



## RETURN BIDS TO:

## RETOURNER LES SOUMISSIONS À:

Bid Receiving Public Works and Government  
Services Canada/Réception des soumissions  
Travaux publics et Services gouvernementaux  
Canada

Cabot Place, Phase II, 2nd Floor

Box 4600

St. John's, NF

A1C 5T2

Bid Fax: (709) 772-4603

## 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

### Vendor/Firm Name and Address

### Raison sociale et adresse du

### fournisseur/de l'entrepreneur

### Issuing Office - Bureau de distribution

PWGSC / TPSGC - Nfld. Region

Cabot Place, Phase II, 2nd Floor

Box 4600

St. John's, NF

A1C 5T2

<b>Title - Sujet</b> Bubbler Compressors--Henry Larsen	
<b>Solicitation No. - N° de l'invitation</b> F7049-190011/A	<b>Date</b> 2019-04-15
<b>Client Reference No. - N° de référence du client</b> F7049-190011	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$OLZ-009-7275	
<b>File No. - N° de dossier</b> OLZ-9-42002 (009)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2019-05-01</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Newfoundland Daylight Saving Time NDT
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Lacey, Rhonda	<b>Buyer Id - Id de l'acheteur</b> olz009
<b>Telephone No. - N° de téléphone</b> (709) 730-1597 ( )	<b>FAX No. - N° de FAX</b> (709) 772-4603
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> DEPARTMENT OF FISHERIES AND OCEANS C/O SUPPLY DEPOT SOUTHSIDE RD PO BOX 5667 ST JOHNS Newfoundland and Labrador A1C5X1 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

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

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Solicitation No. - N° de l'invitation  
F7049-190011/A  
Client Ref. No. - N° de réf. du client  
F7049-190011

Amd. No. - N° de la modif.  
File No. - N° du dossier  
OLZ-9-42002

Buyer ID - Id de l'acheteur  
olz009  
CCC No./N° CCC - FMS No./N° VME

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## **PART 1 - GENERAL INFORMATION**

### **1.1 Security Requirements**

There is no security requirement associated with this solicitation or the subsequent contract.

### **1.2 Requirement**

Public Services and Procurement Canada (PSPC) has a requirement, on behalf of the Canadian Coast Guard (CCG), for new Bubbler Compressors on board the CCGS Henry Larsen.

This contract will consist of the supply, training, testing and satisfactory operation of two (2) electric motor driven, single-stage, integrally geared, single vane centrifugal compressors, local control panels and compressor motor starters, as per the Statement of Requirements attached as Annex "A."

### **1.3 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 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

### **1.4 Trade Agreements**

The requirement is subject to the provisions of the Canadian Free Trade Agreement (CFTA).

### **1.5 epost Connect service**

This bid solicitation allows bidders to use the epost Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.

## PART 2 - BIDDER INSTRUCTIONS

### 2.1 Standard Instructions, Clauses and Conditions

The 2003 standard instructions is amended as follows:

- Section 08, entitled Transmission by facsimile or by epost Connect, is amended as follows:  
subsection 2. is deleted entirely and replaced with the following:

#### 2. epost Connect

- Unless specified otherwise in the bid solicitation, bids may be submitted by using the [epost Connect service](#) provided by Canada Post Corporation.
  - PWGSC regional offices: The only acceptable email address to use with epost Connect for responses to bid solicitations issued by PWGSC regional offices is identified in the bid solicitation.
- To submit a bid using epost Connect service, the Bidder must either:
  - send directly its bid only to the specified PWGSC Bid Receiving Unit, using its own licensing agreement for epost Connect provided by Canada Post Corporation; or
  - send as early as possible, and in any case, at least six business days prior to the solicitation closing date and time, (in order to ensure a response), an email that includes the bid solicitation number to the specified PWGSC Bid Receiving Unit requesting to open an epost Connect conversation. Requests to open an epost Connect conversation received after that time may not be answered.
- If the Bidder sends an email requesting epost Connect service to the specified Bid Receiving Unit in the bid solicitation, an officer of the Bid Receiving Unit will then initiate an epost Connect conversation. The epost Connect conversation will create an email notification from Canada Post Corporation prompting the Bidder to access and action the message within the conversation. The Bidder will then be able to transmit its bid afterward at any time prior to the solicitation closing date and time.
- If the Bidder is using its own licensing agreement to send its bid, the Bidder must keep the epost Connect conversation open until at least 30 business days after the solicitation closing date and time.
- The bid solicitation number should be identified in the epost Connect message field of all electronic transfers.
- It should be noted that the use of epost Connect service requires a Canadian mailing address. Should a bidder not have a Canadian mailing address, they may use the Bid Receiving Unit address specified in the solicitation in order to register for the epost Connect service.
- For bids transmitted by epost Connect service, Canada will not be responsible for any failure attributable to the transmission or receipt of the bid including, but not limited to, the following:
  - receipt of a garbled, corrupted or incomplete bid;
  - availability or condition of the epost Connect service;
  - incompatibility between the sending and receiving equipment;
  - delay in transmission or receipt of the bid;
  - failure of the Bidder to properly identify the bid;


