65 FT DIVE BOAT (65DS1101)

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COVER SHEET – STATEMENT OF WORK (SOW)

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Table of Contents

	Paragraph / Section	Page Number
1.0	General Requirements	
1.1	Vessel Characteristics	4
1.2	Scope Overview	4/5
1.3	Definitions	5/6
1.4	Arrival Conference	6
1.5	Required Documents	6/7
1.6	Progress Meetings	7/8
1.7	Availability Requirements	8/10
1.8	Care of Vessel	10/11
1.9	Workmanship	11
1.10	Corrective Action Request (CAR)	11/12
1.11	Condition Found/Inspection Discrepancy Report (CFR/IDR)	12/13
1.12	Interferences	14
1.13	Safety Requirements	14/15
1.14	Hot Work/Welding	15/17
1.15	Threaded Fasteners	17/18
1.16	Preservation	18/20
1.17	Environmental and Hazardous Waste Management	20/22
1.18	Materials	22
1.19	Weight Control	22
1.20	Label Plates	22
1.21	Integrated Logistic Support	23
1.22	Gas Free	23
1.23	General Requirements for Testing	23/27
1.24	Process Control Procedure (PCP) Requirements	27/29
1.25	Compartment Arrival / Closeout Inspections	29/30
1.26	Technical Representative	30/31
1.27	Heavy Weather Plan	31/35

2.0 References

2.1	Order of Precedence	35
2.2	Discrepancies	36
	Consolidated List of References	37/40

3.0 Work Requirements

3.1	Docking and Undocking the Vessel	41/45
3.2	Hull Repairs	45/48
3.3	Structural Repairs	48/50
3.4	Tanks/Voids	50/53
3.5	Main Deck Repairs	54/58
3.6	Superstructure	58/61
3.7	Main Propulsion Repairs	61/63
3.8	Steering System Repairs	63/65
3.9	Machinery Systems	65/67
3.10	Electrical Systems	67/68
3.11	Piping Systems	68/70
3.12	Weight Handling Systems	70
3.13	Dock and Sea Trials	70/71

4.0	**Government Furnished Material (GFM)**	72
5.0	**Data Submission**	72/74

Statement of Work (SOW)

1.0 **GENERAL REQUIREMENTS:** This document invokes the requirements applicable to the docking and maintenance work to be performed on the 65 FT BRAVO DIVE BOAT 65DS1101. Work performed and accomplished shall be in accordance with ABYC standards and references listed on the consolidated reference table, as specified within this contract and per LAR 65DS-2406 the highest quality workmanship standards and practices commonly accepted in the commercial marine industry and the technical references listed herein. The Contractor is responsible for understanding and complying with all requirements specified herein. The requirements listed herein work in conjunction with the technical drawings and other references to describe the essential features, functions, and requirements of the work performed.

1.1 **Vessel Characteristics:**

65 FT Bravo Dive Boat (65DS1101)		Built by: Marine Group Boat Works	
Length:	69 FT 10 IN	Draft:	3 FT 6 IN
Width:	22 FT – 0 IN	Full Displacement:	55 L Tons
Age:	13 YRS	Light Load	8000 lbs
Hull Type:	Aluminum		

1.2 **Scope Overview:** Coordinate with the Contracting Officer, via the Contracting Officer's Representative (COR) to deliver the vessel to the Contractor's facility from Puget Sound Naval Shipyard (PSNS) Bremerton, WA. Remove all fendering and sweep blast clean. Accomplish survey of hull to identify and repair corrosion, preserve the exterior above and below the waterline, including the crane. Apply nonskid to horizontal surfaces on the exterior and interior of the boat. Replace motor mounts. Remove, inspect and install shafting, rudders and propellers. HVAC repair. Maintain and repair watertight hatches and doors. Repair, modify and preserve push knee. Replace and modify corroded deck and bulkhead structure in the main cabin. Install remote fuel shut offs. Identify and repair corrosion beneath the transformers in the aft lazzarette, install a weather shield above the starboard transformer in the aft lazzarette. Replace hydraulic, and fuel hoses. Identify and repair corroded structure beneath the shower room drain. Remove windows, repair window heaters, and reinstall windows. Replace fire suppression system piping and

recertify system. Repair damage to the port bow. Accomplish modification and repair of swim platform stairs. Restore preservation system on the console in the pilot house. Replace existing generators with supplied Kohler generators, Modify, repair and install fendering system. Modify and repair the monkey heater system. Remove, inspect, preserve and install rudders. Replace thru hull valves and flexible hoses. Replace false bulkheads in the shower room and head. Open, clean and inspect all tanks. Perform sea trials after completion of repairs and full cure time of preservation. Arrange and coordinate the delivery of the vessel back to the Government with the Contracting Officer via the COR.

1.3 **Definitions:** As used throughout this Specification, the following definitions and terms have meanings as indicated:

1.3.1 Unless otherwise stated, "as shown", "as indicated", "as detailed", or other words of similar import refer to the contractual documents including reference documents and publications.

1.3.2 The words "as directed", "as approved", "when authorized" or words of similar import refer to the direction, requirements, permission, approval, or acceptance by the Contracting Officer.

1.3.3 The term "Objective Quality Evidence" (OQE) shall mean current, accurate, and complete objective documentation and information submitted together as a complete data package sufficient that a qualified and disinterested third party could analyze and evaluate whether technical requirements were achieved.

1.3.4 Where "in accordance with Regulatory Body requirements" is stated, the industrial efforts shall be in accordance with the appropriate commercial regulatory body requirements unless otherwise authorized by the Government.

1.3.5 The term "marine" or "marine quality" means an item constructed of materials unaffected by moisture, sea spray, extremes in temperature or other hazards of the marine environment, and designed and constructed to perform its intended functions under marine operating conditions.

1.3.6 The term "herein" means the applicable section(s) of this Specification.

1.3.7 The term "NAVSEA" means the Naval Sea Systems Command, one of five system commands, responsible for engineering, building, supporting, and maintaining the Navy's fleet of vessels.

1.3.8 The term "Stakeholder" means customer, Government, and any agency conducting work during the contracted availability timeline.

1.3.9 The term "SUPERVISOR" is defined as the local Government activity responsible for the execution and contract administration of Navy maintenance and modernization work. For the purposes of this SOW this activity is the assigned Code 101.11 representative.

1.4 **Arrival Conference:** The Government will arrange an arrival conference with the Contractor after contract award.

1.5 **Required Documents:** Administrative requirements of this SOW shall commence at contract award and be updated throughout the contract period.

1.5.1 Prepare and maintain a weekly updated schedules necessary for the purpose of establishing an orderly and systematic accomplishment of production work and material ordering, to include subcontractor work and materials. (REQUIRED REPORT CDRL A001)

1.5.2 Maintain a list of all subcontractors with extent of work to be accomplished by each subcontractor. (REQUIRED REPORT CDRL A002)

1.5.3 Maintain a list of manufacturer's Technical Representatives to be provided per the particular specification requirement. (REQUIRED REPORT CDRL A003)

1.5.4 Maintain a Welder Qualification List, with name, type of qualification(s) and date of last qualification test for each qualification. (REQUIRED REPORT CDRL A004)

1.5.5 Maintain manufacturer's product data sheets for all materials to be used by the Contractor to accomplish the requirements of this contract. (REQUIRED REPORT CDRL A005)

1.5.6 Maintain Safety Data Sheets (SDS) for all materials to be used by the Contractor to accomplish the requirements of this contract. (REQUIRED REPORT CDRL A006)

1.5.7 Maintain a list of key Contractor personnel with names, positions, certifications, telephone numbers, e-mail addresses, and emergency contact information. (REQUIRED REPORT CDRL A007)

1.5.8 Maintain a copy of the Contractor's Inspection and Quality Control System with copies of all related forms, reports, and other supporting documentation. (REQUIRED REPORT CDRL A008)

1.5.9 Maintain a copy of the Contractor's Environmental Protection and Hazardous Waste Management Plan, including Risk Management/Mitigation plans specific to this contract. (REQUIRED REPORT CDRL A009)

1.5.10 Maintain copies of required federal, state and local environmental notifications and permits for performance of the work (or a schedule of when they will be obtained). (REQUIRED REPORT CDRL A010)

1.5.11 Each qualification and list shall be available for Government review within 2 hours of request.

1.6 **Progress Meetings:** Weekly progress meetings shall be held at the Contractor's facility near the vessels. The day and time of the meeting shall be set by the COR upon consultation with the Contractor. A review of percentage completion for each work item shall be conducted including the Contractor's assessment of schedule adherence. Production schedule, corrective action reports, material lead times and other issues shall be discussed.

1.6.1 Review conference with all stakeholders shall be conducted at the availability 25 percent of scheduled Period of Performance.

1.6.1.1 Major discussion points shall include all growth work identified prior up to the 20 percent of scheduled Period of Performance, milestones, and schedule.

1.6.2 Review conference with all stakeholders shall be conducted at the availability 50 percent of scheduled Period of Performance.

1.6.2.1 Major discussion points shall include all critical path work, testing work items, milestones and schedule.

1.6.3 Review conference with all stakeholders shall be conducted at the availability 75 percent of scheduled Period of Performance**.**

1.6.3.1 Major discussion points shall include testing items, milestones and schedule

1.7 **Availability Requirements:**

1.7.1 The Government will deliver the vessel from the Government facility at Puget Sound Naval Shipyard Bremerton, WA to the Contractor's repair facility. Upon completion of all work, the Government will take custody of vessel at the contractor's facility. Contractor shall provide all materials, labor, and insurance bonds necessary for the period that the vessel is located at the Contractor's repair facility.

1.7.2 Provide a separate, lockable, and secure office space for use by the Government On-Site Representative furnished with desk, chair, lights, heat, air conditioning, electrical outlets, sanitary facilities, Internet service, janitorial service, fire extinguisher, and 24-hour service for the entire contract period.

1.7.2.1 The facility must have a minimum of 240 square feet of floor space.

1.7.2.2 The facility must be located within one-quarter mile of the vessel.

1.7.2.3 Provide a parking area adjacent to the facility. The area must be lighted and accommodate 2 automobiles simultaneously. Designate parking area with sign stating "PSNS PARKING ONLY".

1.7.2.4 Provide quantity (2 EA) keys for all doors and Quantity (2 EA) master keys to fit all locks to the COR on the first day the COR is on site.

1.7.2.5 Provide Internet service with quantity (One EA) CAT-5 cable connection or WIFI at 50 MBPS minimum download speed,

1.7.2.6 Desktop Lighting must provide 28 foot candles of illumination measured at the desktop level.

1.7.2.7 Provide quantity (One EA) 15-pound fire extinguisher.

1.7.2.8 Heating and air conditioning must be capable of maintaining the temperature between 65 and 78 degrees Fahrenheit.

1.7.3.9 Provide quantity (One EA) double-pedestal desk, 30-inches wide by 60-inches long.

1.7.2.10 Provide quantity (One EA) swivel chair with adjustable arm rests, and Quantity (One EA) straight-back chair.

1.7.2.11 Provide quantity (One EA) 115-volt, shock resistant, double electrical receptacle for each desk. Each receptacle must be a convenient height and located adjacent to each desk.

1.7.2.12 Provide sanitary facilities equipped with drains, hot and cold potable water.

1.7.2.12.1 Hot water must be maintained at 120 to 140 degrees Fahrenheit.

1.7.2.12.2 Quantity (One EA): lavatory, water closet, soap dispenser, and towel dispenser.

1.7.2.13 Facilities must be provided 2 days prior to contract start date through 2 days after the contract completion date unless otherwise specified.

1.7.2.14 Provide janitorial services to include sweeping, mopping, and trash pickup on a daily basis.

1.7.2.15 Facility must be in accordance with local building codes, sanitary and current fire regulations. The facility must include smoke alarms and sprinkler systems.

1.7.2.16 Furnishings and equipment in this item must be maintained in a fully operable condition by the contractor.

1.7.2.17 Facility must be delivered to the Government clean, sanitary, damage free, and vermin free.

1.7.2.18 Provide quantity (One EA) trash can.

1.7.3 Moorage shall be made available 5 days prior and 5 days upon completion of work.

1.7.4 Document the result of each inspection requirement throughout this SOW.

1.7.5 Do not operate or utilize existing, newly installed, or repaired shipboard equipment for or in the performance of the Contractor's work effort. Ship's Force will accomplish such operation when required for test and checkout purposes.

1.7.6 Production Milestones Requirements:

1.7.6.1 Production Start – first day of the Period of Performance (POP).

1.7.6.2 All initial inspections and reports submitted no later than the first 20 percent of the scheduled POP.

1.7.6.3 No later than 5 days prior to the period of performance end date: Turn over 100 percent of spaces to Government. All production complete.

1.8 **Care of Vessel:** The Contractor shall be responsible for the care of vessel equipment, materials, and components related to the work being performed.

1.8.1 Vessel shall be maintained in a broom clean condition on a daily basis. Vessel shall be free of visual contaminants such as oxide films, oils, grease, dust, dirt, or foreign material.

1.8.1.1 Remove and dispose of industrial debris and extraneous materials from each vessel on a daily basis.

1.8.2 Temporary protective measures shall be taken to avoid wear and damage to the Vessel and all associated components. Water shall not be allowed to accumulate in the hull or structure during work performance.

1.8.2.1 Open areas in structure shall be covered to prevent water entry.

1.8.3 Install and maintain blanks/plugs, nuts and bolts, painted blaze orange for use as FME (foreign material exclusion) immediately upon openings in equipment, valves, and piping systems not subject to pressure to prevent entry of foreign material and protect flanges and threaded areas. Existing system

fasteners used for blanking that will be used for installation are excluded from the requirement for blaze orange color. FME may be used for systems normally under pressure but are tagged-out for maintenance. The use of cloth, polyvinyl sheet, paper, tape, and rubber sheeting as FME is prohibited. All FME material must be applied to avoid damage to surfaces/components being protected.

1.8.4 Wood products, including DC (damage control) plugs are permitted for use as FME external to the vessel for hull penetrations, and non-pressurized systems to include gravity drain piping.

1.8.4.1 DC plugs, wood, or wood products are prohibited for use in tanks/voids, and as blanks on pressurized systems.

1.9 **Workmanship:** Workmanship provided by Contractor employees shall be consistent with with ABYC standards and references listed on the consolidated reference table, as specified within this contract and per LAR 65DS-2406. The Government reserves the right to accept or reject material and workmanship nonconformance. Noncompliance with Contractor's quality control processes or rejection of materials/ workmanship by Government will influence past performance rating provided on contract evaluation. Plating and structural member cuts shall be neatly and accurately made with edges cleaned and prepared for welding. Sharp edges shall be ground smooth to avoid injury to personnel. Equipment, machinery and associated support systems shall not leak oil, water or other type of fluids. Machinery and equipment shall be protected against weather hazards.

