

Request for Information

Revised February 2024



State of Alaska
Department of Fish and Game
Division of Administrative Services

Date Issued: 8/7/2026

FY27 RV MEDEIA SHIPYARD SERVICES

Introduction:

The Department of Fish and Game, Procurement Office, is seeking information from qualified contractors to help establish a budget range for the upcoming FY27 RV Medeia shipyard services invitation to bid (ITB) the Department plans to advertise this fiscal year. Organizations that are willing to participate in a competitive solicitation and are capable of providing the needed work are encouraged to respond to this RFI as detailed below.

Background Information:

The Research Vessel (R/V) Medeia is all welded steel construction, with two Detroit Diesel 16V92 Main Engines and two Twin Disc gear units turning shafts and propellers. The vessel is owned and operated by the State of Alaska, Department of Fish and Game, Southeast Region and is engaged in the support of scientific commercial fisheries research within Southeast Alaska. The vessel is versatile and adaptable to accommodate a wide variety of deck equipment and machinery in various configurations.

Attached with this RFI are:

Scope of work
RV Medeia drawings
References

Response Information:

If you are an organization that is capable of providing the needed work, please email dfg.contracting@alaska.gov indicating you are willing to participate in a competitive solicitation, and provide an estimated budget or budget range for this project.

NOTICE: This RFI does not extend any rights to prospective vendors or obligate the state to conduct a solicitation or purchase any goods or services.

Procurement Officer contact information:

Interested parties must email a response by **August 14, 2026, at 2:00 PM AKST.**

Notice to Vendors:

Pursuant to [Administrative Order 352](#), (a) any person or business determined to support or participate in a boycott of the State of Israel will be disqualified from any procurement related to this Request for Information; and (b) the support of or participation in a boycott of the State of Israel by a person or business contracting with the State of Alaska under AS 36.30 constitutes grounds for termination of the contract.

[Administrative Order 352](#) does not apply to a contract if the person or business has fewer than 10 employees; or the amount to be paid under the contract, excluding renewals and options available under the contract, is less than \$100,000.

ALASKA DEPARTMENT OF FISH AND GAME

ITB # 2027-xxxx-xxxx

R/V Medeia Shipyard Services 2027

SCOPE OF WORK

Work Item List

1. Dry Docking
2. Power Wash Hull
3. Sea Chest, Strainer, and Valves
4. Zincs
 - a. Install (24) Z-22 Hull Zincs
 - b. Install (2) Z-19 Zincs
 - c. Install (1) Z-3 Zinc
 - d. Install (2) X-47-3 Keel Cooler Zincs
 - e. Install (4) Rudder Zincs
5. Rudder Removal, Inspection, Stocks and Flanges
 - a. Remove, Inspect, Re-install Rudder Stocks and Flanges
 - b. Replace Lower Bearing on Port Rudder Stock with New
 - c. Replace Upper Bearing on Port Rudder Stock with New
 - d. Replace Lower Bearing on Starboard Rudder Stock with New
6. Paint
 - a. Keel to Waterline
 - b. Waterline to Freeboard Outside Profile
 - c. Mast
 - d. Main Deck Aft True Deck
 - e. Shaft Tubes
 - f. Stuffing Boxes
 - g. Rudder Post Tubes
 - h. Tiller Arms
7. Propeller, Tail Shafts, Bearings and Glands Inspection
 - a. Propeller Removal, Inspection
 - b. Fit and Installation of New Propellers to Tailshafts
 - c. Tailshaft Removal, Inspection, Installation
 - d. Replace Starboard Stern Tube Cutlass Bearing with New
8. Replace Walter Keel Cooler
9. Replace Shell Plate in Starboard Cofferdam
10. Service MSDS
11. Ultrasonic Thickness Testing

12. Crane Static Load Test
13. Clad Weld
14. Replace Nipple on Port Keel Cooler Vent
15. Replace Radar
16. Megger Test
17. Inspect Ballast Tanks
18. Install Cadyma Knife Cutters

Work Item Detail

The Contractor shall provide a fixed cost for all labor, material, and equipment to accomplish each of the following work items:

1: Dry Docking

1.1 Scope

Contractor shall dry-dock the Medeia to complete the work items detailed in ITB 2027-xxxx-xxxx. Contractor shall also provide power and gangway access to the Medeia while in dry-dock and dockside.

1.2 References

Drawings:

- 1-1 Medeia Docking Plan
- 1-2 Medeia Electrical Service – Shore Tie

Photos:

- 1-1, 1-2, 1-3 Medeia Underwater
- 1-4, 1-5 Shore Power Adapter

1.3 Requirements

The Contractor shall provide a fixed cost for all labor, material, and equipment, for dry-docking and un-docking the vessel to accomplish all work described herein. The Contractor is responsible for all docking, un-docking, and mooring activities. The vessel shall be docked or lifted in accordance with the attached Docking Plan.

A dry-dock meeting shall take place prior to the vessel being dry-docked. At this time the Dock-Master will present his blocking plan, pressure calculations, describe his plan for docking the vessel to include schedule of events for rough weather, the use of engines, tugs, communication with ADF&G, and other relevant items. The Contractor shall notify ADF&G Representative a minimum of 48 hours prior to dry-docking and un-docking the vessel. The Contractor shall not initiate docking activities without the express permission of ADF&G Representative. Dry docking shall occur within 3 days of contract commencement.