- vi. illegibility of the bid;
- vii. security of bid data; or,
- viii. inability to create an electronic conversation through the epost Connect service.
- h. The Bid Receiving Unit will send an acknowledgement of the receipt of bid document(s) via the epost Connect conversation, regardless of whether the conversation was initiated by the supplier using its own license or the Bid Receiving Unit. This acknowledgement will confirm only the receipt of bid document(s) and will not confirm if the attachments may be opened nor if the content is readable.
- i. Bidders must ensure that they are using the correct email address for the Bid Receiving Unit when initiating a conversation in epost Connect or communicating with the Bid Receiving Unit and should not rely on the accuracy of copying and pasting the email address into the epost Connect system.
- j. A bid transmitted by epost Connect service constitutes the formal bid of the Bidder and must be submitted in accordance with section 05.

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](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

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

The [2003](#) (2018-05-22) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

## 2.2 Submission of Bids

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

Note: For bidders choosing to submit using epost Connect for bids closing at the Bid Receiving Unit the email address is:

[TPSGC.RAReceptionSoumissionsTNL-ARBidReceivingNL.PWGSC@tpsgc-pwgsc.gc.ca](mailto:TPSGC.RAReceptionSoumissionsTNL-ARBidReceivingNL.PWGSC@tpsgc-pwgsc.gc.ca)

Note: Bids will not be accepted if emailed directly to this email address. This email address is to be used to open an epost Connect conversation, as detailed in Standard Instructions [2003](#), or to send bids through an epost Connect message if the bidder is using its own licensing agreement for epost Connect.

## 2.3 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 FPSs, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid nonresponsive.

## 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.

### **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 FPSs 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](#).

### **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.

## **2.4 Enquiries - Bid Solicitation**

All enquiries must be submitted in writing to the Contracting Authority no later than five (5) 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 question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

## **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 Newfoundland and Labrador.

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.

## **PART 3 - BID PREPARATION INSTRUCTIONS**

### **3.1 Bid Preparation Instructions**

- If the Bidder chooses to submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions. The epost Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation.

The bid must be gathered per section and separated as follows:

Section I: Technical Bid  
Section II: Financial Bid  
Section III: Certifications  
Section IV: Additional Information

- If the Bidder chooses to submit its bid in hard copies, Canada requests that the Bidder submits its bid in separately bound sections as follows:

Section I: Technical Bid (one hard copy)  
Section II: Financial Bid (one hard copy)  
Section III: Certifications (one hard copy)



#### Section IV: Additional Information (one hard copy)

If there is a discrepancy between the wording of the soft copy on electronic media and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

- If the Bidder is simultaneously providing copies of its bid using multiple acceptable delivery methods, and if there is a discrepancy between the wording of any of these copies and the electronic copy provided through epost Connect service, the wording of the electronic copy provided through epost Connect service will have priority over the wording of the other copies.

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 hard copy of their bid:

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

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573) (<https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573>). To assist Canada in reaching its objectives, bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

#### Section I: Technical Bid

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

#### Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment.

##### 3.1.1 Electronic Payment of Invoices – Bid

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Annex “X” Electronic Payment Instruments, to identify which ones are accepted.

If Annex “C” Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

##### 3.1.2 Exchange Rate Fluctuation

[C3011T](#) (2013-11-06), Exchange Rate Fluctuation

### 3.1.3 SACC Manual Clauses

#### Section III: Certifications

Bidders must submit the certifications and additional information required under Part 5.

## PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

### 4.1 Evaluation Procedures

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

#### 4.1.1 Technical Evaluation

##### 4.1.1.1 Mandatory Technical Criteria

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

To be deemed responsive, Bidders **must** demonstrate how they meet the mandatory technical requirements as outlined in this section. Please complete the table below and include this document as part of the technical proposal submission.

RFP REFERENCE	DESCRIPTION	MET	NOT MET	PAGE REFERENCE IN THE BID
a)	Completeness and Quality of the Written Proposal			
b)	Classification Society			
c)	Bidder's Experience			
d)	Support Capacity			
e)	Document Management Plan			
f)	System Requirements			
g)	Preliminary Planning and Scheduling			
h)	Quality Management System			

### ***a) 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 for carrying out the work in a thorough, concise, and clear manner.

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.