1.9.1 At the time of delivery, work performed shall meet the performance requirements specified. Materials and articles used for work performed shall be of commercial marine quality, conforming to the requirements of the regulatory bodies listed herein, unless specified to be otherwise.

1.9.2 The decision that an area is inaccessible shall be determined by inspection and agreed to by the COR prior to proceeding with the requirements of this SOW.

1.10 **Corrective Action Request (CAR):** The Contractor is solely responsible for implementation of the Inspection and Quality Control System of 1.5.8. Government observer(s) will monitor production work performed at any time where work is ongoing. If, during the performance of work, the Government observer(s) witness work that: fails to meet specifications within this SOW,

would lead to an unsatisfactory end product, damages Government Property, is a safety violation; the observer will alert the COR. Conditions that fail to meet specifications within this SOW may result in the Contractor being issued a CAR. Contractor shall respond in writing within 2 work days of CAR receipt to the COR concerning the corrective action taken to remedy the issue and prevent future occurrences.

1.11 **Condition Found / Inspection Discrepancy Report (CFR/IDR):** Utilize FIGURE A (or Company correspondence containing same information) in transferrable media, to communicate to the Contracting Officer COR concerning all conditions found, discrepancies noted, and other information requiring formal documentation. Provide the Contractor's recommendation for corrective action to correct the condition found. Contractor's estimated pricing (man-hours and materials) shall be provided separately to the Contracting Officer. Provide all inspection results including detailed measurements, photographs, sketches, and other means to accurately detail inspection results using FIGURE A, with attachments as necessary. The Government will review and respond to the submitted report. Additional repairs related to the found condition will be tasked if determined necessary by the Government. In the event difficulty is encountered in meeting requirements or difficulty is anticipated in complying with the contract schedule dates, immediately notify the Contracting Officer via verbal communication with the COR. Government receipt of notifications are not to be construed as a waiver of the requirements, delivery schedule, or waiver of rights or remedies provided by law or under this contract, or any other requirements in the SOW relating to jeopardy of contract schedule dates. Reports and notifications do not authorize the Contractor to perform additional work not covered by the contract or authorized by the Contracting Officer. (REQUIRED REPORT CDRL A011)

FIGURE A - CONDITION FOUND/INSPECTION DISCREPANCY REPORT

CFR Number_____ **Date: _____**

From:_____ (Contractor Authorized Representative)
To: **PSNS & IMF, NWRMC IND MAN, C/400, Contracting Officer**
Via: **PSNS & IMF, NWRMC IND MAN, C/101.13, Contracting Officer's Representative (COR)**

Vessel: **65DS1101 Dive Boat**

Section of Contract Affected: _____

Description:

Impact:

Recommended Action:

C/101.13 Response:

_____ _____
Signature of C/101.13 Representative **Date**

Page ___ of ____

1.12 **Interferences:** Contractor pricing offered shall include removal and re-installation of all interferences associated with performance of the required work. The fact that interference is not shown on a plan or specifically identified in the specification item is not justification for a contract change. A physical check of each work site prior to bid submittal is strongly encouraged.

1.13 **Safety Requirements:** Comply with the requirements of 29 CFR 1915, 29 CFR 1910, and 29 CFR 1926, state and local laws, rules, and ordinances during contract performance.

1.13.1 General: Contractor shall be responsible for the compliance of the above requirements by all subcontractor personnel performing work related to this contract. In cases of conflict between the above regulations, the stricter of the requirements shall take precedence.

1.13.2 Accidents and Injuries: Immediately report injuries to Contractor and subcontractor employees to the COR. Investigation shall be completed within 7 work days of each accident/injury. Document a report that includes narratives of the circumstances leading up to and including the injury and any actions (immediate and contemplated) taken to mitigate future reoccurrences of injuries. (REQUIRED REPORT CDRL A012)

1.13.3 Scaffolding: Scaffolds and ladders shall meet the requirements of 29 CFR 1915.71 and 29 CFR 1915.72.

1.13.3.1 Install a swinging gate guardrail at each scaffold ladder and through-platform access opening.

1.13.3.2 Install standard railing around the non-access sides and a swinging gate guardrail on the entrance side of through-platform access openings.

1.13.3.3 Install standard toe-boards around all scaffold floor openings, except at the entrance to the swinging gate guardrail, on all exposed sides of through-platform access openings.

1.13.3.4 Develop detailed engineered drawings and specifications for scaffolds when OSHA, ANSI, or manufacturers' designed guidelines do not exist, such as for "hanging scaffolding". Drawings and specifications shall be designed by a registered professional engineer and meet the following:

1.13.3.4.1 Maintain on the jobsite a copy of the detailed engineering drawings and specifications showing the sizes and spacing of members and the calculations developed for the engineered design(s).

1.13.3.4.2 Construct, load, and maintain scaffolding in accordance with the registered professional engineer's design.

1.13.3.5 Install a commercially available scaffold tag system on all scaffolds. The tagging system, as a minimum, shall be prominently attached to the scaffold structure, consist of green colored "Okay to Use" tag(s), red colored "Danger" tag(s), and accomplish the following:

1.13.3.5.1 Apply all tags on the scaffold structure as close as practicable to each ladder access and/or entry point;

1.13.3.5.2 Apply a red tag to indicate to users that the scaffold is being dismantled, is not yet completely erected, or for some reason is unsafe for use;

1.13.3.5.3 Apply a green tag to indicate to users that the scaffold is safe for use and is compliant with all OSHA regulations and other applicable requirements;

1.13.3.5.4 Ensure green tags contain the following information as a minimum: the location of the scaffolding structure; a unique reference number to identify each separate scaffolding structure, the date the scaffolding structure was first erected; the name(s) of the scaffold builder(s); the load rating of the scaffold structure; and the Competent Person's printed name and signature.

1.14 **Hot Work/Welding:** Prior to performance of any hot work on the vessel, certify a safe atmosphere exists in and around the work area before starting any work that may produce the heat of ignition, sparks or flame. Accomplish steps to make each area safe for hot work. A copy of the gas free certification shall be posted in accordance with applicable OSHA requirements.

1.14.1 All welding equipment and materials shall comply with the applicable requirements of American National Standards Institute/American Welding Society (ANSI/AWS)(ANSI/ANS D1.1/D1.2) requirements as applicable. Welding shall be sequenced to keep the thermal expansion of structures to a minimum.

1.14.2 Remove existing preservation / coatings prior to each expected welding, cutting, and hotwork operation.

1.14.2.1 Preservation / coatings shall be removed 4 inches in each direction and each opposite side.

1.14.3 Perform visual inspection of new welds, to determine conformance, in accordance with the requirements of American Society for Testing and Materials (ASTM) International. All new welds shall be 100 percent visually inspected. All defects shall be repaired in accordance with approved procedures. All welders and weld procedures shall be certified in accordance with AWS requirements.

1.14.4 Perform radiographic, ultrasonic, magnetic particle or dye penetrant inspection of new welds, when invoked by the requirements of section 3.0 of this SOW, in accordance with the requirements of ASTM International.

1.14.5 Maintain documentation of each proposed access cut and a list of each proposed bolted/riveted access removal. Documentation is not required where access cuts are authorized per a NAVSEA approved drawing.

1.14.6 Submit one legible drawing or sketch of each proposed access cut and a list of each proposed bolted/riveted access removal to the COR and GDO (Government Docking Observer) 3 working days prior to making any cut or removing any bolted/riveted access. Submittals are not required where access cuts are authorized per a NAVSEA approved drawing. Drawing or sketch shall contain, as a minimum, the following:

1.14.6.1 Describe the temporary access closure or enclosure

1.14.6.2 Develop a plan and elevation view specifying the location of the access by deck, frame, and distance from the center line or deck edge including measurement and location of adjacent penetrations, bulkheads, framing, welds, and riveted joints within 12-inches of the proposed cuts.

1.14.6.3 Identify the location and number of previous cuts visible in each plate and the cutback of existing welds as required by MIL-STD-1689.

1.14.6.4 Identify structural reinforcement required to prevent distortion of the vessels structure.

1.14.6.5 Identify the thickness and type of material of plating and structural members to be cut. Identify the source or document/drawing number identifying the material requirements, if possible.

1.14.6.6 Identify by positive methods any structural member, interference, and compartment boundary(s) on the opposite side of the proposed access cut or bolted/riveted access.

1.14.6.7 Furnish a copy of the weld procedure or identify the Government approved weld procedure number on/with the drawing or sketch.

1.14.6.8 Furnish all drawing titles, numbers, and technical documentation used to accomplish the requirements of 1.14.6.

1.14.6.9 Develop and submit a PCP with a Weld Procedure Specification (WPS) for each weld design to be utilized. Submit PCP in accordance with 1.26. Each WPS shall be accordance with Clause 5 of ANSI/AWS D1.1, AWS B2.1 for welding, AWS B2.2 for brazed piping and joints and AWS B2.3 for soldered piping joints. (REQUIRED REPORT CDRL A013)

1.15 **Threaded Fasteners:** Except as otherwise specified herein, or on the drawings listed, threaded fasteners shall be in accordance with applicable ASTM standards. Coarse thread series shall be used unless the component's design indicates a necessity to use fine thread series. Fastener clearance holes shall be 1/16 inch oversize unless specified in the requirements of 2.0. Black oxide coated brass and cadmium plated fasteners are prohibited. Where drawings specify the use of brass fasteners on a fuel or fuel oil tank, CRES 316 fasteners shall be substituted in lieu of brass. Consult the requirements of MIL-STD-777 and Naval Ships' Technical Manual (NSTM) Chapter 075 for guidance in instances where there is a question as to the material to be utilized.

1.15.1 Threads on externally threaded fasteners, after being installed and tightened, shall protrude a minimum of 2 threads to a maximum of 5 threads beyond the face of the nut with the exception of minimum thread protrusion for self-locking (plastic insert) nut installations. For those installations, bolt or stud end minimum thread protrusion shall be flush with the face of the nut. For self-

locking nuts, the bolt or stud end shall protrude a maximum of 5 threads beyond the face of the nut after the nut is tightened.

1.15.2 Clean, chase, and tap exposed threaded areas of each fastener and threaded socket.

1.15.3 Tighten threaded fasteners in the sequence, patterns, and the torque values, when not otherwise specified, using the requirements of Section 4, paragraph 075-4.1 through 075-4.6.2 of NSTM Chapter 075 for guidance.

1.16 **Preservation**:

1.16.1 Measure, record, and maintain Objective Quality Evidence (OQE) information on Appendices One through 8 throughout the entire performance of preservation operations. OQE information for the in-process being performed must be made immediately available for onsite review upon request by the COR. (REQUIRED REPORT CDRL A014)

1.16.1.1 Appendices One through 8 shall be in accordance with Reference QA_Appendix_Forms_C101_2023_Contractors.pdf

1.16.1.1.1 All spaces that are not applicable shall be marked N/A.

1.16.1.1.2 Unused sections shall be crossed out and marked N/A.

1.16.1.1.3 Any errors shall be one lined thru; initialed and dated by the person making the correction.

1.16.1.1.4 Any markings that are illegible or unclear shall be considered invalid.

1.16.2 Comply with the coating manufacturer's requirements for the establishment and maintenance of environmental conditions and for coating thickness applications throughout the entire removal and preservation operation(s).

1.16.2.1 Calibrated Electronic Data Logger record and maintain environmental conditions OQE during the entire preservation operations. Data

shall be made immediately available for onsite review upon request by the COR. (REQUIRED REPORT CDRL A015)

1.16.3 Apply contrasting colors between the primer, stripe, intermediate, and topcoat using coating products that are from the same manufacturer and compatible with each other, other system preservation coatings shall be different in color from both the preservation coating over which it is being applied and the next coating in the system; no two coatings can be similar in color and shall be applied in accordance with the manufacturer's product data sheet.

1.16.4 Apply stripe coat to all edges, weld seams, welds of attachments and appendages, cutouts, corners, butts, foot/handholds, including back side of piping, underside of beams and other mounting hardware (non-flat surface) after each previous full coat has dried. The stripe coat shall encompass and extend a minimum of One-inch beyond the intersection of two flat surface planes, each radii edge, and all perpendicular shapes, edges, or angles.

1.16.5 Mask and/or install temporary expandable foreign material exclusion (FME) plugs, blanks, or other hard and durable protective covers, painted blaze orange, in hull openings and surfaces to prevent system contamination or equipment damage from abrasive blasting, surface preparation, and preservation operations. The use of cloth, polyvinyl sheet, paper, tape, rubber sheeting, and wood or wood products as FME prevention devices is prohibited.

1.16.5.1 Establish an FME log, record, and identify the location of each protective covering installed and removed, including each corresponding and specific measurement(s), location(s), and/or area(s) in relationship to structural members or from suitable hull reference points. (REQUIRED REPORT CDRL A016)

1.16.5.2 Remove each temporary FME plug, blank, and protective covering, record removal date in FME log, and restore each system to its original configuration upon final completion of testing, blasting, and preservation operations. (REQUIRED REPORT CDRL A017)

1.16.6 Solvent clean surface prior to the start of each blasting, and preservation operation. Accomplish the requirements of Surface Preparation Specification SSPC-SP-1 of Systems and Specifications, SSPC Painting Manual, Volume 2.

1.16.7 Accomplish touch-up preservation for new and disturbed surfaces shall match surrounding coating system(s) in accordance with the manufacturer's product data sheets.

1.16.8 Feather edges of well adhered paint remaining after cleaning for all surface preparation methods. Visible areas of defective existing paint shall be removed until an area of completely intact and adhering paint is attained around the defective area by feathering (tapering) the edges of tightly adhering existing paint at an approximate 30 degree slope into the newly prepared bare metal surface thus preventing application of new paint over loose or cracked paint.

1.16.9 Paints shall not be thinned.

1.16.10 Hull and freeboard preservation coatings shall be fully cured prior to shifting and undocking the vessel. All other preservation coatings shall be fully cured prior to final delivery to the Government.

1.16.10.1 Preservation coatings are considered fully cured when they meet the requirements of the applicable manufacturer's product data sheets minimum cure to service time schedule and are dry throughout their thicknesses.

1.16.11 Conduct Surface Chloride or Surface Conductivity measurements.

1.16.11.1 Surface Chloride; shall not exceed 3 ug/cm^2 (30 mg/m^2) for immersed or 5 ug/cm^2 (50 mg/m^2) non-immersed applications. Surface Conductivity; shall not exceed 30 micro-siemens/cm immersed or 70 micro-siemens/cm non-immersed applications.

