

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Réception des soumissions - TPSGC / Bid Receiving
- PWGSC
1550, Avenue d'Estimauville
1550, D'Estimauville Avenue
Québec
Québec
G1J 0C7

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
601-1550, Avenue d'Estimauville
Québec
Québec
G1J 0C7

Title - Sujet P-Rad - Spring Maintenance2015	
Solicitation No. - N° de l'invitation F3019-14N740/A	Amendment No. - N° modif. 001
Client Reference No. - N° de référence du client F3019-14N740	Date 2015-03-10
GETS Reference No. - N° de référence de SEAG PW-\$QCL-037-16357	
File No. - N° de dossier QCL-4-37332 (037)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2015-03-27	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Woods, Michael	Buyer Id - Id de l'acheteur qcl037
Telephone No. - N° de téléphone (418) 649-2715 ()	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

Solicitation No. - N° de l'invitation

F3019-14N740/A

Client Ref. No. - N° de réf. du client

F3019-14N740

Amd. No. - N° de la modif.

001

File No. - N° du dossier

QCL-4-37332

Buyer ID - Id de l'acheteur

qc1037

CCC No./N° CCC - FMS No/ N° VME

See next page.

P-RAD Entretien 2015
P-RAD Spring 2015 Maintenance

F3019-14N740

CONFÉRENCE DE SOUMISSIONNAIRES
BIDDERS' CONFERENCE

ORDRE DU JOUR
AGENDA

La conférence des soumissionnaires s'est tenu abord du NGCC Pierre Radisson situé au Port de Québec (quai # 27), à 09h00 le 04 mars 2015.

The bidders' conference was held onboard CCGS Pierre Radisson at the Port of Québec (peer # 27), at 09:00 a.m. on March 04th, 2015.

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 d'Appel d'offres portant le numéro F3019-14N740/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 F3019-14N740/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 the Contracting Authority during the project.

Participants:

Attendees:

<u>Nom/Name</u>	<u>Occupation/Rank/Title/Titre</u>	<u>Cie.ou min./Co. or Dept</u>
Michael Woods	Spécialiste de l'approvisionnement (marine) / Supply Specialist (marine)	TPSGC / PWGSC
Alexandre Gouin	Gestionnaire principal de l'entretien des navires / Senior Vessel Maintenance Manager	GCC / CCG
Serge Carrier	Chef Mécanicien / Chief Engineer	GCC / CCG
Olivier Tremblay	Chef Officier / Chief Officer	GCC / CCG
Doris Chevrier	Chargé de projet	RNI Océans
Daniel Claveau	Représentant	NAVAMAR
Mark Hall	Project Manager	CME
Angelo Perrotta	Dir. President	Perrottec Inc.

D) RÉVISION DES DOCUMENTS DE SOUMISSION/BID PACKAGE REVIEW

1) DOCUMENT D'APPEL D'OFFRES/INVITATION FOR TENDER

- PARTIE 1 RENSEIGNEMENTS GÉNÉRAUX
PART 1 GENERAL INFORMATION

Sans commentaires / No comments.

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

Une clarification par rapport aux heures de travail à été demandé. La GCC à répondu que les heures de travail sont 12 heures par jour, 7 jours par semaine et disponible entre 0600-1930 chaque jours. Les jours statuaire sont exclus. / A request for clarification was asked with regards to the working hours. The CCG answered that the working hours are as follows: 12 hours a day, 7 days a week between 6 AM to 7:30 PM every day. Statuary holidays are excluded.

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

Sans commentaires / No comments.

- PARTIE 4 PROCÉDURES D'ÉVALUATION ET MÉTHODE DE SÉLECTION
PART 4 EVALUATION PROCEDURES AND BASIS OF SELECTION

Sans commentaires / No comments.

- PARTIE 5 ATTESTATIONS
PART 5 CERTIFICATIONS

Sans commentaires / No comments.

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

Sans commentaires / No comments.

- PARTIE 7 CLAUSES DU CONTRAT SUBSÉQUENT
PART 7 RESULTING CONTRACT CLAUSES

Une demande de paiement progressif à été demandé par un entrepreneur présent, cette dernière à été refusé par TPSGC et GCC. / A request for progressive payments was made by one of the contractors and denied by PWGSC and CCG.

- ANNEXE A DEVIS TECHNIQUE
ANNEX A TECHNICAL SPECIFICATION

1.0 Remarques Générales / General Remarks

Sans commentaires / No comments.

2.0 Services / Services

2.1 Nacelle / Lift

Il à été clarifié que la nacelle devra être opéré au gaz. / It was clarified that the lift will need to be gas operated.

Le poids max que la nacelle devra supporter est de 2 travailleurs et leurs outils. / The max weight that the lift will need to support is 2 workers and their tools.

2.2 Toilettes portatives / Portable toilets

Le toilettes portative demandées sont pour l'usage de l'équipage du navire, des toilettes portable supplémentaires pour l'entrepreneur et les sous-contractants devront être prévues pour la durée du contrat. / The portable toilets requested are for ship's company usage, supplementary toilets will need to be acquired for the contractor's and sub-contractor's usage for the duration of the contract.

3.0 Liste Des Acronymes / List Of Acronyms

Sans commentaires / No comments.

4.0 Renseignements Généraux Du Navire / General Information About The Vessel

Sans commentaires / No comments.

5.0 Diagramme de production / Production diagram

Sans commentaires / No comments.

6.0 Systèmes de lutte contre les incendies / Firefighting Systems and Equipment

Sans commentaires / No comments.

7.0 Ascenseur et du monte-plat / Elevator and service hoist

Sans commentaires / No comments.

8.0 Systèmes de réfrigération et de climatisation / Refrigeration and Air Conditioning Systems

Article 8. g) est annulé, mais les travaux pour l'unité #4 seront les mêmes tel que décrit pour les unités 2,3 et 5. Voir la révision du devis pour modifications supplémentaires. / Item 8.g) is cancelled, however the work on #4 will be the same as described for units 2,3 and 5. See revised specifications for other changes.

9.0 Chaloupe de sauvetage / Lifeboat

La chaloupe va être à l'eau au port de Montréal. Il y aura une berne de disponible sur le quai pour le transport de la chaloupe. La chaloupe de sauvetage devra être placé dans la berne par l'entrepreneur et remise à l'eau à la fin de travaux. Les essaies en mer devront être d'une durée d'une (1) heure. Le poids de la chaloupe de sauvetage est de: 4275 kg? Le rapport fourni est à titre de reference. Le technicien qui va effectuer les travaux doit être reconnu pas Transport Canada. / The Lifeboat will be in the water at the Port of Montréal. There will be a cradle available on the jetty to hold or transport the Lifeboat. The Lifeboat will need to be placed back in the water by the contractor, once all work has been carried out. Sea trials shall last one (1) hour. The weight of the Lifeboat is: 4275 kg? The supplied report is to be used as a reference. The technician doing the work shall be recognised by Transport Canada.

10.0 Boyaux de transfert de fuel / Fuel Transfer Hoses

Sans commentaires / No comments.

11.0 Laveuse et de la sécheuse / Washer and Dryer

Sans commentaires / No comments.

12.0 Isolation Acoustique fumoir / Smoking Area Acoustical Insulation

Que veut dire CGC? http://www.usg.com/content/usgcom/fr_CA_east.html La hauteur du plafond sera juste en bas des fils électriques situés au dessus de la porte d'entrée au compartiment. / What does CGC stand for? http://www.usg.com/content/usgcom/fr_CA_east.html The height of the ceiling will be just under the electrical wires situated above the door entering the compartment.

13.0 Conduite ventilation de la cuisine / Galley Ventilation Duct

Les heures de travail spécifié au devis pour cet article devront être respecté et coordonné avec la GCC. / The working hours specified in the specs for this item will need to be respected and coordinated with the CCG.

14.0 Échappement Four Alto-Shaam / Alto-Shaam Oven Exhaust

Les heures de travail spécifié au devis pour cet article devront être respecté et coordonné avec la GCC. / The working hours specified in the specs for this item will need to be respected and coordinated with the CCG.

15.0 Remise à neuf des planchers / Floor Refurbishment

Voir la révision du devis pour modifications supplémentaires / See revised specifications for extra modifications.

16.0 Armoire dispensaire / Dispensary Cabinet

Le croquis et les mesures seront avec la prochaine modification. Le 'stainless steel' doit être de qualité alimentaire (Food grade). Le cabinet devra être sécurisé au 'bulkhead' sans soudure. / The sketch and measurements will be with the next modification. The cabinet must be made out of food grade stainless steel. The cabinet must be secured to the bulkhead without being welded to the bulkhead.

17.0 Pare soleil Timonerie / Wheelhouse Sun Visor

Le navire sera du côté bâbord au quai. / The ship will be moored on the Portside.

18.0 Barge de travail d'aluminium / Aluminum Work Barge

Voir la révision du devis pour modifications supplémentaires / See revised specifications for extra modifications.

19.0 Trous sur la cheminée / Holes in the Chimney

Sans commentaires / No comments.

20.0 Grue Hepburn / Hepburn Crane

20.5 - La fourniture d'une pompe de rechange est annulée. / 20.5 - The supply of a spare pump is cancelled.

21.0 Soupapes de sécurité des chaudières / Boiler Safety Valves

Le prix des inspections par Transport Canada devra être inclus à la soumission pour cet article. La température déterminera si les 4 soupapes de sécurité peuvent être faites en même temps, cet article doit être coordonné avec la GCC et ajusté si nécessaire. / The price for Transport Canada Inspections shall be included in the bid for this item. The weather will determine if all 4 safety valves can be done at the same time, therefore this item needs to be coordinated with the CCG and adjusted as required.

