

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:
Bid Receiving - PWGSC / Réception des
soumissions - TPSGC
11 Laurier St. / 11, rue Laurier
Place du Portage, Phase III
Core 0A1 / Noyau 0A1
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

INVITATION TO TENDER
APPEL D'OFFRES

**Tender To: Public Works and Government Services
Canada**

We hereby offer to sell to Her Majesty the Queen in right of
Canada, in accordance with the terms and conditions set
out herein, referred to herein or attached hereto, the goods,
services, and construction listed herein and on any attached
sheets at the price(s) set out therefor.

**Soumission aux: Travaux Publics et Services
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la
Reine du chef du Canada, aux conditions énoncées ou
incluses par référence dans la présente et aux annexes
ci-jointes, les biens, services et construction énumérés
ici et sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

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

Issuing Office - Bureau de distribution
Ship Refits and Conversions / Radoubss et
modifications de navires and / et
11 Laurier St. / 11, rue Laurier
6C2, Place du Portage
Gatineau, Québec K1A 0S5

Title - Sujet DRYDOCKING-ICEBREAKER CCGS AMUNDSEN	
Solicitation No. - N° de l'invitation F7047-120068/A	Date 2012-06-28
Client Reference No. - N° de référence du client F7047-120068	GETS Ref. No. - N° de réf. de SEAG PW-\$\$MD-018-22936
File No. - N° de dossier 018md.F7047-120068	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2012-08-07	
Time Zone Fuseau horaire Eastern Daylight Saving Time EDT	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Vandal, Paul	Buyer Id - Id de l'acheteur 018md
Telephone No. - N° de téléphone (819) 956-0645 ()	FAX No. - N° de FAX (819) 956-0897
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Specified Herein Précisé dans les présentes	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée See Herein	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

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PART 1 - GENERAL INFORMATION

1.1 Introduction

The bid solicitation and resulting contract document is divided into seven (7) parts plus annexes as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation and states that the Bidder agrees to be bound by the clauses and conditions contained in all parts of the bid solicitation;
- Part 3 Bid Preparation Instructions: provides bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, if applicable, and the basis of selection;
- Part 5 Certifications: includes the certifications to be provided;
- Part 6 Financial and Other Requirements: includes specific requirements that must be addressed by bidders; and
- Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Technical Specification, the Basis of Payment, the Insurance Requirements and other Annexes.

1.2 Summary

1. The Requirement is:
 - a) to carry out the docking, maintenance and alterations of the Canadian Coast Guard Vessel CCGS Amundsen in accordance with the associated Technical Specifications detailed in Annex "A".
 - b) to carry out unscheduled work authorized by the Contracting Authority.
2. The requirement is exempt from the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), Annex 4 and the North American Free Trade Agreement (NAFTA), Chapter Ten Annex 1001.2b Paragraph 1(a). However, it is subject to the Agreement on Internal Trade (AIT). The sourcing strategy relating to this procurement will be limited to suppliers in Eastern Canada, in accordance with Shipbuilding, Refit, Repair and Modernization Policy (1996-12-19).

1.3 Debriefings

After contract award, bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority **within 15 working days** of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions

(<http://ccua-sacc.tpsgc-pwgsc.gc.ca/pub/acho-eng.jsp>) Manual issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2012-03-02) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than **three (3) working days** before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a "proprietary" nature must be clearly marked "proprietary" at each relevant item. Items identified as proprietary will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

Any clarifications or changes to the bid solicitation resulting from the questions and answers will be included as an amendment to the bid solicitation.

2.4 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

Refer to Annex "I1" for Deliverables/Certifications.

2.5 Bidders' Conference

A bidders' conference chaired by the Contracting Authority will be held onboard the CCGS Amundsen located at Section 25, Quebec, Quebec on **July 18, 2012 @ 1000**. The scope of the requirement outlined in the bid solicitation will be reviewed during the conference and questions will be answered. It is recommended that bidders who intend to submit a bid attend or send representative.

Bidders are requested to communicate with the Contracting Authority before the conference to confirm attendance. Bidders should provide, in writing, to the Contracting Authority, the names of the person(s) who will be attending and a list of issues they wish to table at least **three (3) working days** before the scheduled conference.

Any clarifications or changes to the bid solicitation resulting from the bidder's conference will be included as an amendment to the bid solicitation. Bidders who do not attend will not be precluded from submitting a bid.

2.6 Optional Site Visit - Vessel

It is recommended that the Bidder or a representative of the Bidder visit the work site. Arrangements have been made for a tour of the work site. The site visit will be held on **July 18, 2012 at 13:00** onboard the CCGS Amundsen, Quebec, Quebec. Bidders must communicate with the Contracting Authority no later than **three (3) working days** before the scheduled visit to confirm attendance and provide the name(s) of the person(s) who will attend. Bidders who do not confirm attendance and provide the name(s) of the person(s) who will attend as required will not be allowed access to the site. Bidders will be requested to sign an attendance form. Bidders who do not attend or send a representative will not be given an alternative appointment but they will not be precluded from submitting a bid. Any clarifications or changes to the bid solicitation resulting from the site visit will be included as an amendment to the bid solicitation.

2.7 Work Period - Marine

Work must commence and be completed as follows:

Commence: October 15, 2012

Complete: May 31, 2013

By submitting a bid, the Bidder certifies that they have sufficient materiel and human resources allocated or available and that the above work period is adequate to both complete the known work and absorb a reasonable amount of unscheduled work.

PART 3 - BID - PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

Canada requests that Bidders provide their bid in separately bound sections as follows:

Section I - Technical Bid (2 hard copies)

Section II - Financial Bid (1 hard copy)

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation;

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders are encouraged to :

- 1) use paper containing fibre certified as originating from a sustainably-managed forest and/or containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

The Bidder must provide all of the deliverables as referenced in Annex "I1" Deliverables and Certifications.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Financial Bid Presentation Sheet in Annex "G", and the detailed Pricing Data Sheet, Appendix 1 to Annex "G". The total amount of Goods and Services Tax or Harmonized Sales Tax must be shown separately, if applicable.

3.1.1 Unscheduled Work and Evaluation Price

In any vessel refit, repair or docking contract, unscheduled work will arise after the vessel and its equipment is opened up and surveyed.

An anticipated cost for the unscheduled work will be included in the evaluation price. The evaluation price will be calculated by including an estimated amount of additional person-hours multiplied by a firm hourly charge-out labour rate for unscheduled work and will be added to the firm price for the known work.

The Evaluation Price will be used for evaluating the bid. The additional amount of person-hours for unscheduled work will be based on historical experience and there is no minimum or maximum amount of unscheduled work nor is there a guarantee of such unscheduled work.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical, management and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

Section I - Technical Bid / Certifications

Notwithstanding deliverable requirements specified within the bid solicitation and its associated Technical Specification Annex "A", mandatory deliverables that must be submitted with the Bidder's bid to be deemed responsive are summarized in Annex "I1".

Section II - Financial Bid

In order to be compliant, the Bidder's bid must, to the satisfaction of Canada, meet all requirements and provide all information required under Part 3, Section II - Financial Bid.

Canada reserves the right to request information to support any bid requirement. The Bidder is instructed to address each requirement in sufficient depth to permit a complete analysis and assessment by the Evaluation Team. The Bid will be deemed responsive if it is found to meet all the mandatory requirements.

4.1.1 Evaluation of Price

SACC Manual Clause A0220T (2007-05-25) Evaluation of Price

4.2 Basis of Selection

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

Bidders should note that all contract awards are subject to Canada's internal approvals process, which includes a requirement to approve funding in the amount of any proposed Contract. Notwithstanding that a Bidder may have been recommended for award of Contract, issuance of any Contract will be contingent upon internal approval in accordance with Canada's policies. If such approval is not given, no Contract will be awarded.

4.3. Deliverables after Contract Award

Refer to Annex "I2".

PART 5 - CERTIFICATIONS

5.1 General

Bidders must provide the required certifications to be awarded a contract. Canada will declare the bid non-responsive if the required certifications are not completed and submitted as requested.

Compliance with the certifications bidders provide to Canada is subject to verification by Canada during the bid evaluation period (before award of a contract) and after award of a contract. The Contracting Authority will have the right to ask for additional information to verify the bidders' compliance with the certifications before award of a contract. The bid will be declared non-responsive if any certification made by the Bidder is untrue, whether made knowingly or unknowingly. Failure to comply with the certifications or to comply with the request of the Contracting Authority for additional information will also render the bid non-responsive.

5.2 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.2.1 Federal Contractors Program - \$200,000 or more

1. The Federal Contractors Program (FCP) requires that some suppliers, including a supplier who is a member of a joint venture, bidding for federal government contracts, valued at \$200,000 or more (including all applicable taxes), make a formal commitment to implement employment equity. This is a condition precedent to contract award. If the Bidder, or, if the Bidder is a joint venture and if any member of the joint venture, is subject to the FCP, evidence of its commitment must be provided before the award of the Contract.

Suppliers who have been declared ineligible contractors by Human Resources and Skills Development Canada (HRSDC) are no longer eligible to receive government contracts over the threshold for solicitation of bids as set out in the Government Contracts Regulations. Suppliers may be declared ineligible contractors either as a result of a finding of non-compliance by HRSDC, or following their voluntary withdrawal from the FCP for a reason other than the reduction of their workforce to less than 100 employees. Any bids from ineligible contractors, including a bid from a joint venture that has a member who is an ineligible contractor, will be declared non-responsive.

2. If the Bidder does not fall within the exceptions enumerated in 3.(a) or (b) below, or does not have a valid certificate number confirming its adherence to the FCP, the Bidder must fax (819-953-8768) a copy of the signed form LAB 1168, Certificate of Commitment to Implement Employment Equity, to the Labour Branch of HRSDC.
3. The Bidder, or, if the Bidder is a joint venture the member of the joint venture, certifies its status with the FCP, as follows:

The Bidder or the member of the joint venture

- () Is not subject to the FCP, having a workforce of less than 100 full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada;
- () is not subject to the FCP, being a regulated employer under the Employment Equity Act, S.C. 1995, c. 44;

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- (c) () is subject to the requirements of the FCP, having a workforce of 100 or more full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada, but has not previously obtained a certificate number from HRSDC (having not bid on requirements of \$200,000 or more), in which case a duly signed certificate of commitment is attached;
- (d) () is subject to the FCP, and has a valid certificate number as follows: _____
(e.g. has not been declared an ineligible contractor by HRSDC.)

Further information on the FCP is available on the HRSDC Web site.

PART 6 - FINANCIAL AND OTHER REQUIREMENTS

6.1 Financial Capability

SACC Manual Clause A9033T (2011-05-16) Financial Capability

6.2 Contract Financial Security

6.2.1 In the bid, the Bidder must indicate the following in Annex F "Financial Bid Presentation Sheet":

- a) the type of Contract Financial Security the Bidder intends to provide if awarded the Contract; and
- b) the cost to the Bidder of the Contract Financial Security.

Refer to Annex "I1" for Deliverables/Certifications

6.2.2 If this bid is accepted, the Bidder shall be required to provide the Contract Financial Security in accordance with 7.12 within **(5) five working days** after the date of contract award.

6.2.3 If, for any reason, Canada does not receive, within the specified period, the required Contract Financial Security, Canada may accept another offer, seek new bids, negotiate a contract or not accept any bids, as Canada may deem advisable.

6.3 Vessel Transfer Costs

Vessel Transfer Costs will apply to the evaluation price of this solicitation.

1. The evaluation price must include the cost for transferring the vessel from its home port to the shipyard/ship repair facility where the Work will be performed and the cost of transferring the vessel to its home port following completion of the Work, in accordance with the following:

(a) The Bidder must provide the location of the shipyard/ship repair facility where it proposes to perform the Work together with the applicable vessel transfer cost from the list provided under paragraph 2 of this clause shall be entered into Table G1:

(b) If the list in paragraph 2 of this clause does not provide the shipyard/ship repair location where the Bidder intends to perform the Work, then the Bidder must advise the Contracting Authority, in writing, at least **10 calendar days** before the bid closing date, of its proposed location for performing the Work. The Contracting Authority will confirm to the Bidder, in writing, at least **5 calendar days** before the bid closing date, the location of the shipyard/ship repair and the applicable vessel transfer cost.

A bid that specifies a location for executing the Work which is not on the list of paragraph 2 of this clause, and for which a notification in writing has not been received by the Contracting Authority as required above, will be considered non-responsive.

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2. List of shipyard/ship repair facilities and applicable vessel transfer costs

Vessel: CCGS Amundsen

Home port: Quebec, Quebec

Transfer costs in the case of vessels transferred using a government delivery crew include the fuel cost at the vessel's most economical speed of transit and for unmanned refits only, crew transportation costs for the delivery crew based on the location of the vessel's home port and the shipyard/ship repair facility. Crew transportation costs do not include any members of the delivery crew who remain at the shipyard/ship repair facility in order to discharge project responsibilities related to the vessel being transferred.

Transfer costs in the case of vessels transferred unmanned by either commercial towing, railway, highway or other suitable means of transportation must be:

(i) included as part of the Bidder's financial bid in the case where the Bidder is responsible for the transfer; or

(ii) identified as the applicable vessel transfer cost, as given in the list below, in the case when Canada is responsible for the transfer.

Shipyard/ship repair facility

Applicable vessel transfer cost

Company	City	Transfer Cost UnManned
New Dock, St. John's Dockyard Ltd.	St. John's	C\$120,765.00
Halifax Shipyard Ltd.	Halifax	C\$93,639.00
Group Verreault Navigation Inc.	Les Mechins	C\$46,160.00
Davie Canada Yard Inc.	Levis	C\$0.00
Heddle Marine Service Inc.	Hamilton	C\$57,044.00
Seaway Marine & Industrial Inc.	St. Catharines	C\$69,257.00

Proposed Drydocking Location : _____

Refer to Annex "I1" for Deliverables/Certifications.

6.4 Docking Facility

Before contract award, the successful Bidder may be required to demonstrate to the satisfaction of Canada that the certified capacity of the docking facility, including any means or conveyance to remove the vessel from the water, is adequate for the anticipated loading in accordance with the related dry docking plans and other documents detailed in the Contract. The successful Bidder will be notified in writing and will be allowed a reasonable period of time to provide detailed keel block load distribution sketches and blocking stability considerations, along with the supporting calculations to show the adequacy of the proposed docking arrangement.

At the time of bid closing the Bidder must provide current and valid certification of the capacity and condition of the docking facility to be used for the Work. The certification must be provided by a recognized consultant or classification society and must have been issued within the past two years.

Although a dry docking facility may have a total capacity greater than the vessel to be docked, the weight distribution of the vessel may cause individual block loading to be exceeded. Also, while the physical dimensions of a dry docking facility may indicate acceptability for docking of a specific vessel, other limitations such as spacing of rails on a marine railway, concrete piers of abutments adjoining the dry dock may, preclude the facility from being considered as a possible dry docking site and render the bid non-responsive.

Refer to Annex "I1" for Deliverables/Certifications.

6.5 Workers' Compensation - Letter of Good Standing

The Bidder must have an account in good standing with the applicable provincial or territorial Workers' Compensation Board.

The bidder must provide with the bid, a certificate or letter from the applicable Worker's Compensation Board confirming the Bidder's good standing account. Failure to comply with the request may result in the bid being declared non-responsive.

Refer to Annex "I1" for Deliverables/Certifications.

6.6 Valid Labour Agreement

If the Bidder has a labour agreement, or other suitable instrument, in place with all its unionized labour, it must be valid for the proposed period of any resulting contract. Documentary evidence of the agreement or suitable instrument must be provided on or before bid closing date. If this information is not provided with the bid it will render the bid non-responsive.

Refer to Annex "I1" for Deliverables/Certifications

6.7 Preliminary Work Schedule

At the time of bid closing the Bidder must submit to Canada one (1) copy of its preliminary production work schedule. This schedule is to show the commencement and completion dates for the Work in the available work period, including realistic target dates for significant events. This schedule will be reviewed with the successful Bidder at the Pre-Refit Meeting.

Refer to Annex "I1", Deliverables/Certifications.

6.8 ISO 9001:2008 - Quality Management Systems

The Bidder shall have in place a Quality Management System registered to ISO 9001:2008 or a Quality Management System modeled on ISO 9001-2008 and shall provide at time of bid closing:

- If registered its valid ISO 9001-2008 certification;
- Example of Quality Control Plan (QCP) as per clause 6.15

Documentation and procedures of bidders may be subject to a Quality System Evaluation (QSE) by the Technical Authority during bid evaluation period.

Refer to Annex "I1" for Deliverables/Certifications.

6.9 Health and Safety

The Bidder must submit with its bid objective evidence that it has a documented Health and Safety system fully compliant with all current Federal, Provincial and Municipal regulations. If this information is not provided with the bid it will render the bid non-responsive.

Refer to Annex "I1" for Deliverable Requirements.

6.10 Hazardous Waste

1. The Bidder acknowledges that sufficient information has been provided by Canada with respect to the location and estimated amount of hazardous materials such as asbestos, lead PCBs, silica or other hazardous materials or toxic substances.
2. The price includes all costs associated with the removal, handling, storage, disposal and/or working in the vicinity of hazardous materials such as asbestos, lead, PCBs, silica and other hazardous materials or toxic substances on board the vessel, including those costs resulting from the need to comply with applicable laws and regulations in relation to the removal, handling, disposal or storage of hazardous materials or toxic substances.
3. The completion date for the Work takes into account the fact that the removal, handling, storage, disposal and/or working in the vicinity of hazardous materials such as asbestos, lead, PCBs, silica and other hazardous materials or toxic substances may be affected by the need to comply with applicable federal, provincial and municipal laws or regulations and that this will not be considered to be an excusable delay.

6.11 Insurance Requirements

The Bidder must provide with its bid a letter from an insurance broker or an insurance company licensed to operate in Canada stating that the Bidder, if awarded a contract as a result of the bid solicitation, can be insured in accordance with the Insurance Requirements specified in Annex "C". If this information is not provided with the bid it will render the bid non-responsive.

Refer to Annex "I1", Deliverables/Certifications.

6.12 Welding Certification

1. Welding must be performed by a welder certified by the Canadian Welding Bureau and in accordance with the requirements of the following Canadian Standards Association (CSA) standards:

- (a) CSA W47.1-03, Certification for Companies for Fusion Welding of Steel (Minimum Division Level 2.1); and
- (b) CSA W47.2-M1987 (R2003), Certification for Companies for Fusion Welding of Aluminum (Minimum Division Level 2.1).

The bidder shall submit proof of certification with the bid. The certification shall remain valid for the duration of the contract. If this information is not provided with the bid it will render the bid non-responsive.

Refer to Annex " I1" for Deliverables/Certifications.

6.13 Project Management Services

The Bidder is required to provide a Project Management Team experienced and capable of successfully managing the ship refit contract as defined herein. Project management personnel, services and deliverables must comply with the requirements detailed in the contract.

1. Intent

(a) Job titles used in this annex are for clarity within this document only. The Contractor is free to choose job titles that suit its organization.

(b) The Contractor, through its Project Management Team, is responsible to discharge the duties and supply the deliverables required in the Contract and the Specifications.

(c) Project Management encompasses the direction and control of such functions as engineering, planning, purchasing, manufacturing, assembly, overhauls, installations and test and trials.

2. Project Manager

(a) The Contractor must supply an experienced Project Manager (PM).

(b) The PM must have experience in managing a project of this nature.

3. Project Management Team

Other than the Project Manager, the Contractor must assign and vary other job descriptions to suit its organization; provided however that the collective resume of its Project Management must provide for the effective control of the project elements including but not limited to:

- i. Project Management
- ii. Quality Assurance
- iii. Planning and Scheduling

4. Tender Deliverable

Names, brief resumes, and list of duties for each of the team members that ensures that each of the project elements listed in Article 3. above have been addressed.

5. Reports

The following Management Reports and Documentation are to be prepared and maintained by the Contractor and submitted to Canada in accordance with the Contract or upon request by the Contracting Authority.

- i. Production Work Schedule
- ii. Inspection Summary Report
- lii. Growth Work Summary

Refer to Annex "I1" for Deliverables/Certifications.

6.14 List of Proposed Subcontractors

If the bid includes the use of subcontractors, the Bidder shall provide a list of all subcontractors including a description of the things to be purchased, a description of the work to be performed by specification section and the location of the performance of that work. The list should not include the purchase of off-the-shelf items, software and such standard articles and materials as are ordinarily produced by manufacturers in the normal course of business, or the provision of such incidental services as might ordinarily be subcontracted in performing the Work, i.e. subcontract work valued at less than \$ 5,000.00 aggregate for the project.

Refer to Annex "I1" for Deliverables/Certifications.

6.15 Quality Control Plan

At the time of bid closing the Bidder must submit to Canada an example of its Quality Control Plan (QCP) as applied on previous projects of the same nature.

Refer to Annex "I1" for Deliverables/Certifications.

6.16 Inspection and Test Plan

At the time of bid closing the Bidder must submit to Canada an example of an Inspection and Test Plan (ITP) complete with requirement and inspection reports as developed on previous projects of the same nature.

Refer to Annex "I1" for Deliverables/Certifications.

6.17 Environmental Protection

At the time of bid closing the Bidder must submit details of its environmental emergency response plans, waste management procedures and/or formal environmental training undertaken by its employees.

Refer to Annex "I1" for Deliverables/Certifications.

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018md

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6.18 Fire Protection, Fire Fighting and Training Procedures

The Bidder must submit with its bid objective evidence that it has documented fire protection, fire fighting and training procedures compliant with current regulations and their insurance requirements. The fire protection, fire fighting and training procedures will, once accepted by Canada, form part of the Contract. Please refer to clause 7.25. If this information is not provided with the bid it will render the bid non-responsive.

PART 7 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

7.1 Requirement

The Contractor must:

- a) carry out the docking, maintenance and alterations of the Canadian Coast Guard Vessel CCGS Amundsen in accordance with the associated Technical Specifications detailed in the Requirement and attached as Annex "A".
- b) carry out any unscheduled work authorized by the Contracting Authority.

7.2 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual issued by Public Works and Government Services Canada (PWGSC). The manual is available on the following PWGSC website:
(<http://ccua-sacc.tpsgc-pwgsc.gc.ca/pub/acho-eng.jsp>)

7.2.1 General Conditions

2030 (2012-03-02), General Conditions - Higher Complexity - Goods, apply to and form part of the Contract.

2030 (2012-03-02) General Conditions Higher Complexity - Goods are hereby amended as follows:

Section 22 Warranty

1. The Contractor, if requested by Canada, must replace or repair at its own expense any finished work, excluding Government Issue incorporated in the Work, which becomes defective or which fails to conform to contract requirements as a result of faulty or inefficient manufacture, material or workmanship.
2. Despite acceptance of the finished work, and without restricting any other term of the Contract or any condition, warranty or provision imposed by law, the Contractor warrants that the following will be free from all defects and will conform with the requirements of the Contract:
 - (a) The painting of the underwater portion of the hull for a period of 365 days commencing from the date of undocking, except that the Contractor will only be liable to repair and/or replace to a value to be determined as follows:

Original cost to Canada of the underwater painting work, divided by 365 days and multiplied by the number of days remaining in the warranty period. The resultant sum would represent the "Dollar Credit" due to Canada from the Contractor.

