Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Bid Receiving - PWGSC / Réception des soumissions - TPSGC
Place Bonaventure, portail Sud-Est
Place Bonaventure,Portal South-Eas
800, rue de La Gauchetière Ouest
800 de La Gauchetière Street West
Bureau 7300 / Suite 7300
Montréal
Québec
H5A 1L6

REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION

Proposal 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.

Proposition 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 sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Issuing Office - Bureau de distribution
TPSGC/PWGSC
Place Bonaventure, portail Sud-Est
Place Bonaventure,Portal S. E.
800, rue de La Gauchetière Ouest
800 de La Gauchetière Street West
Bureau 7300/Suite 7300
Montréal
Québec
H5A 1L6

Title - Sujet Steering Gear Repl. project for GCC	
Solicitation No. - N° de l'invitation F7049-150372/A	**Date** 2016-05-12
Client Reference No. - N° de référence du client F7049-15-0372	
GETS Reference No. - N° de référence de SEAG PW-$MTE-150-13861	
File No. - N° de dossier MTE-5-38380 (150)	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin **at - à 02:00 PM** **on - le 2016-06-23**	**Time Zone** **Fuseau horaire** Eastern Daylight Saving Time EDT
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☑ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: Giguère, Réjean	**Buyer Id - Id de l'acheteur** mte150
Telephone No. - N° de téléphone (514) 496-3346 ( )	**FAX No. - N° de FAX** (418) 496-3822

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:
MINISTERE DES PECHES ET DES OCEANS
GARDE COTIERE CANADIENNE
VINCENT GRONDIN
101, BOULEVARD CHAMPLAIN
418-446-5037
QUEBEC
QUEBEC
GIK 4H9
Canada

Instructions: See Herein

Instructions: Voir aux présentes

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

Delivery Required - Livraison exigée	**Delivery Offered - Livraison proposée**
.	

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

Telephone No. - N° de téléphone
Facsimile No. - N° de télécopieur

Name and title of person authorized to sign on behalf of Vendor/Firm (type or print)
Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)

Signature **Date**

Canada

REQUEST FOR PROPOSAL

DESIGN, DELIVERY AND INSTALLATION OF A NEW STEERING GEAR SYSTEM FOR THE CCGS PIERRE RADISSON

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PART 1 - GENERAL INFORMATION

1.1 Introduction

The bid solicitation is divided into seven (7) parts plus attachments and 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;

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, 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 contain the Statement of Requirements, the Basis of Payment and other pertinent documentation.

1.2 Requirement

1.2.1 Background:

The *CCGS Pierre Radisson* is a type 1200 vessel that is one in a fleet of three nearly identical icebreakers built between 1978 and 1982. This project is being carried out within the framework of a Vessel Life Extension program (VLE) that should eventually be extended to the other two similar vessels, *CCGS DesGroseilliers* and *CCGS Amundsen*. The contractor's proposal will apply to the *CCGS Pierre Radisson* only, but must include an option for performing similar work on the other two (2) vessels.

Although some technical improvements have been made to the *CCGS Pierre Radisson* in recent years, many of the steering gear system's core components are original and are approaching the end of their useful life. This poses several problems in terms of spares provisioning, in addition to causing general deterioration of all systems over the years. The mandate of the VLE program is to guarantee the reliability of these systems for an additional 15 years.

1.2.2 The Requirement is:

1.2.2.1 To design, deliver and install a new Steering Gear System that will provide the same functionality as the old system and will meet or exceed the requirements contained in Annex A - Statement Of Requirements (SOR),

1.2.2.2 To carry out, within the Work Period of the Contract, all unscheduled work authorized by the Contracting Authority as per Annex G, Procedure for Processing Unscheduled Work.

1.2.2.3: Work location: Montreal, Province of Quebec, Canada.

1.2.3 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).

1.3 Communications Notifications

The bidder must notify the Contracting Authority at least 7 calendar days in advance of its intention to make public an announcement related to the award of a contract.

1.4 Security Requirement

There is no security requirement associated with this bid solicitation.

1.5 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority **within 15 calendar 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 Manual (SACC) issued by Public Works and Government Services Canada:
(https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual)

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** (2015-07-03) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

2.2 SACC Manual Clause

B1000T - Condition of Material, 2007-11-30

2.3 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.

Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC will not be accepted.

2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than **seven** (**7) calendar 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 published as an amendment to the bid solicitation.

2.5 Applicable Laws

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

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.

2.6 Mandatory Bidder's Conference

A mandatory bidders' conference will be held in Quebec City (Quebec, Canada) at the CCG's facility located at 101 Champlain Blvd, on May 26, 2016. It is mandatory that the Bidder or a representative of the Bidder attend this conference. The scope of the requirement outlined in the bid solicitation will be reviewed and questions will be answered.

Bidders should communicate with the Contracting Authority before the conference to confirm attendance. Bidders shall 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 **five (5) working days** before the scheduled conference. Bidders will be required to sign an attendance form.

Any clarifications or changes to the bid solicitation resulting from the bidders' conference will be included as an amendment to the bid solicitation.

Bidders who do not attend or send a representative will not be given an alternative appointment and their bids will be rejected as non-compliant.

2.7 Mandatory Site Visit - Vessel

A mandatory visit of a 1200 type ice breaker vessel will be held in Quebec City (Quebec, Canada) at the CCG's facility located at 101 Champlain Blvd, on May 26, 2016. It is mandatory that the Bidder or a representative of the Bidder visit the vessel. The scope of the requirement outlined in the bid solicitation will be reviewed and questions will be answered.

Bidders should communicate with the Contracting Authority before the visit to confirm attendance. Bidders shall 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 **five (5) working days** before the scheduled visit. Bidders will be required to sign an attendance form.

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

Bidders who do not attend or send a representative will not be given an alternative appointment and their bids will be rejected as non-compliant.

2.8 Term of the Contract

The Work must commence and be completed as follows:

Commence: Date of award of the contract.

Completed by: On or before June 15, 2017.

By submitting a bid, the Bidder certifies that they have sufficient material and human resources allocated or available to deliver the Requirement and that the above Work Period is adequate to perform the work required to deliver the Requirement.

2.8.1 Option to extend

The Contractor grants to Canada the irrevocable option to extend the term of the Contract by up to five (5) additional one (1) year period(s) under the same conditions. The Contractor agrees that, during the extended period of the Contract, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

Canada may exercise these options at any time by sending a written notice to the Contractor at least 30 calendar days before the expiry date of the Contract. The options may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

2.8.2 Option for additional Steering Gear Systems

The Contractor grants to Canada the irrevocable option to provide up to two (2) additional steering gear systems under the same conditions. The Contractor agrees that it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

Canada may exercise these options at any time by sending a written notice to the Contractor at least 30 calendar days before the expiry date of the Contract. The options may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

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 (three (3) hard copies and one (1) soft copy on CD);

Section II - Financial Bid (one (1) hard copy and one (1) soft copy on CD);

Section III - Certifications (one (1) hard copy and one (1) soft copy on CD)

Two (2) packages must be provided with the bid. The first package should include the copies of the Technical Bid (Section I), as well as the copies of the Certifications (Section III). The other package should include the copies of the Financial bid (Section II), as requested above.

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft 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. See the Policy on Green Procurement at *http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html*

3.2 Section I: Technical Proposal

Bidders must submit a Technical Proposal Package for Canada's evaluation. The package must answer to all requests of the SOR, Annex A. In their technical proposal, bidders must demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders must demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

The Technical Proposal must address clearly and in sufficient depth the points that are subject to the Evaluation Procedures and Basis of Selection as per the Part 4 of the Request For Proposal (RFP). Simply repeating the statement contained in the RFP is not sufficient. In order to facilitate the evaluation of the proposal, Canada requests that bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, bidders may refer to different sections of their proposals by identifying the specific paragraph and page number where the subject topic has already been addressed.

Ensure that the Annex "M" – MANDATORY PROPOSAL DELIVERABLES CHECKLIST - is completed accordingly.

3.3 Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Annex D - Financial Bid Presentation Sheet. The total amount of the applicable taxes must be excluded or shown separately.

3.3.1 Cost Breakdown

Bidders must include with their financial bid a complete cost breakdown of its bid price for the Work in accordance with Annex D – Financial Bid Presentation Sheet. Once in contract the Financial Bid Presentation Sheet will be part of the Basis of Payment, Annex C.

3.3.3 Financial bid evaluation.

1. The Evaluation Price provided in Annex D, Financial Bid Presentation Form, will be used for evaluating the bid.

   THE EVALUATION PRICE CONSIST OF THE TOTAL PRICE OF THE THREE (3) VESSELS COMBINED TOGETHER. (CONTRACT VESSEL # 1 PLUS THE TWO (2) OPTIONS VESSELS # 2 AND # 3), APPLICABLE TAXES NOT INCLUDED.

2. The information submitted as a mandatory item will be held as confidential business information. The details of this information may be used for contractual evaluation purposes and/or contract administration purposes.

3.3.4 Exchange Rate Fluctuation

C3011T, 2013-11-06, Exchange Rate Fluctuation

3.3.5 Evaluation of Price

SACC Manual Clause A0222T (2013-04-25), Evaluation of Price**.**

Ensure that the Annex "M" – MANDATORY PROPOSAL DELIVERABLES CHECKLIST - is completed accordingly.

3.4 Section III: Certifications

Bidders must submit the certifications required under **Part 5.**

Ensure that the Annex "M" – MANDATORY PROPOSAL DELIVERABLES CHECKLIST - is completed accordingly.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

Proposals will be assessed in accordance with the entire requirement of the Request for Proposal including the technical evaluation criteria and the financial requirement. An evaluation team composed of representatives of Canada will evaluate the bids.

4.1 Basis of Selection - Highest Combined Rating of Technical Merit and Price

4.1.1 To be declared responsive, a bid must:

a) comply with all the requirements of the RFP; and

b) meet all mandatory criteria (deliverables); and

c) obtain the required minimum of **25** points overall for the technical evaluation criteria which are subject to point rating. The rating is performed on a scale of **75** points.

4.1.2 The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 70 % for the technical merit and 30 % for the price.

4.1.3 To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 70 %.

4.1.4 To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30%.

4.1.5 For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.

4.1.6 Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

4.1.7 The table below illustrates **an example** where all three bids are responsive and the selection of the contractor is determined by a 30/70 ratio of technical merit and price, respectively. The total available point equal 135 and the lowest evaluated price is $45,000 (45).