22.0 Bossoir Miranda / Miranda Davit

22.3 – Des adaptateurs seront requis pour les nouvelles soupapes. / New adaptors will be required for the new valves.

23.0 Échelle d'accommodation bâbord / Port Accommodation Ladder

Le moteur et la boîte d'engrenage ne sont pas inclus pour cet article. La 'safe working load' est de 4 personnes de 75 kg? / The motor and gearbox are not included in this item. The 'safe working load' is: 4 persons of 75 kg?

24.0 Ventilateur de la salle de propulsion / Engine Room Fan

Sans commentaires / No comments.

25.0 Pompe Framo / Framo Pump

La tuyauterie en acier est requise. Ajouter 2 soupapes type 'ball' description nécessaire. / Steel piping is required.

26.0 Guindeau / Windlass

Sans commentaires / No comments.

27.0 Pompe de pressurisation d'eau de mer / Sea Water Pressurisation Pump

Sans commentaires / No comments.

E) VISITE DU NAVIRE / VESSEL'S VIEWING

Une visite du navire a été effectuée. Sur un accord total des personnes présentes, les articles suivants n'ont pas été visités : Article # : 1, 2, 3, 4, 5, 6, 10, 21 et 24. Tous les autres articles ont été visités. / A vessel's viewing was carried out. All attendees agreed not to visit the following items: 1, 2, 3, 4, 5, 6, 10, 21 and 24. All other items were viewed.

F) AUTRES / OTHERS

1) Les participants ont été rappelés qu'une visite supplémentaire sera disponible jeudi le 05 mars 2015. Les possibles soumissionnaires ont été demandés de fournir une liste de sous-traitants avec les heures dont ils seront présents à l'autorité technique afin d'aider à coordonner la visite. / The attendees were reminded that a supplementary visit will be possible on Thursday 5th of March 2015. The possible bidders were asked to provide a list with timings of the sub-contractors to help coordinate the visits.

2) Tous les questions demandées durant les visites du navire ont été incluses dans ce procès verbal. / All questions asked during the vessel's viewings were included in these Minutes of Meeting.

G) AJOURNEMENT / ADJOURNMENT.

Time : 14 :30

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

CCGS Pierre Radisson Refit

REVISION #1

Prepared by Marine Engineering
101 Champlain Blvd.
Québec, Québec
G2C 1W4

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1.0 GENERAL REMARKS

1.1 Identification

These general remarks describe the requirements of the Canadian Coast Guard (CCG) applicable to all the attached technical specifications.

1.2 Reference documents

a) Applicable documents:

Fleet Safety and Security Manual (FSSM) procedures	Title
7.A.1	Assessing Risk
7. B.1	Diving operation
7. B.2.	Fall protection
7. B.3	Access to confined spaces
7. B.4	Hot work
7. B.5	Locking and labelling
7. B.6	Electrical work on energized circuits
10. A.7	Contractor safety and security

b) Publications:

TP3177E	Standard for the Control of Gas Hazards in Vessels to be Repaired or Altered
TP127E	Transport Canada's Marine Safety Electrical Standards
IEEE 45	Recommended Practice for Electrical Installations on Shipboard
CSA W47.1	Certification of companies for fusion welding of steel, section 2 (Certification)
CSA W47.2	Certification of companies for fusion welding of aluminum
CSA W59	Welded steel construction (metal arc welding)
CSA W59.2	Welded aluminum construction

c) Acts and regulations:

CSA	<i>Canada Shipping Act</i>
CLC	<i>Canada Labour Code</i>
MOSH	Marine Occupational Safety and Health

1.3 Occupational Health and Safety

- a) The contractor and all sub-contractors must comply with occupational health and safety (OHS) instructions in accordance with relevant federal and provincial OHS regulations

and ensure that the contractor's activities are conducted safely and without compromising the safety of any personnel.

- b) The contractor and its employees, including sub-contractors, must participate in an orientation session on safety on board the vessel prior to commencing work in order to fully understand the risks specific to a vessel and the work protocol permit systems, as well as the procedures for safety, risk prevention, intervention in case of danger and assessment of safety prior to working. The contractor will have access to an uncontrolled copy of the Fleet Safety and Security Manual.
- c) The contractor must comply with the Fleet Safety and Security Manual (DFO/5737) and with the work instructions on board the vessel, in addition to the relevant *Canada Labour Code* regulations, while performing tasks that include the following aspects:
 - Diving operation
 - Hot work;
 - Work at height;
 - Confined spaces Entry;
 - Lock out / Tag out;
 - Electrical work on energized circuits
 - Safety assessments.
- d) For the purpose of Lock out / Tag out procedures, the contractor must provide locks and locking devices to its employees in addition to those supplied by the vessel's Chief Engineer.
- e) The contractor must provide a copy of the gas free certificate from a certified marine chemist or other qualified person with technical authority when performing work in tanks and bilges, prior to beginning work. The certificates must specify "Safe for persons" or "Safe for hot work", as applicable. The certificates are to be displayed in full view close to the entrance to the compartment. All tanks and pipe tunnels open for inspections and tests must be cleaned and subject to a final inspection by the technical authority (TA) prior to closure.
- f) The contractor and its employees will not have access to crew stations or to the vessel's sanitary facilities. The contractor must provide the necessary amenities for its employees and sub-contractors.

1.4 Access to the workplace

The contractor must ensure that the technical authority and CCG staff has unrestricted access at all times to the workplace throughout the duration of the contract.

1.5 Workplace Hazard Material Information System (WHMIS).

- a) The contractor must provide the TA with the Material Safety Data Sheets (MSDS) for all the products it supplies that are controlled under WHMIS.
- b) The TA will allow the contractor access to the MSDS for all controlled products on board the vessel for all work items specified.

1.6 Tobacco in the workplace

The contractor must ensure compliance with the *Non-smokers' Health Act*. The contractor must ensure that each employer and any person acting on behalf of an employer ensure that

they refrain from smoking in workplaces under the employer's control. The contractor must ensure that absolutely no person smokes on board the vessel.

1.7 Healthy and safe workplace

- a) Before the contractor begins work on the vessel, the TA and the contractor's quality assurance representative must inspect the areas where the work will take place, including access ways. The contractor's quality assurance representative must take digital photographs of each area in order to demonstrate that it has complied with the requirements of this document. It must then upload such photographs in JPG format to a CD or a DVD. Each photograph must be dated and indicate where on the vessel it was taken. Copies of the CD or DVD must be provided to the TA for reference purposes within 48 hours of the start of the contract period.
- b) During the period of the work, the contractor must ensure the upkeep of the areas of the vessel that its staff use to access the work areas. The areas must be clean and free of debris and waste must be removed every day.
- c) Areas that present a danger due to the work under this specification must be secured and clearly identified by the contractor. Posters must be installed to inform and protect all members of staff in accordance with the applicable requirements of the *Canada Labour Code*.
- d) At the end of this contract, the contractor must ensure that all waste produced by the work under this specification is disposed of and that the vessel is as clean as it was before beginning the contract period.
- e) Once all the known work has been completed and the final cleaning has been performed, the contractor's quality assurance representative must inspect all areas of the vessel where work was performed by the contractor. Any deficiency or damage noted must be recorded and compared to the photographs taken in order to determine if the deficiency or damage stems 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.

1.8 Fire protection

- a) The contractor must ensure that the isolation, removal and installation of fire detection and extinguishing systems and related components are performed by a qualified technician. When fire detection or extinguishing systems are deactivated or put out of service by the contractor throughout the duration of the contract, a qualified technician must certify that they are fully functional again. The original signed and dated certificate must be issued to the technical authority (TA) and to technical inspection before the end of the contract.
- b) The contractor must inform the technical inspection and the TA and obtain written approval before disturbing, removing, isolating, deactivating, putting out of service or locking out any element of the fire detection and extinguishing systems, including heat and smoke detectors.
- c) The contractor must provide protection against fires at all times and also while work is being performed on the vessel's fire detection and extinguishing systems. This may be performed in the manner proposed below, only after having obtained written approval from the TA:
 - i. put only one part of the system out of service at a time;

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- ii. keep the system functional by using spare parts while the work is underway;
 - iii. employ other methods accepted and approved by the TA.
- d) The contractor must know that if all the necessary precautions are not taken during work on the vessel's fire extinguishing systems, accidental discharge of extinguishing agent may occur. The contractor must fill and certify, at its expense, the containers or systems that are depleted due to such work.

1.9 Damaged paint and retouching

- a) Unless otherwise indicated, the contractor must provide and apply two coats of marine primer paint compatible with the vessel's paint system on all new metal surfaces and surfaces requiring retouching.
- b) Before applying the first coat, the contractor must prepare all new steel structures and those that require retouching in accordance with the paint manufacturer's directions.

1.10 CCG and other employees on board the vessel

Employees of the CCG and of DFO, as well as other employees such as manufacturer's representatives, TCMS or classification investigators, could result in further work on board the vessel, including work not mentioned in this specification, during the period of work. The TA will do its utmost so that other work, related inspections and investigations do not interfere with the contractor's work. The contractor should not coordinate the related inspections or pay the inspection costs for such work.