- (b) All other painting work for a period of 365 days commencing from the date of acceptance of the Work;

(c) All other items of work for a period of ninety (90) days commencing from the date of acceptance of the Work, except that:

(i) the warranty on the work related to any system or equipment not immediately placed in continuous use or service will be for a period of ninety (90) days from the date of acceptance of the vessel;

(ii) for all outstanding defects, deviations, and work items listed on the Acceptance Document at Delivery, the warranty will be ninety (90) days from the subsequent date of acceptance for each item.

3. The Contractor agrees to pass to Canada, and exercise on behalf of Canada, all warranties on the materials supplied or held by the Contractor which exceed the periods indicated above.
4. Refer to Annex "D" and its Appendix "1" for Warranty Defect Claim Procedures and forms.

1031-2 (2008-05-12), Contract Cost Principles, apply and form part of the Contract.

7.2.2 Supplemental General Conditions

1029 (2010-08-16) Ship Repairs - (excluding article 08) apply and form part of the Contract

7.3 Term of Contract

7.3.1 Work Period - Marine

1. Work must commence and be completed as follows:

Commence: October 15, 2012

Complete: May 31, 2013

2. The Contractor agrees that the above time (the "Work Period") provides an adequate period to perform the subject work and absorb a reasonable amount of unscheduled work. The Contractor certifies that they have sufficient material and human resources allocated or available to complete the subject work and a reasonable amount of unscheduled work within the Work Period.

Canada has the right to delay the arrival of the Vessel at the Contractor's facility subject to the following conditions:

- a) Canada gives 30 calendar days advance notice of a 15 day maximum delay.

The Contractor may claim no additional cost when arrival of the vessel at the Contractor's facility is delayed up to a maximum of 15 calendar days beyond the commencement date, above. The Completion Date shall be extended by a period equal to the length of the delay.

- b) Canada does not provide 30 calendar days advance notice of a delay.

The Completion Date shall be reasonably adjusted to reflect the impact of the delay on the arrival of the Vessel and Canada shall pay only the Daily Services Fee referred to in the Basis of Payment for the period of the delay.

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018md

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7.4 Authorities

7.4.1 Contracting Authority

The Contracting Authority for the Contract is:

Paul Vandal
Department of Public Works and Government Services Canada (PWGSC)
Defence and Major Projects Sector
PWGSC, 6C2 Place du Portage, Phase III
11 Laurier Street,
Gatineau, Quebec, K1A 0S5
Tel: (819) 956-0645 Fax: (819) 956-0897
E-Mail - paul.vandal@pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

7.4.2 Technical Authority

The Technical Authority for the Contract is:

Martin Tardif
Ministre de Pêche et Océans
101 boul. Champlain
Québec, Québec
G1K 7Y7
Téléphone (418) 473-9545
Cellulaire (418) 473-9545
E-mail: @ martin.tardif dfo.mpo.gc.ca

The Technical Authority, is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

7.4.3 Inspection Authority

The Inspection Authority for the Contract is the Canadian Coast Guard.

Name will be determined at Contract Award

Name: _____
 Telephone: _____
 Cell: _____
 Fax: _____
 E-mail: _____

The Inspection Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for the inspection of the Work and acceptance of the finished work. The Inspection Authority may be represented on-site by a designated inspector and any other Government of Canada Inspector who may from time to time be assigned in support of the designated inspector.

7.5 Payment

7.5.1 Basis of Payment - Firm Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price indicated in the Basis of Payment Annex " B" for the Known Work. Goods and Services Tax or Harmonized Sales Tax is extra, if applicable. Payment for unscheduled work shall be in accordance with Annex "B".

No increase in the total liability of Canada or in the price of the Work resulting from any design changes, modifications or interpretations of the Specifications, will be authorized or paid to the Contractor unless such design changes, modifications or interpretations have been authorized in writing, by the Contracting Authority prior to their incorporation in the Work.

7.5.2 Terms of Payment - Progress Payment

1. Canada will make progress payments in accordance with the payment provisions of the Contract, no more than once a month, for cost incurred in the performance of the Work, up to 90 percent of the amount claimed and approved by Canada if:
 - (a) an accurate and complete claim for payment using form PWGSC-TPSGC 1111 <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf>, Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
 - (b) the amount claimed is in accordance with the basis of payment;
 - (c) the total amount for all progress payments paid by Canada does not exceed 90 percent of the total amount to be paid under the Contract;
 - (d) all certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives.

2. The balance of the amount payable will be paid in accordance with the payment provisions of the Contract upon completion and delivery of all work required under the Contract if the Work has been accepted by Canada and a final claim for the payment is submitted.
3. Progress payments are interim payments only. Canada may conduct a government audit and interim time and cost verifications and reserves the rights to make adjustments to the Contract from time to time during the performance of the Work. Any overpayment resulting from progress payments or otherwise must be refunded promptly to Canada.

**7.5.3 Liens - Section 427 of the Bank Act
SACC Manual Clause H4500C (2010-01-11) Liens - Section 427 of the Bank Act**

**7.5.4 Limitation of Price
SACC Manual Clause C6000C (2011-05-16) Limitation of Price**

**7.5.5 Time Verification
SACC Manual Clause C0711C (2008-05-12) Time Verification**

7.6 Invoicing Instructions

The Contractor must submit invoices in accordance with the information required in Section 13 of 2030, General Conditions, Higher Complexity, Goods and Article 7.5 Payment and Article 7.6 Invoicing Instructions.

7.6.1 Invoices

1. Invoices are to be made out to:

Fisheries & Oceans
Canadian Coast Guard - ITS - Service Delivery
200 Kent Street, Mail Stop 7S036
Ottawa, Ontario
K1A 0E6

And

The original invoice to be forwarded for verification to:

Public Works and Government Services Canada
Marine Systems Directorate
Defence and Major Projects Sector
11 Laurier Street, Place du Portage
Phase III, 6C2
Gatineau, Quebec
K1A 0S5
Attention: Paul Vandal

2. Canada will only make payment upon receipt of a satisfactory invoice duly supported by specified release documents and any other documents called for under the Contract.
3. The Contractor shall not submit an invoice prior to the completion and acceptance of the Work or shipment of the items to which it relates.

7.6.2 Invoicing Instructions - Progress Claim

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111 <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf>, Claim for Progress Payment.

Each claim must show:

- (a) all information required on form PWGSC-TPSGC 1111;
 - (b) all applicable information detailed under the section entitled "Invoice Submission" of the general conditions;
2. The Goods and Services Tax or Harmonized Sales Tax (GST/HST), as applicable, must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no GST/HST payable as it was claimed and payable under the previous claims for progress payments.
 3. The Contractor must prepare and certify one original and two (2) copies of the claim on form PWGSC-TPSGC 1111, and forward it to the Contracting Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

The Contracting Authority will then forward the original and two (2) copies of the claim to the Contracting Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.

4. The Contractor must not submit claims until all work identified in the claim is completed.

7.6.3 Warranty Holdback

A warranty holdback of 5% of the total contract price as last amended (GST/HST excluded) will be applied to the final claim for payment. This holdback will be payable by Canada upon the expiry of the 90 day warranty period(s) applicable to the Work. Goods and Services tax or Harmonized Sales tax (GST/HST), as appropriate, is to be calculated and paid on the total amount of the claim before the 5% holdback is applied. At the time that the holdback is released, there will be no GST/HST payable, as it was included in previous payments.

7.7 Certifications

Compliance with the certifications provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification or it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

7.8 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____.

7.9 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) the Supplemental General Conditions 1029, (2010-08-16), Ship Repairs;
- (c) the General Conditions 2030, , General Conditions - Higher Complexity - Goods
- (d) the General Conditions 1031-2, (2008-05-12), Contract Cost Principles;
- (e) Annex "A", Statement of Work;
- (f) Annex "B", Basis of Payment;
- (g) Annex "C", Insurance Requirements;
- (h) Annex "D", Warranty;
- (i) Annex "E", Procedure for Unscheduled Work;
- (j) Annex "F", Quality Control/Inspection;
- (k) Annex "G", Financial Bid Presentation Sheet;
- (l) Annex "H", Vessel Turnover
- (m) Annex "I", Deliverables/Certifications
- (n) the Contractor's bid dated _____ (insert date of bid), as amended _____ (insert date(s) of amendment(s) if applicable)

7.10 Insurance Requirements

The Contractor must comply with the insurance requirements specified in Annex "C". The Contractor must maintain the required insurance coverage for the duration of the Contract. Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract.

The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

The Contractor must forward to the Contracting Authority within **ten (10) working days** after the date of award of the Contract, a Certificate of Insurance evidencing the insurance coverage and confirming that the insurance policy complying with the requirements is in force. Coverage must be placed with an Insurer licensed to carry out business in Canada. The Contractor must, if requested by the Contracting Authority, forward to Canada a certified true copy of all applicable insurance policies.

7.11 Limitation of Contractor's Liability for Damages to Canada

1. This section applies despite any other provision of the Contract and replaces the section of the general conditions entitled "Liability". Any reference in this section to damages caused by the Contractor also includes damages caused by its employees, as well as its subcontractors, agents, and representatives, and any of their employees.
2. Whether the claim is based in contract, tort or another cause of action, the Contractor's liability for all damages suffered by Canada caused by the Contractor's performance of or failure to perform the Contract is limited to \$10 million per incident or occurrence to an annual aggregate of \$20 million for losses or damage caused in any one year of carrying out the Contract, each year starting on the date of coming into force of the Contract or its anniversary. This limitation of the Contractor's liability does not apply to:
 - (a) any infringement of intellectual property rights;
 - (b) any breach of warranty obligations; or
3. Each Party agrees that it is fully liable for any damages that it causes to any third party in connection with the Contract, regardless of whether the third party makes its claim against Canada or the Contractor. If Canada is required, as a result of joint and several liability, to pay a third party in respect of damages caused by the Contractor, the Contractor must reimburse Canada for that amount.

7.12 Financial Security

7.12.1 Term of Financial Security

Any bond, bill of exchange, letter of credit or other security provided by the Contractor to Canada in accordance with the terms of the Contract must not expire before 90 days after the completion date indicated in the Contract.

The Contracting Authority may, at its sole discretion, require an extension to the period of the security, for which the Contractor may apply for financial compensation.

The Contracting Authority may, at its sole discretion, return the security to the Contractor before the expiration, provided however that no risk will accrue to Canada as a result of this.

7.12.2 Contract Financial Security

1. The Contractor must provide one of the following contract financial securities within **five (5)** working days after the date of contract award:

- (a) a performance bond (form PWGSC-TPSGC 505) and a labour and material payment bond (form PWGSC-TPSGC 506), each in the amount of 20 percent of the Contract Price;

OR

- (b) a security deposit as defined below in the amount of 10 percent of the Contract Price.

Any bond must be accepted as security by one of the bonding companies listed in Treasury Board Contracting Policy, Appendix L, Acceptable Bonding Companies

(<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12027>). The bond forms mentioned in (a) above are available at: <http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html>.

2. If, for any reason, Canada does not receive the financial security in the amount set out above within the specified period, the Contractor will be in default. Canada may, at its discretion, terminate the Contract for default pursuant to the Contract default provision, accept another bid, reject all bids or issue a new bid solicitation.

3. Security deposits in the form of government guaranteed bonds with coupons attached will be accepted only if all coupons that are unmatured, at the time the security deposit is provided, are attached to the bonds. The Contractor must provide written instructions concerning the action to be taken with respect to coupons that will mature while the bonds are pledged as security, when such coupons are in excess of the security deposit requirement.

4. If the security deposit is in the form of a bill of exchange, Canada will deposit the bill of exchange in an open account in the Consolidated Revenue Fund. Bills of exchange that are deposited to the credit of the Consolidated Revenue Fund will bear simple interest, calculated on the basis of the rates which are in effect during the period the deposit is held.

These rates are published monthly by the Department of Finance and are set to be equal to the average yield on 90-day Treasury Bills, less 1/8 of 1 percent. Interest will be paid annually or, when the security deposit is returned to the Contractor, if earlier. The Contractor may, however, request Canada to hold and not cash the bill of exchange, in which case no interest will become payable.

5. Canada may convert the security deposit to the use of Canada if any circumstance exists which would entitle Canada to terminate the Contract for default, but any such conversion will not constitute termination of the Contract.

6. When Canada so converts the security deposit:

- (a) the proceeds will be used by Canada to complete the Work according to the conditions of the Contract, to the nearest extent that it is feasible to do so and any balance left will be returned to the Contractor on completion of the warranty period; and
- (b) if Canada enters into a contract to have the Work completed, the Contractor will:
 - (i) be considered to have irrevocably abandoned the Work; and
 - (ii) remain liable for the excess cost of completing the Work if the amount of the security deposit is not sufficient for such purpose. "Excess cost" means any amount over and above the amount of the Contract Price remaining unpaid together with the amount of the security deposit.

7. If Canada does not convert the security deposit to the use of Canada before completion of the contract period, Canada will return the security deposit to the Contractor within a reasonable time after such date.

8. If Canada converts the security deposit for reasons other than bankruptcy, the financial security must be reestablished to the level of the amount stated above so that this amount is continued and available until completion of the contract period.

9. In this Article,

"security deposit" means

- (a) a bill of exchange that is payable to the Receiver General for Canada and certified by an approved financial institution or drawn by an approved financial institution on itself; or
- (b) a government guaranteed bond; or
- (c) an irrevocable standby letter of credit, or
- (d) such other security as may be considered appropriate by the Contracting Authority and approved by Treasury Board;

"approved financial institution" means

- (a) any corporation or institution that is a member of the Canadian Payments Association;
- (b) a corporation that accepts deposits that are insured by the Canada Deposit Insurance Corporation or the Régie de l'assurance-dépôts du Québec to the maximum permitted by law;
- (c) a credit union as defined in paragraph 137(6) of the Income Tax Act;
- (d) a corporation that accepts deposits from the public, if repayment of the deposits is guaranteed by a Canadian province or territory;
- (e) the Canada Post Corporation.

"government guaranteed bond" means a bond of the Government of Canada or a bond unconditionally guaranteed as to principal and interest by the Government of Canada that is:

- (a) payable to bearer;
- (b) accompanied by a duly executed instrument of transfer of the bond to the Receiver General for Canada in accordance with the Domestic Bonds of Canada Regulations;
- (c) registered in the name of the Receiver General for Canada.

"irrevocable standby letter of credit"

- (a) means any arrangement, however named or described, whereby a financial institution (the "Issuer"), acting at the request and on the instructions of a customer (the "Applicant"), or on its behalf,
 - (i) will make a payment to or to the order of Canada, as the beneficiary;
 - (ii) will accept and pay bills of exchange drawn by Canada;
 - (iii) authorizes another financial institution to effect such payment, or accept and pay such bills of exchange; or
 - (iv) authorizes another financial institution to negotiate, against written demand(s) for payment, provided that the conditions of the letter of credit are complied with.

-
- (b) must state the face amount which may be drawn against it;
 - (c) must state its expiry date;
 - (d) must provide for sight payment to the Receiver General for Canada by way of the financial institution's draft against presentation of a written demand for payment signed by the authorized departmental representative identified in the letter of credit by his\her office;
 - (e) must provide that more than one written demand for payment may be presented subject to the sum of those demands not exceeding the face amount of the letter of credit;
 - (f) must provide that it is subject to the International Chamber of Commerce (ICC) Uniform Customs and Practice (UCP) for Documentary Credits, 2007 Revision, ICC Publication No. 600. Pursuant to the ICC UCP, a credit is irrevocable even if there is no indication to that effect; and
 - (g) must be issued (Issuer) or confirmed (Confirmer), in either official language, by a financial institution that is a member of the Canadian Payments Association and is on the letterhead of the Issuer or Confirmer. The format is left to the discretion of the Issuer or Confirmer.

7.13 Sub-contracts and Sub-contractor List

The Contracting Authority is to be notified, in writing, of any changes to the list of subcontractors before commencing the work.

When the Contractor sub-contracts work, a copy of the sub-contract purchase order is to be passed to the Contracting Authority. In addition, the Contractor must monitor progress of sub-contracted work and inform the Inspection Authority on pertinent stages of work to permit inspection when considered necessary by the Inspection Authority.

7.14 Work Schedule and Reports

No later than **five (5) calendar days** after contract award, the preliminary work schedule provided with the bid must be revised, detailed and resubmitted in preparation to the contract award meeting.

The Contractor must provide a detailed work schedule showing the commencement and completion dates for the Work in the available work period, including realistic target dates for significant events.

During the work period the schedule is to be reviewed on an ongoing basis by the Inspection Authority and the Contractor, updated when necessary, and available in the Contractor's office for review by Canada's authorities to determine the progress of the Work.

7.15 Insulation Materials - Asbestos Free

All materials used to insulate or re-insulate any surfaces on board the vessel must meet Transport Canada Marine standards, for commercial marine work, and, for all work, be free from asbestos in any form. The Contractor must ensure that all machinery and equipment located below or adjacent to surfaces to be re-insulated are adequately covered and protected before removing existing insulation.

7.16 Trade Qualifications

The Contractor must use qualified, certificated (if applicable) and competent tradespeople and supervision to ensure a uniform high level of workmanship. The Technical Authority may request to view and record details of the certification and/or qualifications held by the Contractor's tradespeople. This request should not be unduly exercised but only to ensure qualified tradespeople are on the job.

7.17 ISO 9001:2008 - Quality Management Systems

In the performance of the Work described in the Contract, the Contractor must comply with the requirements of:

ISO 9001:2008 - Quality management systems - Requirements, published by the International Organization for Standardization (ISO), current edition at date of submission of Contractor's bid.

The Contractor's quality management system must address each requirement contained in the standard, however, the Contractor is not required to be registered to the applicable standard.

7.18 Project Management Services

The Contractor is required to provide their own Project Management Team experienced and capable of successfully managing the ship repair contract as defined herein. Project management personnel, services and deliverables must comply with the requirements detailed in the contract.

1. Intent

(a) Job titles used in this annex are for clarity within this document only. The Contractor is free to choose job titles that suit its organization.

(b) The Contractor, through its Project Management Team, is responsible to discharge the duties and supply the deliverables required in the Contract and the Specifications.

(c) Project Management encompasses the direction and control of such functions as engineering, planning, purchasing, manufacturing, assembly, overhauls, installations and test and trials.

2. Project Manager

(a) The Contractor must supply an experienced Project Manager (PM).

(b) The PM must have experience in managing a project of this nature.

3. Project Management Team

Other than the Project Manager, the Contractor must assign and vary other job descriptions to suit its organization; provided however that the collective resume of its Project Management must provide for the effective control of the project elements including but not limited to:

- i. Project Management
- ii. Quality Assurance
- iii. Planning and Scheduling

4. Reports

The following Management Reports and Documentation are to be prepared and maintained by the Contractor and submitted to Canada in accordance with the Contract or upon request by the Contracting Authority.

- i. Production Work Schedule
- ii. Inspection Summary Report
- lii. Growth Work Summary

7.19 Quality Control Plan

The Contractor must implement and follow the Quality Control Plan (QCP) prepared according to the latest issue (at contract date) of ISO 10005:2005 Quality management - Guidelines for quality plans, approved by the Inspection and the Technical Authority. The QCP must describe how the Contractor will conform to the specified quality requirements of the Contract and specify how the required quality activities are to be carried out, including quality assurance of subcontractors. The Contractor must include a traceability matrix from the elements of the specified quality requirements to the corresponding paragraphs in the QCP. The QCP must be made available to the Inspection and Technical Authority for review and approval **within five (5) calendar days** after contract award.

The documents referenced in the QCP must be made available when requested by the Inspection Authority.

The Contractor must make appropriate amendments to the QCP throughout the term of the Contract to reflect current and planned quality activities. Amendments to the QCP must be acceptable to the Inspection Authority and the Technical Authority.

Refer to Annex "F" for details.

7.20 Inspection and Test Plan

The Contractor must in support of its Quality Control Plan (QCP), implement an approved Inspection and Test Plan (ITP).

The Contractor must provide at no additional cost to Canada, all applicable test data, all Contractor technical data, test pieces and samples as may reasonably be required by the Inspection Authority to verify conformance to contract requirements. The Contractor must forward at his expense such technical data, test data, test pieces and samples to such location as the Inspection Authority may direct.

Refer to Annex "F" for details.

7.21 Equipment/Systems: Inspection/Test

Inspections, Tests and Trials of Equipment, Machinery and Systems shall be conducted in accordance with the Specification. The Contractor is responsible for performing, or having performed, all Inspections, Tests and Trials necessary to substantiate that the materiel and services provided conform to contract requirements.

Refer to Annex "F" for details.

7.22 Environmental Protection

The Contractor and its sub-contractors engaged in the Work on a Crown vessel must carry out the Work in compliance with applicable municipal, provincial and federal environmental laws, regulations and industry standards.

The Contractor must have detailed procedures and processes for identifying, removing, tracking, storing, transporting and disposing of all potential pollutants and hazardous material encountered, to ensure compliance as required above. The contractor must maintain in force their Environmental Protection procedures through the course of the contract.

All waste disposal certificates are to be provided to the Technical Authority, with information copies sent to the Contracting Authority. Furthermore, additional evidence of compliance with municipal, provincial and federal environmental laws and regulations is to be furnished by the Contractor to the Contracting Authority when so requested.

The Contractor must have environmental emergency response plans and/or procedures in place. Contractor and subcontractor employees must have received the appropriate training in emergency preparedness and response. Contractor personnel engaging in activities which may cause environmental impacts or potential non compliance situations, must be competent to do so on the basis of appropriate education, training, or experience.

7.23 Hazardous Waste

1. The Contractor acknowledges that sufficient information has been provided by Canada with respect to the location and estimated amount of hazardous materials such as asbestos, lead PCBs, silica or other hazardous materials or toxic substances.
2. The price includes all costs associated with the removal, handling, storage, disposal and/or working in the vicinity of hazardous materials such as asbestos, lead, PCBs, silica and other hazardous materials or toxic substances on board the vessel, including those costs resulting from the need to comply with applicable laws and regulations in relation to the removal, handling, disposal or storage of hazardous materials or toxic substances.
3. The completion date for the Work takes into account the fact that the removal, handling, storage, disposal and/or working in the vicinity of hazardous materials such as asbestos, lead, PCBs, silica and other hazardous materials or toxic substances may be affected by the need to comply with applicable federal, provincial and municipal laws or regulations and that this will not be considered to be an excusable delay.

7.24 N/A

7.25 Fire Protection, Fire Fighting and Training

The Contractor must maintain in force their fire protection, fire fighting and training procedures through the course of the Contract.

7.26 Welding Certification

1. The Contractor must ensure that welding is performed by a welder certified by the Canadian Welding Bureau (CWB) in accordance with the requirements of the following Canadian Standards Association (CSA) standards:

- (a) CSA W47.1-03, Certification for Companies for Fusion Welding of Steel (Minimum Division Level 2.1); and
- (b) CSA W47.2-M1987 (R2003), Certification for Companies for Fusion Welding of Aluminum (Minimum Division Level 2.1).

2. In addition, welding must be done in accordance with the requirements of the applicable drawings and specifications.

3. Before the commencement of any fabrication work, and upon request from the Technical Authority, the Contractor must provide approved welding procedures and/or a list of welding personnel intended to be used in the completion of the work. The list must identify the CWB welding procedure qualifications attained by each of the personnel listed and must be accompanied by a copy of each person's current CWB welding certification.

7.27 Procedures for Design Change or Additional Work

SACC Manual Clause B5007C (2010-01-11) Procedures for Design Change or Additional Work

In addition, refer to Annex "E".

7.28 Vessel Unmanned Refits

The vessel will be unmanned during the work period and will be considered to be out-of commission. The vessel during that period will be in the care or custody of the Contractor and under its control.