### ***b) Classification Society***

Bidders must provide the name of the classification society that will evaluate and approve the design of the proposed compressor system according to the laws and regulations applicable to this specific class of ship and the various requirements specified in the Statement of Work (SOW), attached as 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 "F" – Classification Society Certification Form, indicating that they have reached an agreement with a firm to verify and approve the work.

The bidders must demonstrate that the proposed system is not a prototype and can obtain a class approval certificate as required in Annex "A" – Statement of Work.

**Bidders must include the costs associated with the approval of the proposed system by the classification society listed above in their financial bid.**

### ***c) Bidder's Experience***

The bidders must have designed, delivered, and installed, as a prime contractor, compressor systems of similar design and capacity that meet Classification Society Standards. Bidders must demonstrate that they have installed their own Class approved compressor systems on at least three (3) vessels.

To be valid, bidders must provide information on the date and place of the projects, an overview of the work, as well as the names and registration numbers of the vessels.

### ***d) Support Capacity***

#### **Field Service Representatives (FSR)**

Bidders must demonstrate and certify that they have, or will have, an FSR based in Canada and that qualified technicians will be available to provide on-site support within 24 hours of a request by the CCG. This service is to be provided directly at the Coast Guard base in St. John's and must be ensured for the duration of the contract and warranty period.

## **ii) Supportability - Equipment Cost of Ownership**

Bidders shall demonstrate that the equipment proposed for this contract shall have ten years remaining in its complete life cycle services, and 20 years remaining in its limited life cycle services.

Complete Life Cycle Services = Serial Production Ceased. Full spares available + Full Service

Limited Life Cycle Services = Limited spares and services available. Equipment is not obsolete.

## **iii) Spare Parts Availability**

Bidders must demonstrate and certify that spare parts for new equipment are quickly and easily available in North America, directly from the original manufacturers or through authorized suppliers.

## **e) 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.

## **f) System Requirements**

The bidder must supply the following :

A. **Preliminary Design Proposal (shall form part of the technical submission at bid closing)** - The design proposal shall be issued as a compilation of all information and design details required to determine suitability for the application and compliance with the technical specification requirements as defined in the SOW. The following specific information must also be included in the design proposal.

1. The design submittal shall include as a minimum comments and exceptions paragraph regarding each technical specification paragraph. Provide detailed information on structural, mechanical, electrical, or other changes or modifications necessary to adapt non-specified materials to the arrangement or details shown
2. General arrangement drawings showing compressor base dimensions, mounting deck, skid piping, required maintenance clearances, overall weights with and without oil, and weights of the largest components requiring removal for maintenance.
3. The Bidders must provide proof by way of provisional drawings that the proposed system including all panels and ancillary equipment fit within the footprint available as defined in the SOW , section 3.1.4
4. Preliminary Process and instrumentation diagrams (P&ID)
5. General description of the compressor with cross-sectional drawings explaining the design and operation

Costing breakdown for spare parts cost of ownership analysis for a 10 year period, based on 2000 hours/year

- i. Parts and consumables used for routine and regularly scheduled maintenance
- ii. Field Service Rep cost to oversee any mandatory inspections or overhauls in that period

6. Compressor performance data
7. Preliminary performance curves
8. Provide compressor and drive motor speed-torque curves. Compressor speed-torque curve shall be at the condition with guide vanes in starting position and at the specified minimum inlet temperature.
9. Provide a detailed description of the guide vane operation.
10. Compressor lubricant specifications and quantity
11. List of all major components and drawings/datasheets for each. The list shall include:
  - i. Motors
  - ii. Actuators and valves
  - iii. Mechanical components
  - iv. Instruments
  - v. Programmable Logic Controller (PLC)
  - vi. Operator Interface/machine monitors
12. Electrical block diagrams of all control panels, showing proposed connections to all new equipment and remaining panels.

***g) Preliminary Planning and Scheduling***

Bidders must provide with their proposals a preliminary planning and scheduling chart which will indicate in working days the duration of each of the following activities:

- Contract award (Day 1);
- Production and submission of the Preliminary Design Package (PDP)
- Production and submission of all drawings and other design documents (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) and delivery of reports
- Preliminary Installation, Operating and Maintenance Manual
- Final installation and maintenance manual

Training of the CCG personnel.

***h) Quality Management System***

Bidders must provide with their proposals 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;  
a sample of an Inspection and Test Plan (ITP) developed in accordance with the QCP in (b) above

#### 4.1.1.2 Point Rated Technical Criteria

RFP REFERENCE	DESCRIPTION	POINTS	REFERENCE IN THE BID
a)	Supportability – On Site	/100	
b)	Proven Bubbler Compressor Installations	/100	
c)	Design Requirements	/100	
d)	Maximum Ambient Noise Level	/100	
	<b>TOTAL :</b>	<b>/400</b>	
	<b>Minimum 150 points</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO	

#### Supportability - On Site

		<b>Max 100</b>
<b>A</b>	Compressor Trained FSR availability within 24 hours at CCG bases	<b>50 pts</b>
<b>B</b>	Permanent Compressor Trained FSR in Atlantic Canada	<b>100 pts</b>

To obtain the points within a), proof shall be given that the contractor has staff currently employed that are able to meet the above requirement.