During the entire contract period while dockside and ashore (dry-docked), the vessel shall be supplied with 240-volt, three phase, 100-amp service converted to 208V 3-

phase through the vessel isolation transformer. Assume a 50-amp continuous draw for the power. Owner will supply a 200-amp to 100-amp plug adapter to make it easier to tie into ship's 200-amp service cable. (See Photo Work Item 1 Shore Power Adapter 1, and Photo Work Item 1 Shore Power Adapter 2)

Contractor will provide a gangway for access from the dry-dock or ground to the vessel's main deck with adequate safety netting and lighting.

Provide a safe lay berth at the Contractor's facility throughout the contract performance period. Contractor to ensure suitable mooring lines are available and tended while the vessel is pier-side and that all necessary safety precautions are taken.

2: Power Wash Hull

2.1 Scope

The Contractor shall provide a fixed cost for all labor, material, and equipment to scrape (from waterline to bottom of keel) and pressure wash the entire exterior of the vessel from keel, including the inside of the sea chest, to the top of the wheelhouse.

2.2 References

Drawing:

- 2-1 Medeia Outboard Profile

2.3 Requirements

Use of fresh water and no less than 3000psi to remove marine growth and dilapidated or failing coatings (hand scrape as needed) to include the inside of the sea chest, sea chest grates and sonar tube. Please note protection of exposed ends of the stern tube, sonar tube, fathometer transducer, and other sensitive areas are required. Proper disposal of all wastewater, particulates and residues are the contractor's responsibility.

3: Sea Chest, Strainer, and Valves

3.1 Scope

Disassemble and inspect the main sea chest valve (NIBCO 3" O.S.Y. valve). Replace: valve stem packing, disc rubbers, and all gaskets associated with valve.

Valve interior should be painted with AP epoxy paint, or other marine epoxy coating approved by Owner Representative, and spindle greased before reassembling.

Remove and replace the two (2) smaller bronze gate valves and hex nipples attached to sea chest (serving sanitation system supply and spare) with new contractor supplied marine rated gate valves and nipples. These consist of one (1) 1¼" valve and hex nipple, and one (1) 1½" valve and hex nipple. Provide Owner Representative with a written report on the condition of the Sea Chest and Valves and any deficiencies noted.

3.2 References

Drawing:

- 3-1 Medeia Bilge and Ballast Piping

Photos:

- 3-1 Sea Chest
- 3-2 Sea Chest Outboard Interior
- 3-3, 3-4 Sea Chest Inboard
- 3-5 Sea Chest 3 Inch Gate Valve
- 3-6 1.5 Inch Gate Valve
- 3-7 1.25 Inch Gate Valve

4: Zincs

4.1 Scope

The Contractor shall provide a fixed cost for all labor, material, and equipment to remove, inspect and/or replace all anodes and issue a written report to ADF&G Representative identifying zincs that are reduced more than 50%. Owner Representative will make final determination of hull zincs to be replaced.

4.2 References

Drawings:

- 4-1, 4-2 Medeia Zinc Locations and Types

Photos:

- Work Item 4 – underwater hull

4.3 Requirements

Contractor shall ensure zincs are firmly secured to the hull and zincs have a positive bonding connection established. Deteriorated or missing shot studs will be replaced under a separate change order. All zincs shall be masked off to prevent them from being painted.

For the purpose of this Bid, Contractor shall provide Work Item Bids for replacement of ALL zincs, as indicated below. Contractor shall provide a credit on Bid Items for any zincs not requiring replacement. NOTE: Owner Representative will provide all zincs on this list.

4.3.1 Install (27) Z-22 Hull Zincs

Contractor shall remove old zincs and install 24 new Z-22 Hull zincs. Contractor shall ensure zincs are firmly secured to the hull and have a positive bonding connection established.

4.3.2 Install (12) Z-19 Zincs

Contractor shall remove old zincs and install 2 new Z-19 Hull zincs.

4.3.3 Install (1) Z-4 Sea Chest Zinc

Contractor shall remove old sea chest zinc and install one (1) new Z-4 Sea Chest zinc.

4.3.4 Install (2) Keel Cooler Zincs

Contractor shall remove old zinc and replace with new, one (1) KK2 Keel Cooler zinc, on the aft end of keel cooler and one (1) Z-4 zinc, on the hull, next to forward end of keel cooler.

4.3.5 Install (4) Rudder Zincs

Contractor shall remove and replace with new, four (4) Z-22 Rudder zincs.

5: Rudder Removal, Inspection, Stocks and Flanges

5.1 Scope

This work item describes the requirements for the contractor to remove, inspect, and reassemble rudders and rudder shoes, including replacement of specified rudder stock bearings and testing of the Steering System.