1.11 Regulatory inspections and/or classification examination

- a) The contractor must schedule and coordinate all regulatory inspections and classification surveys in collaboration with the authority concerned, e.g., Transport Canada Marine Safety, Classification society, Health Canada, Environment Canada and others, on the basis of this specification.
- b) All documents produced in the context of the inspections and surveys referred to above and substantiating that they have taken place (e.g., original signed and dated certificates) must be submitted to the TA.
- c) The contractor must not substitute the TA's inspection for regulatory inspections by the TCMS or classification surveys.
- d) The contractor must give prior notice (of at least 24 hours) to the TA before the TCMS regulatory inspections or classification surveys planned so that the TA can be present for the inspection.

1.12 Results of tests and data collection

- a) The contractor must develop a testing and trial plan including at least all of the tests and trials mentioned in the specification. This plan must be submitted to the TA for review purposes one week before the start of the work period originally planned.
- b) Any data specific to the trials, measurements, calibration or readings must be recorded, dated, accompanied by the signature of the person who took the measurements, and forwarded to the technical authority and to Marine Safety as a report in hard copy and electronic format.
- c) The data recorded must be accurate to three decimal places (unless otherwise specified) and comply with the measurement system in place on the vessel.

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- d) The contractor must provide the TA with valid calibration certificates for all instruments used for the testing and trial plan to prove that the instruments have been calibrated in accordance with the manufacturer's instructions.
 - e) Hard copies of reports must be placed in standard three-ring binders, typewritten on letter-size paper and classified by specification number. Electronic copies must be in unprotected Adobe PDF format on CD-ROM. The contractor must provide three paper copies and one electronic copy of all reports.
 - f) All documents produced during the contract must be placed in a data collection then submitted to the TA at the end of the contract.
 - g) All drawings requested must be produced on ANSI format B (11 in x 17 in) paper or smaller. Three copies must be provided. Drawings must also be forwarded in DWG format (AutoCAD 2000 or more recent version), on CD-ROM, and are not to be password protected. One (1) CD-ROM must be provided.

1.13 Material and tools provided by the contractor

- a) The contractor must ensure that all material is new and has never been used.
- b) The contractor must ensure that all replacement products such as sealing components, gaskets, insulation, small hardware items, oils, lubricants, degreasing solvents, preservation agents, paints, coatings, bolts and fastening materials, among others, comply with the drawings, manuals and instructions of the equipment's manufacturer.
- c) When no particular item is specified or when a replacement must be made, the TA must approve the replacement item in writing. The contractor must give the TA details on the material used and the grade and quality certificate of the various materials before use.
- d) The contractor must provide all equipment, devices, tools and machinery, such as welders, cranes, scaffolding and fixtures required to perform the work indicated in this specification.
- e) The contractor must ensure services for removal of waste oil, hydrocarbons and any other hazardous waste or controlled products as part of the work planned under this specification. The contractor must provide certificates of disposal for all waste listed above.
- f) Such certificates of disposal must demonstrate that the disposal has been completed in accordance with federal, provincial and municipal regulations in force.

1.14 Material and tools provided by the government

- a) All tools must be provided by the contractor unless otherwise specified in the technical specification.
- b) If the TA provides tools, the contractor must return them in the condition in which they were borrowed. Borrowed tools must be inventoried. The contractor must affix its signature on the inventory statement upon receipt of the tools and when they are returned to the TA.
- c) The contractor must keep all goods supplied by the government in a warehouse or secure storage in a controlled atmosphere, in accordance with the manufacturer's instructions.

1.15 Restricted access areas

- a) The contractor must not enter the following areas (except to perform work in accordance with the specification): cabins, offices, workshops, engineer's office, wheelhouse, control

room, toilets, kitchen, crew stations, recreation areas or other areas where restricted access is posted.

- b) The contractor must give 24 hours prior notice to the TA when it needs to work in occupied spaces or offices. The CCG will then have sufficient time to move staff and secure the areas.

1.16 Contractor inspections and protection of equipment and the workplace

- a) In collaboration with the TA, the contractor must coordinate an inspection of the condition and location of items to be removed before performing the work specified or accessing a location to work on it.
- b) Any damage resulting from the contractor's work and attributable to its performance of the work must be repaired by the contractor at its own expense. Material used for replacements or repairs must comply with the criteria for the material supplied by the contractor, indicated in the section Material and tools provided by the contractor.
- c) The contractor must protect adjacent equipment and areas from damage. Workplaces must be protected against water infiltration, sanding and welding particles, etc. Temporary covers must be installed on workplaces.
- d) The contractor must protect the vessel from infestation by vermin (insects, mammals). If an infestation occurs during the contract period, the contractor must ensure, at its expense, extermination of the vermin prior to the vessel's departure and the end of the contract.

1.17 Records of work in progress

The TA may record work in progress by various methods, including photos, digital videos and film.

1.18 List of confined spaces

The contractor may request a list of confined spaces in the vessel at the meeting prior to the refit.

1.19 Hazardous material

- a) CCG will provide a report of the hazardous material existing onboard the vessel. It is the contractor responsibility to plan the work according to the existing hazardous material.
- b) The contractor must not use any material containing asbestos.
- c) Handling of materials containing asbestos must be performed by personnel trained and certified in the removal of material containing asbestos in accordance with the federal, provincial and municipal regulations in force as well as the Fleet Safety and Security Manual. Such certificates of disposal must demonstrate that the disposal has been performed in accordance with federal, provincial and municipal regulations in force.
- d) The contractor must not use paint containing lead.
- e) In the past, paint containing lead was used to paint CCG vessels. Consequently, some of the contractor's processes, such as grinding, welding and burning, may release the lead content of the paint. The contractor must ensure that analyses are conducted in the work areas to test for the presence of lead in the paint and that the work is performed in accordance with applicable federal and provincial regulations.

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- f) The contractor must obtain approval from Health Canada for paint applied to the surface of hulls subject to regulations of Health Canada and the Pest Management Regulatory Agency.
 - g)

1.20 Material and equipment removed

All equipment removed under this specification remains the property of the CCG unless otherwise noted in certain sections of the specification.

1.21 Welding certification

- a) For any work requiring fusion welding of steel, the contractor or its sub-contractors must hold certification from the Canadian Welding Bureau in accordance with subsection 2.1 of the most recent version of W47.1-03 standard of the Canadian Standards Association.
- b) For any work requiring fusion welding of steel, the contractor or its sub-contractors must hold certification from the Canadian Welding Bureau in accordance with subsection 16 of the most recent version of CSA\ACNOR AWS standard of the Canadian Standards Association.
- c) For any work requiring fusion welding of steel, the contractor or its sub-contractors must hold certification from the Canadian Welding Bureau in accordance with subsection 2.1 of the most recent version of W47.2 standard of the Canadian Standards Association.
- d) The contractor must provide the technical authority with documents clearly indicating the welding certification for all the employees who will perform all the welding work planned in this specification.

1.22 Electrical installations

- a) All electrical installations and repairs must be performed in accordance with the most recent version of Standard TP17E (Transport Canada's Marine Safety Electrical Standards) and Standard 45 of the Institute of Electrical and Electronic Engineers (Recommended Practice for Electrical Installations on Shipboard).
- b) All electronic equipment installations and repairs must be performed in accordance with the Canadian Coast Guard publication on telecommunications and electronics entitled "General Specification for the Installation of Shipboard Electronic Equipment."

1.23 Refrigeration and Air Conditioning Systems

- a) Any work on refrigeration and air conditioning systems must be performed in accordance with Sections 2.7 and 2.8 of the *Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems*.

1.24 Tradesmen's competence

- a) The contractor must use qualified tradesmen, certified (where applicable) and competent and supervise them in order to guarantee a high uniform level of performance quality.
- b) The head of inspection may ask to consult and record details of the certification or competence of the contractor's tradesmen. This request must not be exercised unduly, but is only intended to ensure that qualified tradesmen are performing the necessary work.

1.25 Shipboard crane

The vessel's crane will be available to perform the necessary handling to load material on board the vessel, but the contractor shall submit a request to the Chief Engineer at least 24 hours before the beginning of the handling.

1.26 Contractor's crane

It is the contractor's responsibility to verify applicable load restrictions at the dock where the vessel is moored. Slings and lifting gear are to be provided by the contractor.

1.27 Electric power and compressed air supply

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

2.0 SERVICES

2.1 Lift

- a) The contractor must provide a monthly and weekly price to provide a telescopic lift for crew needs. The lift is to be available for the duration of the work. The lift must have a horizontal reach of at least 70 ft and a lifting height of at least 80 ft.

2.2 Portable toilets

- a) The contractor shall provide and transport 6 portable toilet for a 10 days period.. The price shall include the transportation and the emptying of the toilets after two days. These toilets will be necessary when the engine room staff will be maintaining the vessel's sanitary system.
- b) The toilets are to be set forward of the vessel's gangway.
- c) The toilet shall be pumped and cleaned every 2 days.

