USCGC HARRY CLAIBORNE (WLM 561)

SPECIFICATION FOR UNPLANNED DRYDOCK REPAIRS

FY2021

Developed By: Kyle P Wood

(Rev-0, 10 November 2020)

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REVISIONS RECORD

This page is used to record specification revisions, which may have occurred subsequent to a Revision 0 (Rev-0) package. Information listed is intended to provide contractors and field unit personnel a means to ensure all the current specification revision pages are present when reviewing or utilizing this specification package.

DATE	REV#	WORK ITEM#	CHANGES MADE

NOTE : All work item and paragraph numbers listed above for a given revision correspond to same numbers in the previous revision. This revised specification is self-contained with all of the above listed changes incorporated.

CONSOLIDATED LIST OF REFERENCES

The below-listed documents form a part of this specification to the extent specified herein. Approval/publication dates or revision dates/numbers are also identified, to ensure that same document versions are used at the time of specification writing and during contract execution.

All Coast guard drawings, technical publications, and standard specifications will be provided to contractors by the Coast Guard at an appropriate time, or upon request, free of charge. Other Government documents may be accessed – free of charge – from links located on the SFLC website. Commercial sites provide access to their respective documents.

COAST GUARD DRAWINGS

Coast Guard Drawing 175 WLM 243-001, Rev -, Propulsion Shafting Arrangement

Coast Guard Drawing 175 WLM 243-002, Rev F, Propulsion Shafting Arrangement

Coast Guard Drawing 175 WLM 243-1, Rev -, Propulsion Shaft Arrangement

Coast Guard Drawing 175 WLM 243-2, Rev F, Propulsion Shaft Arrangement

Coast Guard Drawing 175 WLM 245-001, Rev A, Propeller

Coast Guard Drawing 175 WLM 245-002, Rev A, Z-drive Propeller Details, Modified Design

Coast Guard Drawing 175 WLM 561-001, Rev J, Z-drive Hydraulic System Diagram

Coast Guard Drawing 175 WLM 635-001, Rev F, Hull Thermal and Acoustic Insulation Schedule

Coast Guard Drawing 175 WLM 801-001, Rev A, Hull Lines

Coast Guard Drawing 175 WLM 801-003, Rev A, Curves of Form

Coast Guard Drawing 175 WLM 801-006, Rev J, Docking Drawing

Coast Guard Drawing 175-WLM 202-1, Rev J, MPCMS Cabling Diagram

Coast Guard Drawing 175-WLM 202-2, Rev F, MPCMS Cabling Diagram COED

Coast Guard Drawing 175-WLM 202-6, Rev B, MPCMS Wiring Modifications to Main & Secondary Consoles (551-559)

Coast Guard Drawing 175-WLM 202-7, Rev C, MPCMS Wiring Data Modifications to Consoles (COED), Hulls 551-559

Coast Guard Drawing 175-WLM 551-5, Rev E, Compressed Air System a/D Hull Block 940, 950

Coast Guard Drawing 175-WLM 582-01, Rev D, Mooring & Towing A & D

Coast Guard Drawing 175-WLM 601-01, Rev N, General Arr, Inboard & Outboard Profiles

Coast Guard Drawing 175-WLM 602-01, Rev C, Cutter Visual Id & Draft Marks

Coast Guard Drawing 175-WLM 612-01, Rev G, Lifeline, Rails & Stanchions

Coast Guard Drawing 175-WLM 622-01, Rev C, Decking Fdn Z-Drive Space

Coast Guard Drawing 175-WLM 631-02, Rev E, Painting Schedule

Coast Guard Drawing 175-WLM 634-01, Rev G, Deck Covering Schedule

Coast Guard Drawing 175-WLM 635-01, Rev F, Hull Thermal & Acoustic Insulation Schedule

Coast Guard Drawing 175-WLM 801-15, Rev C, Scantlings, Decks & Platform

Coast Guard Drawing 175-WLM 801-16, Rev C, Scantlings, Watertight Bulkheads

Coast Guard Drawing 175-WLM 801-19, Rev C, Shell Expansion

Coast Guard Drawing 175-WLM 950-01, Rev G, Hull Block 950 Panels

Coast Guard Drawing 175-WLM 950-04, Rev G, H.B. 950 Transverse Frames & Bulkheads

Coast Guard Drawing 175-WLM-202-201, Rev Q, MPCMS

Coast Guard Drawing 225B-WLB 202-1, Rev G, MPCMS Cabling Diagram

Coast Guard Drawing 225B-WLB 202-2, Rev D, MPCMS Connection Table

Coast Guard Drawing 225-WLB 202-1, Rev F, MPCMS Cabling Diagram

Coast Guard Drawing 225-WLB 202-2, Rev G, MPCMS COED

COAST GUARD PUBLICATIONS

CGTO PG-85-00-230-S, August 2013, Planned Maintenance System Development Process Guide

Coast Guard Commandant Instruction (COMDTINST) M10360.3, Jun 2006, Coatings and Colors Manual

Coast Guard Commandant Instruction (COMDTINST) M16672.2D, Mar 1999, Navigation Rules, International-Inland

Coast Guard Technical Publication (TP) 10502 Machinery Plant Control & Monitoring System Operating Manual (MPCMSOM)

Coast Guard Technical Publication (TP) 3505 A & B Machinery Plant Control & Monitoring System Operating Manual (MPCMSOM)

Coast Guard Technical Publication (TP) 3507 MPCMS Computer System Operating Manual (CSOM)

Coast Guard Technical Publication (TP) 3508 MPCMS Computer System Diagnostic Manual (CSDM)

Coast Guard Technical Publication (TP) 3509 MPCMS Software User's Manual (SUM)

Coast Guard Technical Publication (TP) 3585 A& B Machinery Plant Control & Monitoring System Operating Manual (MPCMSOM)

Coast Guard Technical Publication (TP) 3589 MPCMS Computer System Manual

Coast Guard Technical Publication (TP) 3605 A & B Machinery Plant Control & Monitoring System Operating Manual (MPCMSOM)

Coast Guard Technical Publication (TP) 3605B, SWBS 86; Section B; Machinery Plant Control & Monitor System (MPCMS) Z-Drive Direction Indicator System Technical Manual

Coast Guard Technical Publication (TP) 3607 MPCMS Computer System Operating Manual (CSOM)

Coast Guard Technical Publication (TP) 3608 MPCMS Computer System Diagnostic Manual (CSDM)

Coast Guard Technical Publication (TP) 3653, Jul 2013; SWBS 245, Section A; Z-DRIVE - MODEL 1350-H

Coast Guard Technical Publication (TP) 3653, Jul 2013; SWBS 245, Section A; Z-drive - Model 1350-H

Coast Guard Technical Publication (TP) 3932 MPCMS Data Logging System

COMDTINST M9085.1, Rev C, Naval Engineering Computer Aided Design Standards

Naval Sea Systems Command (NAVSEA) 0900-LP-060-4010, 1981, Fabrication, Welding & Inspection of Metal Boat & Craft Hulls

SFLC Technical Standard 086, June 2013, Technical Publications (TP)

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2018, General Requirements

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2018, Welding and Allied Processes

Surface Forces Logistics Center Standard Specification 0850 (SFLC Std Spec 0850), 2018, General Requirements for Drawing Preparation

Surface Forces Logistics Center Standard Specification 3041 (SFLC Std Spec 3041), 2018, Shipboard Electrical Cable Test

Surface Forces Logistics Center Standard Specification 3042 (SFLC Std Spec 3042), 2018, Shipboard Electrical Cable Removal, Relocation, Splice, Repair, and Installation

Surface Forces Logistics Center Standard Specification 5000 (SFLC Std Spec 5000), 2018, Auxiliary Machine Systems

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2018, Preserve Ship Structures

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2018, Requirements for Preservation of Ship Structures

Surface Forces Logistics Center Standard Specification 8634 (SFLC Std Spec 8634), 2018, Drydocking

Surface Forces Logistics Center Standard Specification 8635 (SFLC Std Spec 8635), 2018, Temporary Services

Surface Forces Logistics Center Standard Specification 8636 (SFLC Std Spec 8636), 2018, Temporary Hull Accesses

The Society for Protective Coatings (SSPC) Surface Preparation Specification No.11 (SSPC-SP 11), 2004, Power Tool Cleaning

OTHER REFERENCES

MIL-F-24402, May 1995, Filters (Hydraulic), Filter Elements (High Efficiency), and Filter Differential Pressure Indicators, General Specification

The American Bureau of Shipping (ABS), 2007, Guide for Shipbuilding and Repair Quality Standards Surface Forces Logistics Center for Hull Structure During Construction (ABS Pub 87)

The Society for Protective Coatings (SSPC) Surface Preparation Specification No.1 (SSPC-SP 1), 2015, Solvent Cleaning

CONSOLIDATED LIST OF GOVERNMENT-FURNISHED PROPERTY

The following is a list of property, which the Government will furnish. This list supersedes any other material obligations indicated or implied by referenced drawings.

WORK ITEM	MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST ($/UNIT)
2	Y	Z Drive Alignment Tool	NSN: 5220-01-F16-4720	1 ea.	3600.00
3	Y	Starboard Z-drive (CCW rotation)	NSN: 2010-21-920-0919	1 ea.	500,250.00
3	Y	Port Z-drive (CW rotation)	NSN: 2010-21-920-0899	1 ea.	500,250.00
3	Y	Z Drive Alignment Tool	NSN: 5220-01-F16-4720	1 ea.	3600.00

***Government-loaned property, which shall be returned to the vessel upon completion of the availability.**
****New or refurbished equipment that the Government may provide for installation in place of existing equipment.**
*****Government-furnished property, which is to be supplied by either the vessel or the C4IT ServiceCenter**

CONSOLIDATED LIST OF CRITICAL INSPECTION ITEMS

The following is a list of work items, which contain Critical Inspection reports, which the Contractor must complete within the first 25% of the availability contract period (see SFLC Std Spec 0000, paragraph 3.2.6.5 (Inspection report particulars)):

Work Item	Title
3	Z-Drive Propulsion Unit, Renew (Drydock)
7	Machinery Plant Control and Monitoring System (MPCMS), Groom

PRINCIPAL CHARACTERISTICS - TENDER

175' WLM, BUOY TENDER	
PHYSICAL	
Length overall	174' 8"
Length between perpendiculars	155' 1"
Depth	14' 8"
Maximum beam	36' 0"
Designed draft	8' 0"
Mast height (above 8' waterline)	58' 8"
Frame spacing	20"
Full load displacement	855.15 Long Tons SW
Light load displacement	719.78 Long Tons SW
Minimum op condition displ	852.19 Long Tons SW
HULL	
Hull material	Steel
MACHINERY	
Main propulsion	Two Caterpillar 3508 DITA V-8 diesel; 999 BHP ea @ 1500 RPM Two Ulstein 360 degree steerable Z-Drives, 403 SRPM @ 1600 ERPM
Reduction gears	Two Z-Drive units, Cardan shafting; 3.973:1 gear ratio
Shaft seal	John Crane Type ND
Shaft bearings	Five pedestal mounted, Cooper split roller bearings
Number of propellers	2
Number of blades	4
Diameter	57.1"
Rudders	None; Z-drive
Ship's service generators	Three Caterpillar Model 3406 DITA Turbocharged; 285KW, 450V, 60 Hz, 1800 RPM
Emergency diesel generator	One Caterpillar Model 3406 DIT 210 KW, 24V, 60 Hz, 1800 RPM
TANK CAPACITIES	
Diesel oil capacity (100%)	16,385 gal
Fresh water capacity (100%)	7,339 gal
Lubricating oil (100%)	86 gal

General Requirements

1. SCOPE

1.1 Intent. This standard specification invokes general requirements for conducting vessel repairs performed at a commercial contractor's facility for Coast Guard vessels.

1.2 Term interchangeability. The terms 'Contractor', 'CG Yard', 'NAVSTA EVERETT', 'shipyard', 'Base', and 'Coast Guard Industrial' are used interchangeably in this specification. Where the primary service provider is Coast Guard personnel, references to contractor and other noted descriptors within this specification or within drawings, publications, SFLC Standard Specifications or other commercial and military references are deemed the same as prime service provider.

2. REFERENCES

COAST GUARD DRAWINGS

None

COAST GUARD PUBLICATIONS

Coast Guard Commandant Instruction (COMDTINST) M10360.3 (series), Coatings and Color Manual

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2018, General Requirements

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2018, Welding and Allied Processes

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2018, Requirements for Preservation of Ship Structures

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General. The Contractor shall conform to all requirements specified in SFLC Std Spec 0000 and in this item, as applicable, during the performance of this availability.

NOTE

The requirements of paragraph 3.1 (General) applies to all work under the scope of this contract, whether explicitly stated in work items or not, and to all other work subsequently authorized by changes, modifications, or extensions to the contract.

3.2 Fire watch requirements. The Contractor shall refer to 3.3.1.3 (Fire watch requirements) of SFLC Std Spec 0000, in accomplishing the following task:

- Provide portable fire extinguishers for Coast Guard fire watch personnel. Coast Guard fire watch is in lieu of contractor personnel during the hours of 0800-1600, Monday through Friday, and limited to two Coast Guard fire watch personnel.
- Provide fire watch personnel and fire extinguishers for the duration of the availability period, during and beyond noted Coast Guard fire watch support.

3.3 Preservation requirements. The Contractor shall accomplish all preservation tasks, including touch-ups, in accordance with SFLC Std Spec 6310.

3.3.1 Brand name approval. Ensure that all contractor-furnished coatings are in accordance with SFLC Std Spec 6310, Appendix C (Authorized Coatings for Use on Cutters and Boats).

3.3.2 Coating colors and system color schemes. Ensure that all colors and color coat/paint schemes are in accordance with COMDTINST M10360.3, Chapter 6 (Cutter and Boat Colors Exterior and Interior).

NOTE

Unless a waiver has been granted (in writing) by the KO, deviations from authorized coatings (listed in Appendix C of SFLC Std Spec 6310) and colors and color schemes (provided in Chapter 6 of COMDTINST M10360.3) are strictly prohibited.

3.4 Welding and brazing requirements. The Contractor shall perform all welding and allied processes, and NDE in accordance with SFLC Std Spec 0740.

