



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Réception des soumissions - TPSGC / Bid Receiving -
PWGSC
1550, Avenue d'Estimauville
1550, D'Estimauville Avenue
Quebec
Quebec
G1K 4K1

**SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address
Raison sociale et adresse du
fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
TPSGC/PWGSC
1550 Avenue d'Estimauville
Québec
Québec
G1J 0C7

Title - Sujet NGCC Amundsen Refit Spring 2019	
Solicitation No. - N° de l'invitation F3756-18N738/B	Amendment No. - N° modif. 002
Client Reference No. - N° de référence du client F3756-18N738	Date 2019-03-27
GETS Reference No. - N° de référence de SEAG PW-\$QCV-004-17636	
File No. - N° de dossier QCV-8-41270 (004)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2019-04-02	Time Zone Fuseau horaire Heure Avancée de l'Est HAE
F.O.B. - F.A.B. Specified Herein - Précisé dans les présentes Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input checked="" type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: DeBlois, Vincent	Buyer Id - Id de l'acheteur qcv004
Telephone No. - N° de téléphone (418) 649-2712 ()	FAX No. - N° de FAX (418) 648-2209
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

Please amend the above mentioned bidding solicitation documents with the changes below:

This modification 002 is to:

A) Insert an updated version of the Statement of requirements with the following modifications: (See attached):

A1) To Modify Item 16.1.C.5.3

A2) Remove section 20.1. The bidder shall indicate NOT USED at Annex J section 20.1

A3) Review the presentation of the document and the layout of the numbering

B) Include the list of transits to be repaired. Hence, please remove and delete the original list and insert the attached list part of Modification 002.

Hence, the following transits are removed from the List of Transits to Repair (Reference document):
X-002, X-003, X-007, X-100, X-104, X-105, X-212 et X-213

C) This amendment is to provide the bidder's conference minutes held on March 26, and also answer all questions asked by bidders at the date of the meeting. These answers are included in the minutes having been addressed being part of the bidders' conference.

All other clauses and conditions from the bidding solicitation remain the same.

CCGS. Amundsen – - Spring 2019 Refit
NGGC Amundsen – Radoub – Printemps 2019
F7356-18N738/A

CONFÉRENCE DE SOUMISSIONNAIRES
BIDDERS' CONFERENCE

ORDRE DU JOUR
AGENDA

La conférence de soumissionnaires est tenue à bord du navire, à Trois-Rivières, Québec, le mardi le 26 mars 2019 à 13h30 HNE.

The bidders' conference is held on board the Vessel in Trois-Rivières, Québec, Tuesday March 26, 2019 at 1h30. EST.

A) MOT DE BIENVENUE/WELCOMING MESSAGE

Le président s'est présenté et a souhaité la bienvenue à tous les participants et remercier les soumissionnaires présents pour leur intérêt pour le présent projet.

The Chairperson introduced himself and welcomed all attendees and thanked the bidders in attendance for their interest in this project.

B) INTRODUCTION

Le président a expliqué que le but de la présente réunion était de passer en revue le document de demande de propositions portant le numéro F3756-18N738/A et le devis technique afin d'éclaircir tout point qui pourrait être obscur pour les soumissionnaires présents.

The Chairperson explained that this meeting was aimed at reviewing the Invitation to Tender document bearing serial number F3756-18N738/A in order to clarify any points brought up by any participant.

C) PRÉSENCES/PERSONS IN ATTENDANCE

Le président a indiqué qu'il agirait à titre d'autorité contractuelle pour le projet.

The Chairperson stated that he will be acting as

Participants:

Attendees:

<u>Nom/Name</u>	<u>Occupation/Rank</u>	<u>Cie.ou min./Co. or Dept</u>
Vincent DeBlois	Spécialiste de l'approvisionnement (marine) / Supply Specialist (marine)	SPAC / PSPC
Bruno Ouelette	Agent de projet - Ingénierie Navale / Project officer - Marine Engineering	Garde Côtière canadienne (GCC) / Canadian Coast Guard (CCG)
Stéphane Dufour	Chef Mécanicien / Chief mechanics	Garde Côtière canadienne (GCC) / Canadian Coast Guard (CCG)
André-Philippe Gonthier	Chargé de projets	Construction et réparation navale Océan
Steve Gingras	Adjoint au projet	Techsol

Le représentant de Navamar qui avait prévu participé à la rencontre a confirmé ne pouvoir y assister. /
Navamar representative confirmed he could not attend the meeting as planned.

D) RÉVISION DES DOCUMENTS DE SOUMISSION/BID PACKAGE REVIEW

1) DEMANDE DE SOLICITATION / INVITATION TO TENDER

- PARTIE 1 RENSEIGNEMENTS GÉNÉRAUX / GENERAL INFORMATION
PART 1 BIDDER INSTRUCTIONS

Le président confirme que le procès-verbal sera rendu disponible sur le site AchatsetVentes par voie de modification à l'appel d'offres et que les questions reçues à ce jour seront traitées à même la présente réunion. /

The Chairperson confirmed that the minutes of the meeting will be made available on BuyandSell through a modification of the call for tender, and that the questions raised as of today will be reviewed at this meeting.

Le président a insisté sur la section 1.2 Sommaire notamment au paragraphe (i) a) concernant le calendrier des travaux. /

The Chairperson insisted on section 1.2 Summary especially at paragraph (i) a), concerning the work schedule.

- PARTIE 2 INSTRUCTIONS À L'INTENTION DES SOUMISSIONNAIRES
PART 2 BIDDER INSTRUCTIONS

- 2.3 Demande de renseignements en période de soumission:
2.3 Enquiries - Bid Solicitation

On demande que les demandes de renseignements nous parviennent au moins 7 jours civils avant la date de clôture mais TPSGC fera tout son possible pour répondre aux demandes reçues après ce délai en autant que la nature de la demande le permette. /

It is requested that inquiries come at least 7 calendar days before the bid closing date but PWGSC will do its best to answer requests received after that time as long as the nature of the request allows it.

Les réponses aux questions émises lors de la conférence des soumissionnaires et de la visite de lieux ont été ou seront transmises au sein d'une modification à l'invitation à soumissionner.

Answers to questions submitted during the bidder's conference and the vessel's viewing have been or will be transmitted within an amendment to the Invitation to Tender.

Le président a insisté sur la section 2.7 Période des travaux proposés /

The Chairperson insisted on section 2.7 Proposed work period.

- PARTIE 3 INSTRUCTION POUR LA PRÉPARATION DES SOUMISSIONS
PART 3 BID PREPARATION INSTRUCTIONS

Le président a insisté sur la section 3.1 Instructions pour la préparation des soumissions, notamment l'exigence relative au nombre de copies à fournir de la soumission technique, ainsi que sur le fait qu'aucune information relative au prix ne doit se retrouver dans la section technique.

The Chairperson insisted on section 3.1 Bid preparation instructions, with regards to the number of copies required and that information concerning any price cannot appear in the technical package.

Sans commentaire des soumissionnaires /
No comments from the attendees.

- PARTIE 4 PROCÉDURES D'ÉVALUATION ET MÉTHODE DE SÉLECTION
PART 4 EVALUATION PROCEDURES AND BASIS OF SELECTION
 - Le président a insisté sur le paragraphe 4.1.1 Soumission financière. /
 -
 - The Chairperson insisted on paragraph 4.1.1 Financial bid
 -
 - Le président a lu et insisté sur la liste des exigences obligatoires à rencontrer à la fermeture des soumissions (Tableau 4.1.3) /
 -
 - The Chairperson read and insisted on the list of mandatory requirements to be met at the tender closing date (Table 4.1.3)
 -
 - Le président a lu et insisté sur la liste des exigences - Autres exigences sur demande seulement (Tableau 4.1.4) /
 -
 - The chairperson read and insisted on the list – Other information upon request only (Table 4.1.4)
 -
 - Le président a lu et insisté sur la liste des – Produits livrables après l'attribution du contrat (Tableau 4.1.5) /
 -
 - The Chairperson read and insisted on the list – Deliverables after contract award (Table 4.1.5)
- PARTIE 5 ATTESTATION
PART 5 CERTIFICATIONS

Sans commentaire des participants /
No comments from the attendees.

- PARTIE 6 EXIGENCES RELATIVES À LA SÉCURITÉ, EXIGENCES FINANCIÈRES ET
AUTRES EXIGENCES
PART 6 SECURITY, FINANCIAL AND OTHER REQUIREMENTS

Le président a insisté sur le paragraphe 6.9 Calendrier de travail et rapports (Voir aussi la clause G 1.9.6 du devis.

The Chairperson insisted on paragraph 6.9 Work schedule and reports (See also clause G 1.9.6 of the Statement of Requirement.

Le président a insisté sur le paragraphe 4.2 Période des travaux de la section 7. /

The Chairperson insisted on paragraph 4.2 Work period of section 7.

Le président a insisté sur le paragraphe 16 Calendrier des travaux et rapports, notamment l'exigence de fournir le calendrier des travaux dans les trois (3) jours suivant l'attribution des travaux /

The Chairperson insisted on paragraph 16 Work Schedule and reports, especially the requirement with regards to provide the preliminary schedule no later than three (3) calendar days after contract award.

Le président a insisté sur le paragraphe 24 Protection de l'environnement /
The Chairperson insisted on paragraph 24 Environmental protection.

Le président a insisté sur le paragraphe 30 Radoub du navire avec équipage, ainsi que sur le fait que d'autres travaux seront effectués qui sont indépendants du présent devis pendant la même période. /

The Chairperson insisted on paragraph 30 Vessel manned refits, and mentioned that other work will be performed on the vessel which are not related to the present Statement of Requirement during the same period of time.

- ANNEXE A ÉNONCÉ DES BESOINS
ANNEX A STATEMENT OF REQUIREMENT

G 1.0 REMARQUES GÉNÉRALES /
G 1.0 GENERAL NOTES

Sans commentaire des participants /
No comments from the attendees.

S 1.0 SERVICES /
S 1.0 SERVICES

Le président a insisté sur le paragraphe S 1.8.1 exigeant de fournir l'information dans les 48 heures

The Chairperson insisted on paragraph S 1.8.1 to provide the information within 48 hrs.

Sans autres commentaire des participants /
No other comments from the attendees.

10.0 Sécurité et sûreté
10.0 Safety and Security

10.1 Système de lutte contre les incendies /
10.1 Firefighting Systems

Il est mentionné par les soumissionnaires présents que le devis ne contient aucun élément comportant de longs délais de livraison, donc aucun impact sur le cheminement critique n'est anticipé.

As per the bidders at the meeting, the Statement of Requirement does not contain any long lead time items which could have an impact on the critical path.

10.2 Ascenseur et monte-plat
10.2 Elevator and Dumbwaiter

Sans commentaire des participants /
No comment from the attendees.

10. 3 Chaloupes de sauvetage, bossoirs et bossoirs Miranda /

10. 3 Lifeboats, Davits and Miranda Davits

A)

Certificat T2 n'est pas requis
T2 Certificate are not required

B)

Inclure un montant budgétaire de 10,000\$ pour les services du manufacturier ou un représentant autorisé à la grille de prix de l'Annexe J. À noter que l'Entrepreneur devra se conformer aux lignes directrices pour les frais de déplacement et de subsistance du Conseil National Mixte <https://achatsetventes.gc.ca/politiques-et-lignes-directrices/guide-des-clauses-et-conditions-uniformisees-d-achat/5/C/C4005C/9>

Include a budgetary envelope of 10,000\$ for manufacturer representative or an authorized field service representative in the price sheet of Annex J as per the Travel and Living Expenses - National Joint Council Travel Directive - <https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/C/C4005C/9>

C) Item 10.3

Sous le plancher en avant de l'embarcation il y a des bonbonnes d'air. Ces bouteilles ne sont pas à certifier. /

Under the floor in front of the craft, the air gas cylinder are not to be certified.

10.4 Boyaux de transfert de carburant / 10.4 Fuel Transfer Hoses

Sans commentaire des participants /
No comment from the attendees.

11.0 Coque et structures connexes

11.0 Hull and Related Structures

11.1 Inspection sous-marine de la coque

11.1 Underwater Hull Inspection

Veillez utiliser une durée de six (6) heures de plongée pour calculer un prix pour évaluation de votre soumission, sans considérer de déplacement de navire pour les fins de soumission (durée de plongée seulement). /

Please indicate six (6) hours for the services of divers to provide the bid, considering no displacement of the vessel for evaluation purposes (duration of dive only)

11.2 Nettoyage de la hotte de cuisine /

11.2 Galley Range Hood Cleaning

Sans commentaire des participants /
No comment from the attendees.

11.3 Modification de l'ouverture du rangement sous l'escalier

11.3 Modification of the Opening of the Storage Under the Stair

Sans commentaire des participants /
No comment from the attendees.

14.0 Réparation des fuites des transits /
14.0 Repair of Transit Leaks

L'autorité technique confirme que certains transits seront retirés de la liste à réparer. /
The technical authority confirms a number of transits will be removed from the list to be repaired.

16.0 Entretien et inspection du réservoir d'eau potable bâbord
16.0 Clean and Inspect the Port Side Potable Water Tank

Le Canada confirme que seul le réservoir bâbord est à entretenir et inspecter. /
Canada confirms that only port side tank is to be cleaned and inspected.

Le président lit et insiste sur le paragraphe 16.1.C.5.4 dont l'information sera requise deux jours après demande écrite par le Canada.