Basis of Selection - Highest Combined Rating Technical Merit (30%) and Price (70%)

	Bidder 1	Bidder 2	Bidder 3
Overall Technical Score	115/135	89/135	92/135
Bid Evaluated Price	$55,000.00	$50,000.00	$45,000.00
Technical Merit Score Calculation	115/135 x 30 = 25.56	89/135 x 30 = 19.78	92/135 x 30 = 20.44
Pricing Score Calculation	45 000/55 000 x 70 = 57.27	45 000/50 000 x 70 = 63.00	45 000/45 000 x 70 = 70.00
Combine Rating	82.83	82.78	90.44
Overall rating	**2nd**	**3rd**	**1st**

4.2 Mandatory Technical Criteria

A mandatory requirement is described using the words “shall”, “must”, “will”, “is required” or “is mandatory”.

4.2.1 Completeness and quality of the written proposal

In their technical bid, bidders must demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders must demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

The technical bid must address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

4.2.2 Classification Society

Bidders must provide the name of the classification society that will evaluate and approve the design of the proposed steering gear system according to the laws and regulations applicable to this specific class of ship and the various requirements specified in the Statement of Requirements (SOR), Annex A. The selected classification society must be approved by Transport Canada Marine Safety (TCMS) under the Delegated Statutory Inspection Program (DSIP), available at this web address:

https://www.tc.gc.ca/eng/marinesafety/dvro-fsc-dspi-1781.htm

Bidders must complete Annex J, Certification for the classification society, indicating that they have reached an agreement with a firm to verify and approve the work.

The cost associated with the certification of the proposed steering gear system by the classification society shall be included in the bidder's financial proposal.

4.2.3 Bidders' experience

Bidders must provide objective evidence of their ability to design, deliver and install a similar steering gear system, as a prime contractor, by giving two (2) examples of successfully completed projects within the last five (5) years.

A technical summary of these two (2) projects, including the vessels name and registration number, must also be provided.

Definition of "similar project": Design, delivery and installation of a steering gear system for vessels of at least the same tonnage or greater, than the Pierre Radisson. To be valid, each of the steering gear systems provided as reference must be currently installed in a vessel of at least the same tonnage, or greater, than the Pierre Radisson.

4.2.4 System Check

Bidders must demonstrate that the proposed system will meet or exceed the functionality and performance of the current system. The contractor must check and summarize, in tabular form, the current criteria and corresponding configuration and performance criteria listed in the Statement Of Requirement (SOR) below:

Fit within the dimensional constraints of existing equipment. REF: 4.1

Power requirement, voltage and amperage of the Hydraulic Power Units. REF: 4.2

Response time for Fast Acting Relief Valve. REF: 2.3

Hard over to hard over response times (single Hydraulic Power Unit). REF: 2.3

Hard over to hard over response times (both Hydraulic Power Units). REF: 2.3

4.2.5 Support Capacity

a) Field Service Representative (FSR)

Bidders must demonstrate and certify that they currently have, or will have, at least one FSR based in Canada and that support will be provided within 48 hours of a request from the Technical Authority, directly at the Coast Guard base of Quebec City. The FSR shall be available for the duration of the contract period.

b) Equipment Life Cycle

Bidders must demonstrate and certify that the proposed equipment will have at least fifteen (15) years remaining in its complete life cycle service.

Definitions :	
« Complete life cycle services »	Serial production of the items may have ceased but all parts and support services remain available.

c) Spare parts availability

Bidders must demonstrate and certify that spare parts will be quickly and easily available in North America, directly from the original equipment manufacturers (OEM) or through authorized suppliers.

4.2.6 Document Management Plan

Bidder's proposal must describe the Document Management Plan for drawings and specifications, including the details for Regulatory approvals and Client Feedback.

4.2.7 Preliminary Planning and Scheduling

Bidders must provide a GANTT chart that will allow a preliminary evaluation of the different periods of time required for completion of the work. This chart must include at least the following:

- Contract award (Day 1);
- Complete evaluation of the current system capabilities;
- Production and submission of the Preliminary Design Package (PDP);
- Review by Canada of the PDP;
- Production and submission of all drawings and other design documents (Design Review Package);
- Review by Canada of the Design Review Package;
- Period of approval by Classification Society and TCMS;
- Purchase of the components. Pre-assembly of the equipment at factory;
- Factory Acceptance Tests (FAT);
- Current system removal. New equipment installation and wiring;
- Ship commissioning. Dock and sea trials. Final approval of the new system;
- Training of the CCG personnel.

4.2.8 Quality Management System

Bidders must provide objective evidence that they have in place a Quality Management System registered to ISO 9001:2008 or a Quality Management System modeled on ISO 9001:2008 which will include:

a) if registered, its valid ISO 9001:2008 certification, and;

b) an example of its Quality Control Plan (QCP) as applied on previous projects of the same nature and complexity of this RFP, and;

c) a sample of an Inspection and Test Plan (ITP) developed in accordance with the QCP in (b) above.

4.3 Point Rated Technical Criteria

4.3.1 Bidder's Experience:

To be valid, each of the steering gear systems provided as reference must be installed in a vessel of at least the same tonnage, or greater, than the Pierre Radisson. Bidders must provide information on the date and place of the installation of these systems, an overview of the work accomplished as well as the name and registration number of the vessels.

	Bidders' experience as the prime contractor, in the design, delivery and installation of steering gear systems for vessel of at least the same tonnage, or greater, than the Pierre Radisson:	**Max 20**	
A	3 to 5 years experience	**5 pts**	
B	6 to 10 years experience	**10 pts**	
C	11 to 15 years experience	**15 pts**	
D	16 years and more experience	**20 pts**	

4.3.2 Experience in similar projects as a prime contractor, on icebreaker vessels, over the past 10 years:

To be valid, each of the steering gear systems provided as reference must be installed in an icebreaker vessel of at least the same tonnage, or greater, than the Pierre Radisson. Bidders must provide information on the date and place of the installation of these systems, an overview of the work accomplished as well as the name and registration number of the vessels.

Definition of "similar project": Design, delivery and installation of a steering gear system of at least the same capacity and function, or greater, than the one currently installed on the Pierre Radisson vessel. The system must also incorporate the operation of a Fast Acting Relief Valve (FARV).

	Number of similar projects carried out by the bidder as the prime contractor, on icebreakers vessels of at least the same tonnage, or greater, than the Pierre Radisson over the past 10 years:	**Max 20**
A	Design, delivery and installation of 1 to 5 steering gear systems	**5 pts**
B	Design, delivery and installation of 6 to 10 steering gear systems	**10 pts**
C	Design, delivery and installation of 11 to 15 steering gear systems	**15 pts**
D	Design, delivery and installation of 16 or more steering gear systems	**20 pts**

4.3.3 Experience of the person in charge of technical design for icebreakers vessels:

Note: Bidders must provide the resume of the person in charge of the technical part of the design work of steering gear systems for icebreaker vessels of at least the same tonnage, or greater, than the Pierre Radisson. Bidders must provide information on the date and the place of installation of these systems, an overview of the work accomplished as well as the name and registration number of the vessels. This specific individual shall be employed by the bidder for, as a minimum, the duration of the contract period and shall perform the technical design of the proposed steering gear system.

	Experience of the person in charge of the technical design of steering gear systems for icebreaker vessels of at least the same tonnage, or greater, than the Pierre Radisson:	**Max 20**
A	Graduate Engineer with a minimum experience of 5 years in the design of steering gear systems.	**10 pts**
B	Graduate Engineer with a minimum experience of 10 years in the design of steering gear systems.	**15 pts**
C	Graduate Engineer with a minimum experience of 15 years in the design of steering gear systems.	**20 pts**

4.3.4 Experience of the person in charge of the installation for icebreaker projects

Note: Bidders must provide the resume of the person who is responsible for coordinating the installation work of steering gear systems for icebreaker vessel of at least the same tonnage, or greater, than the Pierre Radisson. Bidders must provide information on the date and the place of installation of these systems, an overview of the work accomplished as well as the name and registration number of the vessels. This specific individual shall be employed by the bidder for, as a minimum, the duration of the contract period and shall be in charge of the installation of the proposed steering gear system.

	Experience of the person in charge of the installation of steering gear systems for icebreaker vessels of at least the same tonnage, or greater, than the Pierre Radisson:	**Max 15**
A	Professional with a minimum experience of 5 years in the installation of steering gear systems.	**5 pts**
B	Professional with a minimum experience of 10 years in the installation of steering gear systems.	**10 pts**
C	Professional with a minimum experience of 15 years in the installation of steering gear systems.	**15 pts**

TOTAL POINTS : 75

MINIMUM REQUIRED : 25 / 75

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and documentation to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default, if any certification made by the Bidder is found to be untrue whether during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with this request will also render the bid non-responsive or will constitute a default under the Contract.

5.1 Mandatory Certifications Required with the Proposal

The Bidder must submit the following duly completed mandatory certifications as part of its bid.

5.1.1 Code of Conduct and Certifications - Related documentation

By submitting a bid, the Bidder certifies that the Bidder and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Bid of Standard Instructions 2003. The related documentation therein required will assist Canada in confirming that the certifications are true.

Pursuant to section 01 of Standard Instructions 2003, Bidders who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder. Bidders bidding as sole proprietorship, including those bidding as a joint venture, must provide the name of the owner.

5.1.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available from Human Resources and Skills Development Canada (HRSDC) - Labor's website: http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list during the period of the Contract.

5.1.3 Education and Experience

By submission of a bid, the Bidder certifies that all the information provided in the résumés and supporting material submitted with its bid, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Bidder to be true and accurate. Furthermore, the Bidder warrants that every individual proposed by the Bidder for the requirement is capable of performing the Work described in the resulting contract.

5.1.4 Status and Availability of Resources

By submission of a bid, the Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability.

5.1.5 Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPS, bidders must provide the information required below with its proposal. Failure to provide the

required information will render the proposal non-responsive.

5.1.5.1 Definitions

For the purposes of this clause, *"former public servant" is any former member of a department as defined in the Financial Administration Act*, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

(a) an individual;

(b) an individual who has incorporated;

(c) a partnership made of former public servants; or

(d) a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the Public Service Superannuation Act (PSSA), R.S., 1985, c.P-36, and any increases paid pursuant to the *Supplementary Retirement Benefits Act*, R.S., 1985, c.S-24 as it affects the PSSA. It does not include pensions payable pursuant to the *Canadian Forces Superannuation Act*, R.S., 1985, c.C-17, the *Defence Services Pension Continuation Act*, 1970, c.D-3, the *Royal Canadian Mounted Police Pension Continuation Act* , 1970, c.R-10, and the *Royal Canadian Mounted Police Superannuation Act*, R.S., 1985, c.R-11, the *Members of Parliament Retiring Allowances Act* , R.S., 1985, c.M-5, and that portion of pension payable to the *Canada Pension Plan Act*, R.S., 1985, c.C-8.