3.5 Environmental protection requirements. The Contractor shall adhere to the following environmental protection requirements in accordance with the SFLC Stand Spec 0000:

3.5.1 Contractor operated (non USCG) facilities. The Contractor shall provide and maintain environmental protection as defined in SFLC Std Spec 0000 Appendix A, Requirements for Environmental Protection at Contractor Operated (Non USCG) Facilities, as applicable, during the performance of this availability. Contractor shall plan for and provide environmental protective measures to control pollution that develops during normal practice, as well as plan for and provide environmental protective measures required to correct conditions that develop during the project. Contractor shall comply with applicable Federal, state, and local laws, codes, ordinances, and regulations in their entirety. Any reference to a specific portion of a Federal, state, or local law, code, ordinance, or regulation in this or any other item shall not be construed to mean that relief is provided from any other sections of the law, code, ordinance, or regulation.

3.5.2 Test and procedures. The Contractor shall be required to promptly conduct tests and procedures for the purpose of assessing whether operations are in compliance with applicable Environmental Laws. Analytical work shall be done by qualified laboratories; and where required by law, the laboratories shall be certified.

3.5.3 Regulatory notifications. The Contractor shall be responsible for all regulatory notification requirements in accordance with Federal, State and local regulations. In cases where the Coast Guard must also provide public notification, such as storm water permitting, the Contractor must coordinate with the Contracting Officer or COR, and if work is being performed at a USCG Facility, the local Facility Engineer or Engineering Officer. The Contractor shall submit copies of all regulatory notifications to the Contracting Officer and the local Facility Engineer or Engineering Officer prior to commencement of work activities. Regulatory notifications shall be provided for including but not limited to demolition, renovation, National Pollutant Discharge Elimination System

(NPDES) defined site work, and remediation of controlled substances such as asbestos, hazardous waste, and lead paint.

3.5.4 Environmental manager. The Contractor shall appoint in writing an Environmental Manager for the project, and shall be responsible for coordinating Contractor compliance with Federal, State, local, and station environmental requirements. The Environmental Manager shall ensure compliance with Hazardous Waste Program requirements, including hazardous waste handling, storage, manifesting, and disposal; implement the Contractors' Environmental Management Plan; ensure that all environmental permits are obtained, maintained, and closed out; ensure compliance with Storm Water Program Management requirements; ensure compliance with Hazardous Materials including storage, handling, and reporting requirements; as well as coordinate any remediation of regulated substances such as lead, asbestos, and polychlorinated biphenyl (PCB). This may be a collateral position; however the individual must be trained to accomplish the following duties; ensure waste segregation and storage compatibility requirements are met; inspect and manage Satellite Accumulation areas; ensure only authorized personnel add wastes to containers; ensure all Contractor personnel are trained in 40 CFR requirements and individual position requirements; coordinate removal of waste containers; and maintain the Environmental Records binder and required documentation, including environmental permits compliance and close-out.

3.5.5 HW disposal. Contractor shall comply with SFLC Std Spec 0000 Appendix A, Requirements For Environmental Protection At Contractor Operated (Non USCG) Facilities for HW disposal.

3.6 Local Policy. None.

3.7 SFLC Standard Specification approved changes. The Contractor shall be aware that the following are approved changes to published SFLC 2018 Edition Standard Specifications and supersede published content:

None.

4. NOTES

4.1 QA inspection forms. QA inspection forms (QA-1 thru QA-5), required in SFLC Std Spec 6310 to be completed and submitted during preservation of "critical-coated surfaces", are provided at the end of this document.

QA-1 - QUALITY ASSURANCE INSPECTION FORM
(PRESERVATION CHECKLIST)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE
LOCATION OF WORK (INCL. FRAME #'S)			**AREA (SQFT)**

CHECKPOINT 1 – COATING SYSTEM COMPLIANCE	
	Ensure all coatings are in compliance with SFLC Std Spec 6310, Appendix C.
CHECKPOINT 2 - PAINT STORAGE	
	Ensure all coatings are kept at a temperature of 65 to 85°F at all times, unless otherwise specified by the coating mfg.
CHECKPOINT 3 - AMBIENT CONDITIONS	
	Ensure surface and surrounding temperatures are each between 50 and 90°F for water-containing coatings, and 35 and 95°F for other coatings, unless otherwise specified by the coating manufacturer(s).
	Ensure maximum relative humidity (RH) is as follows, from surface preparations through final curing of topcoat: 50% for tanks, voids, and vent plenum; and 85% for all other areas, unless otherwise specified by manufacturer(s).
	Ensure surface temperature is at least 5°F above the dew point, unless otherwise specified by the coating mfg.
CHECKPOINT 4 - PRE-SURFACE PREPARATION	
	Remove surface contaminants (soluble salts, loose rust, mud, and marine growth) with low pressure fresh water wash down (maximum 5,000 psi). If oil and grease are present, perform solvent cleaning, as per SSPC SP-1.
	Verify equipment setup, blast media, and surface preparation methods match designated test coupon.
CHECKPOINT 5 - SURFACE PREPARATION	
	Verify environmental conditions (see CHECKPOINT 3).
	Ensure cleanliness of prepared surface is as per specification (i.e.: SSPC SP-11, SP-10, SP WJ-2…).
	Verify surface anchor profile using ASTM D4417-Methods B or C against SFLC Std Spec 6310. Conduct profile readings at a minimum of 5 locations for the first 1000-sqft area, and 2 locations for each succeeding 1000-sqft area.
	Measure soluble salt conductivity in accordance with SSPC-Guide 15. Conduct 5 measurements per each 1000-sqft area (max. threshold: 70 microsiemens/cm for non-submerged surfaces, 30 microsiemens/cm for submerged surfaces).
CHECKPOINT 6 - PRIMER COAT APPLICATION	
	Verify environmental conditions (see CHECKPOINT 3).
	Verify proper mixing and stand-in (induction) times.
	Ensure no paint is applied when the temperature is expected to drop to freezing before the paint has dried.
	Ensure surfaces are completely dry, unless otherwise allowed by the coating manufacturer(s).
	Verify wet film thickness (WFT) at random, to prevent under or over application. Verify final DFT.
	Brush out all runs, sags, drips, and puddles.
	Perform visual inspection for holidays and other defects.
CHECKPOINT 7 – STRIPE COAT APPLICATION	
	Verify environmental conditions (see CHECKPOINT 3).
	Ensure overcoating window is as per manufacturer's instructions.
	After primer coat (mist coat after inorganic zinc), brush-apply un-thinned coat of same primer paint over edges, weld seams, cut-outs, and areas of complex geometries @ 3-4 mils wet film thickness (WFT).
CHECKPOINT 8 – TOP COAT APPLICATION	
	Verify environmental conditions (see CHECKPOINT 3).
	Ensure overcoating window is as per manufacturer's instructions.
	Verify proper mixing and stand-in (induction) times, as applicable.
	Verify wet film thickness at random, to prevent under or over application.
	Brush out all runs, sags, drips, and puddles.
CHECKPOINT 9 – FINAL INSPECTION	
	Verify final system dry film thickness. Conduct 5 sets of 3 readings for each of the first 3 100-sqft areas, followed by 5 sets of 3 readings for each succeeding 1000-sqft area.
	Ensure that system cure is in accordance with manufacturer's recommendation for intended service.
	Ensure potable water tank exhaust ventilation is maintained continuously from and during coating application through final system cure, to exhaust all solvent to the atmosphere and to prevent solvent entrapment.
	For immersion coatings (including tank U/W body), record date and time of the following events: Final coat application: _____/_____ ; Return to service or removal from environment controls: _____/_____
CHECKPOINT 10 – RECORD KEEPING	
	Complete, sign, and submit all provided QA Inspection Forms.

NAME OF QP-1/NACE INSPECTOR	SIGNATURE	CERT. #	DATE / TIME

QA-2 - QUALITY ASSURANCE INSPECTION FORM
(ENVIRONMENTAL READINGS)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE

Use one sheet for each activity. Record conditions every four hours from before surface preparation to application of final coating system coat.							
DATE & TIME	ACTIVITY (SURFACE PREPARATION, PRIMER COAT, BARRIER COAT, TOP COAT, ETC…)	LOCATION (FRAME & DECK, RELATION TO EQUIPMENT, ETC.)	TEMPERATURE				% REL. HUMID-ITY
			DEW PT.	SURFACE	AMBIENT	ΔT | DP - SURFACE |	

NAME OF QP-1/NACE INSPECTOR	SIGNATURE	CERT. #	DATE / TIME

QA-3A - QUALITY ASSURANCE INSPECTION FORM
(SURFACE PROFILE LOG FOR PROFILE MEASUREMENTS IAW ASTM D4417-METHOD-C)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE
LOCATION OF WORK (INCL. FRAME #'S)		AREA (SQFT)	

SURFACE PREPARATION METHOD		PROFILE ACHIEVED (MILS)		
		MIN	MAX	MEAN
SSPC-SP-10/NACE No. 2	☐			
SSPC-SP WJ-1/NACE WJ-1	☐			
SSPC-SP WJ-2/NACE WJ-2	☐			
SSPC-SP WJ-3/NACE WJ-3	☐			
SSPC-SP WJ-4/NACE WJ-4	☐			
SSPC-SP-3	☐			
SSPC-SP-11	☐			
SSPC-SP-11 (inaccessible area)	☐			
Brush-blasting (non-metallic substrate)	☐			
ABRASIVE MANUFACTURER:		ABRASIVE SIEVE SIZE:		

PLACE SURFACE PROFILE REPLICA TAPES IN THE SPACES PROVIDED BELOW, TO SERVE AS PERMANENT QA RECORD. MAINTAIN A SEPARATE LOG FOR EACH LOCATION. WHEN AN AREA IS DIVIDED INTO SEPARATE SECTIONS, MAINTAIN A SEPARATE LOG FOR EACH SECTION.

Place Surface Profile Replica Tape Here		Place Surface Profile Replica Tape Here		Place Surface Profile Replica Tape Here	
Reading (mils):		Reading (mils):		Reading (mils):	
Place Surface Profile Replica Tape Here		Place Surface Profile Replica Tape Here		Place Surface Profile Replica Tape Here	
Reading (mils):		Reading (mils):		Reading (mils):	
Place Surface Profile Replica Tape Here		Place Surface Profile Replica Tape Here		Place Surface Profile Replica Tape Here	
Reading (mils):		Reading (mils):		Reading (mils):	
Place Surface Profile Replica Tape Here		Place Surface Profile Replica Tape Here		Place Surface Profile Replica Tape Here	
Reading (mils):		Reading (mils):		Reading (mils):	
Place Surface Profile Replica Tape Here		Place Surface Profile Replica Tape Here		Place Surface Profile Replica Tape Here	
Reading (mils):		Reading (mils):		Reading (mils):	
MEAN MIL READING (IAW ASTM D4417-METHOD C) FOR ABOVE 15 READINGS:					

NAME OF QP-1/NACE INSPECTOR	SIGNATURE	CERT. #	DATE / TIME

QA-3B - QUALITY ASSURANCE INSPECTION FORM
(SURFACE PROFILE LOG FOR PROFILE MEASUREMENTS IAW ASTM D4417-METHOD-B)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE
LOCATION OF WORK (INCL. FRAME #'S)			**AREA (SQFT)**

SURFACE PREPARATION METHOD		PROFILE ACHIEVED (MILS)		
		MIN	MAX	MEAN
SSPC-SP-10/NACE No. 2	☐			
SSPC-SP WJ-1/NACE WJ-1	☐			
SSPC-SP WJ-2/NACE WJ-2	☐			
SSPC-SP WJ-3/NACE WJ-3	☐			
SSPC-SP WJ-4/NACE WJ-4	☐			
SSPC-SP-3	☐			
SSPC-SP-11	☐			
SSPC-SP-11 (inaccessible area)	☐			
Brush-blasting (non-metallic substrate)	☐			
ABRASIVE MANUFACTURER:		**ABRASIVE SIEVE SIZE:**		

RECORD MEASUREMENTS TAKEN IN THE SPACES PROVIDED BELOW, TO SERVE AS PERMANENT QA RECORD. MAINTAIN SEPARATE LOG FOR EACH LOCATION. WHEN AN AREA IS DIVIDED INTO SEPARATE SECTIONS, MAINTAIN A SEPARATE LOG FOR EACH SECTION.					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Reading (mils):					
Mean Reading (mils)					
Mean Reading (mils) IAW ASTM DD4417).					

NAME OF QP-1/NACE INSPECTOR	SIGNATURE	CERT. #	DATE / TIME

QA-4 - QUALITY ASSURANCE INSPECTION FORM
(SURFACE SOLUBLE SALT CONDUCTIVITY LOG)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE
LOCATION OF WORK (INCL. FRAME #'S)			AREA (SQFT)

SOLUBLE SALT CONDUCTIVITY MEASUREMENTS IAW SSPC-GUIDE 15.		
DATE	TEST LOCATIONS	CONDUCTIVITY (MICROSIEMENS/CM)

NAME OF QP-1/NACE INSPECTOR	SIGNATURE	CERT. #	DATE / TIME

QA-5 - QUALITY ASSURANCE DATA FORM
(COATING THICKNESS)

(Use one sheet for each sequence)

VESSEL NAME	HULL #	WORK ITEM #	WORK ITEM TITLE

COATING MFG	PRODUCT NAME	BATCH #	INDUCTION TIME	COATING SYSTEM SEQUENCE (PRIMER/TOUCHUP/3RD COAT, ETC.)

DRY FILM THICKNESS (DFT) MEASUREMENTS IAW SSPC-PA 2.						
SPOT	1	2	3	4	5	AVERAGE VALUE
*BASE METAL READING (BMR) Required, If Magnetic Pull-Off (Type I/Banana) Gauge Is Used.						

LOCATION (FRAME REFERENCE):								
SPOT	1	2	3	4	5	OVERALL AVG. DFT	ADJUSTMENTS	
1							AVG. BMR	DEVIATION
2								
3						BEFORE ADJUSTMENTS	AFTER ADJUSTMENTS	
AVG.								

LOCATION (FRAME REFERENCE):								
SPOT	1	2	3	4	5	OVERALL AVG. DFT	ADJUSTMENTS	
1							AVG. BMR	DEVIATION
2								
3						BEFORE ADJUSTMENTS	AFTER ADJUSTMENTS	
AVG.								

LOCATION (FRAME REFERENCE):								
SPOT	1	2	3	4	5	OVERALL AVG. DFT	ADJUSTMENTS	
1							AVG. BMR	DEVIATION
2								
3						BEFORE ADJUSTMENTS	AFTER ADJUSTMENTS	
AVG.								

