of the Contractor, and the Contractor shall, if required, execute a formal assignment or transfer of such claim, demand, or course of action, and shall aid in securing information, evidence, obtaining of witnesses, and cooperate with MARAD in all matters MARAD may deem necessary in defense of any claim, or suit or appeal from any judgment or in effecting indemnity, provided, further, that nothing contained in this paragraph shall create or give rise to any right, privilege or power in any person except the Contractor, nor shall any person (except the Contractor) be or become entitled thereby to proceed directly against the Government, its agencies or instrumentalities, or to join the Government, its agencies or instrumentalities, as a codefendant in any action against the Contractor brought to determine the Contractor's liability or for any other purpose.

(b) TYPES OF INSURANCE AND MINIMUM COVERAGE. The Contractor shall at its own expense, provide and maintain the following insurances during the entire performance of this contract.

(1) Workmen's Compensation, including Longshoremen & Harbor Worker's Act coverage - Covering all agents, servants, borrowed servants, statutory employees of Contractor for all compensation and other benefits required by applicable state and federal law or by governmental authority on account of injury, death, sickness or disease - Statutory - no minimum.

(2) Employers Liability - to cover both injury and death resulting from accident, sickness or disease - $5 million bodily injury by accident, each accident - $5 million bodily injury by disease each accident - $5 million bodily injury by disease in the aggregate.

(3) Maritime Employers Liability (Jones Act) to cover both injury and death resulting from accident, sickness or disease - $5 million for each person per occurrence and $5 million in the aggregate.

(4) Comprehensive General Liability to include coverage for (but not limited to) products and completed operations liability, property damage liability and contractual liability - $5 million combined single per occurrence limit for bodily injury and property damage and $5 million in the aggregate.

(5) Ship Repairers Legal Liability - coverage to be provided under the standard London or American Institute forms or their equivalent $5 million per vessel, per occurrence or such other amount as may be requested.

(6) Pollution - sudden and accidental liability - $5 Million per occurrence.

(c) All such insurance shall be subject to the approval of the Division of Marine Insurance and will contain thirty (30) calendar days advance notice of cancellation or of any non-renewal which is the option of the insurer, said notice to be provided to the U.S. Department of Transportation, Division of Marine Insurance , MAR-575, Room 8117, 400 Seventh Street, S.W., Washington, DC 20590.

(d) FORM OF CONFIRMATION

(1) The pollution insurance may be a separate policy or part of the Comprehensive General Liability policy, but the coverage must be specifically shown on the required confirmation of insurance. Excess liability and umbrella liability policies may be used in the excess of primary policies to meet the minimum limit requirements. The United States of America shall be an additional assured in the Ship Repairs Legal Liability policy, Comprehensive General Liability Policy and Pollution Policy. Such policies shall contain a clause statement that there is no recourse against the United States of America for payment of premium. All such insurance shall be subject to the approval of the Division of Marine Insurance and must contain thirty (30) calendar days advance notice of cancellation (without disclaimer) or of any non-renewal which is the option of the insurer, said notice to be provided to the U.S. Department of Transportation, Division of Marine Insurance, MAR-575, Room 8117, 400 Seventh Street, S.W., Washington, DC 20590.

(2) The Contractor shall have its insurance broker provide a detailed certificate of insurance, cover note or policy confirming the above required coverage. The confirmation shall name the Contractor and United States of America as assureds and confirm the types of coverage, policy forms, policy periods, deductibles (if any) and underwriters with their percentage of participation. The N.Y. Suable Clause or Service of Suit USA Clause must be confirmed for any Foreign underwriter placements. The policy amounts, terms and conditions, deductibles and underwriters shall at all times be satisfactory to the Maritime Administration.

(e) The contractor shall insert the substance of this clause in subcontracts under this contract that require work on a Government installation.

8	1252.217-84	DELIVERY AND SHIFTING OF VESSELS	FEBRUARY 2000

I. Delivery

(a) Unless otherwise specified in the IFB or RFP, the Government shall deliver the vessel to the Contractor at a pre-determined location or point of transfer. The Contractor shall have sole responsibility for preparing the vessel for tow.

(b) Both parties shall mutually agree to any change in the time of transfer due to inclement weather or other unforeseen circumstances.

(c) Prior (no less than 48 hours) to the delivery of the vessel to the Contractor by the Government, it shall be the Contractor's responsibility to:

(1) Obtain United States Coast Guard load-line exemption and "permit to proceed."
(2) Have a recognized salvage association or qualified marine surveyor with expertise in towing requirements to certify the adequacy of the vessel to be towed and the tug(s) to be utilized for the tow.
(3) Provide the tugs, pilots, towing gear, equipment and any necessary riding crews involved in the vessel transfer.
(4) Obtain standard towing liability insurance.
(5) Provide sufficient sanitary facilities on the stern in the event a riding crew is necessary.
(6) Provide documents to the COTR that shall verify that items (1) through (5) above have been completed.

II. Transfer

Upon transfer of the vessel, it shall be the Contractor's responsibility to:

(a) Complete a custody document which shall be countersigned by either the Government's Fleet Captain, Fleet Superintendent or Acting Fleet Superintendent, or Marine Surveyor for outported vessels.

(b) Provide proof to one of the officials referenced in (a) above that the requirements outlined in Section I (c) of this clause are met.

III. Shifting

While the vessel is in the custody of the Contractor, any necessary towage, shifting of the vessel's berth at Contractor's facility, carriage, or other transportation between the vessel and shop or elsewhere, which may be incidental to the work herein specified, shall be furnished by the Contractor without additional charge to the Government.

IV. Final Delivery

(a) After preliminary acceptance of the vessel by the Government's designated representative at the Contractor's facility, the Contractor shall make arrangements with the COTR for re-delivery of the vessel to the Fleet site or other location designated by the Government. The Fleet Captain, Fleet Superintendent or Acting Fleet Superintendent, or Marine Surveyor for outported vessels shall make either conditional acceptance or final acceptance of the vessel at the point of transfer.

(b) Prior (no less than 48 hours) to the re-delivery of the vessel by the Contractor to the Government, it shall be the Contractor's responsibility to:

(1) Obtain United States Coast Guard loadline exemption and "permit to proceed."
(2) Have a recognized salvage association or qualified marine surveyor with expertise in towing requirements certify the adequacy of the vessel to be towed and the tug(s) to be utilized for the tow.
(3) Provide the tugs, pilots, towing gear, equipment and any necessary riding crews involved in the vessel transfer.
(4) Obtain standard towing liability insurance.
(5) Provide sufficient sanitary facilities on the stern, in the event a riding crew is necessary.
(6) Provide documents to the COTR that shall verify that items (1) through (5) above have been completed.

(c) Upon transfer of custody of the vessel back to the Government, the Contractor shall complete a standard custody document and have one of the officials referenced in section IV(a) of this clause countersign this document.

9	1252.217-85	INSPECTION AND MANNER OF DOING WORK	OCTOBER 2000

(a) The Contractor shall perform work in accordance with the contract, any drawings and specifications made a part of the job order, and any change or modification issued under the Changes clause.

(b)(1) Except as provided in paragraph (b)(2) of this clause, and unless otherwise specifically provided in the contract, all operational practices of the Contractor and all workmanship, material, equipment, and articles used in the performance of work under this contract

shall be in accordance with the best commercial marine practices and the rules and requirements of all appropriate regulatory bodies including, but not limited to the American Bureau of Shipping, the U.S. Coast Guard, and the Institute of Electrical and Electronic Engineers, in effect at the time of Contractor's submission of offer, and shall be intended and approved for marine use.

(2) When Navy specifications are specified in the contract, the Contractor shall follow Navy standards of material and workmanship. The solicitation shall prescribe the Navy standard whenever applicable.

(c) The Government may inspect and test all material and workmanship at any time during the Contractor's performance of the work.

(1) If, prior to delivery, the Government finds any material or workmanship is defective or not in accordance with the contract, in addition to its rights under the Guarantee clause, the Government may reject the defective or nonconforming material or workmanship and require the Contractor to correct or replace it at the Contractor's expense.

(2) If the Contractor fails to proceed promptly with the replacement or correction of the material or workmanship, the Government may replace or correct the defective or nonconforming material or workmanship and charge the Contractor the excess costs incurred.

(3) As specified in the contract, the Contractor shall provide and maintain an inspection system acceptable to the Government.

(4) The Contractor shall maintain complete records of all inspection work and shall make them available to the Government during performance of the contract and for 90 days after the completion of all work required.

(d) The Contractor shall not permit any welder to work on a vessel unless the welder is, at the time of the work, qualified to the standards established by the U.S. Coast Guard, American Bureau of Shipping, or Department of the Navy for the type of welding being performed. Qualifications of a welder shall be as specified in the contract.

(e) The Contractor shall--

(1) Exercise reasonable care to protect the vessel from fire;

(2) Maintain a reasonable system of inspection over activities taking place in the vicinity of the vessel's magazines, fuel oil tanks, or storerooms containing flammable materials.

(3) Maintain a reasonable number of hose lines ready for immediate use on the vessel at all times while the vessel is berthed alongside the Contractor's pier or in dry dock or on a marine railway;

(4) Unless otherwise provided in the contract, provide sufficient security patrols to reasonably maintain a fire watch for protection of the vessel when it is in the Contractor's custody;

(5) To the extent necessary, clean, wash, and steam out or otherwise make safe, all tanks under alteration or repair.

(6) Furnish the Contracting Officer a "gas-free" or "safe-for-hotwork" certificate before any hot work is done on a tank;

(7) Treat the contents of any tank as Government property in accordance with the Government Property (Fixed-Price Contracts) clause; and

(8) Dispose of the contents of any tank only at the direction, or with the concurrence, of the Contracting Officer.

(9) Be responsible for the proper closing of all openings to the vessel's underwater structure upon which work has been performed. The contractor additionally must advise the Government of the status of all valve closures and openings for which the contractor's workers were responsible.

(f) Except as otherwise provided in the contract, when the vessel is in the custody of the Contractor or in dry dock or on a marine railway and the temperature is expected to go as low as 35 Fahrenheit, the Contractor shall take all necessary steps to--

(1) Keep all hose pipe lines, fixtures, traps, tanks, and other receptacles on the vessel from freezing; and

(2) Protect the stern tube and propeller hubs from frost damage.

(g) The Contractor shall, whenever practicable--

(1) Perform the required work in a manner that will not interfere with the berthing and messing of Government personnel attached to the vessel; and

(2) Provide Government personnel attached to the vessel access to the vessel at all times.

(h) Government personnel attached to the vessel shall not interfere with the Contractor's work or workers.

(i)(1) The Government does not guarantee the correctness of the dimensions, sizes, and shapes set forth in any contract, sketches, drawings, plans, or specifications prepared or furnished by the Government, unless the contract requires that the Contractor perform the work prior to any opportunity to inspect.

(2) Except as stated in paragraph (i)(1) of this clause, and other than those parts furnished by the Government, and the Contractor shall be responsible for the correctness of the dimensions, sizes, and shapes of parts furnished under this agreement.

(j) The Contractor shall at all times keep the site of the work on the vessel free from accumulation of waste material or rubbish caused by its employees or the work. At the completion of the work, unless the contract specifies otherwise, the Contractor shall remove all rubbish from the site of the work and leave the immediate vicinity of the work area "broom clean."

10	1252.223-80	MARAD RESERVE FORCE SAFETY RULES FOR CONTRACT PERSONNEL	FEBRUARY 2000

1. Personnel shall be protected by personal flotation devices (life vests) while in the act of embarking or disembarking from any fleet vessel where the possibility of falling into the water exists; while working from small boats, skiffs, or floats; while working near unguarded edges of decks of vessels afloat; or while engaged in any over-water work. At Fleet sites, the flotation devices will be provided by the Fleet and must be returned each day upon departing the Fleet. At outported ships, contractors must furnish their own flotation devices.

2. All passengers riding in personnel boats in MARAD's Reserve Fleet locations shall ride below topside while the boat is in transit, and shall remain below until the boat is properly secured either alongside the accommodation ladder or the pier side, and until the operator notifies the employees to disembark.

3. Personnel aboard all craft shall remain inside of the bulwarks and railings and at no time ever will anyone sit on top of bulwarks or rails.

4. Personnel shall not descend from the deck of any ship onto the accommodation ladder or landing platform to wait for transportation. No more than five (5) descending individuals are permitted on the accommodation ladder at one time and they shall be equally spaced. This directive also applies to ascending ladders. This requirement also pertains to outported ships when personnel descend from the deck of the ship to a pier, or ascend from the pier to the deck of the ship.

5. Ringbuoys with a minimum of 90 feet of nylon line attached are available at the head of each gangway and on the stern of Fleet craft, power barges, tugs, and at the Fleet pier for use by Contractor personnel in emergency situations.

6. When working with mooring lines, all ends of such lines shall be left coiled neatly and areas left clear.

7. Smoking is prohibited aboard vessels except on open decks or in places designated as smoking areas. Smoking is not permitted at all aboard tankers. Also, smoking is prohibited during fueling and cleaning operations of any kind. This includes during the filling or emptying of cans of gasoline, xylene, varsol or any other combustible or flammable liquids or gas.

8. Cigarette butts shall not be thrown over the side of any vessel. While at the dock, no cigarette butts shall be thrown onto the dock or into the water. Sand containers or ashtrays are provided in designated smoking areas. Paper and trash are not to be placed in ashtrays.

9. All debris, oily rags, industrial wipers, etc., will be removed from the ships and working areas. These areas are to be left in clean condition and all materials stowed neatly at the end of each workday. No rags, cups or other trash, oils, fuels, greases, chemicals, lumber, etc., shall be thrown overboard. Fleet Guide will inform personnel of the disposal container locations.

10. Contractor employees are required to wear safety shoes with impact-resistant toes and slip resistant sole material for protection against falling or rolling objects, sharp objects, molten metal, hot surfaces, and oily or wet slippery surfaces. Shoes with loose soles, heels, and laces, or otherwise in poor condition, will not be permitted. Athletic and Cowboy boot-type safety shoes are prohibited.

11. All personnel working at the Fleet shall wear and/or use OSHA/NIOSH approved safety equipment, as required, including personal protective equipment, safety belts and securing lines, and safety glasses.

12. Protective hard hats shall be worn while aboard ships or in any other areas where head injury hazards exist. At MARAD's Reserve Fleet locations, a lighted miner's lamp, supplied by the Fleet, must be worn at all times while in dimly lit areas. The lamps are to be returned to the lamp room each day prior to departing the Fleet. At outported ship locations, contractors are required to provide their own flashlights, etc.

13. Safety glasses or goggles shall be worn while in the vicinity of any operation generating matter which might strike or lodge in the eyes. Such operations include, but are not limited to, scaling rust, water-blasting, Aqua Dyne water-blasting, sandblasting, operating a skill saw, grinding, handling batteries, boiler cleaning, and anchor windlass operations.

14. Ear protection (plugs or muffs) must be worn whenever exposed to loud noises.

15. Consistent with 29 CFR 1910.134, respirators shall be worn while scraping paint, during sandblasting, spraying, or other operations where dust, fumes, airborne particles, or noxious gases may be present.

16. If waterblasting, protective gear shall be worn consisting of a hard hat, safety glasses, face shields, shin guards (baseball type) and steel rigid guard foot protectors.

17. If sandblasting, protective gear consisting of leather gloves, hood, and leather apron shall be worn.

18. When assisting with welding-burning, metal frame flash goggles/glasses shall be worn. The Welder/Burner shall provide the goggles/glasses and shall instruct personnel in their proper use.

19. Contractors must report all accidents resulting in injury, regardless of how slight it may be, to their supervisor, to the Fleet Superintendent, and to the Safety Assistant, or at outported ship locations to the Ship Manager or MARAD representative so that the injury can be treated, if necessary, and recorded. This must be done before leaving the Fleet site or outported location on the day of injury or at the soonest practical time in the event of severe injury.

20. Asbestos Hazard Considerations - Exposure of unprotected personnel to airborne asbestos fibers shall be prevented. While many studies and air sampling have been conducted under varying conditions within the Reserve Fleet environment, no conditions have been found to require special protective clothing or breathing protection. However, all work requiring direct contact with asbestos, conducted within the environment of asbestos, or work in any other way associated with asbestos will be critically evaluated by the cognizant Contractor's supervisor before proceeding. The following general policies will apply:

(a) The Contractor shall inform his/her personnel to be alert to the hazards associated with asbestos and the personnel shall be instructed in the use of respirators.
(b) When work requires direct contact with asbestos, is conducted within the environment of asbestos, or work is in any way associated with asbestos, Contractor personnel shall be required to wear a half-mask, air- purifying respirator, other than a disposable respirator, equipped with high-efficiency filters.
(c) Air pressure/air hoses shall not be used to blow down engine rooms in the process of cleaning when friable asbestos is known or suspected to be present in the area being cleaned. Also, broom sweeping such debris is prohibited. Only vacuum cleaning equipment with special filter attachment is authorized for this purpose, unless vacuuming and/or wet cleaning are not feasible.
(d) Major rip-outs, repairs or removal of asbestos located at any MARAD facility or aboard any vessel under MARAD jurisdiction shall not be conducted by Contractor personnel unless authorized by MARAD.
(e) Asbestos warning signs shall be posted at the access door of all regulated areas.

21. No work shall be performed in any void, tank, or compartment until such tank, void, or compartment has been declared gas free and possessing sufficient oxygen after being tested by trained personnel.

22. Contractor personnel shall not inspect or perform work in holds or tanks of ships without another contractor personnel observer standing by to get help, if necessary, nor shall an individual work on a ship upon which no other personnel are present.

23. Contractor personnel shall not be allowed to work aloft on staging, masts, etc., without using OSHA prescribed safety belts and securing lines with approved fastenings and without Contractor supervision and instructions during the operation.

24. No openings shall be left unprotected. This includes the removal of hatch boards, bilges, manhole covers, floor plates, and any other opening into which a person may inadvertently step or fall. All areas with an opening which cannot be closed shall be roped off.

25. Gangway doors and sideports on vessels not equipped with gangways shall be closed and secured. In the event the door is missing or it cannot otherwise be closed, the opening shall be chained off or wired with several strands of heavy wire.

26. When using gasoline powered equipment in enclosed spaces, adequate ventilation for the dissipation of exhaust fumes must be provided.

27. Electrical lines, air lines, hoses, etc., used in preservation work shall be triced up on deck clear of walkways and passage areas.

28. Under no circumstances shall any Contractor personnel cross from ship to ship by any means other than gangways properly fitted with hand rails. Prior to installation of a permanent walkway between ships, a portable walkway with rails shall be utilized.

29. When ascending or descending ladders, at least one hand shall be free to grasp hand rail.

30. Gasoline, varsol, xylene, and other flammable or combustible liquids brought onto the ship shall be brought to the attention of the Fleet Representative and, on outported ships, to the attention of the Ship Manager or MARAD representative, and shall be stored in, and dispensed from, OSHA or NIOSH approved safety containers. Such cans shall be inspected and properly marked as follows:

(a) Cans painted red and stenciled: "VARSOL", "XYLENE" or "GASOLINE", as applicable
(b) Cans painted yellow and stenciled: "LUBE OIL" or "PRESERVATION OIL," as applicable
(c) Cans painted red with a white band and stenciled: "KEROSENE"

31. Drip tanks or pans shall be used when parts are being cleaned and when draining oil or fuel from motors, engines, etc. Varsol, xylene or other solvents will be used from approved safety cans.

32. Safety can valves and flexible metal hose spouts must never be painted. They are to be treated with preservation oil.

33. At MARAD's Reserve Fleet locations, outboard motor operators must leave gas can vents open when they store them on the access can rack.

34. Under no circumstances shall Contractor personnel wear gloves, jewelry (especially neck chains), neck ties, long sleeves, loose clothing, or wear his/her shirt tail out when working around exposed moving machinery.

35. Metal shavings shall be cleaned up from around machines by means of brushes and properly disposed of.

36. Oil spilled in decks, ladders, etc., shall immediately be wiped up and the decks, if necessary, sanded. On vessels sprayed with an oil or paint mixture, all gangways, passages, and areas in use shall be sanded. Appropriate signs shall be posted at all entrances to areas where slippery conditions are considered to exist.

37. Flame burning/cutting and welding shall be kept to a minimum at the Fleet, and shall be accomplished by qualified Contractor personnel only when duly authorized by Fleet Representative, and in accordance with existing fire prevention regulations. Before any welding or hot work is performed, a permit must be issued by the Fleet representative, and a fire watch set. On outported ships, the Ship Manager shall ensure that all hot work is cooled off and there is no danger of fire.

38. Never look directly at arc welding because of the potential for serious eye injury.

39. At MARAD Reserve Fleet locations, prior to any personnel working over the side of, or in a precarious location or position inside of a service craft at the access dock (where applicable), the warning light at the end of the dock shall be activated.

40. Whenever lumber is removed from a structure, nails shall be withdrawn or bent over immediately as part of the operation to prevent possible injury.

41. Liquid fuel operated space heaters shall be operated only when properly installed and vented to the outside. Propane gas bottles are not to be placed in the area of the heater. Gas bottles must be left on the open decks and fed into the heated spaces by a hose.

Space heaters are not to be left on when unattended and a CO2 extinguisher must be in the area of the space heater. All electrical space heaters must be UL approved.

42. Contractor Personnel shall promptly report all potentially dangerous areas and conditions to a MARAD representative.

43. The flooding alarm system carries 110 volts and if wiring is cut accidentally it could cause a fire. If when working in the engine room of a ship it becomes necessary to move the ball switches out of the way of an area which is to be preserved, they should be handled very carefully. Do not tilt or disconnect, but merely lift straight up by the ribbon and then lower into place after the job is completed. See that no damage is done to this equipment by wash down hoses, oil spray hoses, etc.

44. Straight ladders, whenever and wherever used, shall be made of metal, except when performing electrical work, then wooden or other non-conductive ladders shall be used, and shall be rigidly inspected prior to use. Use of such ladders shall be kept to a minimum. Whenever using straight ladders to board ships, metal ladders should be used and secured at top to railing of ship. Also, step ladders of the proper size shall be used where warranted. Boxes, chairs, etc., shall not be used in lieu of step ladders. All ladders shall conform to OSHA standards.

45. Defective ladders should be brought to the attention of the Fleet/MARAD representative.

46. The proper tool for each job shall be used. Mushroomed chisels, split hammer handles, or other tools that are in any way unsafe are prohibited. Such defective tools and/or equipment must be taken out of service to be repaired or replaced. Tools shall always be laid down in such a manner as to prevent injuries.

47. All portable electrical equipment shall be properly grounded prior to and during use. This includes fueling hoses, portable electrical equipment, etc. Any equipment with damaged wiring and any damaged plugs must either be repaired before using or replaced.

48. Air compressors shall not be operated until ALL installed safety devices are in working order. Only safety devices designed for the specific machine shall be used. Substitute devices will not be installed.

49. Oxygen and acetylene bottles shall be properly secured during transportation and while aboard ship. Bottles shall be lashed upright, caps in place when not in use, and threads shall be SOAPED if leaks are suspected. Be sure bottles and fittings are protected to prevent oil or grease from contacting valve threads and fittings, which could cause bottles to explode. Whenever oxygen and acetylene are not in use, they should be stored separately with a fire wall between them.

50. Extreme precautions shall be taken when compressed air is used in any operation. Pressurized air hoses are not to be directed toward any part of the human body. Whenever a gas/ diesel driven air compressor is used for any breathing apparatus, such as an air line respirator, sand blasting helmet, etc., a gas selector alarm and air purifier must be installed. Gauges and relief values must be in proper working order. Only approved NIOSH and OSHA respirators are to be used.

51. All compressed air hose connections shall be triced together prior to applying compressed air.

52. All hoses and wires (especially oxygen and acetylene hoses) will be disconnected and pulled clear of access doors when workday is over so that the doors may be closed and to prevent leakage of gas into ship. All air hose connections are to be lashed or wired together.

In addition to the foregoing safety rules, other instructions (in writing or orally) may be issued as warranted. Failure to comply with these safety rules can result in disciplinary action to include denial of access to the ship and/or termination for default of the contract.

The contractor shall include this clause in all major subcontracts.

11	1252.223-82	ENVIRONMENTAL CONCERNS/ASBESTOS RELATED/HAZARDOUS MATERIALS/ PETROLEUM AND PETROLEUM PRODUCTS: ENVIRONMENTAL COMPLIANCE	FEBRUARY 2000

The Contractor must recognize that MARAD vessels often contain hazardous substances, hazardous materials, petroleum and petroleum products, the handling, removal, storage, transportation and disposal of which is required in the performance of work. Such hazardous substances, hazardous materials, petroleum products include but are not limited to: Asbestos, used in heat and electrical

insulation, brake linings, deck covering, boiler refractors, joiner work and other areas; mercury; petroleum products; hydraulic oils; liquid cargo products; lead in marine compounds, products and other areas; chromium; tin in anti-foulants and other areas; zinc; polychlorinated biphenyls (PCBs), found in some electrical cable, rubber gaskets, felt gaskets, thermal insulation material (fiberglass, felt, foam and cork), transformers, capacitors or voltage regulators, switches, reclosers, bushings, electromagnets, adhesives, tapes, oil (leaks, spills as well as electrical equipment, motor, anchor windlasses and hydraulic system containing oil), surface contamination of machinery and other solid surfaces, oil based paint, caulking, rubber isolation mounts, foundation mounts, pipe hangers, light ballasts and plasticizers, and other hazardous substances used aboard ship while in operation and/or in Phase IV maintenance.

In performance of the work by the Contractor, the most recent edition of any applicable statute, regulation, standard, or code shall be in effect. Where a conflict among requirements or specifications exist, the most stringent requirements shall be utilized.

HAZARDOUS SUBSTANCE/HAZARDOUS MATERIALS

The term hazardous substance has the meaning ascribed to it by 42 U.S.C. §9601(14). The term hazardous materials has the meaning ascribed to it by 49 CFR 171.8. The term hazardous material, is as defined for hazardous chemicals in 29 CFR 1910.1200.

Specific Requirement Standards: ASBESTOS

(a) All of the handling, removal, storage, transportation and disposal work shall be done in strict compliance with all applicable Federal, State and local statutes, regulations, standards, and codes governing asbestos, asbestos abatement, asbestos disposal and any other trade work done in conjunction with asbestos abatement including, but not limited to:

(1) Occupational Safety and Health Administration (OSHA):
Title 29, CFR, Section 1910, Occupational Safety and Health Standards
Title 29, CFR, Part 1915, Occupational Safety and Health Standards for Shipyards Employment
Title 29, CFR, Part 1926, Safety and Health Regulations for Construction
Title 29, CFR, Section 1910.1200 Hazard Communication
Federal Register, dated June 20 and October 17, 1986, Occupational Exposure to Asbestos, Tremolite, Anthopyllite, and Actinolite; Final Rule. (29 CFR Parts 1910 and 1926)

(2) Environmental Protection Agency (EPA)
Title 40 CFR Part 61, Subparts A and M (revised Subpart B) National Emission Standard for Hazardous Air Pollutants (Asbestos) and Part 763 Asbestos.
Title 40 CFR Part 63, National Emission Standard for Hazardous Air Pollutants Subpart II National Emission Standards for Shipbuilding and Ship Repair (Surface Coating)

(3) Maritime Administration (MARAD)

Action Plan for the Control of Asbestos Exposures and Uses in MARAD Programs.
NOTE: This action plan is available upon written request to:
Maritime Administration,
Office of Management Services, MAR-310
400 Seventh Street, SW., Room 7225
Washington, D.C. 20590
ATTN.: Safety Officer.

OTHER HAZARDOUS MATERIALS AND HAZARDOUS, REGULATED AND SPECIAL WASTES

Safe, proper and lawful handling of hazardous substances, hazardous materials and petroleum products is the Contractor's responsibility whether or not it is identified as such in this contract or any attachment herein. The Contractor must determine for itself whether work specified in this contract requires the handling, removal, storage, transportation or disposal of hazardous substances, hazardous materials, petroleum products, and/or hazardous regulated or special wastes and price the bid or proposal accordingly. If available, MARAD will provide to the Contractor information regarding the existence and amount of any such material. No additional charges required for handling, removal, storage, transportation, or disposal of any hazardous substances, hazardous materials, petroleum products and/or hazardous, regulated or special wastes in the specified work will be allowed after award is made. Except to extent such additional changes result from the existence of hazardous substances, hazardous materials, petroleum products and/or hazardous, regulated or special wastes that could not have been reasonably anticipated. In the event of the discovery of such material, a condition report shall be issued. The cost of such additional work will be fixed at the unit price provided in the bid. The work can proceed only upon written approval by the Contracting Officer. Any modification to the contract that increases the

requirement for the handling, removal, storage, transportation and disposal of asbestos or other hazardous substances, hazardous materials, petroleum products, and/or hazardous, regulated or special wastes will be included in the agreed cost of the modification of the contract.

All of the handling, removal, storage, transportation and disposal work is to be done in strict compliance with all applicable Federal, State and local regulations, standards, and codes governing environmental compliance, including, but not limited to the following:

1. ENVIRONMENTAL PROTECTION AGENCY (EPA) TITLE 40,
Part 50, National Primary and Secondary Ambient Air Quality Standards
Part 63 National Emission Standards for Hazardous Air Pollutants Subpart II National Emission Standards for Shipbuilding and Ship Repair (Surface Coating)
Part 82, Protection of Stratospheric Ozone
Part 110, Discharge of Oil
Part 112, Oil Pollution Prevention
Part 117, Determination of Reportable Quantities for Hazardous Substances
Part 122, EPA Administered Permit Programs: The National Pollutant Discharge Elimination System
Part 125, Criteria and Standards for the National Pollutant Discharge Elimination System
Part 261, Identification and Listing of Hazardous Waste
Part 262, Standards Applicable to Generators of Hazardous Waste
Part 279, Standards for the Management of Used Oil
Part 300, National Oil and Hazardous Substance Pollution Contingency Plan
Part 302, Designation, Reportable Quantities, and Notification
Part 355, Emergency Planning and Notification
Part 370, Hazardous Chemical Reporting: Community Right-to-Know
Part 372, Toxic Chemical Release: Community Right-to-Know
Part 761, Polychlorinated Biphenyls Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
Part 763, Asbestos

2. COAST GUARD (USCG) TITLE 33 CFR,
Part 153, Control of Pollution by Oil and Hazardous Substances, Discharge Removal
Part 154, Facilities Transferring Oil or Hazardous Material in Bulk
Part 156, Oil and Hazardous Material Transfer Operations

3. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) Title 29 CFR,
Part 1910, Occupational Safety and Health Standards
Part 1915, Occupational Safety And Health Standards for Shipyard employment
Part 1926, Occupational Safety and Health Regulations for Construction

4. RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION (RSPA) TITLE 49 CFR,
Subchapter C, Hazardous Materials Regulations

The Contractor shall be required to demonstrate a through knowledge of and satisfactory record of compliance with all applicable Federal, State and local environmental statutes, regulations, standards, codes and guidelines governing environmental compliance as part of the pre-award survey.

The Contractor shall be responsible as the generator of all hazardous, solid, regulated and special waste that results from activities of the Contractor under this agreement. The Contractor is required to arrange for transportation and disposal of regulated waste generated during the ship's operational period if required by this contract. The Contractor shall be responsible for all permitting, reporting, transporting, documenting and /or disposing of said wastes and for obtaining all appropriate Environmental Protection Agency Identification Numbers and permits and/or state or local equivalent. In addition, the contractor shall be responsible for:
(a) conducting required laboratory testing;
(b) maintaining any and all required records;
(c) filing any and all reports required by Federal, State or local statute, regulation, standard or guidelines to be filed by the Generator of such waste or the holder of such permits, or numbers; and,
(d) complying with all applicable Federal, State and local statues, regulations standards, codes, or guidelines.

The Contractor shall provide all documentation to the COTR pertaining to the sampling, analysis, storage, transportation and disposal of all wastes generated during the contract.

ENVIRONMENTAL MANAGEMENT PLAN

For all work performed, the Contractor shall submit to the designated MARAD COTR or representative, an acceptable hazardous material and hazardous waste management plan to the COTR within one week after award. An acceptable plan shall address, as a minimum, the following requirements:

A. Environmental Protection Agency (EPA), State and local authority hazardous waste generator identification numbers or registration with the state or local equivalent, of the Contractor, his/her transporters, storage and disposal facilities (TSDFs).

B. An inventory of all hazardous chemicals, compounds, and other agents brought aboard the vessel accompanied by their respective Material Safety Data Sheets. The Contractor shall provide and maintain the Material Safety Data Sheets for all hazardous materials in accordance with CFR 29 1910.1200.

C. A list of all anticipated hazardous wastes to be generated and applicable reference to federal, state, and local regulations.

D. Waste collection and containment procedures in accordance with 40 CFR 262.

E. A hazardous materials spill and cleanup plan including tools and materials that will be on hand and readily available to facilitate containment and cleanup.

F. Training certification for the environmental compliance manager and respective employees.

G. The Contractor will identify and quantify the amount of hazardous waste generated in the course of the MARAD ship repair. Upon completion of the contract, cost and quantities will be summarized and forwarded to the Office of Environmental Activities MAR-820 Rm. 7209, 400 Seventh St., S.W., Washington, D.C. 20590 for annual OMB A-106 reporting requirements.

12	1252.232-80	PROGRESS PAYMENTS UNDER COMMERCIAL SHIP REPAIR CONTRACTS	OCTOBER 2000

(a) In order for a Contractor to be considered for payment of progress payments, the Contractor must request, in writing, within five (5) federal working days after contract award, the inclusion of progress payments in the contract awarded as a result of the individual solicitation. Written requests must be accompanied by an itemized breakdown of the contract price for performing each item of work, as identified by each principle catagory of work in the specification. The breakdown will include the prorated portion of contract price for (i) direct
labor, (ii) material, (iii) overhead, and (iv) any amount included for contingencies and profit. If the Contractor does not provide an itemized
breakdown, progress payments will not be authorized. The Contracting Officer has sole discretion for approving the itemized breakdown and subsequent authorization of progress payments. If authorized, the specific contract will be modified to incorporate progress payments. Progress payments may be unilaterally suspended if unsatisfactory contract performance occurs. In the event that progress payments are suspended, contract payments will be made under the provisions of FAR 52.232-1 Payments (APR 1984). Pursuant to FAR 52.232-1, partial payments will only be permitted on a Contract Line Item (CLIN) basis. To be considered for partial payment, the CLIN must be 100% complete and inspected and accepted by the Government.

(b) The Government shall pay the Contractor the contract price as provided in this contract.

(c) For contracts 30 days or less in duration, the Government will not make progress payments. For contracts more than 30 days in duration, the Government shall make progress payments monthly as the work proceeds, or at other intervals as determined by the Contracting Officer, on
estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer and up to a limit of 80 percent of the total contract price. The Contractor shall furnish a breakdown of the progress schedule and total contract price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a basis for determining progress payments, in such detail as requested by the Contracting Officer. In the preparation of estimates the Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the site may also be taken into consideration if -

(1) Consideration is specifically authorized by this contract; and

(2) The Contractor furnishes satisfactory evidence that it has acquired title to such material and that the material will be used to perform this contract.

(d) Along with each request for progress payments, the Contractor shall furnish the following certification, or payment shall not be made:

I hereby certify, to the best of my knowledge and belief, that -

(1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;

(2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and the requirements of chapter 39 of Title 31, United States Code; and

(3) This request for progress payments does not include any amounts which the prime Contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract.

(4) This certification and any resultant payment is not to be construed as final acceptance by the Government of work performed by any subcontractor or contractor under this contract.

_____
(Name)

_____
(Title)

_____
(Date)

(e) If the Contractor, after making a certified request for progress payments, discovers that a portion or all of such request constitutes a payment for
performance by the Contractor that fails to conform to the specifications, terms, and conditions of this contract (hereinafter referred to as the unearned
amount), the Contractor shall -

(1) Notify the Contracting Officer of such performance deficiency; and

(2) Be obligated to pay the Government an amount (computed by the Contracting Officer in the manner provided in 31 U.S.C. 3903(c)(1)) equal to interest on the unearned amount from the date of receipt of the unearned amount until -

(i) The date the Contractor notifies the Contracting Officer that the performance deficiency has been corrected; or

(ii) The date the Contractor reduces the amount of any subsequent certified request for progress payments by an amount equal to the unearned amount.

(3) Pay back to the Government the aggregate of the unearned amount immediately upon receipt of a written demand by the Contracting Officer.

(f) If the Contracting Officer finds that satisfactory progress was achieved during any period for which a progress payment is to be made, the Contracting Officer shall authorize payment to be made in full.

When the work is substantially complete, the Contracting Officer may retain from previously withheld funds and future progress payments that amount the Contracting Officer considers adequate for protection of the Government and shall release to the Contractor all the remaining withheld funds.

Also, on completion and acceptance of each separate division of the contract, for which the price is stated separately in the contract, payment shall be made for the completed work without retention of a percentage.

(g) All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Government, but this shall not be construed as -

(1) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or

(2) Waiving the right of the Government to require the fulfillment of all of the terms of the contract.

(h) In making these progress payments, the Government shall, upon request, reimburse the Contractor for the amount of premiums paid for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor has furnished evidence of full payment to the surety. The retainage provisions in paragraph (f) above shall not apply to that portion of progress payments attributable to bond premiums.

(i) The Government shall pay the amount due the Contractor under this contract after -

(1) Completion and acceptance of all work;

(2) Presentation of a properly executed voucher; and

(3) Presentation of release of all claims against the Government arising by virtue of this contract, other than claims, in stated amounts, that the
Contractor has specifically excepted from the operation of the release. A release may also be required of the assignee if the Contractor's claim to
amounts payable under this contract has been assigned under the Assignment of Claims Act of 1940 (31 U.S.C. 3727 and 41 U.S.C. 15).

13	1252.233-80	AGENCY PROTESTS	FEBRUARY 2000

(a) Prior to submission of an agency protest, all parties shall use their best efforts to resolve concerns raised by an interested party at the Contracting Officer level through open and frank discussions. At any time the Contracting Officer and Protestor are encouraged to employ the use of alternative dispute resolution techniques to resolve the protest. When this cannot be accomplished interested parties may submit an agency protest to the Contracting Officer set forth in the Service of Protest provision of this solicitation.

(b) Protests based on alleged apparent improprieties in a solicitation shall be filed before bid opening or the closing date for receipt of proposals. In all other cases, protests shall be filed no later than 10 days after the basis of protest is known or should have been known, whichever is earlier.

(c) Protests shall include the following information. Failure to substantially include any of the following may be grounds for dismissal of the protest.

(i) Name, address, and fax and telephone numbers of the protester.
(ii) Solicitation or contract number.
(iii) Detailed statement of the legal and factual grounds for the protest, to include a description of resulting prejudice to the protester.
(iv) Copies of relevant documents.
(v) Request for a ruling by the agency.
(vi) Statement as to the form of relief requested.
(vii) All information establishing that the protester is an interested party for the purpose of filing a protest.
(viii) All information establishing the timeliness of the protest.

(d) Upon receipt and review of the protest to determine that adequate information is contained therein, the Contracting Officer will acknowledge receipt of the protest and inform the protester of the expected decision date. The Contracting Officer shall render a decision on the protest within 30 calendar days or notify the protestor of an extended decision date.

(e) Upon receipt of the Contracting Officer's decision, the protestor may appeal the decision within 15 calendar days of decision receipt. The appeal will result in an independent review of the protest by the Head of the Contracting Activity, the Associate Administrator for Administration. The Head of the Contracting Activity will impartially review the protest as presented, taking into consideration all of the available information, and render a decision. To the extent permitted by law and regulation, the Head of the Contracting Activity shall request relevant information from both parties. The Head of the Contracting Activity will render a decision on the appeal within 15 calendar days of receipt. Agency appellate review of the Contracting Officer's decision on the protest will not extend GAO's timeliness requirements. Therefore, any subsequent protest to the GAO must be filed within 10 days of knowledge of initial adverse agency action (4 CFR 21.2(a)(3)).

(f) Upon receipt of a protest, the Contracting Officer shall follow the procedures set forth in the FAR Subpart 33.103 (f) with regard to contract award and continued performance.

14	1252.247-82	SUPERVISION	FEBRUARY 2000

The Contractor shall provide at all times the quantity and quality of supervision necessary for the effective and efficient management of the operation. All supervisors shall have an intimate knowledge of the various tasks, equipment, and materials so as to be able to properly train and direct the workers in their individual tasks and to maintain and control an effective operation.

SECTION C -- DESCRIPTIONS AND SPECIFICATIONS

C.1 REVISED STATEMENT OF WORK

T.S. STATE OF MICHIGAN

2004 CONVERSION SPECIFICATIONS

July 16, 2004

I. VESSEL PARTICULARS

GENERAL INFORMATION:

NAME: T.S. STATE OF MICHIGAN (ex USNS Persistent)

TYPE: Twin screw diesel-electric vessel utilized as a training vessel.

OFFICIAL NUMBER:	CG003458
RADIO CALL SIGN:	NFSJ
CLASSIFICATION:	ABS
BUILDER:	Tacoma Boat Building Co., Tacoma WA.
KEEL LAID:	October, 1984
COMMISSIONED:	August, 1985
LENGTH OVERALL:	224' 00"
BEAM:	43' 00"
DESIGN DRAFT:	15' 01"
VERTICAL CLEARANCE: (Air Draft)	71' 00"
DEADWEIGHT:	2,250 tons
USCG GROSS TONNAGE:	1,914 tons
USCG NET TONNAGE:	574 tons
CRUISING SPEED:	10 knots
COMPLEMENT:	30 Officers and Midshipmen
USCG CERTIFICATION:	Public Nautical School ship
ABS CLASSIFICATION:	XA1-E, Ice Strengthened Class "C"

MAIN ENGINES:	Four (4) Caterpillar D398TA; 970 HP
MAIN GENERATORS:	Four (4) Kato 600 kW, 600 VAC, 3 phase
PROPULSION MOTORS:	Two (2) General Electric, 800 HP, 750 VDC
BOW THRUSTERS:	Harbormaster 48" tunnel, 550 HP
DIESEL FUEL CAPACITY:	228,615 gallons
SALT WATER BALLAST CAPACITY:	146, 642 gallons
FRESH WATER CAPACITY:	5,099 gallons
RADARS:	10-cm JRC 3-cm JRC
GYROSCOPE:	Sperry Mk 227
GLOBAL POSITION SYSTEM:	Trimble NavTrac GPS

PREAMBLE

As originally constructed, the STATE OF MICHIGAN supported a mixed complement totaling 39 persons including officers, unlicensed crew and civilian scientific personnel. To fully employ the vessel as a schoolship, the complement is to be increased to approximately 80-85 persons, of which 60 are cadets. The schoolship conversion will outfit the vessel with accommodations, training facilities, support facilities (galley, messing, laundry, exercise, offices, etc.) and auxiliary machinery suitable for the increased complement, in the intended service.

The desired conversion is intended to accomplish two primary goals: a) increase accommodations and service infrastructure from about 39 persons to suit GLMA's anticipated complement of 80-85 persons; and b) to make modifications necessary for Great Lakes service, including full compliance with all local, state, Federal (U.S.), Canadian and International environmental requirements.

In general, it is expected that existing ship's structure and arrangement will be retained to the greatest extent practical. The following items outline the scope of the conversion.

" Enlarge and outfit the superstructure and modify some (or all) existing staterooms to accommodate the desired complement. Construction of new superstructures is required.

" Modify the galley and messdecks to improve throughput and seating capacity. Evaluate the capacity of existing refrigerated and dry stores. Expand the existing self-service laundry and/or provide new laundry facilities. A Ship's Service laundry is not required.

" Modify or install new auxiliary systems to suit the enlarged complement. In particular, provide additional capacity for black and gray water holding, and a Marine Sanitation Device (MSD) suitable for freshwater service.

" Provide training, administrative and recreation facilities.

" Install additional SOLAS and USCG approved lifesaving equipment to suit the new complement. Additional lifeboats, liferafts and/or rescue boat(s) shall be provided as required.

STATE OF MICHIGAN Conversion
Regulatory Requirements

MARAD-owned Public Nautical Schoolships are certified by the United States Coast Guard (USCG) and classed by the American Bureau of Shipping (ABS). The basic regulatory and classification requirements to be satisfied are:

1. 46 CFR Part 167 (Subchapter R); Public Nautical Schoolships. The converted ship will be an "undocumented" Public Nautical Schoolship. Because the vessel is to maintain an oceangoing capability, the application of this regulatory standard must consider requirements applicable to both Great Lakes and Oceans service. As an "undocumented" vessel under Subchapter R, SOLAS certificates will not be obtained; however, SOLAS requirements are to be met "as much as is practical (defined below)." Where Subchapter R is silent or vague, the passenger ship requirements of 46 CFR Parts 70-80 (Subchapter H) shall generally apply.

2. ABS Classification Rules; to meet @ A1, @ AMS. The existing vessel is classed to @ A1 (E), @ AMS, @ ACCU. No changes are contemplated to machinery automation.

Canadian Regulatory Compliance. Because the vessel is expected to call at Canadian ports with some regularity, the contractor shall consider Canadian regulations when developing the concept and contract designs. Where such regulations are found to exceed domestic (U.S.) regulations, these instances shall be enumerated for evaluation.

Major Conversion. The conversion of the STATE OF MICHIGAN is expected to meet Coast Guard criteria for a "major conversion," and all applicable regulations and ABS Rules must be met. MARAD-owned schoolships are "Public Vessels," and as such are generally exempt from International Conventions and Treaties, except where these requirements have been incorporated into U.S. domestic inspection (i.e. CFR's).

Environmental Compliance. On a voluntary basis, MARAD and GLMA intend for the converted ship to fully comply with all the applicable and anticipated environmental regulations; to include but not be limited to MARPOL conventions, Federal Coast Guard and EPA Regulations. The design goal is to create a "Zero Discharge" vessel. Applicable MARPOL conventions are oil pollution prevention (Annex I); sewage (Annex IV); garbage (Annex V) and airborne emissions requirements applicable to the auxiliary and emergency diesel engines installed (Annex VI). Consideration for Ballast Water Management must also be included. Where the MARPOL requirements exceed those of the USCG, the MARPOL requirements shall be applied. In particular, EPA requirements pertaining to air emissions must be considered.

SOLAS and International Standards. The IMO Special Purpose Vessel Code will be applied. Note, however, that in most cases the IMO Special Purpose Vessel Code defers to Passenger Vessel Rules. The SOLAS and/or IMO requirements are generally to be applied for the following areas, except as noted below: intact and damaged stability; structural fire protection (of new spaces only); fire detection and extinguishing; bilge systems; emergency electrical system(s); and emergency egress. Lifesaving equipment and arrangement requirements shall conform to USCG regulations at 46 CFR Part 199 (Subchapter W).

Additional regulatory and mandatory standards include the following:

" U.S Public Health Service guidelines for all appropriate systems and spaces (including, but not limited to, potable water systems, sanitary systems, galley construction and arrangements)
" Recommendations of IEEE 45
" Federal Communications Commission
" Panama & Suez Canal regulations

Section 000: GENERAL SERVICES
Work Items in this section are to be uncosted. The cost of Items in this section shall be included in their Respective contract specification item as per the bid response sheet.
001 GENERAL CRITERIA

1.0 Scope of Work:

1.1 Location of Work: Entire ship

1.2 Identification: N/A

1.3 Intent: This item defines the general criteria which shall apply to each and every specification item contained within this Contract, including all Amendments, Modifications, and approved Delivery Orders. The costs associated with implementation and accomplishment of these requirements during the planning and performance of each specification item and subsequent Delivery Orders shall be included in the pricing of each specification.

2.0 Work Description:

2.1 Definitions: The following terms shall be understood to have these meanings:

2.1.1. "Article" - means a separate lettered part of a work item of the Work Package. Articles in different items may bear the same number; hence, to identify an article completely, the work item of which it is a part must be specified.

2.1.2. "As Original" - means a condition meeting the original system and manufacturer's design.

2.1.3. "As Approved" or "To The Approval", "For Approval", "As Directed", or "As Required" - When used without further qualifications, the decision of the COTR is required. Where an item is required to be submitted for approval, work shall not proceed until notification of approval is received. In the event the item is not approved, rationale will be provided and work shall not proceed until a satisfactory and mutually agreeable resolution has been resubmitted and approved.

2.1.4. "CFE" and "CFM" - Identifies Contractor Furnished Equipment and Material and are used interchangeably.

2.1.5. "CHECKPOINT" - In a Work Item, the phrase CHECKPOINT establishes a point in the sequence of work at which time the COTR shall be notified to observe a specific test or inspection. The COTR will be notified no less than 24 hours prior to the starting of any test or inspection. If tests are scheduled for the weekend, COTR must be notified no later than noon of the Thursday before.

2.1.6. "CLIN" - Contract Line Item. An individually costed work item within the specification package.

2.1.7. "Contract" - The agreement entered into between the Owner and the Contractor for the accomplishment of the work specified in the Specifications.

2.1.8. "Contracting Officer" - The person in charge of the contract.

2.1.9. "Contractor" - Means the addressee of this order, persons, firm, or corporation and/or its duly authorized representative, including but not limited to employees, subcontractors and agents.

2.1.10. "COTR" - Contracting Officer's Technical Representative managing the repair availability. This individual will be a MARAD employee.

2.1.11. "Detach" or "Disconnect" - Means to disconnect all attachments to the unit to enable the unit to be moved. All attachment points shall be tagged, identified, blanked, and protected to facilitate reinstallation. Work items do not necessarily identify interferences and the Contractor is responsible for the identification and resolution of interferences affecting a detachment and subsequent movement.

2.1.12. "Equivalent" ("Or Equal") Equipment - Where equipment is specified by manufacturer's name, make, and model number, the Contractor may request, in writing, equivalents to the COTR for approval. The approval request must delineate the design and performance data on both the specified and recommended substitute pieces of equipment. Approval will be based on, but not be limited to the following criteria:

a. Data presented that demonstrates that it meets the specified performance requirements.

b. Possess appropriate Regulatory Body approval or other pertinent design standards where required.

c. Possess similar and functionally equivalent dimensions; weight; power; HVAC; cooling water, or other required services; capacity; material; marine service characteristics; maintenance features and requirements, maintenance manpower requirements; time in service; suitability for marine service; population in commercial service; life cycle cost and maintenance cost; structure borne and airborne noise characteristics; vendor-furnished training, worldwide service and support; warranty provisions; spare parts availability and provisioning; consumption and performance data; and compatibility with interrelated systems and arrangements.

d. Exceptions to these criteria will be considered if they are demonstrable to be superior to those specified and are to the advantage of the vessel's mission and the Government.

e. If approved, the Contractor shall take full contractual and technical responsibility from a cost and performance standpoint for installing the components, equipment, or systems and ensuring their compatibility with interrelated components, equipment, or systems.