5.1.5.2 Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes ( ) No ( )**

If so, the Bidder must provide the following information, for all FPS in receipt of a pension, as applicable:

(a) name of former public servant;

(b) date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with **Contracting Policy Notice: 2012-2** and the Guidelines on the Proactive Disclosure of Contracts.

5.1.5.3 Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force

Adjustment Directive? **Yes ( ) No ( )**

If so, the Bidder must provide the following information:

(a) name of former public servant;

(b) conditions of the lump sum payment incentive;

(c) date of termination of employment;

(d) amount of lump sum payment;

(e) rate of pay on which lump sum payment is based;

(f) period of lump sum payment including start date, end date and number of weeks;

(g) number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is $5,000, including applicable taxes.

PART 6 - FINANCIAL AND OTHER REQUIREMENTS

6.1 Financial Capability

A9033T, 2012-07-16, Financial Capability

6.2 Contract Financial Security

E5000C, 2010-01-11, Performance bonds

6.2.1 If this bid is accepted, the Bidder shall be required to provide the performance bond form PWGSC-TPSGC 505 in accordance with para 7.13, before a contract can be awarded.

6.2.2. 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 Insurance Requirements

The Bidder must provide with its proposal 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 E.

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

7.1.1 To design, deliver and install a new Steering Gear System that will meet or exceed the requirements contained in annex A - Statement of Requirements (SOR),

7.1.2 To carry out, within the Work Period of the Contract, all unscheduled work authorized by the Contracting Authority as per Annex G, Procedure For Processing Unscheduled Work.

7.1.3 Work location: Montreal, Province of Quebec, Canada.

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: https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual

7.2.1 General Conditions

2040 (2015-09-03), General Conditions – Research and Development, apply to and form part of the Contract.

7.2.2 Supplemental General Conditions

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

7.3 Security Requirement

There is no security requirement applicable to this Contract.

7.4 Term of Contract

7.4.1 Work Period

1. Work must commence and be completed as follows:

   Commence: Date of contract award.
   Complete: On or before June 15, 2017.

2. The Contractor certifies that he has sufficient materiel and human resources allocated or available to deliver the Requirement and that the above work period provides an adequate

period to perform the work required to deliver the Requirement.

7.4.2 Option to extend

The Contractor grants to Canada the irrevocable option to extend the term of the Contract by up to five (5) additional one (1) year period(s) under the same conditions. The Contractor agrees that, during the extended period of the Contract, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

Canada may exercise these options at any time by sending a written notice to the Contractor at least 30 calendar days before the expiry date of the Contract. The options may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

7.4.3 Option for additional Steering Gear Systems

The Contractor grants to Canada the irrevocable option to provide up to two (2) additional systems under the same conditions. The Contractor agrees that it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

Canada may exercise these options at any time by sending a written notice to the Contractor at least 30 calendar days before the expiry date of the Contract. The options may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

7.5 Deliverables

All deliverables must be delivered as requested in the SOR and the Contract.

7.6 Authorities

7.6.1 Contracting Authority

The Contracting Authority for the contract is:

Rejean Giguere
Department of Public Works and Government Services Canada (PWGSC) acquisition Sector,
800, rue de La Gauchetière Ouest, bureau 7300
Montreal, Quebec, H5A 1L6
Email: rejean.giguere@tpsgc-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.

7.6.2 Technical Authority

The Technical Authority for the Contract is: *(information will be provided with the contract)*

Projects Officer (VLE Program)
Canadian Coast Guard (Fisheries & Oceans Canada)
101 Champlain blvd.
Quebec City, Quebec, G1K 7Y7
E-mail:

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.

7.6.3 Inspection Authority – Same as Technical Authority

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.

7.6.4 Contractor's Representative *(information will be provided with the contract)*

Name:

Title:

Company:

Address:

Telephone:

E-mail:

7.7 Payment

7.7.1 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 in accordance with Annex C, Basis of Payment.

7.7.2 Limitation of Price

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority before their

incorporation into the Work.

7.7.3 Method of Payment - Milestone Payment

Canada will make milestone payments not more frequently than once a month in accordance with the Schedule of Milestones for Payment, Annex C, if:

(a) an accurate and complete claim for payment using PWGSC-TPSGC 1111, 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) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;

(c) all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

7.7.4 SACC Manual Clauses

H4500C - Lien - Section 427 of the Bank Act, 2010-01-11
C2000C - Taxes - Foreign-based Contractor, 2007-11-30
C0711C - Time Verification, 2008-05-12

7.8 Invoicing Instructions

1. The Contractor must submit a claim for payment using form PWGSC-TPSGC 1111, 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;

   (c) the description and value of the milestone claimed as detailed in the Contract;

   (d) quality assurance documentation when applicable and/or as requested by the Contracting Authority.

2. The Goods and Services Tax or Harmonized Sales Tax (GST/HST), as applicable, must be calculated on the total amount of the claim.

3. The Contractor must prepare and certify one original and one (1) copy of the claim on form PWGSC-TPSGC 1111, and forward it to the Contracting and Technical Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

4. The Contracting Authority will then forward the original of the claim to the Technical Authority for certification and onward submission to the Payment Office for the remaining certification and payment action.

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

7.9 Certifications

7.9.1 Compliance

Compliance with the certifications and related documentation 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, provide the related documentation or if 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.

7.10 Applicable Laws

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

7.11 Priority of Documents

If there is a discrepancy between the wordings 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 General Conditions 2040, (2015-09-03), Research and Development;
(c) The Supplemental General Conditions 1029, (2010-08-16), Ship Repairs;
(d) Annex A, Statement of Requirements (SOR);
(e) Annex C, Basis of payment;
(f) Other Annexes;
(g) The Contractor's Proposal dated_____

7.12 Insurance Requirements

The Contractor must comply with the insurance requirements specified in Annex E. 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, before contract award, 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.

7.13 Financial Security

7.13.1 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 end of the Warranty Period 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.

7.13.2 Contract Financial Security

7.13.2.1 The Contractor must provide the Contracting Authority with financial security before contract award. The financial security must be in the form of a security deposit as defined in clause 6.2 in the amount of twenty-five (25) percent of the Contract, applicable taxes and options not included.

7.13.2.2 If, for any reason, Canada does not receive the security deposit 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.

7.13.2.3 If the security deposit is in the form of government guaranteed bonds with coupons, all coupons that are unmatured at the time the security deposit is provided must be 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.

7.13.2.4 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.

7.13.2.5 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.

7.13.2.6 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.

7.13.2.7 If Canada does not convert the security deposit to the use of Canada before completion of the entire contract period, including any extension and warranty period, Canada will return the security deposit to the Contractor within a reasonable time after such date.

7.13.2.8 If Canada converts the security deposit for reasons other than bankruptcy, the financial security must be re-established to the level of the amount stated above so that this amount is continued and available until completion of the entire contract period, including any extension and warranty period.

7.13.2.9 Security Deposit Definition

1. 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;

2. "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; or

e. the Canada Post Corporation.

3. "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.

4. "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 higher 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.

7.14 Warranty

The General Conditions 2040 (2015-09-03), – Research and Development, are hereby amended as follows;

1. Despite inspection and acceptance of the Work by or on behalf of Canada and without restricting any other provision of the Contract or any condition, warranty or provision imposed by law, the Contractor warrants that, for 15 months (or any other period stated in the Contract), the Work will be free from all defects in design, material or workmanship, and will conform to the requirements of the Contract. The warranty period begins on the date of acceptance by Canada. With respect to Government Property not supplied by the Contractor, the Contractor's warranty will extend only to its proper incorporation into the Work.

2. In the event of a defect or non-conformance in any part of the Work during the warranty period, the Contractor, at the request of Canada to do so, must as soon as possible repair, replace or otherwise make good at its own option and expense the part of the Work found to be defective or not in conformance with the requirements of the Contract.

3. The Work or any part of the Work found to be defective or non-conforming will be returned to the Contractor's plant for replacement, repair or making good. However, when in the opinion of Canada it is not expedient to remove the Work from its location, the Contractor must carry out any necessary repair or making good of the Work at that location. In such cases, the Contractor will be paid the fair and reasonable Cost (including reasonable travel and living expenses) incurred in so doing, with no allowance for profit, less an amount equal to the Cost of rectifying the defect or non-conformance at the Contractor's plant.

4. Canada must pay the transportation cost associated with returning the Work or any part of the Work to the Contractor's plant pursuant to subsection 3. The Contractor must pay the transportation cost associated with forwarding the replacement or returning the Work or part of the Work when rectified to the delivery point specified in the Contract or to another location directed by Canada.

5. The Contractor must remedy all data and reports pertaining to any correction or replacement under this section, including revisions and updating of all affected data, manuals, publications, software and drawings called for under the Contract, at no cost to Canada.

6. If the Contractor fails to fulfill any obligation described in this section within a reasonable time of receiving a notice, Canada will have the right to remedy or to have remedied the defective or non-conforming work at the Contractor's expense. If Canada does not wish to correct or replace the defective or non-conforming work, an equitable reduction will be made in the Contract Price.

7. The warranty period is automatically extended by the duration of any period or periods where the Work is unavailable for use or cannot be used because of a defect or non-conformance during the original warranty period. The warranty applies to any part of the Work repaired, replaced or otherwise made good pursuant to subsection 2, for the greater of:

    a. the warranty period remaining, including the extension; or

    b. 90 days or such other period as may be specified for that purpose by agreement between the Parties

Performance Period

Following vessel's commissioning and final acceptation of the new propulsion control system, the contractor shall enter into a fifteen (15) months performance period. During this period, the contractor shall be responsible for the continued functionality, performance, and additional tuning of the new propulsion system upgrades such that the systems meet the functional requirements stated within this statement of requirements. During this period, the contractor shall also be responsible to replace all defective parts, in addition to perform all work and additional equipment purchases that may be required to correct certain anomalies in the original design of the control system.

In addition to providing remote assistance, the contractor shall be available to travel to the vessel within 48 hours' notice during this period. One (1) visit to the vessel during ice breaking season shall be included during the performance period to tune the systems to the peak demands experienced during ice breaking. The contractor shall be responsible for the travel costs to the vessel's home port (Quebec City), and the Coast Guard will cover any follow-on travel costs to reach the vessel. For the ice breaking visit, the contractor must be willing to be flown onto the vessel via helicopter and commence testing while the vessel is underway. Because the vessel will operate in the Arctic Ocean during this period, this icebreaking visit might be exceptionally long, up to seven (7) days. During this time only, lodging and meals will be provided to the contractor's technician(s) directly onboard the vessel, at the CCG expenses.

7.15 Project Schedule

The project schedule must be delivered in accordance with Annex A, SOR.