5.2 References

Drawings:

- 5-1, 5-2 Medeia Rudder Fabrication

Photos:

- Photo 5-1 Port Rudder Collar
- Photo 5-2 Port Rudder Shoe Flange
- Photo 5-3, 5-4 Rudder Shoe Attachment
- Photo 5-5, 5-6 Rudder Shoe Shaft 1, 2
- Photo 5-7 Rudder Upper Collar

Rudder Bearing Specifications (one each per rudder):

- Upper Support Bearing – 6-1/8" OD x 5" ID x 8" LG
- Intermediate Bearing – 6-1/8" OD x 5" ID x 6" LG
- Shoe Support Bearing Housing – 8" OD x 6-7/8" ID x 3" LG

5.3 Requirements

5.3.1 Remove, Inspect, and Re-install Rudder Stocks and Flanges

The Contractor shall remove both rudders. The bolted-on rudder shoes will have to be removed for full access to the rudders and propellers. There is a welded locking bar on these bolts that will need to be cut off and replaced when completed. These bolts are also encased with epoxy which will have to be removed to access. Clean all parts as necessary, and perform a general inspection of rudders, integral stock, flanges, pintles and shoes.

The contractor shall remove and inspect the rudder upper stocks, tiller arms and carrier washers, and inspect the rudder tubes. Inside and outside diameters (ID's) and (OD's) of all rudder bearings shall be measured. Measurements shall occur in two directions, port/starboard and forward/aft. Bearings and shaft areas longer than 6" shall be measured in two locations at the top and bottom of contact areas. Provide ADF&G's Representative with a written report detailing the examination and findings.

5.3.2 Replace Lower Bearing on Port Rudder Stock with New

The Contractor shall replace the lower bearing on the Port Rudder Stock with a new contractor-supplied bearing of identical dimensions and material type. Work shall include removal of the old bearing, cleaning and inspection of the bearing housing and rudder stock surface, verification of measurements, and installation of the new bearing as recommended by bearing manufacturer. Contractor shall verify correct seating of bearing in housing, correct clearance between bearing and rudder stock, and smooth and unrestricted movement of the rudder stock following installation. Contractor shall provide a written report summarizing pre- and post-installation measurements and any material defects found.

5.3.3 Replace Upper Bearing on Port Rudder Stock with New

The Contractor shall replace the upper bearing on the Port Rudder Stock with a new contractor-supplied bearing of identical dimensions and material type. All work shall be performed in accordance with the requirements described in 5.3.2. Contractor shall coordinate installation with Work Item 5.3.5 (Reassembly and Installation of Rudders and Rudder Shoes).

5.3.4 Replace Lower Bearing on Starboard Rudder Stock with New

The Contractor shall replace the lower bearing on the Starboard Rudder Stock with a new contractor-supplied bearing of identical dimensions and material type. All work shall be performed in accordance with the requirements described in 5.3.2.

5.3.5 Reassemble and Install Rudders and Rudder Shoes

Contractor shall reassemble all components, the rudder, and rudder shoes with the bolt on/off rudder shoes. Re-installation shall not occur until 24 hours after the painting of the inside of the rudder tubes is completed. Contractor will prepare and paint all disturbed painted steel work surfaces with anti-corrosion primer and appropriate finish paints. The rudder and rudder shoe bolts will be coated with an epoxy based coating to prevent the bolts from loosening and preventing line or netting from catching on the bolts or bolt heads.

5.3.6 Test Steering System

The vessel shall not undock, or operate, under its own power until dockside trials are complete. With Owner Representative present, test steering system (both ends) full over to full over. Record the time required to perform this from an average of three (3) tests. Ensure that rudder angle indicators properly display actual rudder position throughout the full range of rudder travel. Provide written findings to ADF&G Representative. Contractor will be present for in-water sea trials to verify repairs made and proper underway operation of the steering system.

6: Paint

6.1 Scope

The Contractor shall provide a fixed cost for all labor, material, and equipment to prepare and paint all specified areas of the vessel in accordance with R/V Medeia Paint Specifications. Surface preparation shall comply with SSPC standards. All coatings shall be applied per manufacturer's guidelines and documented with temperature and

film thickness records provided to Owner Representative within 24 hours of each coating event.

6.2 References

Drawing:

- 6-1 Medeia Outboard Profile

References:

- R/V Medeia Paint Specifications

6.3 Requirements

6.3.1 Keel to Waterline

Provide a fixed cost for all labor, material, and equipment to prepare and paint the underwater portion of the vessel from the boot strip/waterline to the bottom of the keel as specified by R/V Medeia Paint Specifications. The underwater coatings of the hull presently have several small areas of wear to bare metal from mooring and scientific equipment retrieval. The bare areas of the underwater hull and new metal works will be coated with 3 coatings of anti-corrosive coating to 6 mils dft. The total underwater hull will be finished with two coats anti-fouling paint to 4 mils dft. Square footage is approximately 2,264 square feet.

6.3.2 D-Rail / Waterline to The Top of The Freeboard, Outboard and Inboard Profile Preparation and Coating.

The stern quarters, trawl ramp, and starboard side will require additional preparation for priming. The exterior and interior freeboard is to be painted. The exterior and interior starboard freeboard will require additional preparation for priming.

D-rail, above water hull painting

The Contractor will prepare the steel and paint all disturbed and undisturbed steel work surfaces with anti-corrosion primer and appropriate finish topcoats paints to appropriate thicknesses.