The Chairperson read and insisted on paragraph 16.1.C.5.4 which requires to provide the information no later than two (2) days after a written request from Canada.

Sans autre commentaire des participants /
No other comment from the attendees.

16.2 Entretien annuel des systèmes de réfrigération
16.2 Refrigeration System Annual Inspection and Maintenance

Sans commentaire des participants /
No comment from the attendees.

16.3 Isolation des conduites et tuyaux dans les locaux CVCA des unités #2, 3, 4 et 5
16.3 Insulation of Ducts and Pipes in HVAC Compartment Units # 2, 3, 4 and 5

Sans commentaire des participants /
No comment from the attendees.

16.4 Réfrigérateur à boissons (Salon des officiers) (Travaux optionnels)
16.4 Beverage Refrigerator (Officers' Lounge) (Optional Work)

Sans commentaire des participants /
No comment from the attendees.

17.0 Inspection et entretien du guindeau
17.0 Inspection and Maintenance of Windlass

Sans commentaire des participants /
No comment from the attendees.

20.1 Modification aux toits de la salle de contrôle de la rosette et du gymnase (Travaux optionnels)
20.1 Modification of Roofs of the Rosette Control Room and Gymnasium (Optional Work)

Retirer l'item 20.1 complètement

Remove item 20.1 completely

Item 20.0 devient donc SANS OBJET. Veuillez indiquer SANS OBJECT à l'annexe J
Item 20 then becomes NOT USED . Please indicate NOT USED at Annex J

- ANNEXE B BASE DE PAIEMENT
ANNEX B BASIS OF PAYMENT FIRM PRICE

Le président a insisté sur l'annexe B, notamment au paragraphe B3 Heures supplémentaires, particulièrement concernant les deux sections à remplir dont on doit inscrire LA PRIME pour le temps supplémentaire et non le taux horaire total de l'Entrepreneur./

The Chairperson insisted on annex B, paragraph B3 Overtime, especially for the two empty spaces to be filled by the bidders, whith the Premium and fringe benefit costs, NOT THE TOTAL HOURLY RATE of the overtime.

Sans commentaire des soumissionnaires /
No comments from the attendees.

- ANNEXE C – EXIGENCES EN MATIÈRES D'ASSURANCES
ANNEX C INSURANCE REQUIREMENTS

Sans commentaire des soumissionnaires /
No comments from the attendees.

- ANNEXE D –INSPECTION/ASSURANCE DE LA QUALITY/CONTRÔLE DE LA QUALITÉ
ANNEX D INSPECTION/QUALITY ASSURANCE/QUALITY CONTROL

Sans commentaire des soumissionnaires /
No comments from the attendees.

- ANNEXE E – GARANTIE et APPENDICE 1 DE L'ANNEXE E
ANNEX E WARRANTY and APPENDIX 1 OF ANNEX E

Sans commentaire des soumissionnaires /
No comments from the attendees.

- ANNEXE I – FEUILLE DE PRÉSENTATION DE LA SOUMISSION FINANCIÈRE et
APPENDICE 1 DE L'ANNEXE I
ANNEX I FINANCIAL BID PRESENTATION SHEET and APPENDIX 1 OF ANNEX I

Sans commentaire des soumissionnaires /
No comments from the attendees.

- ANNEXE J – FEUILLE DE RENSEIGNEMENTS SUR LES PRIX
ANNEX J PRICE PER ITEM SHEET

Sans commentaire des soumissionnaires /
No comments from the attendees.

E) VISITE DU NAVIRE / VESSEL'S VIEWING

Une visite du navire a été effectuée suite à la réunion afin d'observer les configurations physiques de certains éléments du devis. /

A visit of the vessel was performed after the meeting in order to observe the physical configuration of certain aspect of the Statement of requirement.

F) AUTRES / OTHERS

Sans commentaire / No comments

G) AJOURNEMENT / ADJOURNMENT

N'ayant plus d'autres sujets à discuter, la conférence a été ajournée à 14hrs26. /

There being no other subjects to discuss the conference was adjourned at 2:26PM.

Vincent DeBlois
Autorité contractante / Contracting Authority
Travaux publics et services gouvernementaux Canada
Public Works and Government Services Canada.

Annex A

CCGS AMUNDSEN – SPRING 2019 REFIT

F3756 – 18N738

DATES: 11-04-2019 TO 16-05-2019

Version E
March 22nd 2019

Prepared by:
Marine Engineering
101 boul. Champlain
Québec (Québec)
G2C 1W4

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G 1.0 GENERAL NOTES

G 1.1 Vessel Particulars

G 1.1.1 Details

Name:	NGCC AMUNDSEN
Type:	Medium Icebreaker / fluvial
Class:	Type 1200
Year Built:	1979
Yard	Burrard Dry dock, Vancouver, B-C
Principle Dimensions:	
Length:	98.2 m
Breadth, molded:	19.5 m
Loaded Draft:	7.2 m
Tonnage, displ:	1678.8 TM
Power	13 2000 KW
Propulsion	Diesel electrique

G 1.1.2 Equipment[– Not Used]

Equipment	Make	Model	Serial#

G 1.2 References**G 1.2.1 Acts, regulations, standards, publications and procedures**

G 1.2.1.1 The latest edition, at the time of contract signing, of all Acts, regulations, standards, publications, and procedures listed below are to be used as reference. The Contractor will ensure all work completed in the specification are done to all pertinent federal and territorial regulations and standards. CCG procedures are to be used as a guide if no other regulation takes precedence.

FSM Procedures	Title	Included Yes/No
DFO/5737	Fleet Safety Manual (Latest Edition)	Yes
7.A.1	Assessing Risk	Included CCG/5737
7.A.10	Handling and Containing Asbestos Materials	Included CCG/5737
7.A.12	Potable Water Quality	Included CCG/5737
7.B.2	Fall Protection	Included CCG/5737
7.B.3	Entry Into Confined Spaces	Included CCG/5737
7.B.4	Hotwork	Included CCG/5737
7.B.5	Lockout and Tagout	Included CCG/5737
7.B.6	Electrical Safety – Working on Energized Electrical Conductors or Circuit Parts	Included CCG/5737
7.E.5	Handling, Storage, and Disposal of Hazardous Materials	Included CCG/5737
7.E.8	Use of Halocarbons	Included CCG/5737
10.A.6	Paint and Other Coatings	Included CCG/5737
10.A.7	Contractor Safety and Security	Included CCG/5737
171-09529-23	Gestion des matières dangereuses (2018)	Yes
Publications		
TP 3177	Standard for the Control of Gas Hazards in Vessels to be repaired or altered	No
TP 127 E	Ships Electrical Standards (2018)	No
NFPA 306 2014	Standard for the Control of Gas Hazards on Vessels	No
TP 14231	Marine Occupational Health and Safety Program	No

TP 14612	Procedures for Approval of Life-saving Appliances and Fire Safety Systems, Equipment and Products	No
IEEE45	Institute of Electrical and Electronics Engineers, Recommended Practice for Electrical Installations on Shipboard	No
70-000-000-EU-JA-001	Specification for the Installation of Shipboard Electronic Equipment	Available at: CCG/ITS
Report EPS 1/RA/2	Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems	No
NFPA 10	Standard for Portable Fire Extinguishers	No
18-080-000-SG-003	Paints and Coatings Standard (formerly DFO/5884 – TP 12445F)	No
Circular 1206	Measures to Prevent Accidents with Lifeboats (IMO/MSC)	No
Standards		
CSA W47.1	Certification of Companies for Fusion Welding of Steel Structures Division 2 Certification	No
CSA W47.2	Certification of Companies for Fusion Welding of Aluminum	No
CSA W59	Welded Steel Construction – Metal Arc Welding	No
CSA W59.2	Welded Aluminum Construction	No
ISO 9712:2005	International Standards for NDT	No
CT-043-EQ-EG-001-E	Welding Specification http://intra.coast-guard.ca/folios/00922/docs/WeldingSpecification-eng.pdf	Available at: CCG/ITS
ISO 8501-1:2007	Preparation of steel substrates before application of paints and related products	No
Acts (Laws)		
S.C. 2001, c. 26	Canada Shipping Act	No
R.S.C., 1985, c. L-2	Canada Labour Code	No
Regulations		
SOR/2010-120	Maritime Occupational Health and Safety Regulations	No
SOR/90-264	Marine Machinery Regulations	No

SOR/2017-14	Vessel Fire Safety Regulations	No
C.R.C., c. 1432	Hull Inspection Regulations	No
SOR/2003-289	Federal Halocarbon Regulations, 2003	No
SOR/87-183	Marine Occupational Safety and Health Regulations	No

G 1.2.2 Guidance Drawings

G 1.2.2.1 The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Number of Sheets
222-H-101	General Arrangement	3
222-H-146	Capacity Plan	1

G 1.2.3 Tanks

G 1.2.3.1 Listed are the tanks found on board, their Location by frame number and capacity (Where available). These are to be used as reference only and will not supersede any specification.

Tank name	Location	Capacity (m ³)
Port Potable Water	13-27	68.76
Stbd Potable Water	13-27	68.76

G 1.2.4 Abbreviations

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: Canadian Standards Association	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: Ministère des Pêches et des Océans, Garde côtière canadienne
FSR: Manufacturer's Field Service Representative	RSF: Représentant de service du fabricant
FSM: Fleet Safety Manual	MSF: Manuel de sécurité 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: Institute of Electrical and Electronic Engineers
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: organismes reconnus par 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
CA : Contract Authority - PSPC	AC : Autorité contractuelle - SPAC
TA: Technical Authority -CCG Superintendent, Marine Engineering Western Region, or her delegated Representative.	AT: Autorité technique – Représentant du propriétaire (GCC)
TCMS: Transport Canada Marine Safety	SMTC: Sécurité Maritime de Transports Canada
TI: Technical Inspector – CCG delegated.	AI: Autorité de l'Inspection – Inspecteur technique (GCC)
VCS: Vessel Condition Survey	DCC: Demange de Changement de Configuration
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 (CNESST)
WHMIS Workplace Hazardous Materials Information System	SIMDUT: Système d'information sur les matières dangereuses utilisées au travail

G 1.3 Conditions and Definitions

G 1.3.1 General

G 1.3.1.1 The following conditions and definitions are applicable to all work contained in the Specifications and are intended to outline the quality of workmanship and practice that is the minimum acceptable level.

- G 1.3.1.2 The Contractor must employ qualified, certified (if applicable) and competent tradespeople and supervise them to ensure a consistently high standard of workmanship.
- G 1.3.1.3 The Inspection Authority may request to review and record details of the certifications or skills of the Contractor's tradespeople. This request should not be exercised unduly, but only to ensure that skilled tradespeople perform the necessary work.
- G 1.3.1.4 CCG and DFO employees and other employees, such as the manufacturer's representatives, TCMS or classification surveyors, could conduct other shipboard work, including work not mentioned in the present specification, during the period of the works.
- G 1.3.1.5 The TA will make every effort to ensure that other work, related inspections and investigations do not interfere with the Contractor's work. The Contractor will not be responsible for coordinating related inspections or paying inspection fees for this work.

G 1.4 Miscellaneous Provisions

G 1.4.1 Occupational Health and Safety

- G 1.4.1.1 The Contractor and all sub-contractors must follow Occupational Health and Safety (OHS) procedures in accordance with applicable federal and provincial OHS regulations ensuring that Contractor activities are carried out in a safe manner and do not endanger the safety of any personnel.
- G 1.4.1.2 Where “Safety Management System” is referenced in this document, it is referring to the Contractor’s Safety Management System, which must be in affect while in the Contractor’s Care and Custody and must be in accordance with the applicable OHS regulations and procedures.
- a) The Contractor must, for all work on Canadian Coast Guard Vessel, meet or exceed the Safety Management System defiend in the FSM unless a Contractor propsed comprehensive Safety Management System is presented and accepted by the TA.
- G 1.4.1.3 When the Contractor works on the vessel while in the Care and Custody of the Canadian Coast Guard, the Safety Management System of CCG must be followed:
- a) Contractor and all its representatives must attend an orientation session on vessel safety before beginning any work to familiarize the Contractor’s

employees with the dangers specific to the vessel and with its permit systems for work protocols as well as with the procedures for safety, risk prevention, hazard response and pre-work safety assessments.

- b) The Contractor will have access to an uncontrolled copy of the Fleet Safety and Security Manual. The Contractor must comply with the Fleet Safety Manual (DFO/5737), as well as with the instructions for working on board the vessel, in addition to the relevant requirements of the Canada Labour Code during performance of the following types of work:
 - i) Work at heights;
 - ii) Entry into enclosed spaces;
 - iii) Degassing before entering into confined spaces and for hot work;
 - iv) Lockout and Tagout;
 - v) Pre-work safety assessments.
- c) For the purpose of the Lockout and identification procedure, the Contractor must provide the padlocks and locking devices for the Contractor's employees in addition to those provided by the Chief Engineer for the vessel's crew.
- d) The Contractor must adhere to local facilities shore based safety instructions and safety procedures.

- G 1.4.1.4 The Contractor must identify a specified person that is responsible for the safety management of the work site. The Safety Manager must insure that daily safety rounds are carried out and that safety issues are identified and safety precautions are maintained.
- G 1.4.1.5 Areas that pose a hazard as a result of the specification work are to be secured and clearly identified by the Contractor with signage to advise and protect all personnel from the hazard in accordance with applicable regulations.
- G 1.4.1.6 The Contractor and its employees will not have access to the ships washrooms or crew lounges. The Contractor must provide the necessary facilities for its employees and subcontractors as required.
- G 1.4.1.7 During the period of work, the contractor will be responsible for the maintenance of the areas of the ship that his personnel uses to access the work areas. Areas should be clean and free of debris, and garbage should be removed daily.
- G 1.4.1.8 At the end of this contract, the Contractor must ensure that all waste produced as a result of the work of this specification is disposed of and that the vessel is as clean as it was before the beginning of the period. of the contract.