1.16.11.2 Readings shall be documented on Appendices 4.

1.17 **<u>Environmental and Hazardous Waste Management</u>:** Comply with all federal, state, and local laws, codes, regulations, acts, ordinances, and rules for Environmental Protection and Hazardous Waste Management / Disposal, including obtaining required licenses, generator identification number, and permits. Designate one employee responsible for Environmental and Hazardous Waste Management. All contract, manifests, invoices, and other documents related to the removal, storage, handling, transportation or disposal of hazardous waste shall bear a generator identification number issued to the Contractor pursuant to applicable law. Take actions to mitigate creation of hazardous waste by recycling and other available methods. All hazardous waste generated by work under this contract is anticipated to be Contractor generated and shall be

the responsibility of the Contractor. Estimated hazardous waste associated with work required in these Specifications is listed below:

Product	**Amount**
Cleaning Solvents	30 gallons
Paint (enamel, latex, epoxy, thinners, oil based, rubber, non-skid, lacquer, varnishes, removers)	20 gallons
Rags (contaminated with a known source)	25 pounds
Blast Media and paint chips contaminated with heavy metals and other contaminants	500 pounds

Hazardous waste generated during the actual performance of the work may vary in type or amount from the waste listed above. The above is an estimate of the amount of waste anticipated to be generated; not an estimate of the amount of work in generating that waste. (REQUIRED REPORT CDRL A018)

1.17.1 The Contractor shall ensure that their cost proposal for the work proposed herein includes reasonable compensation for all anticipated cost of managing and disposing of the wastes listed above, and/or created or generated in the execution of the delivery order issued, in accordance with the requirements of 42 USC 6901-6992 Rev 1996, 49 USC 5103, 10 USC 7311 Rev 1/22/11. The Contractor shall include a 5-way break down of the anticipated costs associated with this effort in their offer.

1.17.2 Consider coatings to contain heavy metals (e.g. lead, chromium, cadmium), hexavalent chromium, crystalline silica, and/or other toxic or hazardous substances until laboratory analysis establishes otherwise. Comply with all procedures and precautions required for employee protection, sampling, removal, and disposal.

1.17.3 Consider insulation, lagging, and mastics to be asbestos-containing material (ACM) until it can be established by laboratory analysis, or other reliable method(s), that the material does not contain asbestos. Ensure compliance with the requirements of 29 CFR 1915.1001.

1.17.4 Consider materials, debris, and/or residue associated with ventilation systems to contain toxic/hazardous substances including but not limited to cadmium, chromium, and PCB's until laboratory analysis establishes otherwise.

1.18 **Materials:** All Contractor furnished materials (CFM) installed shall be new. Materials shall be as indicated on the listed drawings, publications or as specified in this Specification. The use of asbestos, polychlorinated biphenyl (PCB), magnesium, cadmium, or mercury in any materials is prohibited.

1.18.1 Procure/Order 100 percent of materials within 10 business days of contract award, to support the production schedule and delivery of the vessel within in the contracted POP.

1.18.2 Status Report Document 100 percent of CFM that is required to accomplish the requirements of this SOW. (REQUIRED REPORT CDRL A019)

1.19 **Weight Control:** Institute a weight control program in which actual weights, for removed, relocated and installed equipment/structure, are measured by either weighing or from manufacturer certified data. The location of the center of the load must be recorded along with each weight entry in the weight control report. This location shall show the distance vertically from the baseline of the vessel, longitudinally from amidships and tangentially from the centerline of the vessel. Items that are permanently removed and replaced with the identical item, in the same location, are not required to be included in the weight control program. Items that are replaced with like items of differing material or quantity shall be included in the weight control program. Items that are new installations shall be included in the weight program. (REQUIRED REPORT CDRL A020)

1.20 **Label Plates:** Label plates installed in locations exposed to the weather shall be CRES and shall be prepared by the "Metal-Photo" process and sealed to exclude moisture between the plate and the mounting surface. Label plates shall be installed to assure maximum visibility. Label plates shall be attached with corrosion-resistant steel (CRES) screws or adhesive, using LAR 2024-2406 for guidance. Where adhesive is used, surface preparation shall be in strict accordance with the adhesive manufacturer's instructions. Test label plates shall be attached on or adjacent to all equipment or components tested without interference to equipment or component operation. The label shall identify the equipment or component, the test load, the dynamic and static load (if applicable), the rated load, the date of testing, and the activity performing the test, using the layout format of using LAR 2024-2406 for guidance.

1.21 **Integrated Logistic Support:** Maintain legible original copies in approved transferrable media, of the following original equipment

manufacturer's (OEM) information: operating instructions, manuals, drawings, catalog cut sheets, warranty information, and all other supporting documents, for all new equipment, parts, and supplies installed. (REQUIRED REPORT CDRL A021)

1.22 **Gas Free:** Provide certified Marine Chemist, Certified Industrial Hygienist services, and Shipyard Competent Person services as required by 29 CFR 1915 for Contractor and Government personnel.

1.22.1 Consolidate and maintain the Contractor's current confined space entry/gas free certification processes into a single and comprehensive document as part of a confined space/gas free certification program. (REQUIRED REPORT CDRL A022)

1.22.2 Maintain a list of Contractor's National Fire Protection Association (NFPA) Marine Chemist certifying gas-free conditions for this project and a list identifying Contractor employees designated as "Competent Persons" in accordance with 29 CFR 1915.7. (REQUIRED REPORT CDRL A023)

1.22.3 Post, update, and maintain gas free certificates IAW 29 CFR 1915 during the entire contract period of performance.

1.23 **General Requirements for Testing:** Test all Contractor affected equipment, systems and subsystems for compliance with this SOW and commercial marine standards and practices. Demonstrate workmanship, alignment, strength, rigidity, water tightness, functionality, and suitability for the purpose intended.

1.23.1 Develop a Test and Inspection Plan for each Test and Inspection required by zero and first tier references, each symbol (I) (V) (Q) (G) test/inspection and by this SOW, containing paragraph number or listed applicable reference requiring Tests and/or Inspection; identification of each component/system; description of each Test and/or Inspection; accept/reject criteria; date scheduled; Government notifications; date completed; and each Test and/or Inspection result Tests and inspections the contractor deems necessary to substantiate product conformance shall be included. (REQUIRED REPORT CDRL A024)

1.23.1.1 Fully integrate the Test and Inspection Plan with the Contractor's production schedule.

1.23.1.2 Provide the number of tests and inspections for a given system, component, or installation required to demonstrate required satisfactory performance. This section specifies tests to be performed in support of the work performed.

1.23.2 Provide a detailed description of preoperational checks to be conducted, operations to be performed, and the parameters to be satisfied. Develop data sheets which provide spaces for recording the quantitative values measured during the test, for each test procedure. Specify the minimum and maximum allowable tolerance limits for each measured value. Develop signature sheets for fill-in by the person conducting the test, the Government witness present, and the date of the test. Block diagrams, simplified schematics or diagrams may be used to clarify the procedure or test method. Include a comment sheet to record significant events and observations by either the Government witness or Contractor.

1.23.3 Provide materials, supplies, utilities, equipment, calibrated equipment/ instrumentation, services and personnel to accomplish each test. Incorporate safety precautions into each test procedure. Prepare all test documentation during the development and implementation of the acceptance test.

1.23.3.1 Whenever Government support is required for the operation of vessel equipment and/or systems, a minimum of 3 workday's prior notification of the operational/test support requirement shall be provided to the COR.

1.23.3.2 Tests/inspections and equipment/systems operation requiring Government operational support shall be scheduled for accomplishment during normal day shift working hours, as much as practicable.

1.23.3.3 Provide a minimum of 3 workdays prior notification to the COR for tests/inspections and equipment/system operations requiring Government operational support for work being performed on weekends, after normal dayshift working hours, and immediately before and/or after Federal holidays.

1.23.3.4 The COR or his representative shall receive notification a minimum of 3 work days prior to each test/inspection. Equipment shall not be adjusted during acceptance testing. The COR may countersign the acceptance test/inspection report, however the Government's signature does not constitute

approval or concurrence in any aspect of the testing/inspection, other than the presence of the Government at the test.

1.23.4 Perform tests/inspections using the applicable test procedure for systems and subsystems. Demonstrate compliance with the Specification requirements by satisfactory completion of the test. Complete all work prior to initial testing of that particular system or subsystem and in a timeframe sufficient to allow for correction of deficiencies prior to dock trials, sea trials, or other applicable milestones established in these specifications. Perform adjustments and testing prior to each scheduled acceptance test.

1.23.4.1 Gage range shall be such that test pressure is in the middle third of each scale.

1.23.4.2 Stop the test/inspections if the equipment, system, or subsystem tested fails to satisfy the acceptance criteria of the established test procedure. Identify the cause and correct.

1.23.5 Accomplish (G)-Point (government notification) as follows:

1.23.5.1 (G) is a symbol inserted in a SOW paragraph to establish a point in the sequence of accomplishment of work at which time the COR must be notified by the prime contractor in all cases to permit observation of a specific test or inspection (I) (V) by the government. When the symbol (G) precedes tests or inspections in a SOW paragraph which are applicable to more than one action, the symbol (G) must identify the action required, e.g., (G) "HYDROSTATIC TEST". When more than one unit is involved, the (G) notification requirement applies to each unit.

1.23.5.2 For tests and inspections involving (G)-points, records must be documented upon acceptance or rejection and electronic copy provided to the COR within 24 hours of conclusion of each (G)-Point.

1.23.5.3 Government will consider the work in accordance with SOW paragraph incomplete if the contractor's documentation and records are not complete.

1.23.5.4 Proceed with the test or inspection if the Government Representative is not present, provided the required advance notice has been

furnished to the COR and the contractor has completed and documented the preceding tests and inspections.

1.23.5.5 A partial test or inspection requiring (G) notification may be accomplished in the event that all work cannot be completed and work progress would be delayed in waiting for total completion of work. Comply with the requirements of 1.23.6 when the incomplete work is completed and ready for the remainder of the test or inspection. Note partial inspections on the test or inspection form.

1.23.5.6 A qualified contractor representative must be present to accomplish, accept or reject and document tests or inspections associated with the symbol (G).

1.23.6 Accomplish (I) (V) and (Q) checkpoints as follows:

1.23.6.1 Accomplish (I), (V) and (Q) tests/inspections that do not have associated (G)-points, with qualified and/or currently certified personnel where required by the technical documents (e.g., NBPI, NACE, nondestructive testing, electrical cableway inspection, Oxygen Cleanliness Inspector, etc.)

1.23.6.2 (I) inspections require verification and documentation by a separate individual, other than the person who has accomplished the work, who is qualified as an inspector.

1.23.6.3 (V) inspections require verification and documentation by the qualified tradesperson, trade supervisor, or inspector.

1.23.6.4 (Q) inspections require verification and documentation by a qualified Technical Representative in accordance with 1.24 and associated Process Control Procedure (PCP) requirements.

1.23.6.5 The authority to accomplish, document, accept and reject (I) and (V) inspections may be delegated to qualified subcontractor personnel, without regards to geographical location, subject to COR approval.

1.23.6.6 The authority to witness or perform, document and accept/reject (I)(G), (Q)(G), and (V)(G) tests and inspections is a prime contractor's responsibility but, subject to COR approval within a 50-mile radius of the contractor’s plant nearest to the place of performance of the contract, may be delegated to subcontractors who are MSRA or ABR agreement holders, SSPC QP1 certified, NDT certified, or have a current QMS accepted by the COR.

1.23.6.7 The contractor may delegate responsibility to subcontractors to perform, document and accept/reject (I)(G) and (V)(G) tests and inspections performed at plants located outside a 50-mile radius of the contractor's plant nearest to the place of performance of the contract subject to COR prior approval.

1.23.6.7.1 For work being performed outside a 50-mile radius of the place of contract performance, the prime contractor must submit via approved transferrable media, of purchase orders to the COR within 2 days or otherwise as directed by the Government, prior to issue of purchase order and shipment of equipment. For contractors who do not utilize purchase orders as a vehicle for accomplishing work within their company, a report identifying the delineation of the specific SOW requirements, in lieu of the purchase order must be submitted to the COR.

1.23.7 Document the result of each test requirement throughout this SOW.

1.24 Process Control Procedure (PCP) Requirements:

Develop a PCP when directed by the work requirements of 3.0. Work within the submitted PCP shall not commence until a Government review of the PCP has been completed. Format in accordance with the requirements of paragraphs 1.24.1 through 1.24.4.

1.24.1 Section 1 **- Identification:**

1.24.1.1 Include the process title and procedure number, revision, and date developed.

1.24.1.2 List the work item title and paragraph that the PCP fulfills.

1.24.1.3 Include Contractor/Subcontractor names and addresses.

1.24.1.4 Include space for the Approval Signature and title of the Contractor’s representative, date developed, date of submission, and scheduled start date of the PCP.

1.24.2 Section 2 - **Personnel Qualifications:**

1.24.2.1 List the qualification requirements for the personnel performing the work.

1.24.2.2 Include a statement that a briefing will be conducted prior to beginning work to ensure personnel have direct knowledge of the requirements of the procedure and the safety requirements of the job.

1.24.3 Section 3 - Process Description:

1.24.3.1 List any specialized or critical equipment needed to perform the work.

1.24.3.2 List any specialized or critical personal protective safety equipment required to be worn by personnel.

1.24.3.3 Identify Government notification points for the start and during the Contractor identified inspection points during the accomplishment of the PCP.

1.24.3.4 Describe detailed sequence of work for PCP. Include critical factors which have a direct bearing on the process quality and safety.

1.24.3.5 List the acceptance and rejection criteria used for determining satisfactory PCP completion.

1.24.3.6 Inspection and data document forms which will be utilized as OQE to record and ensure satisfactory completion of the PCP.

1.24.3.7 The method to ensure an up-to-date copy of the PCP, work authorization forms (WAF's), and tag-out record sheets (TORS's) are at the worksite during the performance of the work.

1.24.3.8 The method utilized to control the PCP.

1.24.4 Section 4 - **Hazardous Material:**

1.24.4.1 State if no hazardous material/waste will be used or generated.

1.24.4.2 Identification of hazardous materials which will be used in the PCP and hazardous waste that will be generated by the accomplishment of the PCP. Include a SDS for each hazardous material that will be used aboard the vessel.

1.24.4.3 Include the methodology which will be utilized to minimize the quantity of hazardous materials which will require control and disposal.

1.24.4.4 Description of the methods and safeguards to be utilized for the capture, containment, control, and disposal of hazardous material or hazardous waste.