The Contractor shall provide a fixed cost for all labor, material, and equipment to prepare and paint the above water portion of the vessel hull to the top of the rail and both sides of the freeboard as follows and in accordance with all requirements set forth. The area included in this Work Item is the exterior hull and interior freeboard, from the waterline up to, including the upper rail, both port and starboard sides, from the bow to the stern including the trawl ramp.

Final determination of surfaces to be prepared and painted shall be designated by the Owner Representative and are estimated to be as indicated below.

D-rail, above water hull prime painting.

Contractor shall spot prime paint all the areas having undergone the surface preparation work described above (an estimated 20% of the total work area), applying coatings of Amercoat 235 primer to reach 6.0 MDFT to all areas.

D-rail, above water hull topcoat painting.

After all the free boards have been primed the entire work area shall be painted with two (2) full coats of PPG, Protective and Marine Coating, PSX 700 at 2.0 MDFT for each coat. Primary Color for the topcoat is, Cobalt Blue, group 2fd for the hull, Black for rails, group 1fd and Safety Yellow, group 2fd for boot stripes.

This Work Item paint area consists of all exterior hull /freeboard and interior freeboard surfaces, from the bow to the stern, for the port, starboard sides, of the vessel. The total estimated square footage area applicable to this Work Item is estimated at 3,808 square feet.

6.3.3 Mast

Prepare and paint the mast. Remove all loosely adhering material, spot power tool clean all damaged or corroded areas to SSPC-SP15. Apply anti-corrosion primer and appropriate finish topcoats to specified thicknesses per paint specifications. Total square footage of mast approximately 200 square feet.

6.3.4 Main Deck Aft True Deck

Prepare and paint the main deck aft true deck. Surface preparation shall comply with SSPC standards. Apply anti-corrosion primer and topcoat as appropriate to the area. Final color and paint system to be Cobalt Blue. An estimated 20% of the area will require spot preparation. Aft deck has wood false deck panels that will need to be removed by Contractor to complete this section. Contractor is to replace all false deck panels after painting is complete. Total square footage of main deck aft true deck approximately 1,400 square feet.

6.3.5 Shaft Tubes

Prepare and paint shaft tubes. Apply 1 coat of Amerlock Sealer followed by 2 coats of Ameron 235 primer coatings to manufacturer-recommended thicknesses, alternating colors between coats, followed by 1 coat of Amercoat anti-fouling topcoat. Protect sensitive shaft and bearing surfaces from contamination during surface preparation and coating operations. Total square footage of both shaft tubes approximately 100 square feet.

6.3.6 Stuffing Boxes

Prepare and paint all stuffing box areas disturbed during shaft and propeller removal and reinstallation. Apply 1 coat of Amerlock Sealer, followed by 2 coats of anti-corrosion primer and appropriate topcoat per paint specifications. Total square footage of stuffing boxes approximately 8 square feet each.

6.3.7 Rudder Post Tubes

Prepare and paint the interior of rudder post tubes following removal of rudder stocks. Apply 1 full coat of Amerlock Sealer, followed by 2 coats of Amercoat compatible anti-fouling paint to a dried thickness of 4 mils. Re-installation of rudder stocks shall not occur until 24 hours after painting is complete. Total square footage of both rudder post tubes approximately 24 square feet.

6.3.8 Tiller Arms

Prepare and paint all tiller arm surfaces disturbed during rudder and steering system inspection and reassembly. Apply anti-corrosion primer and appropriate finish topcoat per paint specifications. Total square footage of both tiller arms approximately 20 square feet.

6.3.9 Vessel's Markings

Vessel name on both sides of the bow, the vessel name and hailing port on the stern, and all draft marks. All lettering and numbering shall than be painted with two (2) full coats of PPG, Protective and Marine Coating, PSX 700 topcoat at 2.0 MDFT for each coat. Colors for the topcoat, PPG Protective and Marine Coating, PSX 700 are Safety Yellow, group 2fd, and White, group 1fd.

7: Propeller, Tail Shafts, Bearings and Glands Inspection

7.1 Scope

This work item describes the requirements for the contractor to remove, inspect, and reassemble propellers, tail shafts, bearings, and glands, including replacement of the Starboard Stern Tube Cutlass Bearing.

7.2 References

Drawings:

- 7-1 Medeia Shafting Installation
- 7-2 Medeia Propeller Shaft Specs

Photos:

- 6-1 Stbd Stuffing Box
- 6-2 Port Stuffing Box
- 6-3 Stbd Prop
- 6-5 Shaft Coupler
- 6-6 Packing Gland
- 6-7 Shaft Removal
- 6-8 Shaft Install

7.3 Requirements

7.3.1 Propeller Removal, Inspection

Remove two 60" propellers and deliver to a qualified propeller shop for inspection. Provide a written report on condition, pitch, and balance. Consult with Owner Representative regarding required repairs. Any additional repairs will be added as a change order.

7.3.2 Fit and Installation of New Propellers to Tailshafts

Owner will provide two new propellers to replace the old propellers. Test fit propellers on the port and starboard tail shafts, record and report contact area to Owner Representative. Reinstall propellers with failsafe locking device. The vessel shall not undock or operate under its own power until dockside trials are complete. Old

propellers shall be crated and delivered back to vessel after shop inspection and possible repairs. The crates from the new propellers may be used for the old propellers.