APPLICATION METHOD (AIRLESS, CONVENTIONAL SPRAY, ROLLED)	AVERAGE DFT

NAME OF QP-1/NACE INSPECTOR	SIGNATURE	CERT. #	DATE / TIME

WORK ITEM 1: Z-Drive Input Drive Shaft, Bearings Inspect

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to clean, inspect and lubricate the propulsion shaft bearings on the port and starboard z-drive input shaft (5 bearings per shaft).

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 175 WLM 243-001, Rev -, Propulsion Shafting Arrangement

Coast Guard Drawing 175 WLM 243-002, Rev F, Propulsion Shafting Arrangement

COAST GUARD PUBLICATIONS

Coast Guard Technical Publication (TP) 3653, Jul 2013; SWBS 245, Section A; Z-DRIVE - MODEL 1350-H

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2018, General Requirements

OTHER REFERENCES

None.

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep. The Contractor shall provide the services of a Qualified Technical Representative who is familiar with the Ulstein model number 1350-H (now Rolls Royce) Z-drive propulsion unit and Cooper drive shaft support bearings, to accomplish the following on site:

- Advise on manufacturer's proprietary system information.
- Assist with and ensure compliance with manufacturer's procedures and standards during

disassembly, inspection, repair, modification, calibration, and reassembly of the equipment/system.

- Technical Representative shall be present for all disassembly, inspection, and reassembly of the Z-drive system.

3.1.2.1 Ensure the Tech Rep has experience with the system/equipment stated above and demonstrated on their résumé.

3.1.2.2 Submit the name and résumé of the Tech Rep to the COR at the Arrival Conference.

3.1.3 Protective measures . The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).Known interferences in way of work include, but are not limited to the below-listed:

- Shaft guards (5 per shaft).

3.2 Disassembly precaution. The Contractor shall note that the No. 3 bearing (thrust bearing) is the only fixed bearing and removal or loosening of this bearing will result in a need for realignment. To ensure proper shaft alignment is maintained, place a dial indicator to the flange on the coupling just fwd of the No. 3 bearing.

NOTE

Be aware the Cutter has suffered some hull damage. Contractor shall be alert to any consequential damage or problems that may have occurred to the Cooper bearings as a result.

3.2.1 If the need arises to move the shaft, use the dial indicator to reposition the shaft in the same location as prior to the inspection. Measure and record the distance between the fixed bearing and the aft face of the coupling using an inside micrometer.

3.2.2 If the longitudinal position of the shaft is changed without a dial indicator in place or if the dial indicator is moved and the reference point is lost, re-align the shaft as described in paragraph 3.6.

3.2.3 If the longitudinal position of the shaft is changed without a dial indicator in place or if the dial indicator is moved and the reference point is lost, move the flexible coupling and re-align the shaft, in accordance with TP 3653. Ensure that the bar placed on the flywheel, used to take measurements, is tightened to a torque of 35 ft-lbs. Ensure that the final alignments are as specified in Table 1 below (clarification of dimensions can be found in TP 3653):

TABLE 1 – FINAL ALIGNMENTS

ALIGNMENT	TOLERANCE
Axial	+/- 0.020”
Radial	0.039” +/- 0.039”

Angular	+/- 0.014”

3.3 Removal. The Contractor shall remove all bearing end caps and all bearings from the bearing housings. Provide suitable support for each shaft prior to removal of any bearing.

NOTE

Be sure the dial indicator is in place before removing the thrust bearing.

3.4 Bearings cleaning and inspection. The Contractor shall clean and remove all grease from each bearing. Inspect all visible bearing surfaces for wear, cracks and abnormalities. Ensure No. 1, 2, 4, & 5 bearings are centered in their foundations. Appendix B.3 of TP 3653 has specific information on installed bearings. Submit a CFR.

3.5 Reassembly and reinstallation. The Contractor shall accomplish the following:

3.5.1 Before bearing reassembly, apply 7 oz. of grease on each of the bearings.

CAUTION

Do not over-grease the bearing. Excess grease will result in an excessive high temperature reading. Wipe any excess grease off the inner race retaining rings.

3.5.2 Reassemble and reinstall the bearings back to their original configuration. The inner race retaining ring bolts shall be secured with Loctite 242 or equivalent. Be aware that the ends of the inner race halves are cut at an angle and must be mounted in a particular orientation. Inspect the seam at which the inner races join together and ensure there is not a gap.

3.6 Alignment inspection. The Contractor shall align the entire Z- drive propulsion train in related Work Item “Z-Drive Units, Alignment Check”. The work of this item (any Cooper Bearing Movements) shall be coordinated with that Alignment Item.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

3.7 Operational Testing. Operational testing of the entire Z-drive propulsion train is to be performed under Work Item, “Z-Drive Propulsion Units, Renew (Drydock)”. Ensure the work of this Work Item is coordinated with that Work Items. Do not include that cost in the bid of this Item.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 2: Both Z-Drive Propulsion Trains, Alignment

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to inspect both z-drive's propulsion trains for proper vertical alignment and bearing performance. Bearings and Z-drive Units shall be moved as required to ensure satisfactory alignment exists of the entire Z-drive shafts from MDE to Z-drive Unit.

1.2 Government-furnished property. .

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST ($/UNIT)
Y	Z Drive Alignment Tool	NSN: 5220-01-F16-4720	1 ea.	3600.00

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 175 WLM 243-1, Rev -, Propulsion Shaft Arrangement

Coast Guard Drawing 175 WLM 243-2, Rev F, Propulsion Shaft Arrangement

COAST GUARD PUBLICATIONS

Coast Guard Technical Publication (TP) 3653, Jul 2013; SWBS 245, Section A; Z-DRIVE - MODEL 1350-H

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep. The Contractor shall provide the services of a qualified Tech Rep, who is familiar with the Ulstein model number 1350-H (now Rolls Royce) Z-drive propulsion unit, to accomplish the following tasks – on site:

- Assist with proper repair methods, and ensure compliance with manufacturer's procedures and standards during disassembly, inspection, repair, modification, calibration, and reassembly of the equipment/system.
- Technical Representative shall be present for all disassembly, inspection, and reassembly of the Z-drive system.

3.1.2.1 Ensure that the Tech Rep has a résumé of demonstrated experience with the system/equipment stated above.

3.1.2.2 Submit a copy of the Tech Rep's résumé and a list of references to the COR at the Arrival Conference.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences in way of work include, but are not limited to the below-listed:

- Shaft guards (5 per shaft).

3.2 Hull damage.

3.2.1 The Cutter has suffered some Hull damage and may require structural hull plating repairs. As a result the Z-drive alignment requires validation and corrections if required.

NOTE

Coordinate the work of this alignment specification with other Work Items that may effect the outcome including all Plate Renewal Work Items as well as "Z-Drive Input Drive Shaft, Bearings Inspect" and "Z-Drive Propulsion Units, Renew (Drydock)".

3.3 Background Information.

3.3.1 The z-drive drive shaft contains 5 cooper bearings. #1 bearing is designated as closest to MDE. The MDE is connected via flexible coupling. #3 bearing is a fixed (thrust bearing). The remaining 4 bearings are floating bearings. #5 bearing is closest to z-drive. The drive shaft is connected to the z-drive via a cardan shaft.

3.3.2 This shall be considered performance specification (Government is not stating exactly how to do work, only the end result is stated). Contractor is expected to achieve final result of a z-drive propulsion train alignment. The sequence and timing of events shall be directed by Alignment Contractor.

3.2.3 For purpose of this specification, the alignment of Z-drive propulsion train is considered to be comprised of three parts. Total alignment (not performed since new construction) requires all 3 parts be performed simultaneously to achieve optimal alignment.

3.2.3.1 The three parts are considered to be:

- Part A -The MDE to drive shaft connection (via Vulkan coupling)
- Part B -The drive shaft supported on 5 cooper bearings.
- Part C -The drive shaft to z-drive input (via cardan shaft)

3.2.3.2 From past history and drawing reviews the following conditions exist (until proven otherwise):

- The MDEs are not vertically shimmed to aide in alignment. They are moved just horizontally to satisfy coupling alignment. For vertical alignment movements required then the cooper bearing #1 would move.
- The Z-drive units are not capable of vertical movement and only limited horizontal movement. Horizontal movement is only to very limited degree possible via flange bolting to sea chest and via subassembly makeup/bolting (e.g. lower assembly to intermediate,

3.3 Main Diesel Engine (MDE) alignment check (Part A). The Contractor shall accomplish the following MDE alignment tasks:

3.3.1 The MDEs are Caterpillar 3508 Diesel.

3.3.2 Contractor shall disconnect the Vulkan coupling so that the alignment readings are pure flange to flange unbiased.

3.3.3 Measure with laser alignment tools the existing state of alignment of MDE to z-drive shafting

3.3.4 Consideration of thermal rise of MDE shall be considered. Rough calculations indicate an approximate 0.010" output flange rise in a hot operating engine as compared to cold ambient engine.

3.3.4.1 If the engines have pre-heaters they may be able to be turned on (Coast Guard Cutter's sole decision and action) and the engine brought up to temperature. This will allow actual thermal expansion of the engine to take place (and nullify need to factor in a theoretical rise).

3.3.5 If alignment is found to be out of tolerance, present a plan for approval to restore alignment (most likely of movement of Cooper bearing nearest MDE (#1).

3.4 Five Cooper bearing alignment checks (Part B). Coordinate this Work with related Work item "Z-Drive Input Drive Shaft, Bearings Inspect ". Contractor shall accomplish the following Cooper bearing alignment tasks:

NOTE

Using a load cell to measure bearing loads represents government's minimum needs. Strain gauge alignment in lieu of load cell is also permissible.

3.4.1 Shaft shall remain installed for this work.

3.4.2 Vertical Loads

3.4.2.1 Determine the vertical loads currently being carried on the 5 drive shaft bearings using a load cell.

3.4.2.2 Present a plan for approval to distribute positive loads between the five (5) bearings. Plan should ensure that the bearing closest to Main diesel Engine stays properly loaded during any thermal rise associated with engine warm-up.

NOTE

Vertical movement of bearings either by shims or by re-pouring of chockfast shall be considered contract growth, and subject to a negotiated contract change. However required movement of bearings effected by loosening then tightening pedestal bolts shall be considered within the scope of this work item.

3.4.2.3 Upon approval shim the bearings per plan, and re-measure loads using load cell. Continue shimming until loads are satisfactorily achieved.

3.4.3 Horizontal Loads

3.4.3.1 Move bearings onto chosen LOS to eliminate horizontal (side loads).

3.4.4 Thrust bearing adjustment.

3.4.4.1 The number 3 bearing is a fixed (aka thrust bearing) whose axial position is critical. The other 4 bearings are floating bearings.

3.4.4.2 Devise a plan to determine if the thrust bearing is in correct axial position. Obtain USCG concurrence to plan and then execute.

3.4 Cardan shaft Alignment (Part C). Coordinate this Work with related Work item "Z-Drive Input Drive Shaft, Bearings Inspect ". Contractor shall accomplish the following cardan shaft alignment tasks:

3.4.1 The cardan shaft shall be aligned using laser alignment equipment and techniques. Special alignment pointers will be used in addition as second check, these pointers are provided GFE.

3.4.2 The new Z-drives are being manipulated and bolted down in related Work Item "Z-Drive Propulsion Units, Renew (Drydock) in a position to be dictated by the alignment work item. Potential movement of Bearing #5 may also be required to obtain satisfactory cardan shaft alignment.

3.5 Final report. Submit final report to USCG with initial alignment readings, final alignment results, actions taken, recommendations for future similar jobs, difficulties, and any other notable findings.

4. NOTES

This item is not applicable to this work item.

WORK ITEM 3: Z-Drive Propulsion Unit, Renew (Drydock)

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to renew both the port and starboard Z-drive propulsion units, while the vessel is in drydock.

1.2 Government-furnished property.

MTI	ITEM DESCRIPTION	NSN/PN	QTY	ESTIMATED COST ($/UNIT)
Y	Starboard Z-drive (CCW rotation)	NSN: 2010-21-920-0919	1 ea.	500,250.00
Y	Port Z-drive (CW rotation)	NSN: 2010-21-920-0899	1 ea.	500,250.00
Y	Z Drive Alignment Tool	NSN: 5220-01-F16-4720	1 ea.	3600.00

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 175 WLM 245-001, Rev A, Propeller

Coast Guard Drawing 175 WLM 245-002, Rev A, Z-drive Propeller Details, Modified Design

Coast Guard Drawing 175-WLM 551-5, Rev E, Compressed Air System a/D Hull Block 940, 950

Coast Guard Drawing 175 WLM 561-001, Rev J, Z-drive Hydraulic System Diagram

Coast Guard Drawing 175 WLM 635-001, Rev F, Hull Thermal and Acoustic Insulation Schedule

COAST GUARD PUBLICATIONS

Coast Guard Technical Publication (TP) 3653, Jul 2013; SWBS 245, Section A; Z-drive - Model 1350-H

Coast Guard Technical Publication (TP) 3605B, SWBS 86; Section B; Machinery Plant Control & Monitor System (MPCMS) Z-Drive Direction Indicator System Technical Manual

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2018, General Requirements

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2018, Welding and Allied Processes

Surface Forces Logistics Center Standard Specification 5000 (SFLC Std Spec 5000), 2018, Auxiliary Machine Systems

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2018, Requirements for Preservation of Ship Structures

Surface Forces Logistics Center Standard Specification 8636 (SFLC Std Spec 8636), 2018, Temporary Hull Accesses

OTHER REFERENCES

MIL-F-24402, May 1995, Filters (Hydraulic), Filter Elements (High Efficiency), and Filter Differential Pressure Indicators, General Specification

The Society for Protective Coatings (SSPC) Surface Preparation Specification No.1 (SSPC-SP 1), 2015, Solvent Cleaning

3. REQUIREMENTS

3.1 General.

3.1.1 CIR. The Contractor shall submit a CIR for the inspections listed in the following paragraph(s):

- 3.7.3 Post-surface preparation cleaning and inspection

3.1.2 Tech Rep. The government will provide the services of a qualified Tech Rep, who is familiar with the Ulstein model number 1350-H (now Rolls Royce) Z-drive propulsion unit, to accomplish the following tasks – on site:

- Assist with proper repair methods, and ensure compliance with manufacturer's procedures and standards during disassembly, inspection, repair, modification, calibration, and reassembly of the equipment/system.
- Technical Representative shall be present for all disassembly, inspection, and reassembly of the Z-drive system.