#### Proven Bubbler Compressor Installations

		<b>Max 100</b>
<b>A</b>	6 Vessels with the bidder's class approved Bubbler Compressors	<b>50 pts</b>
<b>B</b>	8 Vessels with the bidder's class approved Bubbler Compressors	<b>75 pts</b>
<b>C</b>	10 Vessels with the bidder's class approved Bubbler Compressors	<b>100 pts</b>

## Design Requirements

		Max 100
<b>A</b>	Capable of 6.84 m3/s at ambient conditions ranging from -40°C to 35°C	<b>50 pts</b>
<b>B</b>	Exceeds 6.84 m3/s at ambient conditions ranging from -40°C to 35°C	<b>75 pts</b>
<b>C</b>	Exceeds 6.84 m3/s at ambient conditions ranging from <-40°C to > 35°C	<b>100 pts</b>

## Maximum Ambient Noise Level

		Max 100
<b>A</b>	Compressor maximum noise level <100db	<b>50 pts</b>
<b>B</b>	Compressor maximum noise level <95db	<b>75 pts</b>
<b>C</b>	Compressor maximum noise level <90db	<b>100 pts</b>

**MINIMUM POINTS REQUIRED: 150**

### 4.1.2 Financial Evaluation

SACC Manual Clause [A0220T](#) (2014-06-26), Evaluation of Price

### 4.2 Basis of Selection

To be declared responsive, a bid must:

- comply with all the requirements of the RFP; and
- meet all mandatory criteria (deliverables); and
- obtain the required minimum of 475 points overall for the technical evaluation criteria which are subject to point rating. The rating is performed on a scale of 900 points.

Bids not meeting a, b, and c will be declared non-responsive.

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

**4.2.2** 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 30%.

**4.2.3** To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 70%.

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

**4.2.5** 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.

**4.2.6** 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
<b>Overall Technical Score</b>	115/135	89/135	92/135
<b>Bid Evaluated Price</b>	\$55,000.00	\$50,000.00	\$45,000.00
<b>Technical Merit Score Calculation</b>	$115/135 \times 30 = 25.56$	$89/135 \times 30 = 19.78$	$92/135 \times 30 = 20.44$
<b>Pricing Score Calculation</b>	$45\,000/55\,000 \times 70 = 57.27$	$45\,000/50\,000 \times 70 = 63.00$	$45\,000/45\,000 \times 70 = 70.00$
<b>Combine Rating</b>	82.83	82.78	90.44
<b>Overall Rating</b>	<b>2nd</b>	<b>3rd</b>	<b>1st</b>

**PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION**

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

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, 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 made knowingly or unknowingly, 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 and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

**5.1 Certifications Required with the Bid**

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

**5.1.1 Integrity Provisions - Declaration of Convicted Offences**

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.



## 5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

### 5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

### 5.2.2 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 at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

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.

The Bidder must provide the Contracting Authority with a completed annex titled Federal Contractors Program for Employment Equity - Certification, before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

### 5.2.3 Additional Certifications Precedent to Contract Award

#### 5.2.3.1 Insurance Requirements

The Bidder must provide 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 "D".  
If the information is not provided in the bid, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid nonresponsive.

### 5.2.3.2 Workers Compensation Certification – Letter of Good Standing

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

The Bidder must provide, within five (5) days following a request from the Contracting Authority, a certificate or letter from the applicable Workers' Compensation Board confirming the Bidder's good standing account. Failure to comply with the request may result in the bid being declared non-responsive.

## PART 6 - RESULTING CONTRACT CLAUSES

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

### 6.1 Security Requirements

6.1.1 There is no security requirement applicable to the Contract.

### 6.2 Requirement

The Contractor must provide the items detailed in the Statement of Requirements attached at Annex "A."

### 6.3 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](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

#### 6.3.1 General Conditions

[2010A](#) (2018-06-21), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

[2010C](#) (2018-06-21), General Conditions - Services (Medium Complexity) apply to and form part of the Contract.

#### 6.3.2 Supplemental General Conditions

[1029](#) (2018-12-06), Ship repairs, apply to and form part of the Contract.

### 6.4 Term of Contract

#### 6.4.1 Delivery Date

All the stated goods are requested on or before 31 March 2020. Please provide the best possible delivery date? \_\_\_\_\_

## 6.4.2 Delivery Points

Delivery is required to the Canadian Coast Guard Base, 280 Southside Road, in St. John's, NL.