2.1.13. "GFE" or "GFM" - Identifies Government Furnished Equipment and Materials and are used interchangeably.

2.1.14. GLMA - Great Lakes Maritime Academy

2.1.15. "Good Marine Practice" - Means construction to soundly conceived and engineer detailed working plans, prepared by the Contractor, incorporating the specified components and utilizing recognized shipbuilding construction and testing methods to ensure that the completed ship conforms to the specification requirements. Inspection by the COTR is for the purpose of verifying the proper

function of the Contractor's Quality Assurance measures and is not considered a substitute for in-process control of quality by the Contractor.

2.1.16. "Government" - The United States Government, including the Maritime Administration (MARAD).

2.1.17. "Install", "Extend", "Fit", "Furnish", "Modify" and "Provide" - Means that the Contractor shall provide the piece of equipment, material, or system to be installed and shall provide the materials, structural supports, and labor to attach, connect, and test the equipment or system to effect a finished fully operational installation complete in all aspects.

a. When new material or equipment is not specified by type, the material or equipment shall be identified to the existing. When "install" is used with reference to GFE, all conditions of the above definition except the requirement to provide the piece of equipment are applicable.

b. Work items do not necessarily identify interferences and the Contractor is responsible for the identification and resolution of interferences affecting the installation by temporarily removing, reinstalling or relocating interferences. The Contractor shall temporarily remove, permanently relocate, alter and reroute all interferences, including but not limited to ductwork, piping, wire-ways, fixtures, insulation, joiner linings, equipment, furniture, etc. to facilitate fully operational installations and modifications covered by this Work Package. In the event that piping, ductwork, equipment linings, etc., must be temporarily removed to facilitate installation of new or modified work, the Contractor shall subsequently reinstall same in an "As Original" condition.

2.1.18. "Interference" - Means that a pipe system, ductwork, equipment, joiner bulkhead or lining, wire-ways, structural member, access opening, or other objects(s), equipment, system, or components must be temporarily removed and reinstalled, relocated, modified or designed around to facilitate the installation of new or modified equipment or systems.

2.1.19. "Labor and Materials" - Means labor, material, plant facilities, supervision, services, equipment, and all other resources required to accomplish the specified work.

2.1.20. "Manifests" - Are the official shipping document forms originated and signed by the generators, transporters, and operations of the hazardous waste disposal facility as required by Federal, State and Local Regulations.

2.1.21. "MARAD" - Identifies the United States Department of Transportation, Maritime Administration.

2.1.22. "Modify" - Means to provide materials, services, and labor to change or alter the item or system resulting in a finished and fully operational modified installation complete in all respects. The term "MODIFY" implicitly includes all requirements of "REMOVE AND INSTALL".

2.1.23. "OFE" or "OFM" - Identifies Owner Furnished Equipment and Materials and are used interchangeably.

2.1.24. "Owner" - The U.S. Department of Transportation, Maritime Administration (MARAD).

2.1.25. "Provide" - To furnish and install all services, materials, equipment and systems to accomplish the specified requirements.

2.1.26. "Refurbish" - Means to detach, temporarily remove, disassemble, clean, reassemble the unit, equipment or system using new screws, bolts, gaskets, and replacement parts, and to reinstall and test the unit, equipment or system to demonstrate proper function to the manufacturer's tolerances. The reinstalled refurbished unit, equipment or system shall be fully operational and complete in all aspects.

2.1.27. "Regulatory Body" - The American Bureau of Shipping (ABS), a Federal Government or International Regulatory Agency or an organization which is authorized by the agency to perform delegated regulatory functions on its behalf.

2.1.28. "Regulatory Body Requirements" - The regulations, rules, requirements, and interpretations issued by Regulatory Bodies.

2.1.29. "Reinstall" - Means that the Contractor shall provide all material and labor, to install a piece of equipment, material or system after the equipment, material or system was temporarily removed, relocated, modified, or refurbished.

2.1.30. "Relocate" - Means to provide all labor and materials to detach the unit, equipment, or system and to reinstall the same unit, equipment, or system at a new or modified location.

2.1.31. "Remove" or "Ripout" - Means to provide all labor and materials to disconnect, detach, and transfer the unit, equipment, materials, or system in its entirety off the ship. Contractor shall be responsible for all scrap materials removed. Part of the removal process is to blank openings, remove brackets, hangers, foundations, etc. and to restore all removed items including re-insulation and paint touch up to "As Original" condition.

2.1.32. "Remove and Replace Interferences" - Shall be construed to mean that the Contractor shall provide all labor, materials and equipment necessary to remove, modify if required, material and equipment that cause interference in way of the intended installation, or removal path of an equipment, and replace or reinstall in "As Original" condition.

a. The specific work items do not necessarily identify interferences to be resolved.

b. The Contractor shall be totally responsible in the performance of the Work Package for the identification and resolution of all interferences necessary to complete the work required by this Work Package.

c. All open ends left as a result of these removals shall be suitably protected to prevent any and all contaminants from entering the system or piece of equipment.

2.1.33. "Replace" or "Renew" - Means to remove the existing unit, equipment, or systems, including all interferences and to install a new unit, equiipment, or system which is either identical or equal to that which was removed; the installation shall include at a minimum all hook-up, supports, and adapters which are required to effect a fully operational installation complete in all respects.

2.1.34. "Repair" - To fix the existing, thereby restoring it to its original capabilities.

2.1.35. Retain - Means to keep and store in a safe environment (on or off the vessel) any material that is to be reused or turned in to the COTR..

2.1.36. "TAG OUT" - Means a procedure to both notify personnel that tagged-out equipment, components, or systems are either isolated or not in a normal operating condition and to prevent injury to personnel, improper operation, or damage to the tagged out equipment, components, or systems.

2.1.37. "Temporary Removal" or "Temporarily Remove" - Means to provide all labor and materials to disconnect and move the unit, equipment, or system from its initial location and to reinstall the same unit, equipment, or system whether in the same location or elsewhere on the ship as described in the Work Package.

2.1.38. "WORK ITEM" or "ITEM" - Means a separately numbered part of the Contract Work Package describing a discrete portion of the work to be accomplished.

2.1.39. "WORK PACKAGE" - Means the entire written portion of the contract including the contract provisions, and all work items.

2.2 Accomplish the Requirements of the Contract

2.2.1 The Contractor shall satisfactorily perform all work and details therewith, to the required standards and shall provide all the necessary resources in that performance. The Contractor shall furnish details that are not mentioned in these Specifications, but which are usual and necessary for ship work.

2.2.2 Noncompliance/nonconformance with the requirements of the Contract or Work Items, discovered by the Government will be reported to the Contractor in writing.

2.2.3 Contractor shall respond in writing to the COTR, indicating the corrective action taken and, where applicable, the action to be taken to correct the cause of the deficiency. Written responses shall be within 3 working days from notification.

2.2.4 Labor and/or material progress payments on deficient Work Items will be withheld until each deficiency has been corrected.

2.3 Provide Labor, Material, and Equipment

2.3.1 Except where specified otherwise, Contractor is to provide all labor, material and equipment required for the completion of the all work set forth in the Specifications. Contractor is to rig and unrig, connect and disconnect, stage and unstage, and remove, replace and relocate any interferences necessary to accomplish each work item in the Work Package. Unless specifically identified as O(G)FE/O(G)FM, all equipment, material, labor, supplies and services shall be Contractor furnished.

2.4 Report Production Delays and Difficulties

2.4.1 In the event difficulty is encountered or anticipated in complying with the Contract requirements or schedule dates, the Contractor shall notify the COTR immediately by verbal means, followed on the next work day, by written correspondence stating the pertinent details. Receipt of this notification by the COTR is not to be construed as a waiver of the contract requirements or delivery schedule by the Government; nor is it a waiver of rights or remedies provided by law or under this Contract relating to jeopardy of the Contract schedule.

2.5 Verify Dimensions

2.5.1 Any and all dimensions, measurements, size, shape, quantities, etc., in the specifications including drawings, sketches, etc., contained therein, are not guaranteed to be correct. The Contractor shall verify the accuracy of any and all dimensions and measurements prior to commencing work. The Contractor should take full advantage of any ship check/inspection periods offered for this purpose.

2.6 Report Additional Work or Material Procurement

2.6.1 When additional work or material procurement is identified that is necessary to produce a reliable product or complete repair, a report shall be submitted to the COTR. The required report, with supporting data, shall be submitted as soon as possible after discovery to allow the COTR to initiate early action. The goal is to have any required additional work completed within the original Contract performance period. These condition or inspection reports shall contain at a minimum, the following information:

2.6.1.1 Vessel name, Contract Number, work item number, item paragraph number, and Production Schedule activity number(s) related to or affected by the subject request.

2.6.1.2 A description of the conditions found with supporting data. This data should include sketches, photographs, and calculations, with actual readings and dimensions, when necessary to make the conditions clearly understandable to the COTR.

2.6.1.3 Recommendations as to possible corrective actions.

2.6.1.4 A statement regarding the conditions' effect on the subject work item and other work items; and a statement about the conditions and recommendations affect on the then current Production Schedule update and Critical Path. A statement as to whether all work on the item is stopped pending a response. See Item 202 (Ref. 4.8) for related schedule requirements.

2.6.1.5 A list of materials required.

2.7 Scheduling of Open, Inspect, and Report Items.

2.7.1 None

2.8 Submit Requests for Work Deviations

2.8.1 A deviation is defined as any action which is not in conformance with the Work Item requirements, including references thereto, no matter how minor.

2.8.2 Deviations will only be considered by the COTR upon receipt of a written request from the Contractor.

2.8.3 The Government does not have an obligation to approve any deviation, and may do so only if benefit to the Government can be shown. The Contractor shall accomplish deviations only when authorized in writing by the COTR.

2.9 Accomplish Joint Vessel Inspection.

2.9.1 The Contractor and COTR shall complete a joint arrival inspection within 24 hours of vessel's arrival at the Contractor's facility to determine general conditions on the vessel. Topside areas, interior passageways, anticipated major work areas, the engine room and shaft alley/tunnels shall be inspected.

2.9.2 The Contractor concurrent with the inspection shall prepare a videotape with commentary. The videotape and one copy shall be submitted to the COTR with a serialized Condition Report.

2.10 Provide Closures Against Weather

2.10.1 The Contractor shall use existing closures and provide temporary closures as necessary to prevent intrusion of weather related elements (rain, snow, sleet, etc.), into the vessel.

2.10.2 Temporary closure materials may include the use of plywood, canvas, herculite or other materials at the Contractor's option and expense to cover temporary access openings or the opening of doors, scuttles and hatches for periods in excess of 24 hours. Additional protection from sandblast grit intrusion shall be provided per a separate item.

2.10.3 Hatches shall be closed at the completion of daily work unless work is scheduled in specific adjacent spaces around the clock.

2.10.4 Service lines, hoses and cables shall be run through a single door as mutually agreed upon by the Contractor and COTR. The service line access shall be separate from the primary personnel access. In cases where the Contractor deems it necessary that additional service line, hose and cable accesses are required for efficient or safe completion of the work, the Contractor may submit a written request to the COTR, for approval.

2.11 Contractor Use of Vessel Equipment and Materials

2.11.1 The Contractor shall not use, without explicit permission from the COTR on a case by case basis, any vessel spare parts, equipage, equipment, special tools or materials.

2.11.2 Vessel's machinery and equipment is not to be operated by the Contractor's personnel or subcontractors except as explicitly authorized on a case by case basis by the COTR, or as explicitly required elsewhere in this Specification.

2.12 Cleanliness, Tests and Job Completion

2.12.1 Upon item and job completion all spaces, equipment, machinery, tanks, cargo holds and accommodations affected by repairs shall be left in a clean and orderly condition and ready to serve their intended purposes. The COTR and Contractor will hold a joint redelivery inspection at least 3 days prior to scheduled delivery date and vessel acceptance by the Government. See Item 202 (Ref. 4.8), paragraph 3.5, for requirements of a Compartment Close Out Report as work and cleaning in each space is completed.

2.12.2 During this joint inspection, any further cleaning and outstanding deficiencies will be noted, which shall be completed prior to the delivery of the ship. No work may be deferred for accomplishment after the ship's redelivery, unless it is shown to be advantageous to the Government, and the COTR approves deferral.

2.12.3 All new, disturbed and/or soiled materials, surfaces, equipment, etc., affected by the accomplishment of these Specifications and any Delivery Orders shall be cleaned, prepared, coated, re-coated, re-lagged, reinsulated as directed in other applicable items in this contract. See Item 110 (Ref. 4.3), 111 (Ref. 4.4) or 112 (Ref. 4.5), which describe insulation and lagging requirements; Item 104 (Ref. 4.2), Interferences, Remove and Reinstall; Item 117 (Ref. 4.6) or 118 (Ref. 4.7), which describe coating guidelines for specific requirements, and the publication entitled MARAD COATINGS GUIDELINES, latest revision, including all attachments, appendices and tables.

2.12.4 Work that requires testing shall be completed in time to allow correction of deficiencies prior to dock trials, sea trials, and other applicable milestones established in the Contract.

3.0 Performance Criteria/Deliverables:

3.1 Joint arrival inspection videotape and condition report (paragraph 2.9.2).

4.0 References:

4.1 The following list of Guidance Plans and References are provided to supplement the information provided in the Specifications. Upon request, additional drawings can be provided to the Contractor to the extent that they are available to the Owner.

4.1.1. MARAD Coating Guidelines, through Rev 04 dated 01 November 1993, including attachments 2 & 3 with general notes and tables 1 & 2.

4.1.2. American Bureau of Shipping "Rules for Building and Classing Steel Vessels." (Latest Version)

4.1.3. American Bureau of Shipping "Rules for Building and Classing Aluminum Vessels." (Latest Version)

4.1.4. United States Coast Guard regulations, including all applicable CFR and NVICs

4.1.5. International Load Line Convention, 1966

4.1.6. Illuminating Engineering Society "Recommended Practice for Marine Lighting"

4.1.7. Federal Communications Commission

4.1.8. Cargo Gear Certification by the American Bureau of Shipping

4.1.9. IEEE No. 45 "Recommended Practice for Electrical Installation on Shipboard" as prepared by the Institute of Electrical and Electronics Engineers, Inc., as amended, except in cases of conflict with U.S. Coast Guard regulations, the latter which shall govern.

002 PROVIDE OFFICE FACILITIES

1.0 Scope of Work:

1.1 Intent: Provide office space, support equipment and personnel for the exclusive use of the COTR, MARAD and GLMA personnel during the availability.

2.0 Work Description: Provide office space and support equipment from one day before vessel arrival at the Contractor's Facility through three days following vessel departure from the Contractor's Facility as follows:

2.1 Office Space, Furnishings & Services - Provide a minimum of 800 square feet of air conditioned/heated office space in the vicinity of the vessel suitable for two port engineers, vessel's chief engineer and chief officer and a secretary. The Contractor shall provide office space with the following:

2.1.1 Separate office(s) furnished with a minimum of four (4) desks and chairs, bookshelves, and four (4) 4-drawer legal sized locking file cabinets (with keys).

2.1.2 A reception area with chairs for 6 people.

2.1.3 Miscellaneous tables to accommodate copier, fax machine, printers, visitors, etc.

2.1.4 Restroom facilities, either within the office or in the building in which the office space is located, which shall include toilets, shower facilities (with hot and cold running water) and clothing change lockers to accommodate a minimum of four (4) on-site personnel.

2.1.5 Not Used.

2.1.6 Clean bottled refrigerated drinking water (equivalent to a five-gallon OASIS type water dispenser) with sufficient bottled water for the duration of the contract.

2.1.7 Daily Janitorial Services to clean office and restroom spaces, including trash removal and replenishment of restroom supplies. Provide clean towels on a daily basis.

2.1.8 Not Used.

2.1.9 Six (6) sets of keys to all accesses to the COTR.

2.2 Telephone Service - Provide telephone service during the entire industrial period as described above.

2.2.1 Provide a minimum of five (5) dedicated telephone lines within the office space(s) with unrestricted and unlimited service (local and long distance), for the exclusive use of the COTR, MARAD and GLMA personnel.

2.2.1.1 Four (4) telephones shall be equipped with voice mail, conferencing and transferring capabilities.

2.2.1.2 Not Used.

2.2.1.3 One (1) separate phone line shall be dedicated for a fax machine.

2.2.2 Contractor shall be responsible for all telephone bills (Bill to be paid directly by Contractor).

2.2.3 Provide the latest copy of local yellow and white pages telephone book.

2.2.4 Provide a list of emergency phone numbers and local phone directories at each phone location.

2.3 Provide Automated Office Equipment, lights, electrical service and outlets and Uninterrupted Power Supplies (UPS) for the following:

2.3.1 Computer System(s) - Provide separate outlets and power strips up to four (4) computer systems. On-site availability support team will supply their own laptop/computers.

2.3.2 Laser Printer - Provide one (1) Laser printer (equal to HP Laser Jet 6) with letter and legal size paper capabilities, connected to service all computers in the office.

2.3.3 Copier Machine - Provide one (1) plain paper copier capable of copying legal and letter size paper with automatic multiple page feed, collating, and reducing and enlarging capabilities.

2.3.4 Fax Machine - Provide one (1) plain paper fax machine able to use 8 1/2" X 11" plain paper and capable of multiple page automatic feed, and printing of transaction/activity reports.

2.3.5 UHF Radios - Not Used.

2.3.6 Office Supplies - Provide any needed servicing to office equipment. The contractor will provide daily service to empty trash, replenish soap, towels, tissue, etc. and sweep and mop the office spaces.

2.4 Parking - Provide a minimum of (4) four reserved parking spaces for the COTR, MARAD representatives and GLMA crew in the vicinity of the office. The Contractor shall provide any passes and clearances that may be necessary for personnel and vehicles to access the Contractor's Facility. Vehicle and personnel access shall be available on a twenty-four (24) hour per day, seven (7) day a week basis.

2.5 Temporary Secretary - Contractor shall provide the services of temporary secretarial service. Secretary must be computer literate and capable of using the above mentioned office equipment and Microsoft Office computer programs. Secretary is to be provided for the duration of the contract, plus five days, for the attending Marad Representative(s). Secretary must be proficient in the use of MS Access and be familiar with marine terminology. The secretary is not to be an employee of the contractor.

3.0 Performance Criteria / Deliverables: None

003 PROVIDE WET BERTH AND MOORING

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Provide services required to receive and properly secure the vessel in a wet berth at the Contractor's Facility, to provide access to the vessel, to establish and maintain proper list and trim, to shift the vessel as may be required by the Contractor during the work period, and to release the vessel at the completion of repairs.

2.0 Work Description: Furnish a wet berth for the vessel during the availability period. The wet berth mooring facilities, bollards, bitts, and other pier and berth fittings used shall be capable of safely holding the vessel during storm or high wind conditions. Provide the following associated with the wet berth and mooring:

2.1 Tug service for the following: To accomplish all vessel shifting during the availability.

2.2 Line handlers and riding crew for vessel arrival, departure and all vessel movements within the contractor's facility.

2.3 Mooring lines to properly secure the vessel, including the doubling of lines and use of wire rope during periods of storms, high winds, or unusual tidal conditions. Vessel's mooring lines shall not to be used without the concurrence of the COTR. Mooring lines shall be protected against chafing gear and damage from sandblasting and other work.

2.4 Rat guards on all mooring and service lines greater than one (1) inch in diameter.

2.5 Fenders between the vessel and piers and other floating equipment to ensure that the vessel's hull plating and hull coating system are protected. The Contractor and the COTR shall inspect the vessel upon arrival to determine any pre-existing hull conditions. Contractor shall prepare and submit a Condition Report of all pre-existing conditions noted.

2.6 Personnel gangway(s) that are a minimum of four (4) feet wide, with cross member cleats or non-slip walk surface. Gangway shall be outfitted with safety netting and lighting per OSHA requirements. Gangway shall be installed within one hour of the vessel's arrival and shifting of the vessel. The vessel's accommodation ladders shall not be used. Locations of the gangway(s) will be designated by the COTR.

2.7 Not Used.

2.8 The Contractor shall transfer, add or remove ballast as necessary throughout the industrial period to establish and maintain draft, list, trim and stability of the vessel. The vessel's ballast transfer system is not available for use.

2.8.1 List shall be maintained at "0" plus-or-minus 1/2 degree, unless otherwise required for the conduct of specific tasks within these specifications.

2.8.2 Should the vessel require ballast for maintenance of list and trim, tanks shall be treated against expansive ice damage if the vessel is in a freezing environment.

2.8.3 The Contractor shall open manholes in ballast tanks as necessary to pump in and remove any ballast with portable pumps.

2.8.4 The tanks used, together with any affected ballast piping, shall be dry and clean upon completion of ballasting activities.

2.8.5 A written plan and schedule for all adjustments to the list, trim or draft shall be presented, via a Condition Report, to the COTR for approval 24 hours prior to accomplishment.

2.8.6 The movement of ballast shall be coordinated with the Captain, C/E and COTR. Any movement of fuel oil, lubricating oil, or diesel fuel shall be under the direction of the Chief Engineer.

2.8.7 All opened manholes shall be closed up with new gaskets and anti-seize on the bolts.

2.9 A minimum of two (2) feet of water shall be maintained under the vessel's keel over its entire length, at all times and for all tide conditions.

2.10 The Contractor's berthing site and arrangements will be inspected and approved by the COTR prior to vessel arrival.

2.10.1 Berthing plan shall include any potential berthing shifts required for accomplishment of these specifications or other reasons.

2.10.2 No out berthing, nesting or breasting out of the vessel during the industrial period shall occur without the written concurrence of the COTR.

2.11 The Government reserves the right to receive, approve or disapprove, any Contractor-proposed berthing arrangement. The Contractor may, at no additional cost, be required to provide berth soundings, pier or mooring arrangement plans, mooring calculations, independent surveyor reports and/or regulatory approvals to the COTR within five (5) days, if required. The Contractor remains solely responsible for the safety of the vessel while in his custody.

3.0 Performance Criteria/Deliverables:

3.1 Condition Report - Pre-existing hull deficiencies (paragraph 2.5)

3.2 Condition Report - Ballasting Plan and Schedule (paragraph 2.8.5)

3.3 Condition Report - Berthing Plan (paragraph 2.10)

4.0 References:

4.1 Item 410, [Performance Of Inclination Experiment & Trim & Stability Booklet]

5.0 Notes:

5.1 Contractor shall provide a suitable layberth and provide the manpower and equipment to move or position the vessel to accomplish an Incline experiment/test. Item 410 (Ref: 4.1)

004 PROVIDE SHIP SERVICES

1.0 Scope of Work:

1.1 Location: Shipboard

1.2 Intent: Upon vessel arrival make connection and provide temporary services to the vessel during the repair availability.

2.0 Work Description:

2.1 General - All services listed are to be provided within 8 hours after vessel arrival at the Contractor's facility. The following services are to be provided within one hour after vessel arrival: electrical power, potable water, and compressed air. Services shall be disconnected only when necessary to shift the vessel and restored within one hour after shifting of vessel. The COTR will be notified a minimum of 24 hours in advance of any scheduled disruption of temporary services. Services are to be provided continuously (unless otherwise noted), for the entire availability specified in the contract, plus any extensions thereof that are not resulting from contract modification. Contractor shall be responsible for all disconnections and re-connections that are necessary to carry out specific work items. Vessel's crew will identify to the Contractor the service connection points.

2.1.1 Electrical Power - Provide 460 volt, 60 Hertz, three (3) phase power to the vessel at a minimum capacity of 400 amps. The power shall be equipped with a single phase and under/over voltage protection relay. Contractor shall be responsible for determining the correct phase rotation prior to supplying power and for any damage incurred due to excessive voltage during service.

CHECKPOINT (Phase Rotation)

Phase rotation shall be witnessed by the COTR or designated representative prior to supplying power to the vessel.

2.1.1.1 Provide a voltage-recording device and continuously record the voltages at the shore power to ship connection.

2.1.1.2 Provide a kilowatt-hour meter and record the kilowatt usage at the shore power to ship connection.

2.1.2 Potable Water - Potable Water Tanks (5000 gallons) are to be refilled after completion of Work Item 319 and prior to sailing. Contractor is responsible for compliance with local ordinances and US Public Health Service regulations concerning the use of hoses, check valves or other devices used to prevent contamination of fresh water sources. Water samples from the source shall be sent to a laboratory ashore for testing to ensure the water is suitable for potable use. The Contractor shall provide the laboratory test results to the COTR upon vessel arrival and prior to connection to the vessel.

3.0 Performance Criteria/Deliverables:

3.1 Electric power phase rotation. (2.1.1)

3.2 Condition Report: Potable Water test results. (2.1.2)

4.0 References: None

5.0 Notes:

5.1 Vessel will not be manned during most of the contract period. Crew will consist of Chief Engineer and Captain living ashore.

005 PIER SERVICES

1.0 Scope of Work:

1.1 Location of Work: Bilge spaces throughout the vessel

1.2 Intent: Upon vessel arrival provide pier services to the vessel during the repair availability.

2.0 Work Description:

2.1 General - All services listed are to be provided within 8 hours after vessel arrival at the Contractor's facility. Services shall be disconnected only when necessary to shift the vessel and restored within one hour after shifting of vessel. The COTR will be notified a minimum of 24 hours in advance of any scheduled disruption of temporary services. Services are to be provided continuously (unless otherwise noted), for the entire availability specified in the contract, plus any extensions thereof that are not resulting from contract modification. Contractor shall be responsible for all disconnections and reconnections that are necessary to carry out specific work items. Vessel's crew will identify to the contractor the service connection points.

2.1.1 Bilge Water and Slops Disposal - Furnish all necessary pumps, hoses, fittings and all labor as required to pump out and maintain dry all machinery spaces, shaft alley, drain wells and oily slop tanks as required.

2.1.1.1 Pump and properly dispose of all oily/contaminated bilge water and 4000 gallons of slop tank contents. This includes bilge water and slops present upon ship's arrival and also that generated by non-contractor activities throughout the industrial period. Disposal of any liquids generated by the contractor is the responsibility of the Contractor. Bilges and drain wells shall be maintained free of water and oil throughout industrial period.

2.1.1.2 Deploy and maintain oil retention booms as necessary during any oily liquid or bilge slops transfer operation.

2.1.1.3 All oily liquids, bilge water and slops shall be properly disposed of in compliance with the Environmental Protection Agency and all applicable local, state and other federal regulations.

2.1.1.4 The contractor shall submit a Condition Report as required upon liquid movement or removal to the COTR with attached receipt identifying source, quantity, contents and final disposal activity of all oily liquids disposed.

2.1.1.5 All bilges shall be free of all water, oil, grease and debris and in a clean dry condition at departure from Contractor's Facility.

2.1.2 Garbage and Trash Disposal - Furnish dumpsters, either on board or immediately adjacent to the ship, for the disposal of garbage and debris generated by the crew. The dumpsters shall be emptied as often as necessary, and kept clean to prevent them from becoming a health hazard. All garbage and debris shall be disposed of in accordance with federal, state and local laws. This requirement is in addition to removal of trash and debris generated by the Contractor during performance of these specifications.

3.0 Performance Criteria/Deliverables:

3.1 Condition Report - Oily Liquids Disposal Report (paragraph 2.1.1.4)

4.0 References: None

5.0 Notes:

5.1 Vessel will not be manned during most of the contract period. Crew will consist of Chief Engineer and Captain living ashore.

006 DECK AND BULKHEAD PROTECTION

1.0 Scope of Work:

1.1 Location of Work: All interior ladderways, passageways and all spaces affected by work as outlined in Work Specifications in this work package.

1.2 Interior decks and bulkheads.

1.3 Intent: Contractor shall provide and maintain deck and bulkhead protection immediately upon ship's arrival and throughout the industrial period.

2.0 Work Description:

CHECK POINT - Joint Arrival Inspection

2.1 Upon arrival, the Contractor's senior project manager and the COTR shall jointly inspect the shipboard areas described in paragraph 1.1 and determine the condition of surfaces which are required to be protected. The intent of this inspection is to establish the condition for returning work areas to the Government as required in paragraph 2.4.3.

2.2 Immediately upon arrival at the Contractor's Facility and prior to allowing other workers aboard, install over the interior decks, horizontal surfaces and all main deck bulkheads to a height of 4 (four) feet, covering, whose protective value shall not be less than that of 1/8" thick fire retardant plywood, secured at all edges with duct tape all spaces affected (heavy traffic passageways leading to and to include areas where work is to be performed) as outlined in work specifications in this work package. Such protective coverings shall also be installed on all main deck bulkheads (4'0" above deck).

2.3 Protective coverings shall be maintained throughout the period the vessel is in the Contractor's facility. The Contractor shall periodically inspect all such coverings and repair or replace any damaged areas. In the event that liquid spillage occurs, which may wet floor areas underneath the protective covering, all affected covering shall be removed, the decks thoroughly cleaned and dried, and the protective covering replaced with new.

2.4 Upon completion of all industrial activity, when directed by the COTR and before the vessel's departure from the Contractor's facility, the Contractor shall accomplish the following:

2.4.1 Remove and dispose of all protective deck and bulkhead coverings.

2.4.2 Repair and clean all soiled or damaged floor/tile coverings as well as bulkhead and overhead surfaces in the protected shipboard compartments.

CHECK POINT - Joint Pre-departure Inspection

2.4.3 Contractor's senior project manager and the COTR shall jointly inspect all areas protected by action of this specification and assure that the Contractor has properly restored them to undamaged condition.

2.4.4 Damage and soiling of floor tile, bulkhead and overhead surfaces shall be repaired and/or cleaned at Contractor's expense.

3.0 Performance Criteria/Deliverables:

3.1 Joint arrival inspection, paragraph 2.1.

3.2 Joint pre-departure inspection, paragraph 2.4.3.

4.0 References: None

5.0 Notes: None

007 GUARD AND SECURITY SERVICES

1.0 Scope of Work:

1.1 Location of Work: Gangway and specified locations throughout the ship.

1.2 Identification: Uniformed security service.

1.3 Intent: Provide vessel security services throughout the repair availability in accordance with this specification and Contractors Plans and Procedures listed in Note 5.2.

2.0 Work Description:

2.1 As Below.

2.1.1 The guards shall be from a bonded security service, not the Contractor's regular employees, standing shifts which shall not exceed eight (8) hours each.

2.1.2 Not Used.

2.1.3 The Contractor shall keep the guards instructed that Contractor's personnel and other non-crew/non-MARAD personnel are forbidden access to any part of the vessel not necessary to complete items listed in this repair project except under emergency conditions, such as fire, flooding, storm, etc. The Contractor shall keep the guards well and thoroughly informed what persons are authorized and in what work areas.

2.1.4 The Roving Security Watch(es) shall at all times be knowledgeable of shipboard watchstanding procedures and aware of and alert for indications of the following:
2.1.4.1 The specific location of contractor industrial activity,
2.1.4.2 The areas of the vessel where hot work is being performed,
2.1.4.3 The location of fire and flooding sensors and alarms,
2.1.4.4 Flooding and rising water levels in machinery spaces,
2.1.4.5 Fire,
2.1.4.6 Safety hazards such as:
2.1.4.6.1 Live disconnected electrical lines or welding leads,
2.1.4.6.2 Loose and unsecured equipment or machinery which can fall or drop from heights,
2.1.4.6.3 Explosion dangers (from escaping welding/burning and sewage gases),
2.1.4.6.4 Water/oil damage (from leaking or broken steam, water or oil piping or hoses)
2.1.4.7 Unauthorized persons on board the ship during work and non-work hours,

2.1.5 The Roving Security Watch(es) shall be:
2.1.5.1 Required to maintain surveillance of locked secured spaces,
2.1.5.1.1 Doors found unlocked shall be reported IMMEDIATELY to the COTR or other owner/agent personnel and to the head of the shipyard security department and to the shipyard project manager.
2.1.5.2 Required to make rounds of the ship hourly logging in at designated watch checking stations,
2.1.5.3 Required to be in ready contact with the gangway watch via two-way radio,
2.1.5.4 Required to make hourly entries in the Ship Access and Security Log,
2.1.5.5 Required to sign in and out at the beginning and end of each shift,
2.1.5.6 Required to enter all unlocked spaces.

2.2 Not Used.

2.3 Not Used.

2.3.1 Not Used.

2.4 Not Used.

2.4.1 Not Used.

2.5 Not Used.

2.6 Establish the Security Log (hard bound) in accordance with approved Facility Security Plan. The log shall contain entries displaying the following: date, name, company, time on, time off, purpose of the visit of contractor's and subcontractor's personnel and visitors. The log shall also contain routine entries from the Roving Security Guard, visits by the security company's supervisor and list any other significant events.

CHECK POINT - (Weekly Submission of Ship Access and Security Log entries)

2.6.1 A copy of the preceding week's log entries shall be submitted to the COTR Monday mornings.

CHECK POINT - (Final Submission of Ship Access and Security Log)

2.6.2 The Security Log shall be turned over to the COTR at the termination of the Contractor's custody of the vessel.

3.0 Performance Criteria/Deliverables:

3.1 Not Used.

3.2 Not Used.

3.3 Receipt of copies of all entries made in the Security Log (Mondays) (paragraph 2.6.1).

3.4 Receipt of Security Log (completion of availability) (paragraph 2.6.2).

4.0 References: None

5.0 Notes:

5.1 Not Used.

5.2 The contractor specifies the following procedures and plans are in place:

MMC's existing facility consists of the shipyard production facilities and buildings located within a fenced-in secured area and the technical/administration building located adjacent to but outside of the fenced in production facilities.

Access to the fenced-in shipyard facilities and buildings for MMC regular employees is through secured and controlled access entrances using computer controlled security access cards assigned to all employees. Each entrance and exit by an employee using security access cards is monitored and logged.

Access to the shipyard for contract employees-suppliers-vendors-etc. (non MMC employees) is through the main security entrance. Authorization for entrance must generally be arranged with Security for entrance from MMC Engineering, Purchasing or other Management personnel with purpose or justification for access provided. Unscheduled access to the shipyard may be allowed if purpose and justification is provided to security by Engineering, Purchasing or other Management personnel for those times advance scheduling is not practical. MMC personnel escort may or may not be required depending on who the visitor is and purpose of visit. Each entrance and exit of vendors through the main security entrance is monitored and logged

Client or customer access to the shipyard is handled in the same manner as MMC employees. Security access cards are provided to all customer representatives who are assigned to work at MMC's facilities on a regular basis. Each entrance and exit by these customer representatives using security access cards is monitored and logged

Access for customer representatives to the shipyard facilities that are not working at MMC on a regular basis must be requested and cleared through MMC's security department prior to accessing the shipyard. Once cleared by MMC's Security Department, the customer representatives who are regularly assigned to work at MMC are given approval to bring in the additional customer representatives and provide escort when within the shipyard as required.

Access to the shipyard by the general public is not authorized. Specific tours or visits may be performed in select areas of the shipyard for marketing, inspection or educational purposes

In addition to the controlled and monitored access to the technical/administration building and the shipyard, MMC facilities have a closed circuit television monitoring system that monitors multiple locations throughout the shipyard. These monitors are overseen by the security department personnel. Video recordings of the closed circuit television monitoring system are also made. These recorded tapes are archived for a specified period of time. Regularly scheduled security rounds of the entire shipyard are also conducted by security personnel as a part of the shipyard security control

Once vessels are under production, access to the vessel(s) will generally be limited to those personnel who are working on the project. As the vessel construction progresses and if critical equipment & electronics systems are installed, access to those equipments will generally be limited to those personnel who are working directly with that equipment and who have a need to know. This access restriction will continue on through the construction, test and trial periods as appropriate.

Marinette Marine Corporation is a cleared facility by Defense Security Service at the Secret Clearance level for facility and approved storage level. MMC's Facility Security Officer is Marc E. Jamo. The Alternate FSO, is Diana Harnois. Both of these individuals hold Secret Clearances.

Under the U.S. Department of Homeland Security, Title 33 of the Code of Federal Regulations (33 CFR) Part 105, Marinette Marine Corporation is currently at Stage III level approval with the Facility Security Plan that has been submitted. An on-site visit is the last requirement of the Stage III process. This visit is scheduled to take place on November 30, 2004. MMC will operate in a MARSEC level 1 capacity as a normal security measure.

008 FIRE PROTECTION AND HOUSEKEEPING

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Provide fire protection services to meet the requirements of vessel fire safety during the availability per provisions of Reference 4.1 and Contractors Plans and Procedures listed in Note 5.1.

2.0 Work Description:

2.1 Contractor to provide two (2) charged 2½" hoses pressurizing a four (4) valve manifold located forward and aft on the vessel. Line shall be connected to a minimum 400 GPM, 100 PSI source, either shore connection or continuously operating pump.

2.1.1 Four (4) 1½" hoses are to be connected to the manifold and of sufficient length and run in such a manner as to be able to reach all areas of the vessel. 1½" hoses shall be fitted with all-purpose nozzles. In those areas and climates that are susceptible to freezing, provide freeze protection for the fire hoses. No on-deck water run off will be permitted, and the fire protection must be fully functional during all freeze conditions encountered. An appropriate pressure gauge shall be attached to the (4) valve manifolds. The 1½" hoses are to be de-pressurized at the manifold after initial testing to the satisfaction of the COTR and shall be reserved exclusively for fire protection use. The 2½" line and manifold shall remain pressurized at all times.

2.1.2 In the event that pressurization to the manifold is lost for any reason, the Contractor must terminate all heat-producing evolutions (such as hotwork) and all fire-hazardous evolutions (such as spray painting), until pressure to the manifold is restored. The Contractor shall submit a Condition Report to the COTR identifying the cause and corrective action taken within 24 hours after each occurrence.

2.2 Provide a total of nine (9) fifteen-pound CO2 fire extinguishers to be placed: three (3) each at the bow, stern and in the engine room. These extinguishers are to be used exclusively for fighting fires and are not to be used for fire watch use during hot work.

2.3 Within two (2) days after the vessel's arrival, the Contractor shall tour the ship, with a senior representative of the organization having primary responsibility for major fire fighting responsibility (shipyard fire department or local public fire department), and the COTR.

2.4 Provide trained fire watch personnel, in accordance with paragraph 4.1 and Contractors procedures, and appropriate fire fighting equipment during all hot work operations including but not limited to welding, grinding, chipping and cutting. Fire watches and equipment shall meet the following requirements as a minimum and fire watch plans shall be approved by the COTR:

2.4.1 All personnel assigned as fire watches shall be in accordance with Contractors fire watch procedures. (Item 5.1)

2.4.2 Each fire watch shall be equipped with a fully charged and operable fire extinguisher, and will remain at the job site for at least thirty (30) minutes after the completion of the hot work.

2.4.3 The fire watch shall have clear view and immediate access to those workers performing hot work.

2.4.4 If multiple blind compartments or spaces are involved in any hot work job, fire watches shall be posted in accordance with contractors procedures in each area.

2.4.5 Where hot work is performed on a bulkhead, overhead, or deck, combustible material will be removed from the vicinity of the hot work on the opposite side and a fire watch will be posted at each location.

2.5 Oxygen, acetylene, and gas supply manifolds and cylinders shall be located on the weather decks.

2.5.1 At shift change, and other times when not in use, torches and gas supply hose shall be removed from confined spaces. Open-end fuel and oxygen hoses shall be removed immediately from confined spaces when they are disconnected from the torch or other gas-consuming device.

2.5.2 Upon completion of each hook-up to fuel/oxygen gas system and prior to use, a drop test in open air shall be accomplished to include the torch, hoses, and gages.

2.6 Use fire retardant materials aboard or immediately adjacent to the ship for temporary staging, covers, deck covering, and ventilation ducts.

2.6.1 Storage of material aboard the vessel shall be limited to that which is required for the work in progress.

2.6.2 Crating and packing shall be removed prior to bringing material or equipment aboard, unless necessary for handling, in which case the crating and packing shall be removed immediately after it is brought aboard.

2.7 At least one (1) access to the main machinery space shall remain unobstructed with service lines, etc.

2.8 Flammable liquids with a minimum flash point of 150°F or less, including degreasers, solvents, and fuels shall not be kept aboard the vessel when not in use.

2.9 Accomplish a housekeeping and fire prevention inspection on a weekly basis. The inspection shall be made jointly with the COTR. A written report of discrepancies and corrective actions to be taken shall be prepared with copies distributed to the COTR by the next working day.

2.10 Report verbally each accident, injury and fire on vessel involving contractor/ subcontractor personnel to COTR as soon as management becomes aware of such an event.

2.10.1 Provide a formal written report of event to the COTR within 24 hours of each incident. The written report shall contain the name and ID number of each injured person, date and time of accident/fire, extent of personal injury or property damage, contractor/subcontractor name, contract number, vessel name, location of event (incl. space or compartment), type of accident/fire, and a brief description of the incident including pertinent occurrences/actions before and after the incident.

3.0 Performance Criteria/Deliverables:

3.1 Charged fire hose manifold with hoses (paragraph 2.1).

3.2 (9) 15-pound fire extinguishers (paragraph 2.2).

3.3 Tour of vessel at vessel arrival (paragraph 2.3).

3.4 Trained and dedicated fire watches (paragraph 2.4).

3.5 Weekly housekeeping/fire prevention inspection and report (paragraph 2.9).

3.6 Accident, injury, and fire incident reports (paragraph 2.10).

4.0 References

4.1 OSHA 29 CFR Part 1915

5.0 Notes:

5.1 The contractor specifies the following procedures and plans are in place:

HOTWORK AND FIREWATCH PLAN
SCOPE
The Definition of Hot Work Conditions: A fire watch will be required for any hot work, (burning, welding, and grinding) that takes place in an area that is not in total view of the employee performing the hot work and a threat of fire or injury exists.

RESPONSIBILITIES
The Safety Manager shall be responsible for updating the guidelines and auditing the use of this procedure.
The Area Managers have the first line of responsibility for training, use, and enforcement of the guidelines in this procedure.
All employees performing hot work or fire watch are required to follow the guidelines set forth in this procedure.
The Safety Committee is responsible for auditing the use of this procedure.

REFERENCES
MMC Procedure L11 3, General Safety, Housekeeping and Fire Prevention Guidelines.

HOT WORK PERMITS
A fire watch and hot work permit will be required for any hot work that takes place on board a vessel that contains or has contained fuel or oil.
The foreman has the responsibility for training, use, and enforcement of these instructions. The foreman can have a trained employee that is approved by the Safety Manager, perform the hot work permit issuing duties.
All employees performing hot work or fire watch are required to follow these instructions.
Prior to requesting a permit, the employee shall make sure that the area is clear of fire hazards.
Now that the hot work area is protected and safe, the foreman/approved designate will inspect and issue a hot work permit for the area.
The foreman/approved designate inspects the area based on safe hot work criteria practices. Check only those items on the permit that pertain to the area in which the hot work are being performed.
The foreman/approved designate will fill in on the hot work permit; Requested by, Location, Department, Date and Time, assign a fire watch person, and will sign in the issued by.
The person assigned the hot work will provide their signature and clock number on the permit. The hot work person will inform the fire watch person of when the hot work is to start and be complete.
Person assigned fire watch will provide their signature and clock number on the permit. A trained fire watch person is a person who has received instructions and fully understands what must be done in the event of a fire.
On completion of filling out the hot work permit, the foreman/approved designate dispatches the hot work permit as follows:

- White copy will be posted on a fire watch board.
- The employee doing the hot work will hold yellow copy.
- Pink copy will be held by the foreman for Permit accountability at the completion of the hot work period.

Upon completion of the hot work, the fire watch will continue for thirty (30) minutes. When the fire watch employee verifies the area is secure and safe, he/she will collect the yellow and white copy. The fire watch will provide their signature, clock number, date and completion time on the permit. Now the fire watch turns both slips in to the issuing foreman/approved designate.
The foreman/approved designate then verifies the hot work areas are safe and secure. When satisfied, the foreman/approved designate signs the permits and returns them to the Area Manager. The Area Manager is responsible for monitoring and reporting deficiencies in receipt of the hot work permits.
At a minimum a Dry Chemical, hand portable fire extinguisher will be available. Additional equipment, Fire hose, Fire Blanket, Water Can, will be used as needed.

DUTIES OF THE FIRE WATCH PERSON
A trained fire watch person is a person who has received instructions and fully understands what must be done in the event of a fire.
A trained fire watch person will be assigned to each area of hot work. This person need not be solely dedicated to fire watch but must be present during hot work at all times. This applies also to lunch breaks and one half (½) hour cool down periods.
The fire watch person will be informed by the person performing hot work of when the hot work is to start and be complete. This will identify the required thirty (30) minute cool down period.
The fire watch person must not leave while the hot work is being performed or during the thirty- (30) minute cool down period. If the fire watch person must leave, they will get another trained individual to take over the fire watch duties.

PROCEDURE
Prior to any employee doing hot work, the immediate & adjacent (below, left, right, & opposite side) areas shall be clear of fire hazards.
NOTE: See paragraph 4.0 for hot work permits.

Any employee doing hot work will make sure there is a fire extinguisher in the immediate area. They also will identify blind areas, post a fire watch for those areas not in total view of the person performing the hot work and a threat of fire or injury exist, Barrier tape off the floor area if sparks, slag, etc. will fall from above
Before any burning, welding, or grinding starts, all equipment in the area will be protected from flying sparks.
After burning, welding, or grinding, checks the area around and below to make sure everything is secured and that no fires have started. Plus, the fire watch person will check the area if one is present.

SPECIFIC FIRE WATCH TIMES
During Shift - A fire watch is required while the hot work is being done.
Lunch break - Each active hot work area will be attended during the twenty (20) minute lunch period by a trained fire watch person.
End of shift - All areas with hot work occurring near or up to the end of the shift must be attended by trained fire watch personnel for a period of one half (½) hour after hot work has ended.
Weekend work or shift - If the shift is not staffed or fully staffed, security personnel may be utilized. It is the responsibility of supervision to contact the ship designated security personnel.
Second Shift or Third Shift - A fire watch is required while the hot work is being performed in area where not in full view.
009 TANK SOUNDINGS

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Provide a complete set of tank soundings upon arrival at and prior to departure from the contractor's facility.

2.0 Work Description:

2.1 Provide labor and material to sound all tanks on the ship. Gauge all fuel oil, settling, ballast, potable water, storage, slop, waste oil, drain, sludge and cargo tanks as reflected in references listed in paragraphs 4.1, 4.2 and 4.3.

2.2 Provide a typed report for all tanks sounded within 72 hours after vessel arrival and 48 hours prior to vessel's departure. The report will include tank designation, location, product, actual sounding (feet and inches), converted sounding (gallons), and percentage of maximum capacity. Also in the report the contractor shall identify all plugged sounding tubes, any damaged, stripped, bent or otherwise deficient sounding plugs, caps, valves or access.

2.3 All deck plugs, sounding tube caps, sounding tube plugs, tank sounding access, shall be cleaned, re-gasketed, lubricated with anti-seize compound and reinstalled.

3.0 Performance Criteria/Deliverable:

3.1 Condition Report of sounding results upon vessel arrival at and prior to departure from the contractor's facility.

4.0 References:

4.1 Vessel's general arrangement

4.2 Vessel's capacity plan

4.3 Vessel's tank sounding tables

5.0 Notes: None

010 PROVIDE TEMPORARY LIGHTING

1.0 Scope of Work:

1.1 Location of Work: Throughout the vessel

1.2 Intent: Provide temporary lighting throughout the vessel as needed to safely and properly accomplish repair work.

2.0 Work Description:

2.1 The contractor shall provide and maintain temporary lighting in areas of the ship where the ship's lighting system has been disrupted due to repair work.

2.2 Temporary lighting shall be equipped with Underwriter Laboratory (UL) approved industrial type shatterproof bulbs and protective cages.

3.0 Performance Criteria/Deliverables: None

4.0 References: None

5.0 Notes: None

011 AIRBORNE CONTAMINATION PROTECTION

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Prevent contamination of the vessel and vessel's equipment from airborne contaminants generated while the vessel is in the Contractor's facility.

2.0 Work Description:

2.1 Provide protection from contaminants as follows:

2.1.1 Wrap, cover, or mask all equipment, boats, and openings on the ship's exterior that are susceptible to damage or contamination, including vents and valves not in use.

2.1.2 Install industrial foam filter material on the intake of all ventilation supply systems and all exterior exhaust outlets. Remove existing and install new or cleaned filter material when airflow is restricted.

2.1.3 Install double curtain baffles at the entrance of each door (maximum of four doors) selected by the COTR for access to the ship's interior during abrasive blasting operations.

CHECKPOINT - (Protective Covering Integrity Inspection)

2.2 Contractor shall inspect the protective covering with the COTR prior to beginning of each blasting operation.

2.3 Upon completion of all blasting remove all protective covering and accomplish the following:

2.3.1 Inspect for the presence of contamination and damage. Report to the COTR via a Condition Report all contamination and damage prior to the removal of the contamination and repair of the damage.

2.3.2 Remove all accumulation of blast material from the vessel and upon completion wash down all exterior surfaces of the vessel using fresh water.

3.0 Performance Criteria/Deliverables:

3.1 Covering integrity inspection (paragraph 2.2)

4.0 References: None

5.0 Notes: None

012 STEVEDORING AND MATERIAL HANDLING

1.0 Scope of Work:

1.1 Intent: Provide stevedoring and material handling services for vessel's crew/COTR.

2.0 Work Description:

2.1 Material Handling at Contractor's Facility. Accomplish material handling service for vessel's crew/COTR for various non-contract related material transfers. Service may include rigger, crane, forklift, and truck service. Requirements and schedule for material handling services will be directed by the COTR.

2.1.1 For bidding purposes, use 30 non-consecutive man-hours.

2.1.2 All hours used against this item shall be logged; Date, Time and description of use and signed by the Port Engineer at the end of each day that is applicable.

2.1.3 Any increase/decrease in material handling service hours shall be debited/ credited at the Contractors bid unit price.

3.0 Performance Criteria/Deliverables: None

4.0 References: None

5.0 Notes:

5.1 Crane and other material handling service costs required by the Contractor shall be included in the respective item price.