3.1.2.1 Ensure that the Tech Rep has a résumé of demonstrated experience with the system/equipment stated above.

3.1.2.2 Submit a copy of the Tech Rep’s résumé and a list of references to the COR at the Arrival Conference.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.3.1 Hydraulic system(s). Maintain existing hydraulic system cleanliness and take all necessary precautions to prevent the introduction of contaminants into the hydraulic system. Immediately after disconnecting or removing components from the hydraulic system, seal all openings to the rest of the system using caps for externally threaded connection points, bolt-on blanks, or taped-on discs/covers made of durable plastic or sheet-metal that is no less than 1/16-inch thick.

NOTE

Be aware that plastic bags may be used only when arrangement or configuration prevents the use of the other sealing methods specified above.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences in way of work include, but are not limited to:

- Insulation and/or lagging
- Hydraulic piping and hoses
- ASW piping
- Pneumatic piping
- Lighting wiring and fixtures
- Control panels
- Electrical boxes.
- Portable railing bolted to the grating surrounding the Z-drive.
- Shaft guards/covers

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

3.2 Operational test, initial. Prior to commencement of work, the Contractor shall witness Coast Guard personnel perform an initial operational test of all items or shipboard devices to be disturbed, used, repaired, or altered, to demonstrate existing operational condition. Submit a CFR.

3.2.1 The existing Z-drive itself since being renewed (and possibly damaged/leaking) shall not be operationally tested.

3.3 Patch removal. The Contractor shall cut the access opening required on the 01 Level (23'-0" above baseline). The outline of this access opening is visible on the deck from previous installations. Follow the outline, cut deck plate and lift off of the Cutter. Perform all work required to open and close the access openings in accordance with SFLC Std Spec 8636.

3.3.1 When the access opening is not being utilized for rigging, it shall be kept covered by temporary plywood sheets and a tarp for safety and to limit exposure of internal compartments from the elements.

3.3.2 Boundary test. The Contractor shall verify the integrity of all boundaries affected by this work item using one of the methods described in Std Spec 0740, Appendix C. Submit a CFR.

3.4 System draining. The Contractor shall drain the lubrication, steering, and seal oils from both the Z-drive propulsion units in accordance with TP- 3653 and Coast Guard Drawing 175 WLM 245-001. Dispose all drain fluids in accordance with applicable Federal, state, and local environmental regulations.

3.4.1 The quantities of existing system oil (for each Z-Drive unit) to be drained and disposed of are:

- Lube and Seal Oil - 120 gallons.
- Steering Oil - 92 gallons.

3.4.2 Once the systems have been drained, open all system tanks and clean to dry bare metal removing all condensation residue using new low-lint cleaning cloths conforming to CID A-A-59323, Type II.

3.5 Both Z-drive propulsion units renewal. The Contractor shall receipt inspect the new GFP Z-drives.

3.5.1 Furnish all crane service and riggers required to initially receive the new Z-drives and then later load removed Z-drives onto Government provided transportation. Z-drive will arrive in a horizontal position in a shipping stand. The same shipping stand will be re-used to return removed Z-drive. See photograph at end of specification.

3.5.2 Inspect the new GFP units for lockwire. If missing, install required lockwire per Technical Representative's guidance. CG Tech Pub 3653 as well as comparison to existing Z-drive (when removed) shall be referenced for lockwire configuration.

3.5.3 Inspect the new GFP unit's clutch for rust, water, or shipping damage. Technical Representative shall assist in the inspection.

3.5.4 Stand the new unit upright and stabilize the cort nozzle with straps and come alongs so that it does not rotate during rigging. See Figure at end of specification, for recommended rigging.

3.5.5 Turn the nozzle so that it is turning dead astern. To ensure nozzle is exactly at 180º, use two plumb bobs and measure each side of the nozzle. Adjust nozzle until both readings are equal. Remove the inspection cover where the lube oil dip stick is located and punch mark the turning gear and the housing.

NOTE

The punch marks are to give the Cutter a reference point in case of a mechanical failure of the feedback boxes.

3.6 Remove both units. The Contractor shall disconnect all ship service connections (electrical, pneumatic, lubrication, etc.) that will prohibit or impede vertical unshipping of the Z-drive. Tag all wires and removed hardware to ensure correct reassembly. Cap or seal all broken piping connections.

3.6.1 Remove the Cardan shaft from the Z-drive's clutch in accordance with the instructions of CG Tech Pub 3653. Rig the Cardan shaft away from the Z-drive to allow for Z-drive vertical removal.

3.6.2 Install alignment pointers and document existing state of alignment.

3.6.2.1 Contractor shall perform run-outs on the provided GFE alignment pointers to ensure straightness.

NOTE

This is necessary to understand any difficulties in obtaining satisfactory alignment of new Z-drives. In the past the new Z-drives would not align with existing drive shaft, and expensive drive shaft realignment was undertaken. It was not apparent if alignment problem was pre-existing or caused by the new Z-drive's introduction.

3.6.3 Unbolt the flange bolting.

3.6.4 Connect rigging to Z-drive unit, under technical representative's guidance and in accordance with the instructions of CG Tech Pub 3653. Rig the Z-drive to the pier. The Z-drive frame has padeyes permanently installed to aide rigging evolution.

3.6.5 Once the Z-drive has been removed from Z-drive well, Contractor shall install temporary covers over opening for personnel safety and to prevent dust/debris/grit from entering the Cutter.

3.7 Preserve the Z-drive sea well. With the z-drive removed, Contractor shall prepare and paint the interior of the sea well not normally accessible. Coordinate painting with removal/installation of sea well covers (see Figure).

3.7.1 Pre-surface preparation wash. Accomplish low-pressure (less than 5,000 psi) fresh water wash of all affected surfaces, to remove soluble chlorides and other surface contaminants. Refer to SSPC-SP 1, for guidance.

3.7.2 Surface preparation and coating application. Prepare and coat the inside surfaces of the sea well from bottom of opening to the top where mounting flange resides, with the system specified for "Underwater (U/W) Body and Boot-Top (U/W Body and Boot-Top, Icebreaker <235', in Salt Water)", in SFLC Std Spec 6310, Appendix A (Cutter and Boat Exterior Painting Systems).

3.7.2.1 Ensure that the first AF coat is applied over the AC undercoating, while it is still tacky.

3.7.3 Post-surface preparation cleaning and inspection. After completion of surface preparation and prior to coating application, accomplish the following tasks and submit a CIR.

3.7.3.1 Perform a visual inspection of the prepared sea well body steel substrate.

3.7.3.2 Perform solvent cleaning of all prepared surfaces, in accordance with SSPC-SP 1. Capture, contain, and dispose of all wastes from solvent cleaning, in accordance with all Federal, state and local regulations..

NOTE

Lists of all authorized coating materials and suppliers, and coating colors are listed in SFLC Std Spec 6310, Appendix C (Cutter and Boat Authorized Coatings).

The preservation specified here is intended to mirror (not alter, superced, or diminish) the requirements found in related Work Item "U/W Body, Preserve (100%)." In some cases this Z-drive Renewal Work Item may be performed without the related Work Item "U/W Body, Preserve (100%)" in the package.

3.7.3.3 Do not paint flange face (of the sea well) that the gasket seats against.

3.8 Install the new GFP Z-drives. The Contractor shall connect rigging to Z-drive unit, under Tech Rep's guidance and the instructions of CG Tech Pub 3653, and rig the Z-drive from the pier onto the ship. Ensure that during final landing on the flange the gasket is not damaged.

3.8.1 Clean the flange surface in preparation for new gasket. Renew the gasket with a new Contractor furnished one, following Technical Representative's guidance and the instructions of CG Tech Pub 3653.

3.8.2 Bolt the Z-drive to the flange under technical representative's guidance and the instructions of CG Tech Pub 3653. During the bolting operation, coordinate with related Work Item "Both Z-Drive Propulsion Trains, Alignment" requirements.

3.9 Z-drives Alignment. The Contractor shall align the Z-drive in related Work Item "Both Z-Drive Propulsion Trains, Alignment". In that Item the Z-drive shall be aligned by laser alignment techniques and the pointers used as a second check and visual proof of proper alignment.

3.10 Piping, hoses and fluids. The Contractor shall pump out the 6 to 7 gallons of storage oil from the new Z-drive unit's main pod. Dispose of oil in accordance with applicable Federal, state and local environmental regulations.

3.10.1 Connect all disturbed piping and hoses. During connection, visually inspect all hoses for wear and defects. Submit a CFR to report and discovered damage.

3.10.2 Visually Inspect the oil system for potential damage e.g. leaks from hull damage incident. Consult with COR (USCG) on any suspicious areas of concern. Submit a CFR for any negative findings or recommended repairs.

3.10.3 Bolt the Cardan shaft to the Z-drive unit's clutch under Tech Rep's guidance and the instructions of CG Tech Pub 3653.

3.10.4 Furnish new replacement oils conforming to the manufacturer's recommendations to the seal oil tank, the Z-drive units and to the steering hydraulic systems. Follow the procedures for renewing the Contractor-furnished oils and filters in accordance with TP-3653. The replacement oil shall be filtered through a non-bypass type filter with a 10-micron filter element conforming to MIL-F-24402 during refilling.

3.10.4.1 The total amount of new oil required for this entire specification is as follows:

- Lube and Seal Oil 140 gallons. Approved oils are shown in "Approved Mineral Lubricants" table of TP-3653.

NOTE

Previously 120 gallons was advertised as correct quantity of Lube and Seal Oil. That was based on the TP 3653, but actual experience has shown the true amount is closer to the above stated 140 gallons.

- Steering Oil 92 gallons. Approved oils are shown in "Approved Mineral Lubricants" table of TP-3653.

3.11 Patch replacement. The Contractor shall prepare the edges of the access opening plate (patch). Position the plate in place. Install the removed access opening plate using continuous full-penetration welds from both sides in accordance with SFLC Std Spec 0740.

3.11.1 Non-destructive test new insert welds in accordance with SFLC Std Spec 0740. Repair all weld deficiencies and retest. Submit a CFR with weld inspection results to the Coast Guard Inspector.

3.12 Restoration. The Contractor shall renew all removed/disturbed shell plating insulation in accordance with CG Dwg 175-WLM 635-1.

3.13 Touch-up preservation. The Contractor shall prepare and coat all new and disturbed surfaces to match existing adjacent surfaces in accordance with SFLC Std Spec 6310, paragraph 3.1.13 (Touch-ups and minor coating repairs.)

3.14 Calibration. The Contractor, in conjunction with Coast Guard Inspector, shall calibrate the actual versus the indicated azimuth position mechanical indicators throughout the entire azimuth range in accordance with TP-3653. Only Coast Guard Inspector shall operate shipboard equipment.

3.14.1 Coordinate with the Coast Guard Inspector during calibration to allow for the electronic indicators in the MPCMS and MSCC systems to be also verified true and accurate.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment.

3.15 Operational test, post repairs. After completion of work, the Contractor shall thoroughly test, in the presence of the Coast Guard Inspector and demonstrate all items or shipboard devices that have been disturbed, used, repaired, altered, or installed to be in satisfactory operating condition. Submit a CFR.

3.15.1 The systems shall be inspected for oil leaks prior to undocking and while Z-drive propulsion units are operationally tested.

3.15.2 Operational testing shall be performed under the supervision of the Tech Rep

3.15.3 All related operational testing of the Z-drive and it's propulsion train, including Work Items "Z-Drive Input Drive Shaft, Bearings Inspect" and "Both Z-Drive Propulsion Trains, Alignment", shall be coordinated, performed, and paid for in this Work item.

4. NOTES

This section is not applicable to this work item.

FIGURE 1. Z-DRIVE SHIPPING STAND AND SHIPPING ORIENTATION

FIGURE 2. HISTORIC Z-DRIVE LIFTING ON-OFF CUTTER PHOTOGRAPH

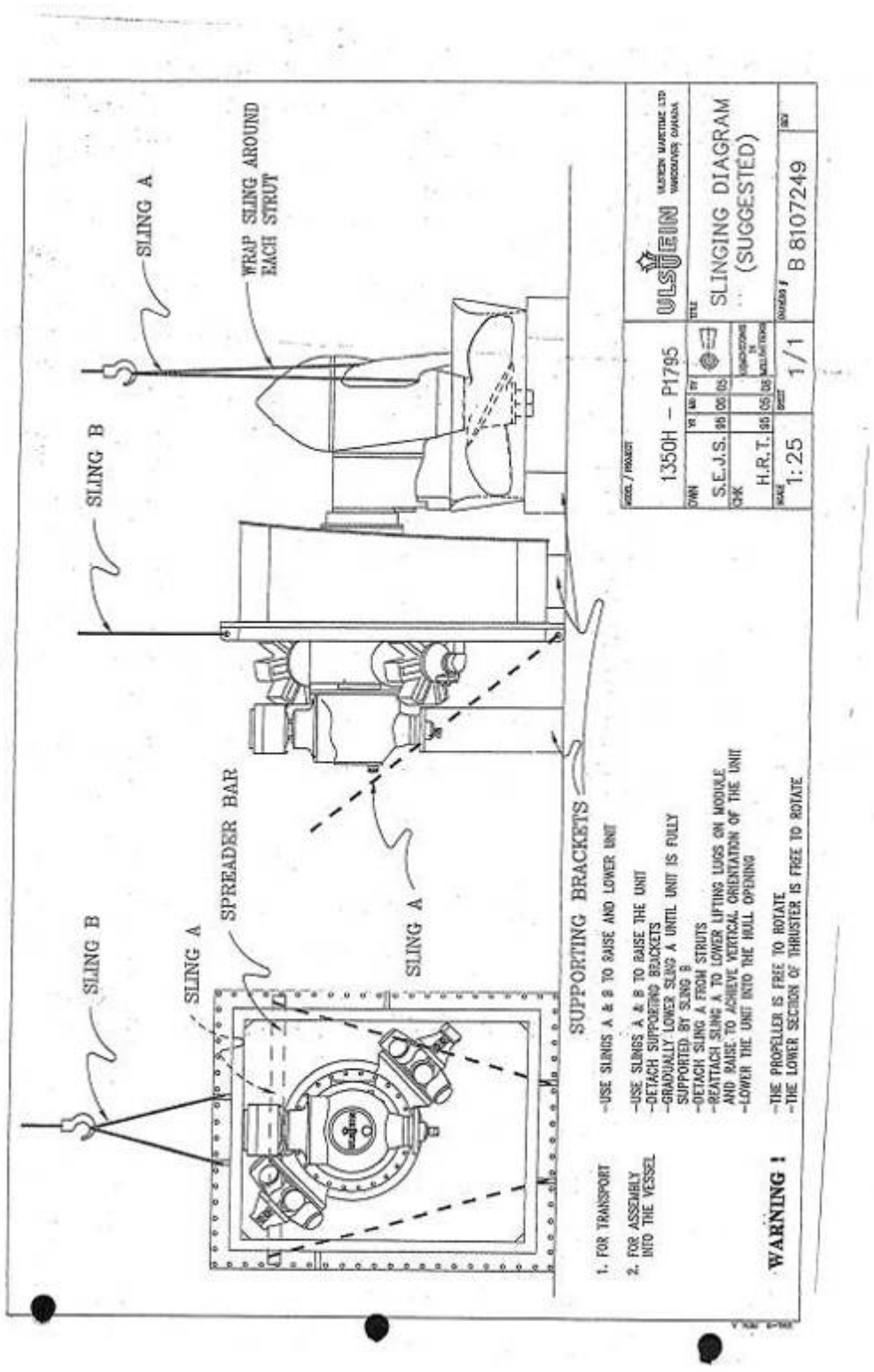

FIGURE 3. Z-DRIVE RIGGING DIAGRAM (PAGE FROM TECH PUB)

Figure, Z-drive Sea Well

Figure, Z-drive Sea Well Covers Installed

FIGURE 4. Z DRIVE SEA WELL AND COVERS INSTALLED

WORK ITEM 4: Drydock

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to drydock the vessel, undock the vessel, and perform various drydocking-related tasks.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 175 WLM 801-001, Rev A, Hull Lines

Coast Guard Drawing 175 WLM 801-003, Rev A, Curves of Form

Coast Guard Drawing 175 WLM 801-006, Rev J, Docking Drawing

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2018, General Requirements

Surface Forces Logistics Center Standard Specification 8634 (SFLC Std Spec 8634), 2018, Drydocking

OTHER REFERENCES

None.