Refer to Annex "H" for details.

7.29 Pre-Refit Meeting

A Pre-Refit meeting will be convened and chaired by the Contracting Authority at the Contractor's facility at a time to be determined. At that meeting the contractor will introduce all its management personnel as per its organization chart, and Canada will introduce authorities. Details of ship's arrival and work commencement will be discussed.

7.30 Progress Meetings

Progress meetings, chaired by the Contracting Authority, will take place at the Contractor's facility as and when required, generally once a month. Interim meetings may also be scheduled. Contractor attendees at these meetings will, as a minimum, be its Contract (Project) Manager, Production Manager

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(Superintendent) and Quality Assurance Manager. Progress meetings will generally incorporate Technical meetings to be chaired by the Technical Authority.

7.31 Outstanding Work and Acceptance

1. The Inspection Authority, in conjunction with the Contractor, will prepare a list of outstanding work items at the end of the work period. This list will form the annexes to the formal acceptance document for the vessel. A contract completion meeting will be convened by the Inspection Authority on the work completion date to review and sign off the form PWGSC-TPSGC1205, Acceptance. In addition to any amount held under the Warranty Holdback Clause, a holdback of twice the estimated value of outstanding work will be held until that work is completed.
2. The Contractor must complete the above form in three (3) copies, which will be distributed by the Inspection Authority as follows:
 - (a) original to the Contracting Authority;
 - (b) one copy to the Technical Authority;
 - (c) one copy to the Contractor.

Refer to Annex "H" for details of Acceptance Procedures and Reports.

7.32 Site Regulations

The Contractor must comply with all rules, instructions and directives in force on the site where the Work is performed.

7.33 Scrap and Waste Material

Despite any other provision of the Contract, scrap and waste materials other than accountable material, derived from the Contract, will revert to the Contractor as part of the Contract Price.

7.34 Stability

The Contractor will be solely responsible for the stability and trim of the ship during the period the vessel is in the Contractor's facility, including docking and undocking. The Contractor must maintain weight change information pertinent to the vessel's stability during the docking period. The Technical Authority will supply the Contractor with cross curves of stability, hydrostatic curves, tank status, location of centre of gravity, and other information relevant to the ship's condition upon handing over of the vessel.

7.35 Vessel Access by Canada

Canada reserves the right to have its personnel carry out limited work on equipment on board the vessel. This work will be carried out at times mutually acceptable to Canada and the Contractor.

7.36 Title to Property - Vessel

If the Contractor is in default in carrying any of its obligations under the Contract, Canada, or its agents, will have the immediate right to enter the shipyard, without first obtaining a court order, to take possession of the vessel and all other property of Canada, including, but not limited to, work-in-process located on the premises, and to perform any further work required to enable the vessel and other such property to be removed from the shipyard.

7.37 Workers Compensation

The Contractor must maintain its account in good standing with the applicable provincial or territorial Workers' Compensation Board for the duration of the Contract.

7.38 Dispute Resolution

The parties agree to follow the procedures below for the settlement of any disputes which may arise throughout the life of this Contract prior to seeking redress through court procedures:

- (a) Disputes arising from this Contract will in the first instance be resolved by the Contracting Authority and the Contractor's Contract Administrator within 15 working days or such additional time as may be agreed to by both parties.
- (b) Failing resolution under (a) above, the Manager of the Ship Refit Division (MD) of the Marine Systems Directorate at PWGSC and the Contractor's Representative Supervisor will attempt to resolve the dispute within an additional fifteen (15) working days.
- (c) Failing resolution under (a) or (b) above, the Senior Director of the Marine Systems Directorate at PWGSC, and the Contractor's Senior Management will attempt to resolve the dispute within an additional thirty (30) working days.
- (d) Notwithstanding the above procedure, either party may seek a decision through the courts at any time during the dispute.

7.39 Failure to Deliver

Time is of the essence of the Contract. Changes in the Completion date not caused by Canada are Contractor defaults, will prejudice Canada and are at the Contractor's expense. The Completion date will not be extended without consideration being provided by the Contractor acceptable to Canada in the form of adjustment to the price, warranty or services to be provided.

7.40 Care, Custody and Control

Refer to Annex "H" and Supplemental General Conditions 1029 (2010-08-16) Ship Repairs Article 09 Where Vessel Out of Commission.

7.41 Licensing

The Contractor must obtain and maintain all permits, licenses and certificates of approval required for the work to be performed under any applicable federal, provincial or municipal legislation. The Contractor is responsible for any charges imposed by such legislation or regulations. Upon request, the Contractor must provide a copy of any such permit, license or certificate to Canada.

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ANNEX A

Technical Specification

CCGS Amundsen

**DRY DOCKING SPECIFICATION - English
and all related Drawings**

June 13, 2012

ANNEX B**BASIS OF PAYMENT PRICE**

Annex "B" will form the Basis of Payment for the resulting Contract and should not be filled in at the bid submission stage.

B1 Contract Firm Price

A)	Known Work For work as stated in Article 7. 1, Specified in Annex "A" and detailed in the attached Pricing Data Sheets, for a FIRM PRICE of:	\$
B)	GST / HST as applicable of line a) only	\$
C)	Cost of Financial Security as per Clause 7.12	\$
D)	Total Firm Price GST/HST Included:	\$

B2 Unscheduled Work

The Contractor will be paid for unscheduled work arising, as authorized by Canada. The authorized unscheduled work will be calculated as follows:

"Number of hours (to be negotiated) X \$ _____, being the Contractor's firm hourly charge-out labour rate which includes overhead, consumables, and profit, plus net laid-down cost of materials to which will be added a mark-up of 10%, plus Goods and Services Tax or Harmonized Sales Tax, if applicable, of the total cost of material and labour. The firm hourly charge-out labour rate and the material mark-up will remain firm for the duration of the Contract and any subsequent amendments."

B2.1: Notwithstanding definitions or useage elsewhere in this document, or in the Contractor's Cost Management System, when negotiating hours for unscheduled work, PWGSC will consider only those hours of labour directly involved in the production of the subject work package.

Elements of Related Labour Costs identified in B2.2 below, will not be negotiated, but will be compensated for in accordance with B2.2.

B2.2: Allowance for Related Labour Costs such as: Management, all Supervision, Purchasing and Material Handling, Quality Assurance and Reporting, First Aid, Gas Free Certification Inspecting and Reporting, Estimating, and Preparing Unscheduled Work Submissions will be included as Overhead for the purposes of determining the Charge-out Labour Rate entered in line B2 above.

B2.3: The 10% mark-up rate for materials will also apply to subcontracted costs. The mark-up rate includes any allowance for material and subcontract management not allowed for in the Chargeout Labour Rate. The Contractor will not be entitled to a separate labour component for the purchase and handling of materials or subcontract administration.

Pro-rated Prices Unscheduled Work

Hours and prices for unscheduled work shall be based on comparable historical data applicable to similar work at the same facility, or shall be determined by pro-rating the quoted Work costs in the Contract when in similar areas of the vessel.

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B3 Overtime

The Contractor must not perform any overtime under the Contract unless authorized in advance and in writing by the Contracting Authority. There will be no overtime payment for Known Work. Any request for payment must be accompanied by a copy of the overtime authorization and a report containing the overtime performed pursuant to the written authorization. Payment for authorized overtime will be calculated as follows:

For unscheduled work, the Contractor will be paid the authorized overtime hours at the quoted charge-out labour rate plus the following premium rates:

For Time and one half: \$ _____ per hour; or,

For Double time \$ _____ per hour

The above premiums will be calculated by taking the average hourly direct labour rate premiums, plus certified fringe benefit, plus profit on labour premium and fringe benefits. These rates will remain firm for the duration of the Contract, including all amendments and are subject to audit if considered necessary by Canada.

B4 Daily Services Fee

In the event of a delay in the performance of the Work that lengthens the Work period beyond the date specified in this Contract, and if such delay is recognized and agreed upon by the Contracting Authority as being attributable to Canada, Canada agrees to pay the Contractor the daily services fee, described below, for each day of such delay. This fee shall be the sole liability of Canada to the Contractor for the delay.

The firm daily services fee is:

(a) For a working day: \$ _____

(b) For a non-working day: \$ _____

The above fees shall include but not be limited to, all aspects of the following costs: Project Management Services, Administrative Support, Production Services, Quality Assurance, Material Support, Planned Maintenance and Ship Services, and all other resources and direct costs needed to maintain the Vessel at the Contractor's facility. These fees are firm and not subject to any additional charges for mark-up or profit.

B5 Vessel, Refit, Repair or Docking Cost

The following costs must be included in the price:

1. Ship Services: include all costs for ship services such as water, steam, electricity, etc., required for vessel maintenance for the duration of the Contract.
2. Docking and Undocking include:
 - (a) all costs resulting from drydocking, wharfage, security, shoring, shifting and/or moving of the vessel within the successful Bidder's facility;
 - (b) the cost of services to tie up the vessel alongside and to cast off.

Unless specified otherwise, the vessel will be delivered by Canada to the successful Bidder's facility alongside a mutually agreed safe transfer point, afloat and upright, and the successful Bidder will do the same when the Work is completed. The cost of services to tie up the vessel alongside and to cast off must be included in the evaluation price.

3. Field Service Representatives/Supervisory Services: include all costs for field service representatives/supervisory services including manufacturers' representatives, engineers, etc. The Contractor is responsible for the performance of all subcontractors and FSRs.

These services must not be an extra charge except where unscheduled work requiring these services is added to the Contract.

4. Removals: include all costs for removals necessary to carry out the Work and will be the responsibility of the successful Bidder whether or not they are identified in the specifications, except those removals not apparent when viewing the vessel or examining the drawings. The successful Bidder will also be responsible for safe storage of removed items and reinstalling them on completion of the Work. The successful Bidder will be responsible for renewal of components damaged during removal.
5. Sheltering, Staging, Cranage and Transportation: include the cost of all sheltering, staging including handrails, cranage and transportation to carry out the Work as specified.

The Contractor will be responsible for the cost of any necessary modification of these facilities to meet applicable safety regulations.

B6 Pricing Data Sheets

Parameters from the Pricing Data Sheets will be used at Canada's sole discretion in the determination of unscheduled work price.

ANNEX C

INSURANCE REQUIREMENTS

C.1 Ship Repairers' Liability Insurance

1. The Contractor must obtain Ship Repairer's Liability Insurance and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$10,000,000 per accident or occurrence and in the annual aggregate.
2. The Ship Repairer's Liability insurance must include the following:
 - a. Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada as additional insured should read as follows: Canada, represented by Public Works and Government Services Canada.
 - b. Waiver of Subrogation Rights: Contractor's Insurer to waive all rights of subrogation against Canada as represented by Environment Canada and Public Works and Government Services Canada for any and all loss of or damage to the vessel, however caused.
 - c. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of cancellation.
 - d. Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
 - e. Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.

C.2 Commercial General Liability Insurance

1. The Contractor must obtain Commercial General Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$10,000,000 per accident or occurrence and in the annual aggregate.
2. The Commercial General Liability Insurance policy must include the following:
 - (a) Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada should read as follows: Canada, as represented by Public Works and Government Services Canada.
 - (b) Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.
 - (c) Personal Injury: While not limited to, the coverage must include Violation of Privacy, Libel and Slander, False Arrest, Detention or Imprisonment and Defamation of Character.
 - (d) Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.

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- (e) Blanket Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
- (f) Employees and, if applicable, Volunteers must be included as Additional Insured.
- (g) Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program)
- (h) Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
- (i) If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
- (j) Owners' or Contractors' Protective Liability: Covers the damages that the Contractor becomes legally obligated to pay arising out of the operations of a subcontractor.
- (k) Sudden and Accidental Pollution Liability (minimum 120 hours): To protect the Contractor for liabilities arising from damages caused by accidental pollution incidents.

ANNEX D

WARRANTY

Warranty Procedures

1. Scope

a. The following are the procedures that suit the particular requirements for warranty considerations for a vessel on completion of a refit.

2. Reporting Failures With Warranty Potential

a. The initial purpose of a report of a failure is to facilitate the decision as to whether or not to involve warranty and to generate action to effect repairs. Therefore in addition to identification, location data, etc. the report must contain details of the defect. Warranty decisions as a general rule are to be made locally and the administrative process is to be in accordance with procedures as indicated.

b. These procedures are necessary as invoking a warranty does not simply mean that the warrantor will automatically proceed with repairs at his expense. A review of the defect may well result in a disclaimer of responsibility, therefore, it is imperative that during such a review the Department is directly represented by competent technical authority qualified to agree or disagree with the warrantor's assertions. Since the INSPECTION AUTHORITY has the closest and most active involvement of the contracted work completed this agency must assume this role.

3. Procedures

a. Immediately it becomes known to the Ship's Staff that an equipment/system is performing below accepted standards or has become defective, the procedures for the investigation and reporting are as follows:

i. The vessel advises the Technical Authority when a defect, which is considered to be directly associated the refit work, has occurred.

ii. On review of the Specification and the Acceptance Document, the Technical Authority in consort with Ship's Staff is to complete the Tombstone Data and section 1 of the Warranty Claim Form Appendix 1 of Annex "D" and forward the original to the Contractor for review with a copy to the PWGSC Contracting Authority. If the PWGSC Contracting or INSPECTION AUTHORITY is unable to support warranty action, the Defect Claim Form will be returned to the originator with a brief justification. (It is to be noted that in the latter instance PWGSC will inform the Contractor of its decision and no further action will be required of the Contractor.

Warranty defect claims may be forwarded in hard copy, by fax or by e-mail whichever format is the most convenient.

iii. Assuming the Contractor accepts full responsibility for repair, the Contractor completes Section 2 and 3 of the Warranty Claim Form, returns it to the INSPECTION AUTHORITY who confirms corrective action has been completed, and who then distributes the form to the Technical Authority and the PWGSC Contracting Authority.

b. In the event that the Contractor disputes the claim as a warranty defect, or agrees to share, the contractor is to complete Part 2 and 3 of the Warranty Claim Form with the appropriate information and forward it to the Contracting Authority who will distribute copies as necessary.

c. When a warranty defect claim is disputed by the Contractor, the Technical Authority may arrange to correct the defect by in-house resources or by contracting the work out. All associated costs must be

tracked and recorded as a possible charge against the contractor by PWGSC action. Material costs and manhours expended in correcting the defect are to be recorded and entered in Section 5 of the warranty defect claim by the Technical Authority who will forward the warranty defect claim to the PWGSC Contracting Authority for action. Defective parts of equipment are to be retained pending settlement of claim.

d. Defective equipment associated with potential warranty should not normally be dismantled until the Contractor's representative has had the opportunity to observe the defect. The necessary work is to be undertaken through normal repair methods and costs must be segregated as a possible charge against a contractor by PWGSC action.

4. Liability

a. Agreement between the Contracting Authority, INSPECTION AUTHORITY, Technical Authority and the Contractor will result in one of the following conditions:

i. The Contractor accepts full responsibility for costs to repair or overhaul under the warranty provisions of the contract;

ii. The Technical Authority accepts full responsibility for repair and overhaul of item concerned; or

iii. The Contractor and the Technical Authority agree to share responsibility for the costs to repair or overhaul the unserviceable item, in such cases the PWGSC Contracting Authority will negotiate the best possible sharing arrangement.

b. In the event of a disagreement as in paragraph 5c, PWGSC will take necessary action with the Contractor while the Technical Authority informs its Senior Management including pertinent data and recommendations.

c. The total cost of processing warranty claims must include accommodation and travel costs of the Contractor's employees as well as equipment/system down time and operational constraints. Accordingly, the cost to remediate the defect, in manhours and material, will be discussed between the Contracting/Inspection Authorities and the Technical Authority to determine the best course of action.

5. Alongside Period For Warranty Repairs and Checks

a. If at all possible, an alongside period for the vessel is to be arranged just before the expiration of the 90 day warranty period. This alongside period is to provide time for warranty repair and check by the contractor.

b. In respect to the underwater paint, should it become defective during the associated warranty period the contractor is only liable to repair to a value determined as follows:

"Original cost to Canada for painting and preservation of the underwater section of the hull, divided by 365 days and multiplied by the number of days remaining in the 365 days warranty period. The resultant would represent the 'Dollar Credit' due to Canada from the Contractor."

c. The Underwater paint system, before expiration of the warranty, should be checked by divers. The Technical Authority is to arrange the inspection and ensure that a representative of the Contractor will attend. The Technical Authority will inform the Contracting Authority of any adverse results.

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Public Works and Government
Services Canada

Travaux publics et Services
gouvernementaux Canada

Warranty Claim Réclamation De Garantie

Vessel Name – Nom de navire	File No. – N° de dossier	Contract No. - N ° de contrat								
Customer Department – Ministère client	Warranty Claim Serial No. Numéro de série de réclamation de garantie									
Contractor – Entrepreneur	Effect on Vessel Operations Effet sur des opérations de navire <table> <tr> <td>Critical</td> <td>Degraded</td> <td>Operational</td> <td>Non-operational</td> </tr> <tr> <td>Critique</td> <td>Dégradé</td> <td>Opérationnel</td> <td>Non-opérationnel</td> </tr> </table>		Critical	Degraded	Operational	Non-operational	Critique	Dégradé	Opérationnel	Non-opérationnel
Critical	Degraded	Operational	Non-operational							
Critique	Dégradé	Opérationnel	Non-opérationnel							

1. Description of Complaint – Description de plainte

Contact Information – l'information de contact	
Name – Nom	Tel. No. - N ° Tél
Signature – Signature	Date

2. Contractor's Investigative Report – Le rapport investigateur de l'entrepreneur

3. Contractor's Corrective Action – La modalité de reprise de l'entrepreneur

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Contractor's Name and Signature – Nom et signature de l'entrepreneur

Date of Corrective Action - Date de modalité de reprise

Client Name and Signature - Nom et signature de client

Date

4. PWGSC Review of Warranty Claim Action – Examen d'action de réclamation de garantie par TPSGC

Signature – Signature

Date

ANNEX E

PROCEDURE FOR PROCESSING UNSCHEDULED WORK

1. Purpose

The Unscheduled Work Procedure has been instituted for the following purposes:

- a. To establish a uniform method of dealing with requests for Unscheduled Work;
- b. To obtain the necessary Technical Authority approval and Contracting Authority authorization before Unscheduled Work commences;
- c. To provide a means of maintaining a record of Unscheduled Work requirements including Serial Numbers, dates, and accumulated cost. The Contractor shall have a cost accounting system that is capable of assigning job numbers for each Unscheduled Work requirement so that each requirement can be audited individually.

2. Definitions

- a. An Unscheduled Work Procedure is a contractual procedure whereby changes to the scope of Work under the Contract may be defined, priced and contractually agreed to. Such changes may arise from;
 - i. "Work Arising" from opening up of machinery and/or surveys of equipment and material, or
 - ii. "New Work" not initially specified but required on the Vessel.
- b. The procedure does not allow for the correction of deficiencies in the Contractor's Bid.
- c. No unscheduled work may be undertaken by the Contractor without written authorization of the Contracting Authority except under emergency circumstances described in Sub. Paragraph 3(b).
Unscheduled Work
- d. Work undertaken without written Contracting Authority authorization will be considered the Contractor's responsibility and cost.
- e. The appropriate PWGSC form is the final summary of the definition of the Unscheduled Work requirement, and the costs negotiated and agreed to.

3. Procedures

- a. The procedure involves the electronic form PWGSC 1379 for refit and repair and will be the only form for authorizing all Unscheduled Work.
- b. Emergency measures required to prevent loss or damage to the Vessel which would occur if this procedure were followed, shall be taken by the Contractor on its own authority. The responsibility for the cost of such measures shall be determined in accordance with the terms and conditions of the Contract.

c. The Technical Authority will initiate a work estimate request by defining the **Unscheduled Work** requirement. It will attach drawings, sketches, additional specifications, other clarifying details as appropriate, and allocate their Serial Number for the request.

d. Notwithstanding the foregoing, the Contractor may propose to the Technical Authority in writing, either by letter or some type of Defect Advice Form (this is the Contractor's own form) that certain **Unscheduled Work** should be carried out.

e. The Technical Authority will either reject or accept such Proposal, and advise the Contractor and Contracting Authority. Acceptance of the Proposal is not to be construed as authorization for the work to proceed. If required, the Technical Authority will then define the **Unscheduled Work** requirement in accordance with Sub. Paragraph 3.(c).

f. The Contractor will electronically submit its Proposal to the Contracting Authority together with all price support, any qualifications, remarks or other information requested.

The price support shall demonstrate the relationship between the scope of work, the Contractor's estimated costs and its selling price. It is a breakdown of the Contractor's unit rates, estimates of person hours by trade, estimate of material cost per item for both the contractor and all of its subcontractors including quotations, estimates of any related schedule impact and an evaluation of the contractor's time required to perform the **Unscheduled Work**.

g. The Contractor shall provide copies of purchase orders and paid invoices for Subcontracts and/or materials, including stocked items, in either case. The Contractor shall provide a minimum of two quotations for Subcontracts or materials. If other than the lowest, or sole source is being recommended for quality and/or delivery considerations, this shall be noted. On request to the Contractor, the Contracting Authority shall be permitted, to meet with any proposed Subcontractor or material supplier for discussion of the price and always with the Contractor's representative present.

h. After discussion between the Contracting Authority and the Contractor and if no negotiation is required, the Contracting Authority will seek Technical Authority confirmation to proceed by signing the form. The Contracting Authority will then sign and authorize the **Unscheduled Work** to proceed.

i. In the event the Technical Authority does not wish to proceed with the work, it will cancel the proposed **Unscheduled Work** through the Contracting Authority in writing.

j. In the event the negotiation involves a Credit, the appropriate PWGSC form will be noted as "credit" accordingly.

k. In the event that the Technical Authority requires **Unscheduled Work** of an urgent nature or an impasse has occurred in negotiations, the commencement of the **Unscheduled Work** should not be unduly delayed and should be processed as follows, in either case. The Contractor will complete the appropriate PWGSC 1379 form indicating the offered cost and pass it to the Contracting Authority. If the Technical Authority wishes to proceed, the Technical Authority and the Contracting Authority will sign the completed PWGSC form with the notation, "CEILING PRICE SUBJECT TO DOWNWARD ADJUSTMENT", and allocate a Serial Number having the suffix "A". The work will proceed with the understanding that following an audit of the Contractor's actual costs for completing the described work, the cost will be finalized at the ceiling price or lower, if justified by the audit. A new PWGSC form will then be completed with the finalized costs, signed and issued with the same Serial Number without the suffix "A", and bearing a notation that this form is replacing and canceling the form having the same Serial Number with the suffix "A".

NOTE:

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PWGSC forms bearing Serial Numbers with a suffix "A" shall not to be included in any contract amendments, and therefore no payment shall be made until final resolution of the price and incorporation into the contract.

4. Amendment to Contract or Formal Agreement

The Contract will be amended from time to time in accordance with the Contract terms to incorporate the costs authorized on the appropriate PWGSC forms.

ANNEX F

QUALITY CONTROL/INSPECTION

F1 Quality Control Plan

The Contractor must implement and follow the Quality Control Plan (QCP) prepared according to the latest issue (at contract date) of ISO 10005:2005 quality management - Guidelines for quality plans, approved by the Inspection and the Technical Authority. The QCP must describe how the Contractor will conform to the specified quality requirements of the Contract and specify how the required quality activities are to be carried out, including quality assurance of subcontractors. The Contractor must include a traceability matrix from the elements of the specified quality requirements to the corresponding paragraphs in the QCP. The QCP must be made available to the Inspection and Technical Authority for review and approval **within five (5) calendar** days after contract award.