## 6.5 Authorities

### 6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Rhonda Lacey  
Contracting Officer  
Public Works and Government Services Canada  
Acquisitions Branch

10 Barter's Hill  
St. John's NL A1C5T2

Telephone: 709-730-1597  
Facsimile: 709-772-4603  
E-mail address: [rhonda.lacey@pwgsc-tpsgc.gc.ca](mailto:rhonda.lacey@pwgsc-tpsgc.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.

### 6.5.2 Project Authority (to be completed upon contract award)

The Project Authority for the Contract is:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_

Telephone: \_\_\_\_ \_\_\_\_ \_\_\_\_  
Facsimile: \_\_\_\_ \_\_\_\_ \_\_\_\_  
E-mail address: \_\_\_\_\_

The Project 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 Project Authority, however the Project 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.

### 6.5.3 Contractor's Representative (to be completed by the Contractor)

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Organization: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_ \_\_\_\_ \_\_\_\_\_

Facsimile: \_\_\_\_ \_\_\_\_ \_\_\_\_\_

E-mail address: \_\_\_\_\_

### 6.6 Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a *Public Service Superannuation Act* (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with **Contracting Policy Notice: 2012-2 of the Treasury Board Secretariat of Canada**.

### 6.7 Payment

#### 6.7.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price, as specified in Annex "B" – Basis of Payment for a cost of \$ \_\_\_\_\_ (inserted at contract award). Customs duties are included and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

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.

#### 6.7.2 Limitation of Price

SACC Manual clause C6000C (2017-08-17) Limitation of Price

#### 6.7.3 SACC Manual Clauses

SACC Manual clause A9117C (2007-11-30) T1204 - Direct Request by Customer Department

SACC Manual clause C0705C (2010-01-11) Discretionary Audit

#### 6.7.4 Electronic Payment of Invoices – Contract

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

- a. Visa Acquisition Card;

- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);
- e. Wire Transfer (International Only);
- f. Large Value Transfer System (LVTS) (Over \$25M)

## 6.8 Invoicing Instructions

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. a list of all expenses;
- d. the description and value of the milestone claimed.

**6.8.1** Applicable Taxes, must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Applicable Taxes payable as it was claimed and payable under the previous claims for progress payments.

**6.8.2** The Contractor must prepare and certify one original and two (2) copies of the claim on form [PWGSC-TPSGC 1111](#), and forward it to the Project Authority identified under the section entitled "Authorities" of the Contract for appropriate certification after inspection and acceptance of the Work takes place.

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

## 6.9 Certifications and Additional Information

### 6.9.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

### 6.9.2 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "[FCP Limited Eligibility to Bid](#)" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

### 6.9.3 SACC Manual Clauses

SACC Manual clause [A0285C](#) (2007-05-25) Workers Compensation

## 6.10 Applicable Laws

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

## 6.11 Priority of Documents

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

- (a) the Articles of Agreement;
  - (b) the general conditions 2010A (2018-06-21), General Conditions – Medium Complexity – Goods;
  - (c) the general conditions 2010C (2018-06-21), General Conditions – Medium Complexity –
  - (d) the supplemental general conditions 1029 (2010-08-16), Ship repairs;
- Services;
- (e) Annex A, Requirement;
  - (f) Annex B, Basis of Payment;
  - (g) Annex C, Electronic Payment Instruments
  - (h) Annex D, Insurance Requirements
  - (i) the Contractor's bid dated \_\_\_\_\_ (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award: “, as clarified on \_\_\_\_\_” or “, as amended on \_\_\_\_\_” and insert date(s) of clarification(s) or amendment(s)*)

## 6.12 Insurance

The Contractor must comply with the insurance requirements specified in Annex “D.” 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.

## ANNEX "A"

### REQUIREMENT

#### 1 General

- 1.1 The Canadian Coast Guard vessel Henry Larsen is a 1200 class medium duty ice breaker displacing 6166 GRT. The vessel operates in the Gulf of St. Lawrence in the winter months and in Canada's high Arctic in the summer and fall. To assist in ice breaking the vessel utilizes an air bubbler system which blows low pressure air through nozzles in the hull, below the waterline, to help reduce ice friction or blow ice away from the hull. The bubbler system has multiple zones which are capable of being isolated and can also be used as a bow thruster for precise maneuvering.
- 1.2 The existing bubbler system is made up of two (2) separate units; one port and one starboard. Both units are comprised of; Compair Reavell Type 9006 CH Compressor, Rated Capacity 6.84 m3/sec, Press 1.61 Bar ABS , Blower Speed 11470 rpm coupled through a reduction gearbox to a 450kw , 4160vac , 60hz electric motor. Compressors are controlled locally in the bubbler compartment and remotely from the port and starboard bridge consoles.
- 1.3 The existing units are 30 years old, with reliability and supportability becoming an issue. The Coast Guard is seeking a suitable system that will be used to replace the existing bubbler compressor, starter and control panels in its entirety. Systems will be required to meet the minimum requirements listed in the document below, and will be evaluated accordingly.
- 1.4 The intent of this RFP is to supply new compressors, motors, 4160 starters and control panels and interconnecting controls. This will **NOT** include the existing bubbler valve control panel. The contractor will only replicate the existing interconnections between the compressor control panels and the valve control panel.