3. REQUIREMENTS

3.1 General.

3.1.1 CIR. The Contractor shall submit a CIR for the inspections listed in the following paragraph(s):

- None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences). Known interferences include, but are not limited to the following:

- Anchor assembly
- Load conditions
- U/W body appendages

3.2 Key personnel. The Contractor shall determine key personnel and require their presence during all drydocking phases as required by SFLC Standard Spec 8634. Submit list of key personnel to the COR.

3.3 Docking and undocking. The Contractor shall perform drydock and undock in accordance with SFLC Std Spec 8634, using Coast Guard Drawing 175 WLM 801-001, 175 WLM 801-003, and 175 WLM 801-006 for guidance.

3.4 Cutter conditions. The Contractor shall use the Full Load Condition values listed below all in inches, for purposes of performing Pre-Award calculations as described in Appendix A (Requirements for Calculations) of SFLC Std Spec 8634.

- Displacement (LT SW): 878.473
- VCG (FT ABL): 14.072
- LCG (FT aft FP): 87.469
- LCF (FT aft FP): 91.327
- Trim (FT by bow): 0.274
- MT1" (LT-FT/Inch): 136.75

3.4.1 Blocking. The Contractor shall facilitate docking the vessel in designated block position by arranging keel and side blocks and ensuring minimum block heights as shown on the vessel's docking plan.

TABLE 1 – BLOCKING

	BLOCK HEIGHT ABOVE DOCKING FACILITY DECK							
POS. #	MIN.	RUDDER REMOVAL	PROPELLER REMOVAL	SHAFT REMOVAL	STEEL PLATE	SITUATION AWARENESS	FIN STABILIZERS	ADDITIONAL
2	48"	NA	NA		NA	Sonar. Ensure clearance	NA	None

						around sonar(s) at Frames 21-22 and Frames 51-52.		

NOTE

This vessel has a Z-drive propulsion system.

3.5 Pre-award calculations. The Contractor shall provide to the KO a set of pre-award calculations, as described in SFLC Std Spec 8634 Appendix A.

3.5.1 Provide vertical side/bilge block offsets for any side blocks placed in a location where vertical offsets are not already defined by the docking plan.

3.5.2 Submit an alternate blocking arrangement, as part of the pre-award calculation submission, to compensate for any changes from the docking plan.

3.5.2.1 If the alternate blocking arrangement interferes with U/W hull plate inspection or 100% preservation of U/W body surfaces required under separate work items in this specification package, the Contractor shall include a plan of how inspection/preservation will be accomplished. Plan shall include any modifications necessary to the prescribed docking plan including removing, shifting, repositioning blocks, or fleeting the vessel at no additional cost to the Government.

NOTE

1. The USCG has established several approved alternate docking plans for each vessel-class, to facilitate complete access to the entire U/W body structure, for periodic comprehensive inspection and/or 100% preservation. This inspection and preservation pattern and periodicity is a configuration management concern that is a vital requirement of the contract. Intention to deviate from these plans (fewer blocks, block spacing, additional blocks, etc) is to be identified on pre-award calculations (Paragraph 3.5.2); an alternate docking plan and mitigation strategy will be provided to maintain preservation and inspection configuration.

2. Pre-award calculations may be deemed unsatisfactory - and may adversely affect contract award if they are submitted with the following detrimental factors:

a. No methods have been proposed that meet the requirements for the specified docking plan.

b. Proposed block shifting or fleeting risk-mitigating plan may result in delays in period of performance.

c. Proposed alternate docking plan violates USCG configuration management policies.

3.6 Unplanned availability: Underwater body cleaning-removal of marine growth. The Contractor shall accomplish the work in this paragraph in lieu of the work described in SFLC Std Spec 8634 paragraphs 3.5.4.1 and 3.5.4.2. Within four hours after the vessel has been docked, the Contractor shall start cleaning

the entire underwater hull from the upper edge of the boot top down, including sea chest gratings, sea chest interiors, fairwaters, rope guards, rudder, shaft strut, z-drive, thruster tunnel, and zinc anodes, as applicable. The Contractor shall remove all marine growth, fouling, salt, and dirt from the underwater hull by High Pressure Fresh Water Wash, using a minimum pressure at the nozzle of 3,500 psi and maximum pressure of 7,000 psi. Complete the hull cleaning before marine growth hardens. Removal of gratings is not required.

WARNING

Do not use chemical additives in the freshwater wash. Take extreme care to avoid damaging or removing existing intact underwater body coating.

3.7 Fuel offloading. The Contractor shall be aware that fuel offloading is not mandatory to drydock the vessel.

3.8 Fleeting. Not required.

4. NOTES

4.1 Arrival conditions. The COR will advise the Contractor of the actual tank and draft readings when the vessel arrives, and will discuss with the Contractor any liquid loading changes necessary.

WORK ITEM 5: Temporary Services, Provide - Cutter

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to provide temporary services to the Cutter, during the performance of this availability.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

None

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2018, General Requirements

Surface Forces Logistics Center Standard Specification 8635 (SFLC Std Spec 8635), 2018, Temporary Services

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against

contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Temporary service particulars. The Contractor shall provide the below listed temporary services, in accordance with SFLC Std Spec 8635.

TABLE 1 - SERVICE SELECTION

*SUB-PARAGRAPH	TITLE	Y/N
3.3.1	Office space	Y
3.3.2	Telephone and internet access	Y
3.3.3	Parking	N
3.3.4	Duty section berthing: 1 male, 1 female. Duty section berthing shall be provided for {Note: Choose one and delete the rest: The entire duration of the availability	Y
3.3.5	Electrical power (including all requirements in associated sub-paragraphs)	Y
3.3.6	Hull grounding straps (not applicable when cutter is waterborne)	Y
3.3.7	Compressed air (including all requirements in associated sub-paragraphs)	Y
3.3.8	Hazardous material/hazardous waste disposal (see Tables 2 and 3 below)	N
3.3.9	Heavy lift equipment: {__ day(s)/or __ hour(s)}	N
3.3.10	Water supply	
3.3.10.1	Potable water: 500 gallons per day, at 60 psig.	Y
3.3.10.2	Hot-circulating water	Y
3.3.10.3	Cooling water	Y
3.3.10.4	Firemain system (including all requirements in associated sub-paragraphs)	Y
3.3.11	Steam (including all requirements in associated sub-paragraphs)	Y
3.3.12	Refuse disposal	Y
3.3.13	Sewage and grey water disposal (including all requirements in associated sub-paragraphs)	Y
3.3.14	Storage – General (including all requirements in associated sub-paragraphs):	
3.3.14	Dry stores.	N
3.3.14	Paint and flammable stores.	Y
3.3.14	Refrigerated stores.	Y
3.3.15	Small boat storage (including all requirements in associated sub-paragraphs)	Y

***Each sub-paragraph number relates directly to the identical sub-paragraph number in SFLC Std Spec 8635.**

TABLE 2 - HAZARDOUS WASTE DISPOSAL – LIQUIDS (GALLONS)

PAINT THINNERS	ENGINE COOLANT	BILGE WATER
Xx	xx	xx

TABLE 3 - HAZARDOUS WASTE DISPOSAL – SOLIDS

OILY FILTERS	OILY RAGS (LBS)	EMPTY 1-GAL CONTAINER*	EMPTY 5-GAL CONTAINER*	EMPTY 55-GAL CONTAINER*
xx	xx	xx	xx	xx

***Previously housed hazardous materials.**

3.2 Extended temporary services. If the performance period of the contract is extended by the KO, the contractor shall continue to provide all temporary services as specified herein for the extension period.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 6: Sea Trial Performance, Support, Provide

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to provide support for the performance of sea trials.

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

None

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2018, General Requirements

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Trial applicability. The Contractor shall provide support to the vessel crew to perform sea trials for all work items that require conducting operational tests while the vessel is waterborne or underway, prior to the item certification as being complete. The Contractor shall be responsible for ensuring all test procedures are prepared, approved, and distributed for the sea trials, and shall be responsible for recording test data and submitting CFRs to the COR.

3.3 Sea trial agenda. The Contractor shall prepare an agenda that details the Contractor's plans for ensuring completion of the required sea trials.

3.3.1 Agenda contents. The Contractor shall ensure the agenda consists of chronological list of administrative events, inspection events and test events. Events shall be arranged to permit expeditious conduct with minimum interference between concurrent events.

NOTE

Mutually compatible events may be scheduled simultaneously.

3.3.1.1 The Contractor shall ensure the agenda identifies installation of any test equipment or component modification that could impact the normal operation of equipment or systems during performance of the trials.

3.3.1.2 The Contractor shall ensure the agenda identifies any operating instructions or special test procedures that could impact the normal operations of equipment or systems.

3.3.1.3 The Contractor shall ensure the agenda includes the full name, title, security clearance, home address, home telephone number and name of next of kin of each Contractor-personnel scheduled to ride the ship during performance of the trials.

3.3.2 Agenda submission requirements. The Contractor shall submit four legible copies of the sea trial agenda to the COR two days prior to the scheduled trials. The Contractor shall coordinate both the planning and conduct of the post-overhaul ship trials with the ship's force (see 4.1 (Equipment operation)).

3.4 Environmental compliance. The Contractor shall abide by the below-listed rules, in addition to all other Federal, state, and local rules governing the overboard discharge of garbage and oil in the water.

3.4.1 Discharge of garbage.

TABLE 1 – GARBAGE RULES

GARBAGE TYPE	RULE
Plastics, including synthetic ropes, fishing nets, and plastic bags	Prohibited in all areas
Floating dunnage, lining and packing materials	Prohibited less than 25 miles from nearest land
Food waste, paper, rags, glass, metal, bottles, crockery and similar refuse	Prohibited less than 12 miles from nearest land
Comminuted or ground food waste, paper, rags, glass, etc…	Prohibited less than 3 miles from nearest land

3.4.2 Discharge of oil. The Contractor shall be aware that the Federal Water Pollution Control Act prohibits the discharge of oil or oily waste upon or into any navigable waters of the U.S. The prohibition includes any discharge that causes a film or discoloration of the surface of the water or causes a sludge or emulsion beneath the surface of the water.

CAUTION

Violators are subject to substantial civil and/or criminal sanctions including fines and imprisonment.

3.5 Dock trials. The Contractor shall conduct dock trials to demonstrate the material readiness of the ship for sea trials. Additionally, all onboard tests conducted after installation and prior to sea trials to prove proper installation and satisfactory operation of equipment shall be conducted in accordance with the requirements specified in the work items designated in paragraph 3.1 (Trial applicability). Ensure that the dock trials are begun no later than 12 hours prior to the scheduled sea trials.

3.5.1 The Contractor shall provide a pier facility (or allow the cutter to move to a Coast Guard pier) in order to support dock trials. Dock trials may not be conducted while the cutter remains floating inside the dry-dock (not touching the blocks).

3.5.2 During dock trials, the Contractor shall ensure the Contractor's personnel observe tests under their cognizance and make such adjustments and repairs, as required.

3.6 Sea trials. As soon as possible after completion of the dock trials, the Contractor shall coordinate performance of the seal trials, based on the operational tests, as required in the applicable work items, for the following purpose:

- Performing tests that could not be performed while the ship was moored.
- Serving as final step in proving the success of the overhaul/repair tasks required in the designated work items, and ensuring that Contractor and COR are both satisfied that the ship is in all respects ready for final acceptance.

3.6.1 The Contractor shall have representatives on board the cutter to observe the trials for the purpose of observing whether or not the repairs are satisfactory.

3.6.2 The Contractor shall ensure the sea trials are be carried out in free route, away from other shipping, as designated by the COR.

3.7 Post-trial examination. After the completion of the sea trial, the Contractor shall perform a careful and thorough examination of parts of the repaired machinery, as designated by the COR. If any part of the ship or its equipment fails to meet contractual requirements during trials, perform additional trials after corrective measures have been taken.

NOTES

1. Examples of dock trials include conducting cold (pre-light off) and hot checks, cycling machinery (rudders, BPU, turning gear, fin stabilizers), and conducting any post-docking shaft alignment verification checks. This time may also be used to on-load fuel, if needed for operations.

2. The conditions of the trials will be determined largely by the character of the work that has been performed in each case, and as designated by the COR. A full power trial should be run at this time unless the COR elects to defer this run until all new machinery parts are run-in or the training status of the crew permits full power operation without undue hazard.

3. This examination may be conducted by the Engineer Officer of the ship, in which case he will report the results of the examination to the COR, fully describing any defects or improper conditions found.

4. Representatives of manufacturers who have furnished ship components may be invited to witness trials subject to approval of the CO or OINC of the ship.

4. NOTES

4.1 Equipment operation. Coast Guard personnel will operate all shipboard machinery and equipment during all tests.

WORK ITEM 7: Machinery Plant Control and Monitoring System (MPCMS), Groom

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to conduct a partial system groom of the Machinery Plant Control and Monitoring System (MPCMS) Remote Terminal Unit (RTU) #7.

1.1.1 Repair work on the following onboard equipment (hardware and associated software) may be required:

- Engineering Control Center Console (ECCC)
- Main Ship Control Console (MSCC)
- Port and Starboard Secondary Conning Stations (SCS)
- The TANO Network (TANOnet)
- Remote Terminal Units (RTU)
- MPCMS Data Logger System
- Operator workstations

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 175-WLM 202-1, Rev J, MPCMS Cabling Diagram

Coast Guard Drawing 175-WLM 202-2, Rev F, MPCMS Cabling Diagram COED

Coast Guard Drawing 175-WLM 202-6, Rev B, MPCMS Wiring Modifications to Main & Secondary Consoles (551-559)

Coast Guard Drawing 175-WLM 202-7, Rev C, MPCMS Wiring Data Modifications to Consoles (COED), Hulls 551-559

Coast Guard Drawing 175-WLM-202-201, Rev Q, MPCMS

Coast Guard Drawing 225-WLB 202-1, Rev F, MPCMS Cabling Diagram

Coast Guard Drawing 225-WLB 202-2, Rev G, MPCMS COED

Coast Guard Drawing 225B-WLB 202-2, Rev D, MPCMS Connection Table

Coast Guard Drawing 225B-WLB 202-1, Rev G, MPCMS Cabling Diagram

COAST GUARD PUBLICATIONS

CGTO PG-85-00-230-S, August 2013, Planned Maintenance System Development Process Guide

Coast Guard Technical Publication (TP) 3605 A & B Machinery Plant Control & Monitoring System Operating Manual (MPCMSOM)

Coast Guard Technical Publication (TP) 3607 MPCMS Computer System Operating Manual (CSOM)

Coast Guard Technical Publication (TP) 3608 MPCMS Computer System Diagnostic Manual (CSDM)

Coast Guard Technical Publication (TP) 3509 MPCMS Software User's Manual (SUM)

Coast Guard Technical Publication (TP) 3505 A & B Machinery Plant Control & Monitoring System Operating Manual (MPCMSOM)

Coast Guard Technical Publication (TP) 3585 A& B Machinery Plant Control & Monitoring System Operating Manual (MPCMSOM)

Coast Guard Technical Publication (TP) 3932 MPCMS Data Logging System

Coast Guard Technical Publication (TP) 3589 MPCMS Computer System Manual

Coast Guard Technical Publication (TP) 3507 MPCMS Computer System Operating Manual (CSOM)

Coast Guard Technical Publication (TP) 3508 MPCMS Computer System Diagnostic Manual (CSDM)

Coast Guard Technical Publication (TP) 3509 MPCMS Software User's Manual (SUM)

Coast Guard Technical Publication (TP) 10502 Machinery Plant Control & Monitoring System Operating Manual (MPCMSOM)

COMDTINST M9085.1, Rev C, Naval Engineering Computer Aided Design Standards

SFLC Technical Standard 086, June 2013, Technical Publications (TP)

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2018, General Requirements

Surface Forces Logistics Center Standard Specification 3041 (SFLC Std Spec 3041), 2018, Shipboard Electrical Cable Test

Surface Forces Logistics Center Standard Specification 3042 (SFLC Std Spec 3042), 2018, Shipboard Electrical Cable Removal, Relocation, Splice, Repair, and Installation

Surface Forces Logistics Center Standard Specification 0850 (SFLC Std Spec 0850), 2018, General Requirements for Drawing Preparation

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General.

3.1.1 CIR. The Contractor shall submit a CIR for the inspections listed in the following paragraph(s):

- 3.12 Operational Testing.

3.1.2 Tech Rep. The Contractor shall provide the services of an OEM authorized/ licensed Tech Rep for the Machinery Plant Control and Monitoring System (MPCMS) and TANOnet to accomplish the following on site:

- Provide manufacturer's proprietary system/ equipment information, software, and tools.
- Assist with and ensure compliance with manufacturer's procedures and standards during disassembly, inspection, repair, modification, calibration, and reassembly of the equipment/system.

3.1.2.1 Ensure the Tech Rep is an OEM Certified Representative for the system/equipment stated above and demonstrated on their résumé.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Electrical work. The Contractor shall accomplish all electrical work in accordance with SFLC Std Spec 3042, and test cables in accordance with SFLC Std Spec 3041. Utilize the existing wire ways for new cable runs as much as possible.

3.3 System Groom Plan. The Contractor shall develop and submit a comprehensive System Groom Plan including, at a minimum, the elements in the below subparagraphs.

3.3.1 Groom Procedure. The Contractor shall develop and submit a written procedure to groom RTU #7 and any other relevant components. Prepare a test plan delineating all tests to be performed on core system components and functions to be assessed during performance of the shipboard groom. Provide a detailed written test procedure for each item on the test plan, including pass/fail criteria and a list of parts to be expended.

3.3.2 Specific tasks. The Contractor shall inspect and evaluate as part of the System Groom Procedure:

- ECCC propulsion controls
- RTU #7 and remote consoles, including the signals that are being sent to and are being received from external equipment, such as motor operated valve status changes.
- MSCC Propulsion and Thruster Panel and all contained subsystems and components.
- Port and Starboard SCS
- Bridge VDT (BVDT).
- TANOnet and its integrated subsystems.
- System interoperability with the Z-drive system interfaces and databases as listed in section 4 of Tech Pub 10502 (all WLB class) or Tech Pub 3605 (WLM class).

3.3.4 Performance test. The Contractor shall plan and conduct, if specifically requested by the COR due to known degraded or significant performance issues, the MPCMS performance test for the Z-drive and RTU #7, which shall include:

- Observation that commands originated from MPCMS are promptly transmitted to and received by interfacing systems.
- Observation that human-machine interface (HMI) screens are updated in near real time in response to status changes, alarms, and monitored parameter variations in interfacing systems.
- Observation of the alarm stack to ensure that alarms occurring nearly simultaneously are all captured.
- Observation that state changes are detected and displayed when interfacing machinery systems are operated using a local control mode or are tripped by an independent safety system.
- Analysis of any command failures to determine the cause and isolate the problem to MPCMS or the interfacing machinery system.
- Review of the alarm log to verify that all logged alarms were legitimate and that no alarms transmitted by interfacing systems were delayed or never displayed.
- Review of the event log to verify that all logged events were legitimate and that no events transmitted by interfacing systems were delayed or never captured.
- Review of the network and communications logs to verify that no anomalies occurred on the network or communication channels during interfacing system operation.
- Audit of the data logger to ensure that a representative sample of logged machinery operating parameters was being accurately recorded at the proper scan rate.

3.3.5 Change and upgrade documentation. The Contractor shall incorporate all known upgrades and changes in the Groom Plan, providing documentation according to the process described in paragraph 3.9. If there are any previously unplanned system changes found to be necessary only upon inspection, they shall be handled according to the process for "Additional Work," detailed in paragraph 3.8.1.

3.3.6 Plan submission. The Contractor shall submit the completed System Groom Plan at least seven (07) days prior to beginning of scheduled groom.

3.4 Subcontracting. The Contractor shall not subcontract any of the services required by this contract to be performed by persons other than the contractor or the contractor's employees without the prior written consent and authorization of the KO.

3.5 Accountability. The Contractor shall provide a single on-site point of contact for the duration of the groom who will be responsible for all employees and subcontractors (if applicable).

3.6 Performance. The Contractor shall test, calibrate, and validate system and component performance as outlined in the Groom Procedure and the Groom Performance Test Plan. The technical representative shall arrive at the cutter to perform the groom as scheduled by the COR.

NOTE

Coast Guard personnel will operate all shipboard machinery and equipment, under the guidance of the Contractor.

3.6.1 The Contractor shall be responsible for all equipment adjustments and calibrations during the groom visit, but shall actively engage Coast Guard personnel while performing these tasks for their familiarization benefit.

3.6.2 The Contractor shall perform the groom procedure over a period of no more than three (3) days with two (2) additional days for testing and validation.

3.6.3 The Contractor shall provide technical guidance any changes or upgrades that will be implemented during the performance of the groom.

3.7 Circuit card services. The Contractor shall, in support of the groom execution, provide in-shop inspection, testing, and repair of MPCMS and other TANO system cards. Provide an expedited shipping option for parts upon COR request.

3.8 CFR and Field Service Report. The Contractor shall submit a field service report, including summary CFR package. At a minimum, the below CFR's will be included detailing observations at time of arrival and corrective actions taken:

- Check of installed MPCMS software revision and load with the most current version.
- Inspect all batteries installed on processor and memory cards, and submit a CFR to identify any which require replacement if old or significantly discharged.
- Verify the firmware revision loaded on each printed circuit card with a processor. Reload firmware as needed.
- Test all direct current power supplies individually and identify any that fail to carry normal load.
- Inspect all 5 VDC power supply input power isolation relays and sockets. Identify any with cracks or visible deterioration.
- Check the tightness of all internal and external cable terminations, including screw terminals which may vibrate loose over time. Check all circuit board connectors for tightness and adjust contact gripping force as needed to improve continuity.
- Verify that all system instrumentation, controls, sensors, data acquisition modules, optical isolators, and communication channels are properly operating.

3.8.1 Additional work. The Contractor shall submit an immediate CFR for any malfunctioning component which requires additional work not identified in the agreed Groom Performance Plan delivered per paragraph 3.3.

3.9 Integrated Logistics Support. The Contractor shall provide logistical support and information for any new equipment proposed and/or installed on the MPCMS. Modifications made to the equipment must be accompanied by updates of all the elements in the below subparagraphs that relate to those changes.

3.9.1 Engineering Data for Provisioning (EDFP). The Contractor shall provide Engineering Data for Provisioning (EDFP). Include a parts list containing all of the installed parts, along with the original equipment manufacturer (OEM), OEM part or assembly numbers, the OEM's name and address, the OEM's cage code, and quantity used in each equipment, keyed to the updated drawings. All spare parts necessary for overhaul of a unit shall be identified in the printed technical documents supplied.

3.9.2 Recommended Spare Parts Lists. The Contractor shall provide with the EDFP/PTD a recommended spare parts list for onboard repair parts (OBRP) and stock system parts. The spare parts list shall list applicable manufacturer's maintenance tasks for each line item (both preventive and corrective). Refer to section 5.4 for additional information.

3.9.2.1 Onboard repair parts (OBRP) are items that unit personnel can replace without additional special tools or technical support.

3.9.2.2 System stock shall be the long lead time materials (materials with lead times over 90 days) and manufacturer designated critical items.

3.9.3 OEM Maintenance Requirements. The Contractor shall provide OEM maintenance recommendations, in addition to the maintenance recommendations in the Technical Publication, to allow for Government development of Maintenance Procedure Cards. Guidance for providing this information can be found in Chapter 7 of CGTO PG-85-00-230-S. Identify at least the following line items:

- Applicable maintenance task code
- Maintenance procedure title
- Maintenance procedure interval
- Maintenance procedure description
- Maintenance procedure sequenced tasks
- Maintenance procedure
- Maintenance procedure task type
- Associated parts name and number
- Quantity of parts per maintenance task
- Associated parts unit of issue
- Associated parts shelf life
- Associated parts unit price
- Special tools and equipment nomenclature
- Special tools and equipment CAGE and part number or National Stock Number
- Task descriptions

3.10 Repair parts usage data. The Contractor shall provide parts usage data associated with all equipment repairs completed during the groom.

3.10.1 Include the following subcomponent information, organized according to the nomenclature and model number of the component or assembly being repaired:

- Part nomenclature
- Part number
- Part quantity used
- Part manufacturer

3.10.2 The Contractor shall submit data electronically within fourteen (14) days of completion of the groom.

3.11 Operational testing. The Contractor shall plan and participate in operational testing, including up to 1 day of underway testing, after completion of the Groom Procedure. The Operational Test Plan shall be designed to demonstrate the success of any repairs, adjustments, and calibrations, and to validate system operation according to the manufacturers' specifications. Submit a CIR.

4. NOTES

This section is not applicable to this work item.

WORK ITEM 8: Transom Repair

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to repair the Transom, port side.

1.2 Government-furnished property. None

2. REFERENCES

COAST GUARD DRAWINGS

Coast Guard Drawing 175-WLM 601-01, Rev N, General Arr, Inboard & Outboard Profiles

Coast Guard Drawing 175-WLM 801-19, Rev C, Shell Expansion

Coast Guard Drawing 175-WLM 801-16, Rev C, Scantlings, Watertight Bulkheads

Coast Guard Drawing 175-WLM 801-15, Rev C, Scantlings, Decks & Platform

Coast Guard Drawing 175-WLM 950-01, Rev G, Hull Block 950 Panels

Coast Guard Drawing 175-WLM 950-04, Rev G, H.B. 950 Transverse Frames & Bulkheads

Coast Guard Drawing 175-WLM 634-01, Rev G, Deck Covering Schedule

Coast Guard Drawing 175-WLM 635-01, Rev F, Hull Thermal & Acoustic Insulation Schedule

Coast Guard Drawing 175-WLM 582-01, Rev D, Mooring & Towing A & D

Coast Guard Drawing 175-WLM 622-01, Rev C, Decking Fdn Z-Drive Space

Coast Guard Drawing 175-WLM 612-01, Rev G, Lifeline, Rails & Stanchions

Coast Guard Drawing 175-WLM 631-02, Rev E, Painting Schedule

Coast Guard Drawing 175-WLM 602-01, Rev C, Cutter Visual Id & Draft Marks

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2018, General Requirements

Surface Forces Logistics Center Standard Specification 0740 (SFLC Std Spec 0740), 2018, Welding and Allied Processes

Surface Forces Logistics Center Standard Specification 6310 (SFLC Std Spec 6310), 2018, Preserve Ship Structures

Naval Sea Systems Command (NAVSEA) 0900-LP-060-4010, 1981, Fabrication, Welding & Inspection of Metal Boat & Craft Hulls

The Society for Protective Coatings (SSPC) Surface Preparation Specification No.11 (SSPC-SP 11), 2004, Power Tool Cleaning

OTHER REFERENCES

The American Bureau of Shipping (ABS), 2007, Guide for Shipbuilding and Repair Quality Standards Surface Forces Logistics Center for Hull Structure During Construction (ABS Pub 87)

3. REQUIREMENTS

3.1 General.

3.1.1 CIR. None.

3.1.2 Technical Representative. Not applicable.

3.1.3 Protective measures. The Contractor shall take protective measures in accordance with SFLC Std Spec 0000, paragraph 3.3.3, as applicable, in addition to all other requirements that may be specified in individual work items, to prevent contamination and surface damage of non-affected shipboard equipment, components, and spaces.

3.1.4 Interferences. The Contractor shall be aware that interferences in way of work include, but are not limited to what is listed in Table I below. Handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences):

- Stern chock, 01 Level deck frame-100, port.
- Double bitt, 12-inch, port side at frame 97.
- Towing rail, port.
- SCBA Compressor and P-100 box.
- Stern mast and anchor light, wiring and hardware.
- Stern light, wiring and foundation.
- Towing hawser reel and foundation.
- Cableways and hangers, Propulsion Thruster Machinery room (3-88-0-E).
- Electrical equipment and foundations, Propulsion Thruster Machinery room (3-88-0-E).
- Z-Drive Seal Oil Tank, piping and foundation.
- Hydraulic equipment and piping.
- Potable water tank (1-94-0-W).
- Deck grating and supports.
- Insulation.

3.1.5 Hot work. Prior to performing work the Contractor shall open, ventilate, and clean all spaces and components necessary to accomplish this work item as required to certify them as "SAFE FOR PERSONNEL" and/or "SAFE FOR HOT WORK."

3.2 Work particulars. The Contractor shall accomplish the following tasks to inspect and repair the following areas; Propulsion Thruster Room (3-88-0-E) Upper and Lower level, Transom bulkhead-100, port; Propulsion Thruster Machinery room (3-88-0-E), aft port corner frame 95-100 and the 01 Level

Weather Deck fantail, port side, frame 90-100, using the Coast Guard drawings referenced above and in accordance with SFLC Std Spec 0000 and 0740, and ABS Pub-87;

3.2.1 Inspection. The Contractor in the presence of a Coast Guard inspector shall visually inspect the following areas for collision damage and cite the areas that exceed the standards and tolerances in accordance with ABS Pub 87 and NAVSEA 0900-LP-060-4010, use Coast Guard Drawings referenced above as guidance. Chalk out the boundaries of the cited plating and submit a CFR that includes photos and sketches of the damaged areas:

- Transom hull plating, repair **AREA 1** and **2** (**PHOTO 1**);
- 01 Level Weather deck, to include but not limited to the deck plate, deck girders, stiffeners, and vertical support gussets, between frame 95 to frame 100, repair **AREA 3** (**PHOTO 2**);
- Transom vertical stiffeners Propulsion Thruster Machinery room (3-88-0-E) upper level, repair **AREA 4** (**PHOTO 3** and **FIGURE 1**);
- Main deck forward of the Transom, Propulsion Thruster Machinery room upper level repair **AREA 5 (PHOTO 3** and **FIGURE 2**);
- Transom vertical stiffeners and Z-Drive foundation girders, Propulsion Thruster Machinery room (3-88-0-E) lower level, repair **AREA 6** (**PHOTO 4** and **FIGURE 2**).

3.2.1.1 Fairness tolerance for the existing and repaired Transom plating and Z-drive foundation girders, shall be in accordance with NAVSEA 0900-LP-060-4010, Figure 12-5 shown below:

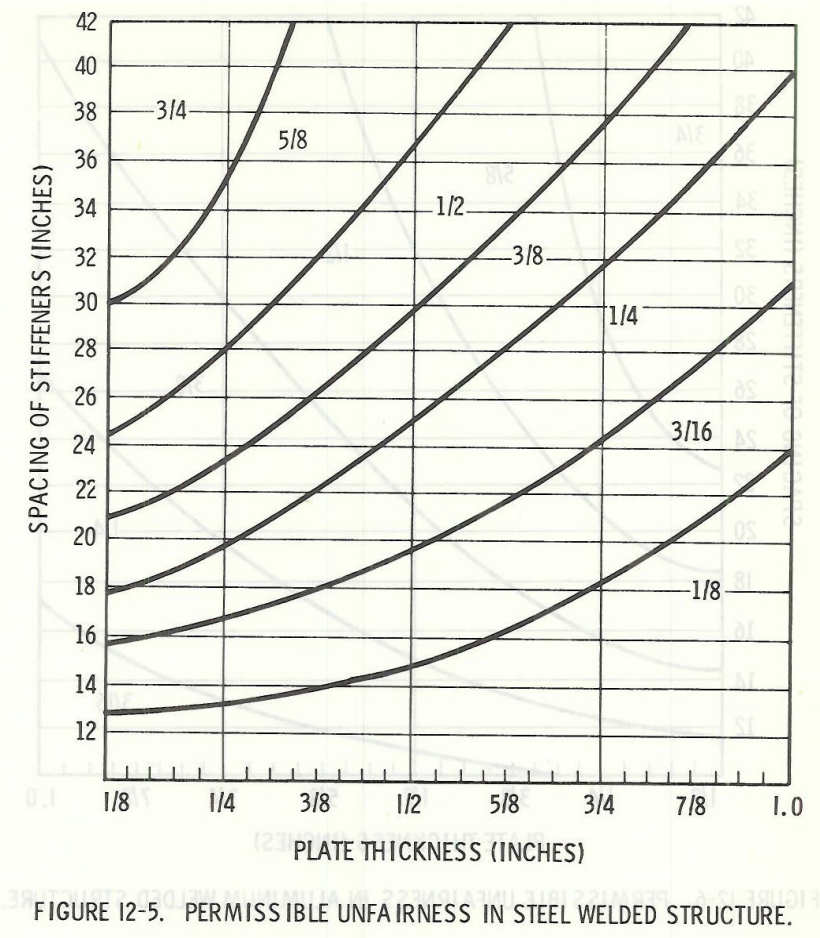

FIGURE 12-5. PERMISSIBLE UNFAIRNESS IN STEEL WELDED STRUCTURE.

3.2.2 Repair particulars. The Contractor upon verification from a Coast Guard inspector shall repair or renew the following repair areas in accordance with SFLC Std Specs 0740;

- Transom hull plating in repair **AREA 1** and **2** as shown in **PHOTO 1** (approximately 143-SQFT) in accordance with Coast Guard drawings 175-WLM 801-16, 175-WLM 801-19, and 175-WLM 950-04;
- Fantail deck, repair **AREA 3** (**PHOTO 2**), deck plating (10.2# plate), approximately 264 SQFT and (4) deck beams (2½x2x3/16" L) approximately 40-feet linear, in accordance with Coast Guard Drawings 175-WLM 801-15 and 175-WLM 950-01;
- Main deck, repair **AREA 5 (PHOTO 3** and **FIGURE 2)**, deck plating (10.2# plate), approximately 65 SQFT and (2) deck beams (2½x2x3/16" L) approximately 30-feet linear, in accordance with Coast Guard Drawings 175-WLM 801-15 and 175-WLM 950-01;
- Main deck, WERP (port) and associated coaming appear to be undamaged, Contractor shall visually inspect and submit a CFR.
- Transom main deck, repair **AREA 4** (**PHOTO 3** and **FIGURE 1**), (4) vertical stiffeners (3x2½x¼" L) including the deck transition gussets, in accordance with Coast Guard Drawings 175-WLM 950-01 and 175-WLM 950-04, approximately 26-feet linear.
- Transom 2nd deck, repair **AREA 6** (**PHOTO 4** and **FIGURE 2**), (2) vertical stiffeners (5x3x5/16" L), in accordance with Coast Guard Drawings 175-WLM 801-16, 175-WLM 950-01 and 175-WLM 950-04, (approximately 15-feet linear).
- Transom 2nd deck, repair **AREA 6** (**PHOTO 4** and **FIGURE 2**), (3) Z-Drive foundation girders (18x4x3/8" flanged plate), renew isolated distorted plating, NDT welds and repair cracked welds in accordance with Coast Guard Drawings 175-WLM 801-16, 175-WLM 950-01 and 175-WLM 950-04;
- Fantail, aft port corner, renew life-rails (approximately 17-feet linear) and (3) stanchions, in accordance with Coast Guard Drawing 175-WLM 612-01, see **PHOTO 2.**
- Fantail, SCBA Compressor and P-100 box foundations, renew, template from existing ships conditions.

3.2.3 Ensure that new plating shall be of similar material and mechanical properties as the adjacent material and welding does not warp or cause any distortion to adjacent plating. Submit a CFC if additional repairs are required.

3.3 The Contractor shall perform NDI of the renewed deck, frame and shell plating in accordance with SFLC Std Spec 0740, Appendix C (Air test for the shell plating). Submit a CFR.

3.4 Fittings restoration and renewal. The Contractor shall reinstall fittings removed in Paragraph 3.1.4 and repair port chock baseplate to suit Coast Guard Drawings 175-WLM 582-01.

3.5 Insulation. The Contractor shall renew the existing sound absorptive/thermal insulation material, as shown on Coast Guard Drawing 175-WLM 635-01. Coat the newly installed insulation, using the system specified for "Insulation Surfaces, Fiberglass Sheet/Closed Cell PVC Foam" in SFLC Std Spec 6310, Appendix B (Cutter and Boat Interior Painting Systems).

3.6 Cutter markings, emblem and insignia. The Contractor shall restore the Coast Guard cutter markings, emblem and insignia in accordance with Coast Guard Drawings 175-WLM 602-01 and 175-WLM 631-02.

3.7 Touch-up preservation. The Contractor shall prepare and coat all new and disturbed exterior and interior surfaces to match existing adjacent surfaces, in accordance with SFLC Std Spec 6310, Appendix A (Cutter and Boat Exterior Painting Systems) and Appendix B (Cutter and Boat Interior Painting Systems), respectively, and as applicable.

4. NOTES

This section is not applicable to this work item.

PHOTO 1. REPAIR AREAS 1 & 2 HULL, TRANSOM

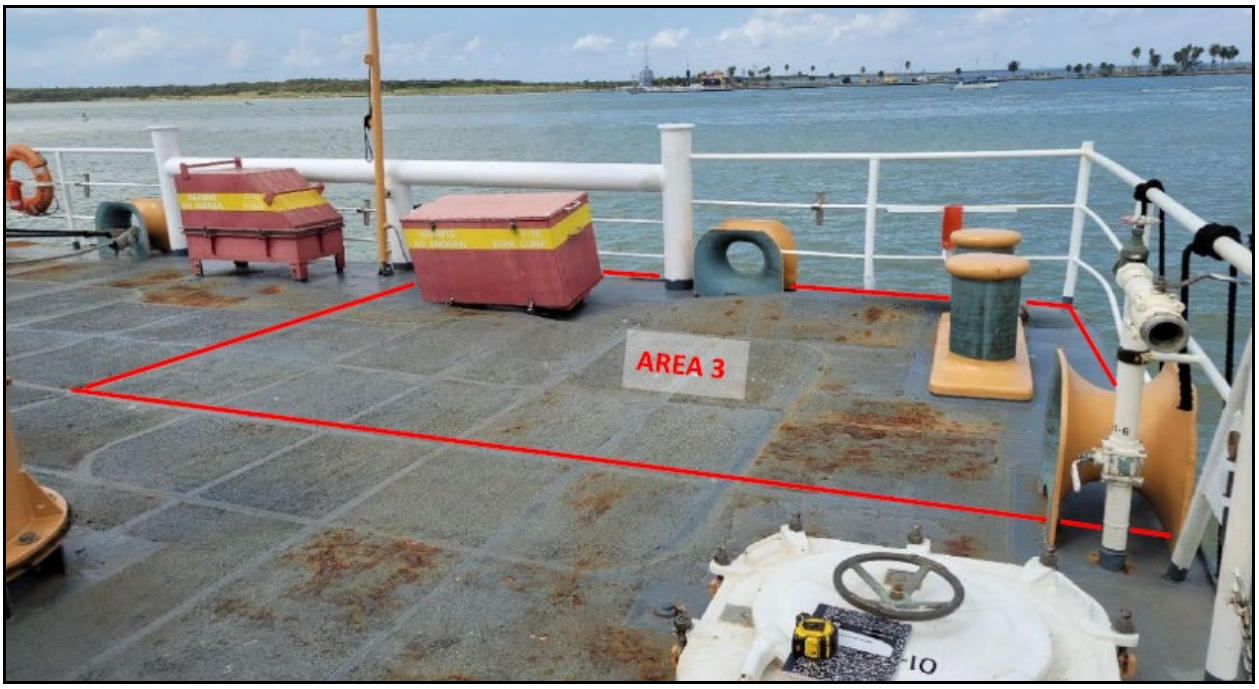

PHOTO 2. REPAIR AREA 3 FANTAIL DECK PORT

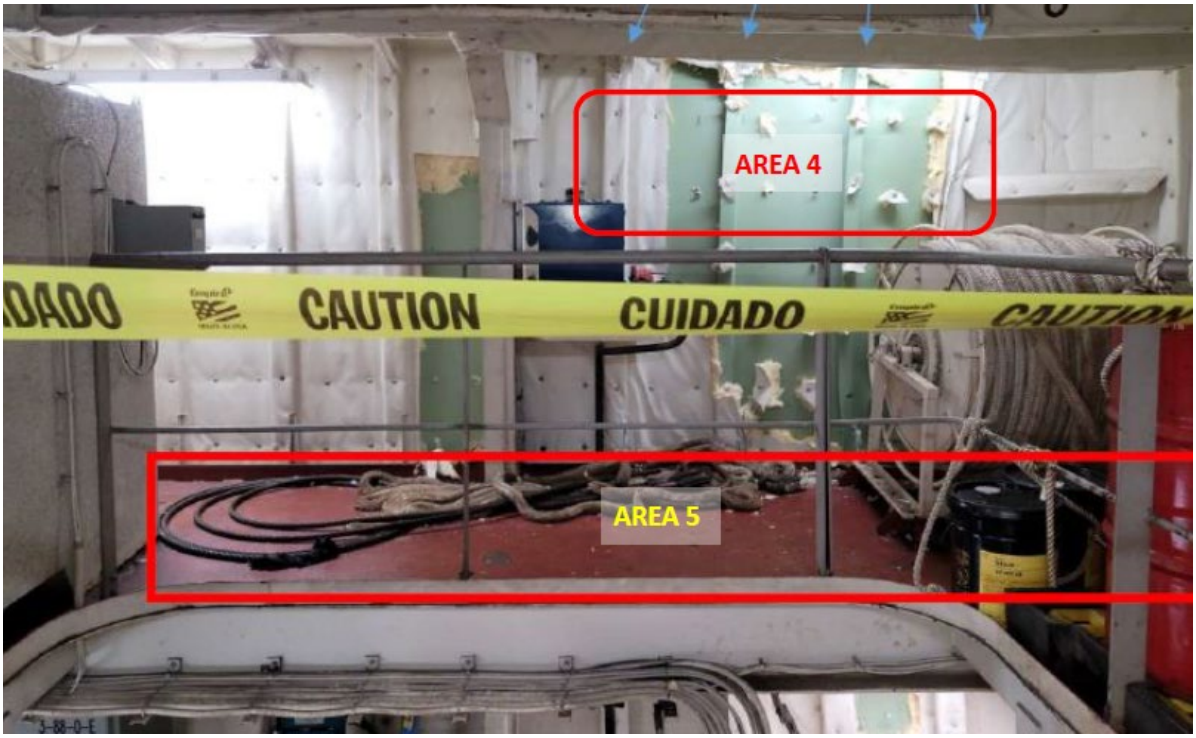

PHOTO 3. REPAIR AREAS 4 & 5, TRANSOM STIFFENERS & MAIN DECK, PROPULSION THRUSTER ROOM UPPER LEVEL (LKG AFT)