The Contractor must revised the project schedule on an as required basis and submit to Canada for review and concurrence every month. If the revision is due to authorized unscheduled work, the revision must include the unscheduled work, all related schedule impact on the work and impact to the delivery date of the requirement should it be the case.

7.16 Post Contract Award Meeting

A Post Contract Award Meeting will be convened and chaired by the Contracting Authority at the Contractor's facility at a time to be determined. At the meeting the Contractor will introduce the project management personnel supported by an organization chart, and Canada will introduce the Authorities of the Contract. A review of the term and conditions of the Contract will be conducted by the Contracting Authority.

The Contractor's costs of holding a Post Contract Award Meeting must be included in the price of the bid. Travel and living expenses for Government Personnel will be arranged and paid for by the Canada.

7.17 Progress Report

1. The Contractor must submit monthly reports on the progress of the Work in an electronic format to the Technical Authority and to the Contracting Authority.

2. The progress report must contain two (2) Parts:

   (a) PART 1: The Contractor must answer the following three questions:

   i. is the project schedule being impacted and if impacted why?
   ii. is the project delivery date being impacted and if impacted why?
   iii. is the project within budget?
   iv. is the project free of any areas of concern in which the assistance or guidance of Canada may be required?

   (b) PART 2: A narrative report, brief, yet sufficiently detailed to enable the Technical Authority to evaluate the progress of the Work, containing as a minimum:

   a description of the progress of each task and of the Work as a whole during the period of the report. Sufficient sketches, diagrams, photographs, etc., must be included, if necessary, to describe the progress accomplished.

7.18 Subcontractor(s)

The Contracting Authority shall be notified, in writing, of any subcontractors the contractor may require to perform the Work as well as any changes that may occur during the period of the contract. When the Contractor subcontracts work, a copy of the subcontract purchase order is to be passed to the Contracting Authority. In addition, the Contractor must monitor progress of subcontracted work and inform the Inspection Authority on pertinent stages of work to permit inspection when considered necessary by the Inspection Authority. Even if Canada consents to a subcontract, the Contractor is responsible for performing the Contract and Canada is not responsible to any subcontractor. The Contractor is responsible for any matter or things done or provided by any subcontractor under the Contract and for paying any subcontractor for any part of the Work they perform.

7.19 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.

7.20 SACC Manual Clauses

B9035C - Progress Meetings, 2008-05-12
B5007C - Procedures for Design Change or Additional Work, 2010-01-11
D3015C - Dangerous Goods/Hazardous Products, 2014-09-25
A0285C - Workers Compensation, 2007-05-25

7.21 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.

7.22 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:

   CSA W47.1-09 (R2014) Certification for Companies for Fusion Welding of Steel
   (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.

7.23 Permits, Licenses and Certificates

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.

7.24 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.

7.25 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 Montreal Procurement Division 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 Director of the Montreal Procurement Division 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.

7.26 Discretionary Audit

The Contractor's certification that the price or rate is not in excess of the lowest price or rate charged anyone else, including the Contractor's most favored customer, for the like quality and quantity of the goods, services or both, is subject to verification by government audit, at the discretion of Canada, before or after payment is made to the Contractor.

If the audit demonstrates that the certification is in error after payment is made to the Contractor, the Contractor must, at the discretion of Canada, make repayment to Canada in the amount found to be in excess of the lowest price or rate or authorize the retention by Canada of that amount by way of deduction from any sum of money that may be due or payable to the Contractor pursuant to the Contract.

If the audit demonstrates that the certification is in error before payment is made, the Contractor agrees that any pending invoice will be adjusted by Canada in accordance with the results of the audit. It is further agreed that if the Contract is still in effect at the time of the verification, the price or rate will be lowered in accordance with the results of the audit.

7.27 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.

ANNEX A – STATEMENT OF REQUIREMENTS (SOR)

AS PER ATTACHED DOCUMENT.

ANNEX C - BASIS OF PAYMENT - FIRM PRICE

Annex C will form the Basis of Payment for the resulting Contract and must not be filled in at the bid submission stage. Prices given in Annex D will be transferred to Annex C and will be part of the resulting contract.

C1 Contract Firm Price, in Canadian dollar, applicable taxes excluded:

For the work specified in Annex A (SOR):

CONTRACT - Vessel # 1 - CCGS Pierre Radisson	**Amount**
TOTAL :	**$**

C2 Options Firm Price, in Canadian dollar, applicable taxes excluded:

For the work specified in Annex A (SOR):

OPTION - Vessel # 2 - CCGS DesGroseilliers **Installation completed and acceptance of the new steering gear system by the CCG no later than June 15, 2018.**	**Amount**
TOTAL :	**$**

OPTION - Vessel # 3 - CCGS Amundsen **Installation completed and acceptance of the new steering gear system by the CCG no later than June 15, 2019.**	**Amount**
TOTAL :	**$**

C3 Price for unscheduled work, in Canadian Dollar, applicable taxes excluded:

The Contractor will be paid for unscheduled work on an as and when required basis, as authorized by Canada and as per Annex G, Procedure for Processing Unscheduled Work:

a)	For Engineering work: Firm hourly rate, applicable taxes excluded.	**$**_____
b)	For Other Related work: Firm hourly rate, applicable taxes excluded.	**$**_____
c)	For welding work: Firm hourly rate, applicable taxes excluded.	**$**_____

Prorated Prices for 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 prorating the quoted Work costs in the Contract when in similar areas of the vessel.

Overtime

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.

ANNEX D - FINANCIAL BID PRESENTATION

D1 Contract Firm Price, in Canadian dollar, applicable taxes excluded, for evaluation purpose:

For the work specified in Annex A (SOR):

CONTRACT - Vessel # 1 - CCGS Pierre Radisson	**Amount**
TOTAL :	**$**

D2 Options Firm Price, In Canadian dollar, applicable taxes excluded, for evaluation purpose:

For the work specified in Annex A (SOR):

OPTION - Vessel # 2 - CCGS DesGroseilliers **Installation completed and acceptance of the new steering gear system by the CCG no later than June 15, 2018.**	**Amount**
TOTAL :	**$**

OPTION - Vessel # 3 - CCGS Amundsen **Installation completed and acceptance of the new steering gear system by the CCG no later than June 15, 2019.**	**Amount**
TOTAL :	**$**

D3 Price for unscheduled work, in Canadian dollar, applicable taxes excluded:

The Contractor will be paid for unscheduled work on an as and when required basis, as authorized by Canada and as per Annex G, Procedure for Processing Unscheduled Work:

a)	For Engineering work: Firm hourly rate, applicable taxes excluded.	**$**_____
b)	For Other Related work: Firm hourly rate, applicable taxes excluded.	**$**_____
c)	For welding work: Firm hourly rate, applicable taxes excluded.	**$**_____

Prorated 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 prorating the quoted Work costs in the Contract when in similar areas of the vessel.

Overtime

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.

ANNEX E - INSURANCE REQUIREMENTS

E 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 not less than $20,000,000 in the annual aggregate.

2. The Ship Repairer's Liability insurance must include the following:

   a. Additional Insureds: 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 endeavor 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 Insured: 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.

E 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 not less than $20,000,000 in the annual aggregate.

2. The Commercial General Liability Insurance policy must include the following:

   (a) Additional Insureds: 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) Products and Completed Operations: Coverage for bodily injury or property damage arising out of goods or products manufactured, sold, handled, or distributed by the Contractor and/or arising out of operations that have been completed by the Contractor.

(d) 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.

(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.

(f) 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.

(g) Employees and, if applicable, Volunteers must be included as Additional Insured.

(h) Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program)

(i) Broad Form Property Damage including Completed Operations: Expands the Property Damage coverage to include certain losses that would otherwise be excluded by the standard care, custody or control exclusion found in a standard policy.

(j) Notice of Cancellation: The Insurer will endeavor to provide the Contracting Authority thirty (30) days written notice of policy cancellation.

(k) 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.

(l) Owners' or Contractors' Protective Liability: Covers the damages that the Contractor becomes legally obligated to pay arising out of the operations of a subcontractor.

(m) Non-Owned Automobile Liability - Coverage for suits against the Contractor resulting from the use of hired or non-owned vehicles.

(n) Advertising Injury: While not limited to, the endorsement must include coverage piracy or misappropriation of ideas, or infringement of copyright, trademark, title or slogan.

(o) All Risks Tenants Legal Liability - to protect the Contractor for liabilities arising out of its occupancy of leased premises.

(p) Amendment to the Watercraft Exclusion to extend to incidental repair operations on board watercraft.

(q) Sudden and Accidental Pollution Liability (minimum 120 hours): To protect the

Contractor for liabilities arising from damages caused by accidental pollution incidents.

(r) Litigation Rights: Pursuant to subsection 5(d) of the Department of Justice Act, S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, by registered mail or by courier, with an acknowledgement of receipt.

For the province of Quebec, send to:

Director Business Law Directorate,
Quebec Regional Office (Ottawa),
Department of Justice,
284 Wellington Street, Room SAT-6042,
Ottawa, Ontario, K1A 0H8

For other provinces and territories, send to:

Senior General Counsel,
Civil Litigation Section, Department of Justice
234 Wellington Street, East Tower
Ottawa, Ontario K1A 0H8

A copy of the letter must be sent to the Contracting Authority. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.

E 3 Errors and Omissions Liability Insurance

The Contractor must obtain Errors and Omissions Liability (a.k.a. Professional 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 $1,000,000 per loss and in the annual aggregate, inclusive of defense costs.

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.

The following endorsement must be included:

Notice of Cancellation: The Insurer will endeavor to provide the Contracting Authority thirty (30) days written notice of cancellation.

ANNEX G - 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 and Particulars

   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 Proposal.

   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-TPSGC 1379 (10/2011) 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, estimates of any related 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 cancelling the form having the same Serial Number with the suffix "A".

NOTE: 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 J – CLASSIFICATION SOCIETY CERTIFICATION FORM

This form confirms that the bidder has entered into an agreement with the classification society identified below to complete the work as required in Annex A, SOR:

Name of classification society _____

Signature of authorized signatory of classification society_____

Print Name of authorized signatory of classification society_____

Print Title of authorized signatory of classification society _____

Address for authorized signatory of classification society _____

Telephone no. for authorized signatory of classification society _____

Fax no. for authorized signatory of classification society _____

Date signed_____

Solicitation Number_____

Name of Bidder _____

ANNEX K - FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY – BID CERTIFICATION

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with such request by Canada will also render the bid non-responsive or will constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity, visit HRSDC-Labour's website.

Date: _____

(YYYY/MM/DD)

If left blank, the date will be deemed to be the bid solicitation closing date

Complete both A and B.

A. Check only one of the following:

( ) A1. The Bidder certifies having no work force in Canada.

( ) A2. The Bidder certifies being a public sector employer.