The documents referenced in the QCP must be made available within two (2) working days when requested by the Inspection Authority.

The Contractor must make appropriate amendments to the QCP throughout the term of the Contract to reflect current and planned quality activities. Amendments to the QCP must be acceptable to the Inspection Authority and the Technical Authority.

F2 Inspection and Test Plan (ITP):

1. The Contractor must prepare an Inspection and Test Plan (ITP) comprising individual inspection and test plans for each specification item of this project, in accordance with the Quality Standard and its Quality Control Plan. The ITP must be submitted to the Inspection Authority for review and amended by the Contractor to the satisfaction of the Inspection Authority.

- a. Each ITP must contain all inspection points identified in the Specification highlighting any mandatory points that must be witnessed by the Inspection Authority and other "hold" points imposed by the Contractor to ensure the quality of the work.
- b. Milestone delivery date for the ITP is given in the Contract, however individual ITPs should be forwarded for review as developed.

2. Coding:

a. Each Inspection and Test Plan (ITP) is to be coded for identification clearly demonstrating a systematic approach similar to the following (Contractor's system should be defined in its Quality Control Plan):

i. Prefixes for Inspections, Test and Trials:

- Prefix "1" is a Contractor inspection, i.e. 1H-10-01, 1H-10-02;
- prefix "2" is a Contractor post repair test, i.e. 2H-10-01; and
- prefix "3" is a Contractor post repair trial, i.e. 3H-10-01.

b. Specification items followed by assigned sequence numbers for inspection processes within each Specification Item; and

c. Cross reference to a verification document number

F3 Inspection and Test Plan Criteria:

Inspection criteria, procedures and requirements are stated in the specifications, drawings, technical orders and reference standards invoked by the Specifications. Test and trial documentation may also be included or referenced in the Specifications. An individual Inspection and Test Plan (ITP) is required for each Specification item.

- a. All ITPs must be prepared by the Contractor in accordance with the above criteria, its Quality Plan, and must provide the following reference information:
 - i. the ship's name;
 - ii. the Specification item number;
 - iii. equipment/system description and a statement defining the parameter which is being inspected;
 - iv. a list of applicable documents referenced or specified in the inspection procedure;
 - v. the inspection, test or trial requirements specified in the Specification;
 - vi. the tools and equipment required to accomplish the inspection;
 - vii. the environmental conditions under which the inspections are to be conducted and the tolerances on the inspection conditions;
 - viii. a detailed step-by-step procedure of how each inspection is to be performed, conformance parameters, accept/reject criteria and recording of results, deficiencies found and description of corrective action(s) required;
 - ix. name and signature of the person who prepared the plan, date prepared and amendment level; and,
 - x. names and signatures of the persons conducting and witnessing the inspection, test or trial.

4. Contractor Imposed Testing:

Tests and trials in addition to those given in the Specification must be approved by the Inspection Authority.

- a. Amendments: Amendment action for the Inspection and Test Plans must be ongoing throughout the refit and reflect the inspection requirements for unscheduled work. Amendments must be submitted as developed, but not less frequently than once every second week.

F4 Conduct of Inspection

1. Inspections must be conducted in accordance with the ITP and as detailed in F4.
2. The Contractor must provide its own staff or subcontracted staff to conduct inspections, tests and trials; excepting that Technical Authority or Inspection Authority personnel may be designated in the specifications, in which case the Contractor must ensure that its own staff are provided in support of such inspection/test/trial.
3. The Contractor must ensure that the required conditions stated in the ITP prevail at the commencement of, and for the duration of, each inspection/test/trial.
4. The Contractor must ensure that personnel required for equipment operation and records taking during the inspection/test/trial are briefed and available at the start and throughout the duration of the inspection/test/trial. Tradesmen or FSRs who may be required to effect minor changes or adjustments in the installation must be available at short notice.
5. The Contractor is to coordinate the activities of all personnel taking part in each inspection/test/trial and ensure that safe conditions prevail throughout the inspection/test/trial.

F5 Inspection Records and Reports

1. The Contractor on the inspection record, test or trials sheets as applicable must record the results of each inspection. The Contractor must maintain files of completed inspection records consistent with the Quality Standard and its Quality Plan for this project.
2. The Contractor's QC representative (and the FSR when required) must sign as having witnessed the inspection, test or trial on the inspection record. The Contractor must forward originals of completed inspection records, together with completed test(s) and/or trials sheets to the Inspection Authority as they are completed.
3. Unsatisfactory inspection/test/trial results, for which corrective action cannot be completed during the normal course of the inspection/test/trial, will require the Contractor to establish and record the cause of the unsatisfactory condition to the satisfaction of the Inspection Authority. Canada representatives may assist in identification where appropriate.
4. Corrective action to remove cause of unsatisfactory inspections must be submitted to the Inspection Authority in writing by the Contractor, for approval before affecting such repairs and rescheduling of the unsatisfactory inspection/test/trial. Such notices must be included in the final records passed to the Inspection Authority.
5. The Contractor must undertake rectification of defects and deficiencies in the Contractor's installation or repair as soon as practicable. The Contractor is responsible to schedule such repairs at its own risk.
6. The Contractor must reschedule unsatisfactory inspections after any required repairs have been completed.
7. Quality Control, Inspection and Test records that substantiate conformance to the specified requirements, including records of corrective actions, must be retained by the Contractor for three (3) years from the date of completion or termination of the Contract and must be made available to the Inspection Authority upon request.

F6 Inspection and Trials Process

1. Drawings and Purchase Orders
 - a. Upon receipt of two (2) copies of each drawing or purchase order, the designated Inspection Authority will review its content against the provisions of the specification. Where discrepancies are noted, the Inspection Authority will formally advise all concerned, in writing using a Discrepancy Notice. The resolution of any such discrepancy is a matter for consultation between the Contractor and other Crown Authorities.

The Inspection Authority is NOT responsible for the resolution of discrepancies.

2. Inspection
 - a. Upon receipt and acceptance of the Contractor's ITP, inspection will consist of a number of Inspection Points supplemented by such other inspections, tests, demonstrations and trials as may be deemed necessary by the Inspection Authority to permit him to certify that the work has been performed in compliance with the provisions of the specification. The Contractor must be responsible for notifying the designated Inspection Authority of when the work will be available for inspection, sufficiently in advance to permit the designated Inspection Authority to arrange for the appropriate inspection.

b. The Inspection Authority will inspect the materials, equipment and work throughout the project against the provisions of the specification and, where non-conformances are noted, will issue appropriate **INSPECTION NON-CONFORMANCE REPORTS**.

c. The Contract requires the implementation of a Quality Assurance/Quality Control system, so the Inspection authority must require that the Contractor provide a copy of its internal inspection report pertaining to a work item before conducting the requested inspection. If third party inspections are required by the Contract (e.g. inspections by a certified CWB 178.2 welding inspector), the reports of these inspections must be required before the Work is inspected by the PWGSC Inspection Authority.

d. The QA/QC system is a requirement, so if the documentation is presented to the Inspection Authority before an inspection stating that the Work is satisfactory but the Inspection Authority finds that the Work has not been satisfactorily inspected, the Inspection Authority must issue an Inspection Non-conformance Report against the Work and another against the failure of the Contractor's QA/QC system.

e. Before carrying out any inspection, the PWGSC Inspection Authority must review the requirements for the Work and the acceptance and/or rejection standards to be applied. Where more than one standard or requirement is called up and they are potentially conflicting, the Inspection Authority must refer to the order of precedence in the Contract to determine the standard or requirement to be applied.

3. Inspection Non-conformance report

a. An Inspection Non-conformance report will be issued for each non-conformance noted by the Inspection Authority. Each report will be uniquely numbered for reference purposes, will be signed and dated by the Inspection Authority, and will describe the non-conformance.

b. When the non-conformance has been corrected by the Contractor and has been re-inspected and accepted by the Inspection Authority, the Inspection Authority will complete the Report by adding an applicable signed and dated notation.

c. At the end of the project, the content of all Inspection Non-conformance Reports which have not been signed-off by the Inspection Authority will be transferred to the Acceptance Documents before the Inspection Authority's certification of such documents.

4. Tests, Trials, and Demonstrations

a. To enable the Inspection Authority to certify that the Work has been performed satisfactorily, in accordance with the Contract and Specifications, the Contractor must schedule, co-ordinate, perform, and record all specified Tests, Trials and Demonstrations required by the Inspection Authority.

b. Where the Specifications contain a specific performance requirement for any component, equipment, sub-system or system, the Contractor must test such component, equipment, sub-system or system to the satisfaction of the Inspection Authority, to prove that the specified performance has been achieved and that the component, equipment, sub-system or system performs as required by the specifications.

c. Tests, trials and demonstrations must be conducted in accordance with a logical, systematic schedule which must ensure that all associated components and equipment are proven before sub-systems demonstration or testing, and that sub-systems are proven before system demonstration or testing.

d. Where the Specifications do not contain specific performance requirements for any component, equipment, sub-system or system, the Contractor must demonstrate such component, equipment, sub-system or system to the satisfaction of the Inspection Authority .

e. The Contractor must submit its Inspection and Test Plan as detailed in F2.

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f. The Contractor must co-ordinate each test, trial and demonstration with all interested parties, including the Inspection Authority; Contracting and Technical Authorities; regulatory authorities; Classification Society; Sub-contractors; etc. **The Contractor must provide the Inspection Authority and other Crown Authorities with a minimum of five (5) working days notice of each scheduled test, trial, or demonstration.**

g. The Contractor must keep written records of all tests, trials, and demonstrations conducted as detailed in F5. The Contractor may utilize the **PWGSC STANDARD TESTS & TRIALS RECORD SHEETS** which can be customized by the Contractor to suit individual test or trial requirements. These Record Sheets are available from the Inspection Authority in digital format.

h. The Contractor must in all respects be responsible for the conduct of all tests and trials in accordance with the requirements of the Contract.

i. The Inspection Authority and the Technical Authority reserve the right to defer starting or continuing with any sea trials for any reasonable cause including but not limited to adverse weather, visibility, equipment failure or degradation, lack of qualified personnel and inadequate compliance with safety standards.

ANNEX G**Financial Bid Presentation Sheet****G1 Price for Evaluation**

A)	Known Work For work as stated in Part 1 Clause 1.2, Specified in Annex "A" and detailed in the attached Pricing Data Sheets Appendix 1 of Annex "G", for a FIRM PRICE of:	\$
B)	<p>Unscheduled Work Contractor Labour Cost: Estimated labour hours at a firm Charge-out Labour Rate, including overhead and profit for evaluation purpose only: 15,000 person hours X \$_____ per hour for a PRICE of: See Article G2.1 and G2.2 below.</p> <p>Overtime premium for time and one half: Estimated hours for evaluation purposes only: 1000 person hours X \$_____ per hour for a PRICE of: See Article G3 Below.</p> <p>Overtime premium for double time: Estimated hours for evaluation purposes only: 1000 person hours X \$_____ per hour for a PRICE of: See Article G3 below.</p>	<p>\$</p> <p>\$</p> <p>\$</p>
C)	<p>Daily Service Fees for evaluation purpose only As per Clause G4</p> <p>i) Ten (10) working days X \$_____ firm daily service fee = \$_____</p> <p>ii) Four (4) non-working days X \$_____ firm daily service fee = \$_____</p>	\$
D)	<p>Cost of Financial Security as per Part 6 - 6.2.2 Type of Contract Financial Security as per Part 6 - 6.2.2 _____</p>	\$
E)	<p>Vessel Transfer Cost as Per Clause G7</p> <p>Proposed shipyard / ship repair facility: _____</p>	\$
F)	<p>EVALUATION PRICE GST Excluded, [A + B + C+ D+E] For an EVALUATION PRICE of (GST/HST excluded):</p>	\$

G2 **Unscheduled Work**

The Contractor will be paid for unscheduled work arising, as authorized by Canada. The authorized unscheduled work will be calculated as follows:

"Number of hours (to be negotiated) X \$ _____, being the Contractor's firm hourly charge-out labour rate which includes overhead, consumables, and profit, plus net laid-down cost of materials to which will be added a mark-up of 10 percent, plus Goods and Services Tax or Harmonized Sales Tax, if applicable, of the total cost of material and labour. The firm hourly charge-out labour rate and the material mark-up will remain firm for the duration of the Contract and any subsequent amendments."

G2.1: Notwithstanding definitions or usage elsewhere in this document, or in the Contractor's Cost Management System, when negotiating Hours for unscheduled work, PWGSC will consider only those hours of labour directly involved in the production of the subject work package.

Elements of Related Labour Costs identified in G2.2 below, will not be negotiated, but will be compensated for in accordance with Note G2.2. It is therefore incumbent upon the bidder to have bid appropriately which will result in fair compensation, regardless of their Cost Management System.

G2.2: Allowance for Related Labour Costs such as: Management, all Supervision, Purchasing and Material Handling, Quality Assurance and Reporting, First Aid, Gas Free Certification Inspecting and Reporting, and Estimating and preparing unscheduled work Submissions will be included as Overhead for the purposes of determining the Charge-out Labour Rate entered in line G2 above.

G2.3: The 10% mark-up rate for materials will also apply to subcontracted costs. The mark-up rate includes any allowance for material and subcontract management not allowed for in the Chargeout Labour Rate. The Contractor will not be entitled to a separate labour component for the purchase and handling of materials or subcontract administration.

G3 **Overtime**

The Contractor must not perform any overtime under the Contract unless authorized in advance and in writing by the Contracting Authority. There will be no overtime payment for Known Work. Any request for payment must be accompanied by a copy of the overtime authorization and a report containing the overtime performed pursuant to the written authorization. Payment for authorized overtime will be calculated as follows:

For unscheduled work, the Contractor will be paid the authorized overtime hours at the quoted charge-out labour rate plus the following premium rates:

For Time and one half: \$ _____ per hour; or,

For Double time \$ _____ per hour

The above premiums will be calculated by taking the average hourly direct labour rate premiums, plus certified fringe benefit, plus profit on labour premium and fringe benefits. These rates will remain firm for the duration of the Contract, including all amendments and are subject to audit if considered necessary by Canada.

G4 Daily Services Fee

In the event of a delay in the performance of the Work, and if such delay is recognized and agreed upon by the Contracting Authority as being attributable to Canada, Canada agrees to pay the Contractor the daily services fee, described below, for each day of such delay. This fee shall be the sole liability of Canada to the Contractor for the delay.

The firm daily services fee is:

- (a) For a working day: \$ _____
- (b) For a non-working day: \$ _____

The above fees shall include but not be limited to, all aspects of the following costs: Project Management Services, Administrative Support, Production Services, Quality Assurance, Material Support, Planned Maintenance and Ship Services, and all other resources and direct costs needed to maintain the Vessel at the Contractor's facility. These fees are firm and not subject to any additional charges for mark-up or profit.

G5 Vessel, Refit, Repair or Docking Cost

The following costs must be included in the price:

1. Ship Services: include all costs for ship services such as water, steam, electricity, etc., required for vessel maintenance for the duration of the Contract.
2. Docking and Undocking include:
 - (a) all costs resulting from drydocking, wharfage, security, shoring, shifting and/or moving of the vessel within the successful Bidder's facility;
 - (b) the cost of services to tie up the vessel alongside and to cast off.

Unless specified otherwise, the vessel will be delivered by Canada to the successful Bidder's facility alongside a mutually agreed safe transfer point, afloat and upright, and the successful Bidder will do the same when the Work is completed. The cost of services to tie up the vessel alongside and to cast off must be included in the evaluation price.

3. Field Service Representatives/Supervisory Services: include all costs for field service representatives/supervisory services including manufacturers' representatives, engineers, etc.

These services must not be an extra charge except where unscheduled work requiring these services is added to the Contract.

4. Removals: include all costs for removals necessary to carry out the Work and will be the responsibility of the successful Bidder whether or not they are identified in the specifications, except those removals not apparent when viewing the vessel or examining the drawings. The successful Bidder will also be responsible for safe storage of removed items and reinstalling them on completion of the Work. The successful Bidder will be responsible for renewal of components damaged during removal.

5. Sheltering, Staging, Cranage and Transportation: include the cost of all sheltering, staging including handrails, cranage and transportation to carry out the Work as specified.

The successful Bidder will be responsible for the cost of any necessary modification of these facilities to meet applicable safety regulations.

G6 Vessel Transfer Costs

1. The evaluation price must include the cost for transferring the vessel from its home port to the shipyard/ship repair facility where the Work will be performed and the cost of transferring the vessel to its home port following completion of the Work, in accordance with the following:

(a) The Bidder must provide the location of the shipyard/ship repair facility where it proposes to perform the Work together with the applicable vessel transfer cost from the list provided under paragraph 2 of this clause shall be entered into Table G1:

(b) If the list in paragraph 2 of this clause does not provide the shipyard/ship repair location where the Bidder intends to perform the Work, then the Bidder must advise the Contracting Authority, in writing, at least 5 calendar days before the bid closing date, of its proposed location for performing the Work. The Contracting Authority will confirm to the Bidder, in writing, at least 3 calendar days before the bid closing date, the location of the shipyard/ship repair and the applicable vessel transfer cost.

A bid that specifies a location for executing the Work which is not on the list of paragraph 2 of this clause, and for which a notification in writing has not been received by the Contracting Authority as required above, will be considered non-responsive.

2. List of shipyard/ship repair facilities and applicable vessel transfer costs

Vessel: CCGS Amundsen
Home port: Quebec, Quebec

Transfer costs in the case of vessels transferred using a government delivery crew include the fuel cost at the vessel's most economical speed of transit and for unmanned refits only, crew transportation costs for the delivery crew based on the location of the vessel's home port and the shipyard/ship repair facility. Crew transportation costs do not include any members of the delivery crew who remain at the shipyard/ship repair facility in order to discharge project responsibilities related to the vessel being transferred.

Transfer costs in the case of vessels transferred unmanned by either commercial towing, railway, highway or other suitable means of transportation must be:

(i) included as part of the Bidder's financial bid in the case where the Bidder is responsible for the transfer; or

(iii) identified as the applicable vessel transfer cost, as given in the list below, in the case when Canada is responsible for the transfer.

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Shipyard/ship repair facility

Applicable vessel transfer cost

Company	City	Transfer Cost UnManned
New Dock, St. John's Dockyard Ltd.	St. John's	C\$120,765.00
Halifax Shipyards Ltd.	Halifax	C\$93,639.00
Group Verreault Navigation Inc.	Les Mechins	C\$46,160.00
Davie Canada Yard Inc.	Levis	C\$0.00
Heddle Marine Service Inc.	Hamilton	C\$57,044.00
Seaway Marine & Industrial Inc.	Port Weller	C\$69,257.00

Proposed Drydocking Location: _____

ANNEX G - PRICING DATA SHEETS APPENDIX 1

Ref #	Spec. #	Description	Total Hours	Total Labour Cost	Total Material Cost	Total FSR & Sub-Contractors Cost	Total Firm Price	Unit Cost
H.D.-1		DRYDOCKING, BLOCKING AND REFLOATING		\$	\$	\$	\$	
H.D.-2		SERVICES		\$	\$	\$	\$	
	2.7	Unit Rate / KW - Hr.						\$
	2.10	Unit Rate / M3						\$
	2.13	Unit Rate / Hr. For 20 ton crane						\$
H.D.-3		INSPECTION AND ADDITIONAL WORK		\$	\$	\$	\$	
H.D.-4		STAGING AND CRANES		\$	\$	\$	\$	
H.D.-5		KEEL BLOCKS		\$	\$	\$	\$	
	5.4	Unit Price/Block						\$
H.D.-6		FRAME NUMBERING		\$	\$	\$	\$	
H.D.-7		GRIDS, SEA CHESTS AND SEA BAYS		\$	\$	\$	\$	
H.D.-8		CATHELCO ANODES		\$	\$	\$	\$	
H.D.-9		HULL CLEANING AND PAINTING		\$	\$	\$	\$	
H.D.-10		FREEBOARD, DRAFT MARKS AND IDENTITY PROGRAM MARKING		\$	\$	\$	\$	
H.D.-11		COFFERDAMS AND VOID SPACES		\$	\$	\$	\$	
H.D.-12		BALLAST TANKS		\$	\$	\$	\$	
H.D.-13		DIESEL FUEL, HELICOPTER FUEL AND OILY WATER TANKS		\$	\$	\$	\$	
H.D.-14		FRESH POTABLE WATER TANKS		\$	\$	\$	\$	
H.D.-15		POTABLE WATER TANK PIPING RECONFIGURATION		\$	\$	\$	\$	
H.D.-16		PREPARATION FOR THE HULL CONDITION SURVEY		\$	\$	\$	\$	

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Ref #	Spec. #	Description	Total Hours	Total Labour Cost	Total Material Cost	Total FSR & Sub-Contractors Cost	Total Firm Price	Unit Cost
H.D.-17		HULL CONDITION SURVEY BY CLASSIFICATION SOCIETY		\$	\$	\$	\$	
H.D.-P1		REPLACEMENT OF FIVE (5) PROPULSION DIESEL ENGINES		\$	\$	\$	\$	
H.D.-S1		REPLACEMENT OF THREE (3) SHIP SERVICE DIESEL GENERATOR SETS		\$	\$	\$	\$	
		TOTAL		\$	\$	\$	\$	

ANNEX H

VESSEL CUSTODY

H1 Vessel Custody

1. This work is going to take place with the vessel "out of commission" and therefore in the "care, control and custody" of the Contractor.
2. An "ACCEPTANCE CERTIFICATE - ASSUMPTION OF CUSTODY OF FEDERAL GOVERNMENT SHIPS BY SHIPYARDS" (attached as Appendix 1 to this Annex "H") shall be completed as required and a copy passed to the INSPECTION AUTHORITY.
3. To facilitate this turnover, representatives of the Contractor and Canada shall confirm the condition of the vessel.
4. A vessel condition report shall be appended to the above noted certificate and shall be accompanied by colour photographs or videos in either conventional or digital format.
5. When the vessel is to be returned to the "care, control and custody" of Canada, an "ACCEPTANCE CERTIFICATE - RESUMPTION OF CUSTODY OF FEDERAL GOVERNMENT SHIPS BY THE CLIENT DEPARTMENT" (Attached as appendix 2 to this Annex H) shall be completed and a signed copy passed to Canada for distribution.

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ANNEX H - APPENDIX 1

ACCEPTANCE CERTIFICATE

ASSUMPTION OF CUSTODY OF CANADIAN GOVERNMENT SHIPS BY CONTRACTORS

ACCEPTANCE OF _____

1. The undersigned, on behalf of the Department of Canadian Coast Guard and of _____ acknowledge to have handed over and received respectively CCGS _____ for the purpose of refit, all in accordance with the terms and conditions of PWGSC Contract Serial Number _____ and such documents which form part of the said contract.

2. It is mutually agreed by all parties that the condition report by compartment or area shall be considered as an addendum to this agreement; and shall be a valid document in the taking over of the vessel by the Contractor, even if the inspection and signing occur after the signing of the agreement but within the agreed ten (10) day period.

SIGNED AT _____ PROVINCE _____ ON,

THE _____ DAY OF _____ (Month) 2012.

AT _____ HOURS.