013 ACCOMPLISH CLEANING AND WASHDOWN

1.0 Scope of Work:

1.1 Location of Work: Throughout the ship

1.2 Identification: Cleaning for Redelivery

1.3 Intent: Provide general clean-up of those areas disturbed by the contractor so that the vessels machinery, working, living, storage and public spaces are clean, sanitary, degreased, free of trash, dirt, debris, fire hazards, noxious material or freestanding liquids prior to its re-delivery.

2.0 Work Description:

2.1 Passageways, general and public areas.

2.1.1 Remove and dispose of all trash, debris and abandoned materials from all areas. Sweep all decks broom clean.

2.1.2 Not Used.

Special Requirement - Disposal of Cleaning Materials

2.1.3 In this section and all other areas of this CLIN which call for use of such expendable cleaning materials as soap, water, detergents, solvents, or degreasers, Contractor shall properly dispose of the hazardous waste products in accordance with Item 105 (Ref. 4.1).

2.1.3.1 Not Used.

2.1.3.2 Not Used.

2.1.4 Protect all decks and bulkheads as required by Item 006 (Ref. 4.2).

2.1.5 Determine the location of all heating/ventilation/air conditioning (HVAC) system filters or heat transfer devices, such as pre-heaters, reheaters, heaters, cooling coils, unit coolers or independent heaters and air conditioners. Remove unit covers, access covers, ventilation transition pieces or joiner panels to allow cleaning access to all HVAC filters and heat transfer devices.

2.1.5.1 Clean all HVAC filters and heat transfer devices, air conditioning units, ventilation louvers, lint and blower screens, diffusers and grates of all dust, dirt, lint, grease and oil using compressed air, solvent, rags, detergents, water and hand cleaning.

2.1.5.2 Not Used.

2.2 Staterooms and Offices - Clean all areas that were disturbed by the contractors work onboard the vessel.

2.2.1 Not Used.

2.2.1.1 Not Used.

2.2.2 Not Used.

2.2.3 Not Used.

2.3 Showers and Water Closets - Clean all areas that were disturbed by the contractors work onboard the vessel.

2.3.1 Not Used.

2.3.2 Not Used.

2.3.3 Not Used.

2.3.4 Not Used.

CHECK POINT - (Walk-through Inspection of Water Closets, Showers and Staterooms)

2.3.5 Upon inspection and acceptance of Water Closets, Showers and Staterooms by the COTR these spaces shall immediately be locked.

2.4 Storerooms, Fan Rooms, Laundry rooms, Cleaning Gear and Linen Lockers, etc - Clean all areas that were disturbed by the contractors work onboard the vessel.

2.4.1 Not Used.

2.4.2 Not Used.

2.4.3 Not Used.

2.5 Galley, Pantries and Mess Rooms - Clean all areas that were disturbed by the contractors work onboard the vessel.

2.5.1 Not Used.).

2.5.1.1 Not Used.

2.5.1.2 Not Used.

2.5.1.3 Not Used.

2.5.2 Not Used.

2.5.2.1 Not Used.

2.5.2.2 Not Used.

2.6 Weather Decks, Shelter Decks and Forecastle - Clean all areas that were disturbed by the contractors work onboard the vessel.

2.6.1 Not Used.

2.6.2 Not Used.

2.7 Machinery Spaces. (includes but is not limited to anchor windlass room, all motor generator rooms, fan rooms, trash handling and compacting rooms, pump rooms, pump room access passages, steering gear, shaft alley, escape trunks, engine room, engine room and shaft alley tank tops, emergency generator room, CO2 room) - Clean all areas that were disturbed by the contractors work onboard the vessel.

2.7.1 Not Used.

2.7.1.1 Not Used.

CHECK POINT - (Reporting of Leaks)

2.7.1.2 Contractor shall determine and report, together with recommended repairs, the source of any persistent or recurring liquid leaks.

2.8 Ship's Service Refrigeration Boxes (Cargo and Domestic) - Clean all areas that were disturbed by the contractors work onboard the vessel.

2.8.1 Not Used.

2.8.1.1 Not Used.

2.8.2 Not Used.

2.8.3 Not Used.

2.9 Ship's Refrigeration Boxes (Individual) - Clean all areas that were disturbed by the contractors work onboard the vessel.

2.9.1 Not Used.

2.9.2 Not Used.

2.9.3 Not Used.

3.0 Performance Criteria/Deliverables:

3.1 Walk-through inspection of water closets, showers and staterooms; paragraph 2.3.5.

3.2 Report of persistent or recurring leaks; paragraph 2.7.1.2.

4.0 References:

4.1 Item 105, [Hazardous Materials Handling]

4.2 Item 006, [Deck/Bulkhead Protection]

5.0 Notes: None

014 DEPLOY OIL CONTAINMENT BOOM

1.0 Scope of Work:

1.1 Location of Work: Exterior hull, at waterline.

1.2 Intent: Deploy a floating oil containment boom completely surrounding vessel's hull while vessel is afloat in order to contain any oil inadvertently spilled from vessel during repairs.

2.0 Work Description:

2.1 Obtain and deploy a floating oil containment boom around exterior hull of vessel. Oil containment boom is to be of a type and manufacturer approved for this use by all applicable federal, state, and local regulatory agencies.

2.2 Maintain the deployed oil containment boom in position for the duration of the availability, opening up only for sea trials and vessel departure.

3.0 Performance Criteria/Deliverables:

3.1 Contractor shall be responsible for all labor, material, and equipment required to clean up and dispose of material confined between boom and vessel's hull prior to removal of boom [with the exception of oil spills] as a part of this item.

4.0 References: None

5.0 Notes: None

015 ELECTRICAL RESISTANCE READINGS

1.0 Scope of Work:

1.1 Location of Work: Throughout vessel, for systems and equipment impacted by individual Conversion Items.

1.2 Identification: Insulation Resistance Readings.

1.3 Intent: Measure and record insulation resistance and continuity readings of shipboard electrical circuits, systems devices and equipment impacted by the conversion.

2.0 Work Description:

CHECK POINT - (COTR Permission to De-Energize Circuits)

2.1 Progressively de-energize circuits of impacted systems and equipment. Measure and record electrical insulation readings of vessel's electric panels, circuits, controllers, transformers, and motors listed in enclosure (1), within the first 5 working days of availability. Insulation resistance readings will be taken using a high resistance unit of measurement instrument such as a megohmmeter. The instrument shall be in current calibration. Readings are to be taken inside the controller closest to the designated piece of equipment listed. Readings are to be taken measuring the cabling and load as a unit.

2.1.1 Minimum acceptable readings shall be 1.0 Megohm except for lighting circuits which shall be 0.5 Megohm and interior communications circuits which shall be 0.05 Megohm.

CHECK POINT - (Detailed Ground Fault Investigation)

2.1.2 Insulation resistance which falls below the instrument readings cited in paragraph 2.1.1 may be further investigated in detail to determine the precise area of low resistance. For purposes of this Item, the Contractor may be requested, at the COTR's discretion, to conduct detailed investigation for grounds in all affected electrical circuits.

If so directed, via a change order, Contractor shall conduct a detailed investigation by progressively disconnecting each component of a circuit, eliminating ungrounded areas, until the ground fault is discovered. For readings below the minimum further readings must be taken by separating the load, cabling and controller. Test each cable lead for continuity and complete circuit.

CHECK POINT - (Arrival Resistance Readings)

2.1.3 Submit a Condition Report to the COTR of insulation resistance readings taken. Included on report will be: make, model, serial number, and calibration date of measuring instrument; name and location of equipment being measured, and the insulation resistance readings obtained.

CHECK POINT - (COTR Permission to Re-Energize Circuits)

2.2 After completion of the initial insulation resistance checks, obtain permission of the COTR, and energize or re-energize each internal or external heater installed in/on any electrical equipment such as motors, motor controllers and generators and maintain such heaters energized for the entire length of the industrial period.

2.3 At the completion of the industrial period, an additional set of insulation resistance readings is to be taken (as described paragraph 2.1 above).

CHECK POINT - (Pre-Departure Readings)

2.3.1 Submit a Condition Report to the COTR, 72 hours prior to the vessel's departure from the contractor's facility.

3.0 Performance Criteria / Deliverables:

3.1 COTR permission to de-energize circuits (paragraph 2.1).

3.2 COTR permission to conduct detailed investigation for ground faults (paragraph 2.1.2).

3.3 COTR permission to re-energize circuits (paragraph 2.2).

3.4 Condition Report of insulation resistance readings within 5 days of arrival (paragraph 2.1.3).

3.5 Condition Report of insulation resistance readings 72 hours prior to departure (paragraph 2.3.1).

4.0 References: None

5.0 Notes: None

016 NOT USED

017 PROVIDE SPARE PARTS

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Provide a precise method for developing a procurement list of spare parts and documenting newly installed equipment in which spare parts will be procured in support of a T-AGOS class vessel during a shipyard overhaul, upgrade, or conversion.

2.0 Work Description:

2.1 Definitions:

2.1.1 Equipment: Any functional unit of hull, mechanical, electrical, or electronic type material, which is operated singly or as a component of a system.

2.1.2 Spare Parts: This term refers to any item or items, including modules and consumable-type materials that have an equipment application and which appear in a Shipboard Allowance List (SAL). The term "Spares", "Repair Parts", and "Spares and Repair Parts", are used interchangeably.

2.2 Procurement Procedures:

2.2.1 The Contractor shall procure technical manuals, drawings, controlled equipage, and develop spare parts lists (MARAD will procure spare parts at a later date) in support of the vessel or shipboard equipment repairs, conversions and newly installed equipment. A minimum of three (3) technical manuals and three (3) drawings shall be provided.

2.2.1.1 Contractor will develop spare parts lists based on the manufacturers recommended spares for onboard vessel.

2.2.1.2 Contractor will determine vessel supplies needs based on one year of full time vessel operation.

2.2.2 The Contractor shall document all items procured utilizing the inventory, validation, technical manual, drawings, and controlled equipage forms. These forms are to be provided to the COTR at the item turnover.

2.2.3 Prior to COTR authorizing work to proceed under this specification, the Contractor as minimum, shall demonstrate their purchasing system has the ability to retain and report specific information, i.e., item costs, parts information, manufacturer and vendor information, item description, quantity, unit of issue. Also, it must have a capability to track and provide up-to-date material status, and procurement and historical information data. These procedures shall be provided to the COTR for review within 14 days of contract award. The Contractor will not be authorized to proceed with ordering any spare parts under this contract, until the COTR has approved in writing, the contractor's procurement procedures. Failure to obtain COTR's approval shall result in termination of "NO COST" to the government. The contractor shall procure ship support material approved and identified by MARAD or its designated representative as follows:

2.2.3.1 Identify sources and pricing for the material requirements; conduct an appropriate procurement effort to obtain competition in accordance with FAR 52.044-5.

2.2.3.2 For material obtained from outside the continental United States, the Contractor will identify and provide estimated air and surface freight costs and shipment time. The mode to be used will be selected by MARAD, based on urgency of the requirement.

2.2.3.3 Make maximum practical effort to purchase material from small, disadvantaged, and minority/women owned businesses.

2.2.3.4 Make every attempt to purchase from the lowest tier, to eliminate pass-through costs.

2.2.3.5 For purchases where the estimated costs or quantities are less than the vendor minimum cost per order, the contractor must seek authorization from MARAD to increase the requested quantity to match the vendor requirement, but not to exceed the maximum cost authorized by MARAD. The Contractor shall make every effort to consolidate buys to avoid incurring costs.

2.2.3.6 The Contractor shall provide new parts from the manufacturer or an authorized distributor. If other than original manufacturer parts are used, the substituted parts must be obtained from the manufacturer and be provided with a statement of fit, form, and function. No reconditioned or after market parts are to be supplied, unless specifically authorized in writing by the COTR.

2.2.3.7 The Contractor will advise the COTR of all procurements that require supplier "tooling up". In such cases, COTR may authorize the Contractor to increase the quantity to be procured in order to facilitate the Shorebased spares assets.

2.2.3.8 Advise COTR in writing when any ordered materials are considered long-lead time and could affect the scheduled delivery of the vessel.

2.2.3.9 The Contractor shall provide the COTR with a copy of all purchasing files for all materials procured for MARAD. This deliverable will be submitted in an automated format, identified before award of this contract.

2.3 Unworkable Purchases:

2.3.1 The Contractor is unable to identify a vendor using available information provided.

2.3.2 The designated vendor is unable to identify the item or requires additional information (e.g. serial number of end item).

2.3.3 The production lead-time is determined to be unreasonable or excessive.

2..4 The Contractor shall provide to MARAD, the following information for all purchases it considers unworkable:

2.3.4.1 Known information on item

2.3.4.2 A clear statement of the problem

2.3.4.3 Recommended solution

2.3.5 MARAD will take one of the following actions:

2.3.5.1 Increase authorized price

2.3.5.2 Modify the purchase, description, or other parameters. In these instances, MARAD will provide the necessary information and/or clarification to continue the procurement process. Included in this response may be either a drawing(s) or other technical documentation, or both.

2.3.5.3 Cancel the purchase. If it is not feasible to continue the purchase order, MARAD will advise the Contractor in writing that the purchase be canceled.

2.4 The Contractor shall receive, inspect, and stage materials:

2.4.1 The Contractor shall perform a 100% quality assurance receipt inspection, including certification that material, count, quantity, and condition are correct.

2.4.2 Inspection for the intrinsic value of purchased material. In the event of suspected overpricing, contact vendor for possible refund or correction of any pricing error that may have taken place. If the vendor is unwilling to correct the suspected overpricing, report the situation to the COTR for resolution.

2.4.3 Inspect for lowest tier supplier/part number information on purchased material.

2.4.4 Ensure that vendor procurement information is identified on the received materials. As a minimum, the Contractor shall ensure the item requisition number, nomenclature/description, part number, quantity, unit of issue, and equipment in which parts pertain to, be included in each line item shipped.

2.4.5 The Contractor shall comply with the following requirements for staging materials:

2.4.5.1 To maintain preservation after receipt and inspection, the Contractor shall repackage to the original state, so far as practicable.

2.4.5.2 Ensure that materials are not exposed to storage, weather, or climate conditions that could compromise their stability or capability.

2.4.5.3 Ensure that each item has been properly identified with the parts information and proof of delivery, and that they are affixed to each line item procured and temporarily located.

2.4.5.4 Advise the COTR, in writing, of any events which caused misplacement, damage to, or theft of procured materials. All materials meeting the above conditions shall be the responsibility of the Contractor to replace.

2.4.5.5 The Government reserves the right to conduct a Quality Assurance Review of the contractor's material procurement and handling processes at any time during the performance of this contract. The Contractor will be notified within 24 hours of the review.

2.5 Material Turnover:

2.5.1 The contractor shall complete and submit a Validation Aid, which is prepared and identifies equipment characteristics for newly installed or repaired equipment. Attached to each validation aid will be the Inventory Aid which represents those repair parts procured by the contractor for either newly installed or repaired equipment.

2.5.2 The contractor shall prepare and provide to the Chief Engineer (CE), a technical manual, drawing, or controlled equipage form whenever they are acquired in support of the vessel.

2.5.3 Once the ship departs the shipyard, if any repair part requisitions are pending, the Contractor is required to ship the materials to the designated location identified by the COTR. The procedures exercised for turnover of pending materials must include the procedures stipulated for turnover in this specification.

2.5.4 The Contractor shall provide all labor and material handling equipment required, to relocate materials for turnover from the Contractor to the Government.

2.5.5 Material turnover is determined by the COTR. Whether turnover is periodic, incrementally or the end of the contract, is at the discretion of the COTR.

2.5.6 At time of turnover, the Contractor shall certify in writing that all parts being delivered to the vessel have been verified 100% and meet fit, form, and function.

2.5.7 All procured materials will be turned over by the Contractor to the Chief Engineer (CE) of the vessel. The Contractor is to locate these parts to a designated shipboard location identified by the CE, for processing. The Contractor shall not participate in locating or stowing parts on board MARAD vessels. Upon completing turnover of procured material, the contractor is to obtain the CE's signature for acceptance of the material. The mechanism utilized for CE certification, is a listing of all parts being turned over and a space for his signature. The certification document will contain no less then the minimum requirement for parts data information, delineated previously in this specification.

3.0 Performance Criteria/Deliverables:

3.1 Validation: An equipment characteristics record for any functional unit of hull, mechanical, electrical, or electronic type material. The form contains information such as equipment description, name, serial number, voltage, amps, etc. (Attachment 1)

3.2 Inventory: A record of repair parts information, i.e., part description, part number, unit of issue, quantity, etc. (Attachment 2)

3.3 Technical Manual: A record of the equipment technical manual documentation containing information, i.e., description, technical manual number, manufacturer information etc. (Attachment 3)

3.4 Vendor Drawing: A record of the equipment drawings, which contains information such as drawing number, equipment description, manufacturer information, etc. (Attachment 4)

3.5 Accountable Property: Non-installed portable equipment. (Attachment 5)

4.0 References:

4.1 Item 210, [Configuration Management]

5.0 Notes: None

018 NOT USED

019 MAINTENANCE AND UPDATE OF TECHNICAL MANUALS

1.0 Scope of Work:

2.1 Location: Various

2.2 Identification: See paragraph 2.1.

2.3 Intent: Provide revised, updated and new technical manuals due to changes to system/equipment configuration during modernization or repair.

2.0 Work Description:

2.1 Revise, update or provide new the following technical manuals for the equipment and systems listed below to reflect changes made as a result of ship conversion:

2.1.1 Equipment/System	Location
Marine Sanitation Device System	Hold, Upper Level
Sewage Transfer Pumps	Hold, Upper Level
Duplex Strainer	Hold, Lower Level
Class 3 Watertight Doors	Engine & Propulsion Rooms
Quick Acting Watertight Doors	Hold
HVAC fans, heaters, etc	Throughout
Plumbing Fixtures	Throughout
Washers/Dryers	Upper Deck
Furniture, Lockers	Throughout
Light Fixtures	Throughout

I.C. Equipment Throughout

2.2 Develop individual change pages, as required, for the above listed technical manuals. Change pages shall be developed only for those pages affected by the configuration, operation, or maintenance changes to the system or equipment. Technical manual change pages shall include text, graphics, tables, or combinations thereof. Utilize computer-aided design drawings where possible for graphical illustration, if configuration changes were the result of an engineering change. Utilization of Contractor (vendor) drawings and/or photographs is allowable if it results in acceptable quality and legibility. Develop original artwork as needed to illustrate new details and arrangements.

2.3 The change pages shall conform to the existing format of the technical manual as closely as possible with respect to font, page margins, line spacing, tabs, and indents. Where that portion of the textual content of a page has changed, indicate the change by vertical black bars in the left or right margins. Where changes occur to drawings or figures, small pointing hands shall indicate the change. A change page shall be issued for each page that is changed, regardless of the amount of the change on the page. Pen and ink changes are not allowed.

2.4 As appropriate, develop revised Table of Contents, List of Effective Pages, List of Illustrations, and List of Tables. Develop other revised Front Matter where necessary, including, but not limited to: Foreword, Index, and Validation Page.

2.5 Develop a Change Instruction Guide for the user to make the change(s) to each technical manual. The Change Instruction Guide shall identify the Change Number of the technical manual, shall give a brief description of the reason for the technical manual change, and shall give explicit instructions as to which page(s) to remove and replace or add. The Change Guide shall instruct the user to annotate the Change Record page, if such a page exists in the original manual, when the change is entered into the technical manual.

CHECK POINT - (Preliminary Change Submittal)

2.5.2 Submit one copy of the Preliminary Technical Manual Change, including the Change Instruction Guide, to the COTR.

2.6 Review comments received from the COTR on the Preliminary Technical Manual Change. Incorporate those comments into the change pages. Prepare Final Technical Manual Change.

2.6.1 Not Used

CHECK POINT - (Final Submittal)

2.7 Submit 2 copies of the changes to the COTR, including one (1) camera-ready copy, and electronic copy in Word 2000 format. Electronic reproducible files shall be transmitted on CD-ROM disk. Preprinted commercial manuals shall be delivered in source PDF file format when available. When converted source PDF format is unavailable, the material shall be scanned using high resolution effect.

3.0 Performance Criteria/Deliverables:

3.1 Preliminary Change Submittal (paragraph 2.5.2).

3.2 Final Change Submittal (paragraph 2.7).

4.0 References:

4.1 Equipment Technical Manuals.

5.0 Notes:

5.1 Utilization of Commercial Off The Shelf (COTS) manuals is allowed provided they are off sufficient quality to meet the needs of the vessel in regards to operation and maintenance.

020 NOT USED

021 FUEL OIL REMOVAL AND STOWAGE ASHORE

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Contractor is to remove fuel from the vessel, as required, to accomplish work in these Specifications. The contractor will provide an additional 10,000 gallons of Fuel Oil upon refueling.

2.0 Work Description:

2.1 The COTR will advise Contractor of the amount of fuel onboard prior to the vessel's arrival. For estimating purposes, assume Contractor to transfer 25,000 gallons of diesel fuel to and from the vessel.

2.2 The Contractor will store the fuel in a Contractor furnished barge until the vessel conversion is completed and then transfer the fuel from the barge back on to the vessel. The Contractor has the option to sell the fuel and replenish the vessel with new fuel (same quality and quantity). In either case, the COTR and a Contractor furnished independent surveyor (Saybolt) will inspect the fuel and barge prior to the Contractor transferring the fuel to and from the vessel.

2.2.1 Prior to transferring fuel the COTR and a Contractor furnished independent surveyor (Saybolt), will inspect the barge. After the Contractor completes the fuel transfer from the vessel to the Contractor furnished barge the COTR and a Contractor independent surveyor (Saybolt) will again inspect the barge.

2.2.2 If contractor removes fuel via another means (truck), the contractors procedures will be presented to the COTR for approval.

2.3 Contractor shall measure via a calibrated fuel oil meter the amount of fuel both removed and returned to the vessel. An additional 10,000 gallons of Fuel Oil will be provided upon refueling of vessel.

2.4 The Contractor shall provide an oil boom large enough to surround the entire perimeter of the T.S. STATE OF MICHIGAN and the fuel oil barges alongside the vessel. Reference 4.1.

2.5 Contractor to have a Marine Chemist to certify all fuel oil tanks safe for men and safe for hot work. Contractor is to maintain the Marine Chemist certification until all inspections and specification work is complete. Reference 4.2.

3.0 Performance Criteria/Deliverables: None

4.0 References:

4.1 Item 014 - Deploy Oil Contaminated Boom

4.2 Item 102 - Chemist Gas Free Certificates

5.0 Notes: None

Section 100: GENERAL WORKMANSHIP

Work Items in this section are to be uncosted. The cost of Items in this section shall be included in their Respective contract specification item as per the bid response sheet.
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101 CLEAN AND GAS FREE TANKS AND VOIDS

1.0 Scope of Work:

1.1 Location of work: The tanks throughout the ship (see paragraph 2.1).

1.2 Identification: See paragraph 2.1.

1.3 Intent: After the completion of the removal of fuel in Item 021 (Ref. 4.4), all tanks impacted by the conversion items shall be cleaned and gas freed of all petroleum products, water, and/or other liquids and debris.

2.0 Work Description:

2.1 Contractor to clean and gas free all tanks impacted by the conversion items.

2.2 Remove all remaining petroleum products, water, and/or other liquids, debris, dirt and sludge and dispose in accordance with all federal, state and local laws. (All fuel shall be removed prior to cleaning and gas freeing, in accordance with Item 021 (Ref. 4.4).

2.3 The vessel's pumps, piping systems, and equipment shall not be used in the performance or execution of this specification.

2.4 In the performance of the cleaning, drying, and gas freeing, the contractor shall remove from the vessel all accumulated liquids or agents used in the cleaning operation and dispose in accordance with all federal, state and local laws.

CHECK POINT - (Daily Cleanliness)

2.4.1 All dirt and debris resulting from this work shall be removed from the vessel daily.

2.5 Make tanks Gas Free by means of cleaning and ventilation of tank(s) to the satisfaction of the Certified Marine Chemist.

2.6 Remove and replace all interference necessary to complete all cleaning and gas freeing operations.

2.6.1 Remove all tank covers necessary to clean and perform gas free operations.

2.6.2 Provide staging where necessary to accomplish cleaning and drying of all surfaces of the tank(s).

2.6.3 Provide and maintain, start to finish, explosion proof lighting, which will remain functioning until completion. Lighting will be placed in the tank(s) so as to illuminate all areas and be "more than adequate" for work and inspection.

2.6.4 All areas involved in work or traversed by workmen or equipment shall be left clean and in good order.

CHECK POINT - (Ventilation)

2.6.4.1 Ventilation shall be accomplished through the use of blowers, or equivalent. Ventilation of tanks and voids shall be maintained from start of cleaning through pre-close-up inspection.

2.7 Cleaning tanks shall include but not be limited to all tank interior surfaces, air vents and piping, sounding pipes, tank level gauging equipment, ladders, piping passing through the tank, heating coil piping and supports.

2.8 Use a rust inhibitor in the tank cleaning operation to prevent "flash rust" from forming in tanks without surface coatings installed.

2.9 Once the tank(s) have been cleaned and gas freed, any change in conditions necessitating re-cleaning and gas freeing of the tank(s), shall be at the contractors expense, if caused by the Contractor or Subcontractors.

2.10 The Contractor shall control the humidity in the cleaned and dried tank(s) to prevent the formation of moisture on the internals.

2.11 Degree of Cleaning, Drying, and Gas Freeing;

2.11.1 (A) "Safe for men" - Interior Inspections for Fuel oil, Lube oil Tank(s)

2.11.1.1 Cleaning operation shall include all necessary washing down, scouring, scrubbing, and wiping to accomplish the desired inspection of all interior joints and weldments to be free of lose foreign deposits and petroleum residue.

2.11.1.2 Drying of the tank(s) by air blow down and hand wiping. Low Points, joints and weldments are to be dry and free of moisture.

2.11.1.3 Gas freeing by forced ventilation.

2.11.2 (B) "Safe for men", "Safe for Hot Work"

2.11.2.1 Cleaning operation shall include all necessary washing down, scouring, scrubbing, and wiping to accomplish the desired conditions of interior areas and location(s) of hot work and to be free of loose foreign deposits.

2.11.2.2 Drying of the tank(s) by air blow down and wiping dry area of hot work.

2.11.2.3 Gas freeing by forced ventilation.

2.11.3 (C) "Safe for men", Interior Inspections for fresh, feed, and ballast water tank(s).

2.11.3.1 Cleaning operation shall include all washing down, scouring, scrubbing, and wiping necessary to accomplish the desired inspection of all interior joints and weldments and surfaces to be free of lose foreign deposits, and residue.

2.11.3.2 Drying of the tank(s) by air blow down and hand wiping dry.

2.11.3.3 Gas freeing by forced ventilation.

CHECK POINT - (Cleanliness Inspection)

2.12 The Contractor shall notify the COTR when the tank(s) are clean and ready for inspection.

2.13 The Contractor shall conduct a pre-close-up inspection to ensure the tank(s) are free of all foreign material and bellmouths are unobstructed. Upon completion, and at the direction of the COTR, the tank(s) shall be closed up in good order, complete with new gaskets renewing any defective or missing fasteners. All fasteners are to be coated with anti-seize compound during assembly.

3.0 Performance Criteria/Deliverables:

3.1 Daily cleanliness.

3.2 Satisfactory ventilation.

3.3 Satisfactory cleaning and gas freeing, "Safe for men", for specified tanks.

4.0 References:

4.1 Vessel's Tank top arrangement.

4.2 Vessel's capacity plan.

4.3 Vessel's vent and sounding tube schematic.

4.4 Item 021, [Fuel Oil Removal and Stowage Ashore]

5.0 Notes: None.

102 CHEMIST GAS FREE CERTIFICATE

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Provide the services of a National Fire Protection Association (NFPA) Certified Marine Chemist and Competent Person to inspect, test, and certify that the work sites and systems aboard the vessel are safe for entry, hot work, and that explosive or other dangerous atmospheres do not exist in areas to be accessed or worked.

2.0 Work Description:

2.1 In compliance with reference 4.1, provide "Marine Chemist's Certificate" and "Log of Inspections and Tests by Competent Person" (OSHA Form #74) for all areas of the vessel to be worked, inspected or accessed, for the accomplishment of the work. Areas of certification shall be, but are not limited to, tanks, cofferdams, voids, holds, trunks, machinery spaces, engine room/shaft alley bilges, tank tops, and piping systems. "Marine Chemist's Certificate" shall be required and the space certified gas free, prior to any personnel entering or commencement of any hot work or repairs.

2.1.1 After the initial inspection, testing, and certification by the Marine Chemist, the vessel shall be inspected and tested on a daily (work day) basis by a Marine Chemist/Competent Person to ensure that no changes have occurred to the vessel's condition which would change the certification for any systems or spaces in which work is to occur. If changes occur or new spaces/systems are scheduled for work, a Marine Chemist will inspect same and certify prior to commencement of work.

2.1.2 "Marine Chemist's Certificate" and "Log of Inspections and Tests by Competent Person" (OSHA Form #74) shall be provided as follows:

2.1.2.1 Post the original "Marine Chemist's Certificate" and "Log of Inspection and Tests by Competent Person" (OSHA form #74), protected from the weather, at the access or location of entry of hot work, or in a location designated by the COTR.

2.1.2.2 Post a copy of "Marine Chemist's Certificate", and "Log of Inspection and Tests By Competent Person" (OSHA form #74) certificates at a conspicuous location, protected from the weather, in the vicinity of the gangway.

2.1.2.3 Provide to the COTR a legible copy of each "Marine Chemist's Certificate" and "Log of Inspection and Tests by Competent Person" (OSHA form #74).

2.1.2.4 Furnish a Certificate of Certification (OSHA form # 73) to the COTR for Competent Persons.

2.1.3 Furnish certified "Marine Chemist's Certificates" and "Log of Inspection and Tests by Competent Person" (OSHA form #74) as required by this specification for all growth and new work items. The cost of "Marine Chemist's Certificate" and "Log of Inspection and Tests by Competent Person" (OSHA Form #74) shall be included in each growth or new work delivery order.

2.1.4 The Contractor shall notify the Certified Marine Chemist and Competent Person before any berthing changes to the vessel are accomplished.

2.1.5 Maintain certificates, on a daily basis, by use of a qualified Designated Competent Person who will visually inspect the vessel to ensure that the vessel's safety condition is unchanged for continuation of hot work and entry.

2.1.6 Provide ventilation, gas freeing, and gas free certificates where required for the following tanks and working areas:

2.1.6.1 All levels of the engine room including the shaft alley.
2.1.6.2 All accommodation spaces.
2.1.6.3 All machinery spaces.
2.1.6.4 All navigation levels.
2.1.6.5 All tanks and voids.

3.0 Performance Criteria/Deliverables:

3.1 "Marine Chemist's Certification" and "Log of Inspection and Tests by Competent Person" (OSHA form #74) posted near gangway and access points or work area.

3.2 Receipt of a legible copy of "Marine Chemist's Certifications" and "Log of Inspection and Tests by Competent Person" (OSHA form #74) to the COTR.

3.3 Receipt of a certificate of Certification OSHA FORM #73 for Competent Persons.

4.0 References:

4.1 OSHA 29 CFR, Part 1915

5.0 Notes: None.

103 ISOLATION, BLANKING AND TAGGING REQUIREMENTS

1.0 Scope of Work:

1.1 Location of Work: Throughout the ship.

1.2 Identification: Refer to individual work Items.

1.3 Intent: Supply labor and material necessary to isolate, blank or tag-out systems, equipment or components.

2.0 Work Description:

2.1 The Contractor shall submit a tag-out instruction, for use throughout the duration of the contract, for the approval of the COTR.

2.2 Notify the COTR in writing of equipment, systems, circuits, components, piping, and valves that require isolation to accomplish work on the individual Items. This written notification shall occur before any work is started on each individual Item so that tag-outs can be accomplished in accordance with approved tag-out procedures.

2.2.1 Contractor personnel will position the equipment and install tags when tag-out of equipment, systems, circuits, components, piping, or valves is required.

2.2.2 Verify the use of sufficient tags to prevent operation of equipment, systems, circuits, components, piping, or valves from all stations that could exercise control.

2.2.3 A Contractor's designated representative shall sign, and identify his company, on a ship's tag-out log and tags after installation, indicating repair activity satisfaction with the completeness of the tag-out required and to alert personnel removing tags that Contractor concurrence is required.

2.3 Post warnings signs and barriers, and install temporary positive means to prevent closure or movement of components that create a safety hazard at hull and deck openings.

2.4 Install and maintain hull blanks on piping, valves, equipment, and components being stored, installed, or removed, and on openings aboard ship resulting from the removals, immediately upon each removal. The use of cloth, polyvinyl sheet, paper, and tape as blanks is prohibited.

2.4.1 Blanks installed on equipment, valves, and piping openings in systems which are subject to pressure shall be in accordance with commercial standards to withstand maximum pressure and secured in place with gaskets and fasteners in accordance with Reference 4.1.

2.4.2 Blanks installed on openings in equipment, valves, and piping systems not subject to pressure shall be adequate to preclude entry of foreign material and to protect flanges and threaded areas.

2.4.3 Remove blanks installed in 2.4 immediately prior to installing piping, valves, or equipment.

2.5 Blank off hull openings/penetrations prior to removing or installing equipment, valves, or piping when two-valve protection cannot be maintained while the ship is waterborne.

2.5.1 Install stamped or engraved solid metal tags on each removed piping section, valve, and equipment indicating the location, system, ship's name and hull number, and Item number prior to removal from the system.

2.5.2 Tape and insulate cable ends disconnected from equipment to prevent shorting out or grounding in the event a system is accidentally energized.

2.5.3 Tag each cable indicating circuit number and location of panel and fuse box energizing cable.

2.5.4 Install dust covers on equipment connectors following disconnection of cable plugs.

2.6 Do not disturb, modify, remove, energize, or operate any switch, fitting, valve, or other equipment affixed with an isolation or DANGER tag.

2.6.1 Do not remove or relocate isolation or DANGER tags.

2.6.2 Verify removal and clearance of Danger or isolation tags in accordance with approved instructions before the equipment is operationally tested or operated.

2.7 Notify the COTR immediately when the Contractor's work is complete and the system, piping, or circuit is ready for activation to accomplish removal of tags.

2.7.1 The Contractor's representative shall sign the ship's tag-out log to show concurrence in tag removal and clearance before removal.

2.7.2 Contractor personnel will remove tags after Contractor's designated representative concurrence and clearance has been recorded and removal is authorized by the COTR.

3.0 Performance Criteria/Deliverables:

3.1 Deliverable: COTR Approved Tag-out procedures.

4.0 References:

4.1 ASTM F 1155-98 Standard Practice for selection and application of piping system materials. Schedule of Piping, Valves, Fittings, and Associated Piping Components.

5.0 Notes: None

104 REMOVE AND REINSTALL INTERFERENCES

1.0 Scope of Work:

1.1 Location of Work: Throughout the Vessel

1.2 Selection of interferences for removal is normally the Contractor's option, based on his own plan for in-place or off-ship work, his intended work access routes and other industrial planning considerations unique to his work force and facility. As such, the detailed identification of interferences is normally left to the Contractor. This work item defines the manner in which the Contractor will conduct the process of interference handling.

1.3 Intent: Remove and reinstall all interference in way of accomplishing specified work.

2.0 Work Description:

2.1 Remove Interferences

2.1.1 Visually examine interferences prior to and during removal for previous damage and deterioration.

2.1.2 Promptly identify any interference material which has not been previously specified as containing asbestos or any other regulated material and which requires special handling which has not been addressed elsewhere in these specifications.

2.2 Protect Interferences

2.2.1 Install permanently marked metal or plastic tags on removed interferences to indicate MARAD, COTR, the ship's name, hull number, MARAD Contract number, CLIN and shipboard location prior to removal.

2.2.2 Capping ends, protecting threads, protecting from rust, oxidation and foreign object damage, mechanical or electrical damage, loss or theft and taking all other reasonable means to safeguard same, store removed interferences for the length of time they remain out of ship's or system position or service.

2.3 Restore Interferences

2.3.1 Re-install interferences which were neither reported as previously damaged or deteriorated nor rendered unsuitable for reinstallation during removal.

2.3.1.1 Interferences and their surrounding areas shall be cleaned, repainted, touched-up, faired and otherwise restored in a neat and workmanlike manner, which matches the surrounding area.

2.3.2 Replace using new material any removed interferences which were consumed, expended, destroyed or otherwise rendered unsuitable for reinstallation during removal or storage.

2.3.2.1 New material shall be equal in composition, strength, design, type, color, and size as existed prior to removal of the interferences.

2.3.2.2 Perform appropriate system tests to demonstrate proper reinstallation.

2.2.3 Install new insulation and lagging in place of that removed as interference.

2.2.4 Install new reusable covers except when reinstallation of existing reusable covers is identified by the invoking Work Item.

2.2.5 Install new fasteners and gaskets when reinstalling interferences.

2.2.6 Restore compartment, equipment, and systems labeling.

2.2.7 Install new deck covering in place of that removed or damaged as interference.

2.3 Align and accomplish appropriate strength, tightness, system cleanliness, and operational tests and ensure that the reinstalled interferences perform their normal functions within the system.

3.0 Performance Criteria / Deliverables: None

4.0 References: None

5.0 Notes: None.

105 HAZARDOUS MATERIALS HANDLING

1.0 Scope of Work:

1.1 Location of Work: Throughout the Vessel.

1.2 Intent: Furnish all labor, material, tools, required to identify, remove, and dispose of all hazardous waste generated during the performance of work described in these specifications, in accordance with Reference 4.1, and all other applicable Federal, State, and Local Regulations.

2.0 Work Description:

2.1 Contractor shall provide a Hazardous Waste Management Plan within one week of award of contract.

2.1.1 Contractor shall identify all key personnel associated with hazardous waste management. This shall include, personnel associated with employee training, hazardous waste identification and manifest of documents.

2.1.2 Contractor shall identify all subcontractors associated with removal, handling and disposal of hazardous wastes. This shall include the subcontractor responsible for removing, storing, transporting, recycling, reclaiming or otherwise disposing of hazardous waste. All permits or other applicable credentials associated with safe and proper disposal of hazardous waste shall be included. If a hazardous waste subcontractor is changed for any reason, the Hazardous Waste Management Plan shall be amended prior to the new Subcontractor beginning work on the vessel.

2.1.3 Identify all federal, state and local agencies associated with the disposal of hazardous waste.

2.1.4 Outline procedures used by the Contractor/Subcontractor to accomplish removal, handling, storage and disposal of hazardous wastes in accordance with local, state, and federal requirements.

2.1.5 Describe all steps to be taken to reduce the volume and toxicity of hazardous waste generated during the performance of this contract.

2.2 Nothing contained in this work item shall relieve the Contractor from complying with applicable Federal, State and Local Laws, Codes, Ordinances and Regulations, including the obtaining of licenses and permits in connection with hazardous waste handling and disposal in the performance of this contract.

2.3 Material is to be determined as hazardous by chemical analysis, or reference to the applicable Material Safety Data Sheet (MSDS), or application of inherent knowledge of the hazardous characteristics of the waste in light of the materials or the process used.

2.4 Contractor shall identify all hazardous waste and submit a removal report to the COTR at least 24 hours prior to removal of the waste and costs of removal, tracking and disposal of hazardous material and waste generated shall be tracked be individual item number.

2.5 Remove, handle, store, transport and dispose of all hazardous waste in accordance with applicable Federal, State, and Local laws, codes, ordinances, and regulations. Provide COTR with applicable Hazardous Waste Manifest Forms (Ref. 4.2) prior to transport from the Contractor's facility.

2.5.1 Contractor shall ensure that transportation of hazardous waste is accomplished only by haulers registered to do so with cognizant Federal, State, and Local Agencies.

2.5.2 Contractor shall transport hazardous waste to a site authorized by cognizant Federal, State, and Local Agencies to accept the identified waste.

2.6 Contractor shall furnish final waste management report within thirty days of completion of all work described in these specifications. Report shall include a summary of quantity of hazardous waste removed from vessel during contract performance, including breakdown by type and generator assignment. Contractor shall provide an assessment of performance with regards to Shipyard Hazardous Waste Management Plan.

2.7 Contractor shall provide EPA Hazardous Waste Number.

3.0 Performance Criteria / Deliverables:

3.1 Contractor shall provide Hazardous Waste Management Plan, EPA Hazardous Waste Number, Waste Manifests for Transportation and Final Hazardous Waste.

4.0 References:

4.1 Resource Conservation and Recovery Act. (RCRA)

4.2 Applicable Hazardous Waste Manifest Form

4.3 Shipyard Hazardous Waste Management Plan

5.0 Notes: None

106 GENERAL REQUIREMENTS FOR MATERIALS

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Ensure new and revised materials are selected and used in conversion of the vessel in accordance with these specifications, ABS Rules and USCG Regulations.

2.0 Work Description:

2.1 All materials used in the performance of these specifications shall be new and of good marine quality. The Contractor shall provide certification from the manufacturer that all materials, equipment, fixtures and fittings are suitable for marine use.

2.2 Where CRES is used, it shall be ASTM A276, A473, A167 Classes 304 or 316, passivated.

2.3 Joiner hardware shall be corrosion resisting material and of good marine quality.

2.4 Cast iron shall not be used in any service where it is exposed to impact loading. Gray cast iron shall not be used in pump applications.

2.5 Dissimilar metals that are not electrolytically compatible may not be joined directly. Electrolytic corrosion shall be prevented by insulating dissimilar metals from each other with gaskets, washers, and sleeves, or bushings of insulating materials. Use of explosion bonded bimetallic joint material (Deta clad) is required for aluminum to steel structural joints. Faying surfaces between wood, metals and laminates, or any combination of these materials, except machinery foundation shims, shall be protected by use of bedding compound plus one coat of primer applied to the metal. Faying surfaces between wood and other materials shall be protected by use of wood preservative fortified bedding compound.

2.6 Substances listed in Table 106-1 shall not be used in the design, construction, operation and maintenance of the ship. Substances listed in Table 106-2 shall be identified to the COTR prior to their selection for use in the design, construction, operation and maintenance of the ship. Lead paint shall not be used.

2.7 Ozone depleting refrigerants and agents shall not be used. The use of CFC-12, HCFC-22, ammonia, and CFC-502 is prohibited. HFC-134a and HP-62 shall be used where available.

Table 106-1. Prohibited Substance List

Substance Name 1	CAS Number 2
Asbestos	1332-21-4
Benzene	71-43-2
Carbon Tetrachloride	56-23-5
Mercury (12)	7439-97-6
Methyl Ethyl Ketone	78-93-3
Methylene Chloride	75-09-02
Polychlorinated Biphenyl (PCBs)	1336-36-3
Toluene (6)	108-88-3
Tri-N-Butyl Tin Hydride (TBT)	688-73-3
Xylenes (3)	1330-20-7

Notes:
1. Substance name followed by "(number)" indicates the number of compounds and compound families, or structural arrangements having discrete CAS numbers.
2. CAS Number: Chemical Abstract Service.

Table 106-2. Government Controlled Substance List 1

Substance 2	CAS Number 3
3-3' Dichlorobenzidine	91-94-1
4-Aminodiphenyl	92-67-1
4-Dimethylaminoazo-benzene	60-11-7
4-Nitrobiphenyl	92-93-3
Benzidine	92-87-5
Beryllium (5) (Note 1)	7440-41-7
Beta-Naphthylamine	91-5-8
Cadmium (7) (Note 1)	7440-43-9
Carbon Disulfide	75-15-0
Chromic Acid (2)	11115-74-5
Chromium (Note 1)	7440-47-3
Cyanide (2)	57-12-5
Ethylene Dichloride	107-06-2
Ethyleneimine	151-56-4
Lead (22) (Note 1)	7439-92-1
Methyl Isobutyl Ketone	108-10-1
Nickel (10) (Note 1)	7440-02-0
N-Nitrosodimethylamine	62-75-9
Styrene	100-42-5
Tetrachloroethylene	127-18-4

Trichloroethylene79-01-6
Trichlormethane/Chloroform 67-66-3
Vinyl Chloride 75-01-4
Notes:
1. Substances listed in this table are to be minimized in ship systems or subsystems to the greatest extent feasible. The substances listed may be allowed for use with prior COTR approval when they occur in environmentally benign formulations such as, polymers, or other applications that prevent their release into the environment, do not cause an occupational exposure risk, do not generate toxic combustion products, and are not regulated for disposal or use. Metals when present in environmentally inert forms, such as standard metal alloys, are authorized for use without COTR approval. COTR approval is required if they are used in a releasable state.
2. Substance name followed by "(number)" indicates the number of compounds and compound families, or structural arrangements having discrete CAS numbers.
3. CAS Number: Chemical Abstract Service.

3. Performance Criteria/Deliverables:

3.1 Certificates of Marine Suitability - The Contractor shall submit a certificate of suitability for marine use for all materials, equipment, fixtures and fittings (paragraph 2.1).

4.0 References: None

5.0 Notes: None

107 CONTRACTOR AND GOVERNMENT FURNISHED MATERIAL HANDLING

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Provide and maintain a property control system for Contractor and Government Furnished Material and Equipment.

2.0 Work Description:

2.1 Contractor Furnished Material: Provide and maintain an accurate and thorough system for assuring property control, including documentation, of the ordering, receipt, issue, storage, transfer, and disposal of Contractor Furnished Material and Equipment (CFM/CFE).

2.1.1 All material, equipment, etc., shall conform with the Specification requirements, and unless otherwise specified, shall be at least equal to that of the original, be certified by an established industry-wide recognized firm for marine application, and in full compliance with the rules, regulations and requirements of the American Bureau of Shipping (ABS) and U. S. Coast Guard (USCG), where applicable.

2.1.2 Compliance with this requirement must be verifiable by presentation of the purchasing and material receipt records when requested by the COTR.

2.2 Government Furnished Material: Provide and maintain an accurate and thorough system for assuring property control, including documentation, of the receipt, issue, storage, transfer, and disposal of Government Furnished Material and Equipment (GFM/GFE).

2.2.1 Inspect GFM immediately upon receipt for possible shipping damage.

2.2.1.1 Note any damage on carrier's copy of the Bill of Lading and notify the COTR.

2.2.1.2 Submit a condition report forwarding one signed copy of the Bill of Lading to the COTR. This shall be submitted in accordance with Item 201 (Ref. 4.2).

2.2.2 Inspect GFM within two (2) working days of receipt to verify conformance with description and requirements.

2.2.2.1 Submit a condition report notifying the COTR of any non-conformance within one (1) working day of inspection. This shall be submitted in accordance with Item 201 (Ref. 4.2).

2.2.3 Maintain records for Government Furnished Material containing the following information:

(a) Ship's name.
(b) Contract Number and Work Item numbers.
(c) Date received.
(d) Shipping document or Bill of Lading number.
(e) Date issued.

2.2.4 Material and equipment furnished by the Government that is not used in the performance of this Contract shall be returned to the Government in the same condition as received.

2.2.4.1 Submit condition report to COTR listing excess material and equipment to be returned, requesting direction as to return of the material. This shall be submitted in accordance with Item 201 (Ref. 4.2).

2.2.5 Material permanently removed from the ship for replacement, substitution, or elimination, whether serviceable or not, including equipment, parts, salvage and scrap material shall be processed as follows:

2.2.5.1 Inventory, identify, and tag or otherwise mark such property. Identification shall include ship's name, Contract number, work item numbers, item description, physical condition, and quantity.

2.2.5.2 Submit condition report of inventory to the COTR requesting direction as to disposition of material/equipment. The COTR shall determine which materials are to be retained by the Government and will give appropriate direction to Contractor. Material not identified for retention will be designated salvage or scrap by the COTR. For scrap or salvage material, Contractor shall submit a proposal supported by invoice to credit the Government for value of salvage or scrap. Submissions shall be in accordance with Item 201 (Ref. 4.2).

3.0 Performance Criteria/Deliverables:

3.1 Condition report - GFM Bill of Lading (paragraph 2.2.1)

3.2 Condition report - GFM non-conformance notification (paragraph 2.2.2)

3.3 Condition report - GFM excess material report (paragraph 2.2.4)

3.4 Condition report - GFM removed equipment report (paragraph 2.2.5)

4.0 References:

4.1 Federal Acquisition Regulations, Subpart 45.5.

4.2 Item 201, [Plans and Correspondence Procedures.

5.0 Notes: None

108 GENERAL REQUIREMENTS FOR SANITARY SPACES AND FIXTURES

1.0 Scope of Work:

1.1 Location: Throughout the vessel.

1.2 Identification: See paragraph 2.1.

1.3 Intent: Provide design and installation requirements for sanitary spaces and fixtures.

2.0 Work Description

2.1 Built-in Toilet and Shower (T/S) spaces shall be configured as follows:

2.1.1 Lavatories shall be vitreous china.

2.1.2 Shower stall enclosures shall be at least 750 mm by 750 mm inside dimensions, and provided with a sill. Showerheads shall be installed so that the minimum distance between the finished deck and the showerhead is at least 1850 mm. Shower control valves shall include constant temperature regulator and flow regulator. Showerheads shall be fitted with restricting devices which limit the flow of water to 0.15 L/sec at 275 kPa.

2.1.3 One handgrab shall be provided for each shower and one for each toilet.

2.1.4 Toilets shall be commercial quality vitreous china jet elongated rim type and installed complete with bulkhead mounted hand operated flush valve and solid plastic open front seat with cover and self-sustaining hinge.

2.2 Prefabricated Toilet and Shower enclosures shall be provided with plumbing fixtures and fittings of equal quality and function as those required in Section 2.1 above.

2.3 Service Sinks shall be made of reinforced plastic resin or 14 gauge CRES, type 304, No. 4 finish.

2.4 Portable eye/face wash fountains shall be provided in machinery spaces, the Utility Room, the workshops, the battery charging area and as required by regulatory bodies.

3.0 Performance Criteria/Deliverables: None.

4.0 References: None

5.0 Notes: None

109 GENERAL REQUIREMENTS FOR PIPING SYSTEMS

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Ensure new and revised piping systems are designed and constructed in accordance with these specifications, ABS Rules and USCG Regulations.

2.0 Work Description:

2.1 Piping Design - All new and modified piping shall be in accordance with the requirements of ABS Rules for Building and Classing Steel Vessels, except where aluminum construction is used. Where aluminum construction is used, the requirements of ABS Rules for Building and Classing Aluminum Vessels apply. In all cases, the requirements of 46 CFR Subchapter R are mandatory.