7.3.3 Tailshaft Removal, Inspection, Installation

Open stuffing boxes, measure and record tail shaft positions, and remove tail shaft tapered couplings. Remove propeller shafts, with or without propellers fitted, from stern tubes. Clean, inspect, measure, and record exposed strut and stern tube bearings. Prepare clearance chart and provide report to Owner Representative. Clean and inspect tail shafts in lathe; inspect keys, keyways, and stress areas with dye penetrant. Inspect stuffing boxes, glands, and gland studs. Re-install both tail shafts in stern tubes; secure couplings with failsafe locking device; fit new 1-1/8" packing and adjust glands. Provide a spare set of packing rings for each tail shaft to be stowed in the vicinity of the packing gland.

7.3.4 Replace Starboard Stern Tube Cutlass Bearing with New

The Contractor shall remove the existing Starboard Stern Tube Cutlass Bearing and install a new contractor-supplied bearing of identical dimensions and material type. Inspect the stern tube bearing housing for wear or damage. Install new bearing according to manufacturer's recommendations. Verify correct seating and alignment of the new bearing. Provide Owner Representative with a written report of pre- and post-installation condition findings.

7.3.5 In-Water Sea Trials

Vessel shall not undock, or operate, under its own power until dockside trials are complete. Contractor shall conduct both dock and sea trials of both shaft, propeller, and reduction gear systems to prove and verify that the systems are working correctly. Trials shall occur under the supervision of the vessel's Master and Contractor's appointed qualified marine mechanic. Sea trials will consist of a minimum of 4 hours of full speed operation during which time Contractor will monitor and record packing gland temperatures. Sea trial data shall be delivered to Owner's Representative after trials.

8: Replace Walter Keel Cooler

8.1 Scope

The Contractor shall remove and replace the Walter Keel Cooler on the R/V Medeia. The replacement keel cooler is identical and will be supplied by the Owner.

8.2 References

Drawings:

- 8-1 Medeia Keel Cooler Arrangements
- Medeia Bilge and Ballast Piping

8.3 Requirements

The Contractor shall provide a fixed cost for all labor, material, and equipment to remove the existing Walter Keel Cooler and install the new, Owner supplied replacement unit, model 1-¼"E 4T 1 1-1/2TT-56. New keel cooler shall be installed in accordance with manufacturer specifications.

All piping connections shall be inspected for condition. Deteriorated or corroded fittings and sections shall be replaced. Upon installation, the system shall be pressure tested and leak-checked in the presence of ADF&G Representative. Coolant removed during the process shall be properly handled and disposed of by the Contractor in compliance with applicable environmental regulations. Note: Current cooler is filled with a water/Power Cool 2000 mix with NO antifreeze.

All disturbed hull and structural areas shall be prepared and painted per Medeia Paint Specifications.

9: Replace Shell Plate in Starboard Cofferdam

9.1 Scope

The Contractor shall remove and replace the deteriorated or diminished shell plate in the Starboard Cofferdam. All associated welding, surface preparation, and painting shall be performed in accordance with applicable ABS standards and R/V Medeia Paint Specifications. The area to be replaced is located in the engine room starboard side, stuffing box, from frame 41 to 42 on scanting baseline.

9.2 References

Photos:

- 9-1 Stbd Cofferdam Shell Plate
- 9-2 Keel Channel
- 9-3 Keel Channel Plugs
- 9-4 Port Keel Channel Work

Drawings:

- 8-1 Medeia Keel Cooler Arrangements
- 9-1 General Scanting
- 9-2 Trans. Frs & Long'L Section

9.3 Requirements

The Contractor shall ultrasound the general area to determine total area needed to be replaced. For bidding purposes, assume approximate area to replace is 42" x 22".

Once diminished area is determined, remove the diminished shell plate in the Starboard Cofferdam. Contractor shall install fire blankets or shields to protect adjacent equipment and piping; provide appropriate fire watch personnel during all hot work; and ensure fire extinguishers and other firefighting equipment are readily available.

New plate material shall be of equivalent or superior grade to the original. All welds shall be performed by qualified welders in accordance with ABS requirements. Upon

completion of all welding, Contractor shall perform a leak test of the cofferdam and any adjacent compartments to verify watertight integrity.

This section of hull is over the top of the vessel's keel channels. As such, the keel channel section in way of cofferdam will need to be drained and the section of keel channel will need to be removed and replaced once new shell plate is installed. Contractor shall safely dispose of cooling water, which contains a mixture of water and Power Cool 2000. Once all metal is back in place and welding is complete, Contractor shall flush the keel channels to remove any sediment and then refill with fresh water blended with Owner supplied Power Cool 2000 or equivalent. Assume total volume of coolant to be drained and replaced is approximately 290 gallons.

Owner Representative and Contractor to jointly bleed air and test cooling system for proper operation.

Once hot work and testing are completed, Contractor shall prepare and paint all disturbed areas in accordance with Medeia Paint Specifications: apply anti-corrosive primer coatings alternating colors to manufacturer-recommended thicknesses, followed by appropriate topcoat.