( ) A3. The Bidder certifies being a federally regulated employer being subject to the *Employment Equity Act.*

( ) A4. The Bidder certifies having a combined work force in Canada of less than 100 employees (combined work force includes: permanent full-time, permanent part-time and temporary employees [temporary employees only includes those who have worked 12 weeks or more during a calendar year and who are not full-time students]).

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

( ) A5.1. The Bidder certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with HRSDC-Labour.

OR

( ) A5.2. The Bidder certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to HRSDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to HRSDC-Labour.

B. Check only one of the following:

( ) B1. The Bidder is not a Joint Venture.

OR

( ) B2. The Bidder is a Joint venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions)

ANNEX L - DIRECTORS/OWNERS OF THE BIDDER (Code of Conduct)

NAME	TITLE

ANNEX M – MANDATORY PROPOSAL DELIVERABLES CHECKLIST

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 proposal to be deemed responsive are summarized below.

The Bidder must submit a completed Annex "M" 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	Location in the bid
1	Request for Proposal document, page 1, completed and signed		
2	Annex J, Proposed Classification Society		
3	Annex D, Financial Bid Presentation Form		
4	Points Rated Technical Criteria, article 4.3		
5	Mandatory Technical Criteria, article 4.2		
6	Annex L, Directors/Owners of the Bidders (code of conduct), article 5.1.1		
7	Annex K, Federal Contractors Program for Employment Equity – article 5.1.2		
8	Annex N - Former Public Servant in Receipt of a Pension, article 5.1.5.2		
9	Annex O, Work Force Adjustment Directive, article 5.1.5.3		
10	Letter stating that the Bidder can be insured, article 6.3		

ANNEX N – FORMER PUBLIC SERVANT IN RECEIPT OF A PENSION

5.1.5.2 Former Public Servant in Receipt of a Pension

Is the Bidder a former public servant in receipt of a pension? **Yes ( ) No ( )**

If so, the Bidder must provide the following information, for all FPS in receipt of a pension, as applicable:

(a) name of former public servant;

(b) date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with **Contracting Policy Notice:**

2012-2 and the Guidelines on the Proactive Disclosure of Contracts.

https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/5/A/A3025C/2

ANNEX O – WORK FORCE ADJUSTMENT DIRECTIVE

5.1.5.3 Work Force Adjustment Directive

Is the Bidder a former public servant who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes ( ) No ( )**

If so, the Bidder must provide the following information:

(a) name of former public servant;

(b) conditions of the lump sum payment incentive;

(c) date of termination of Employment;

(d) amount of lump sum payment;

(e) rate of pay on which lump sum payment is based;

(f) period of lump sum payment including start date, end date and number of weeks;

(g) number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a former public servant who received a lump sum payment is $5,000, including Applicable Taxes.

STATEMENT OF REQUIREMENT

DESIGN, DELIVERY AND INSTALLATION OF A NEW STEERING GEAR SYSTEM FOR THE CCGS PIERRE RADISSON

Pêches et Océans Canada
Garde côtière

Fisheries and Oceans Canada
Coast Guard

Table of contents

1 GENERAL NOTES

1.1.1 All the following work specified herein and all repairs, inspections and renewals shall be completed to the satisfaction of the Coast Guard Technical Authority (CGTA), who, unless otherwise advised, will be the Chief Engineer (C/E) of the ship. Upon completion of each item of the specification, the C/E shall be so notified so that he may inspect the work prior to final closing up and after complete closing up. Failure to give notification does not absolve Contractor of the responsibility of providing the C/E the opportunity to inspect any item. Inspection of items by the C/E does not substitute for any required inspection by Transport Canada Marine Safety Branch (TCMSB).

1.1.2 Any item of work involving the use of heat in its execution requires that Contractor obtain prior authorisation of the C/E prior to starting such heating and upon its completion. Contractor shall be responsible for maintaining a competent and properly equipped fire watch during and for one full hour after all hot work. The fire watch shall be arranged such that all sides of surfaces being worked on are visible and accessible. Contractor shall provide sufficient suitable fire extinguishers and a fire watch during any such heating and until work has been cooled. Ship's extinguishers are not to be used except in an emergency. Contractor shall abide by the Coast Guard Hot Work policy that will be handed over to him before the beginning of work. Contractor shall be responsible to ensure that Contractor's personnel including all subcontractors shall follow the policy.

1.1.3 Contractor to include in quote the costs of any and all transportation, staging, rigging, slinging, cranage, installations of parts and equipment such as may be required to carry out work.

1.1.4 Any piping, manholes, parts and/or equipment requiring removal to carry out specified work and/or to gain access shall be replaced upon completion with new jointing, nuts, bolts, anti-seize compound, clamps and brackets as applicable (Contractor supply), and secured in original condition. Any removals shall be jointly inspected by both Contractor and the C/E prior to removal.

1.1.5 Contractor to ensure that all spaces, compartments, and areas of the ship, both internal and external, are left in as clean a condition as found. The cost of removing dirt, debris, and associated material shall be included in the quote on each item of this specification.

1.1.6 Contractor to supply the C/E with marine chemist's certificates in accordance with CGSSB TP 3177E before any cleaning, painting or hot work is commenced in confined spaces or machinery compartments. Certificates shall clearly state the type of work permitted, and shall be renewed as required by the regulations.

1.1.7 Whenever any work is being carried out involving a ship's firefighting or fire detecting system, it shall be done in such a way as to leave the vessel and any persons aboard with adequate protection against fire at all times. This may be so accomplished by removal or disarming of only a portion of the system at a time, by replacement with spares while work is in progress or by other reasonable means acceptable to the C/E.

1.1.8 Unless specified otherwise, any replacement and/or disturbed steel work to be given a minimum of two (2) coats of marine primer immediately upon completion of work.

1.1.9 All materials, unless otherwise specified, shall be supplied by Contractor. Where a particular item is specified, or where substitution must be made, the Chief Engineer must approve all material offered.

1.1.10 Contractor to be responsible for calling in the services of Transport Canada Marine Safety Branch (TCMS), when and as required for survey and inspection.

1.1.11 Public Service Smoking Policy forbids smoking in Government ships in all areas inside the ship were shipyard personnel will be working. Contractor shall inform shipyard workers of this policy and ensure that it is complied with in all cases.

1.1.12 Contractor shall use fully qualified, certified and competent tradesmen and supervision to ensure a uniform and high level of workmanship as judged by normally accepted shipbuilding standards to the C/E's satisfaction.

1.1.13 The design, delivery and installation of all machinery and equipment specified herein shall be as per the Manufacturers' applicable instructions, drawings and specifications.

1.1.14 Contractor shall provide adequate temporary protection for any equipment or areas affected by this refit. Contractor shall take proper precautions to maintain in a proper state of preservation any machinery, equipment, fittings, stores or items of outfit which might become damaged by exposure, movement of materials, paint, sand grit or shot blasting, welding, airborne particles from sand grit or shot blasting, welding, grinding, burning, gouging, painting or airborne particles of paint. Any damage shall be the responsibility of Contractor.

1.1.15 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, Certification for Companies for Fusion Welding of Steel Structures (Minimum division level 2.0); and
b. CSA W47.2-M1987 (R2003), Certification for Companies for Fusion Welding of Aluminum (Minimum division level 2.1).

1.1.16 All electrical installations or renewals shall be in accordance with the latest editions of the following Marine Standards:

a. TP 127 – Ship Safety Electrical Standards
b. IEEE Standard 45 – Recommended Practice for Electrical Installation on Shipboard

1.1.17 All materials supplied and work carried out by Contractor shall be adequate to meet the following service conditions:

a. outside air temperature of minus (-) 40^0 C to plus (+) 35^0 C;
b. wind velocity of 50 knots;
c. water temperature of minus (-) 2^0 C to plus (+) 30^0 C;
d. Shock loading of 2.5g horizontal, 1.5g vertical.

2 Modernization of Steering Gear System (Overview)

2.1 Purpose

2.1.1 The purpose of this document is to establish the technical requirements of a project to modernize the steering gear systems, comprising the steering gear controls and hydraulic actuation of the 1200-type vessels *CCGS Pierre Radisson*, *CCGS Amundsen, and CCGS Des Groseilliers,* all 3 vessels based in Québec City. They belong to the icebreaker fleet of the Canadian Coast Guard (CCG), a division of Fisheries and Oceans Canada (DFO), Central & Arctic Region.

2.1.2 The aim is to provide enough information to give potential bidders a clear picture of the project details so that they may propose replacement solutions that will meet the high reliability and performance objectives that have been established.

2.1.3 As the 3 steering gear systems installed on the three (3) 1200-type vessels are similar without being identical, all or most of the differences will be accentuated in the following specification. All through the document, these acronyms will be used to address one or the other vessels: PR: Pierre Radisson, AM: Amundsen, DG: Des Groseilliers.

2.1.4 It will be the bidder's responsibility to ensure that he has the required knowledge and understanding of all technical details of this project and to ensure that the requested work as set out in this document is completed to the full satisfaction of the Technical Authority (TA), which includes providing all items and work deemed necessary to enable the safe and satisfactory operation of this type of vessel.

2.2 Background

2.2.1 The *CCGS Pierre Radisson and Amundsen* are type 1200 vessels. They are two nearly identical icebreakers built at Burrard Dry Dock between 1976 and 1979. The *CCGS Des Groseilliers* is also a 1200 type vessel, built at Port Weller Dry Docks in 1982. The Des Groseilliers has a similar type of steering gear, but not identical. This project is being carried out within the framework of a national modernization program (VLE). The bidder's proposal will apply to all 3 of these vessels. As vessels are similar but not perfectly identical, a few differences will be addressed during this proposal, and will be dealt with by the bidder.

2.2.2 Although some technical improvements have been made to all 3 of the vessels in recent years, many of the steering gear components are original and are approaching the end of their useful life. This poses several problems in terms of reliability and spares procurement, in addition to causing general deterioration of all systems over the years. The mandate of the modernization program is to guarantee the reliability of these systems for an additional 15 years.

2.3 Overview of the Current Steering Gear Systems

2.3.1 The typical Type 1200 steering system is comprised of a single unbalanced rudder with a surface area of 16.07 square metres, coupled to a 0.54m diameter stock rated for a continuous working torque of 425,000 ft.-lbs (58.8 t.m.). The maximum torque recorded during trials was 950, 000 ft.-lbs[1] (131.5 t.m.) and occurred while operating in ice covered waters. The design load of this steering gear system is found to be twice that of an open water ship travelling at 18 knots at designed draft. They were designed by Wagner Engineering Limited, from Vacouver, B.C. Today, Wagner is operated as a division of Jastram Engineering, which occupies the same facility.