2.1.1 Except for the specific free stream velocity limits specified herein, velocity in pipe shall be based on meeting the following criteria:

2.1.1.1 Minimum required inlet pressures of machinery, equipment and components under maximum required flow conditions.

2.1.1.2 Inlet velocity limitations of installed machinery, equipment and components.

2.1.2 The maximum allowable velocities for the various system fluids, in conjunction with the line sizing, shall be based on pressure drop determined by pressure and flow requirements of equipment and appurtenances within a system without imposing an increase in the system's pumping capacities.

2.1.3 Velocity of water in constantly running systems may not exceed 12 ft/s free stream velocity.

2.1.4 Sea water or brine velocity, in ft/s, may not exceed 5 times the square root of the inside diameter of the pipe in inches, and may not exceed 12 ft/s. The velocity of seawater and brine at inlet nozzles of and within tubular heat exchanger units may not exceed 6 ft/s.

2.1.5 Fuel system velocities shall be limited to a maximum of 15 ft/s for shipboard operations (suction, discharge and transfer), except that for taking on and unloading operations, the maximum allowable velocity shall be 25 ft/s.

2.2 Piping Materials - Piping system material shall be in accordance with ASTM F1155, as modified by Table 109-1 and as specified herein. Cu-Ni piping shall be used for all seawater systems. Hydraulic piping, tubing and fittings exposed to the weather shall be CRES.

Table 109-1. Modifications to ASTM F1155
1. Copper-Nickel or bronze body valves shall be used with Copper-Nickel piping systems.
2. Where ASTM A53 steel pipe is specified, ASTM A106 steel pipe may be used as a substitute.
3. Where plastic pipe is specified, ASTM F1173 fiberglass pipe (FGP) may be used as a substitute provided it meets the requirements of USCG NVIC 11-86. Plastic pipe may not be used in areas exposed to the weather, except that it may be used for deck drains.
4. Where steel pipe flanges are specified, forged steel ANSI flanges may be used as a substitute.
5. Where ASTM B171 copper alloy condenser tube plate is specified, ASTM B467, 90-10 Cu-Ni pipe may be used as a substitute.
6. Threaded pipe may be used only in pipe sizes smaller than 61 mm outside diameter. Where threaded pipe is used, flanged takedown joints shall be provided at the inlet and discharge of each item of equipment installed in the piping system. There may be no threaded joint between the hull penetration and the first flanged takedown joint.

2.3 Piping Installation - Piping systems shall be flushed, cleaned and inspected before being put in service.

2.3.1 Take down joints shall be provided for removal of equipment and machinery.

2.3.2 All piping shall be concealed in accommodation spaces having ceilings and sheathing, except for normally exposed piping routed to fixtures in the space. Exposed piping shall be kept to a minimum. In order to maintain maximum headroom, all piping shall be kept behind framing and as close as practical to deck beams, bulkheads, and the underside of decks.

2.3.3 Pipes conveying liquids shall not be routed overhead through the emergency generator room, chart room, battery lockers, radio room, refrigerated spaces, stores, in the vicinity of switchboards, in food preparation spaces, mess rooms, dispensary, or similar spaces, where avoidable. If it is not feasible to avoid routing the piping through the above mentioned locations, piping through these areas shall have all joints welded or brazed. Prior and specific approval of the COTR is required prior to making any piping runs through these areas.

2.3.4 All piping subject to mechanical damage shall be adequately protected. All guards shall be bolted in place so that they may be removed for repairs to piping.

2.3.5 Isolation valves shall be fitted in water supply branches to each group of fixtures and separate units of equipment. Cutout valves shall be located in the main branch supply line to facilitate zone isolation for repairs at approved locations.

2.3.6 The selection, fabrication and installation of flexible hose assemblies and resilient pipe hangers shall be in accordance with regulatory requirements. Piping shall be attached to resiliently mounted machinery using flexible hoses. The installation shall consist of two lengths of flexible hose coupled with 'U' or 90 degree elbow bend fittings, as applicable. Flexible hoses shall permit maximum excursion expected in the resiliently mounted equipment without overstressing piping or expansion joints or bending hoses more sharply than the manufacturer's recommended minimum radius.

2.4 Vents, Sounding And Overflow Arrangements - All tanks, cofferdams and other non-ventilated spaces shall be provided with venting, overflow capability, sounding arrangements and level indication as required.

2.4.1 Vents, sounding tubes and overflow pipes shall be kept clear of the working areas of the Aft Working Deck and Side Sampling Station as far as practicable.

2.4.2 Sounding tubes shall be per ASTM F1386, "Standard Guide for Construction of a Sounding Tube and Striker Plate for Tank Sounding." Sounding tube terminations are prohibited in classrooms, laboratories, the aft working deck, electronics spaces, habitability spaces, and under portable equipment.

2.4.3 Vents and overflows connecting to oil-containing tanks shall be confined within deck coamings to contain any tank overflow or spillage and prevent discharge to the sea in accordance with regulatory requirements.

2.5 Plumbing, Deck Drains And Vents - Deck drains shall be provided to prevent pooling and accumulation of water on weather decks, decks of sanitary spaces, commissary spaces, food service spaces, Utility Room, Laundries, and other wet areas and spaces.

2.5.1 Wastewater collection systems, with the exception of weather deck drains, shall be provided as required.

2.5.2 Weather Deck areas shall be self-draining. There shall be no standing water. Deck drains shall be fitted at the edge of all weather decks and at the head of inclined and vertical ladders.

2.5.3 Sufficient deck drains of adequate size shall be provided and located to prevent water standing on the deck under ordinary conditions of list and trim.

2.5.4 All newly installed deck drains shall be fitted with removable brass or approved reinforced plastic strainer plates having a free area of at least twice the area of the drain pipe. Strainers shall be adequately secured and shall be flush with the deck.

2.5.5 Drain pipes, except for plumbing fixtures, shall not be less than 2" NPs except as noted herein.

2.5.6 A coming enclosure, with deck drain(s), shall be provided around equipment which may have oil, sewage, or water leakage or spillage under normal operating conditions as required by Regulatory Bodies.

2.5.7 All drainpipes shall be lead as directly as possible. They shall be provided with a sufficient number of accessible cleanout connections, not less than 1-1/2" NPS, for clearing the drain pipes by use of plumber's snake, or with a steam or water hose. Cleanout plugs shall be bronze or CRES. Deck and fixture drains shall be arranged so as to provide positive drainage when the ship is under design conditions of list and trim.

2.5.8 Drain piping shall be pitched a minimum of 1/4" per foot aft, 3/8" per foot plus the pitch due to the trim of the ship under all operating conditions when running forward, and 1/2" per foot when draining athwartships in one direction. Garbage grinder drains shall have a pitch of at least 1" per foot where practicable.

2.5.9 In general, where drains are combined with other drains, "Y" or "TY" branches or fittings shall be used, where practicable, to facilitate flow. Branch connections to athwartship drains, which discharge to both sides of the vessel, shall be made at an angle of 90o and preferably by double sweep type fittings. Wherever possible, pipe bends rather than elbows shall be used.

2.5.10 Drain pipes from plumbing fixtures or deck drains combined with other drains located at higher elevation shall be fitted with non-return valves where necessary to prevent back flooding under design conditions of list and trim or the rolling and pitching of the ship.

2.5.11 Hatchway trough drains shall be sized and located to prevent the overflow of liquids into hatches, and shall be installed to discharge directly overboard. Weather deck drains shall be at least 50 mm nominal pipe, sized to accommodate accumulated flow from cascading drains. Brass or bronze removable strainer plates for weather deck drains shall be provided.

2.5.12 Cleanouts shall be installed in accessible locations. Cleanouts in the overhead of living spaces, food preparation and service areas, passageways, and offices shall be avoided. When cleanouts in the overhead of such spaces cannot be avoided, the cleanouts shall include a full sized ball or plug cutout valve, or be extended to the deck above.

2.5.13 Cleanouts shall be installed in horizontal drain piping at each change of direction greater than 45 degrees and not more than 15 m apart. Cleanouts shall be installed so that the cleanout opens in a direction opposite to the flow of the drainage. For piping up to 50 mm nominal pipe size maximum, cleanouts shall be 38 mm nominal pipe size. For piping larger than 50 mm nominal pipe size, cleanouts shall be 64 mm nominal pipe size. Cleanouts shall be equipped with male hose threads and caps for attachment of a flushing hose. A minimum of 500 mm clearance for rodding shall be provided for drains 75 mm nominal pipe size and larger. Cleanouts for smaller drains shall be installed with a minimum of 300 mm clearance for rodding.

2.5.14 Plumbing drains shall be provided for all required fixtures. All plumbing drains shall be provided with traps and cleanouts. Drains from lavatories, drinking fountains, sinks, and other plumbing fixtures shall be vented. Trap seals of fixtures and deck drains shall be protected from siphonage or backpressure. Vents terminating in the weather shall be installed to ensure that no trap seal is subject to overpressure.

2.5.15 Drains from lavatories, showers, and sinks shall have traps and accessible cleanout connections. Two but not more than six adjacent lavatories may be fitted with one trap.

2.5.16 All gray water waste from all new sinks, showers, drinking fountains, and other sources, shall be combined and lead with the proper pitch to the sewage lift stations or the MSD (Item 318) by gravity flow.

2.5.17 Fixture and deck drains in spaces normally used for Dispensary or Hospital services shall be independent of other drains.

2.5.18 Soil pipes from water closets shall be independent of other drains and shall be collected in groups into mains. The mains shall be routed, with proper pitch, to the marine sanitation device (MSD) or to the sewage pumping stations by gravity flow and thence to the MSD. Cleanout plugs shall be fitted as necessary and sharp bends and pockets shall be avoided.

2.5.19 Where the length of run and number of changes in direction are not excessive and satisfactory drainage will result, it will be satisfactory to connect water closets as follows: two (2) fixtures on 3" NPS horizontal run, 12 fixtures on 4" NPS horizontal run, 30 fixtures on a 5" NPS horizontal run, 28 fixtures on a 4" NPS vertical riser.

3.0 Performance Criteria/Deliverables:

3.1 Drawings and Calculations - submit in accordance with Item 205,[Preparation of Drawings and Plans]. (Ref. 4.1).

4.0 References:

4.1 Item 205, [Preparation of Drawings and Plans]

5.0 Notes: None

110 THERMAL INSULATION PIPE COVERING

1.0 Scope of Work:

1.1 Location: Throughout the ship

1.2 Intent: Install, repair, or replace thermal insulating pipe coverings impacted by the contract work. All material shall be certified as asbestos free and be ABS, OSHA and U. S. Coast Guard approved.

2.0 Work Description:

2.1 The COTR shall approve use of a specific Subcontractor prior to commencement of work.

CHECK POINT - (Subcontractor)

2.1.1 Notify COTR of proposed Subcontractor prior to start of work.

2.2 Remove Contractor damaged sections of thermal pipe covering insulation material from piping. Insure that piping is not damaged during the removal procedure.

2.2.1 Special care must be taken during the removal of pre-formed insulation. The power and hand tools (i.e., hacksaws) used may also cut into the piping material. The Contractor shall be responsible for the repair or replacement of any piping so damaged.

2.2.2 Properly dispose of all removed piping insulation and covering materials. Materials previously fabricated as reusable pads may be reused if not specified for replacement.

2.2.3 Clean the exposed piping, removing all scale, corrosion, dirt and loose paint. Inspect remaining thermal pipe covering insulation for damage in the areas adjacent to the repair. Inspect the exposed piping for damage and excessive corrosion.

CHECK POINT - (Condition Report)

2.2.3.1 Submit a Condition Report for any damaged adjacent pipe insulation or pipe with damage or corrosion.

CHECK POINT - (Surface Preparation)

2.2.3.2 COTR to inspect surfaces prior to application of primer and prior to the application of any additional coats of paint.

2.2.4 Prepare and paint the exposed steel piping with an appropriate coating specified in the SSPC Steel Structures Painting Manual. Copper and Copper-Nickel pipe shall be cleaned and left unpainted.

CHECK POINT - (Surface Coating or Condition)

2.2.4.1 COTR to inspect surfaces prior to application of insulation materials.

2.3 Install new insulation material of an approved replacement type. The new material shall equal the thermal insulation effectiveness of the existing insulation. The new material and joints shall be covered with an appropriate fire retardant cover material and finishing cement.

2.3.1 Joints of pre-formed insulation are to be filled with insulation cement.

2.3.2 At takedown joints, valves and traps, the pipe covering will stop short of the joint. A removable and reusable section of insulation shall be installed between the permanent sections of insulation. Removable covers shall be fabricated so that they overlap the adjoining pipe insulation a minimum of two inches.

2.3.3 In areas where two layers of insulation material are used, joints shall overlap at least 2 inches.

2.3.4 Calcium Silicate Block and Pipe Thermal Insulation used in high temperature applications shall conform to ASTM C533.

2.3.5 Mineral Fiber Pre-formed Pipe Insulation used in high temperature applications shall conform to ASTM C547.

2.4 Paint and label the cover material in accordance with MARAD Coatings Guidelines.

CHECK POINT - (Insulation Inspection)

2.4.1 COTR to inspect re-insulated areas.

2.5 No piping of any type below the lower level deck plates, unless otherwise specified, shall be covered with thermal insulation. Where a section of piping to be insulated goes below the deck plates, insulation shall be neatly terminated at the level of the deck plate.

2.6 In high traffic areas, where the thermal pipe covering insulation material is continuously vulnerable to damage, protective metal lagging covers will be installed for protection. Metal lagging covers shall also be used in areas where lagging materials could become soaked with fuel oil or lubricating oil. Only the following materials shall be used.

2.6.1 Metal Lagging Cover Materials List.

Sheet Material	Specification	Nominal Thickness
Hot-dipped galvanized Steel - Coating Designation G-115	ASTM A 526	0.014"
Aluminum	ASTM B 209, Type 6061-0	0.030"
Corrosion-Resistant Steel	ASTM A 167, Type 304	0.014"

2.6.2 Metal lagging covering shall be secured using hardened self tapping screws or metal bands made of the same material as the lagging covering. For securing galvanized steel, stainless steel screws shall be used.

3.0 Performance Criteria/Deliverables:

3.1 Approve use of a specific Subcontractor prior to commencement of work.

3.2 Receive Condition Report for any damaged adjacent pipe insulation or piping found to be damaged or to have excessive corrosion.

3.3 Satisfactory surface preparation of exposed steel piping prior to application of a coating specified in the SSPC Steel Structures Painting Manual.

3.4 Satisfactory surface coating of exposed steel piping prior to application of insulation. Copper and Copper-Nickel pipe clean and free of paint prior to installation of insulation.

3.5 Satisfactory insulation installation, including metal lagging covers where necessary.

4.0 References:

4.1 Piping System Schematics and Drawings.

5.0 Notes: None

111 FLAT SURFACE COVERING AND INSULATION

1.0 Scope of Work:

1.1 Location: Throughout the ship

1.2 Intent: Install, Repair, or replace insulating materials and coverings located on flat surfaces (i.e., bulkheads and overheads). All material shall be certified as asbestos free and shall be ABS, OSHA and U. S. Coast Guard approved.

2.0 Work Description:

2.1 The COTR shall approve use of a specific Subcontractor prior to commencement of work.

CHECK POINT - (Subcontractor Approval)

2.1.1 Advise COTR of proposed Subcontractor, if applicable.

2.2 Remove Contractor damaged section of insulation covering material from specified area. Ensure that the surface material is not damaged during the removal procedure.

2.2.1 Clean the exposed surface, removing all scale, corrosion, dirt and loose paint. Inspect remaining insulation covering material for hidden damage in the areas adjacent to the repair. Inspect the exposed surface for damage and excessive corrosion.

CHECK POINT - (Condition Report)

2.2.1.1 Submit a Condition Report for any damaged adjacent pipe insulation or surfaces with damage or excessive corrosion.

CHECK POINT - (Surface Preparation)

2.2.1.2 COTR to inspect surface preparation prior to application of primer and prior to the application of any additional coats of paint.

2.2.2 Prepare and paint exposed steel with an appropriate coating specified in the SSPC Steel Structures Painting Manual. Aluminum surfaces shall be cleaned and left unpainted.

CHECK POINT - (Surface Coating or Condition)

2.2.2.1 COTR to inspect surfaces prior to application of insulation materials.

2.3 Install new insulation material of equal or approved replacement type. The new material shall equal the thermal insulation effectiveness of the existing insulation. The new material joints shall be covered with an appropriate fire retardant cover material (i.e., fiberglass tape) and finishing cement.

2.3.1 In areas where two layers of insulation material are used, joints shall overlap at least two inches.

2.3.2 Paint and label the cover material in accordance with MARAD Coatings Guidelines.

2.4 In high traffic areas, where the insulation covering material is highly susceptible to damage, protective metal sheathing will be installed for protection. Only the following materials shall be used.

2.5.1 Metal Lagging Materials List.

Sheet Material Specification Nominal Thickness
Hot-dipped galvanized Steel - coating designation G-115 ASTM A 526 0.014"

Aluminum ASTM B 209, Type 6061-0 0.030"
Corrosion-Resistant - Steel ASTM A 167, Type 304 0.014"

2.5.2 Secure metal lagging using hardened self tapping screws made of material compatible with the lagging cover. Galvanized materials will be secured with stainless steel screws.

CHECK POINT - (Insulation Inspection)

2.5.3.1 COTR to inspect re-insulated areas.

3.0 Performance Criteria/Deliverables:

3.1 Approval of Subcontractor prior to start of work.

3.2 Receive Condition Report for any damaged adjacent insulation or surfaces found to be damaged or excessively corroded.

3.3 Satisfactory surface preparation of exposed steel surfaces prior to application of a coating specified in the SSPC Steel Structures Painting Manual.

3.4 Satisfactory surface coating of exposed steel surfaces prior to application of insulation. Aluminum surfaces to be clean and unpainted.

3.5 Satisfactory insulation installation, including metal lagging covers where necessary.

4.0 References: None

5.0 Notes: None

112 GENERAL REQUIREMENTS FOR THERMAL AND FIRE PROTECTION INSULATION

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Ensure new and revised thermal and fire protection insulation is designed and constructed in accordance with these specifications, ABS Rules and USCG Regulations.

2.0 Work Description:

2.1 Thermal insulation and fire protection insulation shall be provided for the new and, as required, modified deckhouse structure. The surfaces to which insulating material is applied shall be cleaned and given a protective coating consistent with the base material, its location on the ship and the function of the space. Insulating materials shall be installed to prevent them from coming adrift under the ship's movement and vibrations. Installation may be by weld studs with clips or by adhesives. Abutting edges of insulation shall be sealed with adhesive, and the seams shall be covered with 2 inch wide tape in accordance with the manufacturer's recommendations. Free edges of insulation shall be sealed with adhesives and covered with tape in accordance with the manufacturer's recommendations.

2.1.1 Thermal Insulation. Except where required herein, insulation U-factors (heat transmission factors), thickness and application of insulation shall be in accordance with SNAME Technical and Research Bulletin No. 4-7. Advanced lightweight insulating materials may be used. When such advanced insulating materials are used, U-factors, thickness and application shall be in accordance with the manufacturer's recommendations.

2.1.1.1 Boundary thermal insulation shall be board or blanket. Thermal insulation shall have a thermal conductivity 'k' of no greater than 0.043 at a mean temperature of 75oF.

2.1.1.2 Where both thermal and acoustic insulation are required, 25mm thick thermal insulation with vapor sealing shall be installed under the acoustic insulation, except that the thermal insulation need not be installed provided condensation will not occur under the acoustic insulation, and the U-factor of the acoustic insulation alone is not greater than that afforded by thermal insulation.

2.1.1.3 Except where joiner bulkheads form the boundary, all boundaries between air-conditioned and non-air-conditioned areas shall be thermally insulated. Where structural bulkheads with joiner lining form the boundary, a minimum insulation thickness of 1 inch shall be provided. Decks between air-conditioned and non-air-conditioned spaces shall be provided with a minimum insulation thickness of 1 inch on plane surfaces and around webs and flanges of structural members. Insulation on weather boundaries shall extend at least 12 inches beyond exposed surfaces.

2.2 Acoustic Insulation. Acoustic insulation shall be provided as necessary to meet the noise level requirements of Item 411 (Ref. 4.1).

2.3 Anti-sweat Protection. Anti-sweat treatment shall be applied on the warm side of uninsulated boundaries, including webs and flanges of beams and stiffeners. Anti-sweat treatment shall be provided on all decks and bulkheads forming boundaries between heated spaces and either tanks or the exterior. Anti-sweat treatment need not be applied on bulkheads or decks that are insulated or sheathed.

2.4 Vapor Barriers. Vapor barriers shall be applied to insulation located within the Laundry.

3.0 Performance Criteria/Deliverables:

3.1 Drawings and Calculations - submit in accordance with Item 205 (Ref. 4.2).

4.0 References:

4.1 Item 411, [Accomplish Sea Trials]

4.2 Item 205, [Preparation of Drawings and Plans]

5.0 Notes: None

113 NOT USED

114 GENERAL REQUIREMENTS FOR DOORS, HATCHES, SCUTTLES AND MANHOLES

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Ensure new and revised doors, hatches and other closures are designed and constructed in accordance with MARAD, ABS and USCG regulations.

2.0 Work Description:

2.1 General - Closures shall be provided for all spaces and shall be appropriate to the location, use, and watertight integrity of the space served, and shall be equivalent in strength to the adjacent structure. All mechanical parts shall be equipped with rugged corrosion resistant bearings and pins and shall be provided with means for proper lubrication. Holdbacks shall be provided for all doors except where prohibited by Regulatory Body requirements.

2.1.1 Doors in traffic areas shall be provided with a fixed light.

2.1.2 Dogged doors to passageways shall be quick-acting.

2.1.3 Exterior doors shall have watersheds over them, where not otherwise protected. Tops of doors shall be at least 1980 mm above tops of deck coverings or step.

2.1.4 Minimum clear opening door widths shall be 760 mm, except as follows:

2.1.4.1 Double (interior and exterior) 1070 mm
2.1.4.2 T&S (private and semi-private) 610 mm
2.1.4.3 Staterooms 660 mm
2.1.4.4 Utility spaces (linen locker, cleaning gear locker, etc.) 660 mm

2.1.5 Coaming heights shall be as follows:

2.1.5.1 Watertight / weathertight companionway per regulatory bodies
2.1.5.2 Toilet spaces 50 mm above deck covering
2.1.5.3 Shower enclosures 150 mm above deck covering
2.1.5.4 Laundry space 150 mm above deck covering
2.1.5.5 Staterooms 50 mm above deck covering

2.2 Joiner Doors - Joiner doors shall be in accordance with ASTM F821 and shall satisfy the test requirements of IMO Resolution A.754. Kickout panels shall be provided where there are no secondary means of escape.

2.2.1 Joiner doors shall be provided to enable interior access for all staterooms, T&S spaces, Classrooms, Offices, Lounges, and Messrooms. The doors to offices, classrooms, messrooms and lounges shall have fixed lights.

2.3 Non-tight Doors - Non-tight doors shall be in accordance with ASTM F1070. Additional non-tight doors shall be provided as required to meet structural fire protection or other regulatory requirements. Fire screen doors shall have fire hose ports on bottom opening edge. All doors, except to secure spaces, staterooms, sanitary spaces, shall have fixed lights.

2.4 Hatches and Scuttles - Watertight hatches and scuttles in walking and working areas shall be flush. Scuttles shall be quick acting. Hatches for personnel access shall be quick acting or provided with a scuttle. Each hatch shall be provided with a wrench or other tool for undogging the closure. The wrench shall be stowed adjacent to the hatch.

2.4.1 Hatches and scuttles shall be provided with a means of securing the closure in the fully open position. The securing device shall be located and designed to be accessible and operable in a seaway. Handgrabs shall be provided on hatches and scuttles to assist personnel in opening and closing the closure. Handgrabs installed on flush hatches and scuttles shall be hinged, and provided with a recess within the closure for stowage. All hatch and scuttle openings with coaming height less than 600 mm shall be fitted with portable guardrail stanchions and chains.

2.4.2 Flush weather deck hatches shall be provided with troughs and 25 mm diameter drains. The minimum number of drains is one for each 2500 mm (or fraction thereof) of trough length, plus at least one drain for every isolated deck recess or hinge pocket which is not completely drained by the hatch or scuttle trough. Panel edges, recessed hinges, troughs, and fittings for flush hatches and scuttles shall be fabricated of CRES 316. Drains shall be in accordance with Section 528.

2.4.3 Hatches and scuttles shall be provided where required to provide access and escapes.

2.5 Manholes - Manholes shall be provided for access to all tanks, voids, and other spaces with no other openings, in locations and of the type that the spaces may require. Access may not be made through accommodation spaces. Manhole covers shall be watertight or oiltight, as required. Minimum clear opening shall be 380 mm by 584 mm.

2.5.1 Manholes and covers shall be in accordance with ASTM F1142. Studs shall be of CRES 300 and nuts of bronze. Gaskets for watertight covers shall be neoprene. Gaskets for oiltight covers shall be cork/rubber.

3.0 Performance Criteria/Deliverables:

3.1 Drawings and Calculations - submit in accordance with Specification Item 702-001g.

4.0 References: None

5.0 Notes: None

115 GENERAL REQUIREMENTS HEATING, VENTILATION AND AIR CONDITIONING

1.0 Scope of Work:

1.1 Location: Throughout the ship

1.2 Identification: Heating, Ventilation and Air Conditioning (HVAC)

1.3 Intent: Provide requirements for design, construction and installation of modifications to the existing HVAC system necessary for proper heating, ventilation and air conditioning of the converted ship.

2.0 Work Description:

2.1 Design, Fabrication, and Installation Criteria - Installation, materials, and insulation for all new and modified work shall be in accordance with References 4.4 and 4.5. The Contractor is responsible for the detailed design and installation of the system. All new fan sizes listed herein are for guidance only. The system shall be complete and adequate for the intended service with all the controls necessary for automatic operation after the system is set up manually. The contractor is responsible for fully balancing the newly installed and modified systems.

2.1.1 Existing ducts and trunks shall be retained and reused where possible.

2.1.2 Deck and bulkhead openings resulting from removals shall be blanked with material to match surrounding areas. All disturbed areas shall be ground smooth, mechanically cleaned (SSPC-SP-3), prepared, primed, and coated per Item 117 (Ref. 4.3).

2.2 General - Air conditioning ducts and equipment shall be suitably insulated and isolated from all structure, joiner work, and supporting hangers to prevent the formation of condensation. Insulation shall be in accordance with Items 110 (Ref. 4.1) and 111 (Ref. 4.2).

2.2.1 Air conditioning equipment, system components, and associated hardware shall be protected from the weather and shall be centrally located with respect to the spaces served in order to reduce the runs of ducts, wiring, piping, and miscellaneous hardware to a minimum consistent with efficient design.

2.2.2 Particular attention should be directed toward designing air conditioning, heating, and ventilation systems to reduce airborne and structure borne sound transmission to the maximum extent possible. Acoustic dampening shall be accomplished by proper equipment layout, insulation, sound dampening devices and proper balancing of air flows in various spaces.

2.3 Systems - Systems shall be complete including filters, fans, preheaters, reheaters, air mixing boxes, cooling coils, duct work, terminals, closures, louvers, dampers, thermostatic controls, drains, insulation (acoustic and thermal), vapor sealing and lagging, label plates, and operating instructions, necessary for satisfactory operation and performance.

2.3.1 Systems shall be designed to prevent contamination from dissimilar spaces. Weather supply terminals shall be located so as to avoid intake from weather exhaust terminals, smoke stack, or any other source of contamination. Systems shall be designed to function properly, without buildup of pressure, when weather and normally closed doors, hatches, and similar accesses are closed.

2.4 Trunks, Ducts, and Accesses

2.4.1 Duct Air Velocities:

Mechanical Ventilation Systems (Supply and Exhaust)	59 ft/s maximum
Natural Vents Ducts Serving Naturally Ventilated Spaces:	13 ft/s maximum

2.4.2 Trunks, Ducts, Covers, and Louvers.

2.4.2.1 Trunks, ducts, covers, and louvers and miscellaneous hardware exposed to the weather shall not be less than 3mm (1/8") steel plate and shall be watertight. Built-in trunk construction shall not be used for ducts having less than 1 ft2 cross-sectional area, and minimum dimension less than 9 inches. Vertical trunks or ducts in shops, stores and other locations where ducts are subject to damage, shall not be less than 1/8 inch thick.

2.4.2.2 Sheet metal ducts shall be made with either riveted or hooked seams (sealed with hot solder or approved fire resistive high velocity duct sealer) or welded seams (continuous or spot welded) with external seams and joints sealed with 1 inch wide strip of approved duct sealer or equal. All installed duct work shall be airtight. Sheet metal ducts shall be made of hot-dipped galvanized steel; the minimum thickness of the material shall be determined by the diameter for round ducts or the maximum dimension for rectangular ducts as follows:

(a) No duct in machinery spaces shall be less than 1.5 mm (1/16") in thickness.

(b) Factory fabricated spiral duct (round and F.O.) up to 300 mm (12") diameter may be 0.6 mm (#24 gauge) and ducts up to 610 mm (24") may be 0.8 mm (#22 gauge). Factory fabricated fittings shall be at least 1 mm (#20 gauge).

2.4.2.3 Screws shall not extend more than 1/2 inch into the duct to prevent excess noise and lint accumulation.

2.5 Terminals, Grilles, Wire Mesh Screens, and Dampers - All air terminals shall meet Regulatory Body requirements. They shall be of a type and size suitable for the intended service. All supply terminals, except directional type, shall properly ventilate the space involved without creating drafts. Machinery space supply terminals, except those behind switchboards, shall be of the adjustable directional type with integral throttling damper.

2.5.1 Ventilation space supply terminals serving the space shall have integral or separate throttling dampers for manually controlling the volume of air flow.

2.5.2 Non-working parts of registers, diffusers (i.e., factory-fabricated parts) may be furnished with prime coat only, provided that the parts are suitably processed to prevent corrosion immediately before painting. Otherwise, they shall be galvanized. Louver operators, multi-louver blades and similar parts shall be zinc plated. Connecting bars, bearings, rivets, springs, washers, nuts and similar parts shall be made of bronze. All turning surfaces shall be bronze on bronze. The assembly of registers shall be shock resistant and rattle proof.

2.5.3 Balancing dampers, when built integral with diffusers and supply registers or installed adjacent to the inlet of these terminals, shall be of an opposed acting, single group operated type which equalizes the air flow over the terminal as well as throttles the air flow.

2.5.4 Balancing dampers in the ducts shall be of the butterfly or splitter type with indicator.

2.5.5 After the system is balanced, the damper operator shall be tack welded to permanently secure the damper in the balanced position. Balancing dampers shall be located as remote from terminals as possible.

2.5.6 Vent terminals and duct dampers, unless otherwise noted, shall be constructed of hot-dipped galvanized or corrosion resisting material as approved. Nuts, washers, springs, rivets, bearings, journals, and similar parts shall be of bronze or corrosion resisting material. Sheet metal parts shall not be less than 0.035" thick material, except parts of diffusers.

2.5.7 The net air velocity through weather louvers and air lifts shall not exceed approximately 1000 fpm, or 500 fpm based upon gross face area.

2.5.8 Guards shall be provided in way of terminals in cargo and stowage spaces, to prevent blocking terminals and interference with air flow.

2.5.9 Fire dampers shall be fitted in locations required by U.S. Coast Guard regulations and the locations shall be identified on the USCG approved structural fire control plan. All dampers, including fire dampers, shall be of metal construction and fitted with an indicator to show the position of the damper, and an easily accessible and visible combined adjusting and locking device.

2.6 Insulation - All new supply ducting shall be insulated 1 inch, vapor sealed and lagged completely. All new recirculation ducting shall be insulated 1 inch except exposed portions within areas served and fans. Vapor seal and lag in hot or wet spaces: otherwise lag exposed insulation only. All materials shall be non-combustible and USCG approved. Refer to Item 111 (Ref. 4.2) for installation details.

2.7 Heating.

2.7.1 Electric Air Duct Preheaters and Reheaters - Electric tempered air heaters should have casings of at least 0.06 inch steel or equivalent and should be reinforced to provide adequate strength. Heater casings should be hot-dipped galvanized, electro-galvanized, or equivalently treated after construction. Tempered air heaters shall be suitable for marine use and constructed in conformance with Regulatory Body Requirements. Heater controls shall be provided with an interlock with the fan motor so that the heater cannot be energized unless the fan motor is also energized.

2.7.2 Electric Unit Heaters - Heaters shall be of quality suitable for marine use in accordance with Regulatory Body requirements. Automatic reset and manual reset type thermal overheat protection and an adjustable thermostat should be provided for each heater.

3.0 Performance Criteria/Deliverables:

3.1 HVAC calculations for converted areas of the ship, in accordance with Reference 4.4.

3.2 HVAC system diagrams and drawings, fully describing the modifications made to the HVAC systems as a result of this conversion.

4.0 References:

4.1 Item 110, [Thermal Insulation for Pipe Covering]

4.2 Item 111, [Flat Surface Covering And Insulation]

4.3 Item 117, [General Requirements for Exterior Coatings]

4.4 SNAME T&R Bulletin 4-16

4.5 Maritime Administration Guideline Specifications for Merchant Ship Construction, Section 12

5.0 Notes: None

116 REPAIRS OF JOINER WORK OF LIVING SPACES

1.0 Scope of Work:

1.1 Location: Living spaces.

1.2 Identification: See paragraph 2.1.

1.3 Intent: Replace joiner bulkheads damaged during work required by the conversion Items.

2.0 Work Description:

2.1 The Contractor shall inspect all modified or converted spaces for damaged joiner bulkheads after removal or relocation of outfitting items.

2.2 The Contractor shall record the following information for living spaces that require joiner bulkhead replacement:

Deck	Compartment No.	Approximate ft2 area of damaged joiner bulkhead

CHECK POINT - (As Found Condition Report)

2.3 The Contractor shall provide an "as found" condition report to the COTR upon completion of the living spaces' inspection. This report shall include a list of all areas where the joiner bulkheads have been damaged as recorded in paragraph 2.2. This report shall be submitted in accordance with Item 201, (Ref. 4.1)

2.4 The COTR shall inspect all areas listed in the as found condition report that require joiner bulkhead replacement and approve the work before the Contractor proceeds.

2.5 The Contractor shall remove all damaged joiner bulkhead sections in the living spaces listed in paragraph 2.2.

2.6 The Contractor shall install the new joiner bulkhead sections that are constructed from the same type of material, size and configuration as what was originally installed.

2.7 The Contractor shall use the same type of fasteners as was used in the original installation and in the same pattern.

CHECK POINT - (As Found/Closing Condition Report)

2.8 The Contractor shall provide a report of the livings spaces as found and closing joiner bulkhead conditions. It shall include a list of all areas where joiner bulkheads have been replaced and all invoices to verify the amount of required materials.

3.0 Performance Criteria/Deliverables:

3.1 Receipt of as found condition report.

3.2 Receipt of as found/closing condition report.

4.0 References:

4.1 Item 201, [Plans and Correspondence Procedures]

5.0 Notes: None

117 GENERAL SURFACE PREPARATION AND PAINTING

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Identification: All new and disturbed surfaces on the ship

1.3 Intent: Provide required work for the planning, preparation, and application of paint coatings to new and modified surfaces and components of the converted vessel, called out in the individual Specification Work Items.

2.0 Work Description:

2.1 Prior to commencement of any surface preparation or coating work described in this specification, a meeting shall be held with the COTR, the Paint Manufacturer's Representative, the Key Contractor Personnel, and any Subcontractors involved in the pre-cleaning, surface preparation, and coating functions.

2.1.1 The purpose of the meeting is to ensure that the Contractor and Subcontractor(s), have a clear understanding of:
2.1.1.1 How surfaces are to be pre-cleaned and prepared
2.1.1.2 How the coating products are to be handled:
2.1.1.2.1 Before mixing,
2.1.1.2.2 During mixing,
2.1.1.2.3 The induction time required after mixing,
2.1.1.2.4 How to properly apply the various coating materials. Improperly applied paint shall be blasted off and the affected area properly re-coated at Contractor expense.
2.1.1.2.5 The minimum and maximum overcoat times for each product shall be followed, to the satisfaction of the COTR and Paint Manufacturer's Representative.

2.1.2 The Contractor shall present a coating work schedule to the COTR for review and comment. After discussions, the Contractor shall prepare a final surface preparation and coating schedule. The Contractor shall adhere to this final schedule

2.1.3 No area shall be painted before it has been properly prepared, inspected, and approved by the COTR or his designated inspector.

2.1.4 If the Coating Manufacturer's Representative requests that changes be made to achieve his product guarantee, they shall be carried out with the concurrence of the COTR.

2.2 Prior to start of surface preparation and painting activities, the Contractor shall take precautions to protect all machinery and electrical equipment. Steps to be taken may include but are not limited to the following: Ensure that all ship's ventilation supply and exhaust systems to the spaces have been secured and termination points sealed with protective wrappings. Cover with protective wrapping all electric motors and controllers, hand-held fire extinguishers and mounting brackets, deck lighting fixtures, porthole glasses and other glass surfaces, non steel-based surfaces and fixtures, and any posted instruction, warning or safety notices.

2.2.1 Any items that can be damaged shall be properly protected from direct or indirect grit blast damage and also from the ingress of grit dust or paint into any ship's areas where damage from this grit dust might occur. If during the blasting and painting work new areas or equipment are identified as needing protection, they shall be protected before resuming the blasting work.

2.2.2 All oil and grease, where present, is to be chemically removed to meet the SSPC SP-1 standard, prior to starting any blasting or coating work. Degreasing shall be done to the satisfaction of both the COTR and Paint Manufacturer's representative.

2.2.3 All welding, or any other damages done by the Contractor, or any other conflicts that must be properly integrated with the coating installation work, must be completed prior to blasting and coating or properly integrated with it. The newly applied coating system shall be properly protected from all mechanical, thermal and other types of damage during the Contract period. All damage caused by the Contractor to the new coating system, or to the original coating system not being replaced, shall be repaired to the satisfaction of the COTR.

CHECK POINT: (Examination of Protective Measures)

2.2.4 Protective wrapping installation is to be examined and approved by the COTR prior to proceeding with surface preparation.

2.3 The Contractor shall prepare a paint schedule that identifies each surface of the ship, type of paint to be applied, mil thickness, and number of coats to be applied to the surface. Exterior colors shall be approved by the COTR. Surface preparation and paint must be in accordance with Table 117-1, or a similar system that provides equivalent life cycle performance. Coatings supplied shall be recognized Marine Industrial Coatings for use on seagoing vessels as approved in Reference 4.2. Other coatings may be approved on a case by case basis

2.4 Painting of equipment not mentioned herein shall be as normally provided by the manufacturer for that equipment. All paint, except for the underwater body ablative coating system, must be from a single manufacturer.

2.5 Finish painting of compartments prior to testing is prohibited.

2.6 The Contractor shall comply with the manufacturers' printed recommendations and instructions, Reference 4.1, for all aspects of handling, mixing and application of the paint materials.

2.7 Due care shall be exercised to ensure that the following items are not painted:

a. Cathodic protection anodes
b. Heat exchange surfaces
c. Gasket seats
d. Lubricating fittings
e. Nameplates, labels and signs
f. Threads and working surfaces
g. Rubber and other elastomers
h. Discharge nozzles
i. Decorative and finished parts of furnishings and equipment
j. Isolation mounts

2.8 Surface Preparation shall take place only after properly protecting those items or surfaces which either may be damaged by abrasive contact or ingestion, or are not to be coated, in accordance with item 2.2 and item 2.6.

2.8.1 Coatings applied to prevent corrosion during material storage or ship construction must be removed to bare metal unless they are compatible with the final system and are free of corrosion, peeling or other contaminants detrimental to the life or appearance of the final system.

2.8.2 Coatings that are compatible with the final system and are free of corrosion, peeling or other contaminants detrimental to the life or appearance of the final system, either temporary or permanent, must be applied to prevent corrosion during material stowage and ship construction, including tanks not required to be painted. Coatings containing zinc must be removed from the underwater body of the hull, and fuel and potable water tank interiors.

2.8.3 Where aluminum will be joined with other metals, including galvanized steel, the aluminum surface must be protected by two coats of epoxy primer. Any wood in direct contact with aluminum must be given one coat of phenolic varnish.

2.8.4 After assembly, joints of dissimilar metals exposed to the weather, seawater, or in wet spaces shall be sealed with caulking compound to prevent the entrance of moisture or water. Crevices shall be sealed with caulking compound. Absorbent material shall not be used in contact with aluminum. Threaded parts in aluminum shall be coated before assembly with an anti-seize compound.

2.8.5 Unless otherwise specified, all steel surfaces shall be prepared by sandblasting to a "near white" surface in accordance with SSPC-SP 10.

2.8.6 Surfaces to be painted shall have the specified surface preparation at the time of application of the paint. If the surface is degraded or contaminated after surface preparation and prior to painting, the surface shall be restored before paint application.

2.8.7 In order to prevent degradation or contamination of the prepared surfaces, the first coat of paint shall be applied as soon as possible after the surfaces have been prepared. The first coat shall always be applied the same day as surface preparation is completed. Succeeding coats shall be applied before contamination of the under surface occurs.

2.8.8 After surface preparation, surfaces shall be brushed with clean brushes, blown off with compressed air, or cleaned by vacuum to remove all traces of blast products and dust.

2.9 Application - Application methods, coat thicknesses and equipment used for application must be as recommended by the coating manufacturer's representatives. Acceptance of the surface preparation by the paint manufacturer's representative is required prior to application of coating systems.

CHECK POINT - (Examination of Prepared Surfaces)

2.9.1 Prior to the application of any coating, the surfaces are to be examined by the COTR and the Paint Manufacturer's Representative. Documentation of conditions in item 2.7 are to be available for review. This is to include the first coat and all subsequent coats.

2.10 All paint application shall be performed in accordance with the Paint Manufacturer's recommendations and under the supervision of the on-site Paint Manufacturer's Representative, who shall be present at all times.

2.11 Upon completion, all protective wrapping and covering is to be removed and the areas cleared of all debris resulting from the surface preparation and painting operations.

CHECK POINT - (Final Examination of Work Area)

2.11.1 The entire work area is to be examined by the COTR for completeness, quality of work and cleanliness of the area.

2.12 Report Required - The contractor is to prepare and submit to the COTR a paint report containing the following data:

2.12.1 Date and times of applications.

2.12.2 Temperature, humidity and dew point at time of each application.

2.12.3 Dry film thickness (DFT) readings (ten readings per 1,000 square feet of surface) for each coat of paint..

2.12.4 Manufacturer, Production Identification Number and Batch Numbers for each type of paint applied

Table 117-1. Coating Systems
Area 1: Entire exterior underwater body from the keel up to the water line including rudder and other protruding underwater appendages, but excluding the seachests.
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st Under Coat Blast damaged areas near white to SSPC- SP10 finish. Sand sweep remaining area to SSPC- SP7 finish
3. First Under Coat Ameron 385 (Terracotta) @ 5 mils DFT
4. Second Under Coat Ameron 385 (Black) @ 5 mils DFT
5. First Finish Coat ABC #4 (Terracotta) @ 5 mils DFT
6. 2nd Finish Coat ABC #4 (black) @ 5 mils DFT
Area 2: All seachest exteriors

1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st Under Coat Blast damaged areas near white to SSPC- SP10 finish. Sand sweep remaining area to SSPC-SP7 finish
3. First Under Coat Ameron 385 (Terracotta) @ 5 mils DFT
4. Second Under Coat Ameron 385 (black) @ 5 mils DFT
5. First Finish Coat Ameron 400GFK (Glassflake terracotta) @ 5 mils DFT
6. 2nd Finish Coat Ameron 400FK (Glassflake black) @ 5 mils DFT

Area 3: Shell exterior from water line up through turn of gunwale including the outboard side of the bulwarks.
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st under Coat Blast damaged areas near white to SSPC-SP10. Sand sweep remaining area to SSPC-SP7 finish
3. First Under Coat Ameron 302H (green) @ 3 mils DFT
4. Second Under Coat Ameron 385 (terracotta) @ 5 mils DFT
5. Finish Coat Ameron 229C (dark green) @ 2 mils DFT

Area 4: Exterior steel deckhouses, vents, overflows, overhead surfaces, deck gear lockers, doors, stanchions, vertical and inclined ladders, handrails, ventilators, bulwark mounted chocks, davits and steel monorails.
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st under Coat Blast damaged areas near white to SSPC- SP10 finish. Sand sweep remaining area to SSPC-SP7 finish
3. First Under Coat Ameron 302H (green) @ 3 mils DFT
4. Second Under Coat Ameron 385 (terracotta) @ 5 mils DFT
5. Finish Coat Ameron 229C (white) @ 2 mils DFT

Area 5: All exterior steel decks (6 inches up on vertical surfaces), house tops, exterior hatch covers/coamings, foundations, deck fittings, and inboard side of bulwarks.
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st under Coat Blast damaged areas near white to SSPC- SP10 finish. Sand sweep remaining area to SSPC- SP7 finish
3. First Under Coat Ameron 302H (green) @ 3 mils DFT
4. Second Under Coat Ameron 385 (terracotta) @ 5 mils DFT
5.. Finish Coat Ameron 385 (dark gray) @ 5 mils DFT. Non skid grit as recommended by Ameron is to be added to the finish coat on all deck surfaces except for the trawlway and trawlway inclined ramp.

Area 6: Steel deck machinery, electric brake, motor housing exteriors, deck mounted chocks/cleats/bitts and fairleads. All required surface preparation is for structural elements prior to final assembly.
1. Surface Prep Blast to near white. See footnote 1
2. First Under Coat Ameron 302H (green) @ 3 mils DFT
3. Second Under Coat Ameron 385 (terracotta) @ 5 mils DFT
4. Finish Coat Ameron 229C (white) @ 2 mils DFT

Area 7: Steel masts, booms, cranes, and similar fittings
1. Surface Prep Prior To 1st under Coat Blast near white. See footnote 1
2. First Under Coat Ameron 302H (green) @ 3 mils DFT
3. Second Under Coat Ameron 385 (terracotta) @ 5 mils DFT
4. Finish Coat Ameron 229C (black) @ 2 mils DFT

Area 8: Anchor
1. Surface Prep Prior To 1st Under Coat Blast near white. See footnote 1
2. First Under Coat Ameron 302H (green) @ 3 mils DFT
3. Second Under Coat Ameron 385 (terracotta) @ 5 mils DFT
4. Finish Coat Ameron 229C (black) @ 2 mils DFT

Area 9: Anchor chain
1. Surface Prep Prior To 1st under Coat Blast near white. See footnote 1
2. First Under Coat Ameron 302H (green) @ 3 mils DFT
3. Second Under Coat Ameron 385 (black) @ 5 mils DFT
4. Finish Coat Ameron 229C (black) @ 2 mils DFT.

Area 10: Saltwater ballast tanks, pumpable fixed ballast tanks, sewage and gray water tanks, and miscellaneous tanks and/or voids.
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st Under Coat Blast damaged areas near white to SSPC-SP10 finish. Sand sweep remaining area to SSPC-SP7 finish
3. First Under Coat Ameron 385 (terracotta) @ 5 mils DFT
4. Stripe Coat Ameron 385 (off white)
5. Finish Coat Ameron 385 (off white) @ 5 mils DFT

Area 11: Fresh and potable water tanks
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st Under Coat Blast near white to SSPC-SP10 finish
3. First Under Coat Ameron 400 (grey) @ 5 mils DFT
4. Stripe Coat Ameron 400 (off white)
5. Finish Coat Ameron 400 (off white) @ 5 mils DFT

Area 12: Chain locker and sump
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st Under Coat Blast damaged areas near white to SSPC-SP10 finish. Sand sweep remaining area to SSPC-SP7 finish.
3. First Under Coat Ameron 385 (off white) @ 5 mils DFT
4. Stripe Coat Ameron 385 (terra cotta)
5. Finish Coat Ameron 385 (terracotta) @ 5 mils DFT

Area 13: Factory installed coating systems on interior electrical equipment are acceptable. The contractor must provide touch up as may be required.