NOTE: Similar work has been done on the Port Cofferdam in the past. See Photo 9-4 Port Keel Channel Work to see section that was removed and replaced in the past for reference. However, that section was slightly further outboard than the Starboard section to be replaced.

10: Service MSDS

10.1 Scope

The Contractor shall service the existing Marine Sanitation Device System (MSDS) aboard the R/V Medeia. Work includes inspection, cleaning, component servicing, and verification of proper operation in compliance with applicable USCG regulations, and manufacturer's recommendations.

10.2 References

Drawings:

- 10-1 TW-200LP Steel 4 View Drawing
- MSD Instruction Manual

Photos:

- 10-1 MSD area
- 10-2 MSD Top

10.3 Requirements

The Contractor shall inspect all components of the existing MSDS (Headhunter TidalWave TW-200LP Steel), including the treatment unit, pump(s), associated piping, valves, and discharge plumbing. Contractor shall clean all accessible components; replace worn gaskets, seals, and any components identified as degraded or non-functional; and verify the system operates correctly and in compliance with USCG Type II MSDS certification requirements as applicable. Once complete, Contractor shall refill system with fresh water and follow manufacturer's startup procedures as outlined in the Instruction Manual.

NOTE: The steel workbench as seen in Photo 10-1 MSD area, has a removeable section that will need to be removed and replaced by the contractor as required for access.

Contractor shall provide Owner Representative a written report of findings, components replaced, and confirmation of compliant operation upon completion. All disturbed metal surfaces shall be prepared and painted per Medeia Paint Specifications.

11: Ultrasonic Thickness Testing

11.1 Scope

A non-destructive evaluation shall be performed using ultrasonic testing (UT) to verify and validate the extent of corrosion on the hull shell plating and other localized areas of high corrosion concern.

11.2 References

- Elander Ultrasonic Reports 2006, 2011, 2014,
- Accuren Ultrasonic Testing Report 2020
- Ultrasonic Testing Findings 2023
- Ultrasonic Testing Trouble Spots 2023

11.3 Requirements

All Ultrasonic Thickness Testing shall be conducted in accordance with A.B.S. classification requirements and performed by a certified Ultrasonic Technician. Contractor shall provide Owner Representative a written report of all recorded thickness values, locations tested, and diminution values compared to original baseline values from historical exam records.

11.3.1 Hull Shell Plate Testing

At testing locations, surface shall be prepared as required. If coatings are detrimental to proper testing, the area shall be chipped to bare metal; if coatings are adequate, a "double echo" method may be used. Contractor shall specify the method employed at each test location. Locations to include:

- Three (3) Transverse Bands: one midship, one forward of midship, one aft of midship
- Shell Plate at wind and waterline
- Keel Plate / Keel Cooler areas

- Forepeak and Aft Peak Bulkheads
- Interior Decks in 6 locations

11.3.2 High Corrosion Area Testing

At high corrosion locations, surface shall be chipped to bare metal on the corroded side and surveyed both visually and with ultrasonic thickness testing from the corroded side.

Areas to include:

- Shell plate under the stern tube
- Low point in engine room bilge
- Adjacent to sea chest
- Sea chest
- Keel coolers and keel cooler penetrations
- Below waterline fire pump area
- Port and starboard cofferdam hull plates
- Ballast tank structure

Disturbed areas shall be prepared and painted following completion of testing per Medeia Paint Specifications.

12: Crane Static Load Test

12.1 Scope

The Contractor shall perform a static load test of the deck crane aboard the R/V Medeia. The deck crane is a 40-foot knuckle-boom Model 1240K, Serial Number MCK1240-92-806, built in 1992, rated at 10 tons, built by North American Crane (now North Pacific Crane Company, LLC).

12.2 References

Drawings:

- 12-1 Medeia Crane Load Chart
- 12-2 Crane Diagram
- 12-3 Crane Specs

12.3 Requirements

The Contractor shall conduct a static load test of the crane in accordance with applicable ASME B30.8 standards or equivalent recognized standard, at the rated capacity of the crane. Testing plan shall be presented to Owner Representative, prior to testing, and Owner Representative shall be present during testing. To meet the requirement, a 10,000 lbs water bag has been used in the past.

Prior to the static load test, the Contractor shall perform a visual inspection of all crane structural components, wire ropes, sheaves, hooks, fasteners, and hydraulic systems. Any deficiencies identified shall be reported to the Owner Representative prior to the load test.

Contractor shall provide Owner Representative with a written report documenting the load test procedure, test loads applied, duration, and results. The report shall include any recommendations for maintenance or repair identified during inspection.

13: Clad Weld

13.1 Scope

The work item describes the requirements for the contractor to clad weld four different diminished areas in the shell plate, all located in the engine room near the starboard aft corner. For all areas, Contractor shall install fire blankets or shields to protect adjacent equipment and piping; provide appropriate fire watch personnel during all hot work; and ensure fire extinguishers and other firefighting equipment are readily available. Once hot work is completed, Contractor shall paint disturbed areas as required in Medeia paint specifications.

13.2 References

Drawings:

- 13-1 General Arrangement for Clad Welding

Photos:

- Photo 13-1 Cladweld1 Location
- Photo 13-2 Cladweld Area 1 Vertical
- Photo 13-3 Cladweld Area 2&3 Location
- Photo 13-4 Cladweld Area 2
- Photo 13-5 Cladweld Area 3
- Photo 13-6 Cladweld Area 4 Location
- Photo 13-7 Cladweld Area 4

13.3 Requirements

Area 1

Located just aft of the day fuel tank, by frame #40, on the vertical shell plate. The affected area measures approximately 2"x4" and is within 1 inch of the diesel fuel day tank. If the Contractor determines that the day tank must be emptied prior to welding, the Contractor shall coordinate with the Owner Representative to establish if the tank will be required to be emptied and refilled. Should emptying be required, the vessel crew and Owner Representative will transfer the fuel into the vessel's bunker tanks. Any additional safety precautions required beyond emptying the tank shall be the responsibility of the Contractor.

Area 2

Located on the bottom shell plate just forward of frame #41. The affected area measures approximately 2"x6".

Area 3

Located on the bottom shell plate just aft of frame #41. The affected area measures approximately 2"x10".

Area 4

Located on the bottom shell plate just aft of frame #40. The affected area measures approximately 3"x10".

Upon completion of all clad welding, Contractor shall prepare and paint all disturbed areas per Medeia Paint Specification.

14: Replace Nipple on Port Keel Cooler Vent

14.1 Scope

The Contractor shall remove and replace the corroded ½-inch mild steel coupling welded into the keel, which serves as the bleed port for the port main engine keel channels. The corroded coupling shall be cut out and replaced with a new ½-inch Schedule 80 pipe coupler. Coupler is in the aft, portside of engine room between frames 41 and 42 on scanting baseline, under the fire pump.

14.2 References

Drawings:

- 13-1 General Arrangement for Clad Welding

Photos:

- Photo 14-1 Port Keel Cooler Bleed Valve

14.3 Requirements

Contractor shall install fire blankets or shields to protect adjacent equipment and piping, provide appropriate fire watch personnel during all hot work, and ensure fire extinguishers and other firefighting equipment are readily available. Upon completion of hot work, contractor shall paint all disturbed areas in accordance with Medeia paint specifications.

It is anticipated that some coolant will need to be removed to complete this work item. Contractor shall remove and replace any coolant necessary for the completion of this task. For bidding purposes, assume 60 gallons of coolant will be removed. The coolant is Power Cool 2000 and does not contain antifreeze. Contractor is responsible for disposing of the old coolant. The Owner Representative will provide new coolant for replacement.

15: Replace Radar

15.1 Scope

Contractor shall remove the existing radar unit and install a new Owner supplied replacement radar system aboard the R/V Medeia. All associated wiring, cabling, mounting hardware, and interfacing with existing navigation systems shall be included in this work item.

15.2 Requirements

The Contractor shall remove the existing radar scanner, display unit, and all associated cabling. New radar scanner shall be mounted on the mast at the same location as or at a location designated by ADF&G Representative. Contractor shall run all new cabling from the scanner to the wheelhouse, install the display unit at a location designated by Owner Representative, and connect all components per manufacturer specifications.

Upon installation, Contractor shall power up the system and verify full operational function in the presence of Owner Representative. Contractor shall dispose of all removed components unless directed otherwise by Owner Representative. All disturbed areas shall be painted per Medeia Paint Specifications.

16: Insulation Resistance (Megger) Testing

16.1 Scope

The Contractor shall perform insulation resistance testing, commonly referred to as Megger testing, on the electrical distribution systems and major electrical machinery aboard the R/V Medeia. The purpose of this work item is to evaluate the condition of electrical insulation throughout the vessel and identify any degraded or failed insulation that presents a risk of ground fault, shock hazard, equipment damage, or fire. Testing shall be conducted on all accessible shore-power, main distribution, branch circuit, and machinery wiring, including motors and generators, as identified in consultation with the Owner Representative.

16.2 References

Drawings:

- 16-1 Medeia Electrical pilot house panel
- 16-2 Medeia Wiring Schematic
- 16-3 Medeia 42 Circuit Panels 1 & 2
- 16-4 Medeia 42 Circuit Panels 3 & 4
- 16-5 Medeia 42 Circuit Panel 5

Standards:

IEEE 43 – Recommended Practice for Testing Insulation Resistance of Electric Machinery

NFPA 70B – Recommended Practice for Electrical Equipment Maintenance

ABYC E-11 – AC and DC Electrical Systems on Boats (as applicable to commercial vessels)

Prior Test Records:

Reference 16-1 Medeia Megger Report 2023 (Baseline insulation resistance survey covering panelboards: Void Room/Work Shop, P2 Engine Room, P1 Engine Room, Galley/Main Deck, Wheelhouse Panel, Misc Loads, and Generators and Shore Power. Contractor shall reference this report when

interpreting 2027 test results and shall note any circuits or equipment showing measurable degradation relative to 2023 baseline values.)

16.3 Requirements

16.3.1 – Technician Qualifications

All insulation resistance testing shall be performed by a qualified marine electrician or certified electrical technician with documented experience conducting insulation resistance surveys on commercial or research vessels. Prior to commencing work, the Contractor shall provide the Owner Representative with documentation of the assigned technician's qualifications upon request.

16.3.2 – Test Equipment

The Contractor shall supply all test equipment necessary to perform insulation resistance measurements across the range of voltages present aboard the vessel. Test voltage applied to each circuit or component shall be appropriate to the rated system voltage, as follows: circuits rated 120/240V shall be tested at a minimum of 500 VDC; circuits rated 440V or higher shall be tested at a minimum of 1,000 VDC. All equipment shall be calibrated and in good working order. The Contractor shall provide calibration records upon request.

16.3.3 – Scope of Testing

At a minimum, the Contractor shall perform insulation resistance tests on the following systems and equipment. ADF&G Representative may direct the Contractor to expand or reduce the testing scope based on vessel condition or access constraints observed during the work period:

- Shore power inlet and main switchboard distribution circuits
- Main and emergency generator windings and output circuits
- All AC branch circuits serving machinery spaces, accommodations, and work decks
- DC distribution circuits, including battery banks and charging circuits
- Main engine starting motors and associated wiring harnesses
- Electric motor windings for all bilge pumps, fire pumps, wash-down pumps, and hydraulic power unit motors
- Winch and crane motor circuits
- Navigation light wiring and associated branch circuits
- Any additional circuits or equipment identified by the ADF&G Representative as a priority

16.3.4 – Test Procedure

Prior to testing, the Contractor shall de-energize all circuits to be tested and ensure that all sensitive electronic equipment (navigation electronics, communication equipment, frequency drives, programmable controllers, and similar devices) is disconnected or protected from test voltages. Disconnection of sensitive equipment shall be coordinated with the Owner Representative and vessel crew prior to commencing any test sequence. The Contractor shall apply the appropriate test voltage for a minimum of sixty (60) seconds for each measurement, recording the stabilized resistance value in megohms. For motors and generators, a polarization

index (PI) test shall be conducted where IEEE 43 recommends, applying the test voltage for ten (10) minutes and recording readings at one (1) minute and ten (10) minutes.

16.3.5 – Acceptance Criteria

Minimum acceptable insulation resistance for branch circuits and distribution wiring shall be 1 megohm. Motor and generator windings shall meet IEEE 43 minimum thresholds for the applicable insulation class and temperature. A polarization index of 2.0 or greater is considered satisfactory for rotating machinery windings. Any circuit or component measuring below minimum acceptable levels shall be flagged in the test report and brought to the immediate attention of the ADF&G Representative. Repair of deficiencies identified during testing is not included in this work item and shall be addressed by separate change order or work item as directed by the ADF&G Representative.

16.3.6 – Test Report

Upon completion of testing, the Contractor shall provide the Owner Representative with a written test report. The report shall include, at minimum: a list of all circuits and equipment tested; the test voltage applied to each; the measured insulation resistance value in megohms; the ambient and winding temperature at time of test where applicable; the polarization index for each motor and generator tested; a comparison of measured values against the 2023 baseline survey (Reference 16-1) for each circuit or piece of equipment covered in both surveys, noting any measurable degradation; and a summary identifying any circuits or components that failed to meet minimum acceptance criteria. The report shall be provided in electronic format (PDF) to the Owner Representative within five (5) business days of completing the test survey.

Note: This work item covers testing and reporting only. Remediation of any deficiencies identified during testing is not within the scope of this item. Bidders shall provide a fixed unit price for the complete test survey and written report as described herein.

17: Inspect Ballast Tanks

17.1 Scope

The contractor shall inspect all ballast tanks onboard. The ballast tanks include the bow tank, 2 middle tanks, and 2 stern tanks. These are considered confined spaces and precautions needed to enter tank shall be provided by the contractor. Tanks shall be inspected for paint blisters, and all blisters shall be spot prepped and spot painted following Medeia Paint Specification. Any areas with deep pitting shall be ultrasound thickness tested and if there is 25% or more diminution, those areas shall be clad welded or replaced with an insert. Assume approximately 100 square feet will need to be prepped and painted, and clad welding will occur on areas adding up to approximately 10"x10". Any area beyond these will be addressed with a change order.

17.2 References

Drawings:

- 17-1 Medeia Bilge and Ballast Piping
- 17-2 Hold Plan

18: Install Cadyma Knife Cutters

18.1 Scope

The Contractor install Owner supplied Cadyma knife cutters on the port and starboard propeller shafts of the R/V Medeia. Knife cutters protect the propeller shafts and stern tubes from line and net entanglement.

18.2 References

Drawings:

- Medeia Shafting Installation
- Medeia Propeller Shaft Specs

Photos:

- 18-1 A-Frame Strut Bearing to Hub
- 18-2 A-Frame Strut Bearing to Hub2

18.3 Requirements

The Contractor shall provide a fixed cost for all labor, material, and equipment to install Cadyma knife cutters model 203021F compatible with the existing shaft diameter and configuration on the R/V Medeia. Contractor shall coordinate installation with the propeller and tail shaft work performed under Work Item 7.

Knife cutters shall be installed per manufacturer specifications and verified for correct fit, alignment, and secure attachment after shaft reinstallation.