2.3.2 The steering gear is arranged for a working angle of 37 degrees port to 37 degrees starboard of the centre line with full strength stops arranged at 39 degrees port and starboard. When the vessel is not underway, the gear is capable of moving the rudder hard over port to hard over starboard in 18 seconds with two (2) power pumps in operation, and 28 seconds with one (1) power pump in operation. This is only possible with the propellers stopped and no ice pressure is exerted on the rudder.

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[1] "After Action" Report Arctic Trials CCGS Pierre Radisson, Edwards et al. 1978 Report # 245C-3

Note: Rudder and Steering Gear Load Measurements on CCGS Pierre Radisson, March 31 1985, Report FR1776C TP 6250E infers Max hydrodynamic torque of 0.24 MN-m, normal operations icebreaking and escort duty of 0.44 MN-m and 1.29 MN-m backing and ramming. Report "Results of Trials in Ice & Open Water of Pierred Radisson Volume 1 20 August 1979 (Final Report 245C-7)n states average torques in ice was 550k ft-lbs (0.75 MN.m) and peaks to 950k ft-lbs (1.29 MN.m).Rise times on order of three hundredths of a second. Torque corresponds to one quarter yield torque of rudder stock.

2.3.3 Steering operations from the wheelhouse are accomplished through the use of one or many types of steering modes that are not similar on each vessel, as certain discrepancies are illustrated as follows:

a. PR: one (1) Wagner Model D helm pump, Non Follow Up (NFU) and Full Follow Up (FFU) mini hand wheel (Sperry supply) located in the Center bridge console. The manually operated hydraulic helm pump acts directly upon a hydraulic telemotor system located in the steering compartment. The Port and Starboard bridge consoles are fitted with Non Follow Up (NFU) levers (Sperry Supply). All the NFU and FFU controls (in wheelhouse and steering flat) actuate the hydraulic telemotor cylinder via the Control System Pump(s) and solenoid valve system, which in turn operates the 4- way Flow Control valve that directs oil from the main steering pumps to the power cylinders. The Auto Pilot is a Sperry Model Navipilot 4000.

b. AM: one (1) Wagner Model D helm pump, Non Follow Up (NFU) and Full Follow Up (FFU) large helm wheel (Sperry supply) located in the Center bridge console. The manually operated hydraulic helm pump acts directly upon a hydraulic telemotor system located in the steering compartment. The Port and Starboard bridge consoles are fitted with Non Follow Up (NFU) levers (Sperry Supply). All the NFU and FFU controls (in wheelhouse and steering flat) actuate the hydraulic telemotor cylinder via the Control System Pump(s) and solenoid valve system, which in turn operates the 4-way Flow Control valve that directs oil from the main steering pumps to the power cylinders. The Auto Pilot is a Sperry Model ADG (older version of the NaviPilot 4000).

c. DG: : one (1) Wagner Model D helm pump, Non Follow Up (NFU) and Full Follow Up (FFU) mini hand wheel (Sperry supply) located in the Center bridge console. The manually operated hydraulic helm pump acts directly upon a hydraulic telemotor system located in the steering compartment. The NFU and FFU controls actuate the hydraulic telemotor cylinder via the Control System Pump(s) and solenoid valve system, which in turn operates the two 4- way Flow Control valves that directs oil from the main steering pumps to the power cylinders. The Auto Pilot is a Sperry Model Navipilot 4000.

2.3.4 Steering operations from the steering gear compartment are accomplished through the use of many types of steering modes that are not similar on each vessel, as certain discrepancies are illustrated as follows:

a) PR: steering from within the Steering Gear Compartment is accomplished through the use of two (2) Wagner Model D helm pumps. One pump acts directly upon the telemotor cylinder (as per the wheelhouse pump), the other acts directly on the power cylinders. Also, one (1) Non Follow Up (NFU) controller is situated near the telephone booth, complete with a heading binnacle, rudder angle & order indicators for emergency steering. A 5 H.P. locking pin pumpset is also installed in the compartment.

b) AM: steering from within the Steering Gear Compartment is accomplished through the use of two (2) Wagner Model D helm pumps. One pump acts directly upon the telemotor cylinder (as per the wheelhouse pump), the other acts directly on the power cylinders. Also, two (2) Non Follow Up (NFU) controllers (1 for port pump & 1 for starboard pump) are situated near the telephone booth, complete with a heading binnacle, rudder angle & order indicators for emergency steering. A 5 H.P. locking pin pumpset is also installed in the compartment.

c) DG: steering from within the Steering Gear Compartment is accomplished through the use of two (2) Wagner Model D helm pumps. One pump acts directly upon the telemotor cylinder (as per the wheelhouse pump), the other acts directly on the power cylinders. Also, two (2) Non Follow Up (NFU) controllers (1 for control pumps & 1 for auxiliary pump) are situated near the telephone booth, complete with a heading binnacle, rudder angle & order indicators for emergency steering. The auxiliary pump (5 H.P. electric motor + 26V-12 Vickers pump) is used to insert and remove the quadrant locking pin and move power cylinders in emergency steering mode.

2.3.5 A Fast Acting Relief Valve (FARV) is fitted to limit system pressures, as a result of observed rudder torques in excess of 950,000 ft. lbs occurring over a period of 0.03s, without incurring damage to the hydraulic components.

2.3.6 The settings of the FARV do not exceed the design pressure. Two (for PR & AM) or four (for DG) Vickers CF-Series relief valves are mounted on the control valve assembly plate. These valves are of the balanced piston design and protect the steering system components and rudder stock from excessive loading. They are set at 1300 psi, or 200 psi above the maximum operating pressure of the steering system for PR & AM, and 1740 psi, or 290 psi above the maximum operating pressure of the steering system, for DG. They do not operate under normal conditions.

2.3.7 The FARV is of adequate sizing and so designed as to avoid undue rise in pressure above the design pressure (1100 psi for PR & AM, and 1450 psi for DG).

2.3.8 The existing control valve assembly currently delivers positional accuracy of better than ±0.25 degrees at maximum hard over rudder speeds up to 4 seconds and provides motion storage with automatic slack compensation and silent, shock less positioning.

2.3.9 The 4-way Flow Control valves (one for each vessel) are identical on PR and AM, but the DG system is different and comprises two (2) 4-way Flow Control valves.

2.3.10 A cylinder bypass solenoid valve is fitted and is used to ''short-circuit'' the steering cylinders at the same time as the lock pin is activated. This allows the pin to pull the steering gear tiller into position as the locking pin enters the tiller pin socket. This valve is normally closed. The steering gear will not operate if this valve is in the open position. The position of these 4-way valves is controlled by the movement of the telemotor cylinder

2.3.11 Two (2) main power pumps provide hydraulic pressure for two (2) double acting hydraulic cylinders (rams) connected to the tiller/rudder post arrangement. PR and AM pumps are identical (Vickers 50V-72 @ 1100 psi operating pressure, powered by 75 H.P. electric motors), and DG pumps are different (Vickers 50V-85 @ 1450 psi operating pressure, powered by 100 H.P. electric motors). Main cylinders (rams) are also different, as PR and AM are identical (Model L 100-52), DG cylinders are a different model (L-280-1336).

2.3.12 All steering gear systems have a power system header tank, varying from a capacity of 950 litres on PR and AM, to about 345 litres on DG. This tank is positioned above all steering gear pumps in the steering compartment. A smaller control system header tank of a capacity of 35 litres is installed in the wheelhouse ceiling, above the helm pumps.

2.3.13 As the hydraulic oil is constantly being displaced through the system, even when steering gear is in neutral position, cooling is necessary for the oil. Different type coolers are installed on all 3 vessels. Fin-type units with fans forcing air through the units are used. PR and AM have a supply and exhaust air system to mechanically exhaust hot air outside the steering compartment. DG relies on natural ventilation of compartment to get rid of hot air produced by the cooler.

2.4 Objectives of the New System

2.4.1 The bidder must design, deliver and install a modern, reliable and robust replacement steering system capable of meeting or exceeding the operating and design parameters of the steering systems currently fitted on CCGS Pierre Radisson. These systems must conform to Schedule VII, Part 1, Division 1, 2 & 3 of the Marine Machinery Regulations.

2.4.2 The bidder must deliver and install a dual electronic control system that is capable of operating independently and function as backup should one system fail. This control system actuates the hydraulically operated steering gear.

2.4.3 The bidder must include in his design the lock pin functionality present on all three vessels. Also, the bidder will incorporate with the lock pin hydraulic power system the possibility of using this unit as a smaller emergency unit, capable of moving the steering gear rams when main power units are out of service.

2.4.4 The bidder's proposed system must meet or exceed all the requirements laid out in the Design Criteria identified in Section 3.

2.4.5 The new system must replace or eliminate outdated equipment (section 2.6.1).

2.4.6 Within the nominal values and specific limits of the existing steering gear components, the system must be able to provide an effective and efficient steering gear control and power system.

2.4.7 Maintain or improve all control, protection and display functions found in the current system.

2.4.8 Take advantage of technological advances to incorporate the many electronic/analog circuits of the current system into a digital environment.

2.4.9 Offer high operational reliability through the judicious selection of equipment and a design that incorporates several redundancy functions.

2.4.10 Use mass-produced equipment and components easily available on the North American industrial market.

2.4.11 Have its own monitoring system to supervise all new Steering System alarms and offer accurate malfunction diagnostics.

2.4.12 Have an open architecture and complete documentation to enable effective intervention by CCG electrical officers in case of malfunction.

2.5 Scope of Work (Summary)

Within the framework of the modernization project, the bidder must meet all technical requirements described in this document and carry out all of the following work:

2.5.1 Check the current system's drawings and technical information.

2.5.2 Design in its entirety, a new steering system in compliance with the applicable regulations (Section 2.7.1) and receive all required approvals (Section 2.8).

2.5.3 Produce all required electrical diagrams and other drawings (Section 3.3).

2.5.4 Plan and conduct Factory Acceptance Tests (FAT) to demonstrate the effectiveness and performance of the steering gear system (Section 6.1).

2.5.5 Produce all technical manuals (Section 7.1.1).

2.5.6 Provide all necessary equipment and components to carry out the project. Specialty cabling, connectors and other ancillary components specifically required to integrate supplied equipment shall be part of the supply.

2.5.7 Commissioning, testing and trials for the proposed steering gear system. The bidder shall be responsible for the workmanship and warranty of the steering gear system.

2.5.8 Program all equipment. Calibrate all feedback signals and all analog meters.

2.5.9 Put entire new system into service using a safe method, which includes sea trials to assess vessel performance in all operating modes (Section 6.1).

2.5.10 Provide advanced training to Canadian Coast Guard personnel in charge of operating and repairing the systems (Section 7.5).

2.6 Equipment to be replaced

2.6.1 The following Table contains a list of primary equipment that the bidder must replace or eliminate, depending on the selected design method.