#### 2 References

##### 2.1 *References for existing equipment to be removed (2x)*

- a. Revelle Compressor 9006CH, serial number 9006CH101 and 9006CH102  
Capacity 6.84m3/s at 161 KPa absolute
- b. Commander Electric Type 400HA-5R High Voltage contactor
- c. Westinghouse compressor motor, Type HSB, 600HP, 1871RPM, 4160volts, 60Hz
- d. Protech protection panel PK22
- e. Ampower Canada Compressor control Panel

## 2.2 Drawings

Drawing Number	Description
13-0077-01	General Arrangement, Main Deck
22-0716-01	Air Bubbler system Diagram
RCS-0010-220	Bubbler blower & motor layout drawing
23-0716-02	Arrangement air bubbler (air inlet and outlet)
32-0800-02	Main Deck Plan Main Deck fwd
34-0821-01	Air Bubbler connection Diagram 1
34-0821-02	Air Bubbler connection Diagram 2
1110-16-0016-01	Seat for Unit 503 Zone 016 Air Bubbler Compressor Seat
1110-16-0016-03	Seats for Unit 505 Zone 016 Air Bubbler Machy. Compt. 821-01 Air Bubbler Starters
1110-16-0016-03	Seats for Unit 503 Zone 016 Air Bubbler Machy.Compt ,Air Bubbler System Control Panel
E 39313 Shts 1 to 4	Compressor control panel
V15215-4-A2	W/H Control Mimic Assembly
V15337-6-A1	Bridge wing cntrl, bubble and bow thrust initiate
V15338-8-A1	Compressor Control and Valve Selection
V15340-6-A1	Valve Indication and Interlock
V15394-3-A0	Bubbler system control panel mimic
V15494-3-A2	Power supply main control relay panel
V15504-1-A2	General arrangement of system control panel
V153395-5-A1	Valve control and interlock
C7-194	IGV position vs air inlet temp
C7-195	Discharge pressure vs Air inlet temperature
TC7-196	Discharge pressure vs air flow at ambient temperature



### **3 Scope of Supply**

- 3.1.1** The intent of this specification is to supply new compressors, motors, 4160 starters and control panels and interconnecting controls. This will NOT include the existing bubbler valve control panel. The contractor will only replicate the existing interconnections between the compressor control panels and the valve control panel.
- 3.1.2** The contractor must supply, test, and ensure satisfactory operation of two (2) electric motor driven, single-stage, integrally geared, single vane centrifugal compressor, local control panels, and compressor motor starters.
- 3.1.3** All references to approval within this specification are defined as Class approval by one of the Recognized Organizations (RO) approved by Transport Canada within the Delegated Statutory Inspection Program (DSIP) and the Marine Machinery Regulations (CSA 2001).
- 3.1.4** The existing compressor dimensions are included in the drawing package (RCS-0010-220 Bubbler blower & motor layout drawing). The contractor must supply full dimensional drawings showing that the new compressors and ancillary equipment will fit within the existing footprint.
- 3.1.5** The compressors, instrumentation, controls and all other equipment shall be provided as shown on the contractor supplied drawings, and as specified herein for a complete compressor system. All equipment specified in this section shall be designed and furnished by the Contractor, who shall be responsible for the suitability and compatibility of all included equipment.
- 3.1.6** The replacement system must provide all original functionality, meet or exceed original performance criteria of the attached technical specification. The system must be compatible with the existing ship's machinery Alarm and Monitoring system and be connected to existing supply and discharge piping. It will be the contractors responsibility to supply piping to connect to the existing supply and discharge piping.
- 3.1.7** The new systems must be resiliently mounted and must utilize the existing zone valve control system.
- 3.1.8** The electrical service, including cables shall match that of the existing compressors. The existing electrical service is comprised of a single 3 conductor 1/O marine braid cable entering the bottom of each starter cabinet (2x) which is then fed to the main switchboard in the main control room. The contractor is to provide details on the proposed motor starter to ensure it fits in the required space vacated by the original starter. The contractor must show details on the cable entry and connection points. The original motor starters are 1240mm High, 960mm Wide and 1000mm deep.
- 3.1.9** The new compressors, starters and control systems must currently be in marine service and must have Original Equipment Manufacturer (OEM) representation in Canada. The manufacturer's appointed service organization must hold a stock of essential spares and be capable of providing qualified field service representatives (FSRs), thorough component documentation support, with the capability to provide technical support for standard overhaul as well as repair. The service organization must be capable of delivering these services and parts to St. John's, NL, within 24 hours of notification by the CCG.
- 3.1.10** The Contractor must provide two (2) sets of training courses to be held onboard the vessel after commissioning of the compressor system. Each course must be for up to 12 students for 4 hours. These courses must be conducted by the Contractor's technical representative and must as a minimum provide:
- a)** Overview of compressor systems.
  - b)** Overview of compressor functionality and capability.
  - c)** Compressor start-up procedures and safe operation.