2.3 Tug services

2.3.1 Supply two (2) tugs and one (1) pilot for the safe berthing of the Pierre Radisson at the pier 24, Port of Montréal. The vessel will be tied up on portside

2.3.2 Supply one (1) tug for the setting sail of the Pierre Radisson at same pier after the refit.

3.0 LIST OF ACRONYMS

CA	Contracting Authority (PWGSC)
CCG	Canadian Coast Guard
CLC	Canada Labour Code
CSM	Contractor Supplied Material
CSA	Canadian Standards Association
CWB	Canadian Welding Bureau
DFO	Fisheries and Oceans Canada
FSSM	Fleet Safety and Security Manual (CCG)
FSR	Field Service Representative
GSM	Government Supplied Material
GFE	Government Furnished Equipment
HC	Health Canada
IEEE	Institute of Electrical and Electronics Engineers
OL	Overall length
MSDS	Material Safety Data Sheet
OHS	Occupational Health and Safety
PWGSC	Public Works and Government Services Canada
SSMS	Safety and Security Management System
TBS	Treasury Board Secretariat of Canada
TCMS	Transport Canada Marine Safety

TA Technical Authority – Owner’s Representative (CCG)
WHMIS Workplace Hazardous Materials Information System

4.0 GENERAL INFORMATION ABOUT THE VESSEL

Name: *CCGS Pierre Radisson*

Type: Medium Icebreaker / River

Year of construction: 1978

Shipbuilder: Burrard Dry Dock, Vancouver, BC

Length: 98.33 m

Width: 19.51 m

Draught loaded: 7.16 m

Displacement loaded: 8 090 mt

Power: 11 155 kW

Propulsion: Diesel electric

5.0 PRODUCTION DIAGRAM

5.1 Scope

This specification aims to provide the owner's representatives with an accurate schedule of the work and its completion for the needs of the Canadian Coast Guard (CCG).

5.2 Technical description

- a) The Contractor shall provide three bound copies of a detailed bar chart (Gantt chart type), illustrating the planned schedule of work to refit the vessel. The chart shall show each task of the specification with its start date, duration, and planned and actual completion date. An electronic version shall also be sent to the Vessel Maintenance Manager at alexandre.gouin@dfo-mpo.gc.ca. The Contractor shall also send a copy of the production diagram to the contracting authority.
- b) Any critical work path shall be indicated, with the critical tasks that risk delaying the refit work if they do not comply with the planned work schedule. These may include problems with manpower or tasks that are unable to be carried out in parallel to other tasks.
- c) In case of work affecting the critical workflow, the Chief Engineer, Vessel Maintenance Manager and PWGSC are to be notified immediately. Every effort shall be made to avoid delaying the vessel's refit. Regular quality assurance procedures shall be applied.
- d) The bar chart will be updated each week and prior to each production meeting to illustrate actual progress of the refit and changes made to the completion date of each item. The Contractor shall include in the updates to the chart any special work requested

on PWGSC Form 1379 by indicating the impact this additional work will have on the work schedule.

5.3 Proof of performance

All work shall be completed to the satisfaction of the Chief Engineer and the Vessel Maintenance Manager.

5.4 Deliverables

The selected Contractor shall provide three hard copies of the bar chart to the vessel's Chief Engineer. An electronic copy shall also be provided to the contracting authority and the Vessel Maintenance Manager at alexandre.gouin@dfo-mpo.gc.ca.

6.0 FIREFIGHTING SYSTEMS AND EQUIPMENT

6.1 Scope

Perform annual inspection and maintenance of firefighting systems and equipment according the requirement of Transport Canada.

6.2 References

Drawings, manuals or pictures

- 6.0 – Inspection list
- 6.0 - 06418-20 (Firefighting Plan)

6.3 Technical description

Fixed CO₂ fire extinguishing system

- a) Check that all the timers, visual indicators, audible alarms and ventilation system stops are operating properly. Cylinders shall be disconnected to prevent accidental discharges. Piping shall be blown with dry air, nitrogen or another inert gas.
- b) At the beginning of each day, the Contractor shall have a sufficient number of full cylinders to blow out the piping throughout the entire inspection period so as to avoid delays.
- c) Demonstrate that all nozzles and distribution lines are clear of any obstructions. These tests may require disassembly and closure of some parts of the piping. Each system shall be restored (to the extent possible) to its original condition and proper operation once the tests have been completed, at the end of each day.
- d) Check the proper operation of all devices used on site or remotely and of the time delays and high-temperature triggers.
- e) Ensure that hoses connecting the cylinders to the distribution piping are watertight and in good condition.
- f) Check the level of all cylinders in each system.
- g) It is agreed that fire equipment will be accessible and available in the event of emergency and that adequate precautions will be taken during hot work that will be performed to complete the inspection.
- h) In all cases where a fixed extinguishing agent cylinder is found to be defective or below normal charge or where a hydrostatic test is necessary, the Contractor will be responsible

for removing the cylinder, filling it, returning it to its original location on board and connecting it.

- i) Labels showing the name of the Contractor, the date and the initials of the person performing the inspection shall accompany each system.
- j) No fixed CO₂ fire extinguishing cylinder need to undergo an hydrostatic test.
- k) Four (4) boxes of CO₂ triggers are to be replaced with new ones. The new boxes will be supplied by the CCG.

Portable fire extinguishers

- a) The Contractor shall perform the annual inspection on all portable fire extinguishers on board according to the list provided in reference. The inspection shall be done on board the vessel. If for any reason extinguishers must be brought ashore, the Senior Ship's Officer or Chief Engineer shall be notified.
- b) Each extinguisher is to be removed from its wall support and inspected for any anomalies. Pressure gauges and the date of the last hydrostatic test are to be verified.
- c) The cartridges of all dry powder extinguishers shall be verified and weighed.
- d) Labels showing the name of the Contractor, the date and the initials of the person performing the inspection shall accompany each extinguisher.
- e) The Contractor is to repair and recharge any extinguisher found to be defective or below its normal charge and perform a hydrostatic test if needed. The Contractor will be responsible for removing the extinguishers, filling them and replacing them in their respective locations.
- f) It is agreed that fire equipment will be accessible and available in the event of emergency. Adequate protection is required when hot work needs to be performed to complete the inspection.
- g) Five (5) dry powder extinguishers shall be subject to six-year maintenance.
- h) One (1) CO₂ extinguisher shall be subject to a hydrostatic test.

Fixed PYRO-CHEM PCL 300 fire extinguishing system in the galley

- a) The Contractor is to perform the complete annual inspection of the fixed system in the galley.
- b) The Contractor is to check the proper operation of ventilation stops, visual indicators and fuses.
- c) The local, remote and automatic operating devices shall be verified.
- d) The condition, level and date of the last hydrostatic test of each cylinder shall be verified.
- e) The Contractor shall install a cylinder compatible with the system if it needs to remove the existing cylinder to take it to its facility. The cylinder is to be removed only if it needs to be recharged or undergo a hydrostatic test.
- f) The Contractor shall affix a new label once the inspection has been completed.

Flight deck fire extinguishing system

- a) Perform the annual inspection and maintenance of fixed fire extinguishing systems on the flight deck: FireCombat and Minuteman.
- b) The Contractor shall provide sampling containers to collect a sample of the aqueous film-forming foam (AFFF) from each system: one from the Minuteman system, one from the

FireCombat system and one from each reserve batch indicated by the Senior Ship's Officer. Results of the analysis of each specimen shall be provided to the CCG.

c) Technical information:

- 1) Minuteman fixed system: Foam (container under nozzle)
- 2) FireCombat fixed system: Dry powder (rear container) and foam (front container)
- 3) Foam reserve inventory:
 - i. 4 containers Angus Tridol 3% (AFFF) in the helicopter workshop room.
 - ii. 1 container Ansulite 3% in the safety equipment room.
 - iii. 2 containers Angus Tridol 3% (AFFF) in the engine room.
 - iv. 15 containers Angus Tridol 3% (AFFF) in the boatswain's room.

6.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Senior Ship's Officer. The Senior Ship's Officer shall be present during inspections.

Tests

Proper equipment operation shall be demonstrated to the Senior Ship's Officer.

Certification

The Contractor shall provide the Senior Ship's Officer with two hard copies of inspection certificates, along with the original. The Contractor shall also send an electronic copy of certificates to the Vessel Maintenance Manager.

6.5 Deliverables

Report

The Contractor shall submit a complete report explaining in detail the work done, the cause of failures (if any), the changes required and the parts replaced.

The Contractor shall submit to the Chief Engineer and to the Vessel Maintenance Manager an electronic copy of the report in PDF format.

7.0 ELEVATOR AND SERVICE HOIST

7.1 Scope

Perform annual maintenance and inspection of elevator and service hoist for recertification.

7.2 Reference

Drawings, manuals or pictures

- 7.0 - Pictures

Regulations

- *Canada Shipping Act* and relevant regulations

Standard

- Standard CAN/CSA-B44-M90, Section 12

7.3 Technical description

Equipment features:

Elevator:

Manufacturer: Montgomery Elevator Co. Ltd.

Capacity: 600 lbs

Speed: 100 ft/min

Service hoist:

Manufacturer: Montgomery Elevator Co. Ltd.

Capacity: 250 lbs

Speed: 50 ft/min

- a) Provide the labour to perform the annual inspection and maintenance of the vessel's elevator and service hoist, in accordance with the directives of Section 12 of Standard CAN/CSA-B44-M90.
- b) A five-year inspection of this equipment was performed in 2013.
- c) Following the work, update the maintenance register for each piece of equipment.
- d) On the service hoist, adjust the brake in accordance with the manufacturer's standards.
- e) Check the condition of the two pieces of equipment and provide recommendations in anticipation of a future upgrade. Submit a report containing proposed recommendations with a budget price. This equipment has practically not been upgraded since construction of the vessel in 1978. We need to extend their service life by 15 years.
- f) Within three days of the inspection, the Contractor shall provide a certificate for each device attesting to its compliance with the standard and listing all the inspections specified in Section 12.

7.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

Tests

The Chief Engineer shall be present during inspections and tests.

Certification

The Contractor shall provide the Chief Engineer with the original copy of the certificates at the end of work. The Contractor shall also send an electronic copy of all reports and certificates to the Vessel Maintenance Manager.

7.5 Deliverables

Report

At the end of work, the Contractor shall submit a complete report explaining in detail the work done, the cause of failures (if any), the changes required and the parts replaced.

The Contractor shall also submit to the Chief Engineer and to the Vessel Maintenance Manager an electronic copy of the report in PDF format.

8.0 REFRIGERATION AND AIR CONDITIONING SYSTEMS

8.1 Scope

Perform maintenance and annual inspection of refrigeration and air conditioning systems.

8.2 Reference

Drawings, manuals or pictures

- 7.0 – pictures

Regulations

- *Canada Shipping Act* and relevant regulations
- *Federal Halocarbon Regulations, 2003*
- *Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems (Environment Canada)*

8.3 Technical description

Cargo and domestic refrigeration

Domestic compressor model Carrier 5F60-607, cargo compressor model Carrier 5F40-607. These systems operate with R-134.

Provide the material and labour to perform the following work:

- a) Conduct a complete inspection of the systems.
- b) Replace compressor oil, and clean the oil pans and strainer. Replace gaskets. Type of oil: Emkarate RL68H
- c) Replace the desiccator filters:
 - i. Cargo: 1 Drier Core RC-4864, 1 Drier C-164 and 1 Drier C-084, supply 2 Drier C-164 and 2 spare Drier Core RC-4864.
 - ii. Domestic: 1 Drier Core RC-4864 and 5 Drier C-084
- d) Perform a refrigerant leak test. Replace the relief valves on the condensers and tanks-Maker Sherwood valve (Superior Refrigeration) Cat no 3020-400, Size ½ in, 400 PSI. All piping shall be checked, including in the ceiling of the main deck corridor. Ensure that they are watertight. Ceiling tiles shall be removed carefully for the inspection. They shall be put back once the work is complete. There are no leaks known on the systems up to now.
- 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 and it will be process thru a 1379 form.
- h) Check all operating settings.
- i) Proceed with the compressor transfer.
- j) Proceed with the necessary adjustments.

Air conditioning systems 2, 3, 4 and 5

Compressor model Carrier 5H40-60 for units 2, 3 and 5, compressor model 5F60-607 for unit 4. These systems operate with R-22.

Provide the material and labour to perform the following work:

- a) Conduct a complete inspection of the systems.
- b) Replace the compressor oil, clean the oil pans and strainer. Type of oil: Type C
- c) Replace the desiccator filters. RC-4864 (2 per unit)
- d) Replace the external oil filters on units 2, 3 and 5. Filter # 05HC660020
- e) Replace the relief valves on the condensers. The original number is 5232 Fab Henry ½ in, 350 PSI.
- f) The tanks have no relief valves. To be in line with the drawings, install two relief valves and a three way valve on the four units. The original number of the relief valves to install is 5232 Fab Henry ½ po, 350 PSI. The original number of the three ways valve is 925 Fab Henry ½ in.
- g) Perform a refrigerant leak test. There are no leaks known on the systems up to now.
- h) Refrigerant gas, if required, shall be supplied by the Contractor using Form 1379. Provide a price for a 30 kg cylinder in the schedule.
- i) Check all operating settings.
- j) Start the systems.
- k) Make the necessary adjustments.

8.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

Tests

The Chief Engineer or delegate shall be present during the tests.

Certification

The Contractor shall submit to the Chief Engineer an electronic copy of the certificates in PDF format, along with the original. The Contractor shall also send an electronic copy to the Vessel Maintenance Manager.

8.5 Deliverables

Report

The Contractor shall submit a complete report explaining in detail the work done, the cause of failures (if any), the changes required and the parts replaced.

The Contractor shall submit to the Chief Engineer and to the Vessel Maintenance Manager an electronic copy of the report in PDF format.

9.0 LIFEBOAT

9.1 Scope

Perform annual maintenance of the lifeboat

9.2 Reference

Drawings, manuals or pictures

- 9.0 – pictures
- 9.0 - Radisson_inspect(nov2014)

9.3 Technical description

Lifeboat features:

Manufacturer: Watercraft International Ltd.

Serial no.: 9213262

Size: 8.5 x 2.75 x 2.35 m

Capacity: 60 people

Weight: 4275 KG

- Provide the material and labour to perform the following work on the lifeboat.
- Check the hull for watertightness and repair as needed. Repair the damaged Gelcoat, aft port section, which was repaired temporarily in November 2014. See photos.
- Disassemble roof accessories and seal them properly.
- Check and adjust the shaft gland.
- Check the shaft bearings.
- Seal all oil , cooling water, fuel and exhaust leaks.
- Conduct a thorough sea trial with the vessel's crew to demonstrate the boat's proper operation.
- Monitor the humidity rate throughout the boat.
- All the work done on the lifeboat shall be approved by TCMS (Transport Canada) before the beginning of the work.
- The lifeboat will be delivered to the contractor in water next to the vessel's berth. After completion of the work, the lifeboat shall be delivered to CCG at the same place. A transportation cradle will be supplied by CCG.
- Engage a service provider authorized by TCMS (Transport Canada) to perform the inspection and certification of the lifeboat launch system. Provide the material and labour to inspect and certify the lifeboat launch system. All parts replaced shall be OEM.
 - Inspect protections.
 - Replace the diaphragm.*
 - Visually inspect hooks.
 - Test operation of the hooks.

9.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Senior Ship's Officer.

Certification

The Contractor shall submit to the Senior Ship's Officer an electronic copy of the hook certificates in PDF format, along with the original. The Contractor shall also send an electronic copy to the Vessel Maintenance Manager.

9.5 Deliverables

Report

The Contractor shall submit a complete report explaining in detail the work done, the cause of failures (if any), the changes required and the parts replaced on the lifeboat. The Contractor shall also submit a lifeboat launch system inspection report.
The Contractor shall submit to the Senior Ship's Officer and to the Vessel Maintenance Manager an electronic copy of the 2 reports in PDF format.

10.0 FUEL TRANSFER HOSES

10.1 Scope

Perform inspection and certification of fuel hoses.

10.2 Technical description

- a) Provide all required material and labour to perform hydrostatic checks and tests on nine (9) hoses used to transfer fuel (diesel and A-1 jet fuel).
- b) The hoses are plugged with a cap. Any remaining fuel in the hoses shall be eliminated and processed on a 1379 form.
- c) Hydrocarbon transfer hoses:
 - a. Diameter: 1½"
 - i. G130601 100 feet, 150 lbs/in² R1505-A G130601 (Kerosene Jet A-1)
 - b. Diameter: 2"
 - i. 1699, 50 feet, 150 lbs/in² (black)
 - ii. 7810-7, 50 feet, 150 lbs/in² (black)
 - c. Diameter: 4"
 - i. S-143 SBQ-P331, 50 feet, 150 lbs/in²
 - ii. 7810-5, 50 feet, 150 lbs/in² (Peraflex red + grounded)
 - iii. Q2331, 50 feet, 150 lbs/in²
 - iv. Q2316, 50 feet, 150 lbs/in²
 - d. Diameter: 1"
 - i. Q2270, 100 feet, 150 lbs/in²
 - ii. Q2271, 100 feet, 150 lbs/in²

10.3 Proof of performance

Certificate

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

10.4 Deliverables

Report

The Contractor shall submit a complete report explaining in detail the work done, the cause of failures (if any), the changes required and the parts replaced.
The Contractor shall submit to the Chief engineer and to the Vessel Maintenance Manager an electronic copy of the report in PDF format.

11.0 WASHER AND DRYER

11.1 Scope

Perform annual maintenance of the washer and dryer.

11.2 Reference

Drawings, manuals or pictures

11.0 – pictures

11.3 Technical description

- a) Provide the material and labour to perform routine annual maintenance on the industrial washer, Milnor model 73281, and on the industrial dryer, Huebsch model 30BE, series TT-C-174431-GM, 230 VAC, three-phase, 21 Kw. Size: 30 x 30.
- b) The work consists of checking the equipment to ensure efficient operation for the following year.
- c) All part replacements shall be approved by the vessel's Chief Engineer and negotiated as an extra on Form 1379.
- d) The sub-contractor shall be an authorized repair for Milnor

11.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

11.5 Deliverables

Report

The Contractor shall submit a complete report explaining in detail the work done, the cause of failures (if any), the changes required and the parts replaced.

The Contractor shall submit to the Senior Ship's Officer and to the Vessel Maintenance Manager an electronic copy of the report in PDF format.

12.0 SMOKING AREA ACOUSTICAL INSULATION

12.1 Scope

Insulate the ceiling and install ceiling tiles in the smoking area, room 635. Area: 5.85 m².

12.2 Reference

Drawings, manuals or pictures

- 12..0 – pictures and schematics

12.3 Technical description

- a) Provide the material, tooling and labour to replace the acoustical insulation in the smoking area ceiling. Have a company specializing in acoustical insulation insulate

the ceiling with approved materials. After installing the fasteners to support the insulation, the Contractor is to apply a coat of paint identical to that applied to the rest of the steel structure (just the metal parts). Paint will be supplied by the vessel.

- b) Provide all material, tooling and labour required to install soundproofing ceiling tiles and their support systems. This room does not have any tiles.
- c) Supply PANZ brand tiles already in standard usage on board the vessel.
- d) Square tiles 2' x 2' in white aluminum without perforations from the company CGC .
- e) Fibrex-Marine Board and Flex 8 - 8 p.c.f. insulation (128 kg/m^3), 1" thick, or an equivalent approved by Transport Canada, shall be bonded to the aluminum tile.
- f) The complete tile and its components shall be a product approved by the Transport Canada OBS. Provide certificates.
- g) Supply a system of compatible supports in 15/16" gloss white enamelled steel. The tiles shall be screwed to the supports, with on average 8 screws per 2' x 2' tile. Screws shall be plated and painted white. Tile colour shall be gloss white. Membranes and the support system shall also be white.
- h) Install the new tiles and supports, incorporating all accessories, such as sprinklers, loudspeakers, fire detectors, fire damper chains, valve panels and posters. The Contractor shall remove these accessories and reinstall them in the new ceiling. Ventilation grilles shall be cleaned. Loudspeaker grilles shall be cleaned and painted white.
- i) The Contractor shall leave the premises at the end of the work in the same state of cleanliness as that in which they were found at the beginning of the work. Floors and the table shall be protected to prevent damage. The Contractor will be responsible for any damage to the vessel and its equipment. Cleaning shall be done at the end of each work day.

12.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

Certification

Provide certificates for the tiles.

13.0 GALLEY VENTILATION DUCT

13.1 Scope

Repair the galley exhaust ventilation duct.

13.2 Reference

Drawings, manuals or pictures

- 13.0 – general docs

13.3 Technical description

- a) Provide the material, tooling and labour to repair the ventilation duct. A section about 6 inches high is rotten. This section is at the emergency generator deck level. The duct circumference is 91 in. A temporary repair is needed. This repair can be done from the inside or from the outside. The section under the fan is expected to be replaced when the vessel is modernized in 2016. Note that if the Contractor is able to replace the section of piping with minimal inconvenience to the galley, this solution may be considered.
- b) Before beginning the work, the duct in the section facing the helicopter hangar will need to be opened to clean and degrease the duct.
- c) Place protection inside to prevent smoke and dust from reaching the galley. Remove this protection when the work is complete.
- d) Apply the vessel's paint system on sections affected by the work. Paint is to be supplied by the Contractor.
 - i. First coat: Interprime Red CPA 234 Red
 - ii. Second coat: Interprime White CPA 235 White
 - iii. Third coat: Interlac 665 White RAL9003
 - iv. For the deck: KQA101, Interbond 501, 5 mil thickness, colour red
- e) A hot work permit will be required to do this work.
- f) The galley will be operational during the work. The work can be done during the day between 1 p.m. and 3 p.m. or at night between 6 p.m. and 6 a.m. It is important to keep the ventilation operating outside these hours.

13.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

14.0 ALTO-SHAAM OVEN EXHAUST**14.1 Scope**

Connect the oven exhaust to the main galley range hood with an exhaust duct.

14.2 Reference

Drawings, manuals or pictures

- 14.0 – pictures

14.3 Technical description

- a) Provide the material, equipment and labour for the work.
- b) Exhaust is currently directed into the galley toward the ceiling tile, which is blackened.
- c) Connect the unit using a flexible tube and stainless steel pipe to the galley range hood.

- d) Everything shall be in welded stainless steel. The flexible tube shall be removable.
- e) A hole shall be made in the ceiling tile. Stainless steel trim shall be installed around the pipe.
- f) The new pipe shall be very well supported.
- g) It is important to protect galley equipment during the work.
- h) It is important to return the galley to the same state of cleanliness after each shift before returning the galley to service.
- i) The galley will be operational during the work. The work can be done during the day between 1 p.m. and 3 p.m. or at night between 6 p.m. and 6 a.m. It is important to keep the ventilation operating outside these hours.

14.4 Proof of performance

Inspection

All of the work shall be done to the complete satisfaction of the Chief Engineer.

15.0 FLOOR REFURBISHMENT

15.1 Scope

Refurbish the floor in the vessel's cabins.

15.2 Technical description

Important note: All the cabins shall be done at the same time

Main deck

- a) Provide material and labour to perform the work required to repair the floors in the following cabins of the main deck:
 - i. Cabin #606 (currently tiles)- **15 ft 6 in x 9 ft**
 - ii. Cabin #614 (currently tiles)- **13 ft x 7 ft**
- b) Remove and discard the old floor covering (tiles) and the vinyl baseboards.
- c) Correct defects in the subfloor.
- d) In tiled cabins, remove the existing tiles. Repair 20% of the areas where the subcoat Neotex is damaged. Provide a price for the repair of 1 ft³ of A-60 cement layer (Decklite). Apply a 1/8" to 1/4" layer of fine Magnabond (marine).
- e) Cover the floor with Armstrong Duality Premium #G6210 commercial linoleum with 10-year warranty in all cabins.
- f) Install a 4" black vinyl baseboard along the bottom of walls and furniture (kickplate) in all cabins and lounges listed in this request. May be specified at the bidders' meeting.
- g) The Contractor shall take all necessary measures to protect the furnishings, walls, ceilings and floors from damage.
- h) Waste shall be collected at the end of each work day.
- i) Return the vessel to the same state of cleanliness as before the work began.
- j) The CCG will remove and replace furniture in the affected cabins.

Decks upper than the main deck

-
- a. Provide material and labour to perform the work required to repair the floor in the following cabins and passageways of the upper deck, boat deck and navigation bridge:
 - i. Cabin #501-**12 ft 4 in x 10 ft 8 in**
 - ii. Cabin #503-**13 ft 8 po x 13 ft**
 - iii. Cabin #508-**10 ft9 po x 11 ft 8 in**
 - iv. Cabin #509-**10 ft 8 po x 12 ft 2 in**
 - v. Cabin #512 (currently tiles)- **13 ft 7 in x 10 ft 10 in**
 - vi. Cabin #518-**13 ft 7 in x 10 ft 10 in**
 - b. Remove and discard the old floor covering (carpet, tile or linoleum).
 - c. Correct defects in the subfloor.
 - d. Remove and scrape off 100% of the rubber carpet underlay.
 - e. Repair areas where the marine cement is damaged. The marine cement is a Neotex cement ½" thick.
 - f. Coat the entire cabin floor surface with Magnabond finishing cement.
 - g. Cover the floor with Armstrong Duality Premium #G6210 commercial linoleum with 10-year warranty in all cabins.
 - h. Lay a 4" black vinyl baseboard at the bottom of the walls and furniture (kickplate).
 - i. The Contractor shall take all necessary measures to protect the furnishings, walls, ceilings and floors from damage.
 - j. Waste shall be collected at the end of each work day.
 - k. Return the vessel to the same state of cleanliness as before the work began.
 - l. The CCG will remove and replace the furniture in the affected cabins.

15.3 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

16.0 DISPENSARY CABINET

16.1 Scope

Fabricate a stainless steel counter for dispensary #547. This counter will be used to install a new medical device.

16.2 Reference

Drawings, manuals or pictures

- 16.0 – schematics

16.3 Technical description

- a) Provide the material, tooling and labour to fabricate and install a 304 stainless steel counter in accordance with the designs provided by the CCG. The counter shall be installed in the dispensary (547).

- b) The designs provided by the CCG are for reference only. The Contractor shall take measurements on site and submit a design of the proposed new counter for CCG approval.
- c) The counter shall be supported by adjustable legs to fit the vessel's deck, and then enclosed by a stainless steel kickplate.
- d) The doors shall be fitted with recessed stainless steel handles.
- e) The section at an angle will be fitted with a stainless steel shelf at mid-height.

16.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

17.0 WHEELHOUSE SUN VISOR

17.1 Scope

Repair the wheelhouse sun visor damaged in a collision with the wall of a lock.

17.2 Reference

Drawings, manuals or pictures

- 17.0 – pictures and schematics

17.3 Technical description

- a) Provide the material and labour to completely replace the starboard section of the wheelhouse sun visor. Length: 18" x 2"
- b) Before beginning the work, the Contractor shall protect the floors where employees walk. The starboard control console shall be protected. The wheelhouse windows shall be protected. This protection shall be removed upon completion of the work.
- c) Carefully remove the ceiling tiles and insulation above the affected windows. The tiles and insulation shall be reused and installed after the work.
- d) Inspect the section above the windows for cracks or deformations. If any defects or cracks are found, they will be handled as an extra.
- e) Replace the entire section of the sun visor and its supports on the starboard side between the two corners of the wheelhouse.
- f) Apply the vessel's paint system on sections affected by the work.
 - i. First coat: Interprime Red CPA 234 Red
 - ii. Second coat: Interprime White CPA 235 White
 - iii. Third coat: Interlac 665 White RAL9003

17.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

18.0 ALUMINUM WORK BARGE

18.1 Scope

Paint the aluminum barge of the CCGS *Pierre Radisson*. It does not need to be completely repainted; the hull topsides and undersides just need to be refreshed.

18.2 Reference

Drawings, manuals or pictures

- 18.0 – Pictures

18.3 Technical description

- a) Provide labour and material to repaint the aluminum barge of the CCGS *Pierre Radisson*, Hull No. C15101QC.
- b) The boat markings are self-adhesive and will be supplied by the CCG. Only the two oblique white stripes are painted.
- c) Before beginning the work, remove the fenders on the sides and front of the barge. Replace them after the work has been completed.
- d) Inspect the aluminum structure; if work is required, it will be handled as an extra.
- e) The aluminum fenders on the sides of the barge between the hull topsides and undersides shall remain unpainted.
- f) Before beginning the work, all parts on the deck, including accessories, the cabin, the mast and the A-Frame, as well as the bow thruster, engine foot, zinc anodes, etc. shall be protected from dust and paint fumes. The boat's protection shall be inspected by a CCG representative before work begins. This protection shall be removed and discarded after the work.
- g) The boat shall be completely cleaned before delivery to the vessel. It shall be returned to the same state of cleanliness as before the work.
- h) The following paint is to be used for the barge:

Submerged parts (hull undersides):

1. Primer: Epoxy protection Interprotect 2000/2001
2. Antifouling: Red, Trilus II, 491-4

Parts above water (hull topsides):

1. Primer: Awlgrip #545 Grey
2. Paint:
 - i. Hull: Awlgrip, CCG Red, G7323-44G - Catalyst Awlcat #2
 - ii. Markings: White G8003Q Matterhorn

Keel (hull undersides) 18m³:

1. Sand all the surfaces. Remove the antifouling completely.
2. Sandblast the area where the coating is damaged (10% of the area). Clean and apply epoxy.

-
3. Apply two coats of Interprotect 2000/2001 epoxy protection.
 4. Apply two coats of antifouling paint.
 - i. Antifouling: Red, Trilus II, 491-4
 5. Mask hull undersides before proceeding with hull topsides.

Exposed section (hull topsides) 26m³:

1. Sand all the surfaces.
2. Sandblast the area where the coating is damaged (10% of the area).
3. Apply three coats of Awlgrip #545 Grey primer, and then sand the primer.
4. Apply three coats of Awlgrip Red paint.
5. Hull: Awlgrip, CCG Red, G7323-44G - Catalyst Awlcat #2
6. Redo the lettering and white stripe.
7. Brand G8003Q Matterhorn, White, three coats.
8. Apply ¾" (19 mm) BLACK adhesive tape as demarcation at the front and back of the white mark.
9. Apply High Solids Clear G3005Q, High Gloss.

18.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Senior Ship's Officer. The Contractor shall provide the CCG with the opportunity to take thickness measurements of the coatings at the end of the work.

19.0 HOLES IN THE CHIMNEY

19.1 Scope

Plug the holes next to the supports of the maple leaf on either side of the chimney. The holes have been temporarily plugged from the inside with welded flanges.

19.2 Reference

Drawings, manuals or pictures

- 19.0 – Pictures

19.3 Technical description

- a) Using a crane supplied by the Contractor, remove the port and starboard maple leaves on the chimney. Every precaution shall be taken not to damage them.
- b) Install scaffolding and/or work platforms outside and inside the chimney to do the work. Access to the interior is very constricted.
- c) Plug the holes with an insert welded on both sides (two holes on the port side and four holes on the starboard side, from what we have seen; there may be more once the maple leaves have been removed).
- d) Paint the interior and exterior. Apply the vessel's paint system on sections affected by the work.
- e) Interior and exterior painting
 - i. First coat: Interprime Red CPA 234 Red
 - ii. Second coat: Interprime White CPA 235 White

- iii. Third coat: Interlac 665 White RAL9003
- f) Install the maple leafs and punch the setscrews.

19.4 Proof of performance

All work shall be completed to the satisfaction of the Chief Engineer.

20.0 HEPBURN CRANE

20.1 Scope

Repair two problems on the aft starboard crane:

- i. The hook continues to rise when it reaches its upper limit.
- ii. The spit opens on its own. It has to be compensated for with the operating levers to hold its position.

20.2 Reference

Drawings, manuals or pictures

- 20.0 – pictures

20.3 Technical description

- a) Provide material, equipment and labour to resolve the problems with the aft starboard crane. The labour shall be specialized in working with hydraulics on board vessels.
- b) After identifying the problems, submit a bid for the work to be done. This work will be handled as an extra.

20.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

Tests

Tests shall be conducted in the presence of the Chief Engineer before and after the work. At the end of the work, a load test will be conducted. Weights will be provided by the CCG.

20.5 Deliverables

Report

The Contractor shall submit a complete report explaining in detail the work done, the cause of failures (if any), the changes required and the parts replaced.

The Contractor shall submit to the Senior Ship's Officer and to the Vessel Maintenance Manager an electronic copy of the report in PDF format.

21.0 BOILER SAFETY VALVES

21.1 Scope

Inspect and test four safety valves installed on the SUNROD-type steam boilers.

21.2 Reference

Drawings, manuals or pictures

- 21.0 – pictures

21.3 Technical description

This work is required for boiler inspection by Transport Canada.

Aalborg Marine Boilers

Type: 25.912, data sheet K.1131.1

Dimensions: 40 mm

Operating pressure: 7 bar

- a) Examine and inspect the valves. Have the parts inspected by Transport Canada and a CCG representative. If there are parts to be replaced, a bid shall be submitted and will be handled as an extra.
- b) The valves will be removed and reinstalled on the boilers by the vessel's crew. In order to keep one boiler in operation, the valves will be sent in two (2) shipments.
- c) The cost of inspection by Transport Canada shall be included in the price of the work.

21.4 Proof of performance

Inspection

The parts shall be inspected by an inspector from Transport Canada Maritime Safety and by a CCG representative.

Tests

Tests shall be conducted in the presence of the Transport Canada inspector to obtain an inspection certificate for the four valves.

Certification

Submit the original Transport Canada inspection certificate for the four valves to the Chief Engineer. The Contractor shall also send an electronic copy of the certificate to the Vessel Maintenance Manager.

21.5 Deliverables

Report

The Contractor shall submit a complete report explaining in detail the work done and the parts replaced.

The Contractor shall submit to the Senior Ship's Officer and to the Vessel Maintenance Manager an electronic copy of the report in PDF format.

22.0 MIRANDA DAVIT

22.1 Scope

Conduct the five-year inspection of the Miranda davit.

22.2 Reference

Drawings, manuals or pictures

- 22.0 – Miranda davit
- 22.0 - problems valves

22.3 Technical description

Davit:

Manufacturer: Umoe Schat-Harding Inc. Canada; Davit type: MRT 3900; Winch type: BHY 5300, SWL 3900 kg, including the weight of the carrier

- a) Provide material and labour to perform the work required for inspection and certification.
- b) Precise measurements of all mechanical components shall be taken and noted in the final report. All parts found to be defective or too worn out shall be replaced with equivalent parts supplied by the Contractor. These parts shall be noted in the report. The costs will be negotiated separately using Form 1379.
- c) All electrical connections and disconnections shall be performed by a certified electrician.
- d) All hydraulic work shall be done by a company that specializes in hydraulics.
- e) Identify and dismantle all pulleys, sheaves and pins. Clean each part for inspection.
- f) The cable will be removed by the crew. A new cable purchased and supplied by the CCG, will be installed at the end of the work by the vessel's crew.
- g) Each pulley and sheave shall be sandblasted for visual inspection. Grease channels shall be cleaned on the bearings, sheaves, pulleys, etc.
- h) Each pin and swivel shall undergo a liquid penetrant test to detect cracks.
- i) Each pin, swivel and bearing shall be measured, and the dimensions recorded in the inspection report.
- j) The carrier wheels and their pins were replaced in the spring of 2014. They shall be carefully inspected.
- k) Prepare and conduct a magnetic particle inspection of the davit base. An inspection report shall be submitted. Supply and apply paint KQA101 Interbond 501 Red, 5 mil thickness, on the exposed metal.
- l) Sheaves shall be painted according to the davit paint code. Paint shall be supplied by the Contractor. The paint code for the davit is as follows:
 - i. First coat: Interprime Red CPA 234 Red
 - ii. Second coat: Interprime White CPA 235 White
 - iii. Third coat: Interlac 665 White RAL9003
- m) The oil in the gearbox shall be replaced (8.5 litres Mobil SHC 629) and in the hydraulic tank (320 litres Petro-Canada Hydrex MV 22). The compartments shall be cleaned. The Chief Engineer will conduct an inspection before the tank is closed. Oil shall be supplied by the Contractor. The old oil shall be recovered and disposed of in keeping with environmental regulations.

- n) The two (2) isolating valves on the hydraulic oil tank shall be replaced with valves supplied by the CCG. As the valves are slightly different, two (2) adaptors shall be manufactured to install the new valves.
- o) All hydraulic hoses shall be replaced with new hoses with steel adaptors. Petro-Tape shall be applied on all adaptors.
- p) The hydraulic control shall be replaced with a new control supplied by the CCG.
- q) The hydraulic circuit filter shall be replaced. The filter will be supplied by the CCG.
- r) Clean and check the davit brakes and clutch.
- s) The davit shall be properly reassembled, then greased with grease (Petro-Canada PXL2C30, Precision XL EP2) supplied by the Contractor.
- t) A second lubrication shall be done, taking care to move the components during the lubrication process.
- u) If the Contractor performs hot work, it shall obtain a hot work permit signed by the Chief Engineer every day prior to the work.

22.4 Proof of performance

Inspection

The components and tests shall be inspected by an inspector from Transport Canada Maritime Safety and by a CCG representative. All work shall be completed to the satisfaction of the Chief Engineer.

The Contractor will be responsible for coordinating the inspections with the various Transport Canada and CCG inspection authorities.

Tests

After all davit parts have been reinstalled, make the necessary adjustments for proper operation of the davit. The Contractor shall demonstrate proper operation of the davit to the Chief Engineer.

The Contractor shall conduct a 110% load test in the presence of the Transport Canada and CCG inspection authorities. Weights will be provided by the CCG.

Certification

Provide the original T2 hoisting certificate to the Chief Engineer.

Provide the original magnetic particle inspection certificate.

The Contractor shall also send an electronic copy of the certificates to the Vessel Maintenance Manager.

22.5 Deliverables

Report

The Contractor shall submit to the Chief Engineer a hard copy and an electronic copy (PDF) of the inspection report. Precise measurements of all components shall be taken and noted in a final report. The report shall contain all the work done, the results of non-destructive testing and a list of the parts replaced.

The Contractor shall also send an electronic copy of the report to the Vessel Maintenance Manager.

23.0 PORT ACCOMMODATION LADDER

23.1 Scope

Perform the four-year inspection of the port accommodation ladder. Capacity: 4 persons of 75 kg each.

23.2 Technical description

Model: Marine Aluminum; Type: DA10R

- a) Provide material and labour to perform the work required for inspection and certification.
- b) Precise measurements of all mechanical components shall be taken and noted in the final report. All parts found to be defective or too worn out shall be replaced with equivalent parts supplied by the Contractor. These parts shall be noted in the report. The costs will be negotiated separately using Form 1379.
- c) Using a crane supplied by the Contractor, remove the port accommodation ladder.
- d) Remove and reassemble the cable. A new cable (115' x 3/8", C/A, 304 Stainless Steel, 7 x 19, one end mechanically spliced thimble, other end free) shall be supplied and installed by the Contractor with its test certificate.
- e) All electrical connections and disconnections shall be performed by a certified electrician.
- f) Bring the ladder to the workshop for complete inspection by the inspection authorities. Repair work will be handled as an extra on Form 1379.
- g) Identify and disassemble all pulleys, sheaves and pins, then clean each part for inspection.
- h) Each pulley shall be sandblasted for visual inspection. Grease channels shall be cleaned on the bearings, pulleys, etc.
- i) Each pin and swivel shall undergo a liquid penetrant test to detect cracks. Each pin, swivel and bearing shall be measured.
- j) The ladder shall be properly reassembled, then greased with grease (Petro-Canada PXL2C30, Precision XL EP2) supplied by the Contractor.
- k) All items removed shall be reinstalled with new bolts, washers and nuts.
- l) Install the ladder using a crane supplied by the Contractor. The Contractor shall demonstrate its proper operation.
- m) A second lubrication shall be done, taking care to move the components during the lubrication process.

23.3 Proof of performance

Inspection

The components and tests shall be inspected by an inspector from Transport Canada Maritime Safety. All work shall be completed to the satisfaction of the Chief Engineer. The Contractor will be responsible for coordinating the inspections with the various Transport Canada inspection authorities. Costs incurred for these inspections will be at the Contractor's expense and included in the contract.

Tests

After all components have been reinstalled, make the necessary adjustments for proper operation of the ladder. The Contractor shall demonstrate proper operation of the ladder to the Chief Engineer. The Contractor shall conduct a 110% load test as required by the Transport Canada inspector. Weights will be provided by the CCG.

Certification

Provide a Transport Canada inspection certificate for lifting equipment to the Chief Engineer.

The Contractor shall also send an electronic copy of the certificates to the Vessel Maintenance Manager.

23.4 Deliverables**Report**

The Contractor shall submit to the Chief Engineer a hard copy and an electronic copy (PDF) of the inspection report. Precise measurements of all components shall be taken and noted in a final report. The report shall contain all the work done, the results of non-destructive testing and a list of the parts replaced. The Contractor shall send an electronic copy of the report to the Vessel Maintenance Manager.

24.0 ENGINE ROOM FAN**24.1 Scope**

Service the engine room supply fan.

24.2 Reference

Drawings, manuals or pictures

- 24.0 – pictures

24.3 Technical description**Fan specification**

Type:	Tubeaxial
Size:	32 MB
Capacity:	21000/15000 ft ³ /min at a pressure of 1.5/1 inch.
Revolution:	1750/1180 RPM

Motor specification

Manufacturer:	Robbins & Myers
Frame:	284 T
Power:	15 HP
Revolution:	1800/1200 RPM
Current:	440 VAC, three-phase, 60 HZ

- Provide labour, equipment and material for the work.

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- b) Electrical disconnection and connection will be done by the vessel's crew, as will removal and reinstallation of the motor.
 - c) This motor with its rotor shall be sent to a specialist company to be reconditioned, disassembled, cleaned, balanced (with rotor) and reassembled with top quality SKF bearings (sealed bearings). Check the straightness of the rotor. Tests are to be performed to verify the insulation and the correct functioning of the motors. Clean the paint from the exterior of the motor and repaint the chassis with a top quality grey epoxy paint. A report outlining the work done and the parts replaced shall be submitted by the company. Transport to be paid by the contractor.
 - d) The number of the two bearings is 6311-ZZ.

24.4 Proof of performance

All work shall be completed to the satisfaction of the Chief Engineer.

24.5 Deliverables

Report

The Contractor shall submit to the Chief Engineer a report of the work done and the parts replaced. The Contractor shall send an electronic copy of the report to the Vessel Maintenance Manager.

25.0 FRAMO PUMP

25.1 Scope

Replace the hydraulic hoses of the Framo pump hydraulic unit with rigid piping.

25.2 Reference

Drawings, manuals or pictures

- 25.0 – pictures

25.3 Technical description

- a) Provide material and labour to replace all hydraulic hoses with rigid piping.
- b) The work consists of replacing three 2500 psi hoses with rigid hydraulic piping. The work is located in the bow thruster room.
- c) When dismantling the hoses, it is important to collect the oil that will drain out of the hoses. The Contractor will be responsible for disposing of this oil in accordance with the environmental regulations in force.
- d) The three hoses to be replaced are the following:
 - i. Between the oil cooler outlet isolation valve and the return filter (1½" in diameter) – Length 24'
 - ii. Between the rigid piping and the oil cooler inlet valve. (1½" in diameter) – Length 8'
 - iii. Tank return line (1" in diameter) – Length 12'
- e) Install a hose between the hydraulic unit and the three new pipes. Length about 2' to 3' The cooler already has two small hoses at the inlet and outlet.

- f) It is important to clean the new piping before installation. The new piping shall be flushed as a cleaning purpose.
- g) One of the hoses goes into the sea water collector; the new pipe is to run to another location to eliminate this problem.
- h) Use the supports in place to properly support the piping, adding supports if required. The piping is to be very well supported. This room is subject to very high vibration.
- i) Every precaution shall be taken to keep this compartment in the same state of cleanliness.

25.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

Tests

The Contractor shall demonstrate proper operation of the hydraulic unit to the Chief Engineer.

26.0 WINDLASS

26.1 Scope

Redo a section of piping and replace a leaking hose on the hydraulic unit of the windlass.

26.2 Reference

Drawings, manuals or pictures

- 26.0 – pictures

26.3 Technical description

- a) Provide material and labour to redo a small pipe and replace a slightly leaking hose on the hydraulic unit of the windlass.
- b) The piping to be replaced is currently hanging and could break at any time.
- c) Electrically and hydraulically isolate the hydraulic unit. Ensure that the chains and anchors are locked securely in their position.
- d) It is sufficient to redo the piping and run it a different way to eliminate the risk of breakage. Put in place a bolted steel protector.
- e) Replace a leaking 1¼" 3000 psi hose on the hydraulic unit.
- f) Any oil collected after dismantling shall be discarded by the Contractor and disposed of in accordance with the environmental regulations in force.
- g) Supply piping, hoses and accessories (fittings).
- h) Add oil, which will be supplied by the CCG.

26.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

Tests

The Contractor shall demonstrate proper operation of the hydraulic unit to the Chief Engineer. Check for leaks.

27.0 SEA WATER PRESSURIZATION PUMP

27.1 Scope

Redo the base of two sea water pressurization pumps. The existing base is corroded and cracked.

27.2 Reference

Drawings, manuals or pictures

- 27.0 – pictures

27.3 Technical description

- a) Insulate all the valves and electrical power supply for the two pumps.
- b) Remove the two pump and motor sets.
- c) Disconnection and connection of the electric motors will be done by the vessel's crew before the beginning of work.
- d) The two motors shall be sent to a specialist company to be reconditioned, disassembled, cleaned, balanced and reassembled with top quality SKF bearings (sealed bearings). Check the straightness of the rotor. Tests are to be performed to verify the insulation and the correct functioning of the motors. Clean the paint from the exterior of the motor and repaint the chassis with a top quality grey epoxy paint. A report outlining the work done and the parts replaced shall be submitted by the company. The bearing numbers are 6208ZZ and 6206ZZ.
Motor manufacturer: Laurence Scott & Electromotors Ltd.; Type: MSD132M;
RPM: 1160; Volt: 440/3/60; A: 13; Conn.: Star; Rating: MCR; KW: 7.5; Insulation: B
- e) Remove the existing bases for the two modules supporting the pump/motor sets, as well as the two angle irons supporting the two pump modules.
- f) Mechanically clean the top of the vessel's structure to bare metal.
- g) Rebuild a support structure for the pump and motor sets to allow future maintenance (cleaning and painting) of the vessel's supports and structure.
- h) After the welding work but before installation of the pump/motor sets, allow the vessel's crew to paint the new bases.
- i) Install the pump and motor sets. Connect the piping.
- j) Align the two sets using modern equipment.

27.4 Proof of performance

Inspection

All work shall be completed to the satisfaction of the Chief Engineer.

Tests

The Contractor shall demonstrate proper operation of the two sets to the Chief Engineer.

27.5 Deliverables

Report

The Contractor shall also submit a motor alignment report.