Equipment to be removed	Identification	Location	PR	AM	DG
Hydraulic power unit 75 HP	Vickers 50V-72 + Emotor	Steering gear compartment	2	2	N/A
Hydraulic power unit 100 HP	Vickers 50V-85 + Emotor	Steering gear compartment	N/A	N/A	2
Main pump motor starters		Steering gear compartment	2	2	2
Helm pump + hand wheel	D-type	Wheelhouse center console	1	1	1
Helm pump + hand wheel	D-type	Steering gear compartment	2	2	2
Lockpin pump	V110-3.5 + Emotor	Steering gear compartment	1	1	N/A
Lockpin & emergency pump	26V-12	Steering gear compartment	N/A	N/A	1
Control system pump	V110-1.5 + Emotor	Steering gear compartment	2	2	2
Control System Header tank	35-liter capacity	In wheelhouse ceiling	1	1	1
Conrol system piping	1/2, 3/4 & 1-inch lines	S.G + wheelhouse	All	All	All
Air cooled heat exchanger		Steering gear compartment	1	1	1
Heat exchanger ducting + fans		Steering gear compartment	1	1	1
Telemotor cylinder	3008-0000	Steering gear compartment	1	1	1
All pressure lines + valves	3, 2, 1-1/2, 1-1/4-inch	Steering gear compartment	All	All	All
Lock valves		Steering gear compartment	1	1	2
4-way valves		Steering gear compartment	1	1	2
FARV	V6 Series	Steering gear compartment	2	2	4

2.6.2 Subject to approval from the technical authority (TA), the successful bidder may eliminate or replace additional equipment if the proposed new system includes functions that make other components of the old system unnecessary or redundant.

The following steering gear system equipment must be kept:

a) Cylinder rams (2 of): PR &AM are identical, DG are different model
b) Tiller
c) Rudder
d) Tiller Lockpin
e) Main oil tank in steering compartment: will be used as oil make-up for new HPU units.

2.6.3 It is the bidder's responsibility to identify all changes to be made so that the new system integrates and functions properly with the equipment to be kept.

2.7 Reference documents

2.7.1 Applicable regulations and official documents:

Number	Description	Availability
TP127E	"Ships Electrical Standards (2008)" Transport Canada	www.tc.gc.ca
IEEE-45	"IEEE Recommended Practice for Electrical Installations on Shipboard (2002)"	ieeexplore.ieee.org ISBN: 0-7381-3381-7
IACS UR E	"Unified Requirements Concerning Electrical Installations (2010)"	www.iacs.org.uk
CSA C22.1-12	"Canadian electrical code, part I (22nd edition), safety standard for electrical installations"	Shop.csa.ca
CSA C22.2 NO. 0-10	"General requirements - Canadian electrical code, part II"	Shop.csa.ca
SOR-90-264	"Marine Machinery Regulation (2014)"	lois-laws.justice.gc.ca
IEC 60533	"Electrical and electronic installations in ships – Electromagnetic compatibility"	webstore.iec.ch
IEC 60092-504	"Electrical installations in ships – Part 504: Special features – Control and instrumentation"	webstore.iec.ch
TP5021E	"Personal Safety on Ship" Transport Canada	Reference CD (File #15)
FSM	"Fleet Safety Manual (V4 Sept 2012)" Canadian Coast Guard	Reference CD (File #15)

Table 5 - Reference documents (Regulations)

2.7.2 Instruction manuals, drawings & technical information

All above documents will be supplied to bidder upon demand by the TA.

2.8 Approval and Regulations

2.8.1 Before installation of the new steering system, the bidder must contract the services of an accredited classification society to approve and certify all technical details of the project. In addition, approval of all technical details must be given by the project's Technical Authority (TA). A list of societies recognized by Transport Canada is available at this WEB address:

https://www.tc.gc.ca/eng/marinesafety/dvro-fsc-dspi-1781.htm

2.8.2 Through the services of the selected classification society, the bidder must ensure that the replacement systems meet Transport Canada equipment classification requirements and that the entire project receives all necessary approvals specific to vessels in this class. The bidder must plan and coordinate all statutory inspections and classification surveys in collaboration with the authority concerned. All signed and dated official documents must be delivered to the TA.

2.8.3 At least 48 hours' notice must be given before statutory inspections or scheduled classification surveys so that the TA may attend.

2.8.4 Any new installation within the framework of this project must meet Transport Canada standards TP127 (Ships Electrical Standards) and IEEE45 (Recommended Practice for Electrical Installations on Shipboard).

3 General Requirements – Design & Installation

3.1 General Information

3.1.1 The bidder must ensure that the design meets the objectives in section 2.4 and, unless indicated otherwise in this document, maintain or improve all control, regulation, protection and display functions found on the current system.

3.2 Design Package

3.2.1 Preliminary Design Package

The Bidder shall submit a preliminary design package 8 weeks after contract award consisting of, at least, the following documentation and design details:

a) Proposed design, testing and commissioning requirements of the new steering gear system;
b) Systems bills of material and specs;
c) General arrangements;
d) Systems block diagrams;
e) User interface & alarm system documentation;
f) Power supply arrangement;
g) Description of safety functions;

3.2.2 Final Design Package

The Bidder shall submit a final design package with the following documentation and design details:

a) Design, testing and commissioning requirements of the new steering gear system;
b) Systems bills of Materials and specs;
c) General arrangements;
d) Systems block diagrams;
e) User interface & alarm system documentation;
f) Power supply arrangement;
g) Description of safety functions;
h) Preliminary information about the ship commissioning program including proof of performance criteria;

i) Electrical wiring schematics and end connection drawings including cable specifications, and recommended lengths;
j) List of all piping, hosing cabling replacements including specifications;
k) Installation and service manuals;

Final design package shall be delivered with 16 weeks of contract award.

3.3 Technical Drawings

3.3.1 The bidder must produce all drawings & diagrams necessary for the design and execution of work on the new steering gear system. These drawings must provide a view of all equipment and circuits in the steering gear system, including those that will be kept from the old system and incorporated into the new installation. The drawings must also include all necessary information so that a qualified technician can conduct a quick, complete and specific search for diagnostic purposes in case of malfunction or for any other reason.

3.3.2 All drawings designed or modified must be presented individually in digital format in the most recent version of the DWG (AutoCAD) standard and allow for optimized standard 11x17 in. (ANSI B) printing. An exception may be made to the size of certain drawings in order to give an adequate view of the entire system, provided these are presented in a separate series. A grouped Adobe PDF version must also be provided for each series of drawings to facilitate electronic consultation (one PDF file per series of drawings).

3.3.3 The first version of all drawings shall be submitted to the TA and the classification society for review and approval 8 weeks after awarding of the contract.

3.4 Equipment Selection

3.4.1 Main equipment and components used to achieve this project must be of recent design and must also be technically supported by the manufacturer for the next 15 years.

3.4.2 The bidder must choose mass-produced equipment/components, easily available from the OEM manufacturers or some distributors already established on the North American industrial market. Custom-made or experimental products are not acceptable for this project.

3.4.3 All equipment, components and other materials must be new.

3.4.4 To the extent possible, the new system's design and the selected equipment must be made to minimize the inventory of spare parts required on board the vessel.

3.4.5 Selected equipment must not be affected by the use of portable communication devices found on the vessel. These devices are UHF and transmit with 5 Watts of power on a frequency band varying from 136 to 870 MHz. They are frequently used in the steering gear compartment and machinery control room.

4 Steering Gear System – Performance & Functionality Requirements

4.1 General Information

4.1.1 This section is not intended to describe all technical aspects of the proposed steering system (PSS) in detail. In order to properly assess the scope of the work, the bidder must conduct its own analysis based on the numerous documents and diagrams available, or based on observations and tests previously conducted on board the vessel.

4.1.2 The PSS shall fit within the existing steering gear compartment without modification.

4.1.3 The equipment shall be delivered to allow access into the existing steering gear compartment without modifications. Direct access into the compartment is limited to the following openings. Deck hatches of 30” x 30” and doorways of 30” x 63”.

4.2 Hydraulic Design Criteria

4.2.1 All material and equipment must be new, suitable for marine use, simple in operation and of current manufacture to ensure availability of spare parts for the next 15 years. Equipment must be suitable for operation in an ambient temperature of up to 40° C. Cables shall be rated for an ambient temperature of 45° C.

4.2.2 The PSS must be approved by a Recognized Organization (RO) approved by Transport Canada within the Delegated Statutory Inspection Program (DSIP) as well as the TA before it’s installation in the vessel.

4.2.3 The PSS must consist of a main and auxiliary Hydraulic Power Unit (HPU) of equal sizing. The main HPU (herein referred to as either #1 Steering Pump or Port Steering Pump) must be powered from the existing vessel hotel bus. The voltage of this bus is set at 440 volts. The auxiliary HPU (herein referred to as #2 Steering Pump or Starboard Steering Pump) must be powered from the vessel emergency bus. The voltage output of this bus is set at 440 volts. Any changes required to adapt the proposed HPUs electrical system to their respective system bus must be done at the bidder's expense.

4.2.4 The #1 and #2 steering pumps shall be variable displacement piston pumps.

4.2.5 The HPU's must include the hydraulic reservoir tank which must include suction strainers, return line filtration, tank vent breather, adequately sized access for tank cleaning and liquid level indicator systems. It is to be noted that the original main hydraulic oil tank in the steering gear compartment will be kept, and used as a storage tank for the steering gear system.

4.2.6 The PSS must be so designed so that a failure of one HPU and associated piping/hoses will not render the other inoperable.

4.2.7 The PSS must be designed so that both #1 and #2 steering pumps can be operated simultaneously.

4.2.8 An emergency HPU shall be included in the system. This unit will be of similar design as the main HPU's, but only used for emergency operations. This unit will also be used to insert and retract quadrant locking pin, through appropriate piping and valves.

4.2.9 The PSS must incorporate a Fast Acting Relief Valve (FARV) or similar system that is capable of providing pressure relief to the system components to accommodate shock loads of up to 950,000 ft. lbs rudder torque occurring within a period of 0.03s. FARV must be designed to allow the rudder to swing from amidships to full over in 1/10 of 1 second.

4.2.10 The existing steering gear hydraulic oil is air cooled by way of a separate heat exchanger that will be removed in its entirety. . The Bidder's solution must fit within the space allocated for the new HPUs and be self-contained. If the bidders design requires a heat exchanger, the cooling medium used must be air. The steering gear compartment is naturally ventilated.