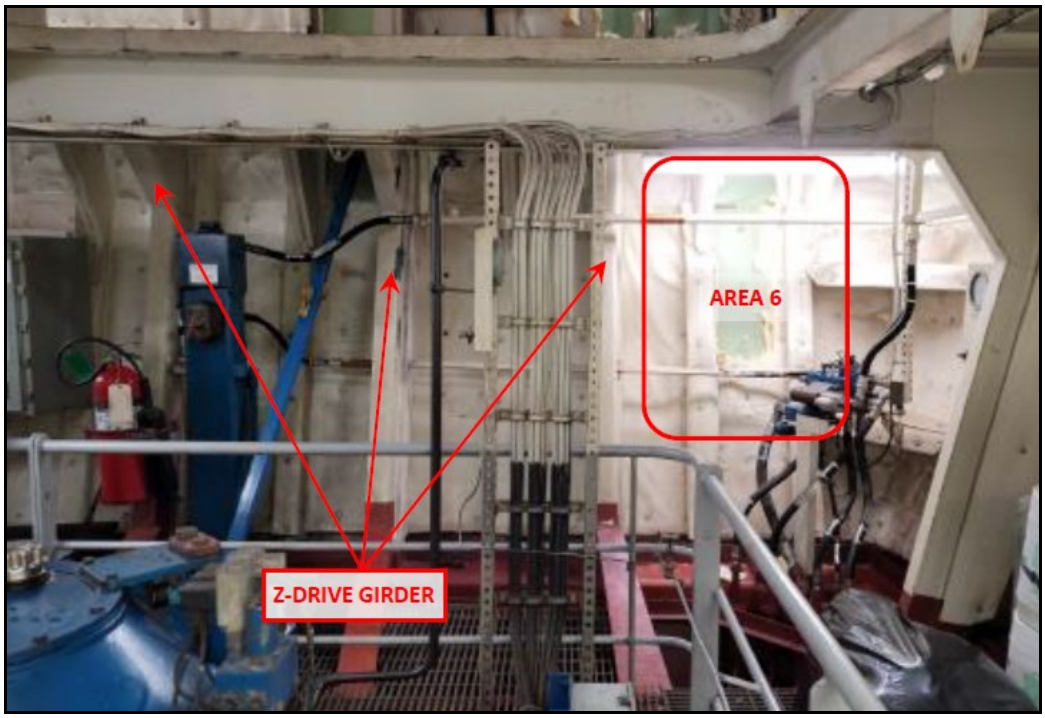

PHOTO 4. Z-DRIVE FOUNDATION GIRDERS AND STIFFENER REPAIR AREA 6, TRANSOM PROPULSION THRUSTER RM LOWER LVL

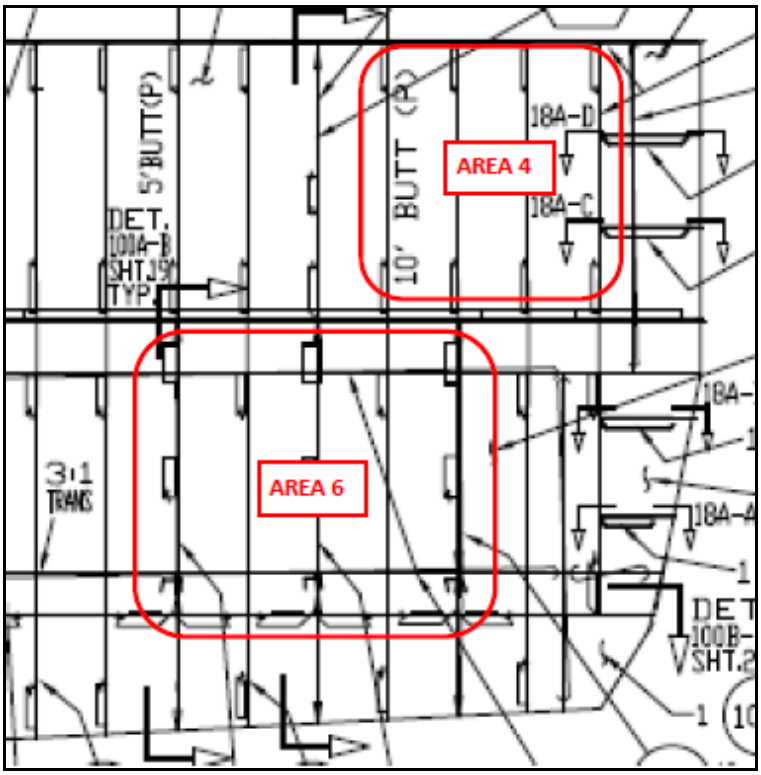

FIGURE 1: REPAIR AREAS 4 & 6 TRANSOM (LKG AFT) PROPULSION THRUSTER RM UPPER & LOWER LVL

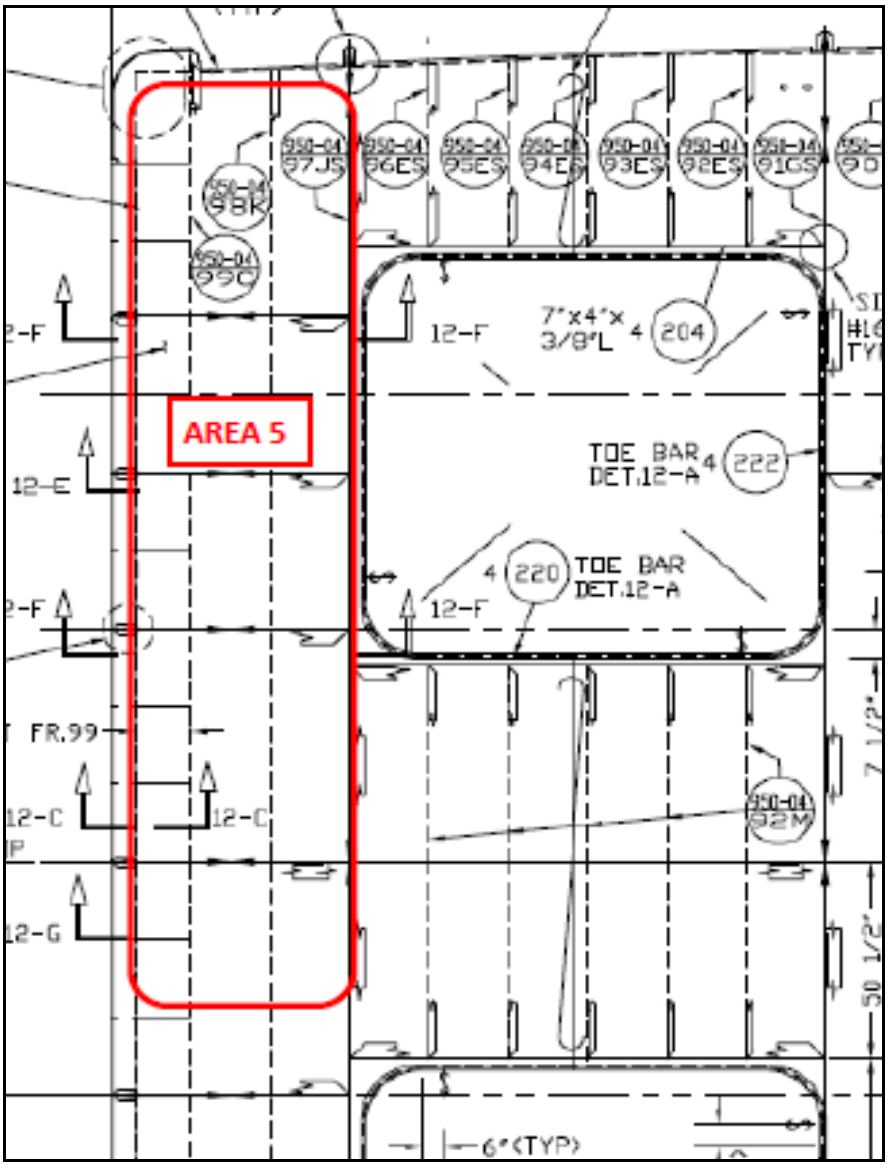

FIGURE 2. REPAIR AREA 5 MAIN DECK, TRANSOM PROPULSION THRUSTER RM UPPER LVL

WORK ITEM 9: Towing Services, Provide

1. SCOPE

1.1 Intent. This work item describes the requirements for the Contractor to provide vessel towing services between the transit locations identified in Table 1.

TABLE 1 - TRANSIT LOCATIONS

POINT OF DEPARTURE			POINT OF ARRIVAL		
PIER	**PORT**	**COUNTRY**	**PIER**	**PORT**	**COUNTRY**
1 Ferry Rd	Galveston	USA	Contractor	DD Facility	USA

1.2 Government-furnished property.

None.

2. REFERENCES

COAST GUARD DRAWINGS

None

COAST GUARD PUBLICATIONS

Surface Forces Logistics Center Standard Specification 0000 (SFLC Std Spec 0000), 2018, General Requirements

Coast Guard Commandant Instruction (COMDTINST) M16672.2D, Mar 1999, Navigation Rules, International-Inland

OTHER REFERENCES

None

3. REQUIREMENTS

3.1 General. The Contractor shall provide the necessary towing equipment and rigging, install towing fittings on the vessel, prepare the vessel for the tow, provide a towing vessel, qualified pilot, riding crew and assist tugs, and accomplish tow of vessel from the point of departure to the point of arrival designated in paragraph 1.1 (Intent). Towing operations shall be conducted in accordance with COMDTINST M16672.2D and all federal, State, and local regulations. The Contractor shall not use shipboard winches

or any other deck machinery to control or winch the vessel for towing operations, but may use appropriate attachment points on the vessel to secure and control the vessel during towing operations.

3.1.1 CIR.

None.

3.1.2 Tech Rep.

Not applicable.

3.1.3 Protective measures. The Contractor shall furnish and install all protective coverings to seal off and protect all non-affected vessel's components, equipment, and spaces near the work area against contamination during the performance of work. Upon completion of work, the Contractor shall remove all installed protective measures, inspect for the presence of contamination, and return all contaminated equipment, components, and spaces to original condition of cleanliness.

3.1.4 Interferences. The Contractor shall handle all interferences in accordance with SFLC Std Spec 0000, paragraph 3.3.5 (Interferences).

3.2 Pre-towing conference. Prior to conducting towing operations, the Contractor shall convene a Pre-towing Conference a minimum of 24 hours prior to the scheduled tow date. The Contractor shall notify the KO of the schedule for towing, including the Pre-towing Conference date, time, and location, a minimum of three business days in advance of scheduled towing operations. The Contractor shall have all towing equipment and rigging, including the tow vessel, available at the Pre-towing Conference for inspection by the COR. Discuss all towing plan details to the satisfaction of the COR.

NOTE

Pre-towing Conference is not required to convene at the point of departure.

3.3 Towing plan. The Contractor shall submit a written towing plan to the COR for review and approval a minimum of 48 hours prior to the scheduled Pre-towing Conference. This plan shall include two methods of tow connection: (a) Main Tow Connection and (b) Emergency Tow Connection, both of which shall include all details such as connection points, and size of lines. The towing plan shall also include but is not limited to the following:

- A statement of operating procedure and safety requirements.
- Communication plan.
- Any special precautions or actions required because of characteristics or conditions of vessel.
- Description of all stations to be manned and functions to be performed.

3.4 Sailing plan. The Contractor shall provide to the COR a sailing plan for transit under tow from the point of departure to the point of arrival designated in Table 1.

3.5 Towing requirements.

3.5.1 Daylight towing. Upon COR approval of Towing Plan, the Contractor shall ensure the tow tug arrives and departs the point of departure during daylight hours.

NOTE

While the vessel is required to leave the point of departure during daylight hours, towing operations may continue through the night provided operations are conducted in accordance with COMDTINST M16672.2D and all Federal, State, and local regulations.

3.5.2 Watch. The Contractor shall provide continuous watch on tow connections and apply grease to applicable chocks.

3.5.3 Weather. The Contractor shall ensure towing operations are conducted only in good weather. The Contractor shall obtain a weather report 24 hours before departure for a period of at least 48 hours after departure over the intended route. Submit CFR. Wind speeds shall not exceed 25 knots for the entire duration of towing operations. The maximum speed of the vessel shall not exceed six knots at any time during towing operations.

3.5.4 Signaling. The Contractor shall use light and sound signals in accordance with COMDTINST M16672.2D.

3.5.5 Personnel onboard vessel. If personnel are onboard the vessel during tow operations, the Contractor shall be aware of all personnel onboard, including both Coast Guard and civilian. The Contractor shall have direct contact via radio with the personnel and shall provide them direction as necessary during the operations.

3.5.6 Overboard suction and discharge preparation. The Contractor shall verify all piping system valves designated by the Coast Guard Inspector are closed for transit. The Contractor shall shut and wire all overboard suctions and discharges not required for transit as designated by the Coast Guard Inspector. Submit CFR.

4. NOTES

4.1 Vessel responsibility for valve closure. The vessel's crew will be responsible to close all valves designated by the Coast Guard Inspector for closure as part of the towing plan.