G 1.4.1.9 Once all known work has been completed and final cleaning has been completed, the Contractor's Quality Assurance Representative will be required to visit all areas of the vessel where work has been completed by the Contractor. Any deficiencies or damage noted shall be recorded and compared to the photographs taken to determine if the deficiency or damage arises from the work performed by the Contractor. If this is the case, the damage must be repaired by the contractor at no cost to the CCG.

G 1.4.2 **Lead Paint and Paint Coatings**

G 1.4.2.1 The Contractor must not use lead based paints.

G 1.4.2.2 CCG ships have been painted with lead based paints in the past and as a result some of the Contractor's processes such as grinding, welding and burning may release this lead from the coatings. Canadian Coast Guard will provide copies of all available lead testing results.

G 1.4.2.3 The Contractor must ensure that coatings in affected work areas are examined for lead content and that work is performed in accordance with applicable federal and provincial regulations.

G 1.4.2.4 The Contractor must demonstrate product approval by HC for HC controlled hull paints and the Pest Management Regulatory Agency.

G 1.4.3 **Touch-up / Disturbed Paint**

G 1.4.3.1 The Contractor, at a minimum, must repair coating systems disturbed as a result of the specified work. Coating systems must be in accordance with the coating system of the vessel, and be applied in accordance with the paint manufacturer's recommended procedures.

G 1.4.3.2 The Contractor must prepare any new steel or steel affected to the standards of the paint manufacturer prior to painting.

G 1.4.3.3 Unless otherwise indicated, all new steel and / or steel affected must receive two coats of marine primer compatible with the ship's paint coating scheme.

G 1.4.4 Asbestos Containing Materials (ACM)

- G 1.4.4.1 The Contractor must use insulation that contains 0% ACM.
- G 1.4.4.2 The Contractor will be supplied the most recent Asbestos Risk Assessment Report and Asbestos Management Plan by CCG.
- G 1.4.4.3 Handling of any asbestos containing materials must be performed by trained personnel and/or a company certified in the removal of asbestos in accordance with Federal, Provincial/Territorial and Municipal regulations.
- G 1.4.4.4 The Contractor must provide the TA with disposal certificates for all asbestos containing material removed from the vessel indicating that the disposal was in accordance with Federal, Provincial and Municipal regulations in effect.
- G 1.4.4.5 The Contractor must provide an “Observation Report (OR)” with reference to any concerns or intentions in regards to asbestos containing materials not already specified. The Contractor is to identify any materials that are suspected to contain asbestos prior to any work being completed. Any approved work resulting from the OR will follow the Additional Work Procedures.

G 1.4.5 Confined Spaces

- G 1.4.5.1 Entry into any confined space onboard the vessel during the contract period must be conducted in accordance with the safety management system as determined in the Pre-Work Meeting. In addition to those requirements, the Contractor must also conduct the following:
 - a) Have a qualified person issues a “Gas Free Certificate” for spaces that will be entered and post the certificate outside the entrance to the space. Certificates must specify, "Safe for persons" or "safe for hot work" as appropriate.
 - b) Provide copies of all certificates generated to the TA in accordance with the Documentation section of the General Notes.
- G 1.4.5.2 The Contractor may request a list of the enclosed spaces of the vessel at the meeting preceding the refit.

G 1.4.6 Hot Work

G 1.4.6.1 All hot work conducted during the contract must be in accordance with the Safety Management System. In addition to the requirements of the Safety Management System the Contractor must as a minimum also:

- a) Certify confined spaces affected by hot work as “safe for hot work” in accordance with the Confined Spaces section of the General Notes.
- b) Remove all portable combustible materials from the vicinity, to a safe distance not less than two meters away;
- c) Supply and install protective material to prevent the spread of sparks, protect electrical cables and other services;
- d) Supply and post fire sentries in each space and in the adjacent space where welding, grinding, or burning is being carried out on bulkheads, deckheads or decks;
- e) Supply and provide appropriate fire extinguisher(s) to the fire sentries and ensure each sentry is trained in the extinguisher’s use. The fire sentry must maintain a watch in his designated area for a minimum of thirty (30) minutes after any hot work has been completed. The Contractor must record the sentry attendance time on all hot work permits indicating when hot work stopped, and time sentry left post;
- f) Provide a copy of the site generated hot work permits to the TA in accordance with the Documentation section of the General Notes; Named in accordance with the specification item generating the required work.

G 1.4.7 Work Aloft

G 1.4.7.1 Any work aloft onboard the vessel during the maintenance/refit period must be conducted in accordance with the Safety Management System. Notices must be placed to prevent operation of Radars while personnel are working aloft on the mast or on the wheelhouse top.

G 1.4.8 Electrical Equipment

G 1.4.8.1 When working on electrically operated equipment, the Contractor must lock-out equipment in accordance with the Safety Management System, and as a minimum conduct the following::

- a) Isolate the main power source and any alternative power source to the equipment;

- b) Install Electrical lock-outs and place electrical caution tags on the main power source and any alternate power sources for the switches/disconnects supplying the equipment under maintenance;
- c) Verify at the terminals to ensure power is not present.
- d) Ensure the lock-outs and electrical caution tags remain in place until completion of all work.

G 1.4.8.2 The TA must be notified of all such ongoing work.

G 1.4.8.3 All electrical installations and repairs must be done in accordance with the latest revisions of TP127 - Electrical Standards of Transport Canada Marine Safety and of standard 45- Recommended Practice for electrical installation on ships – of the IEEE. Standard TP127 takes precedence over the IEEE standard.

G 1.4.8.4 All electronic equipment installations and repairs must be performed in accordance with the Canadian Coast Guard's Telecommunications and Electronics publication " Specification for the Installation of Shipboard Electronic Equipment ".

G 1.4.9 Workplace Hazardous Materials Information System (WHIMS)

G 1.4.9.1 The Contractor must provide the TA with Material Safety Data Sheets (MSDS) for all Contractor and sub-contractor supplied WHIMS controlled products. MSDS sheets are to be the formats requested in the Documentation section G 1.5 of the General Notes.

G 1.4.9.2 All MSDS sheets must be maintained in accordance with OHS procedures.

G 1.4.9.3 The TA will provide the Contractor with access to MSDS sheets for all controlled products on the ship for all specified work items on request.

G 1.4.10 Smoking in the Work Space

G 1.4.10.1 The Contractor must ensure compliance with the Non-Smokers' Health Act. The Contractor must ensure that there is absolutely no smoking onboard the vessel by their employees, sub-contractors, including the employees of any sub-contractor.

G 1.4.11 Contractor Furnished Materials (CFM) and Tools

- G 1.4.11.1 The contractor must ensure that all equipment is new and has never been used.
- G 1.4.11.2 The Contractor must ensure replacement 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 and/or instructions.
- G 1.4.11.3 Where no particular item is specified or where substitution must be made, the Contractor must submit an Observation Report indicating the substitution or item not specified to the TA. The Contractor must provide information about materials used, certificate of grade and quality of various materials to the TA prior to use.
- G 1.4.11.4 The Contractor must provide all equipment, devices, tools and machinery such as craneage, staging, scaffolding, hoarding, and rigging necessary for the completion of the work in this specification.
- G 1.4.11.5 The Contractor must deliver and store all new CFM equipment at their facility. The CFM must be stored in a secure, environmentally controlled space in accordance with the equipment storage section of this specification.
- G 1.4.11.6 All tools are Contractor supplied unless otherwise stated in the technical specifications.

G 1.4.12 Government Supplied Materials (GSM) & Tools

- G 1.4.12.1 All tools must be provided by the contractor unless otherwise stated in the technical specifications.
- G 1.4.12.2 Where tools are supplied by the TA they must be returned by the Contractor in the same condition as when they were borrowed. Borrowed tools must be inventoried and signed for by the Contractor on receipt and return to the TA.
- G 1.4.12.3 The Contractor must retain all Government Furnished Goods in a secure atmosphere controlled warehouse or warehouse in accordance with the manufacturer's instructions.
- G 1.4.12.4 Any GSM not specifically stated in the Technical Specification must be received by the Contractor and stored in accordance with the Equipment Storage section of this specification. These activities are to be covered by the Procedures for Design Change or Additional Work. (PWGSC 1379).

G 1.4.13 Storage

G 1.4.13.1 Equipment (i.e. covers, cowlings and other items that may need to be removed and stored) must be stored in accordance with the equipment manufacturer's or equipment vendor's specific storage instructions. The Contractor must make these instructions available to the TA.

G 1.4.13.2 All equipment and items must be stored in such a manner so as to be easily accessible for inspection. No items are to be stored directly on floors.

G 1.4.14 Regulatory Inspections and/or Class Surveys

G 1.4.14.1 The Contractor must schedule and coordinate all regulatory inspections and classification investigations in collaboration with the appropriate authority, eg. eg, Transport Canada Marine Safety, Classification Society, Health Canada, Environment Canada or others, based on this specification.

G 1.4.14.2 Any documents produced as part of the inspections and investigations mentioned above and demonstrating that they have occurred (eg original signed and dated certificates) must be submitted to the TA.

G 1.4.14.3 The Contractor must not substitute inspection by the TA for TCMS regulatory inspections or classification surveys.

G 1.4.14.4 The Contractor must provide advance notice (not less than 24 hours) to the TA prior to TCMS regulatory inspections or scheduled classification surveys so that the TA can attend the inspection.

G 1.4.15 Contractor Inspections

G 1.4.15.1 The Contractor must afford the opportunity for the TA to conduct an inspection with the contractor on the condition and location of items to be removed prior to either carrying out the specified work or gaining access to a location to carry out the work.

G 1.4.15.2 The Contractor must take a before picture of conditions prior to removing any items. These photographs are to be in accordance with the Documentation section of the General Notes, named according to the specification section that resulted in removing those items.

G 1.4.15.3 Any damage resulting from the work of the contractor and attributable to the execution of the work by the latter must be repaired by him, at his expense. Equipment used for replacements or repairs must meet the criteria for Contractor

supplied material as indicated in the Contractor Supplied Equipment and Tools section.

G 1.4.15.4 Contractor must protect equipment and adjacent areas from damage. Workplaces should be protected against water ingress, sanding and welding particles, etc. Temporary covers will have to be installed in the workplace.

G 1.4.15.5 Prior to the close out of any item under this specification, the Contractor must afford the TA the opportunity to verify the work has been completed in accordance with the specification. At that time the Contractor must have available all photographs, documents, reports, and trials in relation to the item being closed out as completed.

G 1.4.16 **Recording of Work in Progress**

G 1.4.16.1 The TA may record any work in progress using various means including, but not limited to, photography and video, digital or film.

G 1.4.17 **Access for Maintenance, Installation, and Removal.**

G 1.4.17.1 The Contractor must ensure that the CCG Technical Authority and personnel have unrestricted access to the workplace at all times throughout the duration of the contract.

G 1.4.17.2 All equipment removed as part of this specification remains the property of CCG, unless otherwise specified in certain sections of the specification.

G 1.4.18 **Restricted areas**

G 1.4.18.1 The Contractor must not enter any of the following areas (except to perform work as per specifications): cabins, offices, workshops, engineering office, wheelhouse, control room, washrooms, galley, crew stations, locations recreational areas and other areas where restricted access is indicated by signs.

G 1.4.18.2 The Contractor must give the TA 24 hours notice when working in occupied premises or offices. CCG will have sufficient time to move personnel and secure areas.

G 1.4.19 **Assembly of Components**

G 1.4.19.1 The Contractor must ensure that during installation of specified equipment, that parts and assembled equipment are cleaned of smudges, spatter or excess solder, weld metal and metal chips or any other foreign material which might detract from the intended operation, function, or appearance of the equipment. (This would include any particles that could loosen or become dislodged during the normal

expected life of the equipment). All corrosive material must be removed. This cleaning must take place before the parts are assembled into the equipment.

G 1.4.19.2 Covers, cowlings and components damaged by the Contractor must be replaced with a new CFM cover, cowling, or component.

G 1.4.19.3 Where torque specifications are not provided by the manufacturer, the applicable SAE, ANSI, or BS1083 nut and bolt standard torque must be used.

G 1.4.20 **Protection of Equipment**

G 1.4.20.1 The Contractor must take measures to ensure that surfaces and components of equipment installed on the vessel are protected against damage, soiling, and contamination as a result of contracted work.

G 1.4.20.2 All electrical and electronic equipment and components must be protected during the contract against physical damage, internal damage, and by the effects of adverse temperatures or other environmental conditions.

G 1.4.20.3 The Contractor must protect equipment that could be damaged as a result of movement of materials and equipment nearby. The Contractor must also protect equipment from nearby sources of contamination including but not limited to burning, welding, media (sand) blasting, grinding and painting.

G 1.4.20.4 Any damage to surfaces, equipment, furnishings or decor incurred prior to acceptance must be returned to As-Delivered condition by the Contractor.

G 1.4.20.5 All openings in machinery and/or systems prior to connections being made must be kept covered by fitted secure solid inserts or covers at all times.

G 1.4.20.6 The Contractor must obtain and follow instructions from its sub-Contractors for any special protection required for their equipment during the project work. Such instructions must be made available to the TA.

G 1.4.20.7 Physical protection including but not limited to plastic sheets, fireproof covers, heavy weight material covers, wood plugs, wood encasements and heaters must be used as required.

G 1.4.20.8 The Contractor must protect the vessel from the possibility of vermin infestation (insect/mammal/bird). If an infestation does occur during the contract period, the Contractor must bear all costs to ensure the vessel is made vermin free before the vessel's departure and contract completion.

G 1.4.21 Halocarbon containing Systems**G 1.4.21.1**

G 1.4.21.1 All work conducted on Halocarbon containing systems, must be in accordance with the Federal Halocarbon Regulations, 2003 (SOR/2003-289). These regulations are available on the internet here: <http://laws-lois.justice.gc.ca/eng/regulations/SOR-2003-289/page-1.html>

G 1.4.22 Welding

G 1.4.22.1 In addition to section 7.16 Welding Certification – Contract; All welding and weld inspection must be in accordance with the CCG Welding Specification CT-043-eg-001. This document will be provided to the Contractor within 48 hours of written request to the TA.

G 1.4.22.2 The governing standards for welding of materials less than 3 mm in thickness must be in accordance with the requirements of the CCG Welding Specification CT-043-EG-EQ-001. For materials greater than 3 mm in thickness, the Contractor must meet the following:

- a) For structural steels greater than 3 mm in thickness, welding must meet the requirements of CSA Standards W47.1 and W59, except as modified by the CCG Welding Specification CT-043-EG-EQ-001.
- b) For structural aluminum greater than 3 mm in thickness, welding must meet the requirements of CSA Standards W47.2 and W59.2, except as modified by the CCG Welding Specification CT-043-EG-EQ-001.
- c) For structural stainless steels greater than 3mm in thickness, welding must meet the requirements of CSA Standard W47.1 and AWS D1.6, and of the CCG Welding Specification CT-043-EG-EQ-001.

G 1.5 Documentation**G 1.5.1 Text Documentation**

G 1.5.1.1 All text deliverables must be accompanied by a PDF file that must contain the complete document. The Contractor must check the quality to verify that the content reflects the same content/formatting as the Master Document file. In the case of changes, a second PDF file that contains only the changed sheets must be supplied.

G 1.5.2 Data Book

G 1.5.2.1 The Contractor must provide all documentation generated as a result of specified deliverables, in both electronic and paper formats. There must be 2 paper copies of each document, in two separate binders, as part of the contractors QA program. An electronic copy of all documentation must also be provided to the TA in accordance with the formats described in this specification section.

G 1.5.2.2 All copies of documents generated as a result of specified deliverables will be referred to as the “Data Book”.

G 1.5.2.3 The Contractor must provide to the TA all the files generated as part of the Data Book prior to the contract being considered complete. The files must be in hard format (CD-ROM, DVD-ROM, Flash Drive / Memory Stick). Each specification item is to have its own folder named according to the specification item. For example “G1.0 General Notes”.

G 1.5.2.4 Any documentation, media, and reports that are the result of Additional Work must be included as part of the Data Book.

G 1.5.3 File Naming

G 1.5.3.1 The name of the files must include the number of the section of the specification to which it relates, the date and a short description of the content. (example: "G_1.0_2019-03-25_Types Description.pdf")

G 1.5.4 E-mails

G 1.5.4.1 All attached files sent to the TA and IA by email must comply with section G 1.5.3 File Naming of this Specification. The subject of emails containing attachments (deliverable) must contain the # contract - quote item # - date - keywords short description of the content.

G 1.5.5 File Formatting

G 1.5.5.1 All documentation, reports, test results, certificates, or data obtained by the contractor in paper form must be scanned into unprotected, searchable, Adobe PDF formatted files and named according to the File Naming section of this specification.

G 1.5.5.2 All reports, test results, certificates, or raw data obtained by the contractor in electronic format must be converted to unprotected Adobe PDF formatted files and named according to the “File Naming” section of this specification. Both the original and the converted copy must be provided as part of the Data Book.

G 1.5.6 Photographs

G 1.5.6.1 All photographs obtained by the contractor as requested in the specification must be provided in .JPG formatted files at a resolution of at least 640 x 480 and named according to the “File Naming” section of this specification.

G 1.5.7 Measurements, Calibrations, and Readings.

G 1.5.7.1 All measurements, calibrations and readings recorded, must be signed by the person taking the measurements, dated and scanned into electronic format as part of the Data Book.

G 1.5.7.2 Unless other wise specified the Contractor must record dimensions to a precision of three significant digits in imperial along with the metric equivalent.

G 1.5.7.3 The Contractor must provide to the TA current and valid calibration certificates, and control values for all instrumentation used in the Test and Trials Plan, showing that the instruments have been calibrated in accordance with the manufacturer’s instructions. These copies are to be provided as part of the Data Book, under any specification where measurements are required.

G 1.5.8 Test/Inspection Records and Certificates

- G 1.5.8.1 Test and/or Inspection Records and Certificates are identified as a deliverable in the individual specification item requesting them.
- G 1.5.8.2 Test and/or Inspection Records and Certificates, must be included as a separate section in the Databook and indexed/arranged in numeric order by specification number.
- G 1.5.8.3 The Contractor is responsible for maintaining a complete and accurate record of all tests and trials conducted on the vessel and on each piece of equipment. Prior to the commencement of a trial, all relevant documentation and associated test sheets, including shop test data, must be complete and attached to the trials agenda.
- G 1.5.8.4 All tests and trials data must be legible both in hard copy and electronic format. If necessary, handwritten records may require transcription into electronic format in order to be acceptable. The original must be signed by the regulatory body, the TA, the Contractor and where necessary, by the sub-Contractors and/or FSR's who witnessed the tests. All the data must be submitted to the TA in accordance with the Documentation section of these General Notes.
- G 1.5.8.5 The original records of tests, tests and inspections must be signed by TC, the contractor and, if applicable, the subcontractors or feild service representative who attended the tests.
- G 1.5.8.6 The Contractor must provide, in paper (2 copies) and electronic format, all copies of the tests, trials and inspection logs.

G 1.6 Drawings**G 1.6.1 General**

- G 1.6.1.1 The Drawings section of the General Notes is intended to be used as a reference for minimum standards where specified deliverables must be drawings.
- G 1.6.1.2 All drawings will be made on ANSI ANSI-size paper (11 "x 17") at least. The drawings will be sent in DWG format (AutoCAD 2013 or newer), on CD-ROM, and will not be protected by a password. One (1) CD-ROM must be provided.

G 1.7 Manuals**G 1.7.1 General**

- G 1.7.1.1 The "Manuals" section of the General Notes is intended for use as a reference for minimum standards where specified deliverables must be manuals.
- G 1.7.1.2 Each instruction manual and register must be bound in a "D" 3-ring hard cover book with interlocking latches that can accommodate 8-1 / 2 "by 11" sheets. Larger drawings and documents must be accordion folded. The following information must be printed on the cover:
- a) CCGS Amundsen
 - b) Specification identification number
 - c) Identification of equipment or systems
 - d) manufacturer of the equipment;
 - e) revision number and date.
- G 1.7.1.3 All sections of manuals must have laminated tabs. The main components of the equipment should be subdivided into separate sections in the manuals.
- G 1.7.1.4 A main index should be at the beginning of each notebook and indicate all the elements included in each section.
- G 1.7.1.5 A list of the names, addresses and telephone numbers of the equipment manufacturers' resource persons must accompany the document for reference after completion of the project for maintenance and information management purposes.
- G 1.7.1.6 A copy of the final approved version of the "as-built" drawings must be included in the service manual.
- G 1.7.1.7 The Contractor must provide the Technical Authority with two paper copies of all manuals and data sheets in English and French (one copy of each) of the equipment provided by the Contractor prior to the expiry of the Contract. .
- G 1.7.1.8 The Contractor must provide four copies to the Technical Authority of all individual DVD manuals and data sheets, in PDF-compatible format, before the expiry of the contract.

G 1.7.2 Operation Manuals – As-Fitted[– Not Used]

G 1.7.2.1 [– Not Used]

G 1.7.3 Maintenance Manuals – As-Fitted[– Not Used]

G 1.7.3.1 [– Not Used]

G 1.8 Identification[– Not Used]

G 1.8.1 [– Not Used]

G 1.9 Production diagram

G 1.9.1 The purpose of this specification is to provide the owner's representatives with a clear schedule of work and completion for the needs of the Coast Guard.

G 1.9.2 The Contractor must provide a bar chart using an application that shows the critical path (MS Project 2010 format or equivalent) that illustrates the anticipated schedule of ship refit work. This chart should show each task in the specification with its start date, duration, and expected completion date.

G 1.9.3 Any critical work sequence must be indicated, with critical tasks likely to delay the refit if it does not meet the scheduled work schedule. These may be labor issues or tasks that can not be performed alongside other tasks.

G 1.9.4 In the event of work affecting the critical path of work, the TA, the TA and the CA are notified immediately. Every effort must be made not to delay the ship's refit. Regular quality assurance procedures must be applied.

G 1.9.5 The bar chart will be updated weekly and in advance of each production meeting to illustrate the actual progress of the refit work and the changes made to the completion date of each item. The Contractor shall include in its chart updates any special work requested on PWGSC Form 1379 indicating the impact this additional work will have on the work schedule.

G 1.9.6 The Contractor must provide a pdf copy and a .mpp copy (MS Project 2010) or newer version of the Bar Chart to the TA and IA no later than three days after the date of contract award.

S 1.0 SERVICES

S 1.1 General

- S 1.1.1 The Contractor is responsible for providing the Confined Space Rescue Service and Rescue Service at a height to intervene with these employees and subcontractors.

S 1.2 Cranes

- S 1.2.1 Crane on board the vessel

- a) The ship's crane will be available for the purpose of handling the ship's material, but the contractor shall submit the request to the Chief Engineer at least 24 hours prior to the commencement of the handling.

- S 1.2.2 Contractor's crane

- a) It is the responsibility of the contractor to verify the load restrictions applicable to the dock where the ship is moored. Lifting slings and equipment will be provided by the contractor.

S 1.3 Mooring Lines[– Not Used]

- S 1.3.1 [– Not Used]

S 1.4 Gangways[– Not Used]

- S 1.4.1 [– Not Used]

S 1.5 Electrical Power

- S 1.5.1 120 VAC electricity and 120 psi compressed air will be provided by the vessel.

S 1.6 Protection of Decks and Lower Walls

- S 1.6.1 In order to prevent encrustation of dirt in corridors and protect the floor covering, supply and install Masonite 1/8 "thick on the surfaces of internal bridges in the paths access to work from the outside door to the workplace.

S 1.7 Heating[– Not Used]

- S 1.7.1 [– Not Used]

S 1.8 Worksite Inspections

- S 1.8.1 Before the Contractor begins work on the vessel, the TA and the Contractor's Quality Assurance Representative must visit areas where work will be carried out, including access roads. The Contractor's Quality Assurance Representative shall take digital photographs of each area to demonstrate compliance with the requirements of this document. He must then download these photos in JPG format on a CD or DVD. Each photo must be dated and indicate which location on the ship it is. Copies of the CD or DVD must be provided to the TA for reference within 48 hours of the start of the contract period.
- S 1.8.2 During the construction period, the contractor will be responsible for the maintenance of the areas of the ship that his personnel uses to access the work areas. Areas should be clean and free of debris, and garbage should be removed daily.
- S 1.8.3 Hazardous areas, due to the work provided for in this specification, must be secure and clearly identified by the contractor. Posters must be posted to inform and protect all staff in accordance with the applicable requirements of the Canada Labor Code.
- S 1.8.4 At the end of this contract, the Contractor shall ensure that all waste produced as a result of the work of this specification is disposed of and that the vessel is as clean as it was before the beginning of the period. of the contract.
- S 1.8.5 Once all known work has been completed and final cleaning has been completed, the Contractor's Quality Assurance Representative will be required to visit all areas of the vessel where work has been completed by the Contractor. Any deficiencies or damage noted shall be recorded and compared to the photographs taken to determine if the deficiency or damage arises from the work performed by the Contractor. If this is the case, the damage must be repaired by the contractor at no cost to the CCG.

S 1.9 Fire Protection

- S 1.9.1 The Contractor must ensure that insulation, removal and installation of fire detection and suppression systems and related components are performed by a qualified technician. When fire detection or extinguishing systems are deactivated or decommissioned by the contractor during the term of the contract, a qualified technician must re-certify that they are fully functional. The original signed and dated certificate must be delivered to the Technical Authority (TA) and Technical Inspection before the end of the contract.
- S 1.9.2 The Contractor must notify and obtain written approval from the Technical Inspection and the TA prior to disturbing, removing, isolating, deactivating,

decommissioning or locking any part of the detection and control systems.
extinguishing fires, including heat and smoke detectors.

S 1.9.3 The Contractor must provide fire protection at all times and therefore also while work is being performed on the vessel's fire detection and extinguishing systems. This can be done as suggested below, only after obtaining the written approval of the TA:

- a) Only disable one part of the system at a time;
- b) Maintain the system operational using spare parts while the work is in progress;
- c) Use other methods accepted and approved by the TA.

S 1.9.4 The Contractor must be aware that, if all necessary precautions are not taken when working on the ship's fire suppression systems, this could result in an accidental release of extinguishing agents. The contractor will then have to fill and certify, at his expense, containers or systems that have emptied due to such work.

S 1.10 Project Facilities[– Not Used]

S 1.10.1 [– Not Used]

10.0 **Safety and Security**

10.1 **FIREFIGHTING SYSTEMS**

10.1.A **Scope**

- 10.1.A.1 Perform annual inspection and maintenance of firefighting systems in accordance with Transport Canada requirements.
- 10.1.A.2 The Contractor must include in its bid all known work according to the lists provided in reference.
- 10.1.A.3 Labels bearing the name of the contractor, the date and the initials of the person carrying out the inspection shall accompany each system.

10.1.B **References**

10.1.B.1 **Equipment Data**

10.1.B.1.1 Technical information:

- a) MinuteMan fixed system: Foam (holding tank under the nozzle)
- b) Firecombat Fixed System: Powder (Aft holding tank) and Foam (Forward holding tank)
- c) Inventory of foam reserves: See annexed reference documents
- d) Kitchen hood fixed extinguishing system: Kitchen Knight II

10.1.B.1.2 Fire extinguisher maintenance list spring 2019

10.1.B.1.3 List of fixed extinguishing systems

10.1.B.1.4 Lots of foam AFFF 3%

10.1.B.1.5 Complete list extinguishers

10.1.B.2 **Drawings**

- 10.1.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Number of Sheets
08693-20	Fire Control Plan	3

10.1.B.3 Regulations and Standards

10.1.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications		
Standards		
NFPA 12 (2018)	Standard on Carbon Dioxide Extinguishing Systems	Non
Regulations		

10.1.C Statement of Work**10.1.C.1 Anti-defragmentation heat detectors**

10.1.C.1.1 Verification of 5 local defragmentation heat detectors 416 Hangar helicopter, 417 hangar workshop, 605 hazardous materials warehouse, aviation fuel pump room and 314 local immersion clothes. (Simplex Grinnel)

10.1.C.2 Fixed CO2 extinguishing systems of ship and barge compartment

10.1.C.2.1 Maintenance of the fixed fire extinguishing systems must comply with the manufacturer's requirements and in accordance with Transport Canada's regulations (Canadian Shipping Act 2001).

10.1.C.2.2 Cylinders must be uncoupled to avoid accidental discharges during maintenance. Pipes must be blown with dry air, nitrogen or other inert gas.

10.1.C.2.3 The contractor must have at the beginning of each day enough full bottles to blow the ducts throughout the inspection to avoid delays.

10.1.C.2.4 Verify that all timer systems, visual indications, audible alarms and shutdowns of the vessel's ventilation systems are working properly.

10.1.C.2.5 Demonstrate that all nozzles and distribution ducts are clear of obstructions. These tests may require the dismantling and sealing of certain parts of the ducts. Each

system must be returned (as far as possible) to its original state of good functioning once the tests are completed at the end of each day.

- 10.1.C.2.6 Check all on-site and remote operation devices, time delays as well as the temperature raise triggers.
- 10.1.C.2.7 Ensure the tightness and good condition of the flexible hoses connecting the cylinders to the distribution ducts.
- 10.1.C.2.8 The level of all cylinders in each system should be checked. A label must be affixed to each cylinder indicating its level.
- 10.1.C.2.9 It is agreed that fire equipment will be accessible and available in case of emergency and that appropriate precautions will be taken when hot work is performed in the area protected by the fixed extinguishing system.
- 10.1.C.2.10 In cases where a fixed cylinder of extinguishing agent is found to be defective, under normal load, or where a hydrostatic test is required, the Contractor will be responsible for removing the cylinder, filling it, returning it to its original location on board, connect it and put it back into service.
- 10.1.C.2.11 Perform all hydrostatic tests on fixed fire cylinders that are due within the next 12 months according to the list provided.

10.1.C.3 **Portable fire extinguishers**

- 10.1.C.3.1 The annual maintenance and inspection of portable fire extinguishers must be in accordance with the manufacturer's requirements and with Transport Canada's regulations.
- 10.1.C.3.2 The Contractor shall perform the annual inspection of all portable extinguishers aboard the vessel as per the list provided as reference. The inspection will have to be done on board the ship. If for any reason extinguishers are to be brought outside the vessel, the Chief Officer or Chief Engineer shall be notified.
- 10.1.C.3.3 Each fire extinguisher will be removed from its wall bracket and inspected for any abnormality. The pressure gauges and the date of the last hydrostatic test will be checked.
- 10.1.C.3.4 All powder extinguishers with a cartridge must have these checked and weighed.
- 10.1.C.3.5 Labels bearing the name of the contractor, the date and the initials of the person carrying out the inspection must accompany each fire extinguisher.

- 10.1.C.3.6 The contractor will repair, refill any defective found fire extinguisher, down load normal and hydrostatic test as needed. The contractor will be responsible for removing fire extinguishers, filling them and replacing them in their respective locations.
- 10.1.C.3.7 Perform all hydrostatic tests and 6 year maintenance on portable fire extinguishing cylinders that are due within the next 12 months according to the list provided.
- 10.1.C.3.8 It is agreed that fire equipment will be accessible and available in case of emergency. Adequate protection will be taken when hot work is required to complete the inspection.

10.1.C.4 Kitchen Knight II Fixed extinguishing system

- 10.1.C.4.1 The Contractor must perform the complete annual maintenance and inspection of the kitchen fixed system in accordance with the requirements of the manufacturer and Transport Canada regulations.
- 10.1.C.4.2 The contractor will verify the proper operation of the ventilation stops, visual indications and fuses.
- 10.1.C.4.3 Devices for local, remote and automatic operation must be verified.
- 10.1.C.4.4 The condition of the cylinder should be checked, its level and the date of the last hydrostatic test.
- 10.1.C.4.5 The contractor will have to install a cylinder compatible with the system if it needs to remove the current cylinder to bring it to its establishment. The cylinder will only be removed if it needs to be recharged or hydrostatically tested.
- 10.1.C.4.6 The contractor will have to renew the labeling once the inspection has been completed.

10.1.C.5 Flight deck fire extinguishing system

- 10.1.C.5.1 Conduct annual inspection and maintenance of fixed flight deck fire suppression systems: FireCombat and Minuteman in accordance with manufacturer's recommendations and Transport Canada regulations.
- 10.1.C.5.2 The Contractor must provide the sampling containers to take a sample of AFFF foam in each system: one in the Minuteman system, one in the FireCombat system and another in each reserves indicated by the Chief Officer (see attached reference document.)

10.1.C.5.3 The analytical results of each sample should be provided to CCG.

10.1.C.6 Smoke and heat detectors

10.1.C.6.1 Verification of all smoke and heat detectors.

10.1.D Proof of Performance

10.1.D.1 Inspection Points

10.1.D.1.1 All work must be inspected by the IA or delegate.

10.1.D.1.2 The IA will verify the labels bearing the Contractor's name, the date and the initials of the person who performed the inspection on each system.

10.1.D.2 Testing/Trials

10.1.D.2.1 The proper functioning of the equipment must be demonstrated to the IA.

10.1.D.3 Certification

10.1.D.3.1 The Contractor must provide the Chief Officer with two hard copies of the inspection certificates along with the original copy. The contractor will also send an electronic copy of the certificates to the IA and TA.

10.1.D.3.2 Annual Inspection Certificate:

- a) Fixed system MinuteMan: Foam (containing under the nozzle)
- b) FireCombat Fixed System: Powder (Back Container) and Foam (Front Container)
- c) Inventory of foam reserves
- d) Kitchen Hood Fixed Extinguishing System: Kitchen Knight II
- e) Fixed CO2 extinguishing system: ship and barge

10.1.D.4 Documentation

10.1.D.4.1 The contractor must provide a complete report that explains the work in detail.

10.1.D.4.2 The Contractor must provide the IA and the TA with an electronic copy of the report in PDF format.

10.1.D.4.3 The analytical results for each foam batch sample (3) and system (2) shall be provided to CCG.

10.1.D.5 Training[– Not Used]

10.1.D.5.1 [– Not Used]

10.2 **ELEVATOR AND DUMBWAITER**

10.2.A **Scope**

10.2.A.1 Perform annual maintenance and inspection of the vessel's elevator and dumbwaiter.

10.2.B **References**

10.2.B.1 **Equipment Data**

10.2.B.1.1 Equipment characteristics:

a) Elevator : Montgomery, model : VT-3431

b) Dumbwaiter : Montgomery, model : VDS-3432

10.2.B.2 **Drawings**

10.2.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes .

Drawing Number	DRAWING TITLE	Number of Sheets
DWG CT-37457	Electric Elevator Layout	1

10.2.B.3 **Regulations and Standards**

10.2.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications		
Standards		
CAN/CSA-B44-M90, sec. 12	Safety Code for Elevators	No
Regulations		

10.2.C **Statement of Work**

10.2.C.1 Elevator

10.2.C.1.1 Provide labor to carry out the annual inspection and maintenance of the vessel's elevator as directed in section 12 of CAN / CSA-B44-M90.

10.2.C.1.2 Calibrate and seal the cabin speed regulator.

10.2.C.1.3 Calibrate and seal the counterweight speed regulator.

10.2.C.1.4 Following the work, update the maintenance register of each equipment.

10.2.C.2 Dumbwaiter

10.2.C.2.1 Provide labor to carry out the annual inspection and maintenance of the vessel's dumbwaiter as specified in section 12 of CAN / CSA-B44-M90.

10.2.C.2.2 Following the work, update the maintenance register of each equipment.

10.2.C.2.3 Adjust the brake according to the manufacturer's standards.

10.2.D **Proof of Performance**

10.2.D.1 **Inspection Points**

10.2.D.1.1 All work must be inspected by the IA or delegate.

10.2.D.2 **Testing/Trials**

10.2.D.2.1 The proper functioning of the equipment must be demonstrated to the IA.

10.2.D.2.2 L'AI doit être présent durant les inspections et les essais.

10.2.D.3 Certification

- 10.2.D.3.1 The Contractor must provide the Chief Engineer with the original copy of the inspection certificates upon completion of the work. The contractor will also send an electronic copy of the certificates to the TA.

10.2.D.4 Documentation

- 10.2.D.4.1 At the end of the work, the contractor must provide a complete report detailing the work performed, the cause of the failures (if any), the necessary modifications and the replaced parts. The Contractor shall also provide the Chief Engineer and maintenance officer with an electronic PDF copy of the report.
- 10.2.D.4.2 The Contractor must provide within 3 days of the inspection a certificate for each equipment attesting its compliance with the standard, and any inspections specified in standard CAN/CSA-B44-M90, sec. 12.
- 10.2.D.4.3 The Contractor must provide the IA and the TA with an electronic copy of the report in PDF format.

10.2.D.5 Training[– Not Used]

- 10.2.D.5.1 [– Not Used]

10.3 LIFEBOATS, DAVITS AND MIRANDA DAVITS**10.3.A Scope**

- 10.3.A.1 Perform annual maintenance and inspection of both lifeboats and their respective davits, and the annual inspection of the Miranda davit to maintain the vessel's SOLAS certification.

10.3.B References**10.3.B.1 Equipment Data**

- 10.3.B.1.1 Miranda davit:
- a) Manufacturer: Schat-Harding,
 - b) Model: MRT 3900;
 - c) Winch type BHY 5300.

10.3.B.1.2 Port/starboard lifeboat davits:

- a) Manufacturer: Schat-Harding,
- b) Model BE7800

10.3.B.1.3 Port side lifeboat:

- a) Manufacturer: Watercraft International Ltd.,
- b) Model: 9012934 (Boat number)

10.3.B.1.4 Starboard side lifeboat:

- a) Manufacturer: Watercraft International Ltd.,
- b) Model: 9012933 (Boat number)

10.3.B.2 Drawings

- 10.3.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes .

Drawing Number	DRAWING TITLE	Number of Sheets
BHY 5300	Sectionnal arrgt of winch bhy 5300	1

10.3.B.3 Regulations and Standards

- 10.3.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications		
Standards		
Regulations		
SOLAS		

10.3.C Statement of Work

- 10.3.C.1 The contractor must mandate the manufacturer or his authorized representative of Schat Harding (Palfinger) to perform the work or supervise the work as per IMO Circular 1206.
- 10.3.C.2 The annual inspection of the Zodiac Huriccan 733 will be performed by a certified contractor.
- 10.3.C.3 The inspection of the Miranda davits and lifeboats includes the following:
- a) Inspection of limit switches
 - b) Inspection of controls
 - c) Inspection of davits
 - d) Opening winch gearboxes, gears, brakes, clutches, manual levers
 - e) Cables, pulleys, pulley shaft
 - f) Grease fitting
 - g) Oil level
 - h) Structural inspection of the davit and support equipment
 - i) Dynamic inspection with empty lifeboat
 - j) Inspection of power units, hand pump, hoses, hydraulic system operation, manual and normal pump, and normal mode.
- 10.3.C.4 Inspection of both lifeboats, including the following points:
- a) Steering gear
 - b) Manometer and all indicators
 - c) New release hooks, frame and mechanism
 - d) Ration
 - e) Fluid levels and filters
 - f) Sprinkler system and air supply
 - g) Battery, lighting, control system
 - h) Hook clearance measurements
 - i) Inspection of doors, door seals and portholes
 - j) Bilge pump
 - k) Engine exhaust system sealing and presence of CO₂ after lengthy engine operation
- 10.3.C.5 Replace the hook diaphragm for the two boats. The Contractor shall provide all materials.

10.3.D Proof of Performance**10.3.D.1 Inspection Points**

10.3.D.1.1 All work must be inspected by the IA and the Chief Officer.

10.3.D.2 Testing/Trials

10.3.D.2.1 Tests and trials according to TC requirement.

10.3.D.3 Certification

10.3.D.3.1 The Contractor must submit to the IA the original copy of the hook certificates. The Contractor shall also send an electronic PDF copy to the TA.

10.3.D.4 Documentation

10.3.D.4.1 The Contractor shall submit a complete report explaining in detail the work done, cause of failures (if any), necessary changes and parts replaced on the lifeboat.

10.3.D.4.2 The Contractor shall also provide an inspection report of the lifeboat launch system.

10.3.D.4.3 The Contractor shall submit to the IA and the TA an electronic copy of the report in PDF format.

10.3.D.5 Training[– Not Used]

10.3.D.5.1 [– Not Used]

10.4 FUEL TRANSFER HOSES**10.4.A Scope**

10.4.A.1 Perform annual certification of the fuel transfer hoses.

10.4.B References**10.4.B.1 Equipment Data**

10.4.B.1.1 Description of hoses

- a) Four (4) diesel fuel transfer hoses, each 4" in diameter and 50' long. The working pressure of the hoses is 150 psi.
- b) A helicopter fuel hose (1½" x 103')
- c) Two (2) hoses to fill the boats (1" x 76' each)

10.4.B.2 Drawings

- 10.4.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes .

Drawing Number	DRAWING TITLE	Number of Sheets
	[– Not Used]	

10.4.B.3 Regulations and Standards

- 10.4.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications		
RMA IP-11-4	Rubber Manufacturers Association Technical Specification Manual for maintenance, testing and inspection of Oil Suction and Discharge Hose.	No
Standards		
Regulations		

10.4.C Statement of Work

- 10.4.C.1 Provide all required material and labour to perform hydrostatic checks and tests on seven (7) fuel transfer hoses (diesel and Jet A 1 fuel).
- 10.4.C.2 Supply the material, equipment and labour to conduct a hydrostatic test in accordance with the RMA IP-11-4 standard.
- 10.4.C.3 Provide round-trip transportation.
- 10.4.C.4 Hoses will be disassembled and reinstalled by the CCG.

10.4.D Proof of Performance**10.4.D.1 Inspection Points[– Not Used]**

10.4.D.1.1 [– Not Used]

10.4.D.2 Testing/Trials

10.4.D.2.1 Hydrostatic test according to publication RMA IP-11-4.

10.4.D.3 Certification

10.4.D.3.1 Provide a certificate for each hose, indicating the company that did the work, the certification number, and the name and signature of the technician in charge.

10.4.D.3.2 Certificates must identify the hose in question. Identify the hoses with metal clips in accordance with the attached order: AMD 01, AMD 02, etc.

10.4.D.4 Documentation

10.4.D.4.1 The Contractor shall submit a complete report explaining in detail the work done, cause of malfunctions (if any), necessary changes and parts replaced.

10.4.D.4.2 The Contractor shall submit to the IA and the TA an electronic copy of the report in PDF format.

10.4.D.5 Training[– Not Used]

10.4.D.5.1 [– Not Used]

11.0 **Hull and Related Structures[- NOT USED]**

11.1 **UNDERWATER HULL INSPECTION**

11.1.A **Scope**

11.1.A.1 The Contractor must provide the services of divers to perform the underwater inspection of the hull of the vessel.

11.1.B **References**

11.1.B.1 **Equipment Data[– Not Used]**

11.1.B.1.1 [– Not Used]

11.1.B.2 **Drawings**

11.1.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes .

Drawing Number	DRAWING TITLE	Number of Sheets
222-H-1	Shell Expansion	1
222-H-101	General Arrangement	3
222-H-131	Docking Plan	1

11.1.B.3 **Regulations and Standards**

11.1.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications		
Standards		
ACNOR Z275.2	Occupational safety code for diving operations	No
ACNOR Z275.4	Competency standard for diving, hyperbaric chamber, and remotely operated vehicle operations	No

11.1.C **Statement of Work**

- 11.1.C.1 Provide the services of divers to conduct an underwater hull inspection of the vessel. The hull, water intakes, bow thruster, propellers, rope guards, rudder, rudder stock and rudder trunk will be inspected for anomalies.
- 11.1.C.2 Provide a camera service to film the entire inspection.
- 11.1.C.3 The work will be carried out to meet the demands and in the presence of the TCMS marine surveyor in order to postpone a 6-month dry dock inspection.
- 11.1.C.4 The Contractor must comply with Canadian Coast Guard Procedure 7.B.1 "Diving Operation" from the FSM.
- 11.1.C.5 The Contractor must comply with the CSA Z275.2 and Z275.4 Diving Standards, as required by the CSST
- 11.1.C.6 The Contractor must ensure that the team that is on site has a minimum of three (3) people including:
- a) an active diver who will be connected to the surface;
 - b) a reserve diver (stand-by divers) ready to intervene;
 - c) a surface aid (tender).

11.1.D **Proof of Performance**

11.1.D.1 **Inspection Points**

- 11.1.D.1.1 All work must be inspected and accepted by the Transport Canada Inspector.

11.1.D.2 Testing/Trials[– Not Used]

11.1.D.2.1 [– Not Used]

11.1.D.3 Certification

11.1.D.3.1 Provide a copy of the valid certification of divers before starting work.

11.1.D.4 Documentation

11.1.D.4.1 The Contractor must provide a copy of the inspection video on a USB key, photographs of any damage found during the inspection and a detailed report of the findings. The copy must be provided within 3 days of the inspection.

11.1.D.5 Training[– Not Used]

11.1.D.5.1 [– Not Used]

11.2 GALLEY RANGE HOOD CLEANING**11.2.A Scope**

11.2.A.1 Perform annual cleaning of the hood and the galley range hood ventilation duct.

11.2.B References**11.2.B.1 Equipment Data[– Not Used]**

11.2.B.1.1 [– Not Used]

11.2.B.2 Drawings

11.2.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes .

Drawing Number	DRAWING TITLE	Number of Sheets
	[– Not Used]	

11.2.B.3 Regulations and Standards

- 11.2.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications	[– Not Used]	
Standards		
Regulations		

11.2.C Statement of Work

- 11.2.C.1 Clean and degrease the galley range hood extraction duct up to the extraction fan located behind the emergency generator compartment.
- 11.2.C.2 The duct for a 12" x 32" rectangular section includes a 36' horizontal segment, a 90 degree elbow and a 27' vertical segment. An access panel is installed in the cleaning product storage room and another in the passageway in front of the helicopter hangar and two in the section in the galley ceiling. The Contractor shall open and close the access panels for cleaning purposes. The Contractor shall also remove and replace the ceiling tiles in the galley.
- 11.2.C.3 The hood and its components shall also be cleaned.
- 11.2.C.4 The Contractor shall leave the galley and the cleaning product storage room in the same condition they were in before the work was started. Also, waste shall be placed in the contractor's container on the dock.
- 11.2.C.5 Work can begin after 6 p.m. and the galley shall be back in service before 5 a.m. the next morning.

11.2.D Proof of Performance**11.2.D.1 Inspection Points**

- 11.2.D.1.1 All work must be inspected by the IA

11.2.D.2 Testing/Trials[– Not Used]

11.2.D.2.1 [– Not Used]

11.2.D.3 Certification[– Not Used]

11.2.D.3.1 [– Not Used]

11.2.D.4 Documentation

11.2.D.4.1 The Contractor shall submit a complete report explaining the work done.

11.2.D.5 Training[– Not Used]

11.2.D.5.1 [– Not Used]

11.3 MODIFICATION OF THE OPENING OF THE STORAGE UNDER THE STAIR (MAIN DECK FRAME 62+305MM) (OPTIONAL WORK)**11.3.A Scope**

11.3.A.1 Enlarge the opening in the starboard bulkhead at frame 62 + 305mm on the main deck as shown in drawing # C19-06-122-01.

11.3.B References**11.3.B.1 Equipment Data[– Not Used]**

11.3.B.1.1 [– Not Used]

11.3.B.2 Drawings

11.3.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes .

Drawing Number	DRAWING TITLE	Number of Sheets
C19-06-122-01	MODIFICATION OUVERTURE	1

11.3.B.3 Regulations and Standards

11.3.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications		
	[– Not Used]	
Standards		
Regulations		

11.3.C Statement of Work

11.3.C.1 Provide material and labor to perform the following work as well as those indicated on drawing C19-06-122-01:

- 11.3.C.1.1 The crew will empty the storage room before the work begins.
- 11.3.C.1.2 Disassemble the finish and all accessories in the heat affected area and retain them for reinstallation.
- 11.3.C.1.3 Isolate the work area with tarpaulins to prevent dust and welding gases from spreading in the accommodation. Install an air extractor in the containment space during the work period. The evacuation duct extremity must be routed outside and be located far enough from any air intake to prevent a return of contaminated air inside the ship.
- 11.3.C.1.4 Supply and install the flat irons as indicated and following all the instructions written on drawing # C19-06-122-01.
- 11.3.C.1.5 Remove flat irons as indicated and follow all directions on drawing # C19-06-122-01.
- 11.3.C.1.6 Cut out and remove the sheet to enlarge the opening in the bulkhead as indicated and following all instructions on drawing # C19-06-122-01.
- 11.3.C.1.7 Clean the work area.

11.3.C.1.8 Perform cleaning and surface preparation as required by the paint manufacturer on all areas affected by hot work.

11.3.C.1.9 Repaint all areas affected by hot work according to the paint manufacturer's instructions.

11.3.C.1.10 Reinstall the accessories.

11.3.C.1.11 Modify and reinstall the finish to fit the finish door to the new steel opening.

11.3.D **Proof of Performance**

11.3.D.1 **Inspection Points**

11.3.D.1.1 All work must be completed to the satisfaction of the IA.

11.3.D.2 **Testing/Trials**

11.3.D.2.1 Prior to painting, inspect all welds with dye penetrant.

11.3.D.3 **Certification[– Not Used]**

11.3.D.3.1 [– Not Used]

11.3.D.4 **Documentation**

11.3.D.4.1 Provide the report of the dye penetrant test.

11.3.D.5 **Training[– Not Used]**

11.3.D.5.1 [– Not Used]

12.0 **Propulsion and Manuevering [- NOT USED]**

13.0 **Power Generation Systems[- NOT USED]**

14.0 **Power Distribution Systems**

14.1 **REPAIR OF TRANSIT LEAKS**

14.1.A **Scope**

14.1.A.1 Repair leaks of identified transits.

14.1.B **References**

14.1.B.1 **Equipment Data**

14.1.B.1.1 Marque de commerce des transits :

- a) Roxtec
- b) MCT
- c) BST
- d) Pâte (marin)

14.1.B.2 **Drawings**

14.1.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes .

Drawing Number	DRAWING TITLE	Number of Sheets
Projet 18-221	Ultrasound Inspection of the CCGS Amundsen Transits	26
F3756-List of Transits to Repair	List of Transits to Repair	3

14.1.B.3 **Regulations and Standards**

14.1.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications		
	[– Not Used]	
Standards		
Regulations		

14.1.C **Statement of Work**

14.1.C.1 **Repair the leaks of transits identified on the list provided.**

14.1.C.1.1 Roxtec: To repair, the first step is to remove all blocks and start the installation again by following all the steps:

- a) Clean the transit frame of any dust.
- b) Lubricate the inner surfaces of the frame with Roxtec Lubricant.
- c) Adapt the blocks for the size of the cables.
- d) There must be just a 0.1-1mm gap between the two halves of blocks when pressed around a cable.
- e) Lubricate the outer and inner surfaces of the block.
- f) Install them in accordance with the transit installation plan.
- g) After finishing a block floor, insert a stay-flat between each floor.
- h) Once all the blocks have been inserted, lubricate the sides of the wedge and insert it always in front of a stay plate.
- i) Tighten the wedge screws while respecting the tightening level of the model.

14.1.C.1.2 MCT : To repair, the first step is to remove all the blocks and start the installation again by following all these steps:

- a) Clean the transit frame of any dust.
- b) Lubricate the inner surfaces of the frame with MCT lubricant.
- c) Adapt the blocks for the size of the cables.
- d) Lubricate the outer and inner surfaces of the block.
- e) Install them in accordance with the transit installation plan.
- f) After finishing a block floor, insert a stay-flat between each floor.
- g) Once all the blocks are installed, insert the compress pads and tighten.

- h) Make sure the space above the compress pads is 32-33mm.
- i) Lubricate the pad compress and the frame.
- j) Insert the wedge and screw until there is only 12 and 15 mm of the screw.

14.1.C.1.3 BST : To repair, the first step is to remove all the blocks and start the installation again by following all these steps:

- a) Clean the transit frame of any dust.
- b) Lubricate the inside surfaces of the frame with lubricant BST.
- c) Use blocks suited to the size of the cables.
- d) Install them in accordance with the transit installation plan.
- e) After finishing a block floor, insert a stay-flat between each floor.
- f) Once all the blocks have been inserted, lubricate the sides of the wedge and insert it in front of a stay plate.
- g) Tighten the wedge screw.

14.1.C.1.4 Paste : For repair, the first step is to remove the paste and start the installation again by following all these steps:

- a) Clean the surface of any contaminant
- b) Install MPACT filter and marine band
- c) Apply MFS Marine Firestop Seals
- d) Smooth the surface with a trowel, knife or damp cloth before it starts to dry.

14.1.D **Proof of Performance**

14.1.D.1 **Inspection Points**

14.1.D.1.1 An inspection of the transits following the repair must be carried out with AI.

14.1.D.2 **Testing/Trials**

14.1.D.2.1 Following repairs, an ultrasonic leak test shall be performed on each repaired transit in the presence of the TA or delegate.

14.1.D.3 **Certification[– Not Used]**

14.1.D.3.1 [– Not Used]

14.1.D.4 **Documentation**

14.1.D.4.1 Provide the calibration report of the ultrasound device used to perform the tests following the repairs.

14.1.D.4.2 A test report must be submitted to the TA.

14.1.D.4.3 An update of the original test report must be submitted to the TA.

14.1.D.5 **Training[– Not Used]**

14.1.D.5.1 [– Not Used]

15.0 Auxiliary Systems[- NOT USED]

16.0 Domestic Systems

16.1 CLEAN AND INSPECT THE PORT SIDE POTABLE WATER TANK

16.1.A Scope

16.1.A.1 The purpose of the work is to perform the annual maintenance and inspection of the port side potable water tank.

16.1.B References

16.1.B.1 **Equipment Data**

TANK DESCRIPTION	LOCATION – FRAME	CAPACITY	SURFACE FT ²
Port side potable water	13-27	68.76t	2308
Starboard side potable water	13-27	68.76t	2308

16.1.B.2 **Drawings**

16.1.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Number of Sheets
222-H-146	Capacity Plan	1

16.1.B.3 **Regulations and Standards**

16.1.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications		
Bulletin technique 04-2007		
Bulletin technique 2015-01		
Standards		
NSF 61/ANSI 61 -2016		
Regulations		

16.1.C Statement of Work

16.1.C.1 **Provide materials and labor to perform the following work:**

16.1.C.2 **General :**

16.1.C.2.1 The Contractor shall certify safe access to each potable water tank, in accordance with Fleet Safety and Security Manual requirements and recommendations. Potable water tanks are enclosed spaces.

16.1.C.2.2 The Contractor shall provide all materials, equipment, parts and tools required to do the work.

16.1.C.2.3 During the work, workers shall wear disposable coveralls and shoe covers over their work clothing to avoid contaminating the tank. New protective clothing must be worn each time the tank is entered.

16.1.C.2.4 All products or materials (e.g.: lubricant, anti-seize products, watertightness seals, caulking, o-rings etc.) used when working must be certified for use in a potable water system according to the ANSI 61 standard. The Contractor shall provide the TA and IA with justifying documents.

16.1.C.2.5 All work shall be supervised by a Field service representative (FSR) of the paint manufacturer. The Contractor shall include a \$10,000 allowance to cover the FSR's travel costs. Travel and meal costs shall be invoiced at actual cost, without overheads or profit. The \$10,000 allowance shall be included in the overall price of the bid and shall be adjusted based on follow-up work, once the final invoice from the representative has been received, along with copies of all supporting documentation attesting to actual costs. The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, and private vehicle

allowances specified in Appendices B, C and D of the [National Joint Council Travel Directive](#), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees". Canada will not pay the Contractor any incidental expense allowance for authorized travel.

16.1.C.2.6 The FSR shall supervise the application of the paint, as well as the environmental conditions, which he or she shall record in accordance with the manufacturer's instructions for the product. The FSR shall submit a report when work is completed.

16.1.C.2.7 The paint currently used in the tank is a combination of the Interline 850 and Interline 925 paints. The new paints shall be compatible with the existing ones.

16.1.C.2.8 All work shall be in accordance with the paint manufacturer's guidelines for preparing and applying their product to potable water tanks.

16.1.C.2.9 Important: No solvent or thinner shall be used in the work.

16.1.C.3 Work description – Initial preparation and cleaning

16.1.C.3.1 The port side potable water tanks shall be drained, opened and cleaned. Any cement covering shall be removed (if applicable), the tanks prepared for painting, then closed again upon completion of the work.

16.1.C.3.2 The tanks shall be washed and cleaned of any contaminant or debris and then wiped dry. For bidding purposes, the Contractor shall plan on removing and disposing of approximately two hundred (200) litres of water and debris.

16.1.C.4 Work description – Initial preparation and cleaning prior to painting

16.1.C.4.1 For the starboard potable water tank, it is estimated that 10% of paint has lifted.

16.1.C.4.2 Important: The Contractor shall strictly follow CCG Technical Bulletin 04-2007 as well as all the parameters identified in paragraph 3.9 of section 7.A.12 of the Fleet Safety Manual.

16.1.C.4.3 After the surface preparation work, the Contractor shall thoroughly clean each tank of any residue or any other abrasive materials. The Contractor shall empty these residues at a place approved by the regulations of all levels of government: municipal, provincial and federal.

16.1.C.4.4 After the tanks are cleaned of all residue, they shall be inspected by the IA and the Transport Canada Marine Safety (TCMS) expert. This inspection is to ensure that the suction valves and sounding pipes are free of obstruction and that limber holes in the floors, stringers and web frames allow adequate flow. The Contractor is

required to advise the TCMS expert when the tanks in question are ready for inspection.

16.1.C.4.5 Any defect discovered during these inspections will be dealt with using form 1379.

16.1.C.5 Description of work – Application of coating (paint)

16.1.C.5.1 The contractor shall provide a complete calendar of painting work, including the application. The contractor shall use a suitable solid epoxy-based paint that meets the CA 013 000 ES TE 003 Paints and Coating Standard for potable water tanks found aboard a ship.

16.1.C.5.2 The Contractor must ensure that the paint used meets the following criteria:

- a) 100% solids epoxy coating.
- b) Certified "protective barrier material" for use on potable water tanks, as stipulated in the National Sanitation Foundation's "Drinking Water System Components Program – Standard 61."

16.1.C.5.3 For the bid, the Contractor shall indicate a price for preparing and painting approximately 10% of 2308 square feet of the surface of the tank.

16.1.C.5.4 When submitting the bid, the Contractor shall provide the PWGSC contracting authority with the following:

- a) The paint coating it plans to use in its bid
- b) The manufacturer of the coating
- c) Proof that the paint meets the CA 013 000 ES TE 003; Interline 850 (entire tank), Interline 925 (touch-ups and repairs)
- d) Manufacturer's work procedure sheets
- e) WHMIS Material Safety Data Sheets and product data sheets

16.1.C.5.5 The Contractor shall ensure that the paint manufacturer's recommendations are strictly adhered to, in particular, with respect to:

- a) Preparation of surfaces
- b) Drying and curing conditions (including temperature, humidity, dew-point, ventilation, cure time)
- c) Shelf life of paint
- d) Compatibility with tank materials

- 16.1.C.5.6 On completion of the surface preparation and prior to the first application of the paint schedule, the Contractor's Quality Assurance representative shall provide a written statement certifying that the surface preparation has been completed in accordance with the manufacturer's instructions. Any deviations from those instructions must be noted in the certified statement.
- 16.1.C.5.7 The contractor shall monitor the following parameters during paint application and curing:
- a) The temperature of the ambient air in each tank shall be constantly monitored during the application and curing period of the paint schedule, using an electronic data recorder. Temperatures shall be recorded hourly and printouts submitted as contract deliverables.
 - b) Space temperature and relative humidity level in the tank - before work is started.
 - c) Wet-bulb temperatures of the tank and temperatures of the surfaces being painted - this is to be taken and recorded every four hours during the coating process.
- 16.1.C.5.8 Contractor shall note that the paint application shall not take place when the surface temperature is less than three (3) degrees Celsius above the dew point.
- 16.1.C.5.9 On completion of all painting, the temporary enclosure is to be dismantled, taken ashore and disposed of.
- 16.1.C.6 **Work description – Commissioning potable water tanks**
- 16.1.C.6.1 On completion of paint application and after a suitable curing period, as recommended by the coating manufacturer, each tank shall be closed up. Manholes shall be equipped with new gaskets supplied by the Contractor, and subsequently secured in place.
- 16.1.C.6.2 The CCG Inspection Authority and Technical Authority will both inspect the tanks before they are closed up.
- 16.1.C.6.3 Once closed up, each tank shall be disinfected in accordance with the CCG Fleet Safety Manual (FSM) Potable Water Quality Guidelines contained in section 3.5 of 7.A.12 prior to filling for testing. Water shall be disposed of in accordance with the regulation in effect and a disposal certificate shall be submitted to the IA and TA.
- 16.1.C.6.4 Each tank shall be hydrostatically tested with fresh water to the top of its vent pipe. This shall be witnessed by the CCG Inspection Authority, the CCG Technical Authority, and the TC-MSB surveyor. This test may be carried out concurrently with the chlorination treatment specified in the FSM.

- 16.1.C.6.5 On completion of flushing of the water tanks the Contractor shall arrange for water samples to be provided to an accredited laboratory for analysis and to obtain a potable water inspection certificate.
- 16.1.C.6.6 To obtain these samples, the Contractor shall perform the following:
- a) Each tank shall be filled with potable water to half its normal capacity.
 - b) Each tank shall then sit undisturbed forty-eight (48) hours before samples are taken.
 - c) One (1) water sample shall be taken from the fresh water supply line used to fill the tanks.
 - d) Two (2) samples shall be taken from the water inside each tank.
 - e) The samples shall be taken in the presence of the IA and the TA.
- 16.1.C.6.7 The Contractor shall ensure that samples are examined for all parameters found in paragraph 3.6 of section 7.A.12 of the FSM as well for other chemicals identified as a source of concern on the WHMIS technical data sheets of the coating manufacturer.

16.1.D **Proof of Performance**

16.1.D.1 **Inspection Points**

- 16.1.D.1.1 11.4.1.1 The Contractor's quality assurance representative, the IA, TA and the TCMS inspector shall perform the following tasks:
- a) Inspect each water tank after the surfaces have been cleaned and prepared
 - b) Monitor ambient temperatures and dew points
 - c) Monitor surface temperatures
 - d) Final inspection of all tanks prior to their being "closed-up"

16.1.D.2 **Testing/Trials**

- 16.1.D.2.1 With the TCMS inspector present, the tank shall be subjected to a hydrostatic test.

16.1.D.3 **Certification**

- 16.1.D.3.1 Provide a copy of the laboratory water analysis certificate.

16.1.D.4 Documentation

16.1.D.4.1 The Contractor shall provide the CCG Technical Authority with four (4) hard copies of the report detailing the work done, defects, repairs performed, measurements and readings taken.

16.1.D.4.2 The Contractor shall provide the FSR's report to the IA and the TA. The report shall indicate any non-compliance with the manufacturer's instruction in performing the work.

16.1.D.4.3 The Contractor shall also provide a copy of the TC-MSB Division III survey credit to the CCG Technical Authority.

16.1.D.4.4 Four (4) copies of the laboratory analyses of water samples shall be provided.

16.1.D.4.5 The Contractor shall provide a quality assurance report listing all areas mentioned in this specification that were inspected by the Contractor's quality assurance service and all the places where defects requiring corrective measures were discovered.

16.1.D.5 Training[– Not Used]

16.1.D.5.1 [– Not Used]

16.2 **REFRIGERATION SYSTEM ANNUAL INSPECTION AND MAINTENANCE**

16.2.A **Scope**

16.2.A.1 Perform maintenance and annual inspection of refrigeration and air conditioning systems.

16.2.B **References**

16.2.B.1 **Equipment Data**

16.2.B.1.1 Model of domestic and cargo refrigeration units:

- a) Domestic : Berg Chilling System WCZ-26-2/0 serial # : W03011A-AH1-1015
- b) Cargo : Berg Chilling System WCZ-15-2/0 serial # : W03011B-AH1-1015

16.2.B.1.2 Model of domestic and cargo refrigeration compressors:

- a) Domestic : Emerson Copeland scroll ZF41K5E-TFD-260;
- b) Cargo : Emerson Copeland scroll ZF25K4E-TFD-261;
- c) Cooling agent (gas) domestic and cargo: R-507A

16.2.B.2 **Drawings**

16.2.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes .

Drawing Number	DRAWING TITLE	Number of Sheets
	[– Not Used]	

16.2.B.3 **Regulations and Standards**

16.2.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications		
	[– Not Used]	
Standards		
Regulations		

16.2.C **Statement of Work**

16.2.C.1 **Cargo and domestic refrigeration**

16.2.C.1.1 For each system, provide material and labor to perform the following work:

- a) Replace the oil (2 USG POE-32 oil supplied by CCG) and filter dryer AOFD-553 POE oil.
- b) Replace the filter cartridges: STAS-967-T contains (2) 48 size drier cores.
- c) Perform a complete inspection of the systems.
- d) Perform a refrigerant leak test. All piping shall be checked, including in the ceiling of the main deck passageway. Ensure that they are watertight. Ceiling tiles shall be removed carefully for the inspection. They shall be put back once the work is complete. Currently, the system has no known leaks.
- e) Check and clean the evaporators and their deicing system.
- f) Check the evaporator drain and the heating cable system. Ensure that they are free flowing. Repair the insulation after this verification.
- g) Refrigerant gas, if required, shall be supplied by the Contractor using Form 1379.
- h) Check and adjust all operating settings.
- i) Clean of the condensers (shell and tube type) and replace the seals and anodes.
- j) Proceed with the compressor transfer.
- k) Fill out the Maintenance Register Log which is located near the equipment.

16.2.D **Proof of Performance**

16.2.D.1 **Inspection Points**

16.2.D.1.1 All work must be inspected by the IA.

16.2.D.2 Testing/Trials

16.2.D.2.1 The IA or their delegate shall be present during the tests.

16.2.D.3 Certification

16.2.D.3.1 The Contractor shall submit to the IA an electronic copy of the certificates in PDF format, along with the original. The Contractor shall also send an electronic copy to the TA.

16.2.D.4 Documentation

16.2.D.4.1 The Contractor shall submit a complete report explaining in detail the work done, cause of malfunctions (if any), necessary changes and parts replaced.

16.2.D.4.2 The technician must be certified to the HRAI standard and provide us with his ID number for our records.

16.2.D.4.3 The Contractor must provide the IA and the TA with an electronic copy of the report in PDF format.

16.2.D.5 Training[– Not Used]

16.2.D.5.1 [– Not Used]

16.3 **INSULATION OF DUCTS AND PIPES IN HVAC COMPARTMENT UNITS # 2, 3, 4 AND 5**

16.3.A **Scope**

16.3.A.1 Provide material and labor to insulate ventilation ducts and piping on HVAC systems units # 2, 3, 4 and 5.

16.3.B **References**

16.3.B.1 **Equipment Data**

16.3.B.1.1 Insulation material: non-combustible, low flame spread and unable to produce excessive amounts of smoke and toxic products according to the IMO test method Fire Test Procedures (FTP) Code .3.

16.3.B.1.2 Ventilation air duct (spiro): galvanized steel

16.3.B.1.3 Steam heaters (135 ° C): copper

16.3.B.1.4 Cold water piping for humidifier: copper

16.3.B.1.5 Cooling gas piping (R-407 refrigerant): copper

16.3.B.1.6 Cooling Water Piping (-2 ° C to 31 ° C): Galvanized Steel and Stainless Steel

16.3.B.1.7 3-way valve: CLORIUS model: L3F-80 / AVM322

16.3.B.2 **Drawings**

16.3.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes .

Drawing Number	DRAWING TITLE	Number of Sheets
EP-DWG-5813A-HGA-002	HVAC GA Comp't Unit 2 & 3	3
EP-DWG-5813A-HGA-004	HVAC GA Comp't Unit 4	2
EP-DWG-5813A-HGA-005	HVAC GA Comp't Unit 5	2
EP-DWG-5813A-SCU-002	HVAC Unit 2	1
EP-DWG-5813A-SCU-003	HVAC Unit 3	1
EP-DWG-5813A-SCU-004	HVAC Unit 4	1
EP-DWG-5813A-SCU-005	HVAC Unit 5	1

16.3.B.3 Regulations and Standards

16.3.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications		
	IMO Fire Test Procedures (FTP) Code.3	No
Standards		
NFPA 90A, 90B	Standard for the Installation of Air-Conditioning and Ventilating Systems	No
Regulations		
	Canadian Shipping Act	No

16.3.C Statement of Work

16.3.C.1 **Provide material and labor to perform the following work:**

16.3.C.2 Circular ventilation duct

16.3.C.2.1 Insulate all venting ducts (circular) with duct insulation 1 inch thick pre-molded fiberglass with FSK-reinforced vapor barrier + cotton coating and fire retardant glue.

16.3.C.1.2 Quantities in linear feet of circular duct according to diameter has been estimated and must be confirmed by the contractor before ordering the material:

- a) 4 "diameter circular duct; total: 6 linear feet
- b) 5 "diameter circular duct; total: 10 linear feet
- c) 6 "diameter circular duct; total: 34 linear feet
- d) 7 "diameter circular duct; total: 34 linear feet
- e) 8 "diameter circular duct; total: 32 linear feet
- f) 9 "diameter circular duct; total: 8 linear feet
- g) Circular conduit 14 "diameter; total: 4 linear feet

16.3.C.3 Large size rectangular ventilation duct (air intake)

16.3.C.3.1 Insulate all vent ducts (rectangular) with 1-inch thick FSK-reinforced fiberglass insulation. Insulation will be maintained with 12G self-adhesive nails.

16.3.C.3.2 Quantities in linear feet of circular duct according to the diameter has been estimated and will have to be confirmed by the entrepreneur before ordering the material:

- a) Estimated quantity not available: for quotation purposes include 50 m² of area to be insulated.
- b) The final cost will be established on the actual (real) total amount multiplied by the unit cost per square meter provided in Annex J.

16.3.C.4 Steam lines and cold water for humidifier supply

16.3.C.4.1 Insulate all steam pipes with duct insulation 1.5 "thick pre-molded fiberglass with FSK-reinforced vapor barrier + cotton coating and fire retardant glue.

16.3.C.4.2 Quantities in linear feet of pipe to be insulated according to the diameter has been estimated and will have to be confirmed by the entrepreneur before ordering the material:

- a) 1.125 "diameter Copper pipe; total: 76 linear feet
- b) 1.75 "diameter Copper pipe; total: 70 linear feet
- c) 2.25 "diameter Copper pipe; total: 34 linear feet

16.3.C.4.3 Insulate all flanges, valves and steam accessories with insulating covers ISOTEX-AW1720.1 (see data sheet) or equivalent.

16.3.C.5 Seawater pipes

16.3.C.5.1 Insulate all seawater pipes with duct insulation 1 "thick pre-molded fiberglass with FSK reinforced vapor barrier + cotton liner and fire retardant glue.

16.3.C.5.2 Quantities in linear feet of pipe to be insulated according to the diameter has been estimated and must be confirmed by the contractor before ordering the material:

- a) Steel pipe 3 in outer diameter : 90 linear feet
- b) Steel pipe 3.5 in outer diameter : 12 linear feet

16.3.C.5.3 Insulate all seawater flanges, valves and accessories with ISOTEX-AW1700 insulating blankets (see data sheet) or equivalent.

16.3.C.5.4 The quantities of flanges and valves to be insulated according to the diameter have been estimated and must be confirmed by the contractor before ordering the material:

- a) 7 "outer diameter x 2" thick flange; total: 24
- b) 3-way valve: 4
- c) Valve: 11
- d) Strainer: 4

16.3.D **Proof of Performance**

16.3.D.1 **Inspection Points**

16.3.D.1.1 Insulation inspection prior to the application of the cotton liner and fire retardant glue by IA.

16.3.D.1.2 Inspection at the end of the work by IA.

16.3.D.2 **Testing/Trials[– Not Used]**

16.3.D.2.1 [– Not Used]

16.3.D.3 **Certification**

16.3.D.3.1 All insulation shall be certified by TC (OR, ABS or equivalent accepted by TC) for use on board a vessel. The certificate must be provided before the start of the installation.

16.3.D.3.2 The insulation of the steam pipes must be certified for use at a temperature of 135°C or more.

16.3.D.4 **Documentation[– Not Used]**

16.3.D.4.1 [– Not Used]

16.3.D.5 **Training[– Not Used]**

16.3.D.5.1 [– Not Used]

16.4 **BEVERAGE REFRIGERATOR (OFFICERS' LOUNGE)** **(OPTIONAL WORK)**

16.4.A **Scope**

16.4.A.1 Provide materials and labor for the installation of a beverage refrigerator in the Officers' Saloon.

16.4.B **References**

16.4.B.1 **Equipment Data**

16.4.B.1.1 The equipment will be provided by CCG.

16.4.B.2 **Drawings**

16.4.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes .

Drawing Number	DRAWING TITLE	Number of Sheets
	[– Not Used]	

16.4.B.3 **Regulations and Standards**

16.4.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications	[– Not Used]	
Standards		
Regulations		

16.4.C Statement of Work**16.4.C.1 Remove the existing refrigerator**

16.4.C.1.1 Locate and lockout the electrical supply circuit of the equipment;

16.4.C.1.2 Dismantle the cooling unit of the refrigerator taking care to empty the equipment of its cooling gas.

16.4.C.1.3 Remove the complete equipment with the necessary provisions to avoid damage to the countertop and finish adjacent to the equipment.

16.4.C.2 Clean the rear area of the unit and make necessary paint repair.**16.4.C.3 Proceed with the installation of the unit provided by the CCG.**

16.4.C.3.1 The unit must be connected on a domestic circuit (120VAC, 60Hz).

16.4.C.3.2 Proceed with the purchase, installation and finishing around the unit.

16.4.C.3.3 Make the necessary arrangements to rebuild the finish around the new unit once installed.

16.4.D Proof of Performance**16.4.D.1 Inspection Points[– Not Used]**

16.4.D.1.1 [– Not Used]

16.4.D.2 Testing/Trials[– Not Used]

16.4.D.2.1 [– Not Used]

16.4.D.3 Certification[– Not Used]

16.4.D.3.1 [– Not Used]

16.4.D.4 Documentation[– Not Used]

16.4.D.4.1 [– Not Used]

16.4.D.5 Training[– Not Used]

16.4.D.5.1 [– Not Used]

17.0 Deck equipment

17.1 INSPECTION AND MAINTENANCE OF WINDLASS

17.1.A Scope

17.1.A.1 Perform a complete maintenance of the starboard windlass brake.

17.1.B References

17.1.B.1 **Equipment Data**

17.1.B.1.1 Windlass model :

a) Anchor Windlass : Hepburn 75-M-0527; Serial No. C-1083

17.1.B.2 **Drawings**

17.1.B.2.1 All Drawings are listed in the General Notes. The following Drawings are to be considered as Guidance Drawings as defined in the Drawings section of the General Notes.

Drawing Number	DRAWING TITLE	Number of Sheets
	Equipement Manual	

17.1.B.3 **Regulations and Standards**

17.1.B.3.1 The following Standards and Regulations apply to work carried out in this section; The Contractor must ensure all work completed in this section meets these Standards and Regulations as well as any other pertinent Federal/Territorial Regulation or Standard:

FSM Procedures	Title	Included Yes/No
Publications		
	[– Not Used]	
Standards		
Regulations		

17.1.C Statement of Work

17.1.C.1 Provide material and labor to perform the following work:

17.1.C.1.1 Disassembly of the windlass brake

17.1.C.1.2 Checking the axes;

17.1.C.1.3 Checking the brake bands;

17.1.C.1.4 Manual cleaning of the drum and brake bands;

17.1.C.1.5 Cleaning the threaded rod;

17.1.C.1.6 Reassembly of the manual brake system;

17.1.C.1.7 The replacement of the following parts must be authorized by the IA and will be treated additionally on form 1379:

a) new brake bands

b) drum machining

c) Axis machining

17.1.D Proof of Performance**17.1.D.1 Inspection Points**

17.1.D.1.1 Prior to closing the equipment, the IA will be required to testify to the condition of the internal components.

17.1.D.2 Testing/Trials

17.1.D.2.1 The IA or his delegate will be present during the tests.

17.1.D.3 Certification

17.1.D.3.1 All hydraulic work shall be carried out by a certified journeyman in hydraulic systems.

17.1.D.4 Documentation

17.1.D.4.1 Provide a detailed report of maintenance, repairs and replaced parts to the TA.

17.1.D.5 Training[– Not Used]

17.1.D.5.1 [– Not Used]

18.0 **Communications and Navigation[- NOT USED]**

19.0 **Control Systems[- NOT USED]**

20.0 **Scientific, Oceanographic and Hydrographic
Equipment[- NOT USED]**

CCGS Amundsen

F3756-18N738

Date: 2019-03-06

Rev 1 2019-03-27

Total of transits to repair: ~~33~~ 25

List of Transits to Repair					
Transit #	Transit Type	Level	Frame #	Side	Location
002	BST	Above double bottom/	69	Port	Ceiling
004	BST	Above double bottom/	69	Port	Ceiling
005	BST	Above double bottom/	69	Port	Ceiling
007	BST	Above double bottom/	69	Starboard	Ceiling
026	MCT	Above double bottom/	65	Center	Ceiling
101	Pâte	Platform / Main	31	Center	Ceiling
102-A	MCT	Platform	30	Center	Wall
109	MCT	Platform	75	Starboard	Wall
111	MCT	Platform	76	Port	Wall
112-D	MCT / Roxtec	Platform	76	Port	Wall
117-D	MCT	Platform	95	Starboard	Wall
119-E	MCT / Roxtec	Platform/ Main	120	Center	Ceiling
120	MCT	Platform/ Main	45	Center	Ceiling
121	MCT	Main/ Upper	59	Center	Ceiling
122	MCT / Roxtec	Platform	139	Center	Wall
123-A	MCT / Roxtec	Platform/ Main	140	Center	Ceiling
200-A	MCT	Main	3	Center	Wall
201	MCT	Main	3	Starboard	Wall
203	MCT	Main/ Upper	61	Center	Wall
204	MCT	Main	61	Port	Wall
206	MCT / Roxtec	Main	95	Starboard	Wall
209-F	MCT / Roxtec	Main	123	Center	Wall
209-G	MCT / Roxtec	Main	123	Center	Wall
214	MCT / Roxtec	Main	165	Center	Wall
305	MCT	Upper	13	Center	Wall
X-002	N/A	Above double bottom	61	Port	Wall
X-003	N/A	Above double bottom	61	Port	Wall
X-007	N/A	Above double bottom	95	Center	Wall
X-100	N/A	Platform	30	Center	Wall
X-104	N/A	Platform	76	Port	Wall
X-105	N/A	Platform	76	Port	Wall
X-212	N/A	Main	76	Center	Wall
X-213	N/A	Main	94	Center	Wall