CENTRAL AND ARCTIC REGION

HAZARDOUS MATERIALS INSPECTION

Standing Offer Specification

Contract No.: F3065-14N334

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Central and Arctic Region
Hazardous Materials Inspection

1.0 DESCRIPTION OF THE REQUIREMENT

1.1 General

The contractor shall provide as needed, either directly or through subcontractor or associates, all necessary Technical Investigation and Engineering Support to carry out the tasks in section 2.

1.2 The *Areas of Expertise* required by the CCG

- Hazardous materials management
- Occupational Health and Safety
- Air quality assessment
- Water quality assessment

1.3 Hazardous material specified

Fisheries and Oceans Canada, Canadian Coast Guard requires the characterization of the hazardous materials, and compliance revision of the information on the Workplace Hazardous Materials Information System (WHMIS) regarding the vessels in Central & Arctic region. For the purposes of this assessment, hazardous materials will be defined as those containing:

- asbestos;
- lead;
- mercury;
- Polychlorinated biphenyls (PCBs).

Reference: section 4.3.1.1.1 - CCG MANUEL DE GESTION DE L'ENTRETIEN DES NAVIRES

1.4 Cost Estimates

The Contractor must provide an estimate for each call-up. This estimate must be approved by the Identified User. Each estimate must indicate the number of hours required for each job category and the cost of the intended materials, as well as the description, identification number and cost for each part to be replaced.

1.5 Timeframe

The Contractor must get to the vessel within twenty-four (24) hours of being called by the Identified User, unless notice to the contrary is given. In case of such notice, the parties will agree on timeframes according to the nature of the request.

1.6 Workplace Health and safety related requirements – Refer to Annexe 1

1.6.1 During the execution of Work, the Contractor must comply with:

- Applicable Provincial Health and Safety Regulations,
- Canada Labour Code Part II,
- Marine Occupational Health and Safety Regulations (MOSH),
- The Gas Hazard Control Standard (TP3177),
- Applicable CCG region specific Health and Safety requirements
- DFO/5672 Welding Health and Safety Technical Program,
- TBS “Smoking in the Workplace” Policy,
- The following sections of DFO/5737- CCG Fleet Safety and Security Manual
    - Fall Protection (section 7B2),
    - Confined Space Entry (section 7B3),
    - Hot Work (Section 7B4),
    - Lock-Out - Tag-Out (Section 7B5).

2.0 TECHNICAL

2.1 General

- The Supplier will provide Technical Investigation and Engineering Support
- The Supplier must compile and maintain records on its provision of goods, services or both to the federal government under contracts resulting from the standing offer. This data must include all purchases paid for by a Government of Canada.
- Drafting of work procedures or technical specifications sections for hazardous materials of Low, Moderate, High Alleviated or High-Risk work, including drawings or sketches as needed
- Preparation of tender documents
- Development of prevention programs or action plans
- Proceed with the development of corrective measures in response to non-conformities
- Drafting of short-, medium- and long-term asbestos management programs
- Assessment and auditing/certification based on recognized quality management standards applicable to CCG business.

2.2 Summary of materials that may contain asbestos

Update existing reports written for the vessels on the characterization of materials likely to contain asbestos. To do this, the company we will determine the presence of materials containing asbestos, condition and quantity, all in accordance with information contained in the last report for the vessel. All spaces present on the vessel will be inspected and updated.

2.3 Summary of equipment that may contain lead

The entrepreneur will conduct a visual inspection of all equipment which might contain Lead (battery , lamp , etc.). present inside the vessel. Furthermore, Paint samples will be collected according to the type of each of the substrates paint may contain lead. The painting will be analyzed according to method emission spectrometry and inductively coupled plasma (ICP-OES).

2.4 Summary of equipment that may contain mercury

During the survey, observe if equipment is likely to contain mercury , mainly lamps, fluorescent , pressure sensors and thermometers , are present in the vessel . Further, paint samples will be collected according to each type of the substrates may paint contain mercury. The painting will be analyzed by the method of spectrometry emission inductively coupled plasma (ICP- OES) or by the method of atomic absorption spectrometry with flame.

2.5 Summary of equipment that may contain polychlorinated biphenyls

Identification of lighting ballasts which may contain biphenyls polychlorinated biphenyls (PCBs) will be made using the serial numbers.Also verify equipment which may contain oil based BCP , such as transformers or circuit breakers present on the vessel

2.6 WHMIS compliance

- Validate compliance to the Workplace Hazardous Materials Information System (WHMIS)
- Make an inventory hazardous products on the ship ;
- Get MSDS of the products listed ;
- Update or develop a database for the management of MSDSs ;
- Make sure containers are properly labeled;
- Ensure that the manufacturer's recommendations are implemented and met in terms of:
    - ♦ storage, use, handling , disposal;
    - ♦ prevention measures (PPE , emergency measures , etc. .) .

3.0 INSPECTION AND CERTIFICATION

Vessels are obligated by Transport Canada to have the items in section 2.0 inspected on an annual basis. The contractor shall provide all services and man power necessary to provide the vessels and technical authorities with an annual report suitable for passing annual inspections with TC.

4.0 SCOPE

For bidding purposes the following vessels will be bid upon, for sections 2.2 - 2.6 at their home port.

CCGS *Amundsen*

Class: ***Medium Icebreaker***. A sizable vessel capable of sustained icebreaking and escort operations in the Arctic for 2 seasons per year and in the Great Lakes, St. Lawrence Seaway and Atlantic coast in winter.
Home port: Québec, Que.
Length: 98 m **Beam**: 19.5 m
Gross tonnage: 5911 t
Builder: Burrard Dry Docks Ltd.
Launched: 1979

CCGS *Pierre Radisson*

Class: ***Medium Icebreaker***. A sizable vessel capable of sustained icebreaking and escort operations in the Arctic for 2 seasons per year and in the Great Lakes, St. Lawrence Seaway and Atlantic coast in winter.
Home port: Québec, Que.
Length: 98 m **Beam**: 19.2 m
Gross tonnage: 5755 t
Builder: Burrard Dry Docks Ltd.
Launched: 1978

CCGS *Des Groseilliers*

Class: ***Medium Icebreaker***. A sizable vessel capable of sustained icebreaking and escort operations in the Arctic for 2 seasons per year and in the Great Lakes, St. Lawrence Seaway and Atlantic coast in winter.
Home port: Québec, Que.
Length: 98 m **Beam**: 19.8 m
Gross tonnage: 6100 t
Builder: Port Weller Dry Docks Ltd.
Launched: 1972

CCGS *Martha L. Black*

Class: ***High Endurance Multi-Tasked Vessel***. A large, highly adaptable multi-tasked ship with capacities for icebreaking in the south and western Arctic and, for escort operations in the Great Lakes, St. Lawrence Seaway and Atlantic coast.
Home port: Québec, Que.
Length: 83.0 m **Beam**: 16.2 m
Gross tonnage: 3818 t
Builder: Versatile Pacific Shipyard Inc.
Launched: 1985

CCGS *Griffon*

Class: ***High Endurance Multi-Tasked Vessel***. A large, highly adaptable multi-tasked ship with capacities for icebreaking in the south and western Arctic and for escort operations in the Great Lakes, St. Lawrence Seaway and Atlantic coast.

Home port: Prescott, Ont.
Length: 71.32 m **Beam**: 14.9 m
Gross tonnage: 2212 t
Builder: Davie Shipbuilding.
Launched: 1970

CCGS *Samuel Risley*

Class: ***Medium Endurance Multi-Tasked Vessel***. A large, multi-tasked, shallow draught vessel able to stay at sea for up to 28 days. Primarily used for aids to navigation, search and rescue, icebreaking, science and environmental response.
Home port: Parry Sound, Ont.
Length: 69.7 m **Beam**: 13.7 m
Gross tonnage: 1967 t
Builder: Vito Steel Boat & Barge.
Launched: 1984

CCGS *Caporal Kaeble V.C.*

Class: *Mid-shore Patrol Vessel*. A medium-sized vessel that can operate up to 120 NM offshore, capable of staying at sea for 14 days. It is used primarily for maritime security and fisheries enforcement.
Home port: Sorel, Que.
Length: 42.8 m **Beam**: 7.0 m
Gross tonnage: 253 t
Builder: Irving Shipbuilding Inc.
Launched: 2012

CCGS *Constable Carrière*

Class: *Mid-shore Patrol Vessel*. A medium-sized vessel that can operate up to 120 NM offshore, capable of staying at sea for 14 days. It is used primarily for maritime security and fisheries enforcement.
Home port: Sorel, Que.
Length: 42.8 m **Beam**: 7.0 m
Gross tonnage: 253 t
Builder: Irving Shipbuilding Inc.
Launched: 2012

CCGS *Louis M. Lauzier*

Class: *Mid-shore Patrol Vessel*. A medium-sized vessel that can operate up to 120 NM offshore, capable of staying at sea for 14 days. It is used primarily for maritime security and fisheries enforcement.
Home port: Québec, Que.
Length: 37.1 m **Beam**: 8.0 m
Gross tonnage: 253 t
Builder: Breton Industry & Machinery
Launched: 1976

CCGS *Corporal Teather C.V.*
Class: *Mid-shore Patrol Vessel*. A medium-sized vessel that can operate up to 120 NM offshore, capable of staying at sea for 14 days. It is used primarily for maritime security and fisheries enforcement.
Home port: Sarnia, Ont.
Length: 42.8 m **Beam**: 7.0 m
Gross tonnage: 253 t
Builder: Irving Shipbuilding Inc.
Launched: 2012

CCGS *Frederick G. Creed*
Class: *Mid-shore Science Vessel*. A medium-sized vessel capable of sustained operations away from port for up to 14 days; has endurance for 21 days. It is a hydrographic survey platform, carrying out geophysical and oceanographic work, as well as responding to search and rescue incidents.
Home port: Mont-Joli, Que.
Length: 20.4 m **Beam**: 9.75 m
Gross tonnage: 151 t
Builder: Swath Oceans Systems Inc.
Launched: 1988

CCGS *Limnos*
Class: *Mid-shore Science Vessel.* A medium-sized vessel capable of sustained operations away from port for up to 14 days; has endurance for 21 days. A hydrographic survey platform, carrying out geophysical and oceanographic work, as well as responding to search and rescue incidents.
Home port: Burlington, Ont.
Length: 44.81 m **Beam**: 9.8 m
Gross tonnage: 489 t
Builder: Port Weller Dry Docks Ltd.
Launched: 1968

5.0 DOCUMENTATION (REPORTS/DRAWINGS/MANUALS)

5.1 General
The Contractor must ensure sampling and tests are performed to the satisfaction of the IA, TA, and TCMS. All tests, measurements, calibrations and readings must be recorded and provided in a report to the IA, TA and TCMS. Two (2) reports must be bound and typewritten, double-spaced on 8 1/2" X 11" and indexed by specification number. One (1) reports must also be provided in Adobe pdf format.

5.2 Data acquisition
The Contractor must ensure all dimensions are measured and recorded. All measuring devices must be described in the report and the name of the person taking the readings must also be recorded.

5.3 Calibration and Certification
The Contractor must ensure all testing and measurement equipment (mechanical or electronic) are calibrated and that calibration certificates are provided to the IA prior to final inspection or witnessing of tests.

5.4 Characterization Report;

The report at a minimum must contain the following

- Methodology sampling and analysis adopted,
- The analysis results in the form tabular,
- Recommendations,
- Laboratory analysis reports.
- The date and time at which the work request was made;
- The vessel, compartment, and description,
- The name and telephone number of the person who called;
- The date and time of the start and end of work as well as the number of hours for each work day,
- A description of the service request,
- A diagnosis of the defect(s),
- A list of services rendered, recommendations,
- The name of the Contractor's Representative and his/her service location,
- The name (in block letters) and signature of the person in charge on the vessel, attesting that the work done was satisfactorily,
- The breakdown of the costs of labour and materials, if there are additional costs.

Two (2) copies of the report will be required and must be submitted to the Identified User.

LIST OF ACRONYMS

Table 1 - List of Acronyms

CA Contract Authority (PWGSC)
CBW Canadian Bureau of Welding
CCG Canadian Coast Guard
CE Chief Engineer
CLC Canada Labour Code
CSM Contractor Supplied Material
CSA Canadian Standards Association
DFO Department of Fisheries and Oceans
FSM Fleet Safety Manual (CCG)
FSR Field Service Representative
GSM Government Supplied Materials
HC Health Canada
IA Inspection Authority – Technical Inspector CE Chief Engineer
IEEE Institute of Electrical and Electronic Engineers
MSDS Material Safety Data Sheet
PWGSC Public Works and Government Services Canada
SMS Safety Management System
TBS Treasury Board of Canada Secretariat
TCMS Transport Canada Marine Safety
TA Technical Authority (CCG) Jean-François Thibault
WCB Work Safe BC
WHMIS Workplace Hazardous Material Information System

PART 1: SCOPE

1.1 General

1.1.1 This document describes Canadian Coast Guard (CCG) requirements applicable to all accompanying Technical Specifications.

PART 2: HEALTH AND SAFETY RELATED REQUIREMENTS

2.1 General

2.1.1 The Contractor must appoint a Health & Safety Manager or Supervisor responsible for ensuring compliance with the Health and Safety requirements listed herein. This includes monitoring of all work by Contractor employees and Sub-Contractor employees.

2.1.2 During the execution of Work, the Contractor must comply with:

- Applicable Provincial Health and Safety Regulations,
- Canada Labour Code Part II,
- Marine Occupational Health and Safety Regulations (MOSH),
- The Gas Hazard Control Standard (TP3177),
- Applicable CCG region specific Health and Safety requirements
- DFO/5672 Welding Health and Safety Technical Program,
- TBS “Smoking in the Workplace” Policy,
- The following sections of DFO/5737- CCG Fleet Safety and Security Manual
    - Fall Protection (section 7B2),
    - Confined Space Entry (section 7B3),
    - Hot Work (Section 7B4),
    - Lock-Out - Tag-Out (Section 7B5).

2.2 Hot Work

2.2.1 When executing Hot Work, the Contractor must:
- inform the TA & IA prior to commencing work and upon completion of work,
- supply sufficient and suitable fire extinguishers in support of the Hot Work,
- not use the Ship's fire extinguishers except in the case of emergency. Should the ship's extinguishers be used, the Contractor must ensure they are recharged and certified by a certified facility at no cost to Canada,
- maintain a competent and properly equipped Fire Watch while Hot Work is underway and for one hour following the completion of Hot Work. The Fire Watch must be situated such that all sides of the surfaces undergoing work are visible and accessible,
- ensure that all dust, debris, gas and smoke generated is evacuated from the vessel by the most direct method,
- provide suitable fire retardant coverings to protect wire ways, cables, equipment and structure from welding slag, splatter etc,
- comply with the specific Hot Work requirements listed in section 2.1 herein.

2.2.2 When executing Hot Work, the Contractor must define a surrounding zone that is to be kept sealed off from the rest of the vessel during the work period that involves the generation of welding gases, smoke, and grinding dust etc. All unscheduled work arising during the refit period involving Hot Work must have a similar zone isolated from the remainder of the vessel. The zone must be limited to the space(s) where the Hot Work is conducted, boundary areas where Fire Watches are required, and the access routes between the zone and the exterior of the vessel for workers, welding and cutting equipment and ventilation ductwork.

2.2.3 In areas where occupied accommodations and or workplaces cannot be completely isolated a double sealed door (air lock) arrangement must be erected to minimize ingress of contaminants into the occupied areas. A ventilation extraction point must be located as near as practical to the inside door on the worksite side to reduce the egress into the air lock and subsequently the accommodations and/or workspaces.

2.2.4 All doorways within the affected area that are not required for access to the work or for Fire Watch activities must be sealed off to prevent contaminants from entering. Passageway branches that connect to the zone are to be sealed off as well. The Contractor must clean all surfaces and fabrics within the zone and in surrounding areas, which have become contaminated, upon completion of work.

2.3 Confined Space Entry

2.3.1 In the execution of Confined Space Entry, the Contractor must comply with the requirements listed in section 2.1 herein. The following is a non-exhaustive list of Confined Spaces on CCG Vessels: Bilge Areas; Machinery Compartments; all storage compartments accessed by manhole covers including fuel tanks; water tanks; cofferdams; chain lockers; thruster compartments.

2.4 Monitoring Atmosphere for Confined Space Entry or Hot Work

2.4.1 Prior to Confined Space Entry and Hot Work within a Confined Space, including machinery compartments, the Contractor must:
- have the space gas freed and tested in accordance with TP3177,
- ensure the Permit states the type of work, the time period for which the Permit is valid and also indicates “Safe for Persons” or “Safe for Hot Work” as required,
- post the Permit in a conspicuous location and provide the TA and IA with the signed and dated Marine Chemist’s or Contractor qualified persons Certificate,
- renew the Confined Space Entry or Hot Work Permit as required by Regulations.

2.5 Work At Heights and Fall Protection

2.5.1 In the execution of Work at Heights, the Contractor must:
- erect staging as required to safely carry-out work and remove it upon completion,
- ensure walkways, gangways, scaffolding, ladders, guard-rails and similar apparatus are maintained in proper and safe condition. Daily inspections are to be conducted and recorded by the Contractor,
- comply with requirements listed in 2.1 herein when conducting work aloft,
- must do so in accordance with the Contractor’s standard operating procedures.

2.6 Lock-Out / Tag-Out

2.6.1 The Contractor must comply with requirements listed in 2.1 herein for Lock-Out and Tagout.

2.7 Workplace Hazardous Materials Information System (W.H.M.I.S)

2.7.1 CCG shall provide the Contractor with access to M.S.D.S. for all controlled products located on the vessel. The Contractor must provide M.S.D.S for all Contractor supplied WHMIS controlled products.

2.8 Smoking

2.8.1 The Contractor must obtain written approval prior to smoking in designated areas.

2.9 Temporary Lighting and Ventillation

2.9.1 The Contractor must ensure temporary lighting and/or ventilation is supplied, installed and maintained in proper and safe condition and removed upon completion.

2.9.2 The Contractor must ensure temporary lighting incorporates shields/guards to protect against breakage.

2.10 Sign-in / Sign-out

2.10.1 When the vessel remains in Care and Custody of the Crown, the Contractor must ensure employees and Sub-Contractors sign-in and sign-out of the Vessel Register located at the Quartermasters Station, or in a convenient location to the gangway, whenever they enter or leave the vessel. Alternatively, the Crown may provide an electronic system whereby passes are issued to those requiring access to the vessel. Individuals violating this requirement may be denied access to the vessel for the duration of the work period upon advice from the TA to the CA.

2.11 Lead Based Paints and Paint Approvals

2.11.1 The Contractor must provide Health Canada product approval for underwater hull surface paints controlled by Health Canada and the Pest Management Regulatory Agency,

2.11.2 The Contractor must identify and take precautionary measures to ensure the application of paints complies with Federal, Provincial and Municipal regulations,

2.11.3 The Contractor must not use lead-based paints.

2.12 Clean and Hazard Free Site

2.12.1 The Contractor must maintain all spaces, compartments, work areas and areas used by Shipyard personnel as transit routes in a clean and sanitary condition and free from debris,

2.12.2 The Contractor must return the vessel to the CCG at least as clean as when work began. This includes both internal and external areas of work, as well as any affected adjacent spaces outside the principle areas of work,

2.12.3 The Contractor must supply own refuse containers to be emptied daily and removed upon completion of work. All rags, debris, and associated refuse are to be removed to refuse container(s) daily,

2.12.4 When working at CCG facilities, the Contractor must clean-up dock areas used by Contractor personnel and/or equipment. This includes but is not limited to the removal of all dirt, grit, debris, staging, containers and equipment as well as the immediate cleanup and proper disposal of leaked oil, solvent or any other hazardous materials,

2.12.5 If work will be conducted in the vicinity, the Contractor must supply and install for the duration of the work period a suitable material approved by the TA and IA at all main entries and over surfaces of the main, upper, flight and navigation officers decks to protect alleyways from dirt,

2.12.6 The Contractor must ensure safe access to the work area as required by applicable Health and Safety Regulations,

2.12.7 The Contractor must prevent rat and vermin harbourage onboard the vessel for the duration of the work period. The Contractor must remove any rats or vermin from the vessel if they do come onboard during the work period.

2.13 Fire Protection

2.13.1 The Contractor must ensure the isolation, removal and installation of fire detection and suppression systems or its components is performed by certified technicians familiar with the systems,

2.13.2 The Contractor must notify the TA and IA and obtain written approval from the TA prior to disturbing, removing, isolating, deactivating/disabling or locking-out any part of the fire detection or suppression system including heat and smoke sensors. The Contractor must also notify the TA and the IA once the system has been reactivated,

2.13.3 The Contractor must ensure protection against fire at all times including when working on the ship's fire detection or suppression system. This may be accomplished as suggested below and requires the written approval from the TA:

- disabling only one portion of the system at a time,
- by maintaining system function using spares while work is in progress,
- other means acceptable to the TA.

2.13.4 The Contractor must note that failure to take necessary precautions while performing work on fire suppression systems may result in malfunction and discharge of CO_2, Halon or other fire suppression agents. The Contractor must recharge and certify at their cost, containers that are discharged as a result of their work.

2.14 Hydrostatic / Pneumatic Tank Testing

2.14.1 The Contractor must verify that all necessary openings are closed prior to hydrostatic or pneumatic testing of tanks. The Contractor must blank all suction and discharge lines, vents and sounding pipes. The Contractor is responsible for supplying, fitting and the subsequent removal of blanks.

2.14.2 The Contractor must drain the tanks upon completion of testing and wipe clean and dry the fuel tanks.

2.14.3 The Contractor must hydrostatically test tanks as specified with a 2.44m head of water. Where the Contractor wishes to perform a pneumatic test in lieu of the hydrostatic test, written approval must be obtained by the IA and TA.

2.14.4 The Contractor must provide the IA and TA with the Contractor's standard operating procedures for conducting pneumatic tank tests.

2.15 Contractor Supplied Potable Water

2.15.1 The Contractor must provide water quality test results to the IA to demonstrate the potable water supplied meets the current Health Canada Guidelines for Canadian Drinking Water Quality (http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/guidelines_sixth-rec-eng.php).

2.15.2 The Contractor must ensure lines are flushed prior to connecting the water supply to the vessel.

PART 3: GENERAL REQUIREMENTS

3.1 Electrical Work / Electronics

3.1.1 The Contractor must carry-out all electrical and electronic installations, renewals and repairs in accordance with the latest editions of:
- TP127 - "Ship Safety Electrical Standards",
- IEEE Standard 45 – 2002 "Recommended Practice for Electrical Installations on Shipboard 2002",
- CGTS-3 - "General Specifications for the Installation of Shipboard Electronic Equipment".

3.1.2 The Contractor must replace, at no charge, the entire length of point to point cable if damaged as a result of installation.

3.1.3 The Contractor must not use plastic tie-wraps to secure wiring except in panels and junction boxes.

3.2 Paint Application

3.2.1 The Contractor must ensure new and/or disturbed steel work is painted in accordance with the specification.

3.2.2 The Contractor must power clean all new and disturbed steelwork prior to painting.

3.2.3 The Contractor must notify the IA to inspect after the surface preparation and the first coat of paint has cured and prior to application of the second coat.

3.2.4 N/A

3.2.5 The Contractor must ensure new and/or disturbed steelwork receives application of at least two (2) coats of marine primer immediately upon completion of work, unless specified otherwise.

3.3 Changes to Vessel Stability, Carrying Capacity or Structure

3.3.1 The Contractor must discuss with the TA any comments, concerns or observations they may have regarding the effect of work on the vessel's stability or carrying capacity. Additionally, any work item that, in the opinion of the Contractor may pose a vessel structural integrity problem is to be brought to the attention of the TA.

3.3.2 The Contractor must advise the IA and TA of the details of any major changes in the distribution of weights on the vessel while the vessel is in dry-dock.

3.4 CCG Employees and others on the Vessel

3.4.1 Canadian Coast Guard employees and other personnel such as Manufacturer's Representatives and TCMS Inspectors may carry-out other work, including work items not included in this Statement of Work, on board the vessel during this work period. Every effort will be made by Canada to ensure this work and the associated inspections do not interfere with the Contractor's work. The Contractor is not responsible for coordinating the related inspections or payment of inspection fees for this work.

3.5 Regulatory Inspections

3.5.1 The Contractor must ensure all work identified as requiring regulatory inspection is inspected by the applicable authority such as TCMS, Health Canada, Environment Canada etc., and that the required documentation is received to prove the inspections were conducted. The Contractor must not substitute inspection by the TA or IA for required regulatory inspections.

3.5.2 The Contractor must provide original Certificates issued by inspectors to the TA and a Copy to the IA.

3.5.3 The Contractor must coordinate all regulatory related inspections required for this Statement of Work.

3.5.4 The Contractor must provide timely advance notification of scheduled regulatory inspections to the TA and IA so they may attend the inspection.

3.6 Welding

3.6.1 The Contractor must ensure welding is completed in accordance with DFO/5672 – "Welding Health and Safety Technical Program".

3.6.2 The Contractor must obtain written permission of TA prior to commencing welding.

3.6.3 The Contractor must not locally ground welding equipment near bearings or electronic equipment.

3.6.4 The Contractor must ensure all steel welding is in accordance with 18-080-000-SG-001 Welding of Ferrous Materials and the Canadian Coast Guard Welding Specifications for Ferrous Materials, Revision 4. (TP6151)

3.6.5 The Contractor must comply with CCG specification for ALUMINIUM WELDING (TP9415)

3.6.6 The Contractor must ensure that when welding of any item requires the application of fusion welding for stainless steel structures, the Contractor or his Sub-Contractors is certified in accordance with the Canadian Welding Bureau, CSA\ACNOR AWS; Division 1.6 certification – latest revision copies of which must be submitted to the IA/TA prior to the start of welding

3.7 Requirements imposed on Contractor when Equipment must be disturbed

3.7.1 The Contractor must coordinate an inspection of the condition of items (i.e.: piping, manholes, parts, equipment etc) to be removed, prior to carrying-out or to gain access to carry-out specified work. The inspection must be conducted jointly by the Contractor, the IA and the TA.

3.7.2 The Contractor must repair or replace any item that is damaged in this process. Any piping, manholes, parts, equipment etc. requiring installation after removal, must be refitted using new Contractor supplied materials such as jointing, packing, anti-seize compound, clamps, brackets, fasteners, oils, lubricants, cleaning solvents, preservatives and insulation. Materials must be in accordance with equipment manufacturers' drawings, manuals or instructions. Where a substitution must be made, the IA and TA must approve in writing the materials used.

3.7.3 The Contractor must provide a test plan and test to prove operation of disturbed items after completion of work.

3.8 Test Results

3.8.1 The Contractor must ensure tests and trials are performed to the satisfaction of the IA, TA, and TCMS. All tests, measurements, calibrations and readings must be recorded and provided in a report to the IA, TA and TCMS. The reports must be bound and typewritten, double-spaced on 8 1/2" X 11" and indexed by specification number. The reports must also be provided in Adobe pdf format.

3.8.2 The Contractor must ensure all dimensions are measured and recorded. All measuring devices must be described in the report and the name of the person taking the readings must be recorded.

3.8.3 The Contractor must ensure all testing and measurement equipment (mechanical or electronic) are calibrated and that calibration certificates are provided to the IA prior to final inspection or witnessing of tests.

3.9 Contractor Supplied Materials and Tools

3.9.1 The Contractor must unless otherwise specified, supply all materials.

3.9.2 The Contractor must ensure materials are new.

3.9.3 The Contractor must ensure material such as jointing, packing, insulation, small hardware, oils, lubricants, cleaning solvents, preservatives, paints, coatings, etc., are in accordance with the equipment manufacturer's drawings, manuals or instructions. Where no particular item is specified or where substitution must be made, the IA and TA must approve in writing the materials used. The Contractor must provide certificates of grade and quality for various materials, as requested to the TA and IA.

3.9.4 The Contractor must obtain CCG ship specific special tools from the TA and return them to the TA upon completion of work.

3.10 Machinery and Overhaul Installation

3.10.1 The Contractor must overhaul and install machinery and equipment as per the manufacturer's instructions, drawings and specifications.

3.11 Restricted Areas

3.11.1 The Contractor must not enter the following areas except to perform work as required by the specifications: all cabins, offices, workshops, engineer's office, wheelhouse, control room, public washrooms, galley, mess rooms and lounge areas.

3.12 Protecting Equipment/Areas from Damage

3.12.1 The Contractor must protect equipment/areas (example: machinery, equipment, fittings stores or items of outfit) from damage by exposure, weather, movement of materials, sand, grit, or shot blasting, welding, grinding, burning, gouging, painting or airborne particles of paint etc.

3.12.2 The Contractor must provide the IA and TA the opportunity to inspect any protection installed prior to the work commencing.

3.13 Verification of Information Provided by CCG

3.13.1 The Contractor must verify, prior to bid submission, all drawings, pictures, dimensions, descriptions, locations, measurements, engineering values, materials, etc. listed or implied. Information such as engineering drawings, pictures, etc may have been provided with the accompanying technical specifications.

3.14 Drawing Revisions

3.14.1 The Contractor must revise drawings as required to a quality at least equal to those being updated. For example, drawings that have been lettered and dimensioned in a professional manner are not to be updated by hand. Updated hard copy drawings must be provided to the IA and TA in an acceptable format and if electronic format drawings have been provided for updating, these must be returned using the same version of software as originally used.

3.15 Service Conditions

3.15.1 The Contractor must provide ice-clearing services if so required for ship movements.

3.15.2 The Contractor must provide all enclosures and heating required to carry out work, taking into account the nature of the work, time of year and weather conditions. Examples of work items where heating and enclosures may be required include but are not limited to painting, shaft withdrawal, and tank cleaning.

3.15.3 Unless otherwise specified, all components, materials and installations supplied by or carried-out by the Contractor must be adequate to meet the following service conditions:

- In areas that are exposed to the elements:
  - outside air temperature of minus 40°C to plus +35°C;
  - wind velocity up to 50 knots;
  - water temperature of minus 2°C to plus +30°C;
- shock loading of 2.5g horizontal, 1.5g vertical. All new components, materials and installations within the ship must be adequate to withstand the specified shock loading accelerations.

3.16 Recording of Work in Progress

3.16.1 The IA and TA may record work in progress using various means including but not limited to photography and video, digital or film

3.17 Washrooms and Working Hours

3.17.1 A designated washroom on board may be made available should the Contractor not have access to washroom facilities ashore. The Contractor must obtain permission from the TA.

3.17.2 Hours of work for CCG personnel working on board the vessel are from 0800 hours to 2000 hours, seven (7) days a week, excluding statutory holidays. Permission to work on the vessel outside these hours must be obtained from the TA.