- d) Routine maintenance.
- e) Trouble shooting methods.

3.1.11 The Contractor must include as part of their bid one site visit for 2 personnel to the vessel after the award of contract to correctly determine all measurements and arrangement of inlet and outlet bellows and piping. The vessel will be located at the Coast Guard base in St John's.

#### 4 Standards

4.1 The requirements of the following standards must be complied with in supplying the compressor and control systems. Current editions of documents at the time of solicitation are to be used.

- a) Rules and Regulations for the Classification of Ships (Lloyds Register or equivalent)
- b) Canada Shipping Act, 2001 (CSA 2001)
- c) Marine Machinery Regulations
- d) Transport Canada Publications
- e) TP127 – Ships Electrical Standards
- f) IEEE 45: Recommended Practice for Electrical Installation on Shipboard

#### 5 Technical Requirements

*The compressors will be used for supplying a variable volume of air to designated portions of the ship's hull according to the operation required. All items specified in this section shall be supplied by the contractor to provide a properly functioning compressor system. All components shall be new and suitable for Marine Environments and per the general environmental conditions specified in section 6.4. It shall be understood that components specified establish minimum requirements only, and do not relieve the contractor of responsibility for providing a properly functioning system.*

5.1 *The compressors shall be electric motor-driven, centrifugal single-stage centrifugal, vertical split type complete with integral gearbox, self-contained lubricating oil supply, dedicated local control panels, and accessories as described herein.*

#### 5.2 DESIGN CONDITIONS

- |  |                        |
|--|------------------------|
| 1. Rated Capacity:                             | 6.84 m <sup>3</sup> /s |
| 2. Design inlet pressure at blower inlet (P0): | 161kpa abs             |
| 3. Design minimum inlet temperature:           | -40°C                  |
| 4. Compressor turndown, % of capacity:         | 100% to 45%            |
| 5. The maximum db of the compressors           | 100db                  |
- B. Compressors shall be capable of delivering a flow of at least 6.84 m<sup>3</sup>/s at ambient conditions ranging from -40°C to 35°C
- C. Compressors shall not surge or exceed the nameplate motor rating over the entire range of operation. Compressor shall not exceed 450kw of total power per unit

### 5.3 GENERAL ENVIRONMENTAL CONDITIONS

The equipment shall be designated for the following service conditions:

- a) Air temperature range of - 40°C to 35°C and shall operate without deterioration in air temperature peaks up to 55°C.
- b) Water temperature, minus -2°C to plus 30°C.
- c) Inclination in all directions from the mounting position 22.5°, rolling 22.5°, 10 seconds full period; and linear vertical acceleration of  $\pm 1.0g$ .
- d) A permanent list of 15° port or starboard, not cumulative with the roll.
- e) Pitch of vessel,  $\pm 12^\circ$ , cycle frequency 6 seconds.
- f) A permanent trim of 5° above or below the horizontal, not cumulative with the pitch.
- g) Under the following conditions of relative humidity: – 95% r. h. at temperatures up to 35°C; and – 70% r. h. at all other relevant temperatures.
- h) Shock loading: 2.5 g horizontal, 1.5 g vertical.
- i) Under the following vibration conditions: – 2.0 - 13.2 Hz, displacement amplitude  $\pm 1.0$  mm; – 13.2 - 80.0 Hz, acceleration amplitude  $\pm 0.7$  g, maximum acceleration .7 g natural frequencies at supports for equipment and parts of equipment shall not lie within the 0 - 80 Hz range, except that where they cannot be kept outside this range by constructional design methods, the vibration shall be damped so that undue amplification is avoided.
- j) Any conditions not mentioned to follow most current version TP127E or IEEE45-2002.
- k) Any power cables, protection devices; breakers/fuses, alarm & Monitoring cables and control cables shall be TCMS approved, marine rated cables, PVC jacketed armored, suitable for intended use.

### 5.4 FACTORY TESTING

Each compressor shall be tested in accordance with manufactures published test procedures

- a) The compressor net delivered flow rate and discharge pressure shall be measured, recorded, and guaranteed with no negative tolerance.
- b) Velocity vibration versus frequency levels shall be recorded within 10-1,000 and 10-10,000 Hz frequency range for both the compressor and motor for both sets.
- c) The compressor motors operating winding and bearing temperatures, and operating currents will be recorded from start-up to full load. Meggar readings of the motor windings will be provided as well.
- d) Upon completion of assembly, each compressor, motor, and oil lubrication system shall be functionally tested with the local control panel (LCP). Operational test should be done connected to all skid mounted instruments, electric valve actuators and ancillary equipment.

All start/stop sequences and all safety/alarm systems shall be tested, simulating start of the compressor drive motor.

- e) The alignment of the motor and compressors will be recorded

## **5.5 BEARINGS**

Bearings shall be fitted with RTD's for temperature monitoring. The RTD sensors shall be connected to each control panel and have the ability to view the temperature in real time.

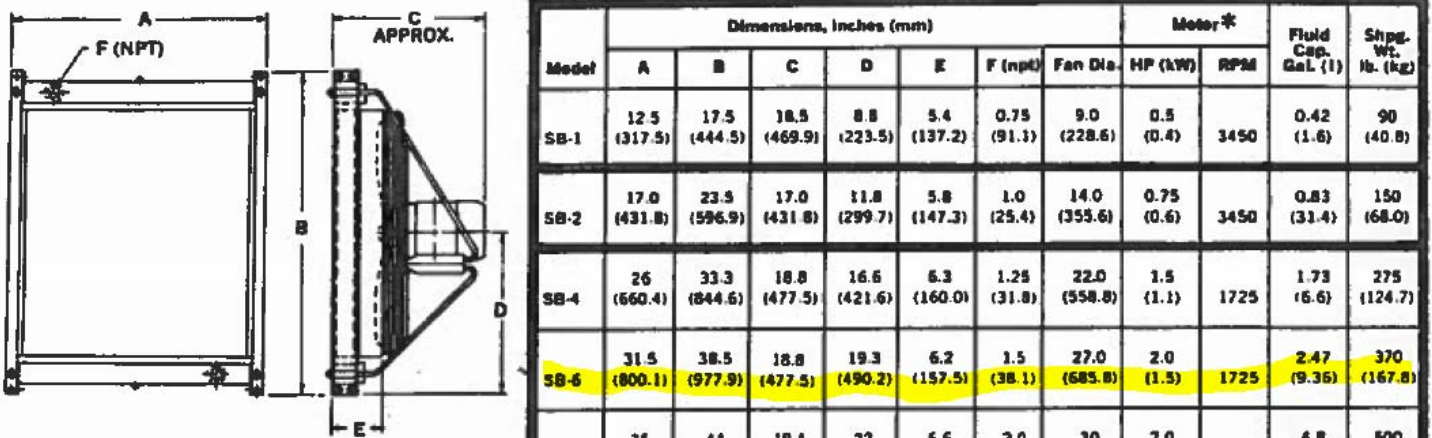
## **5.6 Inlet Guide Vanes**

- a) The purpose of the inlet guide vane system shall be to facilitate turndown of each compressor from 100% to 50% of capacity, while maximizing efficiency over the entire turndown range.
- b) An adjustable inlet guide vane assembly shall be provided to pre-rotate incoming air, thus, maximize efficiency. Inlet guide vanes shall be made in an aerodynamic, streamlined design in cross-section and located in a radial fashion around the annular inlet to minimize downstream wakes. The inlet vanes shall not be used for capacity control.
- c) Inlet guide vane position shall be controlled from the LCP and will provide indication of the vane position on each panel.
- d) The inlet guide vane assembly shall be mounted integrally with each compressor, multi-leaf and pivoted. All vanes shall be mounted in permanently lubricated sleeve bearings. Operating linkages for inlet guide vanes shall be housed within the compressor. Compressors with variable vane assemblies located external to the compressor housing, and/or have ball-in-socket linkages or other moving parts requiring periodic lubrication shall not be acceptable.
- e) Each variable vane assembly shall include a compressor casing mounted electric actuator, limit switches, and open/closed indication on the LCP. .
- f) The position of the vanes, from fully open to fully closed, shall be transmitted to the LCP. Position of the vanes shall be indicated by an adjustable manual lever arm and calibrated dial on the compressor casing. The inlet guide vane position shall be indicated on the LCP

## **5.7 Oil Lubrication System**

- a) A complete lube oil system shall be provided with each compressor, installed integrally with the compressor base and arranged to permit ease of accessibility for operation, maintenance, inspection, and cleaning. The system shall be factory assembled, consisting of main and auxiliