CCGS LEIM SHIP REPAIR

F3065-190367

Winter 2019-20

Planned dates: 13 January to 14 February 2020

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G1K 7Y7

Contents

G 1.0 GENERAL COMMENTS

G 1.1 Information about the vessel

G 1.1.1 Details

Name:	CCGS Leim
Type:	Near-Shore Fisheries Research Vessel
Official Number:	836308
Year built:	2012
Main dimensions:	22 m
Length:	
Beam (moulded):	9.2 m
Draft at full load:	3.5 m
Tonnage (displacement):	153.3
Propulsion	Diesel reduction

G 1.1.2 Equipment

Equipment	**Brand**	**Device model**	**Serial no.**
2.0 T Crane	AMCO VEBA	V823M 4S	29005
A 5 T support	N/A	N/A	N/A
Davit	Global Davit	RHS 13/3.5	0851A03

G 1.2 References

G 1.2.1 Regulations

G 1.2.1.2 The latest version, in force at the time of signing the contract, of the laws, regulations, standards, publications and procedures mentioned below, must be used for reference. The Contractor shall ensure that all work performed in the specifications is performed in accordance with all federal and territorial standards and regulations. CCG procedures must be used as a guide if no other regulations take precedence.

Fleet Safety and Security Manual (FSSM) procedures	**Title**	**Included – Yes/No**
FSSM	Fleet Safety and Security Manual (latest edition)	yes
Specific to the vessel	Specific to the vessel: Asbestos risk appraisal report and management plan	no
Specific to the vessel	Specific to the vessel: Lead paint test report	no
Publications		
TP 127	Ships Electrical Standards	no
NFPA 306 2014	Standard for the Control of Gas Hazards in Vessels	no
TP 3669	Standards for Navigating Appliances and Equipment	no
TP 11469	Guide to Structural Fire Protection	no
TP 14231	Marine Occupational Safety and Health Program (Ships)	no
TP 14612	Procedures for Approval of Life-Saving Appliances and Fire Safety Systems, Equipment and Products	no
TP 4414 E	Guidelines Respecting Helicopter Facilities on Ships	no
IEEE 45	Institute of Electrical and Electronic Engineers, Recommended Practice for Electrical Installations on Shipboard	no
70-000-000-EU-JA-001	Specification for the Installation of Shipboard Electronic Equipment	no
IEC 60533	Electrical and electronic installations in ships – Electromagnetic compatibility	no
IEC 60945	Maritime navigation and radiocommunication equipment and systems – Methods of testing and required test results	no
Publication – continued	**Title**	**Included – Yes/No**
EPS Report 1/RA/2	Environmental Code of Practice for the Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems (Environment Canada)	no
NFPA 10	Standard for Portable Fire Extinguishers	no

18-080-000-SG-003 (formerly DFO/5884 – TP 12445E)	PAINT AND COATINGS STANDARD	no
Standards	**Title**	**Included – Yes/No**
CCG	CCG CAD Using AutoCAD http://intra.coast-guard.ca/folios/00922/docs/ccgstden.zip	no
CCG	CCG Electronic Data Management Standard	no
CCG	Production of CCG trim and stability booklet MECTS No. 3350860	no
CCG	Colour Coding Standard for Piping Systems 30-000-000-ES-TE-001	no
CSA W47.1	Fusion Welding of Steel Company Certification, Section 2 (Certification)	no
CSA W47.2	Fusion Welding of Aluminum Company Certification	no
CSA W59	Welded Steel Construction (Metal Arc Welding)	no
CSA W59.2	Welded Aluminum Construction	no
ISO 9712:2005	International Standards on Non-destructive Testing	no
CT-043-EQ-EG-001-E	Welding Specification http://intra.coast-guard.ca/folios/00922/docs/WeldingSpecification-eng.pdf	yes
SSPC	The Society for Protective Coatings	no
ISO 8501-1:2007	Preparation of steel substrates before application of paints and related products	no
ISO 10816-1:1995	Mechanical vibration – Evaluation of machine vibration by measurements on non-rotating parts – Part 1: General guidelines	no
ASME Y14.100	*American Society of Mechanical Engineers Y14.100 – 2017 Engineering Drawing Practices – Nov. 14 2017*	no
Regulations	**Title**	**Included – Yes/No**
MOHSR	*Maritime Occupational Health and Safety Regulations*	no
CSA	*Canada Shipping Act*	no
Fire safety regulations	Marine Machinery Regulations (SOR/90-264)	no
Fire safety regulations	Vessel Fire Safety Regulations (SOR/2017-14)	no
Hull regulations	Hull Inspection Regulations (C.R.C., c. 1432)	no
Regulations – continued	**Title**	**Included – Yes/No**
Canada Labour Code	Canada Labour Code (R.S.C. (1985), c. L-2	no
Workplace Safety and Workers' Compensation Commission – Workplace safety regulations for the province or territory in which the work is performed	https://www.ccohs.ca/oshanswers/information/wcb_canada.html	no

G 1.2.2 Reference drawings

G 1.2.2.1 The following drawings are to be considered as reference drawings, as defined in the Drawings section of the General Remarks.

Drawing no.	DRAWING TITLE	Number of sheets
ISV22-30009RMM13	General arrangement	
ISV22-30400RMM7	Fire safty plan	
ISV22-61850RMM2	120 VAC & 24 VDC distribution plan	
ISV22-80500RMM1	Heating distribution plan	
ISV22-81100RMM6	Machinery space ventilation arrangement	
N/A	Ngcc Leim extincteurs portatifs	
915.5	FIRE DETECTION SYSTEM - Drawing_Binder_25M_(H008)	
915.5	FIRE DETECTION SYSTEM - ISV_IFDS_System Binder_25M_22M_(ISV008,ISV009,ISV010)_2011_08_12_FT	
728	FIRE EXTINGUISHING SYSTEMS, FIXED – SPECIFICATIONS	
N/A	CCR 2015-2794 Appendices	
N/A	Liste des cicuits électriques du Leim	
N/A	Online electrical distribution	
LEIM-81500RMM16	HVAC System Diagram	
LEIM-81510RMM7	HVAC Ducting Diagram	
NT-2689-18-DE100A	Modification aux conduits d'échappement moteurs et groupe électrogènes	
ISV22 76000 R3	Machinery Exhaust Piping Arrangement	
420.1	DECK CRANE V823 45-Use&Maintenance Manual	
420.1	DECK CRANE V823 45-Winch Owner manual	
425.1	A-FRAME GANTRY-Approved Structure Drawings	
430.1	CTD-DAVIT-ISV22-Approved Structural	
430.2	CTD-WINCH-DB-1716-S Owners Manual	
N/A	GLOBAL DAVIT instructions	
N/A	Datasheet-GD RHS13-3.5 Rescue Boat Davit	
920.8.5	DGPS-AIS SYSTEM – SAAB-R4 (Manual)	
930.4	NAVETEX-RECEIVER NX700	
	F3771-18IN066 PLAN1	
	F3771-18IN066 PLAN2	

	F3771-18IN066 PLAN3	
ISV22-30400RMM3	Door & hatches Shedule	
811.3.1	63JM 180P Fan Assembly with inlet bell	
811.3.1	Technical Data Sheet & Performance Chart	
ISV22-73510RMM4	Sea Water Service Cross Connection Arrangement	
ISV22-73510RMM11	Cooling Water System Diagram	
405.1.2	HSF-2226 Anchor winch	

G 1.2.3 Tanks

G 1.2.2.1 The following is a list of tanks on board, with their location by frame number and their capacity (if applicable). They are provided for information purposes only and do not take precedence over any specifications.

Tank name	Location	Capacity in m^3
N/A		

G 1.2.2.2 Abbreviations make amendments or deletions as needed; add new abbreviations to the Standard Clauses of the General Remarks.

ACM : Asbestos Containing Material	MCA : Matériaux contenant de l'amiante
CFM : Contractor Furnished Material and/or Equipment	MFE : Matériel fourni par l'entrepreneur
CLC : Canada Labour Code	CCT : *Code canadien du travail*
CSA – Association canadienne de normalisation	CSA : Association canadienne de normalisation (ACNOR)
CWB : Canadian Welding Bureau	BCS : Bureau canadien du soudage
DFO/CCG : Department of Fisheries and Oceans, Canadian Coast Guard	MPO/GCC : Pêches et Océans Canada, Garde côtière canadienne
FSR : Manufacturer's Field Service Representative	RD : Représentant détaché (du fabricant)
FSSM : Fleet Safety and Security Manual	MSSF : Manuel de sécurité et de sûreté de la flotte
GSM : Government Supplied Material and/or Equipment	MFG : Matériel fourni par le gouvernement
HC : Health Canada	SC : Santé Canada
IEEE : The Institute of Electrical & Electronic Engineers Inc.	IEEE : Institut des ingénieurs électriciens et électroniciens

MSDS : Material Safety Data Sheet	FS : Fiche signalétique
NDT : Non Destructive Testing	END : Essais non destructifs
OEM : Original Equipment Manufacturer	FEO : Fabricant d'équipement d'origine
OHS : Occupational Health and Safety	SST : Santé et sécurité au travail
PWGSC : Public Works and Government Services Canada	TPSGC : Travaux publics et Services gouvernementaux Canada
RO : Recognized Organization as defined by Canada Shipping Act.	OR : Organisme reconnu au sens de la *Loi sur la marine marchande du Canada*
SSMS : Safety and Security Management System	SGSS : Système de gestion de la sécurité et de la sûreté
TBS : Treasury Board of Canada Secretariat	SCT : Secrétariat du Conseil du Trésor du Canada
TA : Technical Authority -CCG Superintendent, Marine Engineering Western Region, or her delegated Representative	AT : Autorité technique – Surintendant de la GCC, Ingénierie navale, région de l'Ouest, ou son représentant délégué
TCMS : Transport Canada Marine Safety	SMTC : Sécurité maritime de Transports Canada
TI : Technical Inspector – CCG delegated	IT : Inspecteur technique – Délégué de la GCC
VCS : Vessel Condition Survey	EEN : Examen de l'état d'un navire
VLE : Vessel Life Extension	PVN : Prolongement de vie d'un navire
WCB : Workers' Compensation Board	CNESST : Commission des normes, de l'équité, de la santé et de la sécurité du travail
WHMIS : Workplace Hazardous Materials Information System	SIMDUT : Système d'information sur les matières dangereuses utilisées au travail

G 1.3 Conditions and definitions

N/A

G 1.4 Various provisions

G 1.4.1 Occupational health and safety

G 1.4.1.1 The Contractor and all subcontractors shall comply with occupational health and safety (OHS) measures in accordance with relevant federal and provincial regulations so that the Contractor's activities are conducted safely and without compromising the safety of any staff member.

G 1.4.1.2 When this document refers to the "Safety Management System," this means the Contractor's safety management system, which must be in effect for the entire

time that the Contractor has material under its care and custody and must comply with the applicable OHS regulations and procedures.

a) For all work on the Canadian Coast Guard vessel, the Contractor shall meet or exceed the Safety Management System defined in the FSSM, unless the Contractor has proposed a comprehensive safety management system that has been reviewed and accepted by the Technical Authority.

G 1.4.1.3 The Contractor, while working on the vessel while it is under the care and custody of the Canadian Coast Guard, shall follow the CCG Safety Management System:

a) The Contractor and all of its representatives shall attend a vessel safety orientation session prior to the commencement of any work to familiarize the Contractor's employees with the vessel's hazards and its work protocol permit systems, as well as with the procedures for safety, risk prevention, hazard response and the safety assessments prior to the work. The Contractor will have access to an uncontrolled copy of the Fleet Safety and Security Manual.
b) The Contractor shall comply with the Fleet Safety and Security Manual (DFO/5737), the instructions for working aboard the vessel, and the relevant requirements of the Canada Labour Code during performance of the following types of work:

i. Work at heights;
ii. Entry into confined spaces;
iii. Gas-freeing before entering confined spaces and for hot work;
iv. Lockout/tagout;
v. Safety assessments before the work.

c) The Contractor and its representatives shall attend a vessel safety orientation session before beginning any work to familiarize the Contractor's employees with the vessel's hazards and its work protocol permit systems. During this session, CCG will review the procedures for safety, risk prevention, hazard response and safety assessment prior to the work. The Contractor will have access to an uncontrolled copy of the Fleet Safety and Security Manual.
d) For lockout/tagout procedures, in addition to the devices provided to the vessel's crew by the Chief Engineer, the Contractor shall provide locks and locking devices to its employees.

e) The Contractor shall comply with the land-based safety procedures and instructions for local facilities.

G 1.4.1.4 The Contractor shall designate a specific person who is responsible for the management of workplace safety. The Security Manager must ensure that daily safety rounds are conducted, safety issues are identified, and safety precautions are maintained.

G 1.4.1.5 Places that present a risk due to work included in the specifications must be secured by the Contractor. The Contractor shall clearly indicate these places by putting up posters to inform and protect all staff, in accordance with the applicable regulations.

G 1.4.2 Lead paints and coatings

G 1.4.2.1 The Contractor shall not use lead paint.

G 1.4.2.2 In the past, lead paint was used to paint CCG vessels. Consequently, some of the Contractor's processes, such as grinding, welding and burning, could release the lead contained in the coatings. The Canadian Coast Guard will provide copies of all available lead analysis results.

G 1.4.3 Damaged paint and retouching

G 1.4.3.1 The Contractor shall, at a minimum, repair paint systems that have been altered by the indicated work. Paint systems must match those of the vessel and be applied in accordance with procedures recommended by the paint manufacturer.

G 1.4.4 Asbestos-containing materials (ACM)

G 1.4.4.1 The Contractor shall use insulation that contains 0% ACM.

G 1.4.4.2 The Contractor will receive, upon request, the most recent asbestos risk assessment report and the CCG Asbestos Management Plan.

G 1.4.4.3 Handling of asbestos-containing materials must be performed by trained personnel or a company certified in asbestos removal, in accordance with federal, provincial/territorial and municipal regulations.

G 1.4.4.4 The Contractor shall provide the TA with certificates of disposal for all asbestos-containing materials removed from the vessel to demonstrate that the

disposal has been performed in accordance with the federal, provincial and municipal regulations in force.

G 1.4.4.5 The Contractor shall provide an "Observation Report" containing concerns or intentions related to asbestos-containing materials that have not previously been specified. Before performing the work, the Contractor shall determine all materials that may contain asbestos. Approved work resulting from the Observation Report must follow the procedures for additional work.

G 1.4.5 Confined spaces

G 1.4.5.1 Access to confined spaces aboard the vessel during the contract period must comply with the Safety Management System determined at the meeting prior to the work. In addition to these requirements, the Contractor shall also perform the following tasks:

a) Ensure that a qualified person issues a gas-freeing certificate for the spaces to be visited and display the certificate near the entrance to these spaces. Ensure that certificates specify "No danger for persons" or "No danger for hot work," as applicable.
b) Provide the TA with a copy of all certificates produced, in accordance with the Documentation section of the General Remarks.

G 1.4.6 Hot work

G 1.4.6.1 All hot work performed under the contract must comply with the Safety Management System. In addition to complying with the requirements of the Safety Management System, the Contractor shall also, at a minimum:

a) Certify that the confined spaces are "safe for hot work" in accordance with the Confined Spaces section of the General Remarks;
b) Keep all portable combustible materials at a safe distance of at least two metres;
c) Provide and install protective materials to prevent the spread of sparks and to protect electrical cables and other services;
d) Provide and post fire watches in each space where welding, grinding or burning is performed on partitions, ceilings or decks, as well as in the space adjacent to this work;
e) Provide appropriate fire extinguishers for fire watch members and ensure each member has been trained in the use of fire extinguishers. The fire watch shall monitor the designated location for a minimum of thirty (30) minutes after completion of the hot work. The Contractor shall record the

fire watch monitoring time on all hot work permits, indicating the end time of the hot work and the time the fire watch left its post;

f) Provide the TA with a copy of the hot work permits issued on site in accordance with the Documentation section of the General Remarks and named according to the task of the specifications generating the required work.

G 1.4.7 Working aloft

G 1.4.7.1 All work done aloft in the masting of the vessel during the maintenance or refit period must comply with the Safety Management System. Notices must be posted to prevent operation of the radar while staff are working at heights on the mast or roof of the bridge.

G 1.4.8 Electrical equipment

G 1.4.8.1 When work is performed on electrical equipment, the Contractor shall lock the equipment in accordance with the Safety Management System and, at minimum, perform the following:

a) Isolate the main power source and any other source of power to the equipment;

b) Install locks and warning labels on the main power source and any other power source for switches/disconnectors attached to the equipment being serviced;

c) Make sure there is no supply voltage to the terminals;

d) Ensure padlocks and warning labels remain in place until all work is completed.

G 1.4.8.2 The TA must be notified of all work in progress.

G 1.4.8.3 All electrical installations and repairs must be performed in accordance with the latest versions of Transport Canada standard TP127E (Ships Electrical Standards) and IEEE 45 (Recommended Practice for Electric Installations on Shipboard). TP127 takes precedence over the IEEE standard.

G 1.4.9 Workplace Hazardous Materials Information System (WHMIS)

G 1.4.9.1 The Contractor shall provide the Technical Authority with Material Safety Data Sheets (MSDS) for all products that it and its sub-contractors provide and that are controlled in accordance with WHMIS. The MSDS must be presented in the formats requested in the Documentation section of the General Remarks.

G 1.4.9.2 All MSDS must be kept up to date in accordance with OHS procedures.

G 1.4.9.3 The TA must allow the Contractor to access the MSDS of all controlled products on board the vessel for all work items specified on the request.

G 1.4.10 Smoking in the workplace

G 1.4.10.1 The Contractor shall ensure compliance with the *Non-smokers' Health Act*. The Contractor shall ensure that no one smokes aboard the vessel, including its employees or subcontractors and the employees of any subcontractor.

G 1.4.11 Material and tools provided by the Contractor

G 1.4.11.1 The Contractor shall ensure that all replacement products, such as seals, gaskets, insulation, small hardware items, oils, lubricants, cleaning solvents, preservatives, paints, liners, coatings, etc., are compliant with the drawings, manuals and instructions of the equipment manufacturer.

G 1.4.11.2 Where no particular item is specified or where a replacement must be made, the Contractor shall provide the TA with an Observation Report indicating the replacement or unspecified items. The Contractor shall give the TA details on the materials used and the grade and quality certificate of various materials before using them.

G 1.4.11.3 The Contractor shall provide all equipment, devices, tools and machinery, such as cranes, scaffolding, trellising and couplings, required to perform the work under these specifications.

G 1.4.11.4 The Contractor shall deliver all new equipment that it must provide to its facilities and store it there. Equipment supplied by the Contractor must be stored in a secure, environmentally-controlled space in accordance with the Equipment Storage section of these specifications.

G 1.4.11.5 All tools must be provided by the Contractor unless otherwise specified in the technical specifications.

G 1.4.12 Material and tools provided by the government

G 1.4.12.1 If the TA provides tools, the Contractor shall return them to the TA in the condition in which they were borrowed. Borrowed tools must be inventoried. The Contractor shall sign the inventory statement upon receipt of the tools and when they are returned to the TA.

G 1.4.12.2 Government furnished equipment that is not specifically mentioned in the technical specifications must be sent to the Contractor and stored in accordance with the Equipment Storage section of these specifications. These activities must be described in the engineering change or additional work procedures. (PWGSC Form 1379).

G 1.4.13 Storage

G 1.4.13.1 Equipment (i.e., covers, hoods and other elements that may need to be removed and stored) must be stored in accordance with the storage instructions of the equipment manufacturer or supplier. The Contractor shall make these instructions available to the Technical Authority.

G 1.4.13.2 All equipment and items shall be stored so that they are easily accessible for inspection. No item shall be stored directly on the ground.

G 1.4.14 Regulatory verifications and classification surveys

G 1.4.14.1 All modifications and work performed shall be performed in compliance with the regulations of the classification society Bureau Veritas. This requirement applies only to the CCGS Leim under the present tender.

G 1.4.15 Contractor inspections

G 1.4.15.1 In collaboration with the TA, the Contractor shall coordinate an inspection of the condition and location of items to be removed before performing the indicated work or accessing an area to perform work.

G 1.4.15.2 The Contractor shall take a photo showing the condition of the item before removing it. Each photo must comply with the Documentation section of the General Remarks and be named in accordance with the section of the specifications that resulted in the removal of these items.

G 1.4.15.3 Prior to completing a task under these specifications, the Contractor shall allow the TA to verify that the work has been completed in accordance with the specifications. The Contractor shall therefore have all the photos, documents, reports and test plans that relate to the task that is deemed complete.

G 1.4.16 Records of work in progress

The TA may record work in progress in various ways, including using photos, videos, digital media and film.

G 1.4.17 Access for maintenance, installation and removal

G 1.4.17.1 [N/A]

G 1.4.18 Assembly of components

G 1.4.18.1 The Contractor shall ensure that during the installation of the specified equipment, the parts and equipment assembled are cleaned to remove stains, weld spatter or excess solder, filler metal, metal flakes or other foreign material that could interfere with the normal operation, function or appearance of the equipment. This includes any particles that could dislodge or move during the expected normal service life of the equipment. All corrosive materials must be eliminated. This cleaning must take place before assembly of the equipment parts.

G 1.4.18.2 The Contractor shall replace damaged covers, hoods and components with new covers, hoods or components.

G 1.4.18.3 If the manufacturer does not provide the necessary information, the bolt and nut tightening torques specified in the SAE, ANSI or BS 1083 standards must be used.

G 1.4.19 Equipment protection

G 1.4.19.1 The Contractor shall take measures to ensure that the surfaces and components of equipment installed aboard the vessel are protected from damage, soiling and contaminants produced by the work.

G 1.4.19.2 Throughout the work under the contract, all electrical and electronic equipment and components must be protected against physical and internal damage and the effects of temperature or other adverse environmental conditions.

G 1.4.19.3 The Contractor shall protect equipment that may be damaged due to the movement of materials and equipment in the vicinity. The Contractor shall also protect the equipment from nearby sources of contamination including, but not limited to, burning, welding, spraying abrasives (sandblasting), grinding and painting.

G 1.4.19.4 All surfaces and all equipment, furniture or decorations damaged before acceptance must be returned to the condition they were in before the Contractor's work.

G 1.4.19.5 All openings of machines or systems must be equipped with full, well-fitting, solidly attached covers or plugs at all times while awaiting connections.

G 1.4.19.6 The Contractor shall obtain and follow the instructions of its sub-contractors regarding the special protective measures required for the equipment they provide during the work. These instructions shall be transmitted to the TA.

G 1.4.19.7 Protective devices including, but not limited to, plastic sheeting, flame retardant covers, heavy-duty cloths, wood stoppers, wooden enclosures and heating devices shall be used as needed.

G 1.4.19.8 The Contractor shall protect the vessel against the risk of infestation by vermin (insects, mammals and birds). If an infestation occurs during the contract period, the Contractor shall bear the costs for extermination of the vermin prior to the vessel's departure and the end of the contract.

G 1.4.20 Systems containing halocarbons

G 1.4.20.1 All work on systems containing halocarbons must comply with the Federal Halocarbon Regulations (2003)(SOR/2003-289). These regulations can be consulted at the following Internet address: http://laws-lois.justice.gc.ca/eng/regulations/SOR-2003-289/page-1.html

G 1.4.21 Welding

G 1.4.21.1 In addition to section 7.16 Certification for Welding Standards – Contract, all welding and weld inspection work must be conducted in accordance with CCG's CT-043-eq-eg-001 Welding Specification. This document will be delivered to the Contractor within 48 hours of a written request to the TA.

G 1.4.21.2 The standards governing welding of material less than 3 mm thick must meet the requirements of CCG's CT-043-eq-eg-001 Welding Specification. For materials over 3 mm thick, the Contractor shall comply with the following requirements:

a) For structural steel over 3 mm thick, welding must meet the requirements of CSA W47.1 and W59, except for the modifications specified in CCG's CT-043-eq-eg-001.

b) For structural aluminum over 3 mm thick, welding must meet the requirements of CSA W47.2 and W59.2, except for the modifications specified in CCG's CT-043-eq-eg-001.
c) For structural stainless steel over 3 mm thick, welding must meet the requirements of CSA W47.1 and AWS D1.6 and the requirements in CCG's CT-043-eq-eg-001.

G 1.5 Documentation

G 1.5.1 Text documents

G 1.5.1.1 All text deliverables must be accompanied by a PDF file containing the complete document. The Contractor shall perform quality control to verify that the content exactly reproduces the content and formatting of the master document file. In case of amendments, a second PDF file containing only the amended pages must be provided.

G 1.5.1.2 Further guidance is provided in Canadian Coast Guard specification CA-0140-00-NU-TD-002, Electronic Technical Data Deliverables.

G 1.5.2 Data collection

G 1.5.2.1 The Contractor shall provide all documentation resulting from specified deliverables in electronic and printed versions. According to the contractors' quality assurance program, two hard copies of each document are required in two separate books. An electronic copy of all documentation must also be provided to the TA in accordance with the formats described in this section of the specifications.

G 1.5.2.2 All copies of documents resulting from specified deliverables will be referred to as "Data Collection."

G 1.5.2.3 The Contractor shall provide the TA with all files created as part of the Data Collection before the contract is deemed to have been executed. The files must be in physical format (CD-ROM, DVD-ROM and USB key). Each task in the specifications must have its own folder, named according to the specification task. For example, "G1.0 General Remarks."

G 1.5.2.4 All documents, information materials and reports resulting from additional work must also be included in the data collection.

G 1.5.3 File identification

G 1.5.3.1 [N/A]

G 1.5.4 Emails

G 1.5.4.1 CCG Project Lead: to be determined at contract award

PSPC Procurement Officer: Refer to Contract

G 1.5.5 File formatting

G 1.5.5.1 All documents, reports, test results, certificates or information obtained by the Contractor in paper format must be scanned into unprotected Adobe PDF formatted files that are searchable and named according to the File Identification section of these specifications.

G 1.5.5.2 All reports, test results, certificates or raw data obtained by the Contractor in electronic format must be converted into unprotected Adobe PDF formatted files named according to the File Identification section of these specifications. The original copy and the converted copy must be included in the data collection.

G 1.5.6 Photographs

G 1.5.6.1 All photographs obtained by the Contractor according to the requirements of the specifications must be provided in JPG format with a resolution of at least 640 x 480 and be named according to the File Identification section of these specifications.

G 1.5.7 Measurements, calibrations and readings

G 1.5.7.1 Recorded measurements, calibrations and readings must all be accompanied by the signature of the person who made them and must be dated and digitized in electronic format for inclusion in the data collection.

G 1.5.7.2 Unless otherwise indicated, the Contractor shall record dimensions in Imperial units with three significant digits and the equivalent in metric units.

G 1.5.7.3 The Contractor shall provide the TA with valid and current control values and calibration certificates for all instruments used for the testing and trial plan to prove that the instruments were calibrated in accordance with the

manufacturer's instructions. These documents must be included in the data collection for all tasks requiring measurements.

G 1.5.8 Inspection and test records and certificates

G 1.5.8.1 Inspection or test records and certificates are referred to as deliverables in the tasks of the specification that requires them.

G 1.5.8.2 Inspection or test records and certificates must be included in a separate section of the data collection and filed or organized by specification number.

G 1.5.8.3 The Contractor shall maintain a complete and accurate record of all tests and trials performed on the vessel or on each piece of equipment. Before starting a test, all relevant test sheets and documents, including workshop test data, must be completed and attached to the test program.

G 1.5.8.4 All test and trial data in paper and electronic format must be legible. If necessary, handwritten documents may need to be reproduced in an electronic medium to be acceptable. The original copy must be signed by the regulatory agency, the TA, the Contractor and, if applicable, the sub-contractors or FSRs who attended the tests. All data must be submitted to the TA in accordance with the Documentation section of the General Remarks.

G 1.5.8.5 The Contractor shall also provide the TA with the original copies of each certification document in an envelope bearing the name of the vessel and the words "Original Certificates."

G 1.6 Drawings

G 1.6.1 The Drawings section of the General Remarks is intended to be used as a reference for minimum standards where specified deliverables must be drawings.

G 1.6.2 Reference drawings - 3 copies

G 1.6.3 [N/A]

G 1.7 Manuals

G 1.7.1 The Manuals section of the General Remarks is intended to be used as a reference for minimum standards where specified deliverables must be manuals.

G 1.7.2 General information

G 1.7.2.1 Enter the applicable clauses indicated in the Standard Clauses section of the General Remarks.

G 1.7.3 Operating manuals

G 1.7.3.1 Enter the applicable clauses indicated in the Standard Clauses section of the General Remarks.

G 1.7.4 Maintenance manuals

G 1.7.4.1 Enter the applicable clauses indicated in the Standard Clauses section of the General Remarks.

G 1.8 Identification

G 1.8.1 Identification plates

G 1.8.1.1 Enter the applicable clauses indicated in the Standard Clauses section of the General Remarks.

G 1.8.2 Labelling of cables

G 1.8.2.1 Labelling of cables is designated as a deliverable in the tasks of the specification that requires it.

G 1.8.2.2 Enter the applicable clauses indicated in the Standard Clauses section of the General Remarks.

S 1.0 SERVICES

S 1.1 GENERAL INFORMATION

S 1.1.1 The purpose of this specification is to provide the required services to the vessel as of the start of the refit and to remove them at the end of said refit. These services will be supervised by the Chief Engineer and will remain throughout the refit. The Contractor shall provide all the material and tools up to the connection points.

S 1.2 DOCKING

S 1.2.1 [N/A]

S 1.3 MOORING LINES

S 1.3.1 [N/A]

S 1.4 GANGWAYS

S 1.5 [N/A]

S 1.6 POWER SUPPLY

S 1.6.1 The CCG allows the Contractor to use the vessel's 120 V electrical power for the duration of the contract.

S 1.7 PROTECTION OF DECKS OF ROOMS AND ENGINE ROOMS

S 1.7.1 The Contractor shall repair, at its own expense, any damage resulting from its actions during performance of its work and that may be attributed to its performance. Any material used in a replacement or repair must comply with the criteria for the material provided by the Contractor as indicated above in the section Tools and Materials Provided by the Contractor.

S 1.7.2 The Contractor shall protect all equipment and all neighbouring areas against damage. Work areas must be protected against flooding and water leaks, debris from sandblasting, welding, etc. Temporary tarpaulins must be placed over work areas.

S 1.8 HEATING

S 1.8.1 Vessels are constantly heated. Extended power cuts must be made with the permission of the Chief Engineer or TA.

S 1.9 WORKPLACE INSPECTIONS

S 1.9.1 The Contractor shall coordinate an inspection of the condition and location of items to be removed with the TA and the IA before performing the specified work or accessing a location to work in it.

S 1.10 FIRE PROTECTION

S 1.10.1 [N/A]

S 1.11 PROJECT FACILITIES

S 1.11.1 The Contractor shall provide chemical toilets for its employees. The Contractor's staff will not be authorized to use the washrooms inside buildings at the Canadian Coast Guard base. Note that the washrooms aboard the vessels will be out of service.

S 1.11.2 The Contractor does not have access to the rooms or rest areas of the GCC base or vessels for its employees. A construction trailer is accepted on the premises with the prior agreement of the base authorities and Technical Services.

10.0 Safety and security

10.1 INSPECTION OF PORTABLE EXTINGUISHERS

10.1.A Identification

10.1.A.1.1 The contractor must inspect all extinguishers and re-certify those where the certification has expired.

10.1.A.2 Carry out the annual inspection of eighteen (18) portable extinguishers.

10.1.B References

10.1.B.1 Equipment data

10.1.B.1.1 Portable extinguishers.

10.1.B.2 Drawings

10.1.B.2.2 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks.

Drawing Number	DRAWING TITLE	Number of sheets
ISV22 -30000RMM13	General fit-out drawing	
N/A	CCGS Leim - portable extinguishers.	

10.1.B.3 Regulations and standards

N/A

10.1.C Statement of work

10.1.C.1 Extinguisher inspection and maintenance will be carried out by a qualified supplier instructed by and under the responsibility of the contractor. The inspection certificate must be issued by a supplier authorized by Classified society exemple : Bureau Veritas (BV), ABS, Loyds, DNVL.

10.1.C.2 Remove the extinguishers sequentially so that the number of extinguishers off-ship never exceeds one third of the total onboard (maximum 6). The chief engineer will determine the order of removal for the extinguishers.

10.1.C.3 On completion of maintenance, bring all the extinguishers back on board and replace them according to the chief engineer's instructions.

10.1.C.4 NB: None of the extinguishers are due for hydrostatic testing.

10.1.D **Proof of performance**

10.1.D.1 Inspection points

10.1.D.1.1 The work must all be completed to the satisfaction of the chief engineer and ABS inspector.

10.1.D.2 Tests and trials

10.1.D.2.2 The extinguishers will be tested in compliance with the rules of the ABS classification organization.

10.1.D.3 Certification

10.1.D.3.3 The contractor must provide the chief engineer with two (2) paper copies of the maintenance certificates as well as the originals. The contractor will also send a digital copy of the certificates to the ship's maintenance officer.

10.1.D.4 Documentation

10.1.D.4.4 The contractor must securely fix a long-lasting label to each extinguisher inspected. The labels must show the name of the company, date of inspection and the technician's name or initials.

10.1.D.5 Training

10.1.D.5.5 [N/A]

10.2 FIRE DETECTION SYSTEM

10.2.A **Identification**

10.2.A.1 This specification is for the contractor to supply accredited personnel to carry out the annual inspection and certification of the fire detection system.

10.2.B **REFERENCES**

10.2.B.1 Equipment data

10.2.B.1.2 The vessel is equipped with a Techsol integrated fire detection system with Notifier NFS2-640 fire alarm control panel. The Notifier NFS2-640 control panel is linked

into the integrated fire alarm system that is part of the vessel's monitoring and alarm system.

10.2.B.2 Drawings

Drawing Number	DRAWING TITLE	Number of sheets
915.5	FIRE DETECTION SYSTEM - Drawing_Binder_25M_(H008)	
ISV22-36000RMM7	Fire safety plan	
915.5	FIRE DETECTION SYSTEM - ISV_IFDS_System Binder_25M_22M_(ISV008,ISV009,ISV010)_2011_08_12_FT	

10.2.B.3 Regulations and standards

N/A

10.2.C **Statement of work**

10.2.C.1 Schedule a visit by a Bureau Veritas inspector before the works begin.

10.2.C.2 Provide certified manpower to perform the annual inspection and certification of the fire detection system. The inspection certificate must be issued by a supplier authorized by a classification society recognized as ABS, Bureau Veritas, Loyds, DNVL.

10.2.C.3 The fire detection system control panel is on the port side of the wheelhouse.

10.2.D **Proof of performance**

10.2.D.1 Inspection points

10.2.D.1.2 The work must all be completed to the satisfaction of the chief engineer and ABS inspector.

10.2.D.2 Tests and trials

10.2.D.2.1 The chief engineer and/or TA must be present when the system is tested.

10.2.D.3 Certification

10.2.D.3.2 The contractor must provide the chief engineer with two (2) paper copies of the maintenance certificates as well as the originals. The contractor will also send a digital copy of the certificates to the ship's maintenance officer.

10.2.D.4 Documentation

10.2.D.4.3 The contractor will provide the chief engineer with one (1) paper copy of their typed report detailing the inspections and any changes and repairs made before this element is accepted. The contractor also sends a digital copy of the report to the ship's maintenance officer no later than five (5) days after the end of the works awarded in the contract.

10.2.D.5 Training

10.2.D.5.4 N/A

10.3 ANNUAL INSPECTION OF THE FIXED FIREFIGHTING SYSTEM

10.3.A Identification

10.3.A.1 This specification is for the maintenance and certification of the fixed firefighting system aboard the CCGV Leim.

10.3.B References

10.3.B.1 Equipment data

10.3.B.1.2 The fixed firefighting system is a Novec 1230 system from 3M.

10.3.B.2 Drawings

Drawing Number	DRAWING TITLE	Number of sheets
728	FIRE EXTINGUISHING SYSTEMS, FIXED – SPECIFICATIONS	

10.3.B.3 Regulations and standards

N/A

10.3.C Statement of work

10.3.C.1 The contractor communicates with the chief engineer before beginning work on this element. The work must be carried out in parallel to the portable extinguishers maintenance, so as not to reduce firefighting capacity on board.

10.3.C.2 Provide authorized personnel to carry out tests and inspections of the vessel's Novec 1230 system, performing said system's annual inspection and certification. The inspection certificate must be issued by a supplier authorized by a classification society recognized by ABS, Bureau Veritas, Loyds, DNVL.

10.3.C.3 The chief engineer must be present for all tests.

10.3.C.4 As well as the tests below, carry out all tests required by the ABS inspector on site.

10.3.C.5 The estimate must include the cost of testing the alarms (warning lights, sirens and bells) on all the systems, testing the nitrogen release canisters, the ventilation shut-down system and the release loops and cables.

10.3.C.6 Use compressed air to clean pipes and pneumatic actuators and ensure they are operating correctly. Pipes and nozzles must be free from obstruction.

10.3.C.7 Ensure that alarm displays and sirens are operating correctly. The contractor must weigh each canister and record the results. On completion of the works, copies of all the certificates must be passed to the chief engineer.

10.3.C.8 On completion of the tests and inspections, re-assemble and re-activate the systems.

10.3.C.9 The Novec extinguishers are in the cargo hold.

10.3.D **Proof of performance**

10.3.D.1 Inspection points

10.3.D.1.2 All work must all be completed to the satisfaction of the chief engineer, the ship's maintenance officer and ABS regulatory authority.

10.3.D.2 Tests and trials

10.3.D.2.1 The chief engineer must be present for the inspection and testing of the system.

10.3.D.3 Certification

10.3.D.3.2 The contractor must provide the chief engineer with two paper copies of the maintenance certificates as well as the originals. The contractor will also send a digital copy of the certificates to the ship's maintenance officer.

10.3.D.4 Documentation

10.3.D.4.3 The contractor will provide the chief engineer with one paper copy of their typed report detailing the inspections and any changes and repairs made before this element is accepted. The contractor also sends a digital copy of the report to the ship's maintenance officer no later than five (5) days after the end of the works awarded in the contract.

10.4 INSPECTION OF THE GLOBAL DAVIT RHS 13/3.5 MODEL DAVIT

10.4.A.1 Identification

10.4.A.1.2 Carry out the five-yearly inspection, certification and maintenance of the Global Davit davit.

10.4.B **References**

10.4.B.1 Equipment data

10.4.B.1.1 -Global Davit RHS 13/3.5 model davit

10.4.B.2 Drawings

10.4.B.2.2 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks.

Drawing Number	DRAWING TITLE	Number of sheets
	GLOBAL DAVIT instructions	
	Datasheet-GD RHS13-3.5 Rescue Boat Davit	

10.4.B.3 Regulations and standards

10.4.B.3.3 The regulations and standards below apply to works executed in this section; the contractor must ensure that all the works executed in this section satisfy these regulations and standards, as well as both federal and territorial regulations and standards.

Fleet Safety and Security Manual (FSSM) procedures	Title	Included - Yes/No
Section 10	Loading tool maintenance	Yes

10.4.B.4 Statement of work

10.4.B.5 Davit

10.4.B.5.1 Study the maintenance manual and carry out the works required by the manual; the following points are only a summary.

10.4.B.5.2 The contractor is responsible for dismounting the davit from the vessel's structure and transporting it to a workshop for a complete service of its structure and moving parts. Sand-blast the davit taking care to protect vulnerable parts. Use SP10 blasting to rusted areas and SP6 to un-rusted. Paint will be provided by CCG, but the contractor must specify the quantity.

10.4.B.5.3 Check the steel cable and its hook are undamaged, oil the cable.

10.4.B.5.4 Check all hoses and rigid connections to locate any anomalies or leaks.

10.4.B.5.5 Make a visual check of the pulley and structure for any defects.

10.4.B.5.6 Change the 90 liters of ISO VG 15 HLP type hydraulic oils, as approved by the manufacturer. Replace gasket seals.

10.4.B.5.7 Change the 1.1 liters of ISO VG CL 68 in the gearbox, replace gasket seals.

10.4.B.5.8 Check hydraulic pressure in the system and accumulator.

10.4.B.5.9 Check the brake linings and their operation as per the manual.

10.4.B.5.10 Check the adjustment of the drum switch.

10.4.B.5.11 For any anomalies found and after checking with the TA, costs will be adjusted using PWGSC form 1379.

10.4.C **Proof of performance**

10.4.C.1 Inspection points

10.4.C.1.1 All work must all be completed to the satisfaction of the chief engineer, the ship's maintenance officer and the ABS inspector. The contractor must give those involved 48 hours notice of the inspection once the davit has be dismantled.

10.4.C.2 Tests and trials

10.4.C.2.2 The contractor must show the chief engineer, the ship’s maintenance officer and the ABS inspector that the equipment is operating properly and safely. The contractor must give those involved 48 hours notice of the inspection once the davit has been remounted; this inspection could be coordinated with the ship’s annual certification.

10.4.C.2.3

10.4.C.3 Certification

10.4.C.3.4 The contractor must provide the chief engineer with two (2) paper copies of the annual inspection certificates (T1) as well as the originals. The contractor will also send a digital copy of the annual inspection certificates to the ship's maintenance officer.

10.4.C.4 Documentation

10.4.C.4.5 The technician will provide paper and digital copies of a written report no later than five days after the end of the works.

-The report must contain the following:

-Date of works and date of report

-Description of works carried out

-List of equipment and all parts replaced or installed

-T1 certificate for lifting equipment.

10.4.C.5 Training

N/A

11.0 Hull and connected structures

11.1 INSTALLATION OF FIRE DOORS

11.1.A Identification

11.1.A.1 Two fire doors and their frames, supplied by the CCG, are to be installed in the vessel's accommodation area, one at the bottom of the steps to the wheelhouse and the other between the mess and wet gear room.

11.1.B References

11.1.B.1 Equipment data

11.1.B.1.2 2 left hand Marine industries Seagulf doors with AP60 glass.

11.1.B.2 Drawings

11.1.B.2.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks. .

Drawing Number	DRAWING TITLE	Number of sheets
	F3771-18IN066 PLAN1	
	F3771-18IN066 PLAN2	
	F3771-18IN066 PLAN3	
ISV22-30400RMM3	Door & hatches Shedule	

11.1.B.3 Regulations and standards

11.1.B.3.2 N/A.

11.1.C Statement of work

11.1.C.1 Remove previous doors and their frames, taking care not to damage the walls, suspended ceilings and decking, with any damage charged to the contractor.

11.1.C.2 Install the new doors supplied by the CCG, taking care with insulation.

11.1.D **Proof of performance**

11.1.D.1 Inspection points

11.1.D.1.2 All work must all be completed to the satisfaction of the chief engineer, TA and ABS inspector.

11.1.D.2 Tests and trials

11.1.D.2.1 N/A

11.1.D.3 Certification

11.1.D.3.2 N/A.

11.1.D.4 Documentation

11.1.D.4.3 N/A.

11.1.D.5 Training

11.1.D.5.4 N/A

11.2 INSTALL A WINDOW IN THE WET LAB SLIDING DOOR

11.2.A **Identification**

11.2.A.1 Supply and fit a marine AP60 rated window to the 1/4 inch aluminum sliding door between the wet lab and aft deck.

11.2.B **References**

11.2.B.1 Equipment data

11.2.B.1.2 The window must be AP60 marine rated and be certified by a classification organization recognized by TC.

- Preferred dimensions of the window: 24 high by 16 wide

Dimensions of the sliding door:

- Height: 74.5 inches

- Width: 40 inches
- Thickness: 3/16
- Window: 24 high by 16 wide

11.2.B.2 Drawings

11.2.B.2.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks. .

Drawing Number	DRAWING TITLE	Number of sheets

11.2.B.3 Regulations and standards

11.2.B.3.2 N/A.

11.2.C **Statement of work**

11.2.C.1 Dismount the sliding door, taking care not to damage it, with any damage charged to the contractor.

11.2.C.2 Install the window and replace the sliding door.

11.2.D **Proof of performance**

11.2.D.1 Inspection points

11.2.D.1.2 All work must all be completed to the satisfaction of the chief engineer, TA and ABS inspector.

11.2.D.2 Tests and trials

11.2.D.2.1 N/A

11.2.D.3 Certification

11.2.D.3.2 Provide the window-type certificate.

11.2.D.4 Documentation

11.2.D.4.3 N/A.

11.2.D.5 Training

11.2.D.5.4 N/A

11.3 MODIFY THE STARBOARD PANEL IN THE WET LAB

11.3.A **Identification**

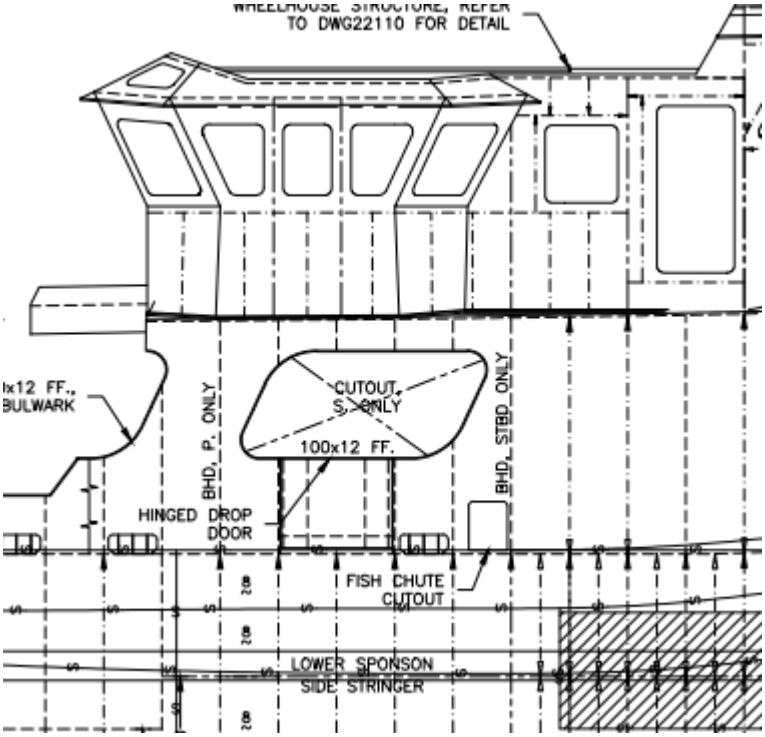
11.3.B Modify or replace the panel closing the aperture in the starboard wall of the wet lab, to provide easy access to the door in the bulwark and also enable a section to be opened to provide ventilation at sea. The contractor will discuss this with the chief engineer and TA and propose a solution.

11.3.C **References**

11.3.C.1 Equipment data

Dimensions of the aperture:

- A-D = 105 inches
- B-C = 74 inches
- Thickness 3/16 of an inch


TO DWG22110 FOR DETAIL
lx12 FF.,
BULWARK
BHD. P. ONLY
CUTOUT,
S. ONLY
100x12 FF.
BHD. STBD ONLY
HINGED DROP
DOOR
FISH CHUTE
CUTOUT
LOWER SPONSON
SIDE STRINGER

NB: the steps in the picture are no longer in this location.

11.3.C.2 Drawings

11.3.C.2.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks. .

Drawing Number	DRAWING TITLE	Number of sheets
ISV22-3000RMM13	General Arrangement	

11.3.C.3 Regulations and standards

11.3.C.3.2 N/A.

11.3.D Statement of work

11.3.D.1 Modify or replace the panel closing the aperture in the starboard wall of the wet lab, to provide easy access to the door in the bulwark and also enable a section to be opened to provide ventilation at sea.

11.3.D.2 The panel must remain removable.

11.3.D.3 Possible options:

a) Modify the current panel to slide.

b) Improve the aperture and insert a marine grade storm resistant sliding window.

c) Make a completely new panel.

11.3.E Proof of performance

11.3.E.1 Inspection points

11.3.E.1.2 All work must all be completed to the satisfaction of the chief engineer, TA and ABS inspector.

11.3.E.2 Tests and trials

11.3.E.2.1 N/A

11.3.E.3 Certification

11.3.E.3.2 N/A

11.3.E.4 Documentation

11.3.E.4.3 Provide a plan of the work carried out.

11.3.E.5 Training

11.3.E.5.4 N/A

11.4 EXTEND THE FUNNEL EXHAUSTS

11.4.A Identification

11.4.A.1 The vessel has a vortex issue that traps exhaust gases on the aft deck at slow speeds; this is because the funnel exhausts are too short. The contractor must therefore extend the exhausts by 6 feet, according to the plans provided by Navtech. The contractor must at the same time carry out cleaning of the exhaust pipes.

11.4.B References

11.4.B.1 Equipment data

11.4.B.2 Drawings

11.4.B.2.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks. .

Drawing Number	DRAWING TITLE	Number of sheets
NT-2689-18-DE100A	Modification of engine and generator exhaust pipes	
ISV22 76000 R3	Machinery Exhaust Piping Arrangement	

11.4.B.3 Regulations and standards

11.4.B.3.2 N/A.

11.4.C Statement of work

11.4.C.1 The contractor will prefabricate the supports and exhausts in the workshop and will be responsible for the correct dimensions.

11.4.C.2 The contractor must follow the plans provided and use the quality of materials listed in those plans. Plan NT-2689-18-DE100A.

11.4.C.3 The contractor will be responsible for supplying all the equipment required for handling and installing the support.

11.4.C.4 The contractor will clean the exhaust pipes to remove as much soot as possible, taking every precaution to avoid damaging the engines or insulation.

11.4.C.5 The ship and machine room must be cleaned at the end of the works.

11.4.D Proof of performance

11.4.D.1 Inspection points

11.4.D.1.2 All work must all be completed to the satisfaction of the chief engineer, TA and ABS inspector.

11.4.D.2 Tests and trials

11.4.D.2.1 N/A

11.4.D.3 Certification

11.4.D.3.2 N/A.

11.4.D.4 Documentation

11.4.D.4.3 N/A.

11.4.D.5 Training

11.4.D.5.4 N/A

11.5 SUPPLY A BLOCK OF TIME FOR WELDING AND METALWORK

11.5.A Identification

11.5.A.1 Provide a price for 50 hours of miscellaneous welding during the works.

11.5.B References

11.5.B.1 Skills data

11.5.B.2 Welders must hold the competency certificates shown in G.1.4.5 and take the associated safety measures, and will have at least three (3) years' experience working on ships.

11.5.B.2 Drawings

11.5.B.2.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks.

Drawing Number	DRAWING TITLE	Number of sheets
	N/A	

11.5.C Regulations and standards

11.5.C.1.1 N/A.

11.5.D Statement of work

11.5.D.1 Grinding, oxy-cutting and welding to steel and aluminum (50 hours).

11.5.D.2 Bulkhead connectors, pipework repairs if required.

11.5.D.3 The contractor must work with the TA to plan as much work as possible in the same time period, to avoid losing time on start and end procedures.

11.5.D.4 All works must be approved by the CCG Technical Authority and the hours signed each day by the TA or chief engineer.

11.5.D.5 The hourly rate charged if there are additional hours, or credited if fewer, will be pro rata.

11.5.D.6 The equipment used that is not supplied by the CCG will be processed using PSPC form 1379.

11.5.E **Proof of performance**

11.5.E.1 Inspection points

11.5.E.1.2 All work must all be completed to the satisfaction of the chief engineer, TA and ABS inspector.

11.5.E.2 Tests and trials

11.5.E.2.1 N/A

11.5.E.3 Certification

11.5.E.3.2 N/A

11.5.E.4 Documentation

11.5.E.4.3 Provide a detailed report of the works carried out by the welder(s).

11.5.E.5 Training

11.5.E.5.4 N/A

12.0 Propulsion and maneuvering

12.1 N/A

13.0 Energy production systems

13.1 N/A

14.0 Energy distribution systems

14.1 ELECTRICAL ISOLATION TEST

14.1.A **Identification**

14.1.A.1 Carry out isolation tests of the vessel's various electrical circuits.

14.1.B **References**

14.1.B.1 Equipment data

14.1.B.1.2 24 V DC circuits, 120 V circuits, 460 V power circuits.

14.1.B.1.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks.

Drawing Number	DRAWING TITLE	Number of sheets
	List of the Leim's electrical circuits	
ISV22-61850RMM2	120VAC & 24VDC Distribution Plan	
	Online electrical distribution	

14.1.B.2 Regulations and standards

14.1.B.2.2 IEEE 45-2002: Recommended Practice for Electrical Installations on Shipboard.

14.1.B.2.3 SMTC; TP 127F Electrical Standards (2008).

14.1.C **Statement of work**

14.1.C.1 Carry out isolation tests on all the vessel's electrical circuits and alternators, then record the results on the "List of the Leim's electrical circuits" document.

14.1.C.2 All tests are phase to ground. For circuits with more than one phase, each phase must be tested independently.

14.1.C.3 The contractor is responsible for using the appropriate voltage for each isolation test according to the circuit tested, recording it in the "List of the Leim's electrical circuits" document.

14.1.C.4 The contractor is responsible for any damage to the various circuits and equipment during the isolation tests, with repairs to any breakages paid for by the contractor.

For 120 V AC distribution circuits:

14.1.C.5 Disconnect all equipment connected to the circuit to be tested (anything plugged into a power socket); all switches on the circuit must be closed (ON) for the test. Open (OFF) the breaker on the circuit to be tested. After testing, return breakers to their original position.

For generators:

14.1.C.6 Open (OFF) the breaker on the generator to be tested. Remove fuses from the current leakage detection lights. Disconnect the voltage regulator. Unplug the "Voltage Sensing Unit"

For electric motors:

14.1.C.7 Open (OFF) the breaker on the motor. Test all phases independently, downstream of the breaker (between the breaker and the motor); open the starter on the motor to be tested, and test all the phases downstream of the starter, secondary to the contactor (between the starter and the motor).

14.1.C.8 If anomalies are observed in the starter, they must be noted so that corrections can be made; the contractor must notify the TA.

14.1.D **Proof of performance**

14.1.D.1 Inspection points

14.1.D.1.2 All work must all be completed to the satisfaction of the chief engineer, the ship's maintenance officer and the ABS inspector.

14.1.D.2 Tests and trials

14.1.D.2.1 N/A

14.1.D.3 Certification

14.1.D.3.2 N/A

14.1.D.4 Documentation

14.1.D.4.3 The contractor must provide the chief engineer with two paper copies of the original inspection report. The contractor also sends a digital copy of the certificates to the

ship's maintenance officer no later than five (5) days after the end of the works awarded in the contract.

14.1.D.4.4 The report must be compiled with the “List of the Leim’s electrical circuits” document numerically completed, signed and dated by the technician performing the work.

14.1.D.4.5 The report must include the brand, model and serial number of the electrical isolation measuring device used, with its certification/calibration.

14.2 SUPPLY A BLOCK OF TIME FOR ELECTRICAL WORKS ON DISTRIBUTION

14.2.A Identification

14.2.A.1 Supply a block of 100 hours of work divided between one or two electricians with marine experience (3-5 years’ experience minimum), to carry out a number of maintenance and other tasks on the electrical distribution system.

14.2.B References

14.2.B.1 Equipment data

14.2.B.1.2 24 V DC circuits, 120 V circuits, 460 V power circuits.

14.2.B.1.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks.

Drawing Number	DRAWING TITLE	Number of sheets
	List of the Leim’s electrical circuits	
ISV22-61850RMM2	120VAC & 24VDC Distribution Plan	
	Online electrical distribution	

14.2.B.2 Regulations and standards

14.2.B.2.2 IEEE 45-2002: Recommended Practice for Electrical Installations on Shipboard.

14.2.B.2.3 SMTC; TP 127F Electrical Standards (2008).

14.2.C **Statement of work**

14.2.C.1 Supply a block of 100 hours to carry out the works below. Consumables such as adhesive tape and small connectors must be included in the hourly rate.

14.2.C.2 Diagnose and repair electrical isolation issues (Ground).

14.2.C.3 Update electrical plans (Sketch).

14.2.C.4 Install and connect of electrical devices.

14.2.C.5 Program and adjust the sensors on the Techsol system.

14.2.C.6 All works must be approved by the CCG Technical Authority and the hours signed each day by the TA or chief engineer.

14.2.C.7 The hourly rate charged if there are additional hours, or credited if fewer, will be pro rata.

14.2.C.8 The electrical equipment that is not supplied by CCG will be processed using PSPC form 1379.

14.2.D **Proof of performance**

14.2.D.1 Inspection points

14.2.D.1.2 All work must all be completed to the satisfaction of the chief engineer, the ship's maintenance officer and the ABS inspector.

14.2.D.2 Tests and trials

14.2.D.2.1 N/A

14.2.D.3 Certification

14.2.D.3.2 N/A

14.2.D.4 Documentation

14.2.D.4.3 The report, with a record of the works, will be titled “Electrical Works on the Leim” and numerically completed, signed and dated by the technician performing the work.

15.0 Domestic Systems

15.1 CLEANING AND INSPECTION OF THE CENTRAL VENTILATION SYSTEM

15.1.A Identification

15.1.A.1 Carry out a complete clean of the ventilation system.

15.1.B References

15.1.B.1 Equipment data

15.1.B.1.2 Ventilation ducts.

15.1.B.2 Drawings

15.1.B.2.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks. .

Drawing Number	DRAWING TITLE	Number of sheets
LEIM-81500RMM16	HVAC System Diagram	
LEIM-81510RMM7	HVAC Ducting Diagram	

15.1.B.3 Regulations and standards

15.1.B.3.2 N/A.

15.1.C Statement of work

15.1.C.1 Carry out a complete clean of the ship's ventilation system using the suck/blow/scrub (octopus whip) mechanical method and vacuum extraction fitted with a HEPA filter.

15.1.C.2 The ventilation system comprises the following components: the dryer's central ventilation and the bathroom's extraction ducts, the heat exchangers, the diffusers and the exterior air intakes.

15.1.C.3 Degrease the galley hood, including the fan and extraction duct.

15.1.C.4 Take the necessary measures to provide adequate protection of the ship's equipment and fittings during the work.

15.1.D **Proof of performance**

15.1.D.1 Inspection points

15.1.D.1.2 The work must all be completed to the satisfaction of the chief engineer.

15.1.D.2 Tests and trials

15.1.D.2.1 N/A

15.1.D.3 Certification

15.1.D.3.2 The contractor must provide the chief engineer with two (2) paper copies of the inspection certificates as well as the originals. The contractor will also send a digital copy of the certificates to the ship's maintenance officer.

15.1.D.4 Documentation

15.1.D.4.3 The contractor must provide the chief engineer with two (2) paper copies and one digital copy of a report describing the general condition of the ventilation system before and after the works. This report should include photos of the various components of the ventilation system before and after cleaning. The contractor must also send a paper and a digital copy of all these reports to the ship's maintenance officer no later than five (5) days after the end of the works awarded in the contract.

15.1.D.5 Training

15.1.D.5.4 N/A

15.2 ANNUAL INSPECTION OF HVAC AND REFRIGREATION SYSTEMS

15.2.A **Identification**

15.2.A.1 Carry out the annual inspection of the refrigeration systems.

15.2.B **References**

15.2.B.1 Equipment data

- Refrigerator/Freezer #LAU8857 model RST-45C1E Dry lab

- Refrigerator/Freezer #LAU8861 model RST-45C1E Dry lab
- Refrigerator #LAU8858 brand BlueAir model BASR-1 Galley
- Freezer #LAU8860 brand KeepRite model KLP209LE Food-store
- Residential refrigerator #8856 brand True model T12 Entrance
- Heat exchanger #8855 brand Fujistu model ASU12RLF
  Heat exchanger #8854 brand Fujistu model ASU18RL

15.2.B.2 Drawings

15.2.B.2.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks.

Drawing Number	DRAWING TITLE	Number of sheets
2015-03-06	Inventory of Leim halocarbons	

15.2.B.3 Regulations and standards

15.2.B.3.2 The regulations and standards below apply to works executed in this section; the contractor must ensure that all the works executed in this section satisfy these regulations and standards, as well as both federal and territorial regulations and standards.

Fleet Safety and Security Manual (FSSM) procedures	Title	Included - Yes/No
Section 7.0 7.F.10	Halocarbons, controls and maintenance log	

15.2.C **Statement of work**

15.2.C.1 Carry out a full inspection of all components of the HVAC and refrigeration systems. Any breakages or faults will be addressed in additional works on a 1379 form.

15.2.C.2 Carry out a refrigerant leak test on all components of the air conditioning and refrigeration systems. (List 15.2.B.1)

15.2.C.3 Verify operational parameters.

15.2.C.4 Before the work starts the refrigeration technician must show a valid refrigeration specialist certificate to the TA or chief engineer.

15.2.C.5 The contractor must apply to each item of equipment a label which includes contact details and states that the equipment has been inspected and tested.

15.2.C.6 **Proof of performance**

15.2.C.1 Inspection points

15.2.C.1.1 The work must all be completed to the satisfaction of the chief engineer.

15.2.C.2 Tests and trials

15.2.C.2.2 [N/A]

15.2.C.3 Certification

15.2.C.3.3 The contractor must provide the chief engineer with two (2) paper copies of the inspection certificates as well as the originals. The contractor will also send a digital copy of the certificates to the ship's maintenance officer.

15.2.C.4 Documentation

15.2.C.4.4 The contractor will provide the chief engineer with one paper copy of their report detailing the inspections and any changes and repairs made before this element is accepted. The contractor also sends a digital copy of the report to the ship's maintenance officer no later than five (5) days after the end of the works awarded in the contract.

15.2.C.5 Training

15.2.C.5.5 [N/A]

16.0 Auxiliary systems

16.1 SERVICE MACHINE ROOM PORT AND STARBOARD AIR SUPPLY FANS

16.1.A **Identification**

16.1.A.1 Use a specialized ventilation contractor to service the two machine room air supply fans.

16.1.B **References**

16.1.B.1 Equipment data

16.1.B.2 Woods 63JM/31/2/9 Fan

- 460 Volts 60 Hz 3 Phase.

16.1.B.2 Drawings

16.1.B.2.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks.

Drawing Number	DRAWING TITLE	Number of sheets
811.3.1	63JM 180P Fan Assembly with inlet bell	
811.3.1	Technical Data Sheet & Performance Chart	
ISV22-81100RMM6	Machinery space ventilation arrangement	

16.1.B.3 Regulations and standards

16.1.B.3 The regulations and standards below apply to works executed in this section; the contractor must ensure that all the works executed in this section satisfy these regulations and standards, as well as both federal and territorial regulations and standards.

- IEEE 45-2002: Recommended Practice for Electrical Installations on Shipboard.
- SMTC; TP 127F Electrical Standards (2008).

16.1.C **Statement of works**

16.1.C.1 The contractor will be responsible for electrically and mechanically dismounting the two Wood fans from the ship, for a full service with electro-mechanical inspection of the motors, new bearings, and fan blade and fan balance checks.

16.1.C.2 For any anomalies found, excluding the bearings noted in 16.1.C.1, and after checking with the TA, costs will be adjusted using PWGSC form 1379.

16.1.D **Proof of performance**

16.1.D.1 Inspection points

16.1.D.1.1 The work must be completed to the satisfaction of the chief engineer and the TA.

16.1.D.2 Tests and trials

16.1.D.2.2 A one hour test will be required to check for abnormal vibration or noise.

16.1.D.3 Certification

16.1.D.3.3 N/A.

16.1.D.4 Documentation

16.1.D.4.4 The contractor will provide the chief engineer with one paper copy of their report detailing the inspections and any changes and repairs made before this element is accepted. The contractor also sends a digital copy of the report to the ship's maintenance officer no later than five (5) days after the end of the works awarded in the contract.

16.1.D.5 Training

16.1.D.5.5 [N/A]

16.2 INSTALLING INSULATION BETWEEN THE SEA CHEST AND THE COLLECTORS

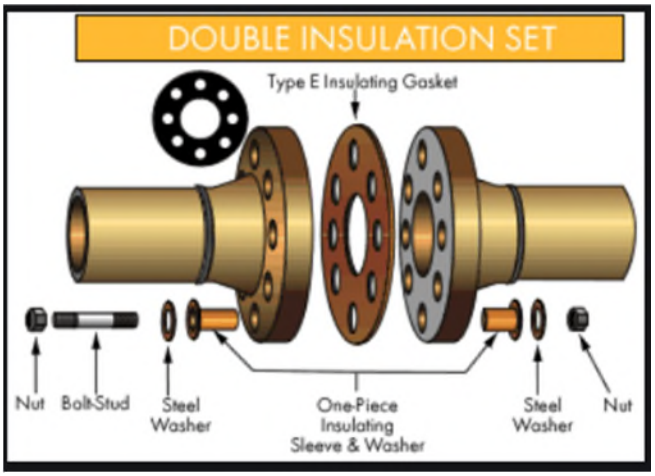
16.2.A **Identification**

16.2.A.1.1 CCGS Leim has a serious corrosion problem with its galvanized sea-water pipework, because it is connected directly to its main copper-nickel collector, causing galvanic corrosion.

16.2.A.1.2 The works will involve installing fiber insulating gaskets between the main collector and the ship’s pipework, modifying the latter for inspection and replacement needs where damaged onboard. For any anomalies found and after checking with the TA, costs will be adjusted using PWGSC form 1379.

16.2.A.1.3

16.2.B **References**



16.2.B.1

Drawing Number	DRAWING TITLE	Number of sheets
ISV22-73510RMM4	Sea Water Service Cross Connection Arrangement	
ISV22-73510RMM11	Cooling Water System Diagram	

16.2.B.1 Regulations and standards

16.2.B.1.1 The regulations and standards below apply to works executed in this section; the contractor must ensure that all the works executed in this section satisfy these regulations and standards, as well as both federal and territorial regulations and standards.

Fleet Safety and Security Manual (FSSM) procedures	Title	Included - Yes/No

16.2.C **Statement of work**

16.2.C.1 The contractor will be responsible for buying and installing eleven (11) flange insulation kits between the main collector and sea-water pipework.

- 2 X DN150 (6 in)
- 2 X DN80 (6 in)
- 2 X DN65 (2½ in)
- 2 X DN50 (2 in)
- 1 X DN40 (1½ in)
- 2 X DN32 (1¼ in)

16.2.C.2 If modifications are considered necessary, they will be negotiated and adjusted using PWGSC form 1379.

16.2.D **Proof of performance**

16.2.D.1 Inspection points

16.2.D.1.1 The work must be completed to the satisfaction of the chief engineer and the TA.

16.2.D.2 Tests and trials

16.2.D.2.2 Repairs to any leaks found in the contractor's work will be charged to the contractor.

16.2.D.3 Certification

16.2.D.3.3 N/A.

16.2.D.4 Documentation

16.2.D.4.4 The contractor will provide the chief engineer with one paper copy of their report detailing the inspections and any changes and repairs made before this element is accepted. The contractor also sends a digital copy of the report to the ship's maintenance officer no later than five (5) days after the end of the works awarded in the contract.

16.2.D.5 Training

16.2.D.5.5 [N/A]

17.0 Deck equipment

17.1 LIFTING EQUIPMENT INSPECTION

17.1.A.1 Identification

17.1.A.1.2 Carry out the annual verification, certification and maintenance of the lifting equipment. Inspections must be performed by a technician qualified for this type of equipment. The Amco Veba crane is due its full five-yearly inspection, generating a report to obtain the T2 certificate.

17.1.B **References**

17.1.B.1 Equipment data

17.1.B.1.1 -Amco Veba 2 T crane, model V823M 4S

-5 T A-frame gantry, with 3 pulleys (2 trawlblock and one Trioblock)

-CTD lateral davit

17.1.B.2 Drawings

17.1.B.2.2 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks.

Drawing Number	DRAWING TITLE	Number of sheets
420.1	DECK CRANE V823 45-Use&Maintenance Manual	
420.1	DECK CRANE V823 45-Winch Owner manual	
425.1	A-FRAME GANTRY-Approved Structure Drawings	
425.1	A-FRAME GANTRY-Cylinder Drawings	
430.1	CTD-DAVIT-ISV22-Approved Structural	
430.2	CTD-WINCH-DB-1716-S Owner’s Manual	

17.1.B.3 Regulations and standards

17.1.B.3.3 The regulations and standards below apply to works executed in this section; the contractor must ensure that all the works executed in this section satisfy these

regulations and standards, as well as both federal and territorial regulations and standards.

Fleet Safety and Security Manual (FSSM) procedures	Title	Included - Yes/No
Section 10	Loading tool maintenance	Yes

Statement of work

17.1.C **Five-yearly inspection of the Amco Veba crane**

17.1.C.1.1 The works involve performing a complete five-year inspection of the Amco Veba deck crane.

17.1.C.1.2 The crane and its control valve block must be hydraulically and electrically disconnected, removed from its base and transported to the workshop.

17.1.C.1.3 Clean and check the operation of all lubrication channels and replace all automatic greasers.

17.1.C.1.4 All axles and cylinders must be disassembled and inspected and all seals and gaskets replaced new. A penetrant liquid test should be carried out on each of the pivot rods to reveal cracks.

17.1.C.1.5 Prepare and carry out a magnetic particle inspection of the crane base, especially the welds fixing it to the deck. A magnetic particle inspection report must be provided before reassembly. Surface preparation by scrubbing only. Apply paint to uncovered metal according to the referenced requirements.

17.1.C.1.6 The extension sections must be removed for inspection. All components must be lubricated with grease provided by the contractor before being securely reassembled.

17.1.C.1.7 Welds and critical locations must be checked by a materials and welding inspection organization and a report produced.

17.1.C.1.8 Check the Rotzler Titan TC2 winch, dismantle it completely, clean it in the workshop and replace all the seals identified in the manufacturer’s manual (420.1), check the internal components, brakes, gearing, etc.. Replace the SAE 80W90 oil in the winch as per the manufacturer’s manual.

17.1.C.1.9 Check the steel cable and its hook are undamaged. Oil the steel cable.

17.1.C.1.10 Identify leaks or damage to the cylinders.

17.1.C.1.11 Check all hoses and rigid connections to locate any anomalies or leaks.

17.1.C.1.12 Carry out SP6 sand-blasting and SP10 to rusted areas. Repaint the crane with primer and the original dark blue Amco Veba finishing color. Use pure polyurethane epoxy resin type paint.

17.1.C.1.13 Replace the final section of the extension with the one provided by the CCG.

17.1.C.1.14 Reassemble the crane.

17.1.C.1.15 Carry out workshop tests of the cylinders, winch and valve control block, including the remote control.

17.1.C.1.16 All hydraulic connections must be protected with Petro tape or the equivalent.

17.1.C.1.17 After re-installation of all parts of the crane, the contractor must carry out a load test at 110% in the presence of the TA and the ABS inspector.

17.1.C.1.18 For any anomalies found and after checking with the TA, costs will be adjusted using PWGSC form 1379.

17.1.D **A-frame gantry and lateral CTD**

17.1.D.1 Visually check the condition of the gantry.

17.1.D.2 Check winches, drums and cables for any defects.

17.1.D.3 Check all hoses and rigid connections to locate any anomalies or leaks.

17.1.D.4 Check the play in the fixing eyelets of the hydraulic cylinders on the lateral CTD and A-frame gantry.

17.1.D.5 Make a visual check of the pulley and structure for any defects.

17.1.D.6 Check all hoses and rigid connections to locate any anomalies or leaks.

17.1.D.7 Replace all the 3 inch studs on the cylinder axles (4) with 1045 steel, and the 3 inch studs on the gantry (2) also with 1045 steel; the contractor will be responsible for taking measurements and scheduling time to machine the studs. Lubricate the ends of the studs well, to avoid seizing. For this operation it is important to prepare robust temporary supports to keep the gantry in place.

17.1.D.8 For any anomalies found and after checking with the TA, costs will be adjusted using PWGSC form 1379.

17.1.E **Proof of performance**

17.1.E.1 Inspection points

17.1.E.1.1 All work must all be completed to the satisfaction of the chief engineer, the ship's maintenance officer and the regulatory authority inspector.

17.1.E.2 Tests and trials

17.1.E.2.2 The contractor must show the TA and the ABS inspector that the equipment is operating properly and safely. A load test may be required by the ABS inspector for work on the A frame-gantry, and will be processed as optional work.

17.1.E.3 Certification

17.1.E.3.3 The contractor must provide the chief engineer with two (2) paper copies of the crane inspection certificates (T2) as well as the originals. The contractor will also send a digital copy of the annual inspection certificates to the ship's maintenance officer.

17.1.E.4 Documentation

17.1.E.4.4 The technician will provide paper and digital copies of a written report no later than five days after the end of the works.

-The report must contain the following:

-Date of works and date of report

-Description of works carried out

-List of equipment and all parts replaced or installed

-T1 certificate for lifting equipment.

17.1.E.5 Training

N/A

17.2 ANNUAL INSPECTION OF THE ANCHOR WINCH

17.2.A.1 Identification

17.2.A.1.2 Proceed with the annual inspection of the anchor winch and check its proper operation.

17.2.B **References**

17.2.B.1 Equipment data

17.2.B.1.1 Hawboldt HSF-2226 anchor winch

17.2.B.2 Drawings

17.2.B.2.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks.

Drawing Number	DRAWING TITLE	Number of sheets
405.1.2	HSF-2226 Anchor winch	

17.2.B.3 Regulations and standards

17.2.B.3.2 The regulations and standards below apply to works executed in this section; the contractor must ensure that all the works executed in this section satisfy these regulations and standards, as well as both federal and territorial regulations and standards.

Fleet Safety and Security Manual (FSSM) procedures	Title	Included - Yes/No
		Yes

17.2.B.4 Statement of work

17.2.B.4.1 Check wear to brake linings; disassemble for sanding.

17.2.B.4.2 Grease all points shown in the manufacturer’s manual with grease provided by the vessel and check the level in the hydraulic motor output shaft oil reservoir - ISO VG 32 oil.

17.2.B.4.3 Check for hydraulic leaks.

17.2.B.4.4 Check for any unusual wear to cable guides.

17.2.B.4.5 Check the condition and extension of the roller chain and its coupling links, then lubricate.

17.2.B.4.6 Check the general condition of the anchor chain cable.

17.2.B.4.7 For any anomalies found and after checking with the TA, costs will be adjusted using PWGSC form 1379.

17.2.C **Proof of performance**

17.2.C.1 Inspection points

17.2.C.1.1 All work must all be completed to the satisfaction of the chief engineer, the ship's maintenance officer and the regulatory authority inspector.

17.2.C.2 Tests and trials

17.2.C.2.2 The contractor must show the TA and the ABS inspector that the equipment is operating properly and safely.

17.2.C.3 Certification

N/A

17.2.C.4 Documentation

17.2.C.4.1 The technician will provide paper and digital copies of a written report no later than five days after the end of the works.

-The report must contain the following:

-Date of works and date of report

-Description of works carried out

-List of equipment and all parts replaced or installed

17.2.C.5 Training

N/A

18.0 Communication and navigation

18.1 RADIO AND NAVIGATION EQUIPMENT INSPECTION

18.1.A Identification

18.1.A.1.1 The contractor will be responsible for having the radio and associated navigation equipment inspected, producing an inspection certificate according to the requirements of the ABS classification organization.

18.1.B References

18.1.B.1 Equipment data

a) 2 x VHF DSC including antennas
b) 2 x GMDSS VHF
a) 1 x HF / MF DSC including antennas
b) 2 x SART
c) 1 x Class 1 EPIRB
d) Navtex Furuno NX-700 A-B
e) 2 x VisionMaster FT radar
f) Radio power supply
g) Batteries
h) DGPS-AIS SAAB-R4

18.1.B.2 Drawings

18.1.B.2.1 All drawings are shown in the General Remarks. The following drawings should be considered reference drawings, as per the definition given in the Drawings section of the General Remarks.

Drawing Number	DRAWING TITLE	Number of sheets
920.8.5	DGPS-AIS SYSTEM – SAAB-R4 (Manual)	

930.4	NAVETEX-RECEIVER NX700	

18.1.B.3 Regulations and standards

18.1.B.2 Law of 2001 on the Canadian merchant marine

18.1.C **Statement of work**

18.1.C.1 Carry out inspection and maintenance of the equipment listed in 18.1.B.1 as per the manufacturers' manuals and in compliance with ABS rules and procedures.

18.1.D **Proof of performance**

18.1.D.1 Inspection points

18.1.D.1.1 The work must all be completed to the satisfaction of the chief engineer and ABS inspector.

18.1.D.2 Tests and trials

18.1.D.2.2 Tests will be carried out according to ABS rules.

18.1.D.3 Certification

18.1.D.3.3 The contractor must provide the chief engineer with two (2) paper copies of the maintenance certificates as well as the originals. The contractor will also send a digital copy of the certificates to the ship's maintenance officer.

18.1.D.4 Documentation

18.1.D.4.4 N/A.

18.1.D.5 Training

18.1.D.5.5 [N/A]

18.1.E

19.0 Command systems

19.1 N/A