1.25 **Compartment Arrival / Closeout Inspections:**

1.25.1 A detailed survey of the craft shall accomplished by an ABYC Master Advisor upon arrival (after haulout and cleaning) and upon completion of availability (prior to launch). (REQUIRED REPORT CDLR A025)

1.25.1.1 Notify the COR no later than 2 working days prior to conducting the inspection.

1.25.2 The term "compartment" for purposes of 1.25 does not include tank and void spaces.

1.25.3 Develop a compartment closeout schedule no later than the 75 percent completion point of the vessel availability schedule.

1.25.3.1 Closeout schedule shall list each compartment on the vessel by compartment name and number.

1.25.3.2 Closeout schedule shall identify work completed, work in progress, work remaining to be accomplished, and expected completion dates.

1.25.4 Accomplish a final joint inspection upon completion of production work and prior to vessel delivery; with the COR in each vessel compartment.

1.25.4.1 Notify the COR no later than One work day prior to conducting the inspection.

1.26 **Technical Representative:**

Provide the services of a qualified on-site Technical Representative to provide assistance in the process or processes, repair and testing of the equipment specified in the invoking SOW paragraphs. Technical Representative will only be contracted by the prime contractor and the same company cannot provide both the Technical Representative and perform the actual production work.

1.26.1 Submit, in approved transferable media, one copy of a report notifying the COR of the prime contractor's identifying the OEM authorized service provider. Provide certification from the OEM to the COR that the vendor is an OEM-authorized service provider.

1.26.2 The Technical Representative must meet the following minimum qualification requirements:

1.26.2.1 Have technical knowledge of the specified equipment or process and have a documented history of successful performance or repairs on similar equipment or processes.

1.26.2.2 Have demonstrated competency in analyzing repair requirements and process performance and making recommendations based on process or disassembly inspection results.

1.26.2.3 Have current/active documented and verified access to Original Equipment Manufacturer (OEM) proprietary plans, specifications, procedures, material, parts, special tools, and equipment.

1.26.2.4 Provide certification via approved transferrable media, from the OEM to the COR that the individual is an authorized service provider.

1.26.3 The Technical Representative must review, sign, and date all required reports, for technical adequacy prior to submittal to the COR. Associated Process Control Procedures must be reviewed, signed, and dated by the Technical Representative prior to the start of work.

1.26.4 Inspect new and repaired areas and component parts of the equipment prior to assembly to ensure compliance with technical manual requirements and drawings.

1.26.4.1 Any deviations or departure from the specifications and/or the requirements of 1.24.4 require an approval from the COR prior to equipment assembly.

1.26.5 Inspect and provide technical guidance and assistance during process performance, equipment assembly and adjustment. Verify assembly procedures, sizes, and clearances comply with manufacturer's requirements, technical manual requirements, and drawings when specified.

1.26.5.1 Verify and document mechanical and electrical alignments, final closing sizes, and clearances.

1.27 **Heavy Weather Plan:** Maintain a written plan that must be implemented during gales, storms, hurricanes, and destructive weather, including mooring calculations in accordance with 845-6686999 US Navy Vessel Water Depth, Mooring and Hull/Appendage/Clearance Requirements for Transit and Berthing and DDS 582-1, Design Data Sheet, Calculations for Mooring Systems, using UFC 4-159-03, Mooring Design for guidance. The documented Heavy Weather Plan must be submitted for a document review and acceptance. The Contractor shall have an acceptable documented Heavy Weather Plan in place no later than 15 days prior to availability start date. The Heavy Weather Plan must be available for periodic conformity audits throughout the contract. (REQUIRED REPORT CDRL A026)

1.27.1 Ensure the plan designates responsibility and implements procedures for prevention of damage to the vessel. This includes periods when the vessel is physically located in private contractors' plants; during times when work on the vessel requires openings to hulls or decks; and when contractor owned/furnished floating equipment is tied alongside the vessel. The plan must contain specific responsibilities and detailed actions to be taken during the weather conditions listed below.

1.27.1.1 Conditions where there is substantial advance warning for approaching adverse weather are addressed by the following 4 categories:

1.27.1.1.1 Gale/Storm/Hurricane Condition IV: Trend indicates a possible threat of destructive winds of force indicated within 72 hours.

1.27.1.1.2 Gale/Storm/Hurricane Condition III: Destructive winds of force indicated are possible within 48 hours.

1.27.1.1.3 Gale/Storm/Hurricane Condition II: Destructive winds of force indicated are anticipated within 24 hours.

1.27.1.1.4 Gale/Storm/Hurricane Condition I: Destructive winds of force indicated are anticipated within 12 hours or less.

1.27.1.2 Conditions where there is little or no advance warning for approaching adverse weather are addressed by the following 2 categories:

1.27.1.2.1 Thunderstorm/Tornado Condition II: Destructive winds accompanying the phenomenon indicated are reported or expected in the general area within 6 hours. Lightning and thunder are also anticipated.

1.27.1.2.2 Thunderstorm/Tornado Condition I: Destructive winds accompanying the phenomenon are imminent. Lightning and thunder are also anticipated.

1.27.1.3 Ensure that the plan contains, as a minimum, the following information as dictated by conditions listed in 1.27.1:

1.27.1.3.1 Steps to be taken to remove or secure staging items or equipment on decks of the vessel, pier or dry dock, including cranes that could become windborne.

1.27.1.3.2 Protection of the vessel from damage from other floating equipment.

1.27.1.3.3 Provisions for protection of government equipment and material in custody of the Contractor from damage by pierside flooding.

1.27.1.3.4 Provisions for removal of temporary hoses, welding lines, air lines, oxygen/acetylene lines, etc., extending through watertight closures.

1.27.1.3.5 Provisions for security, emergency fire and flooding protection, emergency shipboard dewatering and fire main capability, emergency shipboard electrical generation, and emergency shipboard communications.

1.27.1.3.6 One portable dewatering pump and associated equipment for each 100 feet of ship's length in addition to the dewatering equipment provided by 845-6686999 US Navy Vessel Water Depth, Mooring and Hull/Appendage/Clearance Requirements for Transit and Berthing must be available on the damage control or main deck adjacent to damage control lockers or temporary damage control equipment boxes. Pumps must be capable of providing a minimum of 200 gal/min at a discharge head of 50 feet of dewatering capacity and can be used at the scene of a casualty within 3 minutes of receiving an alarm. Additional dewatering capacity to provide 1,000 gal/min at a discharge head of 50 feet at the scene must be available within 15 minutes. During the waterborne overhaul period, no damage control system associated with flooding prevention and control, or any portion thereof must be removed or made inoperable without prior notification of the COR and to the casualty-control station and until a back-up system has been established.

1.27.1.4 Ensure provisions for access to the ship for personnel and emergency equipment during and immediately following the storm consistent with prudent safety precautions. Assurance that all hull/deck openings are made watertight. Steps to be taken to secure floating piers during high winds/high tides.

1.27.1.5 The name and telephone number (business and residential) of the Contractor's single point of contact. This person must have the authority to commit the Contractor to take necessary actions as requested by the COR.

1.27.2 Ensure the plan contains the following mooring related information:

1.27.2.1 Specify steps to be taken to secure the vessel to contractor's pier, dry dock, graving dock, marine railway, or Contractor's other facility. Information must define specific precautions to be taken and supporting calculations, to include limits of docking blocks and dock stability for both normal and heavy weather conditions. Calculations for heavy weather configurations must include wind and tidal considerations.

1.27.2.2 Provide the heavy weather state at which the vessel must be undocked.

1.27.2.3 Submit mooring calculations for the worst anticipated loading condition during the availability. For vessels with a self-compensating fuel system, the loading condition must show the self-compensation fuel system full of water, fuel, or some combination of fuel and water, projecting the worse

possible condition as shown in calculations for maintaining ship's stability. Calculations may require re-submittal if significant changes occur from the original estimate on which the calculations were based.

1.27.2.4 For ships in dry dock, provide limits and supporting calculations for listed conditions. Analyze both the "normal" dock configuration and the "heavy weather" configuration.

1.27.2.4.1 Maximum safe wind speed and surge for side block strength and stability. Include maximum loading of the side blocks on the vessel.

1.27.2.4.2 Maximum safe wind speed and surge for dry dock strength and stability.

1.27.2.4.3 Surge required to float the vessel.

1.27.2.4.4 Table or graph showing safe combinations of wind speed and surge.

1.27.2.5 For vessels pierside, provide limits and supporting calculations for vessel loading conditions specified in 1.27.2.3. Analyze the "heavy weather" mooring configuration that would be used during the conditions specified in 1.27.1. Analyze worst-case wind directions including frontal, broadside, and quartering.

1.27.2.5.1 Maximum safe wind speed for mooring strength. Include strength of pier, pier fittings, mooring lines, and shipboard fittings. Maximum applied load on any mooring line must be the breaking strength of the mooring line divided by 2.5 (factor of safety of 2.5).

1.27.2.5.2 Maximum safe surge for mooring.

1.27.2.5.3 Maximum safe elongation of mooring lines. Include the following information: Size and type of mooring line; Percent elongation of mooring line at failure; Tattletale-free length and length between attachments.

1.27.2.5.4 Sketch, showing size, type, and location (vertical and horizontal angles) of all securing devices including fenders, bumpers, and camels. (REQUIRED REPORT CDRL A027)

1.27.2.6 Include the following statement, providing the necessary data: Vessel _____ can be safely moored to withstand a maximum of ___ mph winds with a __ knot current and a __ foot storm surge.

2.0 **REFERENCES:** All references shall be of the latest issue and/or revision or as indicated in the Consolidated List of References. It is incumbent on the Contractor to maintain current commercial specifications and be thoroughly familiar with Federal, State and Local laws, regulations and ordinances. Contractor is prohibited from using Government provided technical information for any purpose other than that contemplated by the specifications. Contractor is prohibited from further use, release, or disclosure of this information. References provided on beta.SAM.gov, safe.apps.mil and/or CD-ROM, including any information contained thereon, shall be destroyed in accordance with the instructions as stated below, at completion of the contract. After award, for those Contractors in receipt of reference material from beta.SAM.gov, safe.apps.mil and/or CD-ROM and not awarded a delivery order shall destroy all information received in accordance with the instructions stated below. This applies to all physical and electronic copies of reference material associated with this contract award.

DESTRUCTION NOTICE: Destroy by any method that will prevent disclosure of the contents or reconstruction of the documents.

2.1 **Order of Precedence:** Unless otherwise noted within this specification, hierarchy, priority, or order of precedence of requirements shall be as follows:

2.1.1 Specification Definite Item
2.1.2 Specification General Requirement
2.1.3 Military/Navy Drawings
2.1.4 Military/Navy Technical Manuals
2.1.5 Commercial Drawings
2.1.6 Commercial Technical Manuals
2.1.7 Commercial or Industrial Standards
2.1.8 Commercial Practices

2.2 **Discrepancies:** Drawing, technical reference, or other discrepancies associated with this specification shall be reported using the Request for Specification Clarification form, during proposal, or the "Condition Found / Inspection Discrepancy Report" form (FIGURE A) during delivery order period of performance.

CONSOLIDATED LIST OF REFERENCES	
The following publication and drawing requirements are applicable to this SOW:	
Publication Number	**Title**
1) 10 USC 7311	Repair or Maintenance of Naval Vessels: Handling of Hazardous Waste
2) 15 USC 2601, et seq.	Toxic Substances Control Act
3) 29 CFR 1910	Occupational Safety and Health Standards
4) 29 CFR 1915	Occupational Safety and Health for Shipyard Employment
5) 29 CFR 1926	Safety and Health Regulations for Construction
6) 42 USC 6901 to 6992	Resource Conservation and Recovery Act of 1976
7) 49 USC 5103	Hazardous Materials Transportation Authorization Act of 1994
8) S9074-AQ-GIB-010/248	Requirements for Welding and Brazing Procedure and Performance Qualifications
9) AWS B2.1	Specification for Welding Procedure and Perfrormance Qualification
10) ANSI/AWS D3.7	Guide for Aluminum Hull Welding

11)	ASTM B928	Standard Specification for High Magnesium Aluminum Sheet and Plate for Marine Service
12)	S9074-AR-GIB-010/271	Requirements for Nondestructive Testing Methods
13)	ASTM E165	Standard Practice for Liquid Penetrant Testing for General Industry
14)	AWS QC1	Specification for AWS Certification of Welding Inspectors
15)	ASTM E164	Standard Practice for Contact Ultrasonic Testing of Weldment
16)	MIL-PRF-23236D	Coating Systems for Ships' Structures
17)	MIL-PRF-24667D	Coating System, for Roll or Spray Application
18)	MIL-PRF-24647	Paint System, Anticorrosive and Antifouling, Ship Hull
19)	S9086-CJ-STM-010	NSTM 075 Fasteners
20)	ABYC 2024-2025 Supliment 64	Standards and Technical Information Reports for Small Craft
21)	NSTM Chapter 600	Structural Closures
	SSPC Manual 05-03	Surface Preparation Specifications and Practices
22)	SSPC Painting Manual, Volume 1	Good Painting Practice
	SSPC Painting Manual, Volume 2	Systems and Specifications
23)	QA_Appendix_Forms_C411_2018_Contractors.pdf	QA Appendices
24)	T0300-AU-SPN-010	Fabrication Welding and Inspection of Aluminum Craft

25)	S6430-AE-TED-010 Volume 1	Technical Directive for Piping Devices, Flexible Hose Assemblies
26)	S9243-AW-TRS-011	Technical Repair Standards for Surface Ship Propulsion Shafting

	Drawing Number	Title
1)	S2803-980209 Rev L	Bureau of Ships, Label Plates
2)	S2804-921819C	Distinguishing Figures
3)	INDEX	65DS11101 Dwg Index
4)	124B-301	Safety Plan
5)	124B-302	General Arrangement
6)	124B-303	Outboard Plan
7)	124A-304	Pilot House Consol Arrangement
8)	124A-305	Alpha Docking Plan
9)	124-401	Welding Schedule
10)	124A-402	Hull and Deck Framing
11)	124A-403	Transverse Framing
12)	124A-404	Deck House Construction
13)	124A-405	Bulwark
14)	124A-406	ALPHA Deckhouse Construction
15)	124A-408	ALPHA Hoisting Structure
16)	124-409	Vessel Push Knees
17)	124-410	Ventilation Trunks
18)	124-412	ALPHA BRAVO Stairway
19)	124A-414	Towing Bits
20)	124A-416	Rails and Stanchions
21)	124-417	Swim Platform
22)	124B-501	BRAVO Shaft Line
23)	124A-502	Fuel System
24)	124A-503	Fresh Water Systems
25)	124A-505	Propeller Strut
26)	124B-506	Steering System
27)	124A-507	Exhaust System
28)	124A-508	Bilge System
29)	124A-509	tem
30)	124A-510	Vents and Fills
31)	124B-511	Machinery Arrangement

32)	124A-512	Engine Mounts
33)	124A-514	Fendering System
34)	124A-515	Mast System
35)	124A-516	Propeller Guard
36)	124A-517	Lube Oil System
37)	124B-518	HPU System
38)	124A-519	LP Compressor Piping
39)	124A-520	Ventilation System
40)	124A-521	Fire Suppression System
41)	124B-522	HVAC
42)	124B-601	AC Power Supply Diagram
43)	124B-603	DC Power Supply Diagram
44)	124A-604	DC Power Distribution Panels
45)	124A-605	Bilge WSystem Wiring
46)	124A-606	Vent Fan Wiring
47)	124A-607	SMC Wiring
48)	124A-608	Whalen Siren
49)	124A-609	Camera
50)	124A-610	LH3000 System
51)	124A-701	Deck Geometry
52)	124A-702	Frame Positions
53)	124-703	Baffle Modification
54)	124A-704	Bottom Paint
55)	LAR 65DS-2201	Monkey Heater Booster Pump Priming Deficiency
56)	LAR 65DS-2401	65DS Dive Step Weld Reinforcement
57)	LAR 65DS-2402	Drawing Index
58)	LAR 65DS-2403	Fendering Modification
59)	LAR 65DS-2405	Salt Water From Diver Prep Area Retention and Corrosion Prevention
60)	LAR 65DS-2406	Technical Specification Guidance
61)	BOATALT 65DS/1C	65DS (Marine Group) Generator Replacement
62)	511813	60&65 Foot Dive Support Boat (Marine Group) Generator Replacement – Electrical Mods Rev A
63)	511814	60&65 Foot Dive Support Boat (Marine Group) Generator Replacement – Structural Modifications

64)	511815	60&65 Foot Dive Support Boat (Marine Group) Generator Replacement -Piping Modification

3.0 **WORK REQUIREMENTS:**

3.1 **Docking and Undocking the Vessel:** Accomplish the following to safely dock and undock the vessel as follows:

3.1.1 Personnel and equipment: Furnish qualified and experienced personnel, facilities, and the necessary equipment to safely dock and undock the vessel, including:

3.1.1.1 A Dock Master currently qualified and certified by the Contractor and accepted by the Government Docking Observer (GDO)

3.1.1.2 Supporting employees to accomplish the docking and undocking evolutions;

3.1.1.3 Tugs, pilots, and divers required for the complete transfer, docking, and undocking of each vessel. At the docking conference, the GDO will review and approve the number and size of the tugs to be used.

3.1.2 Docking Procedure: Submit a docking procedure to the GDO 5 working days prior to dry docking, which shall include the following: (REQUIRED REPORT CDRL A028)

3.1.2.1 Operating practices;

3.1.2.2 Safety and security plans;

3.1.2.3 Special precautions or actions required by the characteristics of the dock, marine railway, or other docking methods;

3.1.2.4 Pumping/flooding schedule;

3.1.2.5 Specific list, trim and stability requirements.

ERRATA 2 3.1.3 Blocking Plan: Develop and submit to the GDO for review and approval a blocking plan to set and align the docking blocks in accordance with the requirements of drawing ~~200-997-001~~ 124A-305-02 for guidance.

3.1.3.1 Submit the docking plan in the form of a scaled drawing including: block size, block spacing, and location of vessel with respect to the blocks at

landing. Position blocking to ensure that equipment on the surface of or protruding from the hull will not be damaged.

3.1.3.2 Determine the docking clearances utilizing references for guidance and the minimum clearance between the side of the vessel (including fixed projections) and permanent dock structure (such as catwalks, crane rails, etc.). Minimum clearance shall be 12 inches for bringing the vessel into or out of dock and performing any work inside the dock. Ensure hull openings are not obstructed. Ensure a 40 inch minimum clearance between the keel and dock floor for vessels with more than 12 inches of dead rise and a 60 inch minimum clearance between the keel and dock floor for vessels with less than 12 inches of dead rise.

3.1.3.3 The blocking plan shall be accompanied by a written request for approval to the GDO a minimum of 5 working days prior to the scheduled docking date. The use of haul, fixed, or fitted blocks shall be clearly stated.

3.1.3.4 The use of universal docking blocks is prohibited.

3.1.3.5 Submit supporting data substantiating that:

3.1.3.5.1 The block loading pressures are limited to a maximum of 20 long tons per square foot;

3.1.3.5.2 The number, distance from centerline, and square footage of the side blocks per side is sufficient to resist overturning moments; and

3.1.3.5.3 At least 90 percent of blocks land on longitudinal strength members or main transverse bulkheads.

3.1.4 <u>Crib and Brace Blocking:</u> Ensure that crib and brace blocking are in accordance with the requirements noted below using the drawing applicable to the docking facility.

3.1.4.1 The aspect ratio for un-cribbed keel blocks shall not exceed 2.0 where the aspect ratio is defined as the height divided by the horizontal dimension for the longitudinal and transverse direction, each checked separately.

3.1.4.2 Side blocks with a longitudinal dimension less than 24 inches shall be longitudinally braced or cribbed when their height as measured from the base to the highest corner of the soft cap exceeds 3 times the longitudinal dimension.

3.1.4.3 Blocking shall be constructed of hardwood or composite hardwood/concrete and soft caps, with at least 2 inches of soft cap thickness. Blocking material construction requirements are as follows:

3.1.4.3.1 The term "hardwood", for the purposes of this contract, includes White Oak, California Laurel, Oregon Myrtle, Iron Wood, Blue Gum, American Rock Elm, or preserved Red Oak. The normal lifespan for hardwood blocking is approximately 10 years.

3.1.4.3.2 Woods acceptable for use as soft caps are Douglas Fir, Tamarack, Long Leaf Pine, or Hemlock.

3.1.4.3.3 Composite blocking showing evidence of spalling and cracks or chipped and damaged concrete is not acceptable.

3.1.4.4 Blocking showing evidence of excessive crushing, warping, cracking, checking, rotting, or damage from dogging, loss of contact at edges caused by cracking or unequal shrinkage or deterioration to an extent no longer being capable of supporting a prescribed load over full bearing areas is not acceptable and shall be replaced.

3.1.5 Setting and Alignment of Docking Blocks: Furnish, set, record, and align the blocks in accordance with the Government approved Contractor blocking plan and in accordance with the requirements of . Prepare dry dock for inspection at least 24 hours prior to the proposed docking. Notify and accomplish an inspection of the blocking with the GDO in a timeframe sufficient to make blocking changes. Submit documentation of the inspection showing blocking, sighting marks on dock coping relative to block locations, spacing, offsets, heights, and shaping to the GDO at least 4 hours prior to flooding the dry dock. Immediately prior to flooding the dry dock, perform a final inspection with the GDO to ensure that no loose trash, wood, equipment, and other extraneous matter could float up during flooding and interfere with/delay the docking operation.

3.1.6 Stability Calculations: Calculate stability, this shall include draft, list trim, strength, and stability calculations.

3.1.7 Docking Conference: Perform a docking conference attended by the GDO and COR, the Contractor's Dock Master, the pilot who will be present during the docking evolution, and required dive personnel within 4 working days prior to the scheduled docking of the vessel. The Dock Master shall discuss the time of

docking, tide situation, weather conditions, tug and pilot arrangements, line handling, electrical shore power, grounding, safety issues, safety concerns, other services and procedures.

3.1.8 Docking the Vessel: Dry dock the vessel without strain. Immediately after docking, electrically connect the vessel hull at the bow and stern of vessel for protection against lightening and other static charges in accordance with the requirements of NSTM Chapter 074 Volume One, and NSTM Chapter 997.

3.1.8.1 Notify the GDO a minimum of 3 workdays prior to actual docking, shifting, or undocking of vessel.

3.1.8.1.1 Contact the COR for current GDO contact information.

3.1.8.2 Dry dock facilities shall have an alternate / back up electrical power generating and distributing source to furnish all electrical requirements for docking and undocking of vessel, in the event of a loss of main power source.

3.1.9 Post Docking: Prepare and inspect vessel underwater hull surfaces as follows:

3.1.9.1 Immediately after docking, perform a visual inspection of the underwater portions of the vessel with the GDO for damage and deterioration. Inspect the fit on the blocks and furnish necessary shimming between the blocking and the hull to prevent hull movement and to ensure 100 percent block contact with the hull structure.

3.1.9.2 Within 8 hours of docking, wash the underwater hull and fittings with fresh water at a minimum of 3,000 PSIG nozzle pressure to remove dirt, slime, marine growth, fouling and other foreign substances.

3.1.9.3 Comply with federal, state, and local laws and ordinances for disposal of wash water and debris removed from underwater portions of the vessel.

3.1.10 Undocking the Vessel: After completion of work, undock the vessel at a time and date agreed upon by the GDO and the Contractor. Perform an undocking conference similar to the Docking Conference of 3.1.7 within 3 days of undocking. Immediately prior to flooding the dry dock, perform an inspection with the GDO to ensure that no loose trash, wood, equipment, and other

extraneous matter could float up during flooding and interfere with/delay the undocking operation.

3.1.10.1 Immediately after the hull penetrations are submerged and before the vessel lifts off the blocks-- stop flooding the dry dock. Accomplish a watertight integrity check of the hull with the COR. Continue flooding of the dock when directed by the GDO.

3.1.10.2 After the vessel has cleared the blocks, perform a visual inspection of the underwater hull surfaces to ensure that no soft caps are adhered to the hull surfaces. Perform a visual inspection of the docking blocks to account for all soft caps and to ensure that no blocks are adhered to the underwater hull structure of the vessel.

3.1.11 Government Docking Observer (GDO): The GDO is the Government official certified by the Government as qualified to execute the duties of a Docking Observer. The presence of the Docking Observer is for protecting the Navy's interests, not to give direction to the Contractor. However, the Docking Observer shall have the authority to stop the docking, undocking or launching evolution when the vessel safety or other Navy interests are jeopardized. This authority does not imply limitations on or responsibility for the actions of the Contractor's Dock Master.

3.1.12 Final Docking Report: Develop a final docking report (NAVSEA 9997/1 through 9997/5, as necessary) upon completion of undocking. Electronic versions of the final docking report, in portable document format (PDF) and MSWord format are available from the GDO upon request. (REQUIRED REPORT CDRL A029)

ERRATA 1 3.1.13 Shifting the Vessel: Relocate the vessel on the dry dock blocks to permit 100 percent preservation painting and weld repair of areas initially covered by the dry dock blocks. Minimum clearance shall be 12 inches for bringing the vessel into or out of dock and performing any work inside the dock. Relocation of the vessel shall occur after the proper cure time has elapsed after application of the final coat of hull preservation.

3.2 **Hull Repairs:** Accomplish Hull repairs as follows:

3.2.1 Identify Distinguishing Figures and Markings: Identify and record existing distinguishing underwater body, hull, and freeboard color schemes, markings, and figures in sketch form listing colors, locations, sizes, and

distinguishing marking(s), and figure(s) information, using drawings S2804-921819 Rev G, 124B-302 and 124B-303 for guidance.

3.2.2 Structural Survey: A person qualified as weld inspector per AWS QC1 shall accomplish a visual inspection consisting of, hull integrity, deck assessment, structural components to include keel, frames and bulkheads, seaworthiness, ABYC standards compliance and recommendations. (REQUIRED REPORT CDRL A030)

3.2.3 Zinc Anodes: Remove existing and install new zinc anodes and associated CRES 316 fasteners, using drawing 124A-305, and/or existing locations for guidance.

3.2.3.1 Install new hull zinc anodes quantity (12 EA) conforming to the requirements of Type ZHC-23 on the underwater hull, and body of the vessel.

3.2.3.2 Identify and record exact location of each zinc anode. (REQUIRED REPORT CDRL A031)

3.2.3.3 Accomplish an electrical resistance test for each new zinc anode. (REQUIRED REPORT CDRL A032)

3.2.3.4 Ensure that new zincs remain free of preservation coatings.

3.2.4 Rubber Fenders: Remove existing rubber fender materials and rubber fender fasteners from the vessel and sweep blast clean SSPC-SP-7 to remove sea growth, paint, and other contaminants from the fender surfaces, using drawing 124-514 for guidance.

3.2.4.1 Temporarily store the cleaned rubber fender materials in a secure location.

3.2.4.2 Install the cleaned rubber fender materials and new rubber fender fasteners CRES 316 to their original locations on the vessel after full cure time has elapsed after final application of the hull and freeboard surface preservation.

3.2.5 D-Fender Modification: Accomplish modification to the D-fender areas above the waterline in accordance with LAR 65DS2403.

3.2.5.1 Template exact sizes, locations, configurations and materials from existing vessel conditions.

3.2.5.2 Grind surfaces flush and smooth in way of removals.

3.2.5.3 Accomplish Visual inspection (VT) 100 percent of completed welds.

3.2.6 Hull Repair Insert: Accomplish repairs on the STBD side at frame 21, forward bow. Using figure 9-4 of T0300-AU-SPN-010, and using drawing 124A-402 for guidance.

3.2.6.1 Remove existing 12 inch x 24 inch doubler plate, and install new insert, and repair damaged frame located at frame 21 STBD side.

3.2.6.2. Material shall be 5086 H116 Aluminum.

3.2.6.2.1 Template exact sizes, locations, configurations and materials from existing vessel conditions.

3.2.6.2.2 Grind surfaces flush and smooth in way of removals.

3.2.6.2.3 Accomplish Visual inspection (VT) 100 percent of completed welds.

3.2.7 Hull Blasting and Preservation: Remove existing and install new coating systems to the underwater body, hull, and freeboard surfaces, including each appendage surface. Final top coat color configuration shall match the previously existing final color configuration using the information recorded in 3.2.1 for guidance. Use drawing 124A-704 for guidance.

3.2.7.1 Near white blast clean the entire underwater body, hull, and freeboard surfaces of the vessel from: the keel up to the upper edge of the main deck, including appendage surfaces of the vessel; and bow to stern. Accomplish the requirements of Surface Preparation Specification SSPC-SP-17 using Non-Ferrous blast medium for Aluminum. Achieve a profile in accordance with manufacturer's data sheet.

3.2.7.2 Power tool clean inaccessible areas where abrasive blasting equipment cannot reach. Accomplish the requirements of Surface Preparation Specification SSPC-SP-11 of Systems and Specifications, SSPC Painting Manual, Volume 2.

(V)(G) DRY FILM THICKNESS AC COATS
(V)(G) WET FILM THICKNESS AF COATS

3.2.7.3 Apply a 12-year service life, anticorrosive and antifouling coating system: in accordance with the requirements of MIL-PRF-24647, Type 1 class 2 grade B application 3; installed in accordance with the manufacturer's data sheet to the entire underwater body and hull, including appendages, from the keel up to the top of the boot-top.

3.2.7.3.1 All AC and AF coats in the product system shall be from the same manufacturer.

3.2.7.4 Apply a 12-year service life, polysiloxane type coating system to surfaces of the vessel from the top of the boot top up to the upper edge of the main deck, including appendage surfaces of the vessel; and bow to stern. Apply top coat in accordance with the requirements of MIL-PRF-24635 Type V or VI Grade B; installed in accordance with the manufacturer's data sheet to the entire freeboard surfaces, including surfaces of the vessel from: the top of the boot top up to the upper edge of the main deck, including appendage surfaces of the vessel; and bow to stern.

3.2.7.4.1 Apply coating to markings and distinguishing figures above and below the boot-top surfaces: in accordance with the requirements of MIL-PRF-24635 Type V or VI Grade B; in accordance with the manufacturer's product data sheets templating from existing as identified in 3.2.1 and using drawing S2804-921819 Rev G for guidance.

3.2.8 Hull and Freeboard Visual (VT) Inspection: Accomplish a visual inspection of the entire underwater body, hull, D-Fenders, freeboard surfaces, hull structural openings, and appendage surfaces, for structural defects that may be detrimental to the structural and watertight integrity of the vessel, after abrasive blasting and application of primer, using drawings 124A-402 and 124A-704 for guidance. (REQUIRED REPORT CDRL A033)

3.3 **Structural Repairs:** Accomplish Structural repairs as follows:

3.3.1 Vessel Push Knee Visual Inspection: Accomplish a visual inspection of the entire forward push bar, for structural defects that may be detrimental to the structural integrity of the vessel using drawing 124-409 as guidance. (REQUIRED REPORT CDRL A034)

3.3.1.1 Search for, mark, identify, and record defective (actual and suspect) areas showing signs of cracks, excessive pitting, corrosion, deterioration, damage, distortion, and unusual wear that may be detrimental to the structural and watertight integrity of the vessel.

3.3.2 Lower Push Knee Modification: Accomplish repairs to forward push bar assembly in accordance with drawing 124-409.

3.3.2.1 Remove quanity (30 LI) of the lower half of the push knee from the water line to 3 inches below (Push Frame Bottom Horizontal Channel) as identified in drawing 124-409.

3.3.2.2 Grind smooth weld repairs in way of repairs and modifications.

3.3.2.3 Install new CRES 316 hardware.

3.3.2.4 Accomplish Visual Inspection (VT) of 100 percent of completed welds.

3.3.2.5 Accomplish touch-up preservation for new and disturbed surfaces in accordance with the requirements of 1.16.7

3.3.3 Dive Step Weld Reinforcement: Accomplish repairs and modifications to aft swim platform; IAW LAR 65DS-2401, using drawing 124-412 for guidance.

3.3.3.1 Grind smooth weld repairs in way of repairs and modifications.

3.3.3.2 Accomplish Visual Inspection (VT) of 100 percent of completed welds.

3.3.3.3 Accomplish touch-up preservation for new and disturbed surfaces in accordance with the requirements of 1.16.7

3.3.4 Dressing/Shower Room Repair: Remove existing floor drain located between frames 13 and 14 in the dressing/shower room.

3.3.4.2 Remove a six-inch diameter access located around the center of the drain.

3.3.4.3 Accomplish a Visual Inspection around the associated areas. Verify that the corrosion has not spread to the hull, framing or piping beneath the floor.

3.3.4.4 Replace all components of the shower drain with CRES 316 material.

3.3.4.5 Gaskets shall be made of ethylene-propylene-diene rubber.

3.3.4.6 Install a replacement insert using a B2(S)V.1 joint design per section 9 of NAVSEA TECHPUB T0300-AU-SPN-010, and using drawing 124A-402 for guidance.

3.3.4.7 Grind surfaces flush and smooth in way of Modifications.

3.3.4.8 Accomplish the requirements of paragraph 1.16.7 for new and disturbed surfaces.

3.4 **Tanks/Voids:** Accomplish tank/void repairs as follows**:**

3.4.1 Open, Pump, Clean, Ventilate, and Gas Free Tanks/Voids: Open, pump, clean, ventilate, gas free, maintain dry, and maintain Safe for Workers, as applicable, each location listed in TABLE 2, using drawings 124A-504, 124A-503, and 124A-509 for guidance. It is anticipated that the vessel will be delivered to the Contractor with Fuel oil tanks at low suction. Meter, measure and record actual amounts of residual liquids (in gallons) and solids (in pounds) removed from the locations listed in TABLE 2. Remove an estimated cumulative total of 500 gallons of residual liquids and an estimated cumulative total of 2 pounds of solids from the locations listed in TABLE 2.

3.4.1.1 Off load and dispose 500 gallons of diesel fuel from all fuel oil tanks identified in TABLE 2. It is anticipated that an estimated 500 gallons of diesel fuel will be remaining at the time of the vessel's delivery to the Contractor.

3.4.1.1.1 Total quantities greater or less than the quantities listed in 3.4.1 through 3.4.1.1, when authorized by the Contracting Officer, may result in an equitable adjustment.

3.4.2 Tank Visual Inspection (VT): VT accomplish 100 percent of interior surfaces of each location listed in TABLE 2 for structural deformation, including each cleaned gasket mating surface and threaded surfaces, for deterioration, and/or defects in coatings, using drawings 124A-504, 124A-503, and 124A-509 for guidance. (REQUIRED REPORT CDRL A035)

3.4.2.1 Search for, mark, identify, and record defective (actual and suspect) areas showing signs of cracks, pitting, corrosion, deterioration, damage, distortion, and unusual wear including all sounding tubes, tank vents, overflows, piping, structural members, and manhole covers.

3.4.3 Identify Color Schemes and Markings: Identify and record existing color schemes, markings, and figures in sketch form listing colors, locations, sizes, distinguishing marking(s), and figure(s) information, using drawings

3.4.4 Preliminary Air Test: Accomplish a preliminary air test for each location listed in TABLE 2, at 2 pounds per square inch. Test pressure should remain stable and constant for a period of 10 minutes. Apply a soap solution to the opposite side of each tank/void structural boundary under test and inspect to determine leakage sites and as follows:

3.4.4.1 Install temporary expandable foreign material exclusion (FME) blanks and/or plugs, painted blaze orange, in each hull opening and each designed tank/void surface penetration(s) required to isolate each tank/void under test from adjacent tanks/voids. Record and identify the location of each FME blank and/or plug installed, including each corresponding and specific measurement(s), location(s), and/or area(s) in relationship to structural members or from suitable hull reference points. Remove each temporary FME blank and/or plug, record removal date, and restore each tank/void to its original configuration upon final completion of testing, blasting, and preservation operations. Acceptable leakage: None.

3.4.5 Clean, Flush, and Disinfection of Potable Water System: Accomplish a mechanical cleaning and chemical disinfection of the Potable Water Tank after all Potable Water system repairs are complete. Select and accomplish disinfect the water system per the recommendations of NAVMED P-5010-6, Section IV.

3.4.6 Visual Inspection: Accomplish a visual inspection of the potable water tank for cleanliness and completeness of work prior to disinfection and final close. Tank shall be clean and free of any industrial debris and foreign matter.

3.4.7 Install access: cover with new gasket conforming to MIL-PRF-1149, new nuts conforming to MIL-DLT-1222, Type 1,Grade 5, zinc coated, and new washers conforming to FF-W-92, Type A, Grade One, Class B.

3.4.7.1 Ensure that all faucets and other outlets are temporarily opened to ensure that the entire Potable Water system is filled with the disinfection solution during the disinfection process.

3.4.8 Certification of Potable Water Piping and Tanks: Accomplish analysis and provide certification documentation from a certified Washington Department of Ecology laboratory that the minimum free available chlorine (FAC), bacteriological levels, and the drinking water quality requirements of NAVMED P-5010-5, Change One have been achieved and that the water is safe for human consumption. (REQUIRED REPORT CDRL A036)

(V)(G) FINAL AIR TEST

3.4.9 Final Air Test: Accomplish a final air test for each location listed in TABLE 2, at 2 pounds per square inch. Test pressure should remain stable and constant for a period of 10 minutes. Allow pressure to stabilize for 15 minutes prior to conducting test. Apply a soap solution to the opposite side of the structural boundary under test and inspect for leakage. Allowable leakage: None. (REQUIRED REPORT CDRL A037)

3.4.10 Tank/Void Closeout Inspection: Schedule and accomplish a tank closeout inspection with the COR to inspect space dryness and cleanliness of each location listed in TABLE 2 prior to final close of each tank.

3.4.10.1 Notify the COR via email, 2 workdays prior to accomplishing the tank/void closeout inspection(s).

3.4.10.2 Tank Manhole Covers: Install manhole covers for each location listed in TABLE 2, installing new gaskets and fasteners.

3.4.10.3 Template exact sizes, locations and configuration from existing vessel conditions.

3.4.10.4 New fasteners shall conform to the requirements of MIL-STD-777.

3.4.10.5 Install anti-seize sealant compound conforming to the requirements of CID-A-A-59491 prior to installation of covers.

3.4.10.6 Gasket material shall conform to MIL-C-6183, Class 1, Rubber Cork Gasket, and new fasteners.

3.4.10.7 Accomplish touch up preservation for new and disturbed surfaces in accordance with 1.16.7

3.4.11 On-Load Fuel: Upon successful completion of tank closeout inspection for all fuel tanks identified in TABLE 2, on load new fuel quantity 824 gallons equally divided between Port and STBD fuel tanks using a 2 micron filter. Meter, measure, and record the actual amount of gallons of fuel on-loaded.

TABLE 2
Port Fuel Tank (515 GL Capacity)
Starboard Fuel Tank (515 GL Capacity)
Potable Water Tank (310 GL Capacity)
Grey Water Tank (420 GL Capacity)
Black Water Tank (110 GL Capacity)

3.5 **Main Deck Repairs:** Accomplish Main Deck repairs as follows:

3.5.1 Main Deck Non-skid Repair: Remove existing and install new preservation system: System top coat shall be in accordance with the requirements of MIL-PRF-24667 Type IV, Comp G; installed in accordance with the manufacturer's product data sheets. Final top coat color configuration shall match the previously existing final color configuration using the layout information recorded in 3.5.1.1. Use drawings 124B-302 for guidance.

3.5.1.1 Identify, measure, and record layout of the existing Main Deck non-skid areas including locations and topcoat colors of: existing deck borders; distinguishing figures; lifting pad-eye deck fittings; bitts; cleats; chocks; line handling areas; and raised lettering; in sketch form.

(V)(G) SURFACE PROFILE

3.5.1.2 Near-white blast clean the entire Main Deck from Port to Starboard and from forward to aft, including exterior side of each void access cover, and up 6 inches on vertical surfaces. Accomplish the requirements of Surface Preparation Specification SSPC-SP-17 using Non-Ferrous blast medium for Aluminum. Achieve a profile in accordance with manufacturer's data sheet.

3.5.1.2.1 Power tool clean inaccessible areas where abrasive blasting equipment cannot reach. Accomplish the requirements of Surface Preparation Specification SSPC-SP-17 using Non-Ferrous blast medium for Aluminum. Achieve a profile in accordance with manufacturer's data sheet.

(V)(G) PRIMER DRY FILM THICKNESS

3.5.1.3 Apply the primer and non-skid forward and aft and from side to side with the non-skid peaks and valleys coarsely and reasonably uniform, in the same direction, reasonably uniform in color, presenting a roughly uniform course appearance over the entire surface receiving non-skid, and using the layout information recorded in 3.5.1.1 for guidance.

3.5.1.3.1 Cross-roll each welded seam running parallel to the direction of peaks and valleys. Cross-rolling shall extend approximately 3 to 6 inches on either side of each weld seam.

3.5.1.4 Apply a polysiloxane MIL-PRF-24635 Type V or VI Grade B topcoat to prepared surfaces not receiving non-skid and up 18 inches on vertical surfaces, in accordance with the manufacturer's product data sheets using the layout information recorded in 3.5.1.1 for guidance.

3.5.1.5 Final topcoat color for all hatches; fittings; foundation surfaces; vertical surfaces; mooring; chock; cleat; line handling deck fittings; handrail surfaces above the intersection of deck surfaces; and flush mounted deck sockets shall match the previously existing final color configuration using the report of 3.5.1.1 for guidance.

3.5.2 <u>Crane and Control Cabinet Foundation Preservation:</u> Accomplish a visual inspection of Crane and Control Cabinet Foundations on the Main Deck after blasting, using drawings 124B-302-01, 124B-511 and Marine Knuckle Boom Manual for guidance. (REQUIRED REPORT CDRL A038)

3.5.2.1 Search for, mark, identify, and record defective (actual and suspect) areas showing signs of cracks, thinning, excessive/severe pitting, corrosion, deterioration, damage, distortion, and unusual wear.

3.5.2.2 Identify, measure, and record layout of the existing crane and cabinet and foundations preservation area including locations and topcoat colors of: existing borders; distinguishing figures; and raised lettering; in sketch form.

3.5.2.3 Remove existing and install new coating system to the Crane Boom, Control Cabinet and the foundation surfaces. Final top coat color configuration shall match the previously existing final color configuration. Use drawings 124B-302-01 and 124B-511 for guidance.

3.5.2.3.1 Near white blast clean the exterior foundations and appendage surfaces of the crane and cabinet, including appendage surfaces. Accomplish the requirements of Surface Preparation Specification SSPC-SP-10 for ferrous and SSPC-SP-17 for non ferrous Systems and Specifications, SSPC Painting Manual, Volume 2. Achieve a profile in accordance with manufacturer's data sheets.

3.5.2.4 Power tool clean inaccessible areas where abrasive blasting equipment cannot reach. Accomplish the requirements of Surface Preparation Specification SSPC-SP-11 of Systems and Specifications, SSPC Painting Manual, Volume 2. Achieve a profile in accordance with manufacturer's data sheets.

3.5.2.5 Apply a 12-year service life, polysiloxane coating system to surfaces of the crane and cabinet foundations, including appendage surfaces. Apply top coat in accordance with the requirements of MIL-PRF-24635 Type V or VI Grade B; installed in accordance with the manufacturer's product data sheets.

3.5.2.6 Remove all decals and placards prior to blasting and replace with new after preservation coating has fully cured. Using paragraph 3.5.2.2 for guidance.

3.5.3 <u>Main Deck Stanchion Replacement:</u> Remove existing Aft STBD deck stanchion at frame one and fabricate new stanchion quantity (One EA) using drawings 124B-302 and 124A-416-2 for guidance.

3.5.3.1 Template exact sizes, locations, and configurations from existing vessel conditions.

3.5.3.2 Grind smooth weld repairs in way of repairs and modifications.

3.5.4 Watertight Hatch Repairs: Accomplish repairs to each watertight hatch listed in TABLE 3 using drawing 124B-302-1 for guidance.

3.5.4.1 Solvent clean accomplish SSPC-SP-1 clean 100 percent of each hatch and scuttle component; chase, tap, and clean exposed threaded areas.

3.5.4.2 Repair each gasket-sealing surface by removing high spots, burrs, abrasions, and foreign matter by hand tools. Ensure no excessive material is removed causing loss of critical size or alignment.

3.5.4.3 Remove existing and install new rubber gaskets conforming to MIL SPEC ZZ-R-765 Rubber Silicone. Gasket ends shall be cut square in lieu of mitered.

3.5.4.3.1 Ensure that each new gasket is free from preservation coatings.

3.5.4.4 Accomplish a chalk test. Chalk imprint shall be centered within the center 1/3 of each gasket with 100 percent contact.

3.5.4.5 Lubricate and adjust each dogging mechanism for proper closure operation. Lubricate 100 percent of each threaded surface with a commercial type, marine grade anti-seize compound.

3.5.4.6 Accomplish an operational test for free and unobstructed movement of each hatch, scuttle and associated components. Allowable binding: None.

TABLE 3

Location	**Distance off Centerline**	**Frame**	**Nomenclature**
FWD Access Hatch	Starboard	19	FREEMAN 15 x 23 in Flush mount
Lazarette Main Deck	Starboard	1	FREEMAN 15 x 23 in Flush mount

Engine Room	Starboard	3	FREEMAN 15 x 23 in Flush mount

(I)(G) "WATER HOSE TEST"

3.5.5 Water Hose Test: Accomplish a water hose test of each hatch to verify watertight integrity of the new gaskets of 3.5.4.

3.5.5.1 Use a one and one-half inch hose with a minimum nozzle diameter of one-half inch. Pressure at the nozzle must be 50 to 55 PSIG at a maximum distance of 10 feet from the surface being tested.

3.5.5.2 The stream of water must be directed against the structure in a manner most likely to disclose leaks. The opposite side of the structure must be inspected to detect and locate leaks. The Stream of water must be directed against the structure in a manner most likely to disclose leaks. The opposite side of the structure must be inspected to detect and locate leaks. Allowable leakage: None. (REQUIRED REPORT CDRL A039)

3.6 **Superstructure:** Accomplish repairs to the Superstructure as follows:

3.6.1 Main Cabin STBD Deck Repair/Modification: Accomplish Visual Inspection of the deck, and false bulkheads, after the vidmar cabinets, benches, table, deck covering, trim and false bulkhead have been removed; IAW LAR 65DS-2405 and using drawings 124A-402-06, 124A-403-6, and 124B-406-07 as guidance. (REQUIRED REPORT CDRL A040)

3.6.1.1 Search for, mark, identify, and record defective (actual and suspect) areas showing signs of cracks, thinning, excessive/severe pitting, corrosion, deterioration, damage, distortion, and unusual wear.

3.6.1.2 Fabricate cofferdam in accordance with the requirements of LAR 65DS-2405.

3.6.1.2.1 All new material will be ¼ inch 5086 H116 aluminum plate.

3.6.1.3 Reinstall vidmar cabinet on top of the new cofferdam, that was removed on step 3.6.1 and after completion of preservation and repairs. Install a

clear grain fir wooden backsplash one inch wide by 3 inches tall on the starboard edge of the countertop. Apply a bead of caulking between the countertop and backsplah to prevent water intrusion.

3.6.1.3.1 Reinstall the existing insulation material that was removed in step 3.6.1

3.6.1.4 Template exact sizes, locations, material and configurations from existing vessel conditions.

3.6.1.4.1 Install new hardware, material shall be CRES 316.

3.6.1.5 Preservation under the vidmar cabinets will be as follow:

3.6.1.5.1 Identify, measure, and record layout of the existing deck preservation areas including locations and topcoat colors of: existing borders; distinguishing figures; fittings; railings; coamings; appendages; and raised lettering; in sketch form. (REQUIRED REPORT CDRL A041)

3.6.1.5 Accomplish the requirements of Surface Preparation Specification SSPC-SP-17 using Non-Ferrous blast medium for Aluminum. Achieve a profile in accordance with manufacturer's data sheet.

3.6.1.6 Remove existing and install new soft patch in the main cabin aft. Using drawing 124B-302 for guidance.

3.6.1.6.1 Remove existing and install new lifting pad eyes, associated hardware, and once the existing deck covering material has been removed. Using drawing 124B-302 for guidance.

3.6.2 <u>Reseat the Pilot House and Main Cabin Windows:</u> Remove existing and reseat pilot house windows quantity (18 EA), and window heaters quantity (5 EA); IAW NSTM Chapter 600 VOL 3, and using drawing 124A-304, 124A-404, and 124A-406 as guidance.

3.6.2.1 Remove windows, prepare window seating surfaces in accordance with caulking manufacturer's recommendation and as follows:

3.6.2.1.1 Search for, mark, identify, and record defective (actual and suspect) areas showing signs of cracks, thinning, excessive/severe pitting, corrosion, deterioration, damage, distortion, and unusual wear.

3.6.2.1.2 Template exact sizes, locations, material and configurations from existing vessel conditions.

3.6.2.2 Install new windows in locations of removal of paragraph 3.6.2.1

3.6.2.3 Install window heaters in coxswain flat and conduct operational test; match existing material and install new panel quantity (One EA) 4 inch x 32 inch above window located centerline in coxswain flat.

3.6.2.4 Test installed windows per the watertight requirements of NSTM Chapter 600 VOL 3. (REQUIRED REPORT CDRL A042)

3.6.3 Soft Patch Gasket Replacement: Remove existing and install new gasket quantity one (EA) 58.375 inch x 66.375 inch soft patch located between frame 9 and 11 on the roof of the main cabin. Using drawing 124A-404 as guidance.

3.6.3.1 Template exact sizes, locations, material and configurations from existing vessel conditions

3.6.3.2 Test the soft patch per the watertight requirements of NSTM Chapter 600 VOL 1.

3.6.4 Visual Inspection of the Deck and False Bulkheads: Accomplish Visual Inspections of areas in TABLE 4 and provide inspection report to COR. Using drawing 124B-511 as guidance. (REQUIRED REPORT CDRL A043)

3.6.4.1 Search for, mark, identify, and record defective (actual and suspect) areas showing signs of cracks, thinning, excessive/severe pitting, corrosion, deterioration, damage, distortion, and unusual wear.

TABLE 4			
Dive Equipment Room	Dresssing/ Shower Room	Head	Galley

3.6.5 Repair Deck and False Bulkheads: Remove and replace false bulkhead panels quantity (2 EA) making up the aft transverse bulkhead of the head at frame 14 on the starboard side located on main deck.

3.6.5.1 Remove existing and install new panels quantity (6 EA) making up the aft and inboard bulkheads between the shower room and the diver prep room. To include the longitudinal panels from frame 13 to 14 and the transverse panels at frame 13 on the port side. Using drawing 124B-511 as guidance.

3.6.5.2 New panels shall be 5086 aluminum matching existing thickness. All rivets and fasteners shall be new CRES 316.

3.7 **Main Propulsion Repairs:**

3.7.1 Waterborne Shaft Position: Disconnect and remove the coupling bolts and brake drum from the propulsion shaft to the reduction gear coupling. Identify match-mark, retain, protect, and store fasteners and miscellaneous components during disassembly and removal for reuse during reassembly and installation. Ensure coupling bolts, flanges, and miscellaneous components are match marked for installation in the same location from which they were removed. Measure and record sizes and clearances between the reduction gear and the propulsion shaft at the shaft coupling while the vessel is waterborne. Take four face and four periphery readings at 90 degree intervals from each other, rotate reduction gear coupling half 180 degrees and take four face and four periphery readings 90 degree intervals. Retain the record for later comparison with the installed measurements.

3.7.2 Shaft Removals: Disconnect and remove the shaft assembly, including propeller, shaft coupling half and stern tube bearing, using drawings 124B-501, 124-502 and technical manuals for guidance.

3.7.3 Inspections for Wear and Defects: Accomplish an inspection of the propulsion equipment disconnected and removed in 3.7.2 for wear and defects. (REQUIRED REPORT CDRL A044)

3.7.3.1 Clean exposed parts free of foreign materials (e.g. corrosion, dirt, preservation) leaving no residue or injurious effects. Accomplish an inspection of the disassembled equipment and exposed wearing and journal surfaces for wear and defects.

3.7.3.2 Steady Bearing Foundation and Surrounding Structure: Accomplish a visual inspection of the Steady Bearing foundation. Search for, mark, and identify areas (actual and suspect) of weld fractures, cracks, structural erosion, and corrosion. Accomplish a visual inspection of the horizontal surface areas surrounding the foundation. Develop one legible drawing of the inspected area identifying the locations and measurements taken and their relative relationship to the foundation or other structural landmarks. (REQUIRED REPORT CDRL A045)

3.7.3.3 Shaft Cutlass Bearing: Remove existing and install new non-metalic cutlass bearings quantity (4 EA). Using drawing 124B-501 as guidance.

3.7.3.3.1 Coat the stern cutlass bearings with IAW manufactures recommendation prior to installation of shaft.

3.7.3.4 Propulsion Shaft: Set the shaft on centers and check for true using dial indicators on each machined surface, in three different locations. Measure and record dial indication readings. Perform optical alignment of the shaft, tube to align running gear and engines. Using drawings 124B-501, and S9243-AW-TRS-011 for guidance. (REQUIRED REPORT CDRL A046)

3.7.4 Shaft Assembly Repairs: Accomplish propulsion shaft assembly repairs as follows:

3.7.4.1 Clean, polish and inspect the shaft using S9086-HM-STM-010/CH 243 and ABYC P-6 for guidance. Develop one legible copy of a sketch, as an attachment to the Docking Report listing the results of the following:

3.7.4.1.1 Accomplish a visual inspection of shaft surfaces. Balance propeller and shaft, Search for, mark, identify, and record defects and damage found using the requirements of paragraph 5-3.2.2 of S9245-AR-TSM-010, and ABYC P-6 for guidance. (REQUIRED REPORT CDRL A047)

3.7.4.2 Apply propspeed or product equal in performance characteristics to propellers quantity (2 EA); to the entire exterior surface area of the propeller using the manufactures product data sheet.

3.7.5 Shaft Assembly: Assemble and install the propulsion equipment removed in 3.7.2 installing new packing, seals, and lubricants; using drawing 124B-501 and ABYC P-6 as guidance.

3.7.5.1 Install existing stuffing box, new gasket, and packing material concentric to the propulsion shaft. Measure and record the alignment readings.

3.7.5.2 Install propeller with new replacement parts, to include quantity (2 EA) fastner secured with cotter pins.

3.7.7 Install New Engine Mounts: Remove existing and install new quantity (8 EA) engine mounts using ABYC P-4, and drawing 124A-512 as guidance.

3.7.7.1 Stringers shall be 1/8 inches or greater. The gap between the rubber top of the snubber and the bottom of the mount houses shall be 1/8 inches or greater.

3.7.7.2 Torque the nut above the engine/gear box to 134 FT-lbs, the locking nut shall be torqued to 210 ft-lbs.

3.7.6 System Operational Test: Accomplish, by assisting vessel crew, an operational test of the main propulsion system during dock and sea trials.

3.7.8 Replace Valves: Remove existing and install new quantity (7 EA) item numbers 2, 3, 4, 5 attached to the thru hull fittings. Using drawing 124A-504 as guidance.

3.7.8.1 Testing shall be accomplished using ABYC H-27 per section 27.20.

3.8 **Steering Systems**: Accomplish Steering System repairs as follows:

3.8.1 Rudder Angle Indication: Prior to disassembly, record the rudder angle indication at helm and the actual angle position of rudder in relationship to centerline of vessel. Operate, time, and record rudder movement: from center (zero degrees) to hard port; return to (zero degrees) center; center to hard starboard; and return to (zero degrees) center. Record rudder angle indication at the helm (in degrees) and the rudder travel time to each position.

3.8.2 Steering Removals: Disconnect and remove the Port and STBD rudder assembly, including hydraulic rams and linkage, using drawing 124B-506 for guidance.

3.8.3 Inspection for Wear and Defects: Accomplish an inspection of the steering system equipment disconnected and removed in 3.8.2 for wear and defects using drawing 124B-506 for guidance.

3.8.3.1 Clean exposed parts free of foreign materials. Accomplish an inspection of the disassembled equipment and exposed wearing and journal surfaces for wear and defects.

3.8.4 Steering Repair: Remove existing and install new Port and STBD upper and lower bearings. Using drawing 124B-506 for guidance. Template exact sizes, locations and configuration from existing vessel conditions.

3.8.5 Replace Steering Hoses: Remove existing and install new 5/8 inch hose quantity (4 EA) in aft lazzarette, 5/8 inch hose quantity (2 EA), and 3/8 inch hose quantity (One EA) helm steering hoses.

TABLE 5
Aft Lazarette
5/8” Hose assembly Quantity 4 (EA)
Helm
5/8” Hose assembly Quantity 2 (EA)
3/8” Hose assembly Quantity 1 (EA)

3.8.5.1 Steering hoses and assemblies shall meet the requirements of SAE J1527. Hose fittings shall meet the requirements of SAE J516.

3.8.5.2 Accomplish a pressure test to 1000 PSI IAW manufactures recommendations.

3.8.6 Re-Assembly/Installation: Reassemble and install the steering equipment removed in 3.8.2. Installation shall be accomplished in accordance with ABYC P-21.

3.8.7 Installed Proof Test: Accomplish testing in accordance with the requirements of 21.10.2 of ABYC P-21

3.8.8 Rudder Swing Test: Accomplish, by assisting vessel crew, an operational test of the steering system re-installed in paragraph 3.8.6 prior to undocking.

3.8.8.1 Operate, time, and record rudder movement: from center (zero degrees) to hard port; return to (zero degrees) center; center to hard starboard; and return to (zero degrees) center. Record rudder angle indication at the helm (in degrees) and the rudder travel time to each position. Compare test results with results recorded in 3.8.1 Allowable difference: plus 2 seconds or minus 3 seconds and zero degrees change from the readings of 3.8.8.

3.9 **Machinery Systems:**

3.9.1 HVAC System Component Repair/Inspection: Accomplish repairs on HVAC units quantity (4 EA) to include Galley Radiator Crusair Self Contained Unit, Coxswain Flat unit, Aft Starboard Fan and Aft Port Condenser using drawings 124A-504, and 124A-522 as guidance. Template exact sizes, locations and configuration from existing vessel conditions. Reinstallation shall meet the requirements of ABYC A-6.

3.9.1.1 HVAC Inspection for Wear and Defects: Accomplish inspection, search for, mark, identify, and record defective (actual and suspect) areas showing signs of cracks, excessive pitting, corrosion, deterioration, damage, distortion, and unusual wear that may be detrimental to the structural and watertight integrity of the unit. (REQUIRED REPORT CDRL A048)

3.9.1.2 Galley Radiator unit: Remove existing and install new galley radiator Crusair Self Contained Unit quantity (One EA) (shown as item 2 on 124A-522).

3.9.1.3 Coxswain Flat Unit: Remove existing and install new return and supply hoses quantity (8 EA) connecting each of the 4 HVAC units to the isolation valve (shown as item 2 on 124A-504) with new equal in performance characteristics to MPI series J1942 hose.

3.9.1.4 Aft Starboard Fan Unit: Remove existing and install new quantity (One EA) blower fan equal in performance characteristics and dimensions to existing.

3.9.1.5 Main Deck Aft Port Condenser: Accomplish inspection of the external condenser.

3.9.1.6 HVAC Unit Operational Test: An operational test to verify heating and cooling function shall be accomplished on all 4 units, in accordance with operational manual.

3.9.2 Flexible Hose Repair: Remove existing and install new flexible hoses using SAE J1942 hose. Replace return and supply hoses quantity (8 EA) connecting each of the 4 HVAC units to the isolation valve (shown as item 2 on 124A-504) and condensation drain hoses quantity (4 EA). Template exact sizes, locations and configuration from existing vessel conditions.

3.9.2.1 All condensate drain hoses shall be non-PVC, reinforced nylon tubing.

3.9.3 Replace Hydraulic Hoses: Remove existing and install new hydraulic hose assemblies for the HPU, crane, and steering systems. Certification shall be documented on metal tags attached to each hose. Using drawing 31743-17500, and TABLE 6 as guidance.

3.9.3.1 Hoses for HPU/Crane System with pressure tested SAE-100R16 hoses. Pressure tested and certified to 5000 PSI. Provide a copy of the test certification. (REQUIRED REPORT CDRL A049)

3.9.3.2 Remove existing and install new hose fittings, including elbows and tees with new CRES 316. Template exact sizes, locations and configuration from existing vessel conditions.

TABLE 6
Aft Deck (Located between the pedestal and the crane)
1” Hose assembly Quantity One (EA)
¾” Hose assembly Quantity One (EA)
½” Hose assembly Quantity 11 (EA)
3/8” Hose assembly Quantity One (EA)
5/16” Hose assembly Quantity 3 (EA)
¼” Hose assembly Quantity One (EA)
HPU
1-1/2” Hose assembly Quantity One (EA)
1” Hose assembly Quantity 3 (EA)
¾” Hose assembly Quantity 5 (EA)
½” Hose assembly Quantity 4 (EA)
3/8” Hose assembly Quantity One (EA)
¼” Hose assembly Quantity One (EA)
Engine Room
1” Hose assembly Quantity 2 (EA)
Main Cabin (Located below the diver observation station)
3/4” 4 (EA) Hose assembly.
Aft Lazarette
¾” Hose assembly Quantity 2 (EA)

3.9.4 Replace Flexible Fuel Hoses: Remove existing and install new supply and return fuel lines quantity (10 EA) with hoses equal in performance and characteristics to J1942 hose, using drawing 124-502 for guidance. Install new hoses per ABYC H33.

3.9.4.1 New hose fittings shall be in compliance with SAE J-1475.

3.9.4.2 Template exact sizes, locations and configuration from existing vessel conditions.

3.10 **Electrical Systems:** Accomplish electrical system and assembly repairs as follows:

3.10.1 Generator Install: Remove existing and install new Generator quantity (2 EA) in accordance with BOATALT 65DS/1C Using drawings 5113813A, 5113814 and, 5113815 as guidance.

3.11 **Piping Repairs:** Accomplish Piping System and assembly repairs as follows:

3.11.1 Remote Fuel Shut off Switches: Remove existing and install new remote fuel shut off switch for fuel tank quantity (2 EA) IAW LAR 60DS-2101, and using drawing 124A-502 for guidance.

3.11.1.1 Install new piping using drawing 124A-502 for guidance.

3.11.1.2 Test system for tightness with system fluid. Allowable leakage: None.

3.11.1.3 Test system remote shut off switch for operation in on and off positions.

3.11.1.4 Template exact sizes, locations, material and configurations from existing vessel conditions.

3.11.2 Monkey Heater Modifications: Accomplish repairs on the Monkey Heater components. Accomplish repairs in accordance using LAR 65DS-2201.

3.11.2.1 Remove existing and install new main deck penetration on the Monkey Heater raw water supply line.

3.11.2.2 Test system for tightness with system fluid. Allowable leakage: None. (REQUIRED REPORT CDRL A050)

3.11.3 Fire Suppression System Repairs: Accomplish repairs using drawing 124A-521 as guidance.

3.11.3.1 Identify, measure, and record layout of the existing Fire Suppresion System including locations in sketch form.

3.11.3.2 Remove existing piping assembly in the Lazzarette Frames 0-2; disconnect piping at the bulkhead fitting (5086) frame 2, to the Fire Suppression tank and flex hoses.

3.11.3.3 Replace piping fittings with Viega progress CRES 304 white dot FKM fittings or equal in performance characteristics.

3.11.3.4 Install new quantity (2 EA) braces for piping support. Template from existing braces. Brace is located in the overhead tank at (frame 0), Location of second brace is on the aft bulkhead just above the flex hose fittings.

3.11.3.5 Accomplish shop hydrostatic testing of flexible hose assembly using clean fresh water as test medium. Per S6430-AE-TED-010 test shall be accomplished at two times the nominal operating pressure not to exceed five minutes. Allowable leakage: None (REQUIRED REPORT CDRL A051)

3.11.3.6 Install piping assemblies and flex hoses removed in 3.11.3.2 to original locations as identified in 3.11.3.1.

3.11.3.7 Accomplish mechanical joint tightness test of piping following the completion of repairs. Test shall be accomplished at nominal operating pressure for 15 minutes. Allowable leakage: None (REQUIRED REPORT CDRL A052)

3.11.4 Certification of Fire Suppression System : Certify Fire Suppression System quantity (One EA), located in the Lazzarette Room Frames 0-2 using drawings 124A-521 for guidance.

3.11.4.1 Provide the services of an OEM Certified on-site Technical Representative(s) in accordance with paragraph 1.26 to inspect and certify the Fire Suppression System components identified in TABLE 7 to include weight test of all cylinders. (REQUIRED REPORT CDRL A053)

TABLE 7
Flex Hoses (One EA)
Pull Stations (One EA)
Control Relays (4 EA)
Horn/Strobe (2 EA)
Ansul Fire System (One EA)
Annunicator LCD-80 (One EA)

3.12 **Weight Handling Systems:** Not used.

3.13 **Dock and Sea Trials**:

3.13.1 Operational Responsibility: Ship's Force shall operate all equipment to ensure that the vessel is ready for sea trials. Equipment repaired or modified during this availability shall be operated in accordance with applicable technical manuals or instructions.

3.13.2 Sea Trial Baseline Testing: Prior to docking the vessel sea trials shall be conducted in local waters, during normal working hours, on a weekday. Trials shall not exceed 4 hours. Ship's Force shall pilot the vessel and operate all equipment. The Contractor shall provide a minimum of one Contractor representative authorized to acknowledge and record sea trial discrepancies, one machinist, and one pipefitter to participate in the sea trials.

3.13.2.1 Identify and record the following main propulsion and steering system: leaks, vibrations, unusual noise, chatterring, missing and loose fasteners, missing and damaged components, damaged wiring, guage operation, excessive movement, component and linkage binding.

3.13.3 Dock Trial: Accomplish a dock trial a minimum of One work day prior to final sea trials. Dock trial shall be scheduled for a 2-hour duration. The Contractor shall ensure that temporary service and vessel securing lines are prepared to support the dock trial. Dock trials shall be conducted during normal working hours, on a weekday.

3.13.4 Final Sea Trial: Sea trials shall be conducted in local waters, during normal working hours, on a weekday. Trials shall not exceed 4 hours. Ship's Force shall pilot the vessel and operate all equipment. The Contractor shall provide a minimum of one Contractor representative authorized to acknowledge

and direct corrections of sea trial discrepancies, one machinist, and one pipefitter to participate in the sea trials.

3.13.5 Post Sea Trial: Correct Contractor responsible deficiencies and prove proper operation to the Ship's Force and COR prior to delivery of the vessel.

4.0 **GOVERNMENT FURNISHED MATERIAL (GFM):**

	QTY	UI	NAME OF PART/ DESCRIPTION	PIECE No.	REF. No.	NATIONAL STOCK No.	PARA No.
4.1	One	EA	65 FT Dive Boat 65DS1101	N/A	N/A	$2,000,000.00	N/A
4.2	One	EA	40EKOZD Marine Genset, 40 kw, 480VAC Delta, 3 Phase, 60 HZ.	1	5113813A	$62,000.00	

5.0 **DATA SUBMISSION:** The below listed reports are to be submitted to the COR.

DATA SUBMISSION LIST			
CA = Contract Award, DD = Drydocking, PCD – Project Completion Date, PM – Production Meeting, PSD = Production State Date			
CDRL No.	Paragraph No.	REPORT TYPE	Date Required
A001	1.5.1	Production Performance Schedule	Initial, PSD (- 5) Days; Weekly, PM (- 24) Hours
A002	1.5.2	List of all Subcontractors and extent of work being performed	Inspection +2 Days
A003	1.5.3	List of Manufacture's Technical Representatives	Inspection +2 Days
A004	1.5.4	Welder Qualification List	Inspection +2 Days
A005	1.5.5	Manufacturer's Product Data Sheet	Contract Award + 5 Days
A006	1.5.6	Safety Data Sheets for Materials Use	Contract Award + 5 Days
A007	1.5.7	Contractor Key Personnel, Position, and Contact Information	Inspection +2 Days
A008	1.5.8	Contractor's Inspection and Quality Control System	Inspection +2 Days
A009	1.5.9	Contractor's Environmental Protection and Hazardous Waste Management Plan	Inspection +2 Days
A010	1.5.10	Federal, State and Local Environmental Notifications and permits	Inspection +2 Days

DATA SUBMISSION LIST			
CA = Contract Award, DD = Drydocking, PCD – Project Completion Date, PM – Production Meeting, PSD = Production State Date			
CDRL No.	Paragraph No.	REPORT TYPE	Date Required
A011	1.11	Contractor CFR Form	Initial, PSD (- 5) Days; Supporting Each Report, Inspection, Test
A012	1.13.2	Injuries to Contractor and Subcontractor Employees	Investigation Complete +24 Hrs
A013	1.14.6.9	PCP Plan with WPS for each weld design	Inspection +2 Days
A014	1.16.1	Preservation OQE, Appendices One Thru 8	SSPC SP1 + 1 Day; Surface Profiles + 1 Day; Surface Conductivity + 1 Day; Top Coat Cure + 1 Day
A015	1.16.2.1	Calibrated Electronic Data Logger record and maintain environmental conditions OQE	Inspection +2 Days
A016	1.16.5.1	Establish an FME log	Inspection +2 Days
A017	1.16.5.2	Removal log of the FME	Inspection +2 Days
A018	1.17	Hazardous Waste Manifests and Waste Disposal Records	PCD + 30 Days
A019	1.18.2	Report of CFM that is 100% required to	Inspection +2 Days
A020	1.19	Weight Control Program	Inspection +2 Days
A021	1.21	Original Equipment Manufacturer's information	Inspection +2 Days
A022	1.22.1	NFPA Marine Chemist and Competent Person List	PSD + 8 Days; Revisions + 2 Days
A023	1.22.2	Marine Chemist Gas Free Certificate	Inspection +2 Days
A024	1.23.1	Test and Inspection Plan, Inspection and Quality Control System	Weekly, PM (- 24) Hours; Final +24 Hrs after All Testing Complete
A025	1.25.1	Hull Distinguishing Figures and Markings Report	Inspection +2 Days
A026	1.27	FWD Push Bar VT Inspection Report	Inspection +2 Days
A027	1.27.2.5.4	Aft Swim Step VT Inspection Report	Inspection +2 Days
A028	3.1.2	Main Deck Distinguishing Figures and Markings Report	Inspection +2 Days
A029	3.1.12	Main Deck VT Inspection Report	Inspection +2 Days

DATA SUBMISSION LIST			
CA = Contract Award, DD = Drydocking, PCD – Project Completion Date, PM – Production Meeting, PSD = Production State Date			
CDRL No.	Paragraph No.	REPORT TYPE	Date Required
A030	3.2.2	Structural Survey	Inspection +2 Days
A031	3.2.3.2	Zinc Locations Report	Inspection +2 Days
A032	3.2.3.3	Zinc Resistance Test Report	Test +2 Days
A033	3.2.8	Hull VT Inspection Report	Inspection +2 Days
A034	3.3.1	Vessel Push Knee Inspection	Inspection +2 Days
A035	3.4.2	VT Tank Report	Inspection +2 Days
A036	3.4.8	Certification of Potable Water Piping and Tanks	Inspection +2 Days
A037	3.4.9	Final Air Test	Test +2 Days
A038	3.5.2	Crane and Control Cabinet VT	Inspection +2 Days
A039	3.5.5.2	Water Hose Test	Test +2 Days
A040	3.6.1	Deck and False Bulkheads VT	Inspection +2 Days
A041	3.6.1.5	Deck and False Bulkheads Layout	Inspection +2 Days
A042	3.6.2.4	Window Test	Test +2 Days
A043	3.6.4	Deck and False Bulkheads VT	Inspection +2 Days
A044	3.7.3	Inspection for Wear and Defects	Inspection +2 Days
A045	3.7.3.2	Steady Bearing Foundation Inpsection	Inspection +2 Days
A046	3.7.3.4	Propulsion Shaft	Inspection +2 Days
A047	3.7.4.1.1	VT Shaft Surfaces	Inspection +2 Days
A048	3.9.1.1	HVAC Inspection for Wear and Defects	Inspection +2 Days
A049	3.9.3.1	Hose Pressure Test	Test +2 Days
A050	3.11.2.2	System Tightness Test	Test +2 Days
A051	3.11.3.5	Hydrostatic Test Report	Test +2 Days
A052	3.11.3.7	Mechanical Joint Tightness Test	Test +2 Days
A053	3.11.4.1	OEM Certification	Inspection +2 Days