FOR: _____
(CONTRACTOR)

FOR: _____
Department of Canadian Coast Guard

WITNESSED BY: _____
PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

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ANNEX H - APPENDIX 2

ACCEPTANCE CERTIFICATE

RESUMPTION OF CUSTODY OF CANADIAN GOVERNMENT SHIPS BY SHIPYARDS

ACCEPTANCE OF CCGS _____

1. The undersigned, on behalf of _____ and of the Department of Canadian Coast Guard, acknowledge to have handed over and to have received respectively the CCGS _____, said vessel having been received By _____ on _____ (date), for the purpose of refit in accordance with the terms and conditions of PWGSC Contract Serial Number _____.

2. It is mutually agreed by all parties that the liabilities and responsibilities of _____, as defined in Article 9 of PWGSC 1029 Supplemental General Conditions for Ship Repairs, for a vessel out of commission, shall automatically cease as at _____ hours on _____ (date).

3. That effective from _____ hours on the _____ (date) Article 8 of PWGSC 1029 for a vessel "in commission" Shall apply, and that responsibility for the care and protection of the said vessel shall revert to Canada.

SIGNED AT _____ PROVINCE _____ ON,

THE _____ DAY OF _____ (Month) 2013.

AT _____ HOURS.

FOR: _____
(CONTRACTOR)

FOR: _____
Department of Canadian Coast Guard

WITNESSED BY: _____
PUBLIC WORKS AND GOVERNMENT SERVICES CANADA

ANNEX I DELIVERABLES/CERTIFICATIONS

I1 Mandatory Tender Deliverables Check List

Notwithstanding deliverable requirements specified within the bid solicitation and its associated Technical Specification (Annex A), mandatory deliverables that must be submitted with the Bidder's tender to be deemed responsive are summarized below.

The Bidder must submit a completed Annex "I1" Deliverables/ Certifications.

The following are mandatory and the Bidder's submission will be evaluated against the requirements as defined herein. The Bidder must be determined to be compliant on each item to be considered responsive.

Item	Description	Completed and Attached
1	Invitation To Tender document part 1 page 1 completed and signed;	
2	Completed Annex "G" Financial Bid Presentation Sheet", clauses G1 through G6;	
3	Completed Pricing Data Sheets, per clause 3.1 Section II, Annex "G", Appendix 1;	
4	Completed Annex "I1" Deliverables/Certifications;	
5	Changes to Applicable Laws (if any), as per clause 2.4	
6	Type of Financial Security and Cost to Bidder for Financial Security, as per 6.2	
7	Federal Contractors Program for Employment Equity, Complete section 5.2.1;	
8	Vessel Transfer Cost, as per clause 6.3 and Annex "G"	
9	Docking Facility Certificate, as per clause 6.4	
10	Proof of good standing with Worker's Compensation Board, as per clause 6.5	
11	Proof of valid Labor Agreement or similar instrument covering the work period, as per clause 6.6	
12	Preliminary Work Schedule , per clause 6.7;	
13	If Registered its Valid ISO 9001-2008 Certification, as per clause 6.8	
14	Objective evidence of documented Health and Safety System, as per clause 6.9;	
15	Insurance Requirements, as per clause 6.11	
16	Proof of welding certification, as per clause 6.12	
17	Project Management as per clause 6.13	
18	List of subcontractors, as per clause 6.14	
19	Example of its Quality Control Plan, as per clause 6.15	
20	Example of an Inspection and Test Plan as per clause 6.16	
21	Details of Environmental Emergency Response Plan, Details of Formal Environmental Training as per Clause 6.17	
22	Objective evidence of documented Fire Protection, Fire Fighting and Training Procedure, as per clause 6.18	

Solicitation No. - N° de l'invitation

F7047-120068/A

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

F7047-120068

Amd. No. - N° de la modif.

File No. - N° du dossier

018mdF7047-120068

Buyer ID - Id de l'acheteur

018md

CCC No./N° CCC - FMS No/ N° VME

I2 Deliverables after Contract Award

Item	Description	Reference	Due By
1	Insurance requirements as per Annex "C"	Clause 7.10 and Annex "C"	10 Working Days after contract award
2	Contract Financial Security	Clause 7.12	5 Working Days after contract award
3	Revised Work Schedule	Clause 7.14	5 calendar days after contract award
4	The Contractor's Quality Control Plan	Clause 7.19	5 calendar days after contract award

I3 Deliverables Prior to Contract Award (If Requested)

Item	Description	Reference	Due By
1	Financial Capability	Clause 6.1	5 Working Days prior to contract award if requested

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DRY DOCKING SPECIFICATION

13-June-12

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ITEMS LIST

H.D.-1	DRYDOCKING, BLOCKING AND REFLOATING
H.D.-2	SERVICES
H.D.-3	INSPECTION AND ADDITIONAL WORK
H.D.-4	STAGING AND CRANES
H.D.-5	KEEL BLOCKS
H.D.-6	FRAME NUMBERING
H.D.-7	GRIDS, SEA CHESTS AND SEA BAYS
H.D.-8	CATHELCO ANODES
H.D.-9	HULL CLEANING AND PAINTING
H.D.-10	FREEBOARD, DRAFT MARKS AND IDENTITY PROGRAM MARKING
H.D.-11	COFFERDAMS AND VOID SPACES
H.D.-12	BALLAST TANKS
H.D.-13	DIESEL FUEL, HELICOPTER FUEL AND OILY WATER TANKS
H.D.-14	FRESH AND POTABLE WATER TANKS
H.D.-15	POTABLE WATER TANK PIPING RECONFIGURATION
H.D.-16	PREPARATION FOR THE HULL CONDITION SURVEY
H.D.-17	HULL CONDITION SURVEY BY CLASSIFICATION SOCIETY
H.D.- P1	REPLACEMENT OF FIVE (5) PROPULSION DIESEL ENGINES (DP)
H.D.- S1	REPLACEMENT OF THREE (3) SHIP SERVICE DIESEL GENERATORS SETS

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The following plans are included in this specification:

Docking Plan, Original	222-H-131
Docking Plan	VN-00029-P001
Identity Programs	06418-SF sh 1 & 2
Capacity plan	222-H-146
Shell expansion	222-H-1
Sea Bays	3163-1-2 et 3
Lines Plan	222-H-140
General Arrangements	222-H-101/106
Duct Keel Composite	222-SK-M34
Tank Top Plating & D.B. Girders	222-H-2 sheets 1-2
Framing Expansion	222-H-12
Modification to Compressed Air Piping System	NT-2434-12-DE100A
Modification to Sea Water Piping System	NT-2434-12-DE101A
Modification to Fuel Oil Piping System	NT-2434-12-DE103A
Propulsion Diesel Engine Replacement	NT-2434-12-DE502A

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Navtech	NT-2434-12-DE503A NT-2434-12-DE503B
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1. H.D.-1 DRY DOCKING, BLOCKING AND REFLOATING

1.1. Ship's particulars

Length overall	322' - 7 1/4"
Breadth moulded	65' - 3/4"
Load draft maximum	23' - 4 6/8"
Minimum draft, forward	18' 6"
Minimum draft, aft	21' 0"
Load displacement	8,191 LT

- 1.2. The Contractor shall be responsible for mooring the vessel at a wharf adjacent to the dry dock, including the installation and removal of a gangway, to be supplied by the Contractor, no matter what time the ship arrives at and departs from the wharf.
- 1.3. The vessel shall be delivered to the Contractor's facility and from this point on, the Contractor shall be responsible for entering and leaving dry dock using tug boats or other equipment.
- 1.4. The Contractor shall supply labour, material, equipment required for blocking, towing and undocking the vessel, including lay days throughout the dry docking period to perform the work described herein.
- 1.5. The Contractor shall ensure that keel block positioning is consistent with the latest revised docking plan. Laser alignment shall be used for setting block height. The Contractor shall submit a report of the block alignment readings to the Representative(s) of Canada.
- 1.6. Ballast tanks shall be emptied as soon as the vessel is positioned on the keel blocks, then filled up to their respective levels immediately before undocking.

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- 1.7. The Contractor shall provide a written document confirming date and time of entry to and exit from the dry dock, as well as availability of the adjacent wharf.
- 1.8. The Contractor shall submit to the Representative(s) of Canada a revised docking plan indicating the positioning of the keel blocks as set for this dry-docking period. The plan shall be provided in electronic format (*. Pdf).
- 1.9. Dock and sea trials shall be carried out as a function of the work described in the diesel engine replacement section of this specification. For purposes of quoting on dock and sea trials, the Contractor shall refer to the diesel engine replacement section of this specification.
- 1.10. The Canadian Coast Guard (CCG) shall provide all personnel required to operate the vessel. The Contractor shall provide onboard services of four (4) labourers and a supervisor for the duration of the trials. Shipyard personnel shall be readily available onboard during undocking procedures to assist with the monitoring of all systems and equipment which have been disturbed during the course of this contract. Shipyard personnel shall assist with the functional testing of all systems and equipment which have been installed, repaired or disturbed during the course of this contract. All deficiencies identified during dock and sea trials shall be corrected at the Contractor's facility immediately following dock and sea trials. Shipyard personnel shall assist with all corrective action required on all systems and equipment which have been installed, repaired or disturbed during the course of this contract.
- 1.11. For inspection purposes, all underwater hull surfaces and appendages including, the rudder, rudder trunk, bow thruster tunnel, sea suction inlets, sea bays, and sea wells shall be cleaned of all loose scale, salts, and marine growth. All surfaces shall be cleaned within twenty-four hours of dry-docking using a fresh water pressure wash (3000 to 5000 psi)

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2. H.D.-2 SERVICES

- 2.1. The following services, for which a flat price shall be submitted, are to be provided to the ship throughout the entire dry docking period. This price shall encompass the entire dry docking period. Item pricing shall also be submitted, considering possibilities of providing such services on an individual basis for shorter or longer periods. The services marked with an asterisk (*) are required throughout the dry docking period as well as at the Contractor's wharf.
- 2.2. (*) Supply labour and services for installation and removal of two (2) gangways, handling of lines and ropes, and installation of a safety net under both gangways, throughout entire docking period. Both gangways are to be supplied by the Contractor.
- 2.3. (*) Supply and connect two (2) telephone lines. One (1) line to the Chief Engineer, and the other to the wheelhouse (existing system). A third line shall be installed in the CCG representative's quarters. Disconnect lines at the end of the dry dock period. All telephone lines shall be in service 24 hours a day, assuring communication with the exterior of the Contractor's facility at all times. All long distance invoices shall be submitted to the Representative(s) of Canada. Disconnect connections at the end of the contract period.
- 2.4. (*) Supply and connect three (3) high speed Internet connections, one in chief engineer office, one in the Coast Guard representative's quarters and one on the vessel's network. Disconnect connections at the end of the contract period.
- 2.5. (*) Throughout the duration of work on Contractor premises, in and out of dry dock, the Contractor shall supply material and labour to connect and disconnect, as required, one (1) electrical cable to shore power supply, 150 feet in length and having a male plug at one end. Shore power supply shall be 3 phase alternating current, 600 volts and 400 Amps capacity.
- 2.6. The Contractor shall supply and install a kilowatt-hour meter to the shore power supply circuit such that power consumption shall be measured and recorded. The Contractor shall afford the representative of Canada the opportunity to witness the meter reading upon initial installation, at every subsequent installation and removal and, at the final meter removal.

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- 2.7. For bidding purposes, the Contractor shall provide a charge out rate in \$/kwhr and a total cost of consumption for an average consumption of 288,000 kwhrs/month. The delta between the estimated consumption and the actual final reading shall be processed separately as unknown work.
- 2.8. (*)The Contractor shall provide a continuous supply of potable water for the duration of the dry-docking period. The Contractor shall supply and install all fittings and hoses required for the continuous supply of potable water to the following services. All Contractor supplied fittings and hoses shall be removed prior to undocking.
- 2.8.1. Fresh water supply (pressurisation of ship's system);
- 2.8.2. Fire main manifold. This supply also the refrigeration system cooling, air compressors cooling, sanitary system feed and condensate cooling, all linked to the fire system.
- 2.8.3. Filling of fresh water tanks (when exiting dry-dock, just before leaving premises to sail back to base).
- 2.9. The Contractor shall supply and install a water flow meter to the potable water supply line such that water consumption shall be measured and recorded. The Contractor shall afford the representative of Canada the opportunity to witness the meter reading upon initial installation, at every subsequent installation and removal, and at the final meter removal.
- 2.10. For bidding purposes, the Contractor shall provide a charge out rate for potable water in \$/m³ for an average of 100 m³/day. The delta between the estimated consumption and the actual final reading shall be processed as unknown work.
- 2.11. Supply material and labour to temporarily connect drainage hoses to keep waste water away from ship's hull and drain these waters to dry dock drainage system. Disconnect upon completion of work. Shipyard shall also install drainage pipes to all deck scuppers, at upper deck level, to keep water from leaking on hull while hull paintwork is being carried out.

<u>OUTLETS</u>	<u>DIMENSIONS</u>	<u>LOCATION</u>
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GREY WATER/BLACK WATER	4"	PORT FR-59
FWD COMPRESSOR	2"	PORT FR-96
AFT COMPRESSOR	3"	PORT FR-96
DOMESTIC REFRIGERATION	3"	PORT-FR-36
CARGO REFRIGERATION	3"	STBD-FR-36
FWD COMPRESSOR	3"	PORT FR-96
BLOWDOWN BOILER PORT	1"	PORT FR-96
BLOWDOWN BOILER STBD	1"	PORT FR-96
COOLER DRAIN CONDENSATE	5"	STBD FR-96
ALL UPPER DECK SCUPPERS		

- 2.12. (*) Supply garbage containers on ship's decks; remove and empty them daily. The shipyard shall empty the garbage container used by the shipyard daily.
- 2.13. (*) Supply services of a Contractor crane for the ship's general needs one (1) hour per working day, on a five (5) hour per week average, as required to carry out the work described herein. The hourly rate for the crane shall include the handlers, the operator, the driver and the flagman, if required.
- 2.14. Supply portable tanks or tanks that may be pumped for sewage disposal. The Contractor shall be held responsible for disposal of sewage waters. Related costs are to be included in this item.
- 2.15. (*) In order to protect accommodation alleyways from dirt, supply and install 1/16" thick cardboard throughout entire passageways on main, upper, flight and boat, navigation officers and navigation bridge decks, wheelhouse. The area to be covered is 585 m².

Supply and install Masonite in entries, stairways, machinery control room, Chief Engineer's office (cabin 405), boat deck washroom (room 409), engineers' office

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(room 530), offices for the representatives of Canada and Science (cabins 404, 401 and 403), main deck passageway from the deck entry to the forward engine room entry, laundry room deck and main deck after section from the propulsion motor room port entry to the steering gear compartment (included).

Cardboard and Masonite are to be maintained in good condition throughout the duration of work. Installation shall be carried out as soon as the ship enters the Contractor's facility.

- 2.16. (*) Supply the services once a week to clean the following spaces: Representatives of Canada offices and washrooms, Chief Engineer and Senior Engineer's cabins (including living room/office, bathroom and bedroom), engineers' office, crew dining room and common bathroom.
- 2.17. Following all contract work and prior to returning the vessel to CCG custody, all exterior vessel surfaces shall be washed using a fresh water jet at a pressure set at 7 to 9 bar (100 to 125 psi). The Contractor shall avoid applying the water jet directly to deck equipment, navigation and communication appliances and all other devices which may be subject to damage. All damages resulting from work in this item shall be repaired at the Contractor's expense.
- 2.18. (*) Once all work is completed, the ship shall be delivered as clean, inside and out, as it was when it first arrived at the Contractor's facility. This includes the bilges in the engine room.
- 2.19. (*) The Contractor shall hold custody and responsibility for the ship. This includes monitoring and maintains a good working condition of operational equipment.

List of operational equipment while at wharf and in dry dock:

- One (1) boiler (port or starboard) with feed pump and vacuum pump;
- Heating units (wheelhouse # 2, 3, 4 and 5);
- Unit heaters in most of the rooms (other than accommodations);
- Air conditioning for the electronic equipment room;
- Electrical heaters;
- Air compressor (fore or aft) to supply boiler and service air;

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- Grey water system;
- Black water system;
- Fresh water and hot water system;
- Fire protection system (alarm, CO₂ and sprinklers);
- Engine room surveillance and alarm system;
- Mooring winches for dry docking and departure;
- Emergency generator.

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3. H.D.-3 INSPECTION AND ADDITIONAL WORK

- 3.1. Work shall be completed and inspected to the entire satisfaction of the Representative of Canada and the attending Transport Canada Marine Safety (TCMS) Surveyor. The Contractor shall supply all personnel and tools required to carry out inspections.
- 3.2. Upon completion of each specification item, after careful inspection to the satisfaction of Contractor's quality control authorities, the representatives shall be notified so they may inspect the work prior to final closure of each specification item.
- 3.3. Inspection of any item by the representative of Canada does not substitute for any required inspection by TCMS.
- 3.4. Contractor is responsible for calling in the TCMS Surveyors, when and as necessary, in connection with survey items.
- 3.5. Contractor shall supply the representative of Canada with four (4) complete logs of all measures and readings taken throughout duration of work.
- 3.6. The Contractor shall submit to the representative of Canada all requested drawings in latest version AutCAD and PDF formats.
- 3.7. All additional work, not described, but arising, from this specification and surveys, shall be negotiated by the representative of Canada on PWGSC-TPSGC 1379 form, and by means of a written specification.
- 3.8. Additional work shall be specified by the representative of Canada so that a firm price quotation is obtained prior to the start of work.
- 3.9. The Contractor shall authorize the CCG to proceed with the work to be carried out on the ship.
- 3.10. The Contractor shall comply with the Canada Labour Code.

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4. H.D.-4 STAGING AND CRANES

- 4.1. The Contractor shall supply material and labour required to erect staging for all work to be performed on the ship's hull including underwater area, shafts, propellers, etc. Remove staging upon completion of work.
- 4.2. The Contractor shall supply the services of a Contractor crane throughout dry docking period for the general handling stemming from the work described in this specification.
- 4.3. Supply articulating boom and scaffolding services for inspection purposes during the entire dry docking period.

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5. H.D.-5 KEEL BLOCKS

5.1. Reference: Drwg No. 221-H-131

5.2. Blocks and keel blocks supporting the ship which are found to be in way of drain plugs or sea suction grids are to be moved to give access to the above-mentioned openings. Care shall be taken to avoid any blocks being in way of transducers, located between frames 138 and 140, port and starboard Stbd unit to be relocated), and Doppler speed log located between frames 121 and 122. Refer to docking plan. Also, other transducers shall be part of this list, including:

- RX & Tx transducers for Kongsberg Simrad EM-302 unit, port of centreline, between frames 144 and 155;
- Kongsberg Simrad EK-60 transducers, 30 & 120 KHz units, in duct keel, at frames 146 to 149 for 30 KHz unit, and at frames 149-160 for 120 KHz unit;
- ADCP Surveyor 150 KHz unit, in duct keel, at frames 149-151;
- Moon pool door, between frames 155-165 approx, on port side of vessel.
- Fore azimuth propeller at frames 138-146 and aft azimuth propellers at frames 30-60.
- Skipper 50 kHz and 200 kHz transducer units, starboard, between frames 139 and 141.
- Port acoustic well at frames 127 and 128.

5.3. As the Contractor shall obtain the Docking plan upon contract award, all misplaced blocks, as indicated in item 5.1, shall be moved at the Contractor's expense. Relocation, installation and removal of the blocks to carry out the work described herein shall be included in the work. Shipyard personnel shall ensure the blocks are adequately installed and spaced so as to allow maximum support of the ship for the entire duration of work.

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- 5.4. Contractor shall provide a unit price quote in appendix in the event that the Coast Guard should require some blocks to be moved for any reason.

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6. H.D.-6 FRAME NUMBERING

- 6.1. Supply labour and material to identify frame number and strake letters in order to simplify inspection. Contractor shall be responsible for keeping this numbering readable throughout entire dry docking period.
- 6.2. Frames shall be numbered at an interval of five (5) frames in conformity with the ship's construction drawings.
- 6.3. Keel blocks shall be numbered. **This numbering system shall be updated and maintained throughout the entire dry docking period.**

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7. H.D.-7 GRIDS, SEA CHESTS AND SEA BAYS

- 7.1. Open all access grids and manholes to sea chests and bays as described hereafter. Remove all drain plugs to drain sea chests. Reinstall upon completion of work. Carry out a vacuum box test once all work has been completed.
- 7.2. Using a high pressure water jet at 3000 to 5000 psi, clean internal surfaces of these compartments. Waste mud shall be evacuated. The Contractor shall afford the representative of Canada the opportunity to inspect all internal surfaces and suction lines.
- 7.3. All manholes shall be closed. Sea chest manhole covers are to be closed up with new gaskets, bolts, nuts and washers.

Grid manhole covers shall be reinstalled with new corrosion-resistant bolts and secured by weld tacking. There are 120 3/4" bolts 5" long. Nuts welded on the interior are to be removed and replaced with new nuts welded in the same place. Six (6) bolts shall be shortened. The Contractor shall remove as required all suction piping and Cathelco anodes obstructing free access and inspection to all internal surfaces of the sea bays and the sea chests . Upon completion of inspection, all removed pipes and anodes shall be reinstalled as per original using Contractor supplied new stainless steel nuts, washers and bolts and new gaskets made of material as per original.

- 7.4. The two (2) bow thruster guards shall be removed and reinstalled before launching using new bolts (1½"-6 NC x 5½" wide, grade 8), nuts and washers (8 per guard, stainless steel 316). The moon pool lower door openings, the azimuth thrusters and surrounding plating shall be protected against contamination and damage during surface preparation and recoating procedures. The protection shall be removed prior to launching. The moon pool interior surface shall be cleaned using fresh water prior to launching. Particular care shall be taken to thoroughly clean the hinges and latches on the moon pool lower door.

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7.5. Description

Starboard high suction, forward engine room	95-97
Starboard low suction, forward engine room	95-97
Port low suction, forward engine room	95-97
Port high suction, aft engine room	92-95
Port low suction, aft engine room	92-95
Starboard low suction, aft engine room	92-95
Port low suction, propulsion motor room	60-61
Starboard low suction, propulsion motor room	60-61
Starboard high suction, propulsion motor room	59-61
Starboard high suction, submersible pump	58-59
Starboard low suction, sprinkler pump	30-31
Port Evaporator Sea suction	120-123
Port & starboard sea bay, forward engine room (14 T)	95-97
Port & starboard sea bay, aft engine room (14 T)	93-95
Port & starboard, propulsion motor room (7 T)	55-61

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8. H.D.-8 CATHELCO ANODES

8.1. A total of fifty-eight (58) corrosion-resistant anodes are located as follows:

LOCATION	QUANTITY
Port & starboard low suction (forward engine room)	4
Port & starboard low suction (forward engine	2
Sea chest (forward engine room)	10
Port & starboard low suction (aft engine room)	6
Port high suction (aft engine room)	3
Sea chest (aft engine room)	10
Port low suction (propulsion motor room)	2
Starboard high & low suction (propulsion motor room) and submersible pump suction	5
Sea chest (propulsion motor room)	10
Automatic sprinkler pump suction	2
Bow Thruster	4
TOTAL	58

8.2. To gain access to the CATHELCO system anodes, twenty-three (23) suction pipe extensions shall be removed from the sea chests. After work has been carried out, the Contractor shall reinstall these same extensions using new corrosion-resistant bolts and nuts, as well as new gaskets.

8.3. Disconnect the electrical connections and remove anodes. The Representative(s) of Canada shall verify removed anodes and keep those that can be reused. Condemned anodes shall be replaced by new CGC supplied anodes.

8.4. Following the vessel hull inspection, the Contractor shall reinstall all anodes and verify ground resistance of each anode. Give readings to the Chief Engineer. Verify

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ground resistance of the electrical wiring linking each anode to the control panel before connecting it to the anodes.

9. H.D.-9 HULL CLEANING AND PAINTING

- 9.1. Unless otherwise stated, all materials, tools and equipment required to complete all work described in this item shall be Contractor supplied.
- 9.2. All new and disturbed steel located below the waterline and resulting from work included in this contract shall be coated with « INTERNATIONAL MARINE COATINGS INTERSHIELD 163 INERTA 160 BLACK».
- 9.3. « INTERSHIELD 163 INERTA 160 » shall be applied in accordance with manufacturer's specifications as described on the attached product data sheet (also located at the following link) :

(<http://www.international-marine.com/PDS/702+M+fre+A4.pdf>)
- 9.4. The Contractor shall provide a complete report of all work completed in this item.
- 9.5. All surface preparation for the application of« INTERSHIELD 163 INERTA 160 » shall be in strict accordance with manufacturer's recommendations and in consultation with the FSR.
- 9.6. All application of« INTERSHIELD 163 INERTA 160 » shall be in strict accordance with manufacturer's recommendations and in consultation with the FSR.
- 9.7. The total surface area to be coated with « INTERSHIELD 163 INERTA 160 » shall include all new and disturbed steel located below the water line and resulting

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from all work included in this specification. An estimate of the total surface area to be coated can be determined by referring to drawings NT2434-12-502 A.

- 9.8. The Contractor shall feather all existing coating surfaces adjacent to new and disturbed steel in accordance with manufacturer's recommendations such that the new coating blends gradually into the existing coating. The Contractor shall acquire a dry coating of « INTERSHIELD 163 INERTA 160 BLACK » to a total thickness of 0.020" on all new and disturbed steel.
- 9.9. The Contractor shall supply and install a temporary shelter to cover the entire section of ship's hull to be painted. This shelter shall be ventilated and heated. It shall be left in place and heated for the entire duration of the work described herein.
- 9.10. All necessary measures shall be taken after sandblasting to minimize steel oxidation by applying the INERTA 160 coating as soon as possible. Sweep surfaces with compressed air before coating in accordance with manufacturer's specifications and in consultation with the FSR.
- 9.11. The Contractor shall define the area of steel plating that can be prepared and coated within the time period the personnel can work without stoppages.
- 9.12. Prior to sandblasting and painting, all equipment and systems in proximity of work shall be protected from damage. This protection shall be maintained for the entire duration of work and removed before launching.
- 9.13. The Contractor shall provide all personnel elevating equipment required to enable surface and coating inspection by the Representative(s) of Canada and the FSR. The Contractor shall afford the Representative(s) of Canada and the FSR the opportunity to inspect each stage of the coating application process.
- 9.14. The Contractor shall contain all hazardous waste resulting from all surface preparation and dispose of same in accordance with all applicable environmental regulations.

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10. H.D.-10 FREEBOARD, DRAFT MARKS AND IDENTITY PROGRAM

MARKING

- 10.1. Unless otherwise stated, all materials, tools and equipment required to complete all work described in this item shall be Contractor supplied.
- 10.2. The Contractor shall replace the capital letter « C » on the word « Côtière » port and starboard freeboard by a small letter « c ». The capital letter « C » port and starboard shall be completely removed including all traces of weld. The small letter « c » shall be fabricated of compatible steel plate and having dimensions consistent with the existing letters in the word « côtière ». All welds shall be continuous.
- 10.3. The Contractor shall add an accent circonflexe « ^ » above the letter « o » in the word « côtière » port and starboard freeboard. The accent circonflexe « ^ » shall be fabricated of compatible steel plate and having dimensions consistent with the existing letters in the word « côtière ». All welds shall be continuous.
- 10.4. All new and disturbed steel resulting from work carried out in 10.2 and 10.3 shall be prepared and coated with an anticorrosion primer as recommended by the International Marine Coatings FSR.
- 10.5. « INTERNATIONAL MARINE COATINGS INTERTHANE 990 RED » RAL3000 shall be applied to all disturbed steel resulting from work carried out in 10.2 and 10.3.
- 10.6. All markings and symbols located on external freeboard and bulwark surfaces shall be coated with « INTERNATIONAL MARINE COATINGS INTERTHANE 990 ».
- 10.7. « INTERTHANE 990 » shall be applied in accordance with manufacturer's specifications as described on the attached product data sheet (also located at the following link) :

(<http://www.international-marine.com/PDS/508+M+fre+A4.pdf>)

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- 10.8. The freeboard discs, load line and draft marks, fore and aft, port and starboard, shall be painted with two (2) coats of « INTERTHANE 990 WHITE ».
- 10.9. All signage shall also be repainted with two (2) coats of « INTERTHANE 990 WHITE ». This includes the name of the ship on port and starboard sides, fore and aft, as well as the port of registry, port and starboard diagonal white stripes, the “Coast Guard” and “Garde côtière” inscriptions, “Danger” with the symbols for propellers and bow thruster, aft on both sides, the Canadian flags and “Canada, Pêches et Océans”, “Fisheries and Oceans” inscriptions.
- 10.10. The port and starboard diagonal black stripes shall be coated using « INTERTHANE 990 BLACK ».
- 10.11. **Stop painting white diagonal stripes and demarking black stripes above the steel bar.**
- 10.12. The Contractor shall supply « INTERTHANE 990 WHITE » RAL 9003 3 mils dry for all white markings and symbols and « INTERTHANE 990 NOIR » RAL 9004 3 mils dry for the diagonal black stripes.
- 10.13. The Contractor shall provide all personnel elevating equipment required to enable surface and coating inspection by the Representative(s) of Canada and the FSR. The Contractor shall afford the Representative(s) of Canada and the FSR the opportunity to inspect each stage of the coating application process.
- 10.14. The Contractor shall contain all hazardous materials resulting from all surface preparation and dispose of same in accordance with all applicable environmental regulations.

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11. H.D.-11 COFFERDAMS AND VOID SPACES

- 11.1. The Contractor shall prepare for inspection and testing all spaces identified below.
- 11.2. Unless otherwise stated, all materials, tools and equipment required to complete all work described in this item shall be Contractor supplied.
- 11.3. The Contractor shall ensure that all work carried out in this item shall be in strict compliance with the Maritime Occupational Health and Safety Regulations (MOHS) and the Canada Labor Code.
- 11.4. The Contractor shall ensure strict compliance with MOHS Additional Requirements for the Issuance of a Work Permit prior to issuing a work permit for all work carried out in a confined space.
- 11.5. In compliance with the MOHS Regulations (165-168), the Contractor shall issue a written work permit to a qualified person before the commencement of work that requires entry into a confined space. One copy of this permit shall be posted in clear view adjacent to the entry of the subject enclosed space and one copy for each confined space shall be submitted to the Chief Engineer. This permit shall be maintained compliant for the duration of the work.
- 11.6. All manhole covers shall be removed to ventilate enclosed spaces in accordance with MOHS Regulations. All hydraulic, electrical and mechanical components shall be protected before cleaning. Protection shall be removed upon completion of all work.
- 11.7. In preparation for inspection, all spaces identified in H.D.-11 shall be thoroughly cleaned using a high-pressure water jet with a minimum of 2000 psi. The Contractor shall remove and dispose of all cleaning residues in accordance with applicable environmental regulations.
- 11.8. The Contractor shall afford the Representative(s) of Canada, the attending TCMS Surveyor and the Classification society Inspector the opportunity to inspect the internal structure of all compartments identified in this item.

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- 11.9. Upon completion of all work and inspections, all manhole covers shall be reinstalled using new gaskets and nuts. All removed piping shall be reinstalled using new gaskets, bolts, nuts and washers.

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11.10. LISTE OF COFFERDAMS AND VOID SPACES:

SPACE	FRAME
Helicopter cofferdam, centre	0-14
Port fresh water tank cofferdam	18-30
Starboard fresh water tank cofferdam	18-30
Pipe tunnel, centre including compartment around moon pool	122-166
Empty compartment/Void space no. 1, port	156-163
Empty compartment/void space no. 2, port	163-165
Fore azimuth thruster cofferdam/Void space no. 3, starboard	138-146
Aft azimuth thruster cofferdam/Void space no. 4, centre	32-39

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12. H.D.-11 BALLAST TANKS

- 12.1. The Contractor shall prepare for inspection and testing all spaces identified below.
- 12.2. Unless otherwise stated, all materials, tools and equipment required to complete all work described in this item shall be Contractor supplied.
- 12.3. The Contractor shall ensure that all work carried out in this item shall be in strict compliance with the Maritime Occupational Health and Safety Regulations (MOHS) and the Canada Labor Code.
- 12.4. The Contractor shall ensure strict compliance with MOHS Additional Requirements for the Issuance of a Work Permit prior to issuing a work permit for all work carried out in a confined space.
- 12.5. In compliance with the MOHS Regulations (165-168), the Contractor shall issue a written work permit to a qualified person before the commencement of work that requires entry into a confined space. One copy of this permit shall be posted in clear view adjacent to the entry of the subject enclosed space and one copy for each confined space shall be submitted to the Chief Engineer. This permit shall be maintained compliant for the duration of the work.
- 12.6. All manhole covers shall be removed to ventilate enclosed spaces in accordance with MOHS Regulations.
- 12.7. Tank drain plugs shall be removed as required for draining the remaining contents of the ballast tanks.
- 12.8. In preparation for inspection, all spaces identified in H.D.-12 shall be thoroughly cleaned using a high-pressure water jet with a minimum of 2000 psi. The Contractor shall remove and dispose of all cleaning residues in accordance with applicable environmental regulations.
- 12.9. The anchor chain shall be removed from the chain locker in order to facilitate access to the forepeak tank manhole. Protection grids shall be removed and the chain locker bottom cleaned. Mud and sludge shall be disposed of accordingly.

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- 12.10. The Contractor shall afford the Representative(s) of Canada, the attending TCMS Surveyor and the Classification society Inspector the opportunity to inspect the internal structure of all tanks identified in this item.
- 12.11. Upon completion of all work and inspections, all manhole covers shall be reinstalled using new gaskets and nuts. All removed piping shall be reinstalled using new gaskets, bolts, nuts and washers. All drain plugs shall be reinstalled.
- 12.12. The Contractor shall perform a hydrostatic test on all tanks in this item in accordance with the Canada Shipping Act 2001 Hull Inspection Regulations and in consultation with the attending TCMS Surveyor.
- 12.13. The Contractor shall afford the Representative(s) of Canada, and the attending TCMS Surveyor the opportunity to witness the testing of all tanks identified in this item.
- 12.14. Upon completion of all work, inspections, and testing, all tanks and associated piping systems in this item shall be returned to their original state.
- 12.15. LIST OF BALLAST TANKS

TANK	FRAMES	CAPACITY
Fore Peak	183 Fwrđ	112.8 m ³
Aft Peak	0 Aft	101.29m ³
Fwrđ Trim	176 to 183	181,80 m ³
Aft Trim	0 to 18	113.47 m ³

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13. H.D.-13 DIESEL FUEL, HELICOPTER FUEL OIL AND OILY-WATER STORAGE TANKS

- 13.1. The Contractor shall prepare for inspection and testing all spaces identified below.
- 13.2. Unless otherwise stated, all materials, tools and equipment required to complete all work described in this item shall be Contractor supplied.
- 13.3. The Contractor shall ensure that all work carried out in this item shall be in strict compliance with the Maritime Occupational Health and Safety Regulations (MOHS) and the Canada Labor Code.
- 13.4. The Contractor shall ensure strict compliance with MOHS Additional Requirements for the Issuance of a Work Permit prior to issuing a work permit for all work carried out in a confined space.
- 13.5. In compliance with the MOHS Regulations (165-168), the Contactor shall issue a written work permit to a qualified person before the commencement of work that requires entry into a confined space. One copy of this permit shall be posted in clear view adjacent to the entry of the subject enclosed space and one copy for each confined space shall be submitted to the Chief Engineer. This permit shall be maintained compliant for the duration of the work.
- 13.6. The total residual fuel remaining in the storage tanks following pump-out operations shall be approximately 30 tonnes.
- 13.7. All manhole covers shall be removed to ventilate enclosed spaces in accordance with MOHS Regulations. Manhole covers for the upper flume tank and fore upper side tank (port/starboard) are located in the science equipment room (old laundry room).
- 13.8. The contents of all storage tanks shall be removed and the tanks shall be cleaned of all sludge and residue. All tanks shall be pressure washed and ventilated to comply with MOHS regulations for entry into confined spaces.

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- 13.9. The Contractor shall remove and dispose of all tank residues in accordance with applicable environmental regulations.
- 13.10. The Contractor shall afford the Representative(s) of Canada, the attending TCMS Surveyor and the Classification society Inspector the opportunity to inspect the internal structure of all tanks identified in this item.
- 13.11. Upon completion of all work and inspections, all manhole covers shall be reinstalled using new gaskets ("ALBION 884" BUNA-N NITRILE or equivalent) and nuts. All removed piping shall be reinstalled using new gaskets, bolts, nuts and washers. All drain plugs shall be reinstalled.
- 13.12. The Contractor shall perform a hydrostatic test on all tanks in this item in accordance with the Canada Shipping Act 2001 Hull Inspection Regulations and in consultation with the attending TCMS Surveyor.
- 13.13. To perform hydrostatic testing, tank overflow connections shall be plugged. They shall be unplugged after testing. The center day tank overflows in the settling tanks, and the settling tanks overflow in the forward engine room wing tanks. The boiler fuel tank and the emergency generator tank overflow in the center day tank.
- 13.14. The Contractor shall afford the Representative(s) of Canada, and the attending TCMS Surveyor the opportunity to witness the testing and inspect the external structure of all tanks identified in this item during the test.
- 13.15. Following the completion of all testing and removal of water, manhole covers shall be removed and storage tanks shall be emptied of all water and dried. The Contractor shall afford the Representative(s) of Canada the opportunity to inspect the tanks prior to reinstalling the manhole covers.
- 13.16. The heel tanks have been renamed "fore upper side fuel tank, port and starboard".
- 13.17. The fore side fuel tanks have been renamed "fore lower fuel tanks, port and starboard".
- 13.18. Upon completion of all work, inspections, and testing, all tanks and associated piping systems in this item shall be returned to their original state.

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13.19. LISTE OF FUEL OIL & OILY WATER STORAGE TANKS

Double Bottom no.1, port	Frames 123 to 165 76.99 m ³
Double Bottom no.1, starboard	Frames 123 to 165 84.40 m ³
Double Bottom no. 2, port	Frames 97 to 123 101.55 m ³
Double Bottom no. 2, starboard	Frames 97 to 123 112.00 m ³
Double Bottom no. 3, port	Frames 61 to 93 140.13 m
Double Bottom no. 3, starboard	Frames 61 to 93 140.13 m ³
Double Bottom no. 4, port (oily water)	Frames 39 to 61 47.67 m ³
Double Bottom no. 4, starboard (oily water)	Frames 39 to 61 47.67 m ³
Fore deep tank, port	Frames 146 to 165 99.64 m ³
Fore deep tank, starboard	Frames 146 to 165 139.92 m ³

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Fore upper side tank, port	Frames 138 to 165 192.75 m ³
Fore upper side tank, starboard	Frames 138 to 165 202.06 m ³
Aft deep tank, port	Frames 18 to 30 104.27 m ³
Aft deep tank, starboard	Frames 18 to 30 104.27 m ³
Fore lower side tank, port	Frames 138 to 158 57.83 m ³
Fore lower side tank, starboard	Frames 138 to 158 57.83 m ³
Settling tank, port	Frames 123 to 127 70.11 m ³
Settling tank, starboard	Frames 123 to 127 70.11 m ³
Day tank, center	Membre 123 à 127 42.53 m ³

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Wing tank fore engine room, port	Frames 95 to 123 – 107.39 m ³
Wing tank aft engine room, port	Frames 95 to 123 – 107.39 m ³
Wing tank aft engine room, starboard	Frames 61 to 95 – 134.19 m ³
Center helicopter fuel tank (Kerosine-type aviation fuel)	Frames 4 to 11 – 28 m ³
Lower flume tank	Frames 127 to 138 – 267.69 m ³
Upper flume tank	Frames 127 to 138 – 267.69 m ³
Boiler fuel tank	Frames 84 to 87 – 3.04 m ³
Sludge oil tank	Frames 107 to 115 – 1.82 m ³
Dirty lube oil tank	Frames 112 to 116 – 4.77 m ³
Bilge water retention tank	Frames 116 to 120 – 4.55 m ³

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14. H.D.-14 FRESH AND POTABLE WATER TANKS

- 14.1. The Contractor shall prepare for inspection and testing all spaces identified below.
- 14.2. Unless otherwise stated, all materials, tools and equipment required to complete all work described in this item shall be Contractor supplied.
- 14.3. The Contractor shall ensure that all work carried out in this item shall be in strict compliance with the Maritime Occupational Health and Safety Regulations (MOHS) and the Canada Labor Code.
- 14.4. The Contractor shall ensure strict compliance with MOHS Additional Requirements for the Issuance of a Work Permit prior to issuing a work permit for all work carried out in a confined space.
- 14.5. In compliance with the MOHS Regulations (165-168), the Contractor shall issue a written work permit to a qualified person before the commencement of work that requires entry into a confined space. One copy of this permit shall be posted in clear view adjacent to the entry of the subject enclosed space and one copy for each confined space shall be submitted to the Chief Engineer. This permit shall be maintained compliant for the duration of the work.
- 14.6. All manhole covers shall be removed to ventilate enclosed spaces in accordance with MOHS Regulations.
- 14.7. The inner surfaces of these tanks are coated with white epoxy paint. In preparation for inspection, all spaces identified in H.D.-14 shall be cleaned using a soapy water jet, thorough rinsing and cloth dried. For bidding purposes, the Contractor shall quote on the removal and disposal of 200 liters of water and contaminants. The delta between the estimated volume and the actual volume shall be treated as unknown work.
- 14.8. The Contractor shall afford the Representative(s) of Canada, the attending TCMS Surveyor and the Classification society Inspector the opportunity to inspect the internal structure of all tanks identified in this item.

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- 14.9. The Contractor shall supply and apply two coats of International Marine Coatings "INTERLINE 925" on all cracks and paint defects in all fresh water tanks.
- 14.10. "INTERLINE 925" shall be applied in strict accordance with manufacturer's specifications as described on the attached product sheet (web link below) and in consultation with the International Marine Coatings FSR:
- <http://www.international-marine.com/PDS/752+M+eng+A4.pdf>
- 14.11. Surface preparation and coating application shall be supervised by the FSR. The Contractor shall submit to the Representative(s) of Canada a detailed FSR report of the coating application process. The Contractor shall be responsible for costs related to FSR services.
- 14.12. All surface preparation for the application of "INTERLINE 925" shall be in strict accordance with manufacturer's recommendations and in consultation with the FSR.
- 14.13. Upon completion of the paint drying process, all manhole covers shall be reinstalled using new gaskets and nuts. All removed piping shall be reinstalled using new gaskets, bolts, nuts and washers. All drain plugs shall be reinstalled.
- 14.14. The Contractor shall perform a hydrostatic test on all tanks in this item in accordance with the Canada Shipping Act 2001 Hull Inspection Regulations and in consultation with the attending TCMS Surveyor.
- 14.15. The Contractor shall afford the Representative(s) of Canada, and the attending TCMS Surveyor the opportunity to witness the testing of all tanks identified in this item.
- 14.16. Following the tank testing process, the potable water tanks shall be rinsed with clean fresh water and disinfected in accordance with procedure 3.5.2 of section 7.F.12 of the CCG Fleet Safety and Security Manual.
- 14.17. Upon completion of all work, inspections, and testing, all tanks and associated piping systems in this item shall be returned to their original state.

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14.18. Prior to the close of contract, the Contractor shall acquire the services of Health Canada for a 28 point water quality testing on the vessel's potable water system.

14.19. LIST OF FRESH WATER TANKS

TANKS	LOCATION	CAPACITY
Fresh water	Port, F 13-27	68.76 m ³
Fresh water	Starboard, F 13-27	68.76 m ³
Feed water	Starboard, F 27-30	16.40 m ³
Feed water	Port, F 27-30	16.40 m ³

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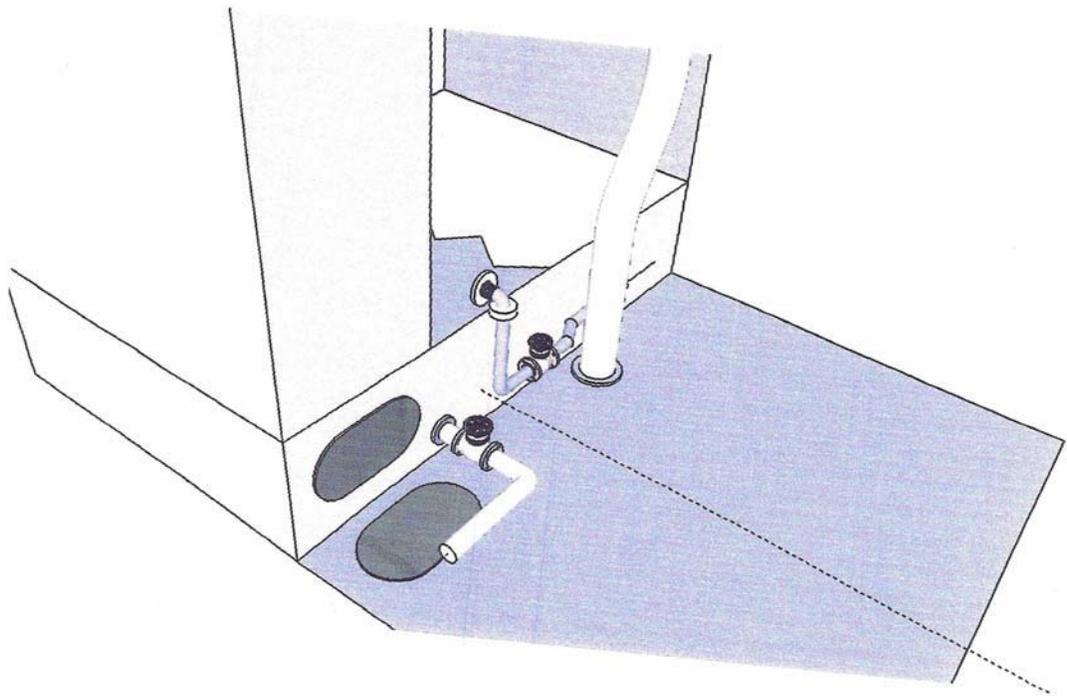
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15. H.D.-15 POTABLE WATER TANK PIPING RECONFIGURATION

- 15.1. The suction pipe connecting the starboard potable water tank to the pressure pump shall be modified such that the section of pipe located in space 704 is made level to the deck.
- 15.2. The suction pipe shall be routed through the cofferdam and open up into the bottom of the tank.
- 15.3. The open end of the suction pipe shall extend 3 inches up from the bottom of the tank. A 1/2" thick doubler plate shall be welded at the tank penetration.
- 15.4. The section of piping leading from the open end to the tank side valve shall be schedule 80.
- 15.5. The existing pipe shall be completely removed and a blank welded in its place.
- 15.6. The existing valve shall be fitted to the new steel pipe and the type K copper line shall be modified to connect the valve to the piping system.
- 15.7. The circulation pump suction pipe shall be modified by replacing the existing pipe with a schedule 80 steel pipe fitted with a 90 degree elbow facing downwards.
- 15.8. The existing valve shall be fitted to the new elbow via a horizontal section of schedule 80 steel pipe.
- 15.9. The associated copper pipe shall be modified with two elbows allowing the copper pipe to be routed between the tank and the larger steel vent pipe in accordance with the attached drawing.
- 15.10. The outer limits of the entire piping assembly shall extend no further than nine (9) inches out from the potable water tank bulkhead i.e. not to exceed the outer limits of the vent pipe.
- 15.11. Annex 1: Sketches

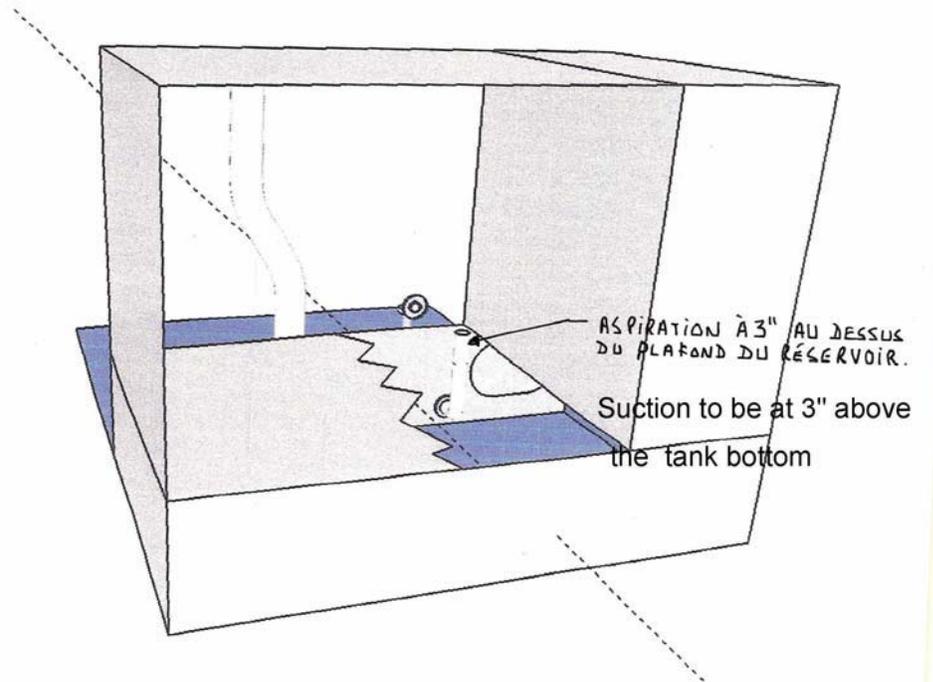
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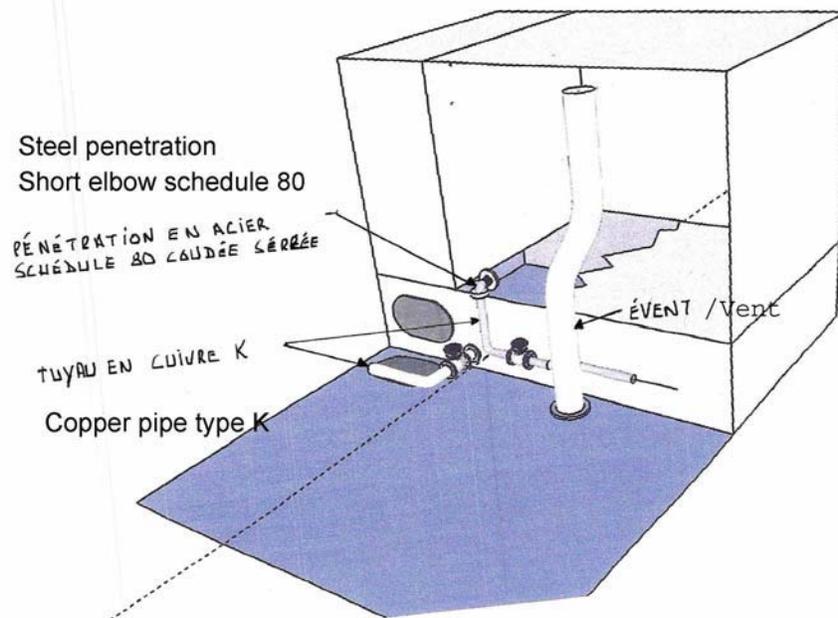
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16. H.D.-16 PREPARATION FOR THE HULL CONDITION SURVEY

- 16.1. The Contractor shall provide the services of a Transport Canada recognized Classification Society to perform a hull and structural survey of the CCGS Amundsen. The hull and structural survey shall be performed in accordance with the Classification Society's survey requirements for a vessel of this type and age.
- 16.2. The Contractor shall coordinate all work in this specification such that work stoppages due to planning conflicts are avoided.
- 16.3. The Contractor shall engage the services of a Transport Canada approved Classification Society to perform the work. The Contractor and its sub-contractors shall hold all data derived from the work of this Section in strictest confidence and shall not divulge this data and conclusions to any other third party.
- 16.4. The work of this Section shall be in compliance with the latest edition of the selected Classification Society Rules and Regulations for a vessel of similar type and age as the CCGS Amundsen.
- 16.5. The Contractor shall provide all necessary materials and labor to assist the Classification Society to gain the necessary access to the exterior and interior portions of the hull and vessel's structure required to be surveyed.
- 16.6. If the vessel is manned with CG Crew the Contractor and Classification Society shall adhere to the requirements of the Fleet Safety and Security Manual (DF) 5737) with regards to **Confined Space Entry** and **Working Aloft** procedures.
- 16.7. The Contractor shall arrange for a meeting between the Technical Authority and the Classification Society 4 weeks prior to commencement of the scheduled docking and survey work to establish the detailed survey plan for the hull and structural survey. At this time the Classification Society shall have established the preliminary inspection requirements, identifying the number of hull ultrasounds to be taken and where these will be taken; tanks and voids that will be surveyed as well as any other survey requirements and access requirements for transverse section surveys where identified.
- 16.8. The Contractor shall provide a cost per hull ultrasound and a cost for a total of 1500 ultrasounds. The delta between the estimated total of ultrasounds and the actual

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final number of hull ultrasounds shall be prorated and processed separately as unknown work.

- 16.9. The Contractor shall make every effort to co-ordinate the Hull Structural survey requirements of this Section with the Transport Canada Marine Safety regulatory survey requirements for the vessel to avoid duplication of work, specifically for hull ultrasound readings and tank surveys.
- 16.10. The Contractor shall provide a detailed survey schedule that integrates the Condition Survey requirements into the general work being performed outside of the Condition Survey. The preliminary schedule shall be presented at the start of the contract and shall be updated at no greater intervals than bi-weekly showing the progress of the survey work.
- 16.11. The Contractor shall remove and reinstall to as found condition the bulkhead, ceiling, and deck panels coverings and insulation. The Contractor shall repair any damage caused during removal and installations.
- 16.12. The Contractor shall supply all other materials needed to reinstall and restore the bulkhead, ceiling, and deck panel coverings and insulation to the "As-Found" condition.
- 16.13. Support services shall include the removal and repair of all coating systems, deck, bulkhead, and ceiling linings, thermal and fire insulation, and all deck coverings. The Contractor shall supply and apply coating systems in accordance with the vessel's color scheme.
- 16.14. Support services shall include the opening and closing of all tanks and other spaces, including cleaning, preparation for safe entry, and maintaining spaces for safe entry.
- 16.15. Support services shall include the provision of all staging, man lifts, ladders, fall-arrest, and all other services required to provide access to carry out the work of this specification.
- 16.16. Support Services shall include the provision of a Classification Society approved Thickness Measurement service firm with Classification Society approved Thickness Measurement equipment operators.
- 16.17. The Classification Society shall prepare and present a report of their findings and assessment of the condition of the vessel.

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- 16.18. The plan shall include the requirements, including documentation necessary, for preparing the ship to a state whereby the vessel could be considered for acceptance into class for continuous survey.
- 16.19. The Contractor shall supply 3 paper copies of the report to the TA prior to the conclusion of the contract. The report shall type written on standard letter size paper and shall be bound.
- 16.20. The Contractor shall supply 1 unprotected electronic copy of the report in MS Word 2003 or later format on a CD-ROM that is not password protected to the TA prior to the conclusion of the contract.
- 16.21. The Contractor shall supply 3 paper copies of all drawings to the TA prior to the conclusion of the contract. The drawings shall be on standard ANSI D size paper.
- 16.22. The Contractor shall supply 1 unprotected electronic copy of all drawings in AutoCAD 2007 DWG format or later on a CD-ROM that is not password protected to the TA prior to the conclusion of the contract.

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17. H.D.-17 HULL CONDITION SURVEY BY CLASSIFICATION SOCIETY

The Contractor shall provide the services of a Transport Canada recognized Classification Society to perform the following statement of work

Part 1 Scope

17.1.1 The intent of this statement of work is to develop a current condition description of the hull system of the identified Canadian Coast Guard ship. The description will detail the condition of the vessel's hull and adjacent spaces at the present time, identify discrepancies from regulatory and class requirements and prepare recommendations on the required work to maintain the vessel in a reliable service for a period of an additional 20 years.

This delivered document shall include a description of the deficiencies in the existing hull system, a list of recommended repairs, a cost estimate to conduct the work and a time line of when these repairs will be required to be conducted to maintain the vessel's certification and reliable operational service.

This document will be used to develop a hull integrity control system for the vessel. The description must be of sufficient detail for the Coast Guard to use as a base document for planning purposes and to ensure that future steel replacement will be sufficient for regulatory purposes and to maintain the vessels reliability for up to 20 years of additional service.

PART 2: REFERENCES

17.2.1 Guidance Documents

Canadian Coast Guard (CCG) vessel hull and tank drawings.

17.2.2 Standards

2.2.1 Coast Guard ISM Safety Procedures for tank entry and hot work

2.2.2 Lloyds Rules (Vessel was constructed to the Lloyds rules in place at that date)

17.2.3 Regulations

2.3.1 Transport Canada Marine Safety, Hull Regulations

17.2.4 Quality Assurance Standards

2.4.1 The Classification Society shall have in place a quality assurance system that meets the elements of ISO 9001 required for a project of this nature.

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PART 3: TECHNICAL DESCRIPTION

17.3.1 General

- 3.1.1 Prior to commencement of work Classification Society shall review the vessel's current drawings and documentation in relation to the vessel to determine their currency and accuracy. This review shall include a review of the recorded plate thicknesses recorded for regulatory purposes.
- 3.1.2 Prior to the commencement of any and all work on the ship, Classification Society shall ensure the Coast Guard all ISM Safety standards have been reviewed by the surveyors and the directions have been implemented. The Technical Authority shall arrange to assist Classification Society in establishing the required procedures and arrange required cleaning and safety certification. It shall be Lloyds Register's responsibility to verify all standards are met prior to commencing work.
- 3.1.3 All materials, and equipment required for the survey and documentation development shall be contractor supply.
- 3.1.4 Classification Society shall provide the chief engineer forty eight hour notification of any requirement to access enclosed spaces for measurement purposes. The operation of any of the vessel's equipment will be by the ship's crew only.
- 3.1.5 Classification Society shall submit any developed documentation to the Technical Authority for its review and comment. Classification Society shall make applicable modifications to the documents resulting from this review. The new modified documents shall be submitted to the Technical Authority.

17.3.2 Developing the documentation

- 3.2.1 Classification Society shall survey the vessel's hull adjacent spaces and carry out any required test to obtain the knowledge required to develop the documentation.
- 3.2.2 The extent of the survey shall comply with Class requirements appropriate for the ship's classification type and age.

As a Minimum the following items shall be surveyed:

- a) Tanks where corrosion is considered likely:
 - All ballast spaces
 - Indicative fuel oil tanks / fuel oil/ballast combination tanks
 - Fore and aft peak tanks
- b) Side shell and steel abutting side shell where abrasion/damage is considered likely due to ice interaction. These shall as a minimum include:
 - Wind and water strakes of the side shell (ice belt)
 - Bottom shell plating
 - Bow area
 - Forefoot /ice skeg area
- c) Areas with step changes in hull modulus, or in areas experiencing high sheer due to icebreaking.

These shall as a minimum include:

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- i) Accommodation block deck connection
- ii) Area above the forefoot /ice skeg.

3.2.3 During the survey Classification Society shall record and assess the condition of the following items:

- a) Actual or latent defects, the presence of deficiencies relating to structural damage, fractures, buckling and ice damage and corrosion and weld grooving.
- b) Coating condition, both breakdown and representative measurements of remaining thickness.
- c) Condition of other protective systems, anodes etc.

3.2.4 Classification Society shall notify the Canadian Coast Guard immediately of any findings which in their estimation requires immediate remediation for the safety of the vessel.

3.2.5 Classification Society shall develop a schematic drawing showing all components of the hull that require work. Each component shall be identified and its location on the ship shown on a supplied hull expansion, general arrangement or tank arrangement drawing.

3.2.6 Classification Society shall develop a narrative description of the required remediation work and a time line for when each work package will be required to maintain vessel reliability, certification and safe operation. As part of the docking contract, Canadian Coast Guard will arrange thickness measurements for all relevant structural members in accordance with Class\Regulatory requirements for a vessel of this age. Classification Society shall recommend UTM requirements for a vessel of this age.

3.2.7 Classification Society shall develop an estimate of the cost of each identified work package based on the repairs being conducted in a Canadian ship yard in 2012.

3.2.8 Classification Society shall develop a recommended hull integrity plan showing the recommended steel work on the vessel for each of the vessel's upcoming dry dockings, an estimate of the time required to conduct the work and the estimated cost of each work package.

The plan shall include the requirements for preparing the ship to a state whereby the vessel could be considered for acceptance into class (AIC).

PART 4: DELIVERABLES

17.4.1 Drawings/Reports

- 4.1.1 Classification Society shall supply the CCG Technical Authority with four (4) typewritten copies and one digital of the remedial work description.
- 4.1.2 Classification Society shall supply the CCG Technical Authority with four (4) hard copies and one electronic copy, AUTOCAD 2008 format, of all drawings and sketches produced as part of the contract.
- 4.1.3 Classification Society shall supply the CCG Technical Authority with four (4) typewritten copies and one digital of the estimate.
- 4.1.4 Classification Society shall supply the CCG Technical Authority with four (4) typewritten copies and one digital of the proposed time line.
- 4.1.5 Classification Society shall supply the CCG Technical Authority with four (4) typewritten copies and one digital of the recommended hull integrity plan.
- 4.1.6 Classification Society shall provide the CCG Technical Authority four (4) hard copies and one electronic copy of a Quality Assurance (QA) report indicating that all components have been inspected by Lloyds Register's QA Department for correct installation and fit.

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17.4.2 Project Schedule – The contactor shall provide a project schedule with its proposal and after award of the contact bi-weekly updates of the schedule showing progress. This schedule shall include all work associated with the contact including all on ship survey requirements. Schedule shall be provided electronic format compatible with Microsoft project 2007 or later.

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18. H.D.-P1 REPLACEMENT OF FIVE (5) PROPULSION DIESEL ENGINES (DP)

- 1.1 GENERALITIES
- 1.2 FORWARD ENGINE ROOM
- 1.3 AFT ENGINE ROOM
- 1.4 ALIGNMENT AND BEDS
- 1.5 EXHAUST SYSTEM INSULATION REPLACEMENT
- 1.6 COMPLETION OF WORK AND TRIALS

DRAWINGS IN REFERENCES:

“Temporary openings in the hull”

Navtech NT-2434-12-DE502A

“Lifting and temporary structures”

Navtech NT-2434-12-DE503 (A&B)

Terms used in this document

D/P means “Propulsion Diesel”

S/S means “Ships Service” (auxiliary generator)

E/R means “Engine Room”

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1.1 GENERALITIES

1.1.1 The work overview is the creation of two (2) openings in the ships' hull, after which the five (5) propulsion Diesel engines replacement will be processed. The three (3) generator sets will also be replaced and this part will be treated in Item H.D. S1. The opening will be created between FR104 and FR112 for the fwd E/R. The openings in the aft E/R will be created between FR77 and FR85, on port side.

-For each opening, two (2) cuts will be needed (the ship's hull and the two (2) fuel oil wing tanks inboard sheets). The plates removed in the cutting process will be kept and stored in a dry, safe place and will be reinstalled upon completion of engines replacement works.

-A maximum gap of 5mm is permitted between the plates to be reinstalled and the openings. Additional care will be taken during the cutting process to make sure that the plates can be reinstalled in respect of this maximum gap.

-Once the openings completed, temporary doors will be installed in each opening. Doors will be weather tight and weather resistant with the ship and provide a minimum insulation factor of R20. The doors will be made so a single person can open them easily. The doors opening will be on a hinge system and will be provided with a

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locking system. The shipyard will submit a door design to the Representatives of Canada for approval prior build and installation of the door system.

- 1.1.2 Four (4) fuel oil tanks will be drained, cleaned and gas-freed. A hot work certificate will be issued by an approved specialist and presented to the satisfaction of Canada. The certificate will be kept valid during the hot work duration. A certificate copy will be installed at each tank entrance.

The fuel oil tanks are the following:

- 1- Aft. Eng. Room Port side fuel oil wing tank (FR61 to FR95)
- 2- Fwd. Eng. Room Starboard side fuel oil wing tank (FR95 to FR123)
- 3- No. 2 Starboard side double-bottom (FR97 to FR123)
- 4- No. 3 Starboard side double-bottom (FR61 to FR93)

Note: The CCG shows in the present document a way to manoeuvre engines outside/inside the ship on which contractors will submit a quotation. After the contract given to a contractor, the winning bidder may submit some more cost and time effective solutions and procedures to complete these specifications. These scenarios will be analyzed and approved if accepted by the CCG and TCMSB.

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1.1.3 The five (5) new assembled engines will be delivered to the shipyard. Partial disassembly will be made by the manufacturer of the Engines;

Components removed

- Exhaust gas temperature sender system (including the cable routing pipes and brackets, cables and temperature senders that are inserted in cylinder heads)
- -All pressure, speed and temperature senders / transducers
- Control, monitoring and alarm system cables.
- Speed governor
- Crankcase exhauster
- Cylinder head water outlet pipes, including manifolds.
- The turbocharger
- Fuel filters and attached piping.
- Air box including air filters and brackets.
- All piping related to monitoring, local/remote control and alarm systems, including local pressure gauges and thermometers

These parts shall be transported onboard the ship for each engine.

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To allow these engines installation on board the ship, some components will be removed, so they can enter the ship through the openings mentioned in 1.1.1. All components to be removed from engines will be carefully marked and identified before their removal. The components will then be removed, carried on board, cleaned and installed back on the engine using new gaskets (CCG supplied).

Components to be removed / disconnected

- Injection pumps including attached piping, push rods and rocker arms and fuel pump supports on power units # 1R, 1L, 8R and 8L, to install the lifting gear.
- The engine base used during transport (to be ship back to the engine manufacturer)

1.1.4 The fastening system on ALCO engines found on board the CCGS Amundsen is made of a special alloy. Particular care should be taken to avoid ANY component loss (bolts, nuts and washers). Also, this particular fastening system will not be mixed with other bolts, nuts and washers.

1.1.5 The dismantling and removal of some components (piping, electrical cables, insulation material, various brackets and supports, bolted H-Beams and air ducts) will be necessary, to allow the installation of anchor points and lifting systems for engines manoeuvring during the replacement process using. Refer to the Navtech dwg NT-2434-12-DE503 (A&B)

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All equipment and components to dismantle/remove will be properly marked and identified. They will then be carried out of the ship and stored in a weather resistant, dry, safe place. The components will be carried back onboard, reassembled and reinstalled using new gaskets, bolts, nuts and washers

Note: During the whole work period mentioned in 1.1.5, all D/Ps and S/Ss will be correctly protected against dust, contaminants, sparks and particles. A complete protection board will be installed over each D/P and S/S, covering their entire upper surface, using 3/4" plywood sheets.

1.1.6 All the fuel piping, lubricating oil, jacket water and sea water will not empty. Therefore the contractor should ensure to empty them before removing them. All of the dismantled piping will be temporary blanked to avoid any contamination for the entire work period. The blanks will be removed before piping reinstallation.

1.1.7 The five (5) engines removed from the ship will be stored in a safe, dry and weather resistant place. They will then be prepared for shipping.

1.1.8 The ship will arrive at the dry dock with the engine room bilges freshly cleaned. The contractor will maintain the E/R bilges cleanliness at all times during the whole working period. Once the

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works are completed, the contractor will assure that the E/R bilges are as clean as they were before the beginning of works.

1.1.9 All the works concerning the five (5) D/P will be executed under the OEM engine representative supervision and the Canada representatives.

1.1.10 After the 5 engines blocks has been removed from the vessel and prior to the new engine being fitted, the contractor shall thoroughly wash and clean the engine base. The base screens are to be removed and thoroughly cleaned. The bases shall be correctly protected against dust, contaminants, sparks and particles. A complete protection board will be installed over each D/P and S/S, covering their entire upper surface, using 3/4" plywood sheets. Lube oil lines are to be flushed and cleaned.

1.1.11 The GCC will already have removed a portion of the piping inherent on diesel propulsion DP1 and DP2. The Contractor shall remove the necessary piping on the engine pipes DP3, DP4 and DP6 and three generators SS1, SS2 and SS3. The contractor will reconnect all this piping to the engines.

1.1.12 Once installed on board, the new five (5) engines will be filled with jacket water and lube oil up to their working level. The CCG will supply the oil and the chemical products needed for the J/W treatment.

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1.1.13 Concerning the already inboard diesel engines, the lifting eye located on the drive end of the cylinder block top shouldn't be used as a lifting device, since the threads are worn and may fail to support engine's weight.

1.1.14 The CCG evaluates that the auxiliary generator assembly (motor+alternator) weights 50000lbs and that the six (6) D/P engines weights about 43000lbs each, excluding the following components : Exhaust system, turbocharger, etc.)

1.1.15 Other measurements

S/S#1: Height, sump bottom to cylinder block top: 59"

S/S#1: Height overall from sump bottom to valve covers top: 84".

D/Ps: Height overall of a naked cylinder block: 36-1/4"

D/Ps: Height overall from crankshaft to cylinder block top:48-1/4"

D/Ps: Height overall from crankshaft to cylinder head covers : 64-1/4"

Width overall: (assembled S/S#1 and D/Ps): 65"

Width overall without fuel pump supports: 58-1/2"

Width overall, without fuel pump supports, cylinder head covers, push rods and rocker arms: 56-1/4"

1.2 FORWARD ENGINE ROOM

- 1.2.1 The contractor will create a first opening in the ships' starboard hull (see 1.1.1), between the tank top level and the 17'-0 levels, between FR105 and FR111. The opening will have 75"W X 115-5/8" H. Refer to the Navtech dwg # NT-2434-12-DE502A for exact measurements and positioning.
- 1.2.2 A second opening (see 1.1.1) will be created in the fuel oil wing tank inboard sheet between FR104 and FR112, 90" W X 115-5/8" H, according to the Navtech dwg # NT-2434-12-DE502A.
- 1.2.3 Remove electrical cables, junction, control and starter boxes that are in the way of the projected opening (see 1.2.2). Remove mesh and insulation material covering the inboard sheet of the fuel oil wing tank. Remove the priming system, the general service pump, piping and valves. Remove the bilge pump piping and valves. Various piping sections that are in the way of the opening will have been removed by the CCG crew between S/S#1 and the fuel oil wing tank. These pipe sections will be reinstalled by the shipyard under the CCG supervision.
- 1.2.4 A floor section above the S/S#1, on the 17'-0 flat including the supporting structure (see Dwg # NT-2434-12-DE503 (A&B)) will be cut and removed from the ship. The components removed will be kept in a safe, dry and weather resistant place for further reinstallation, once the D/P #3, 4 and S/S#1, 3 will be replaced.

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1.2.5 Remove engine room flooring plates and brackets between FR102 and FR115, starting from the starboard ship side to the outboard side of the D/P#2 engine bed. Remove all piping, electrical cables and various brackets and supports between the tank top and the flooring plates. Everything that is higher than the tank top will be removed to clear the way for the opening in the area mentioned above. Remove all components to allow the lifting system installation (see 1.1.5)

Note: The uncoupled pipes will be blanked for the complete duration of the engine replacement process, to avoid any dirt or dust contamination. All the fuel piping, lubricating oil, jacket water and sea water will not empty. Therefore the contractor should ensure to empty them before removing them.

1.2.6 Fabricate and install lifting anchors and temporary structures, according to the Dwg # NT-2434-12-DE503 (A&B). Uncouple the engine from its alternator, remove the S/S#1 engine sump-to-base bolts, (see item 1.4) and lift the engine using the lifting points.

1.2.7 Carry the S/S#1 engine out of the ship and store it in a dry, safe and weather resistant place. Unplug, lift and carry the alternator out of the ship, next to its engine. Cut the generator set base flush with the tank top and carry the base out of the ship. Reassemble the generator set (including the coupling of motor-alternator) on its bed.

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Reinstall the exhaust system including the turbocharger. Blank all openings and prepare the unit for shipment.

1.2.8 Proceed then to the D/P#2 and #1 lifting operations, after having them uncoupled from their alternator (see item 1.4)

1.2.9 Proceed the same way as mentioned in 1.2.7 for the S/S#3

1.2.10 Once the new S/S#3 installed (see H. D.-S1), Lift the new D/P#1 and D/P#2 engines with a crane and move them onboard through the opening, to their respective location

1.2.11 Bolt the new engines to their bed and carry an alignment check (see item 1.4).

1.3 The other works concerning the S/S#1 will be detailed in item H. D.-S1.

1.3 AFT ENGINE ROOM

1.3.1 In the portside after engine room, the contractor will create an opening in the ships' hull, between FR78 and FR84, and 115-5/8" in height. A second opening will be created in the inner sheet of the forward fuel oil wing tank, between FR77 and 85. Refer to the drawing # NT-2434-12-DE502A for exact measurements and locations.

1.3.2 Components to be removed, then reinstalled after the D/P #3,4, and 6 replacement:

-The D/P#3 prelube pump and the preheat pump, including their support structure (the two (2) pumps will be already removed by the CCG crew).

-All piping, electrical cables, various brackets and supports, flooring that are located between S/S#2 bed and port side hull, between the tank top and the floor plates to clear the engine moving path.

-Mesh and insulation material on the inboard aft fuel oil wing tank sheet.

-All piping, brackets and supports, air ducts, bolted H-beams to allow the lifting system installation according to the Dwg # NT-2434-12-DE502A.

Note: Removed piping will be plugged to prevent any contamination. They will be unplugged just before being reinstalled. All the

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fuel piping, lubricating oil, jacket water and sea water will not empty. Therefore the contractor should ensure to empty them before removing them.

- 1.3.3 Fabricate the lifting anchors following the Dwg # NT-2434-12-DE503 (A&B) Install the lifting system at the specified locations, at FR#81. Proceed with the D/P#3 engine lifting operation after having it uncoupled from its alternator (see item 1.4). Cut the D/P#3 engine bed flush with the tank top (seen Dwg #2320-10-502 Rev. B), carry the bed out of the ship, then proceed with the D/P#3 moving out. Proceed the same way with the D/P#4.
- 1.3.4 Proceed to the S/S#2 uncoupling and moving out, the same way as specified for S/S#1 and #3.
- 1.3.5 Lift the D/P#6 after having them uncoupled from their alternator (see item 1.4) and move them out of the ship.
- 1.3.6 Lift the new D/P#6 after partial disassembly (see 1.1.3 and 1.1.4) using a crane and move them onboard the ship, to their specified location. Bolt the new engine on his bed and carry an alignment check (see item 1.4).

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- 1.3.7 Once the S/S#2 installed (see H. D.-S1), proceed the same way as explained in 1.3.6 for the D/P#4 and #3, after having checked for proper positioning. Reinstall engine beds to their original location (see item 1.4)
- 1.3.8 Carry an alignment check, install engine mounting bolts and couple the engines to their alternators (see item 1.4).

1.4 ALIGNMENT AND BEDS

- 1.4.1 The Diesel engines of the D/P #1, #2, #3, #4, #6 and S/S#1, 2 and 3 will have to be uncoupled from their alternator.

Before uncoupling, measurements must be taken for each engine-to-alternator-alignment, including a complete crankshaft deflections measurement. The measured values will then be noted in the measurements booklet.

- 1.4.2 All alternator drive ends, will be properly supported at all times during the engine replacement process. A protective (plastic or rubber) sheet will be inserted between rotors and stators.
- 1.4.3 All the fastening system between engines and beds (shims, bolts, nuts, washers etc.) will be correctly and clearly marked and identified (engine #, position, order, etc.) and recorded on written document and passed to the Chief Engineer. These components will be carefully removed and stored in a safe, dry, weather resistant place. All these parts will be reinstalled with the new engines.
- 1.4.4 Concerning the Aft engine room, it will be necessary to cut D/P#3 and #4 beds, remove them and then reinstall them after the engine replacement. Before cutting, some reference measurements will be taken and noted in the measurement booklet and a copy given to the Chief Engineer . An installation procedure will be submitted to the CCG and TCMSB representatives for approval. This procedure will include the alignment process and the welding sequence.

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1.4.5 Important notice: It will not be possible to install the new D/P#4 and #3 BEFORE having them in their engine room, for limited room reasons. The D/P#4 and #3 engines will be lifted enough over their intended location to allow the bed sections reinstallation. A safe support system will have to be fabricated and installed under the D/P#3 and #4 engines to assure safety working conditions for the bed installation crew.

Note Before the D/P#4 and #3 bed installation, all of the propulsion generator excitatory brushes will be removed. The brushes will be reinstalled once the engine beds welding process terminated.

1.5 ***EXHAUST PIPING INSULATION REPLACEMENT**

- 1.5.1 Install the exhaust system insulation material (CCG supplied) on the six (6) D/P engines; from the turbocharger outlet till the flexible joint upward the 17'-0 flat level. Concerning each of the three (3) S/S engines, the exhaust piping insulation will be installed from the flexible joint where the turbocharger was originally connected, till the flexible joint upward the 17'-0 Flat level.

- 1.5.2 Particular care will be taken prior the exhaust system insulation material installation. All D/P's and S/S's will be correctly protected against dust and contaminants. No dust or contaminant will be in contact with any of the D/P & S/S systems (waters, fuel, oil, air)

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1.6 END OF WORKS AND TRIALS

1.6.1 Once the five (5) new engines installation completed remove the lifting systems, reinstall air ducts, piping, electrical cables and other components that were previously removed for the lifting gear installation and engine manoeuvring (see 1.1.5). Leave the lifting anchors in place unless they are in the way of the components to be reinstalled. The shipyard could submit various scenarios to the CCG representative for approval, before taking action.

Note: During the whole work period mentioned in 1.6.1, all D/Ps and S/Ss will be correctly protected against dust, contaminants, sparks and particles. A complete protection board will be installed over each D/P and S/S, covering their entire upper surface, using 3/4" plywood sheets.

1.6.2 Remove the temporary doors that were previously installed in the openings. Reinstall the hull plates and the fuel oil wing tank inner sheets that were cut off to create openings, using the recommended welding method. (see 1.1.1)

1.6.3 Ultra sonic tests will be carried out on weldings once the hull and fuel oil tank plates will be reinstalled. A total of six (6) X-Rays will be executed on the hull seams, as indicated by the Canada representative. The contractor will submit a fixed price in addendum for each supplementary X-Ray. The contractor will

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quote a price per linear foot of welding inspection. The quotation will include 25% of the welding to be inspected under CCG representatives' supervision. A complete welding inspection report will be presented to the satisfaction of Canada and the TC/SS surveyor.

- 1.6.4 The tanks threaded drain plugs mentioned in item 1.6.5 will be removed if not already done. Both hole and plug threads will be cleaned. Plugs will be reinstalled with a thread sealing compound. A tightness test will be carried out using a vacuum box, with the Canada representative presence.
- 1.6.5 A hydrostatic test will be completed on the following tanks, with the Canada representative presence to the TC/SS surveyors' entire satisfaction.

1-After engine room port side fuel oil wing tank (FR61 to FR95)

2- Forward engineroom starboard side fuel oil wing tank (FR95 to FR123)

3- No. 2 Starboard side double-bottom (FR97 to FR123)

4- No. 3 Starboard side double-bottom (FR61 to FR93)

- 1.6.6 Replace the insulation material previously removed on the fuel oil wing tanks inner sheets. The chosen material will be new and fully approved by Transport Canada. Reinstall the retaining mesh. The contractor will replace any damaged mesh by marine approved,

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similar material. Reinstall priming system, pipes, valves and various brackets that were previously removed to clear the engines passage way (see 1.2.3 and 1.2.4) using new: gaskets, bolts, nuts and washers.

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1.6.7 Ship afloat and docked

The lube oil filtering elements of the five (5) D/P engines will be replaced and duplex strainers cleaned. The CCG will supply the filtering elements. All of the pre-heat, pre-lube, control, alarm and monitoring systems will be started and checked. Any leak or abnormal condition will be immediately repaired. All five (5) engines will then be started. All alarms, electrical and mechanical protection systems will be tested. Required adjustments and repairs will be immediately processed.

1.6.8 After the vessel is in the water, the crankshaft thrust clearances and deflections shall be taken as per manual instruction MI-0696 on each engine.

1.6.9 The D/P #1-2-3-4-6 will then be load tested following the manufacturer's procedures. To do so, various components will be temporarily removed / dismantled.

A complete load test report will be presented to the satisfaction of Canada and TCSMB representatives. A working test will be carried on the general service and bilge pumps to the above mentioned representatives' entire satisfaction.

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1.6.10 Sea trials

All systems and components that were temporarily removed and disconnected to complete the load tests will be reinstalled correctly. Propulsion load tests will then be carried out with to the satisfaction of Canada and TC/SS surveyor presence.

-The contractor will allow three (3) complete days of sea trials to fully the propulsion system up to its maximum rated output. Representatives of the contractor shall be onboard.

1.6.11 Once the sea trials completed, an oil sample will be taken from each engine (sampling bottles supplied by the CCG). The oil sample result report will be presented to the CCG representative no longer than 48 hours after the oil sampling. The oil filtering elements and duplex strainer baskets of the six (6) engines will be removed, inspected and replaced. The CCG will supply the new filtering elements.

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19. H.D.S1 REPLACEMENT OF THREE (3) SHIP SERVICE DIESEL GENERATORS SETS (SS)

- 1.1 GENERAL
- 1.2 FORWARD ENGINE ROOM
- 1.3 AFT ENGINE ROOM
- 1.4 ALIGNMENT AND SEATING
- 1.5 REPLACEMENT OF EXHAUST PIPING INSULATION AND PIPING MODIFICATIONS
- 1.6 CONNECTION OF THE GENERATOR SETS TO THE SHIP'S SYSTEM (Power, protection alarm, etc.)
- 1.7 END OF WORK AND TRIALS

REFERENCE DRAWINGS:

Openings NT-2434-12-DE502A

Lift systems NT-2434-12-DE503 (A&B)

Compressed air systems NT-2434-12-DE100A

Sea water system NT-2434-12-DE101A

Lube oil system NT-2434-12-DE102A

Fuel system NT-2434-12-DE103A

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Exhaust system NT-2434-12-DE104A

Engine beds and framing NT-2434-12-DE50A

Picture 1: Side view of exhaust systems (See H.D. P-1)

Picture 2: Cross view of exhaust systems (See H.D. P-1)

Picture 3: S/S diesel engine exhaust system (See H.D. P-1)

Acronyms

P/D stands for "propulsion diesel engine"

S/S stands for "ship service" (auxiliary generator)

E/R stands for "engine room"

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1.1 GENERAL

- 1.1.1 The three (3) diesel generator sets must be removed from the ship through the two (2) openings used to replace the five (5) P/D, in accordance with Navtech NT-2434-12-DE502A drawing.
- 1.1.2 The three (3) diesel generator sets will be removed from the ship in three sections, i.e. the diesel engine, its generator and the steel structure welded to the ship on which the generator set is seated. See lift system and temporary reinforcements – Navtech NT-2434-12-DE503 (A&B)
- 1.1.3 As the dismantling is carried out, alignment readings must be taken at the engine-generator coupling and the deflection of each crankshaft must be recorded in the reading log.
- 1.1.4 Once the three sections of each generator set have been removed from the ship, the contractor must reassemble the diesel engine, its generator and its seating structure.
- 1.1.5 Reassembled S/S generator sets must be bolted to their seating and stored in a secure and dry place.
- 1.1.6 *The Canadian Coast Guard (CCG) is currently engaged in a procurement process for three (3) new S/S generator sets. The identity of the supplier will be known at the end of June 2012. For evaluation purposes we will use the plans and specifications of the Radisson 2010.

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- 1.1.7 *Once the procurement contract has been signed, after analysis of all bids, drawings will be made to illustrate the new steel seating that must be built and installed on the ship structure, as well as all necessary piping to ensure the proper operation of the new S/S generator sets (i.e. sea water system, fresh water system, air system, fuel system, exhaust system, etc.). These drawings will be provided by the CCG before the bidding process for all work to be carried out in dry dock work is closed.
- 1.1.8 Replacement of the three (3) S/S generator sets will be carried out at the same time as the replacement of the five (5) P/D, and the contractor must follow a precise installation sequence. The contractor must provide a work plan describing how he intends to proceed three (3) weeks after contract award.
- 1.1.9 The shipyard must provide four (4) hard copies and CAD electronic copies of the "as fitted" drawings after the installation of each S/S generator set.
- 1.1.10 All the fuel piping, lubricating oil, jacket water and sea water will not empty. Therefore the contractor should ensure to empty them before removing them. All of the dismantled piping will be temporary blanked to avoid any contamination for the entire work period. The blanks will be removed before piping reinstallation.
- 1.1.11 On the inlet seawater line of each generator, the Contractor shall provide and install a strainer in Bronze, Eaton-Hayward Simplex Model 72 5" flange with a stainless steel basket with holes of 3 / 32".

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1.1.12 The shipyard must allow CCG electrical engineering personnel to install the new S/S generator set interface to the ship's service supply system, with the help of shipyard personnel.

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1.2 FORWARD ENGINE ROOM

- 1.2.1 The two (2) S/S generator sets located in the forward engine room will be removed through an opening on starboard side, between frames 104 and 112.
- 1.2.2 S/S No. 1 will be disassembled and removed from the ship, followed by the P/D Nos. 1 and 2, and finally S/S No. 3 (see H.D.P 1.2.6).
- 1.2.3.A The new S/S generator set that will replace S/S No. 3 will be the first installed in the forward engine room. The shipyard will supply necessary material to build and install a new steel structure on which each new S/S generator set will be seated. Drawings for these new steel structures will be provided by the CCG before the bidding process for all work to be carried in dry dock is closed.
- 1.2.4 Once the new steel structures have been installed and welded to the ship's structure, the shipyard will apply the following paint system on the clean steel surfaces: two (2) coats of International Intershield 300 paint, 0.006 in. thick per coat.
- 1.2.5 The new generator sets will be delivered assembled on a seating to be secured to the new steel structure, as indicated on the drawings provided by the CCG.
- 1.2.6 S/S No. 1 will be installed once the P/D Nos. 1 and 2 have been put in place (see H.D. P1.1.2, 1.2.11)

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- 1.2.7 Once the two (2) S/S generator sets have been secured to their respective steel structure, the shipyard will build and install piping on all new S/S systems (fresh water, sea water, oil, air, suction, discharge and exhaust). The new piping supplied by the shipyard will be connected to the existing piping, as illustrated on the drawings provided by the CCG.
- 1.2.8 All new piping will be submitted to a hydrostatic test at 150 psi. It will then be cleaned and galvanized (except for the lube oil and fuel piping). The contractor will supply and install **flexible pipe sections** between the S/S generator sets and the various piping systems.
- 1.2.9 Two (2) coats of paint must be applied on all new piping, in accordance with the international colour code for each piping system.
- 1.2.10 If each new generator set will be delivered with an expansion tank they shall be installed by shipyard personnel at the location indicated by the CCG representative.
- 1.2.11 All engine room floor plates must be identified and stored in a dry place outside the ship. They must be reinstalled and fitted once all new generator set systems have been installed. Some new plates will be required.

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1.3 AFT ENGINE ROOM

- 1.3.1 S/S No. 2 will be removed after P/D Nos. 3 and 4, through an opening on portside, between frames 77 and 85 of the aft engine room.
- 1.3.2 The new S/S generator set that will replace S/S No. 2 will be identical to the new S/S generator sets installed in the forward engine room.
- 1.3.3 The new generator set will be installed once P/D Nos. 6 has been replaced. The contractor will supply necessary material to build and install a new steel structure to be secured to the ship's structure, as indicated on the drawings provided by the CCG before the bidding process for all work to be carried out in dry dock is closed. S/S No. 2 will be seated on this new structure, which will have been painted as indicated in item 1.2.4.
- 1.3.4 Once the new S/S generator set is secured on its new steel structure, the shipyard will carry out the procedure described in item 1.2.7 and 1.2.8 (S/S generator sets installed in the forward engine room).
- 1.3.5 All new piping must be submitted to a hydrostatic test at 150 psi. It must then be cleaned and descaled before being hot-dip galvanized (except for the lube oil and fuel piping that will not be galvanized). The contractor will supply and install **flexible pipe sections** between the S/S generator sets and the various piping systems.

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1.3.6 Two (2) coats of paint must be applied on all new piping, in accordance with the international colour code for each piping system.

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1.4 ALIGNMENT AND SEATING

1.4.1 The shipyard that will obtain the contract for the installation of the new S/S generator sets must follow the installation sequence for the P/D indicated in item H.D.P1

1.4.2 The CCG will provide the drawings for the new steel structures on which the new S/S diesel generator sets will be seated and that will be secured to the ship's structure. Drawings for all piping systems required to ensure proper operation of the three (3) new S/S generator sets will also be provided before the bidding process for all work to be carried out in dry dock is closed. This includes the following:

- Sea water piping (5 in. diameter)
- Fresh water piping (2 in. diameter)
- Lube oil piping (2 in. diameter)
- Fuel supply and discharge piping (1 in. x 1/2 in.)
- Start-up air piping (2 in. diameter)
- Exhaust piping (18 in. diameter)
- Preheating system piping(1.5" in.diameter)
- Lube oil piping (1 1/2 in. diameter)
- Modified ventilation air system

1.4.3 The seating welding procedure (to be strictly followed) will be indicated on the drawings provided by the GCC.

1.4.4 The three (3) new S/S diesel generator sets will be installed at the same place as the S/S generator sets to be replaced.

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1.4.5 All new steel structures and piping to be painted as specified in items H.D.S1. 1.1.11, 1.2.4, 1.1.2.9 and 1.1.3.6 must be touched-up and painted after installation and approval of work by the authorized representatives.

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1.5 REPLACEMENT OF EXHAUST PIPING INSULATION AND PIPING MODIFICATIONS

- 1.5.1 The new S/S diesel generator sets will be installed at the same place as the existing S/S generator sets. The shipyard will supply necessary labour and material to build and install the new S/S generator set exhaust piping and to connect it to the existing exhaust piping, as indicated on the drawings provided by the CCG. An expansion joint must be supplied and installed between the new exhaust piping and each new S/S generator set.
- 1.5.2 The shipyard will build and install a sufficient number of reinforcements to ensure each exhaust system is up to standards of good practice.
- 1.5.3 Once the new systems have been installed and approved by the authorized representatives, the contractor will supply and install thermal insulation material on the new piping. Material used for thermal insulation must resist temperatures of 1200 degrees Fahrenheit and must not contain asbestos products or by-products.
- 1.5.4 The three (3) new S/S generator sets must be well protected during the installation of the new exhaust piping. The shipyard must remove and dispose of protection material once insulation work has been carried out.

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1.5.5 Vibration tests will be carried out after installation of the new S/S generator sets, during load and non-load testing.

Sensors must be installed and vibration readings recorded in the report to be submitted by the shipyard.

1.5.6 All engine room floor plates must be identified and stored in a dry place outside the ship. They must be reinstalled and fitted once all new generator set systems have been installed. Some new plates will be required.

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1.6 CONNECTION OF THE GENERATOR SETS TO THE SHIP'S SYSTEM (POWER, PROTECTION ALARM, ETC.)

- 1.6.1 *The shipyard to which the contract is awarded must work closely with the CCG technical personnel who will supervise the connection of the protection and power systems to the ship's electrical system. Annex XYZ is the list of cables needed to connect components of the system. Some are existing cables that are going to be reused. All other cables of the list will be routed in accordance with the cable type and identification appearing on the list...A watertight cable transit (Roxtec or equivalent) will have to be installed as per the directive of the Chief Engineer between the starboard forward corner of the engine control and the aft starboard corner of the aft engine room. room. On the same level, a second identical watertight cable transit will have to be installed between the forward starboard corner of the aft engine room and the aft starboard corner of the forward engine room.
- 1.6.2 Prior to dry docking, power cables will have been modified in length to adapt to the new gensets.
- 1.6.3 *The contractor will run, secure and connect power cables in accordance with regulation. Connections in the generator connection box will be done using compression connectors bolted to tinned copper bars. The phase sequence will be established

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beforehand and provided to the contractor before all connection work is carried out.

- 1.6.4 The generators' full load current is 1180 amps. The existing wiring consists of five (5) cables and three (3) 400 MCM conductors. The new cable sections must have the same capacity.

- 1.6.5 The speed regulators of the new S/S diesel generator sets must be linked to electronic modules allowing for a precise frequency control and load sharing between the generator sets running in parallel.

- 1.6.6 The shipyard will allow a supplier (new S/S diesel generator sets) representative to supervise installation work onboard the ship.

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1.7 END OF WORK AND TRIALS

1.7.1 Testing on all three (3) generator sets must be carried out onboard the ship once installation and connections have been completed in the presence of the inspection authorities and manufacturer representative.

1.7.2 Before proceeding with testing, take all generator isolation readings once again. Compare these readings with shop readings. If they differ, take the necessary measures to bring these readings back to shop readings.

1.7.2.1 Four (4) hours at full electric charge (100%) with the required voltage, frequency and power factor will be necessary. During this period, take and record the following readings at one (1) hour intervals:

- Time
- RPM
- Temperature of each cylinder and at turbo output
- Fuel pump racks
- Fuel consumption
- Ignition firing pressure of each cylinder
- Oil temperature
- Oil consumption established by filling up the engine once testing has been carried out
- Air collector pressure
- Turboblower rotation
- Fuel collector pressure
- Generator power
- Voltage at the generator terminal

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- Generator current
- Generator frequency
- Generator power factor

1.7.2.2 Take readings of temperature increases in accordance with the classification society and/or Transport Canada requirements.

1.7.2.3 Demonstrate proper parallel performance and load sharing of the three (3) generator sets.

1.7.2.4 Demonstrate proper performance of generator set alarm and protection systems.