Area 14: Engine exhausts and other surfaces above 93 degrees C, unlagged. Paint must be excluded on lagged exhaust piping where temperatures exceed 93 degrees C.
1. Surface Prep Prior To 1st Under Coat Blast near white to SSPC-SP10 finish prior to installation. See footnote 1
2. First Under Coat Ameron 878 @ 1.5 mils DFT
3. Prep For Finish Coat Wire brush damaged areas and wipe down entire area with a mild detergent and rinse
4. Finish Coat Ameron 878 @ 1.5 mils DFT

Area 15: All interior ladders outside of tanks (ladders in tanks are to receive the same coating system as the tanks where installed).
1. Surface Prep Prior To 1st Under Coat Blast to SSPC-SP 7 finish prior to installation
2. Under Coat Ameron 5105 (terracotta) @ 2 mils DFT
3. Finish Coat Ameron 3234 (gloss black) @ 3 mils DFT

Area 16: All exposed interior steel bulkheads and overheads in machinery and service spaces, workshops, storerooms, deck lockers and similar spaces, interior railings, stanchions and associated fittings.
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st Under Coat Wire brush damaged areas and wipe down entire area with a mild detergent and rinse
3. Under Coat Ameron 5105 (terracotta) @ 2 mils DFT
4. Prep For Finish Coat Wire brush damaged areas and wipe down entire area with a mild detergent and rinse
5. Finish Coat Ameron 3234 (white) @ 3 mils DFT

Area 17: Exposed interior decks (6 inches up on vertical surfaces) in auxiliary machinery and service spaces, workshops, storerooms, deck lockers and similar spaces.
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st Under Coat Wire brush damaged areas and wipe down entire area with a mild detergent and rinse
3. Under Coat Ameron 385 (dark grey) @ 6 mils DFT
4. Prep For Finish Coat Wire brush damaged areas and wipe down entire area with a mild detergent and rinse
5. Finish Coat Ameron 385 (terracotta) @ 6 mils DFT

Area 18: Walking surfaces of floor plates, grates, decks, and platforms in main machinery spaces.
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st Under Coat Wire brush damaged areas and wipe down entire area with a mild detergent and rinse
3. Under Coat Ameron 385 (terracotta) @ 6 mils DFT
4. Prep For Finish Coat Wire brush damaged areas and wipe down entire area with a mild detergent and rinse
5. Finish Coat Ameron 385 (dark gray) @ 6 mils DFT

Area 19: Machinery and foundations within machinery spaces above floor plates where the temperature is below 93 degrees C (the coating system for machinery applies to structural components prior to final assembly).
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st Under Coat Wire brush damaged areas and wipe down entire area with a mild detergent and rinse
3. Under Coat Ameron 5105 (terracotta) @ 2 mils DFT
4. Prep For Finish Coat Wire brush damaged areas and wipe down entire area with a mild detergent and rinse
5. Finish Coat Ameron 3234 (equipment gray) @ 3 mils DFT

Area 20: Unexposed steel structure behind insulation and/or joiner panels.
1. Surface Prep See footnote 1
2. Surface Prep Prior To finish coat Wire brush damaged areas and wipe down entire area with a mild detergent and rinse
3. Finish Coat (steel surfaces) Ameron 5105 (terracotta) @ 2 mils DFT
4. Finish Coat (faced insulation surfaces). No paint on acoustic insulation Ameron 3234 (white) @ 3 mils DFT

Area 21: All exterior exposed vertical surfaces of the aluminum superstructure including vents, overflows, deck gear lockers, doors, stanchions, vertical and inclined ladders, handrails, ventilators, stack (excluding stack bands) and bulwarks. Also includes the underside of exposed deckheads
1. Surface Prep Power wash/degrease @ 344.7 bar
2. Surface Prep Prior To Under Coat Sand sweep
3. Under Coat Ameron 385 (terracotta) @ 5 mils DFT
4. Finish Coat Ameron 229C (white) @ 2 mils DFT
Area 22: All aluminum exterior decks (6 inches up on vertical surfaces) house tops, exterior hatch covers, foundations, deck fittings and inboard side of bulwarks.
1. Surface Prep Power wash/degrease @ 344.7 bar
2. Surface Prep Prior To 1st Under Coat Sand sweep
3. Under Coat Ameron 385 (terracotta) @ 6 mils DFT
4. Finish Coat Ameron 385 (dark gray) @ 6 mils DFT. Non skid grit as recommended by Ameron is to be added to the finish coat on all deck surfaces.
Area 23: Aluminum masts, booms, trusses and similar fittings.
1. Surface Prep Power wash/degrease @ 344.7 bar
2. Surface Prep Prior To 1st Under Coat Sand sweep
3. Under Coat Ameron 385 (terracotta) @ 5 mils DFT
4. Finish Coat Ameron 229C (buff) @ 2 mils DFT
Area 24 (Not Applicable)
Area 25: Stack bands
1. Surface Prep Power wash/degrease @ 344.7 bar
2. Surface Prep Prior To 1st Under Coat Sand sweep
3. Under Coat Ameron 385 (terracotta) @ 5 mils DFT
4. Finish Coat Ameron 229C @ 2 mils DFT
5. Stack markingsBands must duplicate the existing bands in dimension and color.
Area 26: Surfaces of unexposed aluminum structure behind insulation and/or joiner panels do not require coatings. Perforated aluminum sheathing shall be coated white at the factory. Perforated sheathing shall not be sprayed after installation.
Area 27: New surfaces of fuel oil, lube oil, and dirty oil tanks are to be run through the wheelabrator for removal of mill scale, and are to be left uncoated.
Area 28: Bilges
1. Surface Prep See footnote 1
2. Surface Prep Prior To 1st Under Coat Blast to SSPC-SP 7 finish
3. Under Coat Ameron 302 (green) @ 3 mils DFT
4. Prep For Finish Coat Wire brush damaged areas and wipe down entire area with a mild detergent and rinse
5. Finish Coat Ameron 385 (terracotta) @ 6 mils DFT

Footnotes:
1. Material is to be blasted in wheelabrator to remove mill scale and oxidation. Any material not suitable for the wheelabrator is to be hand blasted. Blasting is to be finished to specification SSPC-SP10-85. After blasting all material is to be coated with one mm of Ameron all-purpose primer BSP2.

3.0 Performance Criteria / Deliverables:

3.1 Examination of Protective Wrappings - paragraph 2.2.4

3.2 Surface Examination - paragraph 2.8.1

3.3 Final Examination of Area - paragraph 2.10.1

3.4 Paint Schedule. - A Paint Schedule shall be provided in spreadsheet format, listing all surfaces and components on the ship that are to receive a coating system. The listing is arranged by compartment, deck levels, ship structure, or general location, to provide a logical presentation of the information. For each, the schedule identifies: the required surface preparation standard, a generic identification of each paint used to create the required coating system, the dry film thickness of each layer of paint to be used, and the color of each paint to be used in the required coating system, along with any additional remarks.

3.5 Paint Report - The Contractor shall prepare a Paint Report, which includes the Atmospheric Condition Measurements, Surface Preparation Readings, DFT Readings and Paint Manufacturer Service Reports.

3.5.1 Atmospheric Condition Measurements. - Atmospheric condition measurements provide a quality control checkpoint for the environmental conditions at the time coating systems are being applied. The measurements include the following: location, surfaces or structure being painted; the person taking the readings; the inspector; dry bulb temperature; wet bulb temperature; and relative humidity. The report documents any special precautions employed to control the painting environment.

3.5.2 Surface Preparation Readings. - Surface Preparation Readings document surface preparation achieved in preparation for painting, and include the following: the location, surfaces or structure being painted; the person taking the readings; the inspector; the means used to obtain the standard of cleanliness; and the texture standard achieved.

3.5.3 Dry Film Thickness (DFT) Readings. - DFT readings are documented for each layer of cured paint, and include the following: location, surfaces or structures painted; the person taking the readings; the measurement tool; tool calibration; the inspector; and the dry film thickness of a representative average of the surface coated.

3.5.4 Paint Manufacturer's Service Reports. - The Contractor shall provide copies of all reports submitted by the Paint Manufacturers' Representative.

4.0 References:

4.1 Paint Manufacturer's Criteria and Instructions

4.2 MARAD Coating Guidelines, through Rev 04 dated 01 November 1993, including Attachments 2 & 3 with general notes and Tables 1 & 2.

5.0 Notes: None

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Section 200: PROJECT MANAGEMENT

Work Items in this section are to be uncosted. The cost of Items in this section shall be included in their Respective contract specification item as per the bid response sheet.

201 PLANS AND CORRESPONDENCE PROCEDURES

1.0 SCOPE OF WORK

1.1 This work item describes the requirements for establishing a standard and to assign responsibility for the preparation and distribution of documents, data, reports, plans, requisitions, and general correspondence required in administering the Contract.

2.0 WORK DESCRIPTION: None.

2.1 Distribution of Data

2.1.1 The distribution of correspondence, schedules, technical data (drawings, calculations, procedures, etc.), reports, charts and other data for program implementation shall be in accordance with Table 201-1.

TABLE 201-1. - DISTRIBUTION SCHEDULE

ITEM	COTR*	MARAD				
	WASH DC	Design Agent	G.L.M.A.		USCG	ABS
Correspondence	2	1	1	1	As Required	As Required
Schedule and Charts	2	1	1	1		
Progress Review Agenda	2	1	-	1		
*Technical Data	2	1	1	1	As Required	As Required
Purchase Orders	2	-	-	1		
Condition Reports and Related Data where Specified in Specifications	2	1	-	-		
Change Inquires and Related Data	2	1	1	-		
Change Orders and Related Data	2	1	1	-		
Inspection Status Reports	2	1	-	-		

Test Reports	2	1	1	1	As Required	As Required
Construction Progress and Payment Report	2	1	-	-		
Inventory Forms	2	1	-	1		

* Technical data includes all drawings, sketches, calculations, procedures, instruction manuals, and vendors' plans and related documentation, schedules and lists.

PRINCIPAL PARTICIPANTS AND MAILING ADDRESSES:

1. MARAD COTR (* - One copy shall be provided locally and one copy mailed to below address)
Michael Bagley
US Maritime Sdministration
Great Lakes Region
1701 East Woodfield Road
Schaumburg, IL 60173

2. MARAD WASHINGTON DC
Carl Heck
US Maritime Administration
400 7th St., SW Room 2119
Washington, DC 20590

3. DESIGN AGENT
Carl Setterstrom
US Maritime Administration
400 7th St. SW - Room 8311
Washington, DC 20590
202-366-1848

4. GREAT LAKES MARITIME ACADEMY
Mr. John Tanner
Superintendent
Northwestern Michigan College/GLMA
1701 East Front Street
Traverse City, MI 49686-3061

2.2 Working Plans

2.2.1 Contractor shall submit a proposed Drawing Schedule of all working drawing submittals within seven (7) days of contract award, as described in Item 202 (Reference 4.1).

2.2.2 In submitting a plan or other data for COTR acceptance, the Contractor shall invite attention to all departures to the Contract Guidance Plans, specifications, and Change Orders. Acceptance of plans and purchase specifications, when these requirements are not complied with, shall not constitute approval of any departures or basis for any future claim against the COTR.

2.2.3 The COTR will take prompt and appropriate action on plans submitted for acceptance. The COTR will take action on plans within ten (10) working days after receipt. When action cannot be completed within ten (10) working days, the Contractor will be notified as to when action may be expected. The first revision, and all subsequent revisions, to working plans shall be resubmitted to the COTR for approval in accordance with Table 201-1. Assume acceptance if no response is received from the COTR after fifteen (15) working days.

2.3 Vendors Plans

2.3.1 The Contractor shall submit vendor plans the same as for working plans. COTR action on vendor's plans will be the same as for working plans. Action on revisions of vendor's plans will also be the same as for working plans.

2.4 Working Plans and Vendor Plans - General

2.4.1 All working plans shall have MARAD designated S-Number thereon, assigned by the Contractor or match vessel's current numbering system. The full drawing number is such that the S-Number is preceded by the MARAD design designation for this vessel, as converted. As guidance, MARAD will provide S-Number documentation on the assignment of drawing numbers.

2.4.2 All working plans and vendor plans shall indicate contract number and hull number. Submitted plans shall be folded for filing in a legal size filing cabinet with title block visible.

2.4.3 Plans shall be complete in themselves (including bill of material) with adequate reference to other plans, sketches and catalogs for details and notes.

2.4.4 The Contractor may obtain simultaneous approval of working and vendor plans by Regulatory Bodies and the COTR.

2.4.5 Each vendor plan shall be identified as to its specific application.

2.4.6 Vendor plans shall be certified correct by the vendor. Plans shall not be submitted for COTR acceptance before being fully developed and checked for accuracy, design and detail by the Contractor. Incomplete plans or preliminary plans shall be returned to the Contractor without acceptance action for completion and re-submittal. Delays resulting from such submittals shall be the Contractor's responsibility.

2.4.7 All technical data pertaining to the vessel are the property of the COTR.

2.5 Production Schedule

2.5.1 The Contractor shall provide a Production Schedule within seven (7) days after Contract Award, in accordance with Reference 4.1.

2.6 Contractor Furnished Material Purchase (Technical) Specifications and Unpriced Purchase Orders

2.6.1 Purchase (technical) specifications to all vendors and Subcontractors shall be identified on the Material Control Schedule provided in accordance with Table 201-1. The COTR action on purchase specifications will be for information and review only.

2.6.2 The purchase (technical) specification shall contain definitive information as to the following:

2.6.2.1 Description and specification of each item including work plan number, piece numbers, and quantity per ship.

2.6.2.2 Number of copies of plans or descriptive data and instruction books to be furnished by the vendor for approval purposes and number of copies for final distribution.

2.6.2.3 Inspection required, by whom, to which requirements, and at what location.

2.6.2.4 Special marking, packaging and packing, or shipping instructions, if any.

2.6.2.5 Itemized list of spare parts to be furnished as required by the specifications.

2.6.2.6 Spare parts preservation, packaging and packing instructions.

2.7 Unpriced Purchase Orders

2.7.1 Unpriced copies of the purchase orders covering items listed in the material control schedule shall be provided for "information and files" in accordance with Table 201-1.

2.8 Government Furnished Material

2.8.1 Technical documents for GFM shall be distributed similar to Contractor furnished materials as given in this section.

2.9 Instruction Manuals

2.9.1 The COTR will approve new equipment instructions manuals.

2.9.2 The Contractor shall furnish instruction manuals in accordance with Table 201-1.

2.9.3 The Contractor shall furnish a list of all instruction manuals, in accordance with Table 201-1. Specifically, the list shall show instruction manuals listed alphabetically by manufacturer in departments (Deck, Engine-Mechanical, Engine-Electrical, and Stewards) indicating titles.

2.10 Other Plans, Reports, and Forms

2.10.1 Other Plans, Reports and Forms not listed in this Item but described in other Items within this Specification Section shall be prepared and submitted as specified in its respective Item and distributed in accordance with Table 201-1.

3.0 PERFORMANCE CRITERIA/DELIVERABLES: None.

4.0 REFERENCES:

4.1 Item 202, [Accomplish Planning And Scheduling]

202 ACCOMPLISH PLANNING AND SCHEDULING

1.0 Scope of Work:

2.1 Location of Work: N/A

2.2 Identification: N/A

2.3 Intent: Prepare and submit for review and acceptance by the COTR accurate Contract data which is relevant to the scheduling, progressing, material status, and completion status of the repair availability. The associated reports should be indicative of the planning and scheduling required to ensure an integrated and timely completion of all Specifications, and to ensure the Contract delivery date is achieved.

2.0 Work Description:

2.1 Definitions:

2.1.1 Production Schedule - The schedule used by the Contractor as a means of planning, tracking, and coordinating accomplishment of the Contract work.

2.1.2 Production Order - A portion of an individual Work Item representing a manageable unit of work that must be accomplished at a specific period of time in relation to other activities of the availability.

2.1.3 Key Event - The beginning or ending point of an activity which cannot slip without impacting the overall schedule.

2.1.4 Milestone - A significant availability event identified in the Solicitation, by the COTR, or by the Contractor.

2.1.5 Critical Path - The Work Item or combination of Work Items which forms the longest duration, and directly affects the completion of the availability. Factors which determine the critical path are time duration required for the Work Item(s), resource availability, and the interdependency of Work Items.

2.1.6 Critical Path Method (CPM) - The calculation of the earliest and latest start and finish dates of activities based on their duration and relationships to other activities.

2.1.7 Controlling Work Items - Those Work Items which are on the Critical Path, and which, by virtue of scope, complexity, material requirements, or other considerations, have the potential to impact the scheduled completion of the availability.

2.1.8 Float - The amount of time an event can be delayed without delaying the start of subsequent activities. Total float indicated on submitted schedules does not belong to the Contractor or Owner, and only Contract modifications that affect the Critical Path shall affect the amount of total float.

2.1.9 Fragment - A fragmentary network; a subset of the critical path network developed for an identifiable grouping of the work.

2.1.10 Local Seasonal Weather Patterns - Periods of high or low ambient temperatures, wind and/or precipitation, river stages, tides, or similar weather-related occurrences.

2.2 Prepare and manage a Production Schedule inclusive of all Work Items identified in the Solicitation, including subcontracted work. Schedules developed shall include Supplemental and Optional Work Items indicating that the Contractor has the production capacity and resources to accomplish such work without impacting the completion date of the availability. Schedules shall be consistent with all Contract requirements. Seasonal weather patterns and conditions shall be considered and included in the planning and scheduling of all work to ensure completion of the total work package within the Contract performance period. Seasonal weather patterns and conditions shall be determined by an assessment of average historical climatic conditions based upon the preceding ten (10) year records published by the National Oceanic and Atmospheric Administration (NOAA) for the locality nearest to the project site, unless agreed otherwise. The Production Schedule shall be comprised of:

2.2.1 A Gantt Chart that contains the following:

2.2.1.1 Scheduled key events and milestones.

2.2.1.2 Not Used.

2.2.1.3 Not Used.

2.2.1.4 Not Used.

2.2.1.5 Progress shall be shown on the Schedule as completed activities and Work Items.

2.2.1.6 Not Used.

2.2.1.7 Not Used.

2.2.2 Not Used.

2.2.2.1 Not Used.

2.2.2.2 Not Used.

2.2.2.3 Not Used.

2.2.2.4 Not Used.

2.2.2.5 Not Used.

2.2.3 Production Schedule Impact Analysis shall be provided, in a narrative format, for all constructive or formal changes that affect the Schedule.

2.2.3.1 The Schedule Impact Analysis shall demonstrate how the Contractor proposes to incorporate the changes into the Schedule to accompany the narrative analysis.

2.2.3.2 The Analysis shall explain the affect, if any, on milestone accomplishment, resources, and costs.

2.2.3.3 Direct costs shall be segregated for each perceived constructive change and each formal change (if work proceeds prior to issuance of a Delivery Order). Direct costs shall be cross-referenced to the original Work Item from which it originated, and shall include labor (by craft), material, equipment, and subcontractors.

2.2.3.4 Any changes and events which the Contractor does not indicate Schedule Impact Analysis is assumed to have no affect on the Production Schedule.

2.2.3.5 Failure by the Contractor to include any element of work required for performance of the Contract shall not excuse the Contractor from completing all work within the Contract performance period and/or in accordance with any Contract-required Milestone Date(s).

2.2.4 Recovery Plan - If slippage has occurred from the Contractor's original Production Schedule, or any previously revised Production Schedule, the Contractor shall provide an analysis, in narrative format, of the slippage that identifies the cause of the slippage and proposes a plan of action that will be taken to complete the remaining work within the Contract performance period.

2.2.5 Not Used.

2.2.6 The Production Schedule and associated reports identified in paragraph 2.2, shall be delivered to the COTR for review and acceptance within (14) fourteen days after award of Contract. Status reports shall be prepared weekly and submitted one day prior to the next scheduled progress meeting, to reflect the addition, deletion, or modification of Work Items, and changes made by the Contractor. Contractor will use their normal progressing work sheets for reporting weekly status.

2.2.6.1 Upon acceptance of the Schedule by the COTR, the Contractor shall proceed in accordance with the reviewed and accepted plan and shall not modify the Schedule without the acceptance by the COTR. Modifications to the Schedule do not constitute a modification to the Contract.

2.2.6.2 Not Used.

2.2.7 The initial Production Schedules required by paragraph 2.2 shall be saved by the Contractor to serve as a baseline for the purpose of progress tracking and variance analysis.

2.3 Manage and schedule all subcontractors' production work/progress, material procurement, and interface control to support the overall Production Schedule.

2.3.1 Provide a Subcontractor Report to the COTR within fourteen (14) days after award of Contract. A revised list is to be provided whenever changes occur to the list. The subcontractor list shall include:

2.3.1.1 Work Item and paragraph number.

2.3.1.2 Specific work to be accomplished.

2.3.1.3 Subcontractor's business address and telephone number.

2.4 Prepare a Test Plan and Schedule for all tests including, but not limited to hydrostatic, weight, safety device, and operational tests required by the Work Items.

2.4.1 Provide copies of the Test Schedule to the COTR in accordance with Table 201-2 of Item 201 (Reference 4.2), identifying those tests scheduled within the next (14) fourteen days. The Schedule shall identify the Work Item number, paragraph, equipment/system, and test start and completion dates.

2.4.2 All tests shall be coordinated with the COTR one working day prior to the execution. This coordination is in addition to CHECKPOINT notification.

2.5 Provide Manpower Management Information Report.

2.5.1 Prepare total manpower and key craft manning curves or tables showing proposed and actual manning throughout the Contract performance period in men per day. The curves or tables shall indicate the portion of total and key craft manning which is subcontractor provided.

2.5.2 Prepare planned cumulative manning curves by craft and combined total for each activity. The curves shall be a plot of the cumulative man-hours total for all activities against days. The 'y'- axis shall be subdivided in man-hours and the 'x'- axis shall be subdivided by days.

2.5.3 Prepare and submit a Weekly Manpower Utilization Report showing total man-days expended during the previous week by Work Item and by craft and shift, and indicating that portion of the total which is subcontractor provided.

2.5.3.1 Submit copies of the manpower curves in accordance with Table 201-1 of Item 201 (Reference 4.2), within fourteen (14) days after award of Contract. Updates of the manning curves and utilization report shall be provided with the Production Schedule revisions required by paragraph 2.2.6.

2.6 Prepare a Compartment Close Out Report and submit copies in accordance with Table 201-1 of Item 201 (Reference 4.2), prior to start of availability. This report will be used by the Contractor and COTR to accomplish a final inspection for discrepancies and cleanliness once work has been completed in those spaces. The report shall contain the following:

2.6.1 A list by Work Item of all the ship's spaces, including tanks, trunks, and voids, involved in that Work Item. A cross-referenced list by space number and space name of all Work Items involving those spaces. These lists will also include spaces used only for access to the actual work and shall be annotated as such. Each of these lists will contain columns for date of work completed, date inspected by Contractor, and date accepted by COTR.

2.6.2 Acceptance inspection of all spaces in which work has been completed will be at the discretion of the COTR within the last 25% of the availability unless the space can be secured earlier as in the case of tanks.

2.7 Prepare a Drawing Schedule and submit copies in accordance with Table 201-1 of Item 201 (Reference 4.2), within seven (7) days after award of Contract.

2.7.1 The Drawing Schedule shall list all drawings required to be revised or produced, the associated Specification Work Item number(s), scheduled start and completion dates for each drawing, actual date each drawing was started and completed, scheduled date each drawing is to be submitted to each regulatory body, actual date each drawing was submitted to each regulatory body, and scheduled dates each drawing is to be submitted to the COTR in the final approved condition.

2.8 Prepare a Material Control Schedule and submit copies in accordance with Table 201-1 of Item 201 (Reference 4.2), within seven (7) days after award of Contract.

2.8.1 The Material Control Schedule shall reflect the material procurement activities of the Contractor. It shall list all major material to be procured by Specification Work Item number. Each material item shall indicate the name of the item, item identification number, quantity, and source, proposed delivery date and status by Contractor and Subcontractor.

2.9 Participate in a Weekly Progress Meeting at a place and time mutually agreeable to all parties. The Contractor representative in attendance shall be authorized to make management decisions relative to the requirements of the Contract.

2.9.1 The Contractor shall be prepared to discuss the following:

2.9.1.1 Total percentage of work complete, percentage completion of each Work Item, Production Schedule milestones, key events, Controlling Work Items, and schedule recovery.

2.9.1.2 Planned production manning versus actual manning.

2.9.1.3 Major problems for each item and proposed corrective action.

2.9.1.4 Factors that may impact the availability milestones and Contract completion, and recommended courses of action.

2.9.2 Submit copies of the following information in accordance with Table 201-1 of Item 201 (Reference 4.2), on a weekly basis, one working day prior to the next scheduled progress meeting, unless otherwise noted:

2.9.2.1 A Progress Report listing each Work Item number, item title, current physical progress percent complete, and percent complete for the three weeks previous to the current week.

2.9.2.2 A Material Control Report listing Contractor and Government Furnished Material not received and whose expected delivery date is after the required delivery date. The report shall list the Work Item number, item title, and material description, expected delivery date, required delivery date, and actions proposed by the Contractor to resolve material delivery problems.

2.9.2.3 A report of outstanding Contractor required condition reports.

2.9.2.4 A status report and updated weekly Production Schedule as required by 2.2. Refer to 2.2.6 for frequency of Production Schedule requirements.

2.9.2.5 A revised Test Plan as required by 2.4.

2.9.2.6 Not Used.

2.9.2.7 Weekly Manpower Management Information Report as required by 2.5.

2.9.2.8 A revised Compartment Close-out Report as required by 2.6.

2.9.2.9 A Drawing Schedule as required by 2.7.

2.9.2.10 A Material Control Schedule as required by 2.8.

3.0 Performance Criteria/Deliverables:

3.1 Production Schedule (paragraph 2.2)

3.2 Subcontractor Report (paragraph 2.3)

3.3 Test Plan (paragraph 2.4)

3.4 Manpower Management Information Report (paragraph 2.5)

3.5 Compartment Close-out Report (paragraph 2.6)

3.6 Progress Report (paragraph 2.9.2.1)

3.7 Material Control Report (paragraph 2.9.2.2)

3.8 Material Control Schedule (paragraph 2.8)

3.9 Summary Inspection Report (Item 207, paragraph 2.3.4)

3.10 Contractor Condition Reports List (paragraph 2.9.2.3)

3.11 Drawing Schedule (paragraph 2.7)

4.0 References:

4.1 Item 207, [Inspection System]
4.2 Item 201, [Plan and Correspondence Procedure]

5.0 Notes:

5.1 Schedules required by this item will be used to determine earned value for calculating progress payments. Failure to submit updated and timely schedules is a material breach of the Contract provisions and will result in a lack of basis for determining progress payments.

5.2 Acceptance by the COTR of submitted schedules and associated reports does not relieve the Contractor of performance to the requirements of the Contract. Nor does acceptance serve to approve, warrant, or indicate agreement by the COTR as to the accuracy of the Contractor's schedules.

5.3 Extension of the delivery date will be granted only to the extent the equitable time adjustments to the activity affected by the Change Order, Delivery Order, or delay, exceeds the total (positive or zero) float of a critical activity and extends the delivery date.

203 ENGINEERING AND DESIGN SUPPORT FOR EXISTING SYSTEMS AND NEW INSTALLATIONS

1.0 Scope of Work:

1.1 Location: Various

1.2 Identification: See paragraph 2.1.

1.3 Intent: Provide engineering and design support for both existing ship's systems and new systems and equipment installed during the conversion.

2.0 Work Description:

2.1 The Contractor shall provide the services of engineers, surveyors, and draftsmen as necessary to support installation of new systems/equipment and for modifications to existing systems and equipment that are impacted by the Conversion Items.

2.2 Existing Systems

2.2.1 Where necessary, obtain copies of the system and equipment drawings to facilitate engineering work and services. Conduct a ship check to determine system and/or equipment conditions. Annotate a copy of each drawing to show the as-found conditions, and include needed changes, including, but not limited to: piping runs, equipment locations, valve identification, cable identification, etc. Verify, to the maximum extent possible, without actual equipment validation, the drawing(s) material lists and specifications for major system components and equipment

2.2.2 Provide a written report to the COTR listing the as-found conditions of the system or equipment in question.

CHECK POINT - (Report of As-Found Conditions)

2.2.2.1 Submit one copy of a report listing the as-found conditions for the systems and equipment listed in paragraph 2.1, as per Item 201 (Ref. 4.3).

2.2.3 Provide repair recommendation and specifications to correct the conditions found during shipcheck. Develop work scopes, repair procedures, drawing and sketches to support the refurbishment of the systems and equipment which are not in accordance with standards. Ensure repaired systems and equipment are returned to original condition (or as near to original condition as possible). Include in the repair specifications procedures and processes necessary to ensure quality repair. Provide one copy of the repair specifications and supporting engineering documentation to the COTR, as per Item 201 (Ref. 4.3).

CHECK POINT - (Repair Specifications and Engineering Documentation Submittal)

2.2.3.1 Submit one copy of the Repair Specifications and supporting engineering documentation to the COTR for the systems and equipment listed in paragraph 2.1, as per Item 201 (Ref. 4.3).

2.2.4 If equipment condition is such the economical repair is not feasible, prepare a report giving alternatives to repair. Include in the report adequate description of the replacement equipment, its availability and sources, price, and other data required by the COTR to make an informed decision. Provide the COTR with a copy of the report listing alternatives to repair, as per Item 201 (Ref. 4.3).

CHECK POINT - (Repair Alternatives Report)

2.2.4.1 Submit one copy of a report to the COTR listing repair alternatives when equipment condition is beyond economical repair.

2.2.5 Upon approval of the repair procedures by the COTR, and if engineering drawings must be modified, modify and update the applicable drawings in accordance with Item 206 (Ref. 4.4), Engineering Drawings & Specifications; Maintenance and Update. Where warranted, ensure drawings requiring regulatory body approval are submitted. Submit the modified drawings to the COTR, as per Item 201 (Ref. 4.3).

2.2.6 If equipment is beyond economical repair, and when approved by the COTR, develop engineering drawings and studies to support the installation of replacement equipment. Such equipment shall be as nearly identical as possible in terms of size, configuration, function, support system requirements, etc. Upgraded models of original equipment are to be used to the maximum extent practical. Submit any changes to the required repair parts in accordance with Item 018 (Ref. 4.1). Ensure logistic records are updated as necessary in accordance with Item 020 (Ref. 4.2) Submit to the COTR the revised engineering drawings and studies to

support the replacement equipment, as per Item 201 (Ref. 4.3) Such drawing include, but are not limited to: piping, electrical, foundation, and support services drawings. Include Weight & Moment calculations to verify impact on ship's stability.

CHECK POINT - (Replacement Equipment Documentation)

2.2.6.1 Submit to the COTR one copy of the documentation needed to support the replacement equipment, including replacement procedures, engineering drawings, and stability data, as per Item 201 (Ref. 4.3).

2.3 New Installations

2.3.1 Conduct a ship check to determine preliminary system and/or equipment locations and layout within the spaces listed in paragraph 2.1. Develop sketches and/or preliminary drawings for those systems/equipment. Drawings shall include, but not be limited to; piping systems, equipment foundations, electrical cabling and support, ventilation, etc. Utilize manufacturer's data for any equipment to determine space allocations and required equipment supports. Include on the preliminary drawings any relocations of existing equipment. Prepare preliminary Weight & Moment stability calculations for the new installation and incidental removals and/or relocations. Prepare a preliminary installation schedule, including and showing lead time for procurement of long-lead time material. If equipment or system relocations are necessary as a result of the new installation, obtain electronic copies (where possible) of the existing drawings. Prepare preliminary modifications to those drawings to show the effect on existing systems of the new installation. Submit to the COTR a copy of the Preliminary Installation Report, including Preliminary Drawings, Weight & Moment calculations, and Installation Schedule, as per Item 201 (Ref. 4.3).

CHECK POINT - (Preliminary New Installation Report)

2.3.1.1 Submit one copy of the Preliminary Installation Report for the installation of new systems and equipment listed in paragraph 2.1, as per Item 201 (Ref. 4.3).

2.3.2 Upon approval by the COTR of the Preliminary Installation Report, conduct a second ship check to verify and update the preliminary drawings. Annotate the preliminary drawings with any changes necessary. Modify or revise the existing drawings to show relocations based on the new installation. Revise weight & moment calculations based on the drawing changes, and update cost estimates. Ensure manufacturer's costs are valid for the duration of the intended installation period. Revise as necessary the installation schedule. Submit to the COTR a copy of the Final Installation Report, including Installation Drawings, Weight & Moment calculations, Cost Estimate, and Installation Schedule, as per Item 201 (Ref. 4.3).

CHECK POINT - (Final New Installation Report)

2.3.2.1 Submit one copy of the Final Installation Report for the installation of new systems and equipment listed in paragraph 2.1, as per Item 201 (Ref. 4.3).

2.3.3 Upon approval of the Final Installation Report by the COTR, and if existing engineering drawings must be modified, modify and update the existing applicable drawings in accordance with Item 206 (Ref. 4.4) Where warranted, ensure drawings requiring regulatory body approval are submitted. Submit the modified drawings to the COTR, as per Item 201 (Ref. 4.3).

3.0 Performance Criteria/Deliverables:

3.1 Receipt of As-Found Conditions Report (paragraph 2.2.2.1).

3.2 Receipt of Repair Specifications & Engineering Documentation (paragraph 2.2.3.1).

3.3 Receipt of Repair Alternatives Report (paragraph 2.2.4.1).

3.4 Receipt of Replacement Equipment Documentation (paragraph 2.2.6.1).

3.1 Receipt of Preliminary New Installation Report (paragraph 2.3.1.1).

3.2 Receipt of Final New Installation Report (paragraph 2.3.2.1).

4.0 References:

4.1 Item 018, [Provisioning and Stowage of Repair Parts]

4.2 Item 020, [Maintenance and Update of Logistics Records and Reports]

4.3 Item 201, [Plans and Correspondence Procedures]

4.4 Item 206, [Maintenance and Update of Engineering Drawings and Specs]

5.0 Notes: None

204 NOT USED

205 PREPARATION OF DRAWINGS AND PLANS

1.0 Scope of Work:

1.1 Location of Work: Contractor's facilities.

1.2 Identification: None

1.3 Intent: Furnish all labor, material and tools, required for engineering and design services.

2.0 Work Description:

2.1 Provide labor (Professional Engineers, Naval Architects, Marine Engineers, and Draftspersons) to develop all required calculations, drawings and finished plans as required in other sections of these specifications.

2.2 The Contractor shall be responsible for all regulatory body plan submittal and approval. Before any submittals to the regulatory bodies are made Contractor shall be responsible for obtaining the COTRs preliminary approval. Contractor shall allow the COTR ten (10) working days between submittal of plans and receiving approval. Contractor shall be responsible for revising drawings in accordance with the COTRs comments, and any comments made by the regulatory bodies. When submitting drawings to the USCG, Contractor is encouraged to use NVIC 10-92 (Use PE's) in order to simplify the approval process. In any case, Contractor shall be responsible for ensuring compliance with regulatory comments. Contractor shall allow sufficient time for USCG/ABS plan approval and any production work started prior to receiving such comments will be at the Contractor's risk.

2.3 The Contractor shall remain liable for the accuracy of all detailed working plans developed in connection with various work items under this Contract. At no time shall the COTRs approval of working plans constitute the Government's acceptance of liability of design deficiency.

2.4 The Contractor shall be responsible for obtaining and providing necessary technical information required for plan approval by COTR/Regulatory Bodies, on all new and used equipment, which may be directly or indirectly affected due to work performed by other sections of this specification.

2.5 All drawings, design data, and technical plans shall become the property of the Maritime Administration. This data shall be provided to MARAD without restrictions for use by the Government or release by the Government for use by others.

2.6 The Contractor shall prepare final as built drawings of all structures, machinery, piping systems, HVAC systems, electrical systems, structural fire protection and habitability, hull and machinery outfitting plans which are affected by the scope of work described elsewhere in these specifications. All final drawings prepared by the Contractor shall at a minimum contain the following information:

2.6.1 Contractor's Drawing Number

2.6.2 Revision Number and Date, including revision history

2.6.3 MARAD Drawing Number

2.6.4 Title of Drawing

2.6.5 Subcontractor/Vendor Name and Drawing Number, if any

2.6.6 Vessel Applicability

2.6.7 Regulatory Body approval dates

2.6.8 Design Professional, Drawing Preparer's Name and Signature

2.7 In general Outboard Profile, Capacity Plan, General Arrangement, and Inboard Profile shall include the following details:

2.7.1 Air conditioning units

2.7.2 Airports

2.7.3 Anchors

2.7.4 Antennas

2.7.5 Appendages

2.7.6 Archways

2.7.7 Auxiliary Machinery Space

2.7.8 Awnings

2.7.9 Bell; Ship's

2.7.10 Binnacle, with fixed and movable non-magnetic material circles

2.7.11 Bitts

2.7.12 Blowers

2.7.13 Boats: length, type, number of persons, oar or engine propelled

2.7.14 Booms, boat

2.7.15 Booms, cargo: Length and maximum capacity, in plan view and inboard profile, including boom rest

2.7.16 Builder, Ship

2.7.17 Bulkheads

2.7.18 Bulwarks

2.7.19 Capstans

2.7.20 Cargo Holds: in capacity plan show bale cubic feet volume, LCG, VCG

2.7.21 Chain Pipes

2.7.22 Chocks

3.7.23 Cleats

2.7.24 Compartments, all including identification

2.7.25 State Room including, furniture outline layouts

2.7.26 Hospital including Layout and capacity

2.7.27 Lounges and Mess including Identification and furniture layout identification

2.7.28 Stores including Location, capacity

2.7.29 Conversion table: cubic feet, gallons, and barrel

2.7.30 Cranes: type and capacity

2.7.31 Deadweight Scale

2.7.32 Deck Heights

2.7.33 Diesel and Fuel Oil filling station

2.7.34 Principal Dimensions

2.7.35 Ducts plan and major vertical

2.7.36 Drinking Fountain

2.7.37 Dumbwaiter

2.7.38 Electrical Shore Connection

2.7.39 Elevators

2.7.40 Expansion Joints

2.7.41 Fairleads

2.7.42 Fans, major

2.7.43 Fire Stations

2.7.44 Frame Numbers

2.7.45 Hatches, cargo including Type, size, material of cover

2.7.46 Hawse Pipes

2.7.47 Life-rafts

2.7.48 Ladders

2.7.49 Lifeboats and Lifesaving Gear including capacity

2.7.50 Navigation Lights

2.7.51 Plimsoll mark

2.7.52 Propeller, outline

2.7.53 Radar Antenna

2.7.54 Rudder

2.7.55 Ramps side, stern, and internal

2.7.56 Tanks including Capacity, VCG, LCG

2.7.57 Deck Winches

2.7.58 Windlass

2.8 Docking Plan at a minimum shall include all appendages and size, propeller, rudder, all shell penetrations, required side and centerline blocking. The drawing shall show Principal Dimensions, table of offsets, design waterline, aft and forward perpendicular.

2.9 Ventilation Plans and Schedule shall include:

2.9.1 Fans (with CFM) Terminals

2.9.2 Motors

2.9.3 Terminal Deliveries (CFM)

2.9.4 Controls

2.9.5 Radiators

2.9.6 Ducts

2.9.7 Convectors

2.9.8 Louvers

2.9.9 Heaters

2.9.10 Dampers

2.9.11 Cooling Coils

2.10 Electrical Plans, to include a one-line diagram, shall include the following, as a minimum:

2.10.1 Type and Size of all generators including motor-generators

2.10.2 Type and size of all cables

2.10.3 All panel boards shall be clearly marked with circuit numbers and rating of all energy consuming devices.

2.10.4 Type and Capacity of all transformers

2.10.5 Type and capacity of all storage batteries

2.10.6 Rating of all circuit breakers and switches indicating interrupting capacity, frame and trip size, and fuse size.

2.10.7 All location, type, and sizes of all transformers, generators, motor-generators, motors, controllers, ventilation fans, switchboards, group control centers, solid state rectifiers and inverters, panel boards, batteries, galley and laundry equipment, etc.

2.10.8 Indicate all circuit breakers, contractors and relays equipped with shunt or under voltage trip features or other remote control devices.

2.10.9 Electrical Load Analysis, Fault Current Analysis shall also be prepared separately in A size sheets in a booklet form

2.11 Fire Fighting plans shall be prepared in "H" size, all compartment and access plans showing the decks on individual sheets suitable for framing on board the ship. The plans shall meet 46 CFR of USCG Rules. All decks, platforms, holds, and inner bottoms shall be included. Such plans must include:

2.11.1 The various fire retardant bulkheads and class

2.11.2 Particulars of fire alarm, general alarm, fire extinguishing systems and appliances

2.11.3 All vent system damper locations, remote location of stopping fans.

2.11.4 Fire Control Stations

2.11.5 Lighting distribution Panels

2.11.6 Fire Control Stations

2.11.7 Cargo Holds suitable for carriage of Vehicles should be so marked

2.12 Machinery Arrangement Plans shall include section views of main and auxiliary machinery, pump rooms, boilers, reefer machinery room, and cargo pump rooms. Principal equipment shall be marked and identified. Piping three (3) inches and larger shall be marked and identified. Piping System Plans shall include;

2.12.1 All major components of the system on deck plans and/or profile views in their approximate locations.

2.12.2 Temperature, flow rate, and pressure when significant

2.12.3 All pumps, heat exchangers, valves, and gages must be identified

2.12.4 All symbols should be in accordance with ANSI standards

2.13 The Contractor shall prepare a Conversion Plan, showing all areas of the ship that will be affected by the contract. The Conversion Pan shall describe all ripout necessary as well as the post-conversion configuration of the ship.

2.13.1 The ripout section shall include a list of all items to be removed from the ship by name and part number (where available), the schedule (time table) for accomplishment of ripout, and the actual weight of all items removed.

2.13.2 The post-conversion section of the Master Conversion Plan shall include a list of all items to be added to the ship by name, manufacturer and part number (where available), the schedule (time table) for installation, including any interdependencies, and the actual weight of all items placed onboard the ship.

2.14 The Contractor shall furnish six (6) copies of each drawing, folded in accordion style to a 81/2" x 11" size. All drawings shall be prepared in F-Size. The Contractor shall prepare all new drawings in a format compatible with AutoCAD Version 14. For revised drawings the Contractor may convert to AutoCAD if cost of such conversion including revising is equal or less than traditional methods of drawing reproduction and drafting. Whenever drawings are prepared in AutoCAD, the Contractor shall furnish a hard copy reproducible in addition to the electronic copy of the drawing, as per Item 201 (Ref. 4.1).

2.15 The Contractor shall provide and update all drawings, diagrams, and instructions displayed as photo engravings or other type of display on board the ship for information or instruction. The updated drawings, diagrams, and other instructions shall be displayed on the ship, replacing the originals, and complying with all current regulatory body requirements for displayed information. Drawings prepared for display shall be of H-size.

2.16 The Contractor shall be responsible for updating, revising all technical manuals/vendor plans for equipment that will be affected operationally due to changes from the scope of work described elsewhere in these specifications. Such revision could be carried out by Contractor's design personnel, provided express approval of the revisions are obtained from the original equipment manufacturer, and in cases required form the regulatory bodies. For items of equipment that are undergoing major modification or installed new due to work specified elsewhere in these specifications, Contractor shall furnish equipment manufacturer's standard commercial technical manuals and plans, in English. Contractor shall provide six (6) of all revised and/or new technical manuals and vendor prints, as per Item 201 (Ref. 4.1).

3.0 Performance Criteria / Deliverables: None

4.0 References:

4.1 Item 201, [Plans and Correspondence Procedures]

5.0 Notes: None

206 MAINTENANCE AND UPDATE OF ENGINEERING DRAWINGS AND SPECS

1.0 Scope of Work:

1.1 Location: Various

1.2 Identification: See paragraph 2.1.

1.3 Intent: Provide revised engineering drawings and specifications due to conversion or repair of selected systems and/or equipment.

2.0 Work Description:

2.1 The contractor will maintain and update existing drawings and specifications for the systems and equipment impacted by, or added by, conversion of T/S STATE OF MICHIGAN.

2.2 Furnish the services of engineers, surveyors, and draftsmen to modify and/or correct drawings and specifications listed in paragraph 2.1 for as-found conditions during the conversion. Where possible, obtain electronic (AutoCAD) copies of the drawings to facilitate correction and update. Print or copy the applicable portions of each drawing for use as working copies. Conduct a shipcheck prior to the availability start to verify installation conditions on drawings. Annotate each drawing with needed changes, including, but not limited to: piping runs, equipment locations, valve identification, cable identification, etc. Verify, to the maximum extent possible, without actual equipment validation, the drawing(s) material lists and specifications for major system components and equipment.

2.3 Provide a written report to the COTR listing the changes needed on each drawing or specification based on the shipcheck.

CHECK POINT - (Report of Shipcheck)

2.3.1 Submit one copy of a report listing the changes needed on the drawings to the COTR.

2.4 When shipcheck is complete, if changes are needed to the drawings, digitize the original drawing. Provide the services of a reputable document scanning firm to convert the hard-copy drawings into electronic format.

2.4.1 The converted electronic copy of the original drawing may be saved in only RASTER format for purposes of modification, update, and printing. Where changes are made to systems and equipment during the availability, such that a viable usable drawing is needed as a final copy, use the type and version of software specified by the COTR.

2.4.2 Ensure electronic copy is usable as such. Verify the ability to print the converted electronic copy as a full or reduced sized drawing. Provide the COTR with a sample copy of a printed drawing from a digitized file.

CHECK POINT - (Verification of Quality of Electronic Conversion)

2.4.3 Submit one printed copy of a drawing from a digitized file to the COTR to verify quality of the electronic conversion.

2.5 Using the original hard copy as a guide, correct any irregularities in the electronic media. As needed, enter and change applicable portions of the drawing to reflect the as-found conditions on the ship, or to reflect the modified condition as a result of system and equipment changes during the availability.

2.5.1 Whenever possible, convert only those portions of the drawing into AutoCAD that are being modified. Each entire drawing need not be modified. The remainder of the drawing will stay in RASTER format.

2.6 Enter revision data onto the drawing and into the ship's drawing index. Where allowable, ensure a Registered Professional Engineer checks and verifies the corrections and updates to the drawing(s). When required, submit the drawing(s) for regulatory body approval in accordance with Item 209 (Ref. 4.1). Provide a report to the COTR listing the drawings submitted and the status of each. (NOTE: This report is considered a CHECKPOINT in Item 209 (Ref. 4.1).

2.7 Provide hard copies of the competed, revised, approved drawings to the COTR, and distribute to the activities/organizations identified in Table 201-1 of Item 201 (Ref. 4.2)

CHECK POINT - (Final Drawing Submittal)

2.7.1 Submit one copy of each final drawing to the COTR

3.0 Performance Criteria/Deliverables:

3.1 Receipt of Shipcheck Report (paragraph 2.3.1).

3.2 Receipt of drawing for Verification of Quality of Electronic Conversion (paragraph 2.4.1).

3.3 Receipt of Final Drawings (paragraph 2.7.1).

4.0 References:

4.1 Item 209, [USCG & ABS Class Approvals; Submission & Obtaining]

4.2 Item 201, [Plan and Correspondence Procedure]

5.0 Notes: None

207 INSPECTION SYSTEM

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Identification: Throughout the vessel

1.3 Intent: The Contractor shall maintain a written inspection system for the purpose of identifying, accomplishing, and documenting each test, inspection, and checkpoint required by the Specifications and Contractors Plans and Procedures as listed in Notes 5.3.

2.0 Work Description:

2.1 Maintain a documented and functioning inspection system. The inspection system shall include:

2.1.1 An organization chart showing company management and quality management organization of the Contractor.

2.1.2 Assignment of specific responsibilities for each element of the inspection system.

2.1.3 Written procedures for each element of the system including control of subcontractor quality and receipt inspection of Contractor Furnished Material and Equipment to ensure that each complies with all Specification requirements.

2.2 Provide an Inspection Plan with separate inspection and testing documentation for each Item. The documentation shall:

2.2.1 Identify each inspection, test, and checkpoint to be accomplished by the Contractor, required by all Specification Items. Also identify all tests, inspections, approvals, examinations and certifications required by the United States Coast Guard (USCG) and the American Bureau of Shipping (ABS) for completion of the Specification Items.

2.2.2 Not Used..

2.2.3 Not Used.

2.2.4 Not Used.

2.2.5 Not Used.

2.3 Not Used.

2.3.1 Not Used.

2.3.2 Not Used.

2.3.3 Not Used.

2.3.3.1 Not Used.

2.3.3.2 Not Used.

2.3.4 Not Used.

2.4 Not Used.

2.5 Not Used..

2.6 Accomplish CHECK POINT requirements as follows: (Note: The provisions of this paragraph apply to the test and inspection requirements of the USCG and ABS in addition to the tests and inspections identified as CHECK POINTS in the work items. Refer to Item 208 (Ref. 4.1).

2.6.1 In a Work Item, the phrase CHECK POINT establishes a point in the sequence of work at which time the COTR shall be notified to observe a specific test or inspection.

2.6.2 Notify the COTR at least four hours, but not more than two working days, prior to commencing the specific CHECK POINT requirements. Document the date and time of the COTR's notification. If a CHECK POINT is to occur after normal day shift working hours, on a weekend or federal holiday, the COTR shall be notified at least four hours before the end of the last preceding normal day shift.

2.6.3 Not Used.

2.6.4 Not Used.

2.6.5 CHECK POINT requirements involving a subcontractor shall be invoked by the Contractor's purchase order.

3.0 Performance Criteria/Deliverables

3.1 Inspection Plans, paragraph 2.2.

3.2 Summary Inspection Report of test and check point accomplishment, paragraph 2.3.4.

4.0 References:

4.1 Item 208, [Regulatory Body Liaison; Provide]

4.2 Item 201, [Plans and Correspondence Procedures]

5.0 Notes:

5.1 All of the record/documentation requirements of this item shall be kept current and made available to the COTR upon request throughout the availability.

5.2 Inspection by the COTR or other authorized Government representative is for the purpose of verifying the proper function of the Contractor's quality assurance measures, and is not to be used as a substitute for in-process control of quality by the Contractor.

5.3 The contractor specifies the following procedures and plans are in place:

Quality Control Systems
Quality systems at MMG have been instituted on past contracts and certified by the U.S. Navy - Supervisor of Shipbuilding to MIL Q 9858 and MIL I 45208. These procedure driven systems were later modified to comply with the elements of ANSI/ASQC Q9001-1994 on recent vessel contracts, including the USCG WLB and Great Lakes Ice Breaker programs. Quality Management Plans were a required CDRL submittal before production commenced. The Plans included a summary of functional departments, key personnel, and their responsibilities in accordance with the elements of ANSI/ASQC Q9001-1994.

A matrix comparing Marinette Marine Corporation's policies, procedures and standard work instructions to required elements of ANSI/ASQC Q9001-1994 illustrated how compliance was achieved.

ANSI/ISO/ASQ Q9001-2000 requires that top management shall provide evidence of its commitment to develop and support the quality management system. Top management is responsible to provide direction and goals for quality, and commit them to written policies for the organization. The direction and objectives must ensure that statutory, regulatory and customer contract requirements are met. Top management shall implement a system to measure performance to the quality goals, identify and correct deviations, and ensure system compliance and customer satisfaction. Top management is to maintain written evidence of the systems administration, performance and conformity to its goals, and ensure the effectiveness of the system on a regular basis.

Quality Management Plan - Description
Marinette Marine Corporation has developed a Quality Management System that incorporates the provisions of the ANSI/ISO/ASQ Q9001-2000 as required by INLS Management section item 17. Direction is given from top management to the entire organization. Quality has a defined role in all aspects of the business, from the initial bid and planning, design, manufacture, testing, delivery and warranty service of the product to the customer. MMC's Top Executive Management reviews the Quality Management System on a quarterly basis. MMC's Quality Assurance Manager has the responsibility and authority to administer the Quality Management Plan, and report back to Top Executive Management on the performance of the organization in meeting the objectives, including customer satisfaction. Each individual contract shall have a specific Quality Management Plan. The State of Michigan School Ship Quality Management Plan shall be based on the requirements listed in ANSI/ISO/ASQ Q9001-2000, elements 4 to 8. A matrix of the internal policies, work instructions and procedures demonstrate how each element (4 to 8) is controlled to obtain compliance. Figure 17.1.5 - "Matrix - ANSI/ISO/ASQ Q9001-2000 relational comparison to MMC Documents".

MMC's Quality Management Plans include a summary of contract requirements and external references and a matrix indicating which internal documents control or measure the ISO required element. The matrix also identifies schedules for quality activities and tasks, which must be coordinated and compatible with other schedules prepared for work under the contract. The plan includes the name(s) of the person(s) responsible for accomplishment of activities and tasks.

The plan identifies the means by which MMC Top Management ensures the effectiveness of the quality system in monitoring quality attributes of the product from cradle to grave. It also demonstrates a comprehensive management approach which includes the review of data such that the results may be used to indicate trends and progress in the following areas: quality design; processes; fabrication; assembly; and test and acceptance as appropriate to the contract. The plan describes what is measured, how often an item is tracked, and who reviews and assures that appropriate action is initiated when trends are unfavorable.

The plan is a controlled document in the quality system. All updates (revisions) or changes to the plan are clearly identified as to where applicable, i.e., system element, page, paragraph, number, etc. The Quality Assurance Department is responsible for distributing all updates to the Quality Management Plan, documents or procedures.

The following is a brief explanation of MMC's Quality Management Plan for the State of Michigan School Ship project. MMC's functional departments responsible for contracts, engineering, purchasing, warehousing, production, outfitting, and quality assurance have equal ranking in MMC's Quality Management organization. Each functional department is responsible for all Quality Control aspects related to their department.

Each MMC employee is responsible for self-inspections. First line supervisors (Foreman, Lead Engineer, etc) are responsible for work done under their supervision and direction. They are fully responsible for conducting quality control checks to assure the work meets all quality requirements, and employees have actually performed and met the self-inspection criteria. The Foreman may be assisted in this by Leaders in each respective trade or discipline. Area Managers and Project Engineers are responsible for the quality control and corrective action plan development and implementation for all work under their control. Each functional department is responsible for notifying Quality Assurance that work has been internally inspected, meets the requirements, and is ready for Regulatory and/or Customer inspection. Quality Assurance then conducts an acceptance survey with the regulatory bodies and customer as required, and documents the results. Results are then disseminated to the responsible department and customer. Discrepancies are noted and corrective action requests are issued to the responsible Area Manager or Lead Engineer.

The Quality Assurance Department is tasked by top management to implement and monitor the Quality Management Plan for the INLS, including the following activities:

- Perform system audits
- Perform and/or witness the functional or procedural inspections and tests
- Assure Hull Structure is in compliance with the approved Design Drawings
- Ensure tests are performed correctly and results recorded
- Perform nondestructive testing as required and report results
- Report deficiencies and Customer Complaint Reports (CPR's)
- Assist in developing and then monitor corrective actions
- Ensure documents are reviewed and updated as needed
- Verify the QA Plan is reviewed by Top Executive Management no less than annually
- Maintain the master procedure index and files
- Coordinate inspections and tests with Regulatory Bodies and Customers
- Coordinate inspections and tests with vendors
- Maintain the quality related records for the organization as needed
- Ensure proper investigation and reporting on root causes and non-conformities

MMC's Top Executive Management has designated the Quality Assurance Manager as the lead person with responsibility and authority to;

- Ensure that processes needed for the quality management system are established, implemented and maintained,
- Report to Top Executive Management on the performance of the quality management system, and any need for change or improvement, and
- Ensuring the promotion of awareness of customer requirements throughout the organization.

Contracts department is responsible for a thorough review of the project requirements to ensure requirements are adequately defined and documented. The contract is reviewed to ensure that design, production, schedule, and inspection requirements can be met. The contract is the basis for all activities for the life of the agreement, from pre-award proposal through the warranty and servicing period. Schedule and plan dates are made available to the customer for review. MMC's Contract Department maintains the official contract and related documentation. Engineering Change Proposals may be executed and the Contracts Department is responsible for the modification to the contract and distributing it to all MMC functional departments, including Quality Assurance.

Program Management chairs meetings with the Customer as needed. The agenda is used to address specific technical, schedule, performance, and manufacturing issues related to the project. The Program Manager works through the Contracts Department if ECP's or modifications are needed. Only the Contracts Department can authorize changes to the contract, or issue directives to the organization relative to the project.

Engineering Design Control system consists of a formal review and revision process with all functional departments, including Quality Assurance. This is to ensure design requirements are met and minimize risk during the formal review meetings. The design control steps are sequenced throughout the development of each engineering deliverable and the construction phase of the contract. Engineering deliverable include calculations, drawings, purchase specifications, manufacturing production orders, bills of material, process sheets, and test/acceptance procedures and memos. Reviews are made to ensure key product features and characteristics are cost effectively incorporated in the design.

Planning Department receives this information from Engineering and generates work packages, and standard work instructions to meet the drawing requirements. Purchasing generates purchase orders based on the engineering design criteria and planning department schedule requirements. Purchasing schedules any Factory Acceptance Test(s) (FAT) required, and secures certificates on the material or assembly. Planning Department then generates a Master Schedule for the project in conjunction with Contracts, Program Management, Engineering, Manufacturing and Quality Assurance Departments.

Purchasing also selects vendors based on past performance, price, delivery, and company financial status and production capability. Records of acceptable/unacceptable vendors are maintained in the Purchasing Department. Purchasing obtains all documentation, physical and chemical property reports, and traceability information. These reports are reviewed by Engineering and QA, and filed in the Engineering Project Files. Manuals on purchased equipment are also forwarded to MMC's Integrated Logistics Support Department for incorporation.

Manufacturing Department receives the Master Schedule and production work orders to define the steps to move the product through the production process. Production work packages contain checklists tailored to suit the work being performed. They may also include or reference the following: Procedures, Work Instructions, Labor Charge Numbers, Budget/Schedule/Manpower requirements,

Detailed Work Instructions or Vendor Supplied Manuals, Construction Drawings, Tooling or Fixture requirements, Accuracy Control requirements, and approval signature blocks for Foreman and Quality Assurance inspections of completed work.

The construction inspection process includes a Quality Checkpoint System of predetermined key elements to be checked at a specific time. Checkpoints are inspections of products and processes implemented at various times to ensure compliance to project requirements and schedules. The principal stages of construction are: part fabrication, panel construction, module construction and assembly, outfitting, mechanical installation, final hull dimensions for connectors and tightness/NDT testing. After shop construction is complete, final operational testing, sea trials and acceptance trials are then completed. MMC utilizes specified checkpoints, which require witness and sign off by MMC QA, Regulatory Bodies and Customer representatives. Failure to pass a checkpoint prevents the product from progressing to the next workstation, and triggers corrective action.

MMC maintains a Calibration Lab in the QA Department. Standards are traceable to NIST and records are maintained. Measuring devices are calibrated on a schedule. Both equipment used in the process of manufacture, and installed product equipment is calibrated. If a unit is returned to the Calibration Laboratory and found to be out of calibration, previous measurements made are then checked and verified for conformance to standards.

Top Management reviews the performance of the organization as compared to the objectives desired. Rework types and figures are maintained by the QA Department. Customer Problem Reports (CPR's) also give feedback from the customer, along with verbal discussions at Program review meetings chaired by Program Managers. MMC's Quality Management System uses several sources to monitor, analyze, and improve the organization's effectiveness.

208 REGULATORY BODY LIAISON

1.0 Scope of Work:

2.1 Location of Work: Various

2.2 Intent: Initiate and maintain liaison with the United States Coast Guard (USCG) and the American Bureau of Shipping (ABS) for the purpose of identifying and accomplishing all tests, inspections, approvals, examinations, and certifications related to the Contract work under their purview.

2.0 Work Description:

2.1 Meet with USCG and ABS to determine all regulatory requirements related to Work Item design, construction, installations, and modifications to structure, systems, and equipment.

2.1.1 Provide four copies of an initial Regulatory Requirements Report, by work item, to the COTR, within 10 days after contract award. Provide updates of the initial report to the COTR when changes occur, as per Item 201 (Ref. 4.1).

2.1.2 The requirements for scheduling and documenting the accomplishment of all regulatory requirements related to all Work Items is contained in Item 207 (Ref. 4.3) and Item 202 (Ref. 4.2).

2.1.3 All required regulatory approvals and preliminary certificates of material and workmanship shall be provided to the COTR prior to the acceptance of those work items as complete by the COTR.

2.1.4 The Contractor shall request ABS and USCG to forward the final certificates to the COTR.

2.2 The Contractor shall ensure that all ABS Survey fees are billed directly by ABS to the Ship Manager. The Contractor shall be responsible for any ABS premium charges for inspections conducted after normal working hours at the request of the Contractor and re-inspection due to rejections of Contractor's workmanship or materials.

2.2.1 The COTR will deduct such ABS charges, for which the Contractor is held liable, from the final payment to the Contractor.

3.0 Performance Criteria/Deliverables:

3.1 Regulatory Requirement Report (paragraph 2.1.1)

4.0 References:
4.1 Item 201, [Plans and Correspondence Procedures]

4.2 Item 202, [Planning And Scheduling]

4.3 Item 207, [Inspection System]

5.0 Notes: None

209 SUBMISSION AND OBTAINING USCG & ABS CLASS APPROVALS

1.0 Scope of Work:

1.1 Location: Various

1.2 Identification: See paragraph 2.1.

1.3 Intent: Submit documentation and obtain regulatory body approvals for ship's systems and/or conditions where required by these Specifications, ABS Rules, or USCG Regulations.

2.0 Work Description:

2.1 The preparation and development of technical documentation, drawings, plans, booklets, etc., which are required to be submitted for regulatory body approval, are covered in other specifications previously authorized for accomplishment by the Contractor. This Item covers the submittal, tracking, and reporting of such documentation leading to approval.

2.2 For the required plans and drawings, submit the required number of copies to the cognizant regulatory body for approval. Sections 1 and 2 of Enclosure (1) to reference 4.1 detail the plan review responsibilities of ABS and USCG, respectively. Ensure that each regulatory body receives the correct number of copies for distribution, review, and approval or resubmission. The contractor must ensure that plans contain all information required by enclosure (1) to reference 4.2 to assure efficient and complete review and approval of plans. Further, where the plans have been reviewed by a contractor-employed Professional Engineer (PE), ensure the certification is contained in the submittal. Finally, to ensure that the review process is streamlined and only those plans required for approval by the USCG are submitted, review reference 4.4 to eliminate non-critical engineering plans which may not require approval. Submit to the COTR a copy of the transmittal letter and a copy of each plan submitted.

CHECK POINT - (Preliminary Plan Submittal)

2.2.1 Submit to the COTR a copy of the transmittal letter and a copy of each preliminary plan submitted, as per Item 201 (Ref. 4.5).

2.3 Prepare a report to be used for tracking the plan approval process. The report should include, as a minimum: Plan Number, Plan Title, Date of Plan, Revision Number, Date Submitted, Regulatory Body to whom the plan was submitted, Status of Submittal or Approval (i.e., pending, approved, disapproved and reason for disapproval, re-submittal date, etc.). Submit the report to the COTR, as per Item 201 (Ref. 4.5).

CHECK POINT - (Plan Tracking Report Submittal)

2.3.1 Submit to the COTR a copy of the Plan Tracking Report for review and comment, as per Item 201 (Ref. 4.5).

2.4 Upon receipt of comments from the regulatory body (ABS, USCG), incorporate changes as applicable to the drawing which was reviewed. Ensure the drawing comments are annotated, where necessary, to indicate ABS/USCG letter as a reference. Update and submit the revised plan(s) as necessary. Provide a copy of the final plan to the COTR. Prepare a revised Plan Tracking Report and submit to the COTR, as per Item 201 (Ref. 4.5).

CHECK POINT - (Final Plan and Tracking Report Submittal)

2.4.1 Submit to the COTR a copy of the Revised Plan Tracking Report and a copy of each revised plan submitted for review, as per Item 201 (Ref. 4.5).

2.5 Upon receipt of final approval form the respective regulatory body, distribute plans as required by MARAD Technical Point of Contact (TPOC) , as per Item 201 (Ref. 4.5).

3.0 Performance Criteria/ Deliverables:

3.1 Receipt of Preliminary Plan (paragraph 2.2.1).

3.2 Receipt of Plan Tracking Report (paragraph 2.3.1).

3.3 Receipt of Final Plan and Tracking Report (paragraph 2.4.1).

4.0 References:

4.1 Navigation and Vessel Inspection Circular (NVIC) 10-82, Change 2: "Acceptance of Plan Review and Inspection Tasks Performed by the American Bureau of Shipping (ABS) for New Construction or Major Modification of U.S. Flag Vessels."

4.2 Navigation and Vessel Inspection Circular (NVIC) 8-84, "Recommendations for the Submittal of Merchant Vessel Plans and Specifications."

4.3 Navigation and Vessel Inspection Circular (NVIC) 10-92, Change 1, "Coast Guard Recognition of Registered Professional Engineer Certification of Compliance with Coast Guard Requirements."

4.4 Navigation and Vessel Inspection Circular (NVIC) 4-94, "Elimination of Coast Guard Plan Review for Non-Critical Engineering Systems and Cargo Barges."

4.5 Item 201, [Plans and Correspondence Procedures]

5.0 Notes: None

210 CONFIGURATION MANAGEMENT

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Intent: Provide a precise methodical means for procuring equipment and documenting equipment configuration either installed or removed during this conversion.

2.0 Work Description:

2.1 Procurement of Shipboard Equipment: - Procure ship's equipment in accordance with the procedures stated herein.

2.2 Configuration Management: - Document all configuration change in the vessel during the yard period: Configuration Management is the management practices and procedures for a discipline which includes identifying and documenting the functional and physical characteristics of a material item, by controlling changes to material items and their functional and physical characteristics and configuration identification, and the reporting and recording of configuration information.

2.3 Definitions:

2.3.1 Equipment: Any functional unit of hull, mechanical, electrical, or electronic type material that is operated singly or as a component of a system.

2.3.2 Spare Parts: This term refers to any item or items, including modules and consumable-type materials that have an equipment application and which appear in a Shipboard Allowance List (SAL). The term "Spares", "Repair Parts", and "Spares and Repair Parts", are used interchangeably.

2.4 Procurement Procedures:

2.4.1 The Contractor shall procure equipment in support of this conversion. The equipment shall be procured in accordance with the characteristics, terms, and conditions stipulated in the contract Statement of Work. Additionally, all equipment bought by the Contractor shall include three (3) sets of technical manuals and two (2) sets of drawings.

2.4.2 The Contractor shall document all material procured utilizing the inventory, validation, technical manual, drawings, and accountable property forms. These forms shall be provided to the government after procurement and before installation.

2.4.3 Prior to the Contracting Officer authorizing work to proceed under this specification, the Contractor, as minimum, shall demonstrate that their purchasing system has the ability to retain and report specific information, i.e., item costs, equipment information, manufacturer and vendor information, item description, quantity, unit of issue, etc. The system must have a capability to track and provide up-to-date material status, and procurement and historical information data. These procedures shall be provided to the Contracting Officer for review within 14 days of contract award. The Contractor will not be authorized to proceed with ordering any equipment or supporting repair parts under this contract until the Contracting Officer has approved in writing the Contractor's procurement procedures. The Contractor shall procure equipment approved and identified by MARAD or its designated representative as follows:

2.4.3.1 Identify sources and pricing for the material requirements; conduct an appropriate procurement effort to obtain competition in accordance with FAR 52.044-5.

2.4.3.2 For material obtained from outside the continental United States, the Contractor shall identify and provide estimated air and surface freight costs and shipment time. The mode to be used will be selected by MARAD based on urgency of the requirement.

2.4.3.3 Make maximum practical effort to purchase material from small, disadvantaged, and minority/women-owned businesses.

2.4.3.4 Make every attempt to purchase from the lowest tier to eliminate pass through costs.

2.4.3.5 For purchases where the estimated costs or quantities are less than the vendor minimum cost per order, the Contractor must seek authorization from MARAD to increase the requested quantity to match the vendor requirement, but not to exceed the maximum cost authorized by MARAD. The Contractor shall make every effort to consolidate buys to avoid incurring costs.

2.4.3.6 The Contractor shall provide equipment from only the manufacturer or it's authorized distributor. If other than original manufacturer equipment is used, the substituted equipment must be obtained from the manufacturer and be provided with a statement of fit, form, and function. No reconditioned or after market equipment are to be supplied, unless specifically authorized in writing by the Contracting Officer. In the event that a substitution is required, the Contractor shall provide the following to the Contracting Officer or designated representative:

2.4.3.6.1 Equipment possesses an appropriate Regulatory Body approval or other pertinent design standards where required.

2.4.3.6.2 Data presented demonstrates that proposed substitution meets the specified performance requirements.

2.4.3.6.3 Equipment possesses similar and functionality equivalent dimensions; weight, power, HVAC, cooling water, or other required services; capacity, material, marine service characteristics; maintenance features and requirements, maintenance manpower requirements, time in service, suitability for marine service, population in commercial service, life cycle cost and maintenance cost, structure-borne and airborne characteristics, vendor-furnishing training, worldwide service and support; warranty provisions, spare parts availability and provisioning, consumption and performance data, and compatibility with interrelated systems and arrangements.

2.4.3.6.4 Exceptions to these criteria will be considered if they are advantageous to the vessel's mission and to the government. If approved, the Contractor shall take full contractual and technical responsibility from a cost and performance standpoint for installing the components, equipment, or systems, and ensuring their compatibility with interrelated components, equipment, or systems.

2.4.3.7 The Contractor shall advise MARAD of all procurements that require supplier "tooling up". In such cases, MARAD may authorize the Contractor to increase the quantity to be procured in order to facilitate the Shorebased spares assets.

2.4.3.8 Advise MARAD in writing when any ordered materials are considered long-lead time and could affect the scheduled delivery of the vessel.

2.4.3.9 The Contractor shall provide the government with a copy of all purchasing files for materials procured for MARAD. This deliverable shall be submitted in an automated format identified prior to contract award.

2.4.3.10 As a minimum, the Contractor shall provide the manufacturer's recommended allowance list for equipment procured.

2.5 Unworkable Purchases:

2.5.1 The Contractor is unable to identify a vendor using available information provided.

2.5.2 The designated vendor is unable to identify the item or requires additional information (e.g., serial number of end item).

2.5.3 The production lead-time is determined to be unreasonable or excessive.

2.5.4 The Contractor shall provide MARAD, the following information for all purchases it considers unworkable:

2.5.4.1 Known information on item;

2.5.4.2 A clear statement of the problem; and

2.5.4.3 Recommended solution.

2.5.5 MARAD will take one of the following actions:

2.5.5.1 Increase authorized price; or

2.5.5.2 Modify the purchase, description, or other parameters. In these instances, MARAD will provide the necessary information and/or clarification to continue the procurement process. Included in this response may be either a drawing(s) or other technical documentation, or both; or

2.5.5.3 Cancel the purchase. If it is not feasible to continue the purchase order, MARAD will advise the Contractor in writing that the purchase will be canceled.

2.6 Installation and Removal of equipment in support of Training Vessels

2.6.1 All equipment either Installed or Removed must be accompanied with the pertaining documentation (Attachments 1 through 5), by the Contractor to the government.

2.7 The Contractor shall receive, inspect, and stage materials:

2.7.1 The Contractor shall perform a 100% quality assurance receipt inspection, including certification that material, count, quantity, and condition are correct.

2.7.2 Inspection for the intrinsic value of purchased material. In the event of suspected overpricing, contact vendor for possible refund or correction of any pricing error that may have taken place. If the vendor is unwilling to correct the suspected overpricing, report the situation to the Contracting Officer for resolution.

2.7.3 Inspect for lowest tier supplier information on purchased material.

2.7.4 Ensure that vendor procurement information is identified on received materials. As a minimum, the Contractor shall ensure the item requisition number, nomenclature/description, model number, serial number, quantity, and unit of issue is included in each line item shipped.

2.7.5 The Contractor shall comply with the following requirements for staging materials:

2.7.5.1 To maintain preservation, the Contractor shall ensure that procured equipment remain in their original condition. The Contractor shall provide any services required for installation and stated in the contract Statement of Work.

2.7.5.2 Ensure that materials are not exposed to storage, weather, or climate conditions that could compromise its stability or capability.

2.7.5.3 Each item has been properly identified with equipment or repair parts support information and proof of delivery, and they are affixed to each line item procured and temporarily located.

2.7.5.4 Advise COTR in writing of any events that caused misplacement, damage to or theft of procured materials. Materials not meeting the above conditions shall become the responsibility of the shipyard to replace.

2.7.5.5 The government reserves the right to conduct a Quality Assurance Review (QA) of the Contractors material procurement and handling processes at any time during the performance of the contract. The Contractor will be notified within 24 hours of this review.

2.7.5.6 The Contractor is to provide a secure lockable location to store equipment and spare parts prior to turnover to the Chief Engineer or COTR.

2.8 Material Turnover:

2.8.1 The Contractor shall complete and submit a Validation Aid that is prepared and identifies equipment characteristics for newly installed, removed, or repaired equipment. Attached to each validation aid will be the Inventory Aid when parts are either procured or used. If parts were not acquired, then as a minimum, the manufacturer's recommended repair parts allowance list is required.

2.8.2 The Contractor shall prepare and provide to the COTR, a technical manual, drawing, or accountable property form whenever they are acquired in support of on board equipment.

2.8.3 Once the ship departs the shipyard, if any repair part requisitions are pending, the Contractor will ship materials to the designated location identified by MARAD. The procedures exercised for turnover of pending materials must include the procedures stipulated in this specification.

2.8.4 The Contractor shall provide all labor and material handling equipment needed to assist in the relocation, installation, or removal of equipment to or from the vessel, or any other storage facility in close proximity of the vessel.

2.8.5 Material turnover is determined by the COTR. Whether turnover is periodic, incrementally, or the end of the contract, is at the discretion of the COTR.

2.8.6 At time of turnover, the Contractor shall certify in writing that all parts and equipment being delivered to the vessel have been verified 100%, and meets fit, form, and function.

2.8.7 All procured materials will be turned over by the Contractor, to the COTR. The Contractor shall locate these parts and equipment to a designated shipboard location identified by the COTR for processing. Moreover, the Contractor shall not participate in locating or stowing any parts on board MARAD vessels. Upon completing turnover of procured material, the Contractor shall obtain the COTR's signature for acceptance of the material. The mechanism utilized for COTR certification shall be a listing of all parts or equipment being turned over to MARAD. On these documents an official space for signature is required. The certification document shall contain no less than the minimum requirement for parts data information, delineated in the baseline specification for procuring spare parts.

3.0 Performance Criteria/Deliverables:

3.1 Validation: Equipment characteristics record for any functional unit of hull, mechanical, electrical, or electronic type material. The form contains information such as equipment description, name, serial number, voltage, amps, etc. For equipment that is removed, the Contractor will write "REMOVED" in bold letters across the top of the document. (Attachment 1)

3.2 Inventory: A record of repair part information, i.e., part description, part number, unit of issue, quantity, etc. (Attachment 2)

3.3 Technical Manual: A record of the equipment technical manual documentation containing information, i.e., description, technical manual number, manufacturer information, etc. (Attachment 3)

3.4 Vendor Drawings: A record of the equipment drawings that contains information such as drawing number, equipment description, manufacturer information, etc. (Attachment 4)

3.5 Accountable Property: Non-installed portable equipment. (Attachment 5)

4.0 References:

4.1 Item 017, [Provide Spare Parts]

4.2 Item 018, [Provisioning and Stowage of Repair Parts]

5.0 Notes: None

Section 300: CONVERSION

301 MAST MODIFICATIONS

1.0 WORK DESCRIPTION

This item describes modifications to the existing main mast area located at Frame 59 and to install a new mast at Frame 73. This conversion item must be accomplished in conjunction with Items 302 [Upper Deck Accommodations], 308 [Revise Lifesaving Equipment], and 320 [Relocate Deck Crane]. Planning for this item shall be accomplished in accordance with Reference 2.3 if awarded.

2.0 REFERENCES

2.1 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1

2.2 Item 205 [Preparation of Drawing and Plans].

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 118 [General Surface Preparation and Painting].

2.5 Item 104 [Remove and Reinstall Interferences].

3.0 WORK REQUIREMENTS

3.1 Removals (Mast has been removed)

3.1.1 Not Used.

3.1.2 Remove SATCOM antenna wiring back to its origination in the Pilot House; seal all deck and bulkhead penetrations with approved materials. Interferences shall be addressed in accordance with Reference 2.5.

3.1.3 Remove the demineralized water system in its entirety as part of the existing main mast removal.

3.1.3.1. Remove all SURTASS cooling water piping, valves and fittings from the existing Mission Operations Room, and all additional SURTASS cooling water piping located within the SURTASS Operation Center (SOC).

3.1.3.2. Remove the SURTASS cooling water piping between the SOC and the propulsion motor room, 3-60-0-E.

3.1.3.3. Remove the existing power cables from the demineralized cooling water circulation pumps (located in the Propulsion Motor Room) back to Motor Control Centers 2A and 2B. Remove the remote start/stop pushbutton stations for the demineralized cooling water circulation pumps (located on the aft bulkhead of the SURTASS Mission Operations Room) and the associated cables. Redesignate the two motor controllers as spare.

3.1.4 Not used.

3.1.5 Remove and dispose of all waveguides from the base of the mast to their points of termination in the SURTASS Operation Center (SOC).

3.1.6 Remove other local items and interferences in accordance with Reference 2.5.

3.2 Additions

3.2.1 Provide structural support for the new main mast. Insert plates into the deck shall be used for attachment of mast legs to deck structure. Doubler plates shall not be used.

3.2.2 Provide one (1) new main mast at Frame 73, constructed of aluminum and generally configured as shown in Reference 2.1. The new mast shall include a gaff configured generally as shown in Reference 2.1. The mast and yardarms shall be designed to permit

servicing of navigation lighting and flag hoists and shall be equipped with safety features such as climber safety rails and / or tie-off padeyes in all work locations used by maintenance personnel. Structural support shall be provided for the new mast, located to avoid interference with the new life boats (Item 308) and the relocated crane (Item 320).

3.2.2.1 Masts shall be designed based on a minimum factor of safety of 2.5 of the welded yield strength of the material. Masts and equipment foundations on the masts shall be capable of withstanding the dynamic forces required by ABS.

3.2.2.2 Attachments to bulkheads for supporting local weights may not impair the strength or tightness of the bulkhead. Insert plates, margin plates, special framing, and stiffening shall be installed as necessary to distribute local stress. Where practicable, the attachments shall be made to the special framing and not directly to the bulkhead structure.

3.2.2.3 Attachments of components to structural members may not reduce the strength of the member. Brackets, margin plates, doubler plates, inserts or special framing shall be attached to the structure, and the components mounted thereto and not directly to the structure. Drilling or tapping flanges of structural members for the purpose of attaching supports for any equipment, foundations, pipe hangers, cableways, or similar items, is prohibited.

3.2.2.4 Strength members that are subject to high tensile stresses shall be designed so that dependence is not placed on the strength of the metal normal to its plane of rolling. Where this is impracticable, through connections or other means shall be provided to minimize the possibility of failure due to plate delamination.

3.2.3 The mast shall be equipped with a yardarm with six (6) halyards, with suitable taffrail, evenly distributed port/starboard. Fittings for dress ship lights shall be provided by the contractor.

3.2.4 The new mast and associated appurtenances shall be painted in accordance with Reference 2.4.

3.3 Modifications

3.3.1 Reuse the existing navigation and task light fixtures that were removed from the existing mast (Owner will provide). Reinstall the provided navigation and task light fixtures onto the new main mast as required by COLREGS. The reinstalled lights shall be reconnected to the existing lighting panel for navigation and task lights located in the Pilot House.

4.0 TEST AND INSPECTION

4.1 The Contractor shall perform an operational test of the navigation and task lighting in accordance with regulatory body requirements.

4.2 The Contractor shall perform a continuity test of all shipyard installed cables.

5.0 TECHNICAL DOCUMENTATION

5.1 Drawings and technical documentation shall be in accordance with Reference 2.2.

5.2 Provide a new structural drawing for the new mast installation.

5.3 Update the vessel's drawings and drawing index to reflect the modification and equipment installations.

5.4 Provide a Test Report certifying continuity test for all new cables.

6.0 NOTES: None

302 NOT USED

303 CONVERT EXISTING SHIP'S OFFICE

1.0 WORK DESCRIPTION

This item describes modifications to convert the existing Ship's Office, 02-22-1, into a Double Stateroom. Planning for this item shall be accomplished in accordance with Reference 2.3, and in conjunction with planning for Item 302.

2.0 REFERENCES:

2.1 Item 203 [Engineering and Design Support for Existing Systems and New Installations].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 109 [General Requirements for Piping Systems].

2.5 Item 108 [General Requirements for Sanitary Spaces and Fixtures]

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 All drawings and calculations required by Item 302 and Reference 2.1 shall be completed prior to commencement of ripout associated with this conversion item.

3.1.2 - Not used.

3.1.3 Lighting fixtures and associated cabling that are excess in the new stateroom configuration shall be removed. Excess cabling shall be removed back to the associated power panel.

3.1.4 Existing subbases and foundations for removed furniture shall be removed and the local deck areas ground smooth.

3.1.5 The existing five-drawer safe in the Chief Engineer's Stateroom (02-14-2) shall be removed and turned in to the COTR for disposition.

3.2 Additions

3.2.1 Provide new foundations for new stateroom furniture, as required.

3.2.2 New stateroom furniture and outfitting shall be provided. The new two-person stateroom identified in Reference 2.2 shall be outfitted with a modular or built-up toilet and shower with exhaust fan, sink, two-person berth with mattresses, NSN H2090-00-826-1857, or equal, two clothes lockers each 24 inches wide by 72 inches tall, Jamestown Metal SK-321-7, or equal, one bureau with desk equal to those in existing staterooms, one desk chair, one side chair, one refrigerator equal to those in the existing staterooms, and stowage for two immersion suits and two life jackets. Sanitary spaces shall be in accordance with Reference 2.5. Category 6 computer network cable and a corresponding wall jack shall be provided near the bureau. The computer network cabling shall be connected to the network patch panel described in Item 302.

3.2.3 Each berth shall be provided with a berth light. The Contractor shall provide new or relocated power cabling for the berth lights as required.

3.2.4 Provide new joiner sheathing on all bulkheads. The existing window shall be boxed in with new joiner panels. Joiner bulkhead and lining panels shall be lightweight and faced with decorative high pressure plastic laminate with a total thickness of 0.875 inches for bulkhead panels and 0.625 inches for lining panels. The plastic laminate shall incorporate the final color. Equivalent soft-core panels may be used, provided regulatory body requirements are satisfied and specification requirements are otherwise met.

3.2.5 Hot and cold potable water supply and plumbing drains shall be provided for the new toilet, shower and sinks in the new stateroom. Drains shall be routed to the new MSD system (see Item 318), tied in to the closest appropriate drainage piping. Piping shall be in accordance with Reference 2.4.

3.3 Modifications

3.3.1 Power for the lighting in the new modular T&S space shall be rerouted from an existing lighting circuit.

3.3.2 The existing ventilation system shall be rearranged as necessary to suit the new exhaust fan in the new T&S module.

3.3.3 The existing deck covering in the space shall be replaced after completion of all furniture and joiner installations. Deck covering shall be provided with Polyurethane deck covering, PRC Products Proreco I, or equal, installed in accordance with all manufacturer's recommendations. Joiner bulkhead and lining panels surrounding spaces with polyurethane deck covering shall be provided with 4" high vinyl cove.

3.3.4 Replace the existing acoustic overhead tiles with new acoustic tiles; modify coverage to suit the new space arrangement.

3.3.5 Relocate the existing Radio Room electrical panel to Passage 02-20-0.

3.3.6 Relocate the existing fire extinguisher to Passage 02-20-0.

4.0 TEST AND INSPECTION

4.1 The Contractor shall perform a continuity test of all shipyard installed or relocated cables. Satisfactory operation of all new electrical fixtures shall be demonstrated.

4.2 The Contractor shall demonstrate satisfactory operation of all new plumbing fixtures.

5.0 TECHNICAL DOCUMENTATION

5.1 Provide electrical schematics for the converted stateroom. Provide an updated electric power load analysis.

5.2 Provide updated schematic diagrams of new plumbing fixtures, fittings, and piping runs.

5.3 Update the vessel's drawings and drawing index to reflect the modifications and equipment installations.

5.4 Provide a Test Report certifying proper operation of all new plumbing fixtures.

5.5 Provide a Test Report certifying proper operation of all new and relocated electrical equipment.

5.6 Provide a Test Report certifying continuity test for all new and relocated cabling.

5.7 Provide a new label plate for the space, identifying it as a Stateroom, 02-22-3.

6.0 NOTES: None

304 RELOCATE RESCUE BOAT SYSTEM

1.0 WORK DESCRIPTION

This item describes modifications to relocate the existing rescue boat system to the Upper Deck, starboard side, to suit the new deckhouse arrangement. Planning for this item shall be accomplished in accordance with Reference 2.3 and in conjunction with Item 302 if Item is awarded.

2.0 REFERENCES:

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 117 [General Surface Preparation and Painting].

2.5 46 CFR Subchapter R.

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 Drawings and calculations shall be completed in accordance with Reference 2.1.

3.1.2 Remove the existing rescue boat, rescue boat cradle, rescue boat davit and rescue boat locker located at Frame 83 on the Foc'sle Deck. Disconnect all associated power cabling and pull back to a point suitable for a new cableway to the new rescue boat system location on the starboard side at approximately Frame 53 on the Upper Deck. Seal all resultant deck and bulkhead penetrations with approved materials. Prepare a Condition Report for the rescue boat, rescue boat cradle, rescue boat davit and rescue boat locker.

3.1.3 Remove the existing foundations for the rescue boat cradle, the rescue boat davit and the rescue boat locker located at Frame 83 on the Foc'sle Deck.

3.1.4 Remove existing liferails and lifelines at Frame 83, port side of the Foc'sle Deck. Prepare a Condition Report describing possible re-use of removed liferails and lifelines in the new rescue boat location.

3.1.5 Remove the existing cleat for the rescue boat painter.

3.1.6 Remove the existing inclined ladder and associated life rails located at Frame 50 starboard side connecting the Foc'sle Deck to the Upper Deck. Prepare a Condition Report for the ladder describing the suitability for re-use elsewhere on the exterior of the vessel.

3.2 Additions

3.2.1 Provide new foundations and local reinforcement for the rescue boat cradle, rescue boat davit and rescue boat locker on the Upper Deck, starboard side, at approximately Frame 53. The foundation and supporting structure for the boat davit shall be designed and built based on the davit manufacturer's maximum allowable overturning moment.

3.2.2 Provide new or relocated liferails and lifelines, as determined by the COTR, at the new rescue boat location on the Upper Deck, starboard side, at approximately Frame 53.

3.2.3 Provide a new cleat for the rescue boat painter equal to that removed in 3.1.5 for the new rescue boat location.

3.2.4 Provide new jettisonable gasoline stowage in the vicinity of the rescue boat. Stowage shall be provided for two (2) five-gallon fuel tanks. Remote jettison controls shall be provided as required by Reference 2.5.

3.2.5 Insert new steel plate and stiffeners matching the surrounding structure in the Upper Deck in way of the deck opening resulting from removal of the ladder at Frame 50.

3.3 Modifications

3.3.1 Relocate the existing rescue boat, rescue boat cradle, rescue boat davit and rescue boat locker on the Upper Deck, starboard side, at approximately frame 53 in accordance with Reference 2.2. The rescue boat davit limiter switch shall be reversed. The davit swing driver direction shall be reversed. The legs of the rescue boat cradle shall be shortened by 1 inch prior to installation at the new location.

3.3.2 Provide new cableway from the location determined in 3.1.2 to the new rescue boat system and reconnect all associated power cabling.

3.3.3 Provide new rescue boat embarkation lighting for the new rescue boat system location. Embarkation lighting shall be powered from an existing emergency power panel. Lighting controls shall be provided on the Bridge.

3.3.4 Exterior coatings disturbed by this conversion item shall be repaired in accordance with Reference 2.4.

4.0 TEST AND INSPECTION

4.1 The Contractor shall perform an operational test of the embarkation lighting in accordance with regulatory body requirements.

4.2 The Contractor shall perform a weight test and drop test of the relocated rescue boat davit in accordance with regulatory body requirements. Dry weights shall be used for these tests.

4.3 The Contractor shall perform an operational test of the rescue boat system in accordance with regulatory body requirements.

4.4 The contractor shall perform an operational test of the gasoline stowage jettison system.

5.0 TECHNICAL DOCUMENTATION

5.1 Provide a Condition Report for the rescue boat, rescue boat davit, rescue boat cradle and rescue boat locker.

5.2 Provide a Condition Report for the removed liferails and lifelines.

5.3 Provide structural calculations and a new foundation drawing for the relocated rescue boat system.

5.4 Update the vessel's drawings and drawing index to reflect the modification and equipment installations.

5.5 Provide a Test Report certifying continuity test for all new cables.

5.6 Provide a Test Report detailing the results of the rescue boat davit weight test and the results of the rescue boat operational test.

5.7 Provide a Test Report detailing the results of the gasoline stowage rack jettison system test.

5.8 Provide certificates for the rescue boat system as required to maintain SOLAS Safety Equipment certification for the ship.

6.0 NOTES: None

305 CONVERT FOC'SLE DECK STATEROOMS

1.0 WORK DESCRIPTION

This item describes modifications to convert the existing Foc'sle Deck Staterooms into ten three-person staterooms and one six-person stateroom. Convert the following existing staterooms into three-person rooms; 01-14-1, 01-14-4, 01-18-1, 01-21-2, 01-23-1, 01-27-2, 01-29-1, 01-34-2, 01-43-2 and 01-47-1. Stateroom 01-34-1 and storeroom 01-40-1 shall be combined into a single six-person stateroom. Planning for this item shall be accomplished in accordance with Reference 2.3, and in conjunction with planning for Item 302.

2.0 REFERENCES:

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 109 [General Requirements for Piping Systems].

2.5 Item 112 [General Requirements for Thermal and Fire Protection Insulation].

2.6 Not used.

2.7 Item 116 [Repairs of Joiner Work of Living Spaces].

2.8 Item 108 [General Requirements for Sanitary Spaces and Fixtures].

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 All drawings and calculations required by Item 302 and Reference 2.1 shall be completed prior to commencement of ripout associated with this conversion item.

3.1.2 All existing hanging lockers in the staterooms identified in section 1.0 above shall be removed.

3.1.3 All existing berths in the staterooms affected by this Item shall be removed.

3.1.4 Existing subbases and foundations for removed furniture shall be removed and the local deck areas ground smooth and deck covering repaired.

3.1.5 The existing outfit items in Sponsor Storeroom 01-40-1 shall be removed, inventoried, packaged and shipped to the MARAD South Atlantic Region Warehouse. The existing storage bins shall be retained for installation in a new location, as directed by the COTR.

3.1.6 The existing joiner bulkhead between stateroom 01-34-1 and Sponsor Storeroom 01-40-1 shall be removed. The existing door and door frame from passageway 01-10-0 into the converted space at frame 41 shall be removed. The existing light switch adjacent to the door at frame 41 in the converted space shall be removed.

3.1.7 The existing file cabinet in stateroom 01-47-1 shall be removed and turned in to the COTR.

3.1.8 The two existing bookshelves in stateroom 01-18-1 shall be removed.

3.1.9 The existing television shelf in stateroom 01-14-1 shall be removed.

3.1.10 The existing desk in stateroom 01-14-4 shall be removed.

3.1.11 The existing bookshelf in stateroom 01-21-2 shall be removed.

3.2 Additions

3.2.1 Arrangement drawings for the new deckhouse, including detailed arrangement drawings for all new Foc'sle Deck staterooms identified in Reference 2.2, shall be approved by the COTR prior to the Contractor's release of purchase orders for stateroom furnishings. See Item 302.

3.2.2 Provide new foundations for new and relocated stateroom furniture, as required.

3.2.3 The converted three-person staterooms shall each be outfitted with the following:
" One new three-person berth with mattresses, such as Jamestown Metal SK 346-018, Type IV;
" One existing bureau with desk or existing desk;
" Three new clothes lockers each 24 inches wide by 72 inches tall, similar to Jamestown Metal SK-321-7;
" One new desk chair;
" One new side chair;

Stowage for three immersion suits and three life jackets shall be provided. Other existing furniture shall be retained to the extent possible. The existing T&S spaces shall be retained. Category 6 computer network cable and a corresponding wall jack shall be provided near each bureau or desk. The computer network cabling shall be connected to the network patch panel described in Item 302.

3.2.4 A new, smaller desk of approximately 24 inch width shall be installed in stateroom 01-14-4, in way of the desk removed in Section 3.1 above. Category 6 computer network cable and a corresponding wall jack shall be provided near the desk. The computer network cabling shall be connected to the network patch panel described in Item 302.

3.2.5 Insulation, joiner panels and linings, overhead panels, lighting and electrical outlets shall be provided for the new six-person stateroom. Joiner bulkhead and lining panels shall be lightweight and faced with decorative high pressure plastic laminate with a total thickness of 0.875 inches for bulkhead panels and 0.625 inches for lining panels. The plastic laminate shall incorporate the final color. Equivalent soft-core panels may be used, provided regulatory body requirements are satisfied and specification requirements are otherwise met. Thermal, acoustic and fire protection insulation shall be provided in accordance with Reference 2.5. Joiner bulkhead and lining panels surrounding spaces with polyurethane deck covering shall be provided with 4" high vinyl cove. Quantity and quality of outfitting items for this stateroom shall be equivalent to that in the existing staterooms.

3.2.6 The new six-person staterooms shall each be outfitted with the following:
" Two new three-person berths with mattresses, such as Jamestown Metal SK 346-018, Type IV;
" Two new bureaus with desks similar to those existing ;

" Six new clothes lockers each 24 inches wide by 72 inches tall, similar to Jamestown Metal SK-321-7;
" Two new desk chairs;
" Two new side chairs;

Stowage for six immersion suits and six life jackets shall be provided. Other existing furniture shall be retained to the extent possible. The existing T&S spaces shall be retained, however the exhaust fan in this T&S module shall be replaced with a fan rated at 90 CFM. Category 6 computer network cable and a corresponding wall jack shall be provided near each bureau. The computer network cabling shall be connected to the network patch panel described in Item 302.

3.2.7 Each bunk shall be provided with a light. The Contractor shall provide new or relocated power cabling for the bunk lights as required.

3.2.8 A new lavatory and mirror shall be installed in stateroom 01-14-4, in stateroom 01-47-1, and in the new six-person stateroom 01-34-5. Fixtures shall be in accordance with Reference 2.8. Hot and cold potable water supply and plumbing drains shall be provided for the new sinks. Drains shall be routed to the new MSD system (see Item 318), tied in to the closest appropriate drainage piping. Electric power shall be provided for the mirror light.

3.2.9 New and modified piping shall be in accordance with Reference 2.4.

3.2.10 Not Used.

3.3 Modifications

3.3.1 The existing deck covering in the spaces shall be retained and replaced only IWO new replaced or removed furniture(s) footprint, if required. Color should be in contrast with the existing floor color. Deck covering shall be Polyurethane deck covering, PRC Products Proreco I, or equal, installed in accordance with all manufacturer's recommendations.

3.3.2 The existing overhead lighting in the new six-person stateroom shall be modified to be controlled from the single remaining light switch.

3.3.3 Existing joiner panels and ceilings damaged or made unsuitable for use by the removal or relocation of existing furniture and by conversion of the new six-person stateroom shall be replaced. This includes replacement in the new six-person stateroom of the removed door and door frame with appropriate panels and mounting channels. Thermal, acoustic and fire protection insulation shall be provided in accordance with Reference 2.5.

3.3.4 The existing bulkhead mounted lamps in stateroom 01-43-2, stateroom 01-14-4, stateroom 01-21-2 and in stateroom 01-32-2 shall be relocated to suit the new arrangement of these spaces.

3.3.5 The existing bulkhead mounted fans in stateroom 01-29-1, stateroom 01-14-1, stateroom 01-14-4 and in stateroom 01-21-2 shall be relocated to suit the new arrangement of these spaces.

3.3.6 Repairs to joinerwork made necessary by work under this conversion item shall be completed in accordance with Reference 2.7.

4.0 TEST AND INSPECTION

4.1 The Contractor shall perform a continuity test of all shipyard installed or relocated cables. Satisfactory operation of all new electrical fixtures shall be demonstrated.

4.2 The Contractor shall demonstrate satisfactory operation of all new plumbing fixtures.

4.3 The Contractor shall demonstrate satisfactory installation of new furnishings and satisfactory repair of stateroom items disturbed during the conversion.

5.0 TECHNICAL DOCUMENTATION

5.1 Provide electrical schematics for the new installation. Provide an updated electric power load analysis.

5.2 Provide updated schematic diagrams of new plumbing fixtures, fittings, and piping runs.

5.3 Update the Selected Record Drawings to reflect the modifications and equipment installations.

5.4 Provide a Test Report certifying proper operation of all new plumbing fixtures.

5.5 Provide a Test Report certifying proper operation of all new and relocated electrical equipment.

5.6 Provide a Test Report certifying continuity test for all new and relocated cabling.

5.7 Provide new label plates for each space, identifying each by service and location.

6.0 NOTES: None

306 NEW AND MODIFIED DECK HEADS

1.0 WORK DESCRIPTION

This item describes modifications that convert the existing Baggage Room, 01-54-6, on the Foc'sle Deck to a Deck head, and to refurbish the existing Deck Head, 01-45-8. Planning for this item shall be accomplished in accordance with Reference 2.3, and in conjunction with planning for Item 302.

2.0 REFERENCES:

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 109 [General Requirements for Piping Systems].

2.5 Item 112 [General Requirements for Thermal and Fire Protection Insulation].

2.6 Not used.

2.7 Item 108 [General Requirements for Sanitary Spaces And Fixtures].

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 Remove existing light fixtures and associated light switch from the Baggage Room, 01-54-6.

3.1.2 Remove the existing bulkhead dividing the Baggage Room, 01-54-6, and the existing Deck Head, 01-54-8.

3.2 Additions

3.2.1 Provide a new joiner bulkhead to separate the new Deck Head, 01-54-6, and the existing Deck Head, 01-54-8. Reference 2.2 provides information on a possible arrangement of this bulkhead.

3.2.2 Provide a new lavatory sink, mirror and toilet in the new Deck Head. Provide a towel rack and toilet paper dispenser. The lavatory sink, mirror, toilet, towel rack and toilet paper dispenser shall be in accordance with the requirements of Reference 2.7.

3.2.3 The new lavatory sink must be provided with an adjacent surface mounted electrical receptacle.

3.2.4 Install a new florescent lighting fixture in the overhead of the new Deck Head. Install a new light switch, which shall be located on the bulkhead inside the space, adjacent to the door.

3.2.5 Install exhaust ducting, which shall be routed outboard so that it can be merged with the existing exhaust duct that services the adjacent Deck Head, 01-54-8. Duct work shall be properly insulated and isolated from all structure, joiner work and supporting hangers to prevent transmission of noise and the formation of condensation.

3.2.6 Seawater supply lines shall be provided for the new toilet. A plumbing drain shall be provided, which shall be routed to the new MSD system.

3.2.7 Hot and cold potable water supply and plumbing drains shall be provided for the new lavatory sink. Drains shall be routed to the new MSD system. New and modified piping shall be in accordance with Reference 2.4.

3.2.8 The deck in the new Deck Head shall be provided with Polyurethane deck covering, PRC Products Proreco I, or equal, installed in accordance with all manufacturer's recommendations. The color shall be as directed by the COTR.

3.2.9 Repair disturbed joiner bulkhead which resulted from the removal of the bulkheads dividing the Baggage Room, 01-54-6, and the existing Deck Head, 01-54-8. Provide new joiner bulkheads and linings as needed to provide fully finished bulkheads in both Deck Heads. Joiner bulkhead and lining panels shall be lightweight and faced with decorative high pressure plastic laminate with a total thickness of 0.875 inches for bulkhead panels and 0.625 inches for lining panels. The plastic laminate shall incorporate the final color. Equivalent soft-core panels may be used, provided regulatory body requirements are satisfied and specification requirements are otherwise met. Joiner bulkhead and lining panels in both Deck Heads shall be provided with 150 mm high CRES cove. Joints of panels in these spaces shall be caulked. New overhead panels shall be provided in both spaces, consistent in appearance with the ship's existing overhead panels.

3.2.10 Provide new thermal/fire protection insulation for the modified overhead and bulkheads in accordance with Reference 2.5.

3.2.11 Provide a new utility sink in the existing Cleaning Gear Locker, 01-54-4. The utility sink shall be connected to the existing utility sink potable water supply and drain piping.

3.3 Modifications

3.3.1 The toilet, lavatory, mirror, towel rack and toilet paper dispenser in the existing Deck Head, 01-54-8, shall be replaced with new items meeting the requirements of Reference 2.7.

3.3.2 The existing lighting in the existing Deck Head shall be replaced with a fluorescent fixture.

3.3.2 The existing deck covering in the existing Deck Head shall be replaced with Polyurethane deck covering, PRC Products Proreco I, or equal, installed in accordance with all manufacturer's recommendations. The color shall be as determined by the COTR.

4.0 TEST AND INSPECTION

4.1 The Contractor shall perform a continuity test of all shipyard installed or relocated cables. Satisfactory operation of all new electrical fixtures shall be demonstrated.

4.2 The Contractor shall demonstrate satisfactory operation of all new plumbing fixtures.

5.0 TECHNICAL DOCUMENTATION

5.1 Provide a new schedule of thermal and acoustic insulation.

5.2 Provide updated schematic diagrams of new plumbing fixtures, fittings, and piping runs.

5.3 Update the vessel's drawings and drawing index to reflect the modifications and equipment installations.

5.4 Provide a Test Report certifying proper operation of all new plumbing fixtures.

5.5 Provide a Test Report certifying proper operation of all new and relocated electrical equipment.

5.6 Provide a Test Report certifying continuity test for all new and relocated cabling.

6.0 NOTES: None

307 CONVERT MISSION OPERATION CENTER TO CLASSROOM AND OFFICES

1.0 WORK DESCRIPTION

The Mission Operation Center (MOC), located on the Forecastle Deck between Frame 52 to 72 shall be converted to a Classroom, the Ship's Office (see Item 303) and the Faculty Office. The overhead of the MOC shall be reconfigured to support the installation of new accommodations spaces on the Upper Deck (see Item 302). Planning for this item shall be accomplished in accordance with Reference 2.3, and in conjunction with planning for Item 302 if Item is awarded.