4.2.11 The existing steering gear hydraulic oil is Mobil Univis N32 (on PR and AM), and Petro Canada Hydrex AW68 (on DG). It is now stored in the main steering gear oil tank, located in the steering gear compartment (for PR and AM) and just outside the compartment (for DG). Coast

Guard would prefer to maintain the use of this oil, however, the bidder will have the freedom to use another producer provided the oil supply is readily accessible (within 24 hours) and with sufficient quantity to charge the entire steering system, within the province of Québec.

4.2.12 The existing emergency steering wheel and manual pump located in the steering compartment is to be removed and replaced with a new hand pump, supplied with the new steering gear system.

4.3 Control Design Criteria

4.3.1 All material and equipment must be new, suitable for marine use, simple in operation and of current manufacture to ensure availability of spare parts for the next 15 years. Equipment must be suitable for operation in an ambient temperature of up to 40° C. Cables shall be rated for an ambient temperature of 45° C.

4.3.2 The PSS must be fitted with an electronic/digital dual steering control system capable of operating either Port or Stbd steering pumps (one control system can be in operation while he other is in standby). This control system must replace the current manual hydraulic telemotor system in the wheelhouse and steering gear compartment.

4.3.3 The PSS must be so designed so that a failure of one steering control system will not render the other inoperable.

4.3.4 The PSS must be capable of a seamless transfer between steering control systems (the operating and standby roles of the individual steering controllers can be reversed without interruption or loss of steering).

4.3.5 The PSS must automatically switch to the standby steering controller or alert the operator of a need to switch to the standby controller in the event of failure of the 'in operation 'mode controller and provide visual and audible alarming to alert the operator of this failure.

4.3.6 In case of an electrical power failure, the PSS must automatically restart once power is restored and reach its intended mode of operation without any human intervention.

4.3.7 The PSS must be connected to and operate in conjunction with the existing Sperry 4000 autopilot currently installed in the vessel.

4.3.8 The HPU's #1, #2 and Emergency, must have individual motor starter cabinets constructed and installed complete with local/remote selector switch, local start and stop pushbuttons and lockable disconnect switch, fitted within the steering compartment.

4.3.9 The PSS must include audible and visual alarm panels that indicates and includes but is not limited to:

a) Low reservoir oil level

b) Motor overload

c) Phase failure

d) Low Voltage

e) Hydraulic lock

These alarms must be connected to each steering stations (3) in the wheelhouse and in the Machinery Control Room (MCR). The alarm panels to be located in the MCR must be connected to and operate in conjunction with the existing vessel's alarm and monitoring system.

4.3.10 The PSS must be fitted with a means to indicate the following on the vessels Alarm & Monitoring system in the MCR:

a) Rudder angle

b) Rudder order

c) No.1 Pump run

d) No.2 Pump run

e) Oil temperature

f) System oil pressure

4.3.11 All operating and indicating instruments located in the wheelhouse must be illuminated and be dimmable, however, total extinguishment of the lamps shall not be permitted as per TP 127E

4.4 Environmental and Performance Conditions

4.4.1 Service Conditions. The PSS and all its components shall be capable of withstanding the following service conditions:

Environmental:

- Roll of vessel, 45° out-to-out, cycle frequency 10 seconds;
- A permanent list of 15° port or starboard, not cumulative with the roll;
- Pitch of vessel, ±12° , cycle frequency 6 seconds;
- A permanent trim of 5° above or below the horizontal, not cumulative with the pitch.
- Shock loading: 2.5 g horizontal,1.5 g vertical

4.4.2 Performance Specification (General). Main machinery and auxiliaries including the PSS shall be able to endure continuous operations in ice including:

- Conditions of continuous 0.5 G vibration at 10 Hz.

4.4.3 Performance Specification (Shipboard Electronic Equipment)

a) Equipment Below Decks - Notwithstanding the normal between decks environment, all equipment shall be capable of its intended operation at temperatures from 0°C to 50°C, and relative humidity 5 % to 90 %.

b) All shipborne equipment, racks, cables and other accessories shall be mounted so as to be capable of their designed operation under the following conditions:

- Shipboard Vibration

a) Short term (up to 8 hrs.)

5 to 15 Hz at 0.75 mm amplitude

15 to 25 Hz at 0.5 mm amplitude

25 to 33 Hz at 0.25 mm amplitude

b) Continuous

5 to 20 Hz at 0.5 mm amplitude.

- Shock

Repeated shocks of 10 msec duration each.

a) Short term (up to 8 hrs.)

±2 G vertical and ±4 G horizontal.

b) Continuous

±1 G either axis.

- Roll and Pitch

a) Short term (up to 8 hrs.)

±45° roll, ±20° pitch with cycle time of 5 to 20 seconds.

b) Continuous

±15 % roll, ±5 % pitch with cycle time of 5 to 20 seconds.

4.4.4 Additional Requirements for Electrical control and instrumentation

Electrical, electronic and programmable equipment intended for the control, monitoring, alarm and protection systems in ships shall operate satisfactorily within steering gear rooms for the following conditions (as per IEC 92-504):

- Displacement amplitude ± 1.5 mm in the frequency range 2 Hz - 28 Hz.
- Acceleration amplitude ± 50 m/s2 in the frequency range 28 Hz -100 Hz.

5 Installation of New Steering Gear

The installation of the proposed steering gear system shall be accomplished by the contractor.

6 Tests, Commissioning and Support

6.1 Tests

6.1.1 Ship Commissioning

The bidder must develop and provide to the TA, before the sea trials can begin, a detailed commissioning program including sea trials that will allow testing of the new equipment, as well as the entire steering gear system and its global performance. This includes verification of all protections and alarms, as well as verification and calibration of all feedback signals.

6.2 Warranty & Technical Support

The warranty and technical support provisions are listed at Para 7.14 of the contract.

6.3 Spare Parts

A detailed list of spare parts required on board the vessel must be proposed by the bidder, at least three (3) months before the vessel's expected return to service. This list must meet the maintenance needs of the system for a period of at least five (5) years. The bidder must take into account that the vessel is often operating in remote regions with limited access. Therefore, the ship's Engineering Staff must be able to carry out repairs on the system. The list must include each current part prices in Canadian dollars of all the components of the electrical and hydraulic systems.

Also the Bidder must supply a list of all the Classification and/or TCMS recommended spares for this type of steering gear.

7 Documentation & Training

7.1 General Information

7.1.1 The bidder must provide all operating and maintenance manuals, as well as all materials and documents necessary for the training of personnel. All manuals and training documents shall be available in French and English versions.

7.1.2 Manuals must be designed in accordance with the general principles described in section 9.2 of document IEEE 45 (2002 Edition). They must include clearly identified sections designed to provide accurate information on the entire steering system, in French and English.

7.1.3 All manuals must be presented in 8.5x11 inch format inside standard, good-quality ring binders. In addition to the printed manuals, a digital PDF (Adobe) version of all documents must be provided. If certain schematics or block diagrams are initially drawn in DWG (AutoCAD) or another format, this format must also be included digitally.

7.1.4 An initial digital version of the different manuals must be presented to the TA at least one (1) month before producing the final version and providing training to personnel.

7.2 Operating Manual

7.2.1 The operating manual must include all information necessary for a complete analysis of the various functions and procedures related to the system's use, in French and English.

7.2.2 To facilitate comprehension, the descriptive text must be accompanied by schematics, diagrams and/or photos providing a visual representation of the various elements presented.

7.2.3 One section of this manual must clearly explain the different functions offered by the alarm panels and/or electronic/digital steering controller as well as provide a description of potential failures and possible solutions.

7.2.4 The final version of the operating manual must be delivered in four (4) paper copies (including an English and French version). Each series of manuals must include a DVD with all documents in digital PDF.

7.3 Maintenance & Trouble Shooting Manuals

This manual must be addressed to qualified technicians and provide, in detail, all the information a technician would need to understand, repair and maintain the steering gear system. In addition to the documents created by the bidder, this manual must include all documents produced by the manufacturers of the different components and pieces of equipment. Depending on how it is organized and the number of pages, this manual may be presented in multiple volumes if necessary.

7.3.1 Here is a simplified description of items that the manual must cover, at a minimum:

a) Overall description of the system (design, specifications and operation)

b) Block diagrams and operation logic of the systems

c) Overview, specifications and functionalities of the supply circuits

d) Specifications and technical details of the monitoring and alarm system

e) Operation and details of the protection and emergency systems

f) Centralized list of recommended periodic maintenance

g) Methods of verifying the proper functioning of equipment and protections

h) Troubleshooting, adjustment and calibration procedures

i) Methods of replacing main components

j) Procedures for safe insulation tests on motors and alternators

k) Complete list of potential defects/alarms and possible solutions

7.3.2 As with the operating manual, the final version of the maintenance manual must be delivered in four (4) paper copies (including an English and French version). Each series of manuals must also include a DVD of all documents in digital PDF.

7.4 Reports and Inspection Tests & Certificates

7.4.1 An additional manual must group together all official documents related to the certification, the installation and the commissioning of the new system, including the various factory tests and other tests conducted on board the vessel. It is the bidder's responsibility to keep the original manual up to date and ensure the accuracy of the collected data.

7.4.2 The bidder must ensure that the TA has, at all times, an up-to-date copy of all documents and certificates produced.

7.5 Training

7.5.1 General Information

a) The training of CCG personnel must be included within this contract and provided by one or more technical representatives directly involved with the project. If any equipment requires additional expertise, the bidder must retain the services of an expert technician to properly cover all the training.

b) The various reference documents used must be submitted to the TA at least four (4) weeks before the start of the training program.

c) Training must be given at the Coast Guard base in Quebec City. If needed, a meeting room will be provided for free by the CCG.

7.5.2 Training and Operators (Engineers & Electrical Officer)

a) The Bidder must provide one (1) training course of up to eight (8) hour duration to be held onboard after the final installation and commissioning of steering system. This training must be provided to applicable staff of the vessel's engineering and navigation departments (up to 12 persons total) and be conducted by the OEM of the system. Training must encompass all items outlined in the operating and maintenance instructions as supplied by the OEM. This specific training must be presented in French.

b) This training must familiarize each participant with the following as a minimum:

- Overview of the system and its operation;
- Manual controls and operating modes/sequences in real situations;
- Operation of the alarm system and interpretation of failures;
- Operation and adjustment
- Scenarios of potential technical problems and actions required to maximize the speed and effectiveness of responses.

c) As a quick reference, the bidder must provide each participant with a document summarizing, in a simple manner, all relevant information for effective operation and monitoring of the system. This document must be properly binded and include a French and an English version.

Two (2) additional copies of this training document must be produced for general consultation on board the vessel.

d) If the design of the new steering gear system results in changes to the different navigation consoles (displays and/or controls), additional training must be provided to wheelhouse personnel in order to explain the changes (Commanding Officer, navigation and wheelhouse officers). The duration of this training must be adapted according to the changes made.