2.0 REFERENCES:

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Not used.

2.5 Item 112 [General Requirements for and Fire Protection Thermal Insulation].

2.6 Not used.

2.7 Item 117 [General Surface Preparation and Painting].

2.8 Illuminating Engineering Society (IES) Publication No. RP-12

2.9 Item 115 [General Requirements Heating, Ventilation and Air Conditioning].

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 Develop a structural removal and modification plan consistent with the requirements of this conversion item and with the requirements of Reference 2.1. Design and engineer new structural bulkheads and decks, or modifications to existing bulkheads and decks, to meet the load bearing requirements of the structural modifications, as well as the concentrated loads (equipment installations) placed on the Upper Deck. Submit this plan to the COTR and the American Bureau of Shipping for approval prior to commencing any ripout associated wit this conversion item.

3.1.2 The existing overhead (Upper Deck level) of the MOC Room and adjacent spaces between frames 52 and 72 shall be removed.

3.1.3 All existing miscellaneous outfit items within the MOC Room shall be removed. The existing navigation repeaters shall be retained for installation in the new Navigation Laboratory (see Item 323). Wiring for the navigation repeaters shall be pulled back to the source instrumentation and removed.

3.1.4 The existing false decking, associated foundations and miscellaneous attachments shall be removed in the new Classroom and Offices and the local deck areas ground smooth.

3.1.5 Remove HVAC ducting and equipment which presently serves the existing MOC area. Make removals at locations convenient to allow installation of new ducting and equipment to create an integrated HVAC system for the new Classroom, new Offices, and the new accommodations spaces on the Upper Deck (see Item 302).

3.1.6 Remove the existing alarm panel in the MOC Vestibule, all compartment sensors, the remote alarms, and all associated cables.

3.1.7 Remove all remaining chilled water supply and return piping, fittings and gauges serving the SURTASS demineralized water cooling system heat exchangers. Remove the chilled water supply and return from a point forward of the starboard main motor at a tee into the intact chilled water system.

3.1.8 Remove the existing INMARSAT B terminal, cabling, antenna and associated mounting brackets. The INMARSAT B terminal, antenna and associated brackets shall be inventoried, packaged and shipped to the MARAD South Atlantic Region warehouse.

3.1.9 Prepare a Condition Report for other items found that require removal or relocation. The Condition Report shall be submitted to the COTR.

3.1.10 Remove the bulkhead between the Vault, 01-54-1 and the Communication Center, 01-54-3. Remove the transverse bulkhead at frame 68 and bulkheads surrounding the disintegrator Room (01-68-1). Remove the Vestibule door at frame 54. Remove the stanchion on the starboard side, at frame 67.

3.1.11 Remove the six (6) existing boat launching skid plates and associated stiffeners. The skid plates are located between the Foc'sle and Upper Deck, port and starboard, between Frames 54 and 73.

3.1.12 Remove the existing office furniture and outfit items located in the existing Ship's Office, 02-22-1. Submit a Condition Report to the COTR for the desks, file cabinets and drawing cabinet, which are intended for relocation to the new Ship's Office. The existing five-drawer safe shall be turned in to the COTR for disposition.

3.2 Additions

3.2.1 Provide a new Upper Deck section between frames 52 and 76 as shown on Reference 2.2 (Master Conversion Plan). This section shall serve as the overhead of the MOC Room and adjacent spaces. This new structure shall be at the same height above baseline as the remainder of the Upper Deck. Scantlings shall be in accordance with ABS rules and with US Coast Guard regulations. At the Contractor's option, the deck structure removed per 3.1.2 may be modified and reused, provided prior written concurrence is obtained from ABS.

3.2.2 Provide foundations for all new equipment.

3.2.3 Provide new duct work and equipment for the new Classroom, new Offices and new accommodations spaces on the Upper Deck (see Item 302).

3.2.4 In conjunction with the work required for Item 302, the Contractor shall calculate the HVAC loads for each space in the reconfigured Classroom and Offices in accordance with Reference 2.1. The Contractor shall size and provide duct work, size and provide duct heaters, size and replace the existing recirculation fan, and calculate the additional replenishment air required to suit the intended purpose. The Contractor shall determine the optimum means for introducing replenishment air and shall provide the source for replenishment air accordingly. Determination of heating and cooling loads and selection of heat transfer coefficients shall be in accordance with Reference 2.9.

3.2.5 New ventilation ducting shall be accessible for cleaning. New ducts installed within 15 feet of a weather intake or discharge shall be CRES.

3.2.6 All new ducts and equipment shall be insulated in accordance with Reference 2.1 Access covers shall either incorporate insulation or have removable insulated covers.

3.2.7 Provide new fluorescent lighting in the newly created Classroom and Offices to provide luminosity levels required by Reference 2.8. A light switch shall be provided at each access door to each space.

3.2.8 The ship's existing Fire and Smoke Detection System shall be extended to the new Classroom and Offices in accordance with Item 325.

3.2.9 The Contractor shall retain the existing sound powered telephones for reuse in the new Classroom, the new Ship's Office, and the new Faculty Office. New nameplates shall be provided.

3.2.10 The Contractor shall provide for a General Alarm System for the new Classroom and Offices in accordance with Item 327. The existing 6" alarm bell located at Frame 64 in the existing SOC shall be removed during the conversion work and relocated to the passage just outside the new Classroom at approximately Frame 60.

3.2.11 The existing Public Address loudspeaker on the aft exterior bulkhead and the existing loudspeaker in the Electrical Shop shall be retained and reused after the MOC space is converted. Public Address system modifications shall be in accordance with Item 326.

3.2.12 Provide and install a total of five (5) new 24" x 36" marine windows on the sides and aft bulkhead of the new Classroom. New windows shall be 3/4-inch thick, double pane, safety glass, Deansteel Manufacturing manufacture or equal, except that windows facing the new lifeboats (see Item 308) shall be of A-60 construction.

3.2.13 The new Classroom and Offices shall be provided with Polyurethane deck covering, PRC Products Proreco I, or equal, installed in accordance with all manufacturer's recommendations.

3.2.14 Provide new thermal insulation for all new and modified weather bulkheads and overheads of the modified MOC Room boundaries. New thermal insulation shall be in accordance with Reference 2.5.

3.2.15 Provide new joiner liners for the new Classroom and offices. New joiner liners shall meet regulatory body requirements for fire protection. Joiner liners shall have a color/pattern that approximates the ships existing finish scheme. The panels shall be supported by a system of top and bottom channels, and vertical H-posts. Panels shall be capable of being removed and reinstalled without damage.

3.2.16 New and disturbed painted surfaces shall be coated in accordance with Reference 2.7.

3.2.17 Replace the removed boat launching skid plates port and starboard with steel pipe life rail to match the existing rail. Provide new pipe stanchions to support the Upper Deck overhang resulting from removal of the skid plates.

3.2.18 Life rails shall be provided around the new Upper Deck section.

3.2.19 Provide a new inclined ladder and associated liferails from the Foc'sle Deck to the Upper Deck at approximately frame 77.

3.2.20 Install the furnishings removed from the existing Ship's Office in the new Ship's Office.

3.2.21 Extend the transverse bulkhead at frame 60 to the inboard bulkhead of the new Ship's Office, installing a new joiner door separating the new Classroom from the Vestibule. Install a new joiner door to access the new Faculty Office from the Vestibule. Install a new exterior, weathertight door at frame 78 on the starboard side, inboard of the existing vent.

3.2.22 Provide a 48 port Category 6 network patch panel in the new Ship's Office.

3.3 Modifications

3.3.1 The existing SURTASS Mission Equipment power panels shall be refurbished, relocated, and reused as necessary to supply 60 Hz MG set "clean" electrical power to new and existing ship electronics and computer equipment. The reused power panels shall be designated as Clean Power Panels. Power panels that are no longer required shall be removed and their feeders removed back to the source.

3.3.2 Provide electrical power and control to new fans, reheaters, and temperature control systems. Controllers for fan motors and multi stage heaters shall be located near the controlled device. The existing HVAC power panels shall be used for all new HVAC power requirements.

3.3.3 Relocate the existing Electronics Receptacles Power Panel and associated isolation transformer from the former Vestibule (01-52-0-L), to a suitable location in the area. Relocate existing receptacles and provide new duplex receptacles to support the new and modified spaces. Connect the receptacles to the Electronics Receptacles Power Panel. All receptacles connected to the Electronics Receptacles Power Panel shall have a label plate inscribed with "CLEAN POWER" and the circuit designation (i.e. "SP109 1", etc.).

3.3.4 The existing navigation repeaters shall be relocated within the new Classroom. The new location shall be as directed by the COTR.

3.3.5 Remove the door frame and door to the Vault (01-54-1) and replace with a transverse bulkhead, to match the surrounding structure and color.

4.0 TEST AND INSPECTION

4.1 Test and balance new and modified HVAC systems in accordance with Reference 2.9.

4.2 The revised compartmentation created by this conversion item shall be watertight tested.

4.3 The Contractor shall perform a continuity test of all shipyard installed or relocated cables. Satisfactory operation of all new electrical fixtures shall be demonstrated.

4.4 The Contractor shall conduct a photometric survey of the Classroom and Offices to demonstrate compliance with Reference 2.8.

5.0 TECHNICAL DOCUMENTATION

5.1 Update the Selected Record Drawings to reflect the modification and equipment installations.

5.2 Provide a Test Report for watertight testing of modified compartments.

5.3 All new and relocated electrical equipment shall be operationally tested.

5.4 Prepare and submit HVAC Heating and Cooling Load Calculations prior to commencement of work.

6.0 NOTES:

6.1 The system shall be designed for the final conversion configuration of the vessel based on all work detailed within the specification package including options exercised or not. All components installed shall meet the needs of the final vessel configuration as shown on the Master Conversion Plan.

308 MODIFY LIFESAVING EQUIPMENT

1.0 WORK DESCRIPTION

This item describes the installation of lifesaving equipment (float free liferafts) to suit the converted vessel's complement of 70 persons. The installation shall conform to the USCG requirements for a Public Nautical School Ship in Great Lakes service, and shall include a total of eight (8) government-furnished liferafts. The liferafts shall accommodate a minimum of 100% of the total complement on each side of the vessel. This item also describes the removal and reuse of certain of the vessel's existing liferafts.

The Contractor shall provide all material and labor required to provide fully functional liferaft stations, including life rails, life lines, embarkation lighting, structural modifications, electrical interfaces and associated deck hardware. Planning for this conversion item shall be accomplished in accordance with Reference 2.3.

The liferafts systems shall be designed, fabricated, tested and outfitted in accordance with the requirements of the following standards and regulations:

* United States Coast Guard Lifesaving Equipment Regulations

The lifeboat and davit systems, machine shop and utility room shall be designed in accordance with the requirements of the following standards and regulations:

* United States Coast Guard Lifesaving Equipment Regulations

2.0 REFERENCES

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Vendor Drawings and Manuals (Installation requirements for lifeboats and davits)

2.5 Vendor Drawings and Manuals (Installation requirements for liferafts and davits)

2.6 Item 117 [General Surface Preparation and Painting].

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 The existing life rafts and life raft cradles shall be removed and retained for reuse. The total number of liferafts available for reuse is 4. Note - see line 3.2.7.

3.1.2 Existing life rails and lifelines in way of the removed life rafts and davits shall be removed.

3.2 Additions

3.2.1 Not Used.

3.2.2 Not Used.

3.2.3 Provide and install suitable cradles for eight (8) government-furnished float-free liferafts, four (4) each port and starboard. Nominal capacity of each raft is 25 persons.

3.2.4 Not Used.

3.2.5 Not Used.

3.2.6 Not Used.

3.2.7 Provide a proposed arrangement sketch for the new port and starboard liferaft stations to the COTR for approval. The liferafts shall be installed on the Foc'sle Deck port and starboard, between Frames 80 and 92. The vessel has existing liferafts in this general area, two (2) on the port side at Frame 92 and two (2) on the stbd side at Frame 80. These rafts may be retained in their existing locations, provide the overall arranegment is acceptable to the COTR..

3.2.8 Liferails surrounding the new life rafts shall be provided and modified (as appropriate) to suit. Lifelines with pelican hook fittings shall be provided in way of the deck edge for the liferafts. Liferails and lifelines shall match the existing vessel and shall meet regulatory body requirements.

3.2.9 Provide new embarkation lighting for the liferafts. Power for the embarkation lighting shall be nearest emergency power panel with available space for the new circuits. Controls for the embarkation lights shall be provided in accordance with regulatory body requirements.

3.2.10 Not Used.

3.2.11 Not Used.

3.2.12 Provide and install all required signs for liferaft embarkation and muster areas , launching instructions, and such other signs as may be required under the USCG regulations.

3.2.13 New and disturbed areas shall be painted in accordance with Reference 2.6.

3.2.14 Not Used.

3.3 Modifications: None

4.0 TEST AND INSPECTION

4.1 The Contractor shall perform an operational test of the embarkation lighting in accordance with regulatory body requirements.

4.2 Not Used.

4.3 The Contractor shall perform an operation test of the liferaft systems in accordance with regulatory body requirements.

5.0 TECHNICAL DOCUMENTATION

5.1 Provide the manufacturer's recommended installation drawings and operating instruction manuals

5.2 Provide new foundation drawings for the lifeboat and davit systems.

5.3 Update the vessel's drawings and drawing index to reflect the modification and equipment installations.

5.4 Provide a Test Report certifying continuity test for all new cables.

5.5 Provide updates to the electric one line diagram and to the electric plant load analysis reflecting the new and removed equipment.

5.6 Obtain USCG certifications required by USCG.

5.7 Not Used.

5.8 Provide a Test Report certifying satisfactory liferaft systems operation. The test report shall also be approved by the manufacturer's service and installation representative.

6.0 NOTES: None

309 REVISE EXTERIOR ACCESS

1.0 WORK DESCRIPTION

This item describes modifications to revise the existing exterior ladders to ensure adequate access to the converted weather deck areas. Planning for this item shall be accomplished in accordance with Reference 2.3. This conversion item must be accomplished in conjunction with items 302, 304, 307, 308, 312 and 315 if awarded.

2.0 REFERENCES:

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 117 [General Surface Preparation and Painting].

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 Remove the existing inclined ladder and associated life rails located at Frame 50 port side connecting the Foc'sle Deck to the Upper Deck. Prepare a Condition Report for the ladder describing the suitability for re-use elsewhere on the exterior of the vessel.

3.1.2 Remove the existing ladder and associated liferails located at Frame 45 connecting the Upper Deck to the Bridge Deck.

3.2 Additions

3.2.1 Not Used.

3.2.2 Provide new lighting for the relocated ladder described in 3.3.2. Power shall be routed from a new power panel required for the new accommodations required by Item 302.

3.2.3 Insert new steel plating and stiffeners matching the surrounding structure in the Upper Deck in way of the deck opening resulting from the removal of the ladder at Frame 50.

3.3 Modifications

3.2.1 - Not used.

3.3.2 Reinstall one previously removed inclined ladder and associated liferails from the Upper Deck to the Bridge Deck at frame 73. Provide new liferails on the new Bridge Deck to suit (see Item 302).

3.3.3 Revise exterior lighting in way of the ladders described in 3.2.1 and 3.3.1 to suit the new ladder configuration.

3.3.4 Painted areas disturbed by this conversion item shall be restored in accordance with Reference 2.4.

4.0 TEST AND INSPECTION

4.1 The Contractor shall perform an operational test of the new and relocated exterior lighting.

5.0 TECHNICAL DOCUMENTATION

5.1 Provide a Condition Report for the ladders removed in 3.1.1.

5.2 Update the vessel's drawings and drawing index to reflect the modification and equipment installations.

5.3 Provide a Test Report certifying continuity test for all new cables.

6.0 NOTES: None

310 CONVERT MAIN DECK STATEROOMS

1.0 WORK DESCRIPTION

This item describes modifications to convert the existing Main Deck Two-person Staterooms into Three-person Staterooms. The staterooms affected by this Conversion Item are 1-24-2, 1-29-2, 1-43-2, 1-49-2, 1-53-2, 1-58-2, 1-63-2 and 1-67-2. Planning for this item shall be accomplished in accordance with Reference 2.3, and in conjunction with planning for Item 302.

2.0 REFERENCES:

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Not used.

2.5 Item 112 [General Requirements for Thermal and Fire Protection Insulation].

2.6 Not used.

2.7 Item 116 [Repairs of Joiner Work of Living Spaces].

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 All drawings and calculations required by Item 302 and Reference 2.1 shall be completed prior to commencement of ripout associated with this conversion item.

3.1.2 The eight (8) existing berths shall be removed.

3.1.3 All existing hanging lockers in the staterooms identified in 1.0 above shall be removed.

3.1.4 Existing subbases and foundations for removed furniture shall be removed and the local deck areas ground smooth.

3.1.5 The existing bookrack in stateroom 1-67-2 shall be removed.

3.2 Additions

3.2.1 Arrangement drawings for the new deckhouse, including detailed arrangement drawings for all new staterooms, shall be approved by the COTR prior to the Contractor's release of purchase orders for stateroom furnishings. See Item 302.

3.2.2 Provide new foundations for new and relocated stateroom furniture, as required.

3.2.3 The converted three-person staterooms shall each be outfitted with the following:
" One new three-person berth with mattresses, such as Jamestown Metal SK 346-018, Type IV;
" One existing bureau with desk or existing desk;
" Three new clothes lockers each 24 inches wide by 72 inches tall, similar to Jamestown Metal SK-321-7;
" One new desk chair;
" One new side chair;

Stowage for three immersion suits and three life jackets shall be provided. Other existing furniture shall be retained to the extent possible. The existing T&S spaces shall be retained. Category 6 computer network cable and a corresponding wall jack shall be provided near each bureau or desk. The computer network cabling shall be connected to the network patch panel described in Item 302.

3.2.4 Each berth shall be provided with a berth light. The Contractor shall provide new or relocated power cabling for the berth lights as required.

3.2.5 Not Used

3.3 Modifications

3.3.1 The existing deck covering in the spaces shall be retained and replaced only IWO new replaced furniture(s) footprint if required. Color should be in contrast with the existing floor color. Deck covering shall be Polyurethane deck covering, PRC Products Proreco I, or equal, installed in accordance with all manufacturer's recommendations. Joiner panels and linings disturbed by work under this conversion item shall be renewed in accordance with Reference 2.7. Joiner bulkhead and lining panels surrounding spaces with polyurethane deck covering shall be provided with 4" high vinyl cove. Thermal, acoustic and fire protection insulation shall be provided or repaired to correct any damage. Thermal, acoustic and fire protection insulation shall be in accordance with Reference 2.5.

3.3.2 The existing bulkhead lamps in stateroom 1-63-2, stateroom 1-58-2, stateroom 1-53-2, stateroom 1-43-2 and stateroom 1-24-2 shall be relocated to suit the new arrangements.

3.3.3 The existing bulkhead fans in stateroom 1-58-2, stateroom 1-49-2 and stateroom 1-29-2 shall be relocated to suit the new arrangements.

3.3.4 The existing life jacket stowage in stateroom 1-63-2 shall be relocated to suit the new room arrangement.

3.3.5 The existing towel rack in stateroom 1-49-2 shall be relocated to suit the new room arrangement.

3.3.6 Existing receptacles in the staterooms identified in 1.0 above shall be relocated as necessary to suit the new arrangements.

4.0 TEST AND INSPECTION

4.1 The Contractor shall perform a continuity test of all shipyard installed or relocated cables. Satisfactory operation of all new electrical fixtures shall be demonstrated.

4.2 The Contractor shall demonstrate satisfactory installation of new furnishings and satisfactory repair of stateroom items disturbed during the conversion.

5.0 TECHNICAL DOCUMENTATION

5.1 Provide an updated electric one line diagram and electrical schematics for the new installation. Provide an updated electric power load analysis.

5.2 Update the vessel's drawings and drawing index to reflect the modifications and equipment installations.

5.3 Provide a Test Report certifying proper operation of all new and relocated electrical equipment.

5.4 Provide a Test Report certifying continuity test for all new and relocated cabling.

6.0 NOTES: None

311 REVISE HOSPITAL WARD

1.0 WORK DESCRIPTION

This item describes modifications to reconfigure the HVAC system in the existing Hospital Ward, 1-22-3. Planning for this item shall be accomplished in accordance with Reference 2.3.

2.0 REFERENCES

2.1 MARAD Base Line Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 MARAD Base Line Item 202 [Accomplish Planning and Scheduling].

2.4 Item 115 [General Requirements Heating, Ventilation and Air Conditioning].

3.0 WORK REQUIREMENTS

3.1 Removals: None.

3.2 Additions

3.2.1 Provide a new ventilation exhaust duct from the Hospital Ward (1-22-3). This exhaust duct shall be routed to be served by the existing dedicated ventilation exhaust system for the Hospital (1-29-1). Ducting construction and arrangement shall be as required by 46 CFR Subchapter R for a Hospital space.

3.3 Modifications:

3.3.1 Remove the existing joiner door to the Hospital Ward (1-22-3) from the passageway (1-9-0). Provide a new joiner door to the Hospital Ward (1-22-3) from the passageway (1-9-0). This door shall not be equipped with ventilation louvers nor undercut for ventilation purposes.

3.3.2 The existing Hospital ventilation exhaust fan shall be replaced with a new fan sized to serve the needs of both the Hospital and the Hospital Ward. Fan sizing shall be in accordance with Reference 2.4.

3.3.3 Replace the existing label plate for the space, identifying it as the Hospital Ward, 1-22-3.

4.0 TEST AND INSPECTION

4.1 Test and balance new and modified HVAC systems in accordance with Reference 2.4.

5.0 TECHNICAL DOCUMENTATION

5.1 Update the Selected Record Drawings to reflect the modification and equipment installations.

5.2 Provide HVAC calculations and drawings to reflect the modification and equipment installations.

5.3 Provide a Test Report certifying ventilation system performance as satisfactory.

6.0 NOTES: None

312 NOT USED

313 NOTE USED

314 REVISE MACHINERY ACCESS TRUNK

1.0 WORK DESCRIPTION

This work item describes modifications to extend the existing Machinery Access and Removal Trunk, 3-34-0, through the new deckhouse structure required by Item 302. Planning for this item shall be accomplished in accordance with Reference 2.3, and in conjunction with planning for Items 302.

2.0 REFERENCES

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 114 [General Requirements for Doors, Hatches, Scuttles and Manholes]

2.5 Item 117 [General Surface Preparation and Painting].

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 None.

3.2 Additions

3.2.1 Provide a fume tight bolted steel barrier within the machinery access trunk to segregate the machinery space from the rest of the access trunk. The barrier shall be located to allow access from the main deck downward to the machinery space on one side of the barrier and from the main deck upward on the other side of the barrier. The barrier shall have a minimum plate thickness of 3/16"with suitable stiffeners, and shall be designed to allow its removal through the BERP required in Section 3.2.6 and shall be fitted with lifting padeyes.

3.2.2 Provide a fume-tight door from the machinery access trunk to the passage 1-9-0 on the main deck at approximately frame 52. The door shall be in accordance with Reference 2.4. Relocate the OBA locker and any other interferences necessary for the installation.

3.2.3 Not Used.

3.2.4 Not Used.

3.2.5 On the upper deck provide a fume tight door from the passage 02-42-2 to the machinery access trunk. The door shall be in accordance with Reference 2.4.

3.2.6 Not Used.

3.3 Modifications

3.3.1 Modify the grating on the main deck as required to accommodate the steel barrier required in Section 3.2.1.

3.3.2 Modify the inclined ladder providing access from the main deck to the upper deck within the machinery access trunk as needed to accommodate the fume barrier.

3.3.1 Painted areas disturbed by work under this conversion item shall be renewed in accordance with Reference 2.5, as appropriate.

4.0 TEST AND INSPECTION

4.1 Demonstrate that the steel barrier required in Section 3.2.1 can be removed through the access trunk. In approved by the COTR this may be demonstrated during the initial installation.

4.2 Not Used.

5.0 TECHNICAL DOCUMENTATION

5.1 The Selected Record Drawings shall be updated to reflect the modifications and new equipment installations.

5.2 Submit a Test Report verifying satisfactory completion of the Bridge Deck BERP watertightness test.

6.0 NOTES: None

315 MODIFY AFT DECK

1.0 WORK DESCRIPTION

This item describes modifications to the Aft Deck. The purpose of these modifications is to reduce weight, reduce maintenance and improve the functionality of the open deck area. Planning for this item shall be accomplished in accordance with Reference 2.3, and in conjunction with Items 312 - Relocate Machine Shop, 308 - Revise Lifesaving Equipment and 309 - Revise Exterior Access if awarded.

2.0 REFERENCES:

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 117 [General Surface Preparation and Painting].

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 Remove foundations for the existing SURTASS array winch, the SURTASS storage reel, and other miscellaneous foundations remaining on the Main Deck aft of the new Machine Shop and Utility Room.

3.1.2 Remove the existing foundation for the 8' x 8' ISO container.

3.1.3 Remove the existing elevated standing platform, supporting structure and liferails across the stern at frame 100.

3.1.4 Remove the existing SURTASS array bossing on the transom. Cut back the extensions of Ballast Tank 3-94-1 and Ballast Tank 3-94-2 that support the SURTASS array bossing to form a flush transom.

3.1.5 Remove the existing grating covering the Aft Deck. Retain for later reinstallation (see 3.2.2 below).

3.1.6 - Not used.

3.1.7 Remove the existing Foc'sle Deck and associated stanchions on the port side aft of frame 87.

3.2 Additions

3.2.1 - Not used.

3.2.2 All new and revised structure shall be cleaned, primed and painted in accordance with Reference 2.4.

3.3 Modifications

3.3.1 Relocate the vents for Ballast Tank 3-94-1 and Ballast Tank 3-94-2 as necessary to a location protected by the structure of the reconfigured bulwark.

3.3.2 Modify the supporting stanchions for the existing aft deck grating so that the reinstalled grating will be at a finished height of 12 inches above the Main Deck. The stanchions shall also be modified to accommodate a grating attachment method similar to McNichols Co., Type RT attachment clips, or equal, that allows removal of the grating from above without creating a tripping hazard. Reinstall the existing grating on the new stanchions, using the new attachment system.

3.3.3 Modify the existing bulwark around the perimeter of the Aft Deck from Frame 80 aft to create a bulwark height of 39 inches above the new finished height of the grating. Continue the bulwark across the opening of the removed SURTASS array bossing. Provide a new 6" x 3/8" flat bar cap at the top of the modified bulwark. Existing bulwark stiffeners shall be modified to suit.

3.3.4 - Not used.

3.3.5 Modify the existing double doors and their hinges, located in the bulwark at Frame 82, port and starboard, to suit the new bulwark height.

3.3.6 Relocate the existing ensign staff and mounting socket from its location on the bulwark to starboard to the bulwark on centerline. Provide suitable fittings for dress ship that is similar to that on the existing mast.

3.3.7 The aft deck and bulwark areas disturbed by work under this conversion item shall be restored in accordance with Reference 2.4.

3.3.8 Modify the existing ladder at frame 79 to accommodate the new grating height.

3.3.9 Modify the existing tank sounding tubes on the aft deck to accommodate the new grating height.

3.3.10 Relocate the existing stern light from the towing light mast to a location as nearly as practicable to the stern. Provide a new mast for the light. Provide cabling from the existing power panel.

4.0 TEST AND INSPECTION

4.1 The Contractor shall perform hydrostatic tests of the reconfigured ballast tanks 3-94-1 and 3-94-2.

5.0 TECHNICAL DOCUMENTATION

5.1 Update the Selected Record Drawings to reflect the modification and equipment installations.

5.2 Provide the coating and surface preparation reports required by Reference 2.4.

5.3 Provide a Test Report certifying satisfactory hydrostatic tests of Ballast Tanks 3-94-1 and 3-94-2.

6.0 NOTES: None

316 MODIFY BULKHEAD 60 TO MAKE WATERTIGHT

1.0 WORK DESCRIPTION

The work to be performed for compliance with USCG Subchapter R includes the installation of a new watertight subdivision bulkhead at Frame 60 where not already provided. A sliding watertight door in the bulkhead at frame 60 is required by Item 317 (Install Sliding Watertight Doors). Planning for this conversion item must be accomplished in accordance with Reference 2.3. This

conversion item must be accomplished in conjunction with Item 321 - Tank and Piping Modifications and Item 324 - Fixed Ballast Installation if awarded.

2.0 REFERENCES

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 109 [General Requirements for Piping Systems].

2.5 Item 114 [General Requirements Doors, Hatches, Scuttles and Manholes].

2.6 Item 112 [General Requirements for Thermal and Fire Protection Insulation].

2.7 Item 117 [General Surface Preparation and Painting].

2.8 Item 115 [General Requirements Heating, Ventilation and Air Conditioning].

2.9 Item 405 [Tightness Tests of Piping Systems]

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 Remove any fire extinguishing system piping and discharge nozzles located in the new Void space 3-52-0-V.

3.2 Additions

3.2.1 Strengthen the existing portions of the structural bulkhead at Frame 60 (aft side of the Machinery Control Station) and welding, as necessary, between the Main Deck and the Potable Water Tanks to meet hydrostatic head requirements for watertight subdivision construction in accordance with ABS Rules.

3.2.2 Provide new steel bulkheads at Frame 60, one port and one starboard, outboard of the Potable Water Tanks between the tank top and the bottom of the Main Control Station to meet hydrostatic head requirements for watertight subdivision construction in accordance with ABS Rules.

3.2.3 Strengthen the existing Potable Water Tank bulkheads at Frame 60, as necessary, to meet hydrostatic head requirements for watertight subdivision construction in accordance with ABS Rules.

3.2.4 Modify and strengthen the existing transverse floors between the shell and the tank top at Frame 60 to subdivide the double bottoms of the existing Fuel Tanks 4-52-1-F, 4-52-2-F, and 4-52-0-W, and to meet the hydrostatic head requirements for watertight subdivision construction. The installation of the new subdivision boundary at Frame 60 will affect the tank volume and piping of existing Fuel Tanks 4-52-1-F, 4-52-2-F, and 4-52-0-F, which are all converted to seawater ballast tanks as described in Item 321.

3.2.5 Provide two (2) new bilge wells in the redesignated Propulsion Motor Room into the forward portion of the compartment, one port and one starboard, at Frame 61. Connect these new bilge wells to the existing bilge and ballast system in the Propulsion Motor Room.

3.2.6 Number the new Holding Tanks aft of the new bulkhead at Frame 60 as 4-60-1-H and 4-60-2-H.

3.2.7 Designate the new spaces below the Main Control Room between Frame 52 to 60 as Machinery Space 3-52-1-E and Machinery Space 3-52-2-E. Provide ventilation in accordance with Reference 2.8.

3.2.8 Provide two (2) new 21-inch diameter flush quick-acting scuttles and two (2) vertical ladders. Locate one each into each newly created Machinery space 3-52-1-E and 3-52-2-E at approximately Frame 55.5, at approximately 10 feet off centerline, port and starboard. The new vertical ladders shall not be attached to the existing potable water tanks.

3.3 Modifications

3.3.1 Modify the lighting system in the new Machinery spaces 3-52-1-E and 3-52-2-E for operation from the Main Control Station, 2-52-0-E.

3.3.2 Provide watertight cable transits for all electrical power, lighting and control cabling that penetrates the new watertight bulkhead boundary at Frame 60. Cable transits shall be approved for service by the Regulatory Bodies. Splicing of the propulsion motor power cables is not permitted.

3.3.3 All fluid systems traversing the new bulkhead at Frame 60 shall be modified to be in compliance with regulatory body system piping and tightness requirements. The following systems are impacted by the installation of the watertight bulkhead at Frame 60, and described in Item 321:

1. Engine L.O. System
2. Auxiliary SW Cooling System
3. Bilge and Ballast System
4. Fuel Transfer System
5. Compressed Air System
6. Oily Water System

3.3.4 As a minimum, provide remote manual valve operators terminating aft of Frame 60 for the following valves:

3.3.4.1 Diesel Generator Fuel Oil Supply Cutoff Valve 3-57-3.

3.3.4.2 Diesel Generator Fuel Oil Supply Cutoff Valve and 3-57-4.

3.3.4.3 Fuel Oil Purifier gate valve.

3.3.4.4 Fire Pump #2 Suction Isolation Valve SE-1, 3-60-2. The existing butterfly valve shall be replaced as part of this installation.

3.3.4.5 Firemain/Ballast Pump #2 Isolation Valve Motor Control Station 03-140. The existing motor control station may be retained.

3.3.4.6 Port and starboard potable water tank fill valves.

3.3.5 As a minimum, the following existing valves and fittings shall be relocated forward of Frame 52:

3.3.5.1 Port and starboard potable water tank drain valves.

3.3.5.2 Port and starboard potable water tank gage glasses.

3.3.6 As a minimum, the sounding tubes for tank 4-52-1 and the existing cofferdam shall be extended upward. Sounding tubes shall not terminate in the Machinery Control Station.

3.3.7 The existing Aft Bilge Isolation Valve shall be relocated aft of Frame 60.

3.3.8 The Propulsion Motor Room shall be renumbered from 4-52-01-E to 4-60-0-E. Label plates shall be provided.

4.0 TEST AND INSPECTION

4.1 A tightness test shall be performed to verify the water-tightness of the structure for the new bulkhead at Frame 60, the new Void, and on all piping and electrical systems that traverse the bulkhead at Frame 60.

4.2 Test operation of all remote valve operators.

4.3 Test the operation and tightness of relocated valves and sight glasses in accordance with Reference 2.9.

5.0 TECHNICAL DOCUMENTATION

5.1 The vessel's drawings and drawing index shall be updated to reflect the modifications and new equipment installations.

5.2 The following drawings and manuals shall be modified to reflect installations, modifications and removals:

5.2.1 Technical Manual, Main Control Station Console

5.2.2 Engineers Operating Manual

5.3 Provide a Test Report and ABS certificate verifying that the bulkhead installations and modifications are in accordance with Regulatory Body requirements for Subchapter R stability as contained in Subchapter S.

5.4 A Condition Report documenting the thickness readings shall be submitted to the COTR and to ABS.

6.0 NOTES: None

317 INSTALL SLIDING WATERTIGHT DOORS

1.0 WORK DESCRIPTION

The work to be performed for compliance with USCG Subchapter R includes the installation new remote actuated sliding watertight doors at Frames 34, 52, and 60. Planning for this item shall be accomplished in accordance with Reference 2.3.

2.0 REFERENCES

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 117 [General Surface Preparation and Painting].

3.0 WORK REQUIREMENTS

3.1 Removals

3.1.1 Remove quick-acting watertight (QAWT) door 2-34-2 between the Main Generator Room, 3-34-0, and the A/C Machinery Room, 2-23-2.

3.1.2 Remove QAWT door 2-52-2 between the Main Generator Room, 3-34-0, and the Main Control Station, 2-52-0.

3.1.3 Remove QAWT door 2-60-2 between the Propulsion Motor Room, 3-52-0, and the Main Control Station, 2-52-0.

3.1.4 Remove the existing position sensors for QAWT doors 2-34-2, 2-52-2, and 2-60-2.

3.2 Additions

3.2.1 Provide one (1) new USCG approved Class 3 sliding watertight door located in the opening of the removed QAWT door at Frame 34. The door shall be complete with operating cylinder, door position transmitter, motor driven reversible pump, automatic selector valve assembly, local reversible hydraulic hand pump, a pilot house control station with indicating (open/close) lights and close control, remote non-reversing hydraulic hand pump for emergency operation (close only), hydraulic oil supply/expansion tank mounted adjacent to the remote manual hand pump, two local control switches for door operation, one watertight electrical controller with disconnect switch, one local warning horn, and pressure switches, limit switches, valves, etc. as recommended and supplied by the vendor and as required to meet all Regulatory Body requirements. The new sliding door shall be 28 inches wide by 66 inches high mounted with a 6-inch sill. The installation of the new sliding door shall be on the Main Generator Room side of the bulkhead.

3.2.2 Provide one (1) new USCG approved Class 3 sliding watertight door located in the opening of the removed QAWT door at Frame 52. The door shall be complete with operating cylinder, door position transmitter, motor driven reversible pump, automatic

selector valve assembly, local reversible hydraulic hand pump, a pilot house control station with indicating (open/close) lights and close control, remote non-reversing hydraulic hand pump for emergency operation (close only), hydraulic oil supply/expansion tank mounted adjacent to the remote manual hand pump, two local control switches for door operation, one watertight electrical controller with disconnect switch, one local warning horn, and pressure switches, limit switches, valves, etc. as recommended and supplied by the vendor and as required to meet all Regulatory Body requirements. The new sliding door shall be 28 inches wide by 66 inches high mounted with a 6-inch sill. The installation of the new sliding door shall be on the Main Generator Room side of the bulkhead. Provide one (1) new gastight self-closing joiner door in the opening where the new sliding door will be located. The new joiner door shall be hinged on the outboard of the ship side of the door (port side), and shall swing into the Main Control Station.

3.2.3 Provide one (1) new USCG approved Class 3 sliding watertight door in the existing doorway opening in the bulkhead at Frame 60. The door shall be complete with operating cylinder, door position transmitter, motor driven reversible pump, automatic selector valve assembly, local reversible hydraulic hand pump, a pilot house control station with indicating (open/close) lights and close control, remote non-reversing hydraulic hand pump for emergency operation (close only), hydraulic oil supply/expansion tank mounted adjacent to the remote manual hand pump, two local control switches for door operation, one watertight electrical controller with disconnect switch, one local warning horn, and pressure switches, limit switches, valves, etc. as recommended and supplied by the vendor and as required to meet all Regulatory Body requirements. The door shall be 28 inches wide by 66 inches high mounted with a 6-inch sill. Provide one (1) new gastight self-closing joiner door in the opening where the new sliding door will be located. The new joiner door shall be hinged on the outboard of the ship side of the door, and shall swing into the Main Control Station.

3.2.4 Provide new audible alarm indicators in both the Pilot House and the Main Control Station, connected to the existing position switch for QAWT door 2-72-2. The location of the new audible alarm indicators shall be approved by the COTR prior to installation.

3.2.5 Provide three (3) (one for each new sliding watertight door) new Pilot House control stations with indicating (open/close) lights and close control as well as three (3) new indicator lights only (open/close) in the Main Control Station. The location of the new indicator lights and control stations shall be approved by the COTR prior to installation.

3.3 Modifications

3.3.1 Not used.

3.3.2 Relocate the following items, as a minimum, to accommodate the New door installation at frame 34:

3.3.2.1 Fire Alarm pull station
3.3.2.2 Sound Powered Phone jack
3.3.2.3 Fire Station No. 12
3.3.2.4 Sewage lift pump controller
3.3.2.5 Firemain piping

3.3.3 Relocate the following items, as a minimum, to accommodate the New door installation at Frame 52:

3.3.3.1 Relay box
3.3.3.2 Prelube pump remote control
3.3.3.3 Circuit 45 MC station
3.3.3.4 Electric receptacle (quantity two (2))
3.3.3.5 Light switch
3.3.3.6 Sound Powered phone jack
3.3.3.7 6-inch pass through
3.3.3.8 Diesel Generator Emergency Manual Shutdown station
3.3.3.9 Fire Extinguisher
3.3.3.10 Oily water separator controller and switch (quantity two (2))
3.3.3.11 Sounding tube

3.3.4 Relocate the following items, as a minimum, to accommodate the New door installation at Frame 60:

3.3.4.1 Public Address speaker
3.3.4.2 Dial telephone
3.3.4.3 Fire Alarm and Fire Alarm pull station
3.3.4.4 Sound powered phone jack and phone storage box
3.3.4.5 6-inch pass through

3.3.4.6 Electric receptacle
3.3.4.7 Cableway mounting brackets and hangers
3.3.4.8 Evaporator coil drain pan drain line

3.3.5 Painted areas disturbed by work under this conversion item shall be restored in accordance with Reference 2.4.

4.0 TEST AND INSPECTION

4.1 Operationally test the new sliding watertight doors and indicator system.

5.0 TECHNICAL DOCUMENTATION

5.1 The vessel's drawings and drawing index shall be updated to reflect the modifications and new equipment installations.

5.2 Provide one set of equipment drawings and a technical manual for the new sliding watertight doors (one technical manual and one set of drawings will be sufficient for all three doors).

5.3 Submit a Test Report and ABS certificate verifying that the sliding watertight door system installations are in accordance with Regulatory Body requirements for Subchapter R stability as contained in Subchapter S.

6.0 NOTES

6.1 The removed QAWT doors at Frame 34, 52 and 60 shall be turned in to the COTR for disposition.

318 INSTALL USCG TYPE II APPROVED MSD SYSTEM

1.0 WORK DESCRIPTION

1.1 This item describes the installation of a Marine Sanitation Device (MSD) and associated piping and tankage installations and modifications. The Contractor shall provide all material and labor for pipe runs, tank modifications, blasting, painting, vents, electrical wiring, instrumentation and controls required to install a complete USCG Type II Approved Marine Sanitation system. The system shall:

1.1.1 Have a capacity for 85 persons

1.1.2 Be capable of variable loads, idle periods, and operation while the ship is in brackish, fresh, or salt water environments.

1.2 Planning for this item shall be accomplished in accordance with Reference 2.3, and in conjunction with planning for Items 302, 303, 305, 306, 310 and 312 if awarded.

1.3 Piping modifications shall be in accordance with Reference 2.4. Tanks shall be drained, cleaned and coated in accordance with Reference 2.6.

2.0 REFERENCES

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 109 [General Requirements for Piping Systems].

2.5 Item 117 [General Surface Preparation and Painting].

2.6 Item 101 [Clean and Gas Free Fuel Oil, Lube Oil, Ballast, Fresh & Feed Water Tanks].

3.0 WORK REQUIREMENTS

3.1 Removals

1. The existing 3" diameter vent from the existing holding tank shall be removed.

2. The existing Lift Station #1 shall be removed from the Sewage Machinery Room.

3. The two existing sewage transfer pumps in the Sewage Machinery Room shall be removed.

3.1.4 Existing bilge and ballast system piping for Ballast Tank 4-24-2 (CL) shall be disconnected from the bilge and ballast manifold.

3.1.5 Existing fuel fill and transfer system piping for Fuel Tanks 4-72-3 (S) and 4-73-4 (P) shall be disconnected from the fuel fill and transfer manifold.

3.2 Additions

3.2.1 During installation Contractor shall restore areas which require modification for the purpose of the installation of the MSD. This requires restoration of structure and any necessary coatings. Coatings shall be in accordance with Reference 2.5.

3.2.2 The Contractor shall provide expendable supplies necessary for one-year operation.

3.2.3 Proper foundation and support shall be furnished by the Contractor to support the new MSD system when full. Installation shall also consider free surface and dynamic loads. Unreduced stiffening shall be fitted as necessary.

3.2.4 Provide one USCG certified Type II Marine Sanitation Device, FAST D-7 Custom Unit, or equal. The system's total capacity shall accommodate 85 persons for black and gray water and garbage disposal waste. The Contractor shall provide the following items from the manufacturer:

3.2.4.1 All media tank internals which are not to be welded in place.

3.2.4.2 Roots blower assembly on bedplate with silencers, relief valve, vibration isolators, channel foundation, etc. for installation where space is available.

3.2.4.3 Liquid chlorine pump, feed tank and accessories for proportional chlorination using laundry bleach.

3.2.4.4 All valves and controls required for automatic operation.

3.2.4.5 One set recommended spares including spare blower, vee belts, float switch, motor bearings.

3.2.4.6 One engineering survey trip to the vessel before preparing conversion drawings.

3.2.5 The Contractor shall provide two sewage discharge pumps. The sewage discharge pumps shall be located in the Sewage Machinery Room. These pumps shall be self-priming, rated at 15HP, not less than 100 gpm, approximately 40 psi discharge pressure, and provide 65 feet of suction lift water. The Contractor shall provide one set of vendor recommended spare parts for the discharge pumps.

3.2.6 The existing sewage holding tank shall be converted into the new MSD media tank and wet well. The Contractor shall retain the services of the manufacturer's service engineer to supervise the construction. The conversion of the existing sewage holding tank (2-31-1) into the MSD media tank and wet well shall include modification of the tank interior, installation of media tank internals as recommended by the manufacturer, a bolted access plate to the media tank, a bolted access plate to the wet well, penetrations, piping, and repair of tank coating as required.

3.2.7 Gray water and black water drains, as required, shall be routed from all new plumbing fixtures and deck drains installed to the new MSD as part of this contract.

3.2.8 A new vent line shall be provided, sized in accordance with the manufacturer's recommendations to suit the new MSD. The vent line from the MSD shall be run up the side of the starboard stack and shall extend above the local house top level to a location

where odors will not be objectionable. The vent line shall be as aesthetic as possible while insuring proper operation of the MSD unit. Location of the new vent shall be to the approval of the COTR.

3.3 Modifications

3.3.1 All necessary piping modifications necessary to interface existing ship's gray water, black water and galley drains to the new MSD system shall be accomplished.

3.3.2 Gravity drains shall be properly sloped (1/4" per foot, minimum), and cleanouts shall be provided in new piping. Cleanouts shall not be located in living or messing spaces, in the galley, or over electrical and electronic equipment.

3.3.3 The existing sewage drains that fed into the Sewage Lift Station #1 shall be routed directly into the new Media Tank at a location recommended by the MSD manufacturer's service engineer.

3.3.4 Existing Ballast Tank 4-24-2 (CL), and Fuel Tanks 4-72-3 (S) and 4-73-4 (P) shall be converted to effluent holding tanks. The existing piping and valves for these tanks and for the reconfigured MSD media tank shall be routed to a new sewage effluent manifold located in the Sewage Treatment Room. The modified sewage system shall be capable of discharging from the new MSD to all three of the new holding tanks, the sewage shore connections, and the existing sewage overboard discharge. In addition, the system shall be capable of transferring effluent between all three holding tanks, and capable of discharging effluent from the holding tanks to the sewage shore connection and the existing overboard discharge. See Figure 318-1.

4.0 TEST AND INSPECTION

4.1 Upon completion, the service representative shall start up the system and perform operational tests to demonstrate that all design criteria have been achieved. The representative shall be on board during sea trials.

5.0 TECHNICAL DOCUMENTATION

5.1 Provide the manufacturer's recommended installation drawings and operating instruction manuals

5.2 Provide USCG certifications under 33 CFR Part 159 and IMO for inspected vessels.

5.3 Provide a Test Report certifying satisfactory system operation. The test report shall also be approved by the manufacturer's service and installation representative.

5.4 Provide coating preparation and installation reports as required by Reference 2.5.

6.0 NOTES

6.1 The vessel will operate principally in the Great Lakes, although operations in brackish and sea water will also occur.

6.2 The Great Lakes is expected to become a "zero discharge" area within the life of the vessel. Design of the MSD system must accommodate this requirement.

319 NOT USED

320 NOT USED

321 MODIFY TANKS AND PIPING SYSTEMS

1.0 WORK DESCRIPTION

This work item describes modifications to the existing main seawater system, to the fuel fill and transfer system and to the bilge and ballast system. Cross-connection of fuel tanks 4-12-1 F and 4-12-1 F and of the newly converted (from fuel oil to holding) tanks 4-72-3 H and 4-72-4 H, and necessary appliances to control the cross-flooding are also required. Required modifications to the firemain system are described in Work Item 302. Modifications to the bilge and ballast system are also required by Work Item 316 (Damaged Stability Modifications) and by Work Item 318 (MSD System Installation). Planning for this conversion item shall be accomplished in accordance with Reference 2.3 and the Items listed in this section.

2.0 REFERENCES:

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 109 [General Requirements for Piping Systems].

2.5 Item 112 [General Requirements for Thermal and Fire Protection Insulation].

2.6 Item 101 [Clean And Gas Free Fuel Oil, Lube Oil, Ballast, Fresh & Feed Water Tanks].

2.7 Item 405 [Tightness Tests of Drainage and Ballast Systems].

2.8 Item 117 [General Surface Preparation and Painting].

2.9 Item 408 [Stability and Subdivision and Tonnage]

3.0 WORK REQUIREMENTS

3.1 Preparations

3.1.1 Verify line diagrams provided by the Government, of the main seawater system, the fuel fill and transfer system and the bilge and ballast system. arrangements. Mark up the drawing with a step-by-step cleaning procedure. The Contractor shall submit drawings for COTR approval prior to commencement of work.

3.2 Removals

3.2.1 Removal and disposal of all fluids, tank cleaning slops, scrap, and debris to be in accordance with federal, state and local regulations.

3.2.2 Secure the Main Seawater System, including double isolation of hull penetrations. Remove the existing Main Seawater System simplex strainer located at frame 35 on the port side in the Main Generator Room (3-34-0). Note that this strainer is not shown on the existing ship's drawings.

3.2.3 Transfer all fuel from the storage and service tanks to tanks on temporary storage facilities off the vessel, as directed by the COTR. Prepare detailed records of all fuel transferred from the ship's tanks

3.2.4 All tanks affected by this conversion item shall be cleaned and gas freed in accordance with reference 2.6. COTR shall witness final inspection of cleaned and gas freed tanks.

3.2.5 When directed by COTR, transfer or restore all fuel oil removed from the vessel's storage and service tanks. An additional 1000 gallons of fuel oil shall be transferred to the vessel.

3.3 Additions

3.3.1 The Contractor shall replace the Main Seawater System simplex strainer removed in Section 3.2.1 with a duplex strainer. The new strainer shall provide continuous flow without interruption during changeover. The new duplex strainer shall be Kraissl Model 72-54F-2, or equal, size 8" standard commercial cast B62 bronze (ASTM 85-5-5-5 all wetted surfaces) duplex strainer, with PTFE (Teflon) valve stem packing, bronze valve stem, lifting jack assembly, swing away quick open yoke closure, and copper and brass balancing valve assembly. A vent tap with pipe plug shall be provided in each body cover. A gage tap with pipe plug shall be in the inlet and outlet port at 12 o'clock straight up position. Strainer baskets shall be CRES 316 single element, with 1/8" perforations. Provide vent valves, drain valves, gages and accessories as required. Provide two additional strainer baskets. Modify Main Seawater System piping locally as necessary to make up the connections to the new duplex strainer. Piping shall be in accordance with reference 2.4.

3.3.2 All new and revised structure and piping system components shall be cleaned, primed and painted in accordance with reference 2.8.

3.4 Modifications

3.4.1 The following fuel tanks shall be converted to water ballast tanks, including all necessary changes to the fuel fill and transfer system and the bilge and ballast system:

" 4-12-1
" 4-12-2
" 4-52-0
" 4-52-1
" 4-52-2

3.4.2 Provide a cross-connection pipe for Fuel Oil Tanks 4-12-1-F and 4-12-2-F, which are redesignated as Water Ballast Tanks 4-12-1-W and 4-12-2-W. The pipe shall be located as low as possible through the adjacent centerline fuel oil tank. The pipe shall be sized to meet Regulatory Body requirements for equalization. Provide one (1) new bronze body/trim valve in the cross-connection and actuate with a remote valve operator. A sealed flexible operator system of corrosion resistant materials, Elliot Manufacturing, or equal, shall be provided. Provide a recessed deck box for the valve operator forward of Frame 24 in the Main Deck Passageway. Provide one (1) "T" handle on an adjacent bulkhead for the valve operator system. Label the location of the valve on an adjacent bulkhead. The Contractor shall not proceed with this work until verified as necessary to meet damage stability requirements, in accordance with Reference 2.9.

3.4.3 Provide a cross-connection pipe for Fuel Tanks 4 72-3-F and 4-72-4-F, which are redesignated as Holding Tanks 4-72-3-H and 4-72-4-H. The pipe shall be located as low as possible through the adjacent tanks, and shall be sized to meet regulatory body requirements for equalization. Provide one (1) new bronze body/trim valve in the cross-connection and actuate with a remote valve operator. A sealed flexible operator system of corrosion resistant materials, Elliot Manufacturing, or equal, shall be provided. Provide a recessed deck box for the valve operator at approximately Frame 71 1/2 in Passage 1-52-2-L. Provide one (1) "T" handle on an adjacent bulkhead for the valve operator system. Label the location of the valve on an adjacent bulkhead.

3.4.4 Modify the fuel and ballast systems respectively to allow suction from and discharge to the double bottom tanks created on both sides of bulkhead 60. New tank vents and sounding tubes shall be provided. Tank level indicators shall be provided for each tank. Retained tank level indicator readouts for modified tanks shall be recalibrated to reflect volume changes.

3.4.5 The existing bilge drainage system shall be modified to service the new bilge wells. Bilge well details shall be similar to the existing bilge wells in this compartment.

3.4.6 The resultant tank configuration for the converted ship, including the requirements of Work Items 316 and 318, is as follows:

TANK NAME (EXISTING)	TYPE (EXISTING)	P/S/CL	TANK NAME (NEW)	TYPE (NEW)	TANK COATING REQUIRED
4-B-0	SWB	CL	4-B-0	N/C	
4-6-1	SWB	S	4-6-1	N/C	
4-6-2	SWB	P	4-6-2	N/C	
4-12-0	FO	CL	4-12-0	N/C	
4-12-1	FO	S	4-12-1	WB	X
4-12-2	FO	P	4-12-2	WB	X
4-18-0	FO	CL	4-18-0	N/C	
4-24-2	SWB	CL	4-24-2	HOLDING	?
4-24-3	SWB	S	4-24-3	N/C	
4-24-4	SWB	P	4-24-4	N/C	
2-31-1	HOLDING		2-31-1	MSC EQPT	
4-34-0	VOID	CL	4-34-0	SOLID BLST	X
3-52-0	PW	CL	3-52-0	N/C	
3-58-0	PW	CL	3-58-0	N/C	
4-52-0	FO	CL	4-52-0 and	SWB	X

		CL	4-60-0	SWB	X	
4-52-1	FO	S	4-52-1 and		SWB	X
		S	4-60-3	SWB	X	
4-52-2	FO	P	4-52-2 and		SWB	X
		P	4-60-4	SWB	X	
4-52-3	FO (SETT)		S	4-52-3	N/C	
4-52-4	FO (SETT)		P	4-52-4	N/C	
4-60-1	LO	S	4-60-3	N/C		
4-60-2	LO	P	4-60-4	N/C		
4-66-1	OW	S	4-66-1	N/C		
4-66-2	OW	P	4-66-2	N/C		
2-72-0	ANTI-ROLL		CL	2-72-0	(NOT USED)	
4-72-1	FO	S	4-72-1	N/C		
4-72-2	FO	P	4-72-2	N/C		
4-72-3	FO	S	4-72-3	HOLDING	X	
4-72-4	FO	P	4-72-4	HOLDING	X	
4-80-1	FO	S	4-80-1	N/C		
4-80-2	FO	P	4-80-2	N/C		
4-86-1	SWB	S	4-86-1	N/C		
4-86-2	SWB	P	4-86-2	N/C		
3-94-1	SWB	S	3-94-1	N/C		
3-94-2	SWB	P	3-94-2	N/C		

3.5 Tank Coatings - Info to be provided.

4.0 TEST AND INSPECTION

4.1 The Contractor shall perform a continuity test of all new or relocated cables. Satisfactory operation of the new bilge pump controls and indicators shall be demonstrated.

4.2 The Contractor shall perform hydrostatic tests of the reconfigured Main Seawater System and the reconfigured Bilge and Ballast System. Hydrostatically test the tightness of the double-bottom tanks to the height of the tank vents.

4.3 The Contractor shall perform operational tests of the reconfigured Main Seawater System and the reconfigured Bilge and Ballast System in accordance with Reference 2.7.

4.4 Operational tests shall be performed on the new cross-flooding valves, their remote operators, and the modified cross-flooding ducts. Verify operation and tightness of valve in accordance with regulatory body requirements.

5.0 TECHNICAL DOCUMENTATION

5.1 Provide an updated electric one line diagram and electrical schematics for the new installation. Provide an updated electric power load analysis.

5.2 Provide updated piping diagrams, tank arrangement drawings, and machinery arrangement drawings.

5.3 Update the vessel's drawings and drawing index to reflect the modification and equipment installations.

5.4 Provide new operating placards for the modified fluid systems.

5.5 Provide new operating placards for the cross-connect valves.

5.6 Provide a Test Report certifying satisfactory hydrostatic tests of reconfigured Main Seawater System and the reconfigured Bilge and Ballast System.

5.7 Provide a Test Report certifying satisfactory operational tests of reconfigured Main Seawater System and the reconfigured Bilge and Ballast System.

5.8 Provide a Test Report certifying continuity test for all new and relocated cabling.

6.0 NOTES: None.

322 CREATE SMOKE BOUNDARY

1.0 WORK DESCRIPTION

This item describes modifications to create a new smoke boundary at Frame 34, on the Main Deck and the Foc'sle Deck. Planning for this item shall be accomplished in accordance with Reference 2.3.

2.0 REFERENCES:

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

2.4 Item 116 [Repairs of Joiner Work of Living Spaces].

2.5 Item 117 [General Surface Preparation and Painting].

3.0 WORK REQUIREMENTS

3.1 Removals: None

3.2 Additions

3.2.1 Drawings and calculations shall be completed in accordance with Reference 2.1 prior to commencement of any ripout associated with this conversion item.

3.2.2 Fire screen doors and associated steel bulkhead inserts shall be added in the longitudinal passageways at Frame 34 on the Main Deck and the Foc'sle Deck as shown in Reference 2.2. Magnetic holdbacks shall be provided, with control on the Bridge.

3.2.3 Not Used.

3.2.4 The Contractor shall survey the existing bulkheads at Frame 34 from the Main Deck up to the Upper Deck and submit a Condition Report documenting any additional ventilation and cabling penetrations that require modification to maintain a smoke-tight boundary.

3.3 Modifications

3.3.1 Not Used.

3.3.2 Disturbed areas shall be painted in accordance with Reference 2.5.

4.0 TEST AND INSPECTION

4.1 The Contractor shall perform a continuity test of all shipyard installed or relocated cables. Satisfactory operation of all new electrical fixtures shall be demonstrated.

4.2 Not Used.

4.2.1 Not Used.

4.2.2 Not Used.

4.3 Not Used.

4.3.1 Not Used.

4.3.2 Not Used.

5.0 TECHNICAL DOCUMENTATION

5.1 Update the vessel's drawings and drawing index to reflect the modifications and equipment installations.

5.2 Provide a Test Report certifying proper operation of all new and relocated electrical equipment.

5.3 Provide a Test Report certifying continuity test for all new and relocated cabling.

5.4 Not Used.

6.0 NOTES: None

323 NOT USED

324 NOT USED

325 GENERAL REQUIREMENTS FOR NEW FIRE & SMOKE DETECTION SYSTEM

1.0 WORK DESCRIPTION

Provide design and installation requirements for a new fire and smoke detection system. Planning for this Item shall be accomplished in accordance with Reference 2.3. This Item must be accomplished in conjunction with all other conversion items. The new design must meet the requirements of all conversion work as per the conversion drawings. Installation will be only of those required for the vessel as per configuration at time of delivery.

2.0 REFERENCES

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

3.0 WORK REQUIREMENTS

3.1 The Contractor shall remove components of the existing fire and smoke detection system. This shall be accomplished in conjunction with Items 302, 307, 312 and 313.

3.2 The Contractor shall provide a Fire and Smoke Detecting System that meets the requirements of 46 CFR Subpart 76.05 for the entire ship, including but not limited to thermal and ionization detectors, input switches, connection boxes manual alarm stations, cables, stuffing tubes and others as necessary and appropriate.

3.2.1 The system shall be designed for the final conversion configuration of the vessel based on all work detailed within the specification package as per the original specification package, including those not awarded. All components installed shall meet the needs of the final vessel configuration as shown on the Master Conversion Plan.

3.2.2 The Contractor shall design and prepare a drawing in accordance with Reference 2.1 for the entire Fire and Smoke Detection System as covered by this Item. The Contractor shall prepare and submit installation drawing that reflects the new installation to USCG for approval.

3.2.3 The Contractor shall not proceed with installation until USCG has approved the drawing. NOTE: Contractor, at his own risk, to have option to proceed W/O final approval from USCG to facilitate schedule compliance.

3.3 New cable provided by the Contractor shall be commercial shipboard type TNIU (Flame Retardant Thermoplastic and Nylon Insulated, Unarmored Cable).

3.4 The Contractor shall provide cable tags and wire markers for the cables and wires covered by this Item. Cable tags shall be located near to the equipment in which the cables terminate; on both sides of every deck penetration and bulkhead penetration and at intervals of not more than 50' where the distance between penetration exceeds 60'.

3.5 The Contractor shall provide a complete set of nameplates for the Fire and Smoke Detector units, including junction boxes, manual switches and other equipment. Nameplates shall be laminated phenolic having two outer layers of gray sandwiched around a black center layer.

3.6 The Contractor shall provide appropriate nameplate changes at the Wheelhouse control cabinet to match compartment designation changes.

3.7 The Contractor shall provide the services of the manufacturer's representative to assure the proper design and installation of the system.

4.0 TEST AND INSPECTION

4.1 The Fire and Smoke Detection System installation shall be tested to the satisfaction of the MARAD Representative and USCG for compliance with approved drawings by subjecting each detector to conditions which will cause an alarm in the Pilot House. The conditions imposed on the detectors shall be similar to the ship conditions which the system is intended to detect.

5.0 TECHNICAL DOCUMENTATION

5.1 Not Used

5.2 Test Plan.

5.3 Test Report.

6.0 NOTES None

326 PUBLIC ADDRESS SYSTEM MODIFICATION AND TEST

1.0 WORK DESCRIPTION

This work item describes modifications to expand the public address system. Planning for this Item shall be accomplished in accordance with Reference 2.3. This Item must be accomplished in conjunction with all other conversion items.

2.0 REFERENCES

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

3.0 WORK REQUIREMENTS

3.1 The Contractor shall provide a public address system that meets the requirements for a Public Nautical School Ship for the entire ship, including but not limited to speakers, connection boxes, cables, stuffing tubes and all other fittings as necessary and appropriate. The system will utilize components of the current public address system to the extent possible. The current system fully meets regulatory requirements and need not be replaced. All components will be GFM.

3.1.1 The Contractor shall provide the services of the manufacturer's representative to assure the proper design and installation of the system and to identify any modifications to the public address system that are necessary.

3.1.2 The system shall be designed for the final conversion configuration of the vessel based on all work detailed within the specification package and conversion drawings including options exercised or not. All components installed shall meet the needs of the final vessel configuration as shown on the Master Conversion Plan.

3.2 The Contractor and manufacturer's representative shall inspect components of the public address system that are to be utilized in the modified system.

CHECK POINT - (As Found Condition Report)

3.2.1 The Contractor shall provide an "as found" condition report to the COTR upon completion of this inspection, detailing any damaged or deteriorated components of the portions of the existing system that are to be incorporated into the final system.

3.3 The Contractor shall design and prepare a drawing or drawings in accordance with Reference 2.1 to delineate the entire Public Address System as covered by this Item. The Contractor shall prepare and submit detailed installation drawings that illustrate all recommended modifications for USCG approval.

3.3.1 The Contractor shall not proceed with any modifications until the USCG has approved the installation drawings.

3.4 The Contractor shall provide and install cable tags and wire markers for the cables and wires covered by this Item. Cable tags shall be located near to the equipment in which the cables terminate; on both sides of every deck penetration and bulkhead penetration and at intervals of not more than 50' where the distance between penetrations exceeds 60'. Where necessary new wire markers shall be provided and installed to agree with the modified design of the Public Address system.

3.5 The new nameplates shall be similar to the existing nameplates with respect to overall dimensions and inscription sizes and arrangement.

3.6 The Contractor shall provide appropriate nameplate changes at the Wheelhouse control cabinet to match compartment designation changes.

3.7 The Contractor shall prepare an as-installed record drawing which shall completely delineate the Public Address system after completion of the work required by this Item.

4.0 TEST AND INSPECTION

4.1 After the modifications have been made to the public address system, the Contractor shall perform an operational test of the system. Each loudspeaker group shall be tested individually. All loudspeaker groups shall be tested simultaneously. At least two random combinations of loudspeaker groups shall be tested. Each loudspeaker control station shall be tested at least once. All deficiencies discovered shall be reported to the COTR in writing by the Contractor in order that remedial action may be planned and taken.

CHECK POINT - (Tests of Public Address System)

4.1.1 Carry out the tests in paragraph 4.1 in the presence of the COTR and the USCG Inspector.

5.0 TECHNICAL DOCUMENTATION

5.1 As found condition report.

5.2 Test Plan.

5.3 Test Report.

6.0 NOTES None

327 GENERAL ALARM SYSTEM MODIFICATION AND TEST

1.0 WORK DESCRIPTION

This work item describes modifications to update and expand the general alarm system. Planning for this Item shall be accomplished in accordance with Reference 2.3. This Item must be accomplished in conjunction with all other conversion items.

2.0 REFERENCES

2.1 Item 205 [Preparation of Drawing and Plans].

2.2 Master Conversion Plan, MARAD Drawing No. S2-MET-MA155b-S9-1-1.

2.3 Item 202 [Accomplish Planning and Scheduling].

3.0 WORK REQUIREMENTS

3.1 The Contractor shall provide a general alarm system that meets the requirements for a Public Nautical School Ship for the entire ship, including but not limited to alarm devices, connection boxes, cables, stuffing tubes and all other fittings as necessary and appropriate. The system will utilize components of the public address system to the extent possible. The current system fully meets regulatory requirements and need not be replaced. All components will be GFM

3.1.1 The Contractor shall provide the services of the manufacturer's representative to assure the proper design and installation of the system and to identify any modifications to the general alarm system that are necessary.

3.1.2 The system shall be designed for the final conversion configuration of the vessel based on all work detailed within the specification package including options exercised or not. All components installed shall meet the needs of the final vessel configuration as shown on the Master Conversion Plan.

3.2 The Contractor and manufacturer's representative shall inspect components of the general alarm system that are to be utilized in the modified system.

CHECK POINT - (As Found Condition Report)

3.2.1 The Contractor shall provide an "as found" condition report to the COTR upon completion of this inspection, detailing any damaged or deteriorated components of the portions of the existing system that are to be incorporated into the final system.

3.3 Not Used.

3.4 Not Used.

3.5 The Contractor shall design and prepare a drawing or drawings in accordance with Reference 2.1 to delineate the entire General Alarm System as covered by this Item. The Contractor shall prepare and submit detailed installation drawings that illustrate all recommended modifications for USCG approval.

3.5.1 The Contractor shall not proceed with any modifications until the USCG has approved the installation drawings.

3.6 The Contractor shall make modifications in addition to the items above, as necessary, to make the installation fully compliant with the applicable provisions of USCG Rules.

3.7 All new alarm bells shall be low power drain type.

3.8 The Contractor shall provide and install cable tags and wire markers for the cables and wires covered by this Item. Cable tags shall be located near to the equipment in which the cables terminate; on both sides of every deck penetration and bulkhead penetration and at intervals of not more than 50' where the distance between penetrations exceeds 60'. Where necessary new wire markers shall be provided and installed to agree with the modified design of the General Alarm system.

3.9 The Contractor shall install new nameplates and directory as appropriate to reflect compartment additions and designation changes due to this conversion. Nameplates shall be laminated phenolic having two outer layers of white sandwiched around a red center layer.

4.0 TEST AND INSPECTION

4.1 With the General Alarm battery charger connected to its AC power source, activate the General Alarm using the contact maker in the Wheelhouse.

4.1.1 Verify that all General Alarm bells and any associated flashing signal lights, throughout the vessel, as documented in Reference 4.2, are functioning and that each bell is properly marked with a notice reading "GENERAL ALARM - WHEN BELL RINGS GO TO YOUR STATION" in red letters at least 1 ½ inch high.

4.2 With the General Alarm battery charger connected to its AC power source, activate the General Alarm using the additional contact makers provided on the vessel, as follows:

4.2.1 Verify that the General Alarm System is activated at each contact maker location.

4.3 Open the circuit breaker for the AC power source to the General Alarm battery charger. Activate the General Alarm using the contact maker in the Wheelhouse. Verify that the General Alarm System is activated.

4.4 If the General Alarm is supplied by duplicate batteries, position the battery changeover switch to connect the second (alternate) battery to the General Alarm System. Activate the General Alarm using the contact maker in the Wheelhouse. Verify that the General Alarm System is activated.

4.5 Test the specific gravity of the electrolyte in each cell of the General Alarm battery or batteries. Measure the temperature of the electrolyte in each cell of the General Alarm battery or batteries.

4.6 Submit a written report to the COTR, describing the functioning of each General Alarm contact maker, each alarm bell, each alarm bell notice marking, and the electrolyte specific gravity and temperature measurement values for each General Alarm battery or batteries.

CHECK POINT - (Tests of General Alarm System)

4.7 Carry out the tests in paragraphs 4.1, 4.2, 4.3 and 4.4 in the presence of the COTR and the USCG Inspector.

5.0 TECHNICAL DOCUMENTATION

5.1 As found condition report.

5.2 Test Plan.

5.3 Test Report.

6.0 NOTES None

328 NOT USED

Section 400: PROOF-OUT AND TESTING

401 NOT USED

402 NOT USED

403 NOT USED

404 NOT USED

405 TIGHTNESS TESTS OF PIPING SYSTEMS

1.0 Scope of Work:

1.1 Location of Work: New and disturbed piping systems and components.

1.2 Identification: Various.

1.3 Intent: Perform tests to the ship's piping systems to render them satisfactory to USCG requirements and ready-to-activate. This specification applies only to those valves, manifolds and piping runs affected by the work items that reference this specification.

2.0 Work Description:

2.1 Test Plan. The Contractor shall, in accordance with Reference 4.1, as well as the respective piping system details as shown in the ship's drawings, prepare a test plan to complete all system and component tests listed in this specification for new and disturbed piping systems. Interferences shall be addressed in accordance with Reference 4.2. The System test plan shall be included and progressed with Reference 4.1.

2.2 For the Bilge and Ballast and sanitary drainage systems, demonstrate free flow of water from each Engine Room manifold connection to its own remote suction well.

CHECK POINT - (Free Flow of Water)

2.3.1 Contractor's Quality Assurance Department shall assist in demonstrating free flow of water by providing portable communications, additional persons to witness test and by establishing and maintaining records of test.

2.3 Test individual piping system circuits. Install blank flanges, test connections, test plugs and gages to isolate each individual circuit. Fill each isolated circuit with clean fresh water and hydrostatically test to 150 percent of the system operating pressure.

CHECK POINT - (Report of Hydrostatic Testing)

2.3.1 The Contractor shall report any hydrostatic test failures to COTR. When approved, repairs of system components not disturbed by work in this conversion will be covered by Delivery Order.

CHECK POINT - (Operational Test)

2.4 Remove all test and isolation fittings. Perform for COTR, an operational test of all valves, manifolds, circuits and systems by filling with clean fresh water and demonstrating satisfactory operation. The Contractor's Quality Assurance Department shall provide portable communications, witness alternate test locations, record, develop and provide COTR with records of test.

3.0 Performance Criteria/Deliverables

3.1 Free Flow of Water (paragraph 2.6.1)

3.2 System Hydrostatic Test (paragraph 2.6.3)

3.3 Condition Report (paragraph 2.7.2)

3.7 Operational Test (paragraph 2.11)

4.0 References:

4.1 Item 207, Inspection System.

4.2 Item 104, Interferences; Remove and Reinstall.

5.0 Notes:

5.1 This work item is uncosted. Work The cost of Items in this section shall be included in their Respective contract specification item as per the bid response sheet.

406 NOT USED

407 NOT USED

408 STABILITY AND SUBDIVISION AND TONNAGE

1.0 Scope of Work:

1.1 Location: Various

1.2 Identification: See paragraph 2.1.

1.3 Intent: Provide engineering support for calculations of the converted ship's stability characteristics to ensure the vessel meets all requirements of 46 CFR Subchapter R - Nautical School Ships, including the requirements of 46 CFR 190.03. Also update the ship's Capacity Plan, in support of the required calculations, and provide a Tonnage Admeasurement.

2.0 Work Description:

2.1 Capacity Plan - The Contractor shall prepare a new Capacity Plan showing the General Arrangement (including profile and plan views), Tankage Arrangement and Characteristics Tables, Load Line, Lightship, Fixed Ballast, Draft Mark Locations, official light ship, etc., for the converted vessel. The new Capacity Plan shall be available prior to delivery.

CHECK POINT - (Capacity Plan)

2.1.1 Submit one (1) copy of the Capacity Plan to the USCG and additional copies in accordance with Item 201, subject to COTR approval.

2.2 Intact and Damage Stability Analysis: Allowable KG Curves -

2.2.1 Allowable KG Curves - The Contractor shall perform intact and damage stability calculations in accordance with Reference 4.2, in order to develop Allowable KG Curves through the full range of operating drafts of the vessel after conversion, considering both Fresh Water and Saltwater. Allowable KG Curves shall also be developed for the damage cases associated with new cross-flooding duct installations called out in Reference 4.3. These calculations shall not consider the cross-flooding capability to be in place.
CHECK POINT - (Allowable KG Curves)

2.2.1.1 Submit one (1) copy of the intact and damage stability calculations and Allowable KG Curves to the COTR and additional copies in accordance with Item 201.

2.2.2 Loading Condition Calculations - Preliminary loading condition calculations shall be performed using data from the light ship weight estimate, with updates as necessary to accommodate changes to the weight estimate over time. Together with section 2.2, these calculations shall be used to verify the need for the new cross-flooding appliances listed in Item 321, in order to meet the damage stability requirements. Additionally, these calculations shall be used to determine the amount and location of new fixed ballast to be installed under Item 324. Each loading condition shall incorporate the service life weight allowance, as provided by the COTR. Calculations shall be approved prior to installation of fixed ballast. As a minimum, the stability calculations shall address the following loading conditions:

a. Full load departure condition with full fuel, fresh water, and stores
b. Mid-voyage condition with 50% fuel, 50% fresh water, and 50% stores
c. Light Operating Load condition with 10% fuel, 10% fresh water, and 10% stores

2.2.2.1 Each loading condition shall be evaluated with respect to the allowable KG limits determined in the stability analyses. Additional conditions shall be evaluated if more critical loading conditions can occur, or for any unusual loading cases that may occur during normal operations. The Contractor shall show that the vessel meets the stability requirements in all loading conditions using the Contractor prepared Lightship Weight Estimate.

2.2.2.2 The Allowable KG curve and all supporting calculations shall be submitted for review and approval by the COTR and USCG, with additional copies in accordance with Item 201.

2.2.2.3 Use the following Table as guidance in calculating variable loads:

Table of Variable Loads

SWBS No.	Item	Weight (Full load)	Weight (Light Operating Load)
CREW AND EFFECTS:			
F11			

F13 Officers/Faculty
Cadets 400 lb / person
330 lb / person 400 lb / person
330 lb / person
PROVISIONS AND STORES:
F31 Dry
Freeze
Chill 3.2 lb / day per person
1.1 lb / day per person
1.7 lb /day per person 10% of Full Load
10% of Full Load
10% of Full Load
F32 General Stores 5000 lb 2000 lb
F41 Fuel 638 LT 10 percent of Endurance
F46 Lube Oil 35.97 LT 50 percent full
F52 Potable Water 18.9 LT 10 percent full
F51 Ballast Water (Note 1) As required, but not less than the weight of water below the suction inlet
As required
OTHER FLUIDS:
F50 Sanitary Tanks 155 LT 155 LT
NOTES:
1.Determined by the Contractor.

CHECK POINT - (Preliminary Intact and Damage Analysis)

2.2.3 For purposes of the updated Trim & Stability Booklet, fixed ballast is considered to be part of the Light Ship weight, however, the fixed ballast weight, location, and center of gravity should be noted separately.

2.2.4 Submit one copy of the Intact and Damage Stability Analyses, together with the Preliminary Loading Condition Calculations, to the COTR and USCG MSC.

2.3 Final Loading Condition Calculations - Once the USCG-approved light ship characteristics have been determined from the Inclining Experiment (ref. Item 410), develop the Final Loading Condition Calculations to be used in the Trim and Stability Booklet. Prior to finalizing the Trim and Stability Booklet, the Contractor shall submit the Final Loading Condition Calculations to the COTR.

CHECK POINT - (Final Loading Condition Calculations)

2.3.1 Submit one copy of the Final Loading Condition Calculations to for COTR approval.

2.4 Readmeasurement and Load Line Assignment - The Contractor shall arrange for all plan review, approvals and surveys necessary for issuance of Tonnage Certificates and Load Line Assignment for the converted vessel including; U.S. Flag Tonnage Certificate, Panama Canal Tonnage Certificate, Suez Canal Tonnage Certificate and Load Line Assignment.

CHECK POINT - (Load Line and Tonnage Certificates)

2.4.1 Submit one copy of the U.S. Flag Tonnage Certificate, Panama Canal Tonnage Certificate, Suez Canal Tonnage Certificate and Load Line Assignment to the COTR.

3.0 Performance Criteria/Deliverables:

3.1 Receipt of Capacity Plan (paragraph 2.1.1).

3.2 Receipt of the Intact and Damage Analysis Results (paragraph 2.2.1)

3.3 Receipt of Preliminary Loading Condition Calculations (paragraph 2.3.4).

3.4 Receipt of Final Loading Condition Calculations (paragraph 2.4.1)

3.5 Receipt of Load Line and Tonnage Certificates (paragraph 2.5.1)

4.0 References:

4.1 46 CFR 190.03

4.2 46 CFR, Subchapter S - Subdivision and Stability

5.0 Notes: None

409 WEIGHT AND CENTER OF GRAVITY CALCULATIONS

1.0 Scope of Work:

1.1 Location: Various

1.2 Identification: See paragraph 2.1.

1.3 Intent: Provide engineering support for calculations of the converted ship's light weight and center of gravity, and execution of a weight control procedure.

2.0 Work Description:

2.1 Initial Inclining Experiment - As soon as practicable after the ship has arrived at the berth, and before making any removals or additions that affect the light ship, the Contractor shall perform an inclining experiment, generally in accordance with reference 4.2. The purpose of the inclining is to verify MARAD's estimated values for the current light ship weight and longitudinal center of gravity, due to changes made to the vessel subsequent to the preparation of the current Trim & Stability Booklet. MARAD's estimate for the current light ship characteristics are as follows:

Weight, LT	VCG, ft	LCG, ft aft of FP
1,417.5	21.89	96.6

2.1.1 The Contractor shall notify the COTR at least 48 hours in advance of the inclining experiment.

CHECK POINT - (Initial Inclining Experiment)

2.1.2 Submit one copy of the Initial Inclining Experiment results, in accordance with Table 201-1 of Item 201 (Reference 4.1).

2.2 Initial Weight Estimate - Within 60 calendar days after Contract Award, submit for approval by the COTR, an independently prepared detailed initial estimate of the light ship weight and center of gravity (vertical, longitudinal, and transverse) of the converted vessel. The estimate must describe in comprehensive detail removals, additions, and relocations made to the pre-conversion lightship weight. The pre-conversion lightship weight will be determined by the initial inclining experiment. The estimate of these removals, additions, and relocations must be prepared in the three-digit system described herein. Approval action will consist of reaching a mutual agreement between the Contractor and the Government, as quickly as possible, on the light ship weight, center of gravity and margins. Thereafter, the Contractor is responsible for obtaining, in the completed ship, the approved weight and center of gravity characteristics, adjusted for authorized departures from the approved estimate.

CHECK POINT - (Initial Weight Estimate)

2.2.1 Submit one copy of the Initial Weight Estimate, in accordance with Table 201-1 of Item 201 (Reference 4.1).

2.2.2 Three-Digit System. The three-digit system is a means of classifying mass properties data in a structured order. Every item that comprises the completed ship is included in the weight estimates and reports grouped in accordance with the three-digit system. The three-digit system for weight estimates and reports is the same as the first three digits of the ESWBS (as provided in Society of Allied Weight Engineers, Recommended Practice RP14, Weight Estimating and Margin Manual for Marine Vehicles).

2.3 General - The weight and moment data for all components and material shall be determined. As ship design or ship construction drawings are prepared and as material is selected, acquired, or received, the weight and centers of gravity for all items that comprise

the ship shall be determined and reported in the weight estimates and reports. This weight data shall be obtained by a combination of estimation or calculation of design drawings and, later, detail design and construction drawings and weighing.

2.4 Weight Control - A weight control plan shall be provided and implemented. The plan shall indicate how the weight and center of gravity of the vessel will be managed as the design and construction progresses.

2.4.1 Modifications in the construction of the ship, such as revisions in ship geometry, equipment and/or vendors that differ from the approved weight estimate, which result in departures from the approved light ship weight and/or center of gravity must be submitted to the Government for approval. Such submittals must include an estimate of the modification's effect on the weight and center of gravity of the ship. Such modifications may not be undertaken until written approval has been granted by the Government.

2.4.2 Individual modifications, the effects of which change any one-digit weight group by less than 350 lb, may be considered negligible and do not require written approval. Departures from the approved estimate resulting from corrections of errors or omissions, revised vendor data, actual scale weights, etc. do not require approval but must be incorporated into the next scheduled revision of the weight estimate.

2.4.3 At each 30 days after submittal of the Initial Weight Estimate, the Contractor shall submit a Monthly Weight Report. This shall be a tabulation of approved departures and corrections and their cumulative effect on weight, center of gravity, and margin of the approved light ship, resulting in a revised weight estimate. Details of corrections shall be included in these submittals.

CHECK POINT - (Monthly Weight Report)

2.4.3.1 Submit one copy of each Monthly Weight Report to the COTR and additional copies in accordance with Table 201-1 of Item 201 (Reference 4.1).

2.5 Final Weight Report - A Final Weight Report must be submitted at the time of delivery to bring the estimated light ship weight and center of gravity into reasonable agreement with the inclining results.

CHECK POINT - (Final Weight Report)

2.5.1 Submit one copy of the Final Weight Report to the COTR and additional copies in accordance Table 201-1 of Item 201 (Reference 4.1).

3.0 Performance Criteria/Deliverables:

3.1 Receipt of Initial Deadweight Survey results (paragraph 2.1.2)

3.2 Receipt of Initial Weight Estimate (paragraph 2.2.1).

3.3 Receipt of the Monthly Weight Reports (paragraph 2.4.3.1)

3.4 Receipt of Final Weight Report (paragraph 2.5.1).

4.0 References:

4.1 Item 201, [Plan and Correspondence Procedure]

4.2 ASTM Specification F 1321-92, "Standard Guide for Conducting a Stability Test (Lightweight Survey and Inclining Experiment) to Determine the Light Ship Displacement and Centers of Gravity of a Vessel."

5.0 Notes: None

410 INCLINING EXPERIMENT AND TRIM & STABILITY BOOKLET

1.0 Scope of Work:

1.1 Location: Throughout ship

1.2 Identification : N/A

1.3 Intent: Prepare for, conduct and report data from the ship's Inclining Experiment. Provide a new Trim and Stability Booklet for all expected operating conditions.

2.0 Work Description:

2.1 Obtain from the Government, if not already available, the following plans and data: Lines Drawing; Curves of Form (or hydrostatic data); General Arrangement Plan, holds and inner bottoms; Outboard and Inboard Profiles; Midship Section; Capacity Plan; Tank Sounding Tables; Draft Mark Locations; Trim & Stability Booklet; and Docking Drawing with keel profile and draft mark corrections (if available).

2.2 Survey the vessel to be inclined. The survey must be done to determine general condition of the vessel; number and location of tanks, full or slack; mooring arrangements; anticipated list and trim; test weights needed; location and length of pendulums; location of central control station for conduct of the test. Establish a tentative test date, subject to weather conditions, level of completion of work onboard the ship, and availability of the US Coast Guard. Use reference 4.2 as guidance for the items to be noted during the survey.

2.3 Prepare a preliminary Stability Test Procedure as required by reference 4.2. Conduct a meeting with shipyard personnel and COTR to coordinate the preparation of the vessel for inclining, and to finalize the Stability Test Procedure. Items to be discussed and agreed upon shall include condition of tanks, mooring arrangement, work being done prior to inclining, weather contingencies, arrangement of weights, location of pendulums, taking and recording draft marks, taking and recording data during inclining, and communications during inclining between personnel.

2.4 Prepare written notification to the USCG (copy to the COTR) at least two (2) weeks prior to the test. Submit the Stability Test Procedure to the MSC for review and approval. The notification must include, at a minimum, the information required by Reference 4.2. In addition, the notification shall include a detailed description of any computer software to be used in calculation during inclining.

CHECK POINT - (Notification of Inclining Experiment)

2.4.7 Submit one copy of the notification of inclining experiment and the Stability Test Procedure to the COTR and USCG, with additional copies as required by Item 201. Ensure all data required by Annex 1 to Reference 4.2 are included. The Procedure must be approved by USCG.

2.5 Survey the vessel the day before the inclining test is scheduled to take place. The survey should be performed in order to ensure that the vessel is ready to be inclined, and must take note that: compartments are open, clean, and gas free; tanks are well-ventilated and gas free; movable items are secured in place and their position documented; pendulums are in place; weights are on board; crane or rails are in place for moving weights; necessary plans and recording equipment are onboard for use during the test; weather conditions are favorable for the test; draft mark readings. Notify the COTR that the vessel is ready in all respects for inclining, or recommend changes that must be accomplished prior to inclining. If necessary, conduct a dry run of the inclining experiment, with personnel in place and mock readings being taken, to ensure that all arrangements are sufficient for the test.

CHECK POINT - (Readiness for Inclining Experiment)

2.5.1 Submit one copy of a report stating the readiness of the vessel to be inclined to the COTR.

2.6 Conduct the inclining experiment. Refer to reference 4.2 for detailed procedures. Ensure the USCG witness is present during the experiment. MARAD reserves the right to have at least one witness in addition to the COTR onboard during the inclining.

2.6.1 Use reference 4.2 as a guide for mooring the vessel. Remove any temporary padeyes after successful completion of the test.

2.6.2 Provide an outboard-motor-powered boat to measure freeboard and take draft readings.

2.6.3 Notify the COTR immediately via voice means that the test has been successfully completed. Follow-up with written notification on the next business day.

CHECK POINT - (Notification of Completion of Inclining Experiment)

2.6.3.1 Submit one copy of a report stating the completion of the inclining experiment to the COTR.

2.7 Calculate the results of the inclining experiment. Use Appendix X3 of reference 4.2 for sample data sheets. Computer program output may be used in lieu of hand-written data sheets, so long as the content and appearance of the output is consistent with the forma of Appendices X2 and X3 of reference 4.2. Submit three (3) copies of the inclining experiment results to the USCG MSC, along with one (1) copy of the data. Submit two (2) file copies of the inclining experiment report and the data to the COTR, with additional copies in accordance with Item 201.

CHECK POINT - (Results of Inclining Experiment)

2.7.1 Submit the inclining experiment report and data to the USCG (MSC) and COTR. This document requires COTR and USCG approval.

2.8 Trim & Stability Booklet - Upon approval of the inclining experiment, modify the ship's Trim and Stability Booklet. This Booklet shall be approved by the U.S. Coast Guard and the COTR and shall be available prior to delivery.

2.8.1 The new booklet shall include but not be limited to revisions in the following areas:

2.8.1.1 Inboard profile and tank arrangement

2.8.1.2 The Allowable KG Curve

2.8.1.3 Approved light ship weight and centers

2.8.1.4 Principal characteristics

2.8.1.5 Tank characteristics tables

2.8 2 The Trim and Stability Booklet shall include all stability data necessary to permit safe and efficient handling of the vessel, including required loading condition calculations. The booklet shall include all operating instructions and any operational restrictions required to assure the safe operation of the vessel. These instructions shall be clear and concise.

CHECK POINT - (Stability Booklet)

2.8.2 Submit the Trim and Stability Booklet to the COTR and USCG.

2.8.3 After obtaining required approvals, submit two USCG stamped approved copies of the Trim & Stability Booklet to the COTR.

2.9 CargoMax Program - In conjunction with the preparation of the new Trim and Stability Booklet, the Contractor shall provide an ABS approved "CargoMax" software package for use by the vessel that reflect the new configuration, including but not limited to the Graphic Data Entry, Tank Sounding Tables and Damaged Stability Modules. The CargoMax software package shall be prepared by Herbert Engineering, Inc., based on their existing modeling data for this vessel, as updated by information provided to Herbert Engineering by the Contractor.

3.0 Performance Criteria/Deliverables:

3.1 Receipt of Notification of Inclining Experiment (paragraph 2.4.7).

3.2 Receipt of Readiness for Inclining Experiment and Procedure, and notification of USCG approval of Procedure (paragraph 2.5.1).

3.3 Receipt of Notification of Completion of USCG-approved Inclining Experiment (paragraph 2.6.5.1).

3.4 Receipt of Calculated Results of Inclining Experiment and notification of USCG approval (paragraph 2.7.1).

3.5 Receipt of Trim & Stability Booklet (paragraph 2.8.1)

3.6 Receipt of stamped USCG approved Trim and Stability Booklet (paragraph 2.8.2)

3.7 Receipt of ABS approved CargoMax Software Package

4.0 References:

4.1 US Coast Guard Navigation and Vessel Inspection Circular No. 17-91

4.2 ASTM Specification F 1321-92, "Standard Guide for Conducting a Stability Test (Lightweight Survey and Inclining Experiment) to Determine the Light Ship Displacement and Centers of Gravity of a Vessel"

5.0 Notes:

5.1 The foregoing paragraphs are intended to give general guidelines for the conduct of the inclining experiment and the reports that follow. The requirements of references 4.1 and 4.2 shall be adhered to throughout the preparations for, conduct of, and reporting the completion of, the inclining experiment.

411 ACCOMPLISH SEA TRIALS

1.0 Scope of Work:

1.1 Location of Work: Various

1.2 Identification:

1.3 Intent: Demonstrate the adequate habitability and operational performance of the vessel's new and affected systems while underway. MARAD and GLMA will perform the sea trial with minor assistance from the contractor.

2.0 Work Description:

2.1 MARAD and GLMA will conduct a sea trial of approximately 24 hours duration. Contractor is to allow for lay days between the Sea Trial and the delivery of the vessel.

2.2 MARAD and GLMA will perform surveys of the following, or demonstrate the following auxiliary systems during the sea trial and record satisfactory operation if observed.

2.2.1 Air Conditioning System

2.2.2 Water Treatment Systems

2.2.2 Ventilation and Heating Systems

2.2.5 Ballasting and Deballasting Systems

2.2.6 Saltwater Service System

2.2.7 Freshwater Service System

2.2.8 Sewage Disposal System

2.2.9 General Alarm System (see item 2.2.12)

2.2.10 Hull Vibration - Identify undesirable local vibrations while underway, primarily in new manned and habitability spaces, and correct as necessary.

2.2.11 Machinery Vibration - Inspect new equipment while underway, primarily rotating machinery, for any noticeable problems.

2.2.12 Noise - Take noise (dBA) measurements while underway, primarily in new and reconfigured manned and habitability spaces. Where noise levels are greater than 60 dBA in Staterooms and greater than 65 dBA in other normally attended spaces, the Contractor shall determine the source of the problem together with the COTR, and take corrective action. In spaces where the excessive noise level is due to work that was performed by the Contractor, corrective action shall be the Contractor's responsibility. The Contractor shall consider corrective actions including but not limited to reconfiguration of HVAC ducting and elimination of local vibration, as determined necessary in consultation with the COTR.

2.2.13 Check audibility of General Alarm, primarily in the new and reconfigured areas of the ship. Report any deficiencies to the COTR, along with recommended corrective action.

2.2.14 Fuel Oil Handling: Transfer System

2.3 Demonstrate communications equipment according to the following list and record satisfactory operation if observed.

2.3.1 Not Used.

2.4 Demonstrate and observe the operational performance of new ship's mooring equipment according to the following list and record satisfactory operation if observed

2.4.1 Chocks P/S

2.4.2 Bitts P/S

2.5 Contractor will provide all pier services and up to three technicians to ride vessel and assist MARAD and GLMA in the recording of all deficiencies noted in the above equipment and to initiate corrective action to correct same. Contractor will provide additional meters and testing equipment that is not currently onboard.

3.0 Performance Criteria/Deliverables:

3.1. Not Used.

4.0 References: None

5. Notes:

5.1 Contractor to only test equipment or systems which are new, modified, relocated, or otherwise affected by the ship conversion.

412 SUPPLEMENTAL LABOR AND MATERIALS

1.0 Supplemental Labor

1.1 The labor rate offered in Section B under the Supplemental Work CLIN shall be a yardwide composite labor rate and shall include all managment, supervision, overhead, G&A, handling charges, freight and profit. The yardwide composite rate offered by the Contractor shall be binding during the entire period of this Contract for supplemental work which cannot be accurately described at this time and is not included in other CLIN specifications. The Government may order up to 50 percent more hours than are currently estimated in the CLIN at the same labor rate provided therein.

____500_____ Manhours

2.0 Supplemental Material

2.1 Supplies or subcontracts needed to complete authorizations for supplemental work will be direct reimbursable under the awarded contract; additional indirect charges will not be allowed. Any material handling charges are to be included in the Supplemental Labor rate.

_1_ Lot $20,000.00

SECTION F -- DELIVERIES OR PERFORMANCE

F.1 52.211-08 TIME OF DELIVERY JUNE 1997

(a) The Government requires delivery to be made according to the following schedule:

REQUIRED DELIVERY SCHEDULE

Final Vessel Delivery June 1, 2005 (See Attachment J-7 Deliverables).

The Government will evaluate equally, as regards time of delivery, offers that propose delivery of each quantity within the applicable delivery period specified above. Offers that propose delivery that will not clearly fall within the applicable required delivery period specified above, will be considered nonresponsive and rejected. The Government reserves the right to award under either the required delivery schedule or the proposed delivery schedule, when an offeror offers an earlier delivery schedule than required above. If the offeror proposes no other delivery schedule, the required delivery schedule above will apply.

[OFFEROR'S PROPOSED DELIVERY SCHEDULE]

(b) Attention is directed to the Contract Award provision of the solicitation that provides that a written award or acceptance of offer mailed, or otherwise furnished to the successful offeror, results in a binding contract. The Government will mail or otherwise furnish to the offeror an award or notice of award not later than the day award is dated. Therefore, the offeror should compute the time available for performance beginning with the actual date of award, rather than the date the written notice of award is received from the Contracting Officer through the ordinary mails. However, the Government will evaluate an offer that proposes delivery based on the Contractor's date of receipt of the contract or notice of award by adding (1) five calendar days for delivery of the award through the ordinary mails, or (2) one working day if the solicitation states that the contract or notice of award will be transmitted electronically. (The term "working day" excludes weekends and U.S. Federal holidays.) If, as so computed, the offered delivery date is later than the required delivery date, the offer will be considered nonresponsive and rejected.

F.2 PERFORMANCE

The Contractor shall be required to submit all required insurance certificates within 5 days following award. The Contractor shall not proceed with performance until the Contracting Officer issues a Notice to Proceed in writing. The Contractor shall be required to (a) commence work under this contract within 7 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than September 30, 2005. The Government's desired delivery date is May 1, 2005. Bidder may propose the alternate schedule in F.1(a). If bidder proposes alternate schedule the ship must be delivered to MARAD by May 1 in a fully certificated condition to permit employment on a three-week training voyage, for no less than present complement. MARAD will redeliver ship on or about June 15, 2005. The time stated for completion shall include final cleanup of the premises.

SECTION H -- SPECIAL CONTRACT REQUIREMENTS

H.1 1252.223-81 STANDARDS OF EMPLOYEE CONDUCT FEBRUARY 2000

The Contractor shall be responsible for maintaining satisfactory standards of employee competency, conduct, and integrity, and shall be responsible for taking such disciplinary action with respect to its employees as may be necessary.

H.2 1252.227-80 NONDISCLOSURE OF DATA AND INFORMATION FEBRUARY 2000

1. The Contractor, and any of its subcontractors in performance of this contract, may have need for access to and use of various types of data and information in the possession of the Government which the Government obtained under conditions which restrict the Government's right to use and disclose the data and information, or which may be of such a nature that its dissemination or use other than in the performance of this contract, would be adverse to the interests of the Government or other parties. Therefore, the Contractor and its subcontractors agree to abide by any restrictive use conditions on such data and not to:

(a) Knowingly disclose such data and information to others without written authorization from the Contracting Officer, unless the Government has made the data and information available to the public; and
(b) Use for any purpose other than the performance of the contract that data which bears a restrictive marking or legend.

2. Except as the Contracting Officer specifically authorizes in writing, upon completion of all work under this contract the Contractor shall return all such data and information, including all copies, modifications, adaptations, or combinations thereof, to the Contracting Officer. The Contractor shall further certify in writing to the Contracting Officer that all copies, modifications, adaptations or combinations of such data or information which cannot reasonably be returned to the Contracting Officer, have been deleted from the Contractor's (and any subcontractor's) records.

3. These restrictions do not limit the Contractor's or subcontractor's right to use and disclose any data and information obtained from another source without restriction. As used herein, the term "data" has the meaning set forth in Department of Transportation Procurement Regulations, 48 CFR 1252.227-71, "Rights in Data - General", and includes, but is not limited to, computer software, as also defined in 48 CFR 1252.227-71.

H.3 1252.237-80 SUPPLEMENTAL GROWTH REQUIREMENTS FEBRUARY 2000

The labor rate offered in Section B under the Supplemental Repair Work CLIN shall be a yardwide composite labor rate and shall include all management, supervision, overhead, G&A, handling charges, freight and profit. The yardwide composite rate offered by the Contractor shall be binding during the entire period of this Contract for all supplemental work which cannot be accurately described at this time and is not included in other CLIN specifications. The Government may order up to 50 percent more hours than are currently estimated in the CLIN at the same labor rate provided therein.

SECTION I -- CONTRACT CLAUSES

I.1 52.252-02 CLAUSES INCORPORATED BY REFERENCE

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

http://www.acqnet.gov/far/current/html/FARMTOC.html

Clause	Title	Date
52.204-07	Central Contractor Registration	October 2003
52.219-04	Notice of Price Evaluation Preference for HUBZone Small Business Concerns	January 1999
52.219-09	Small Business Subcontracting Plan	January 2002
52.225-14	Inconsistency Between English Version And Translation Of Contract	February 2000
52.232-33	Payment by Electronic Funds Transfer-Central Contractor Registration	October 2003

I.2 1252.217-80 DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR SHIP REPAIRING OCTOBER 1994

Nothing contained in this contract shall relieve the Contractor of any obligations it may have to comply with--

(a) The Occupational Safety and Health Act of 1970 (29 U.S.C. 651, et seq.);

(b) The Safety and Health Regulations for Ship Repairing (29 CAR part 1915); or

(c) Any other applicable Federal, State, and local laws, codes, ordinances, and regulations.

I.3 WARRANTY

Warranty. (A) MMC warrants to Owner for a period of one hundred twenty days from the date the Ship leaves the Shipyard that all Work performed by MMC will be free from material defects in workmanship and material, provided that Owner gives written notice to MMC of any breach of the foregoing warranty before the end of the one hundred and twentieth day period. MMC shall not be liable for any defective workmanship or material if Owner fails to give such notice. (B) MMC's obligations hereunder are limited to (at its option) repairing or redoing defective Work and repairing or replacing defective material incorporated into or used in conjunction with the Work at the Shipyard. (C) MMC shall not be responsible for any work or material incorporated into the Work by vendors or suppliers specified or employed by Owner, or by Owner's employees. (D) The warranties of MMC in this section do not apply to normal wear and tear, abuse, neglect or other improper use, maintenance or repair. (E) THE FOREGOING WARRANTY IS EXCLUSIVE OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND NO WARRANTY IS MADE WHICH EXTENDS BEYOND THAT WHICH IS EXPRESSLY CONTAINED HEREIN. IN NO EVENT SHALL MMC BE LIABLE TO OWNER OR ANY THIRD-PARTY FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, ANY LOSS OF ANTICIPATED PROFITS, DAMAGE TO CARGO, "DOWN TIME", OR DAMAGES IN THE NATURE OF A PENALTY. OWNER'S REMEDY WITH RESPECT TO ANY CLAIM SUBMITTED HEREUNDER IS LIMITED TO NO MORE THAN THE AMOUNT PAID BY OWNER FOR THAT PORTION OF THE WORK THAT IS DEFECTIVE.

SECTION J -- LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

J.1 LIST OF ATTACHMENTS

List of Attachments:

1. Attachment 1: Equipment Validation Form
2. Attachment 2: Inventory Form
3. Attachment 3: Tech Manual Inventory Form
4. Attachment 4: Vendor Drawing Inventory Form
5. Attachment 5: Accountable Property Inventory Form
6. Attachment 6:
7. Attachment 7: Deliverable
8. Attachment 8: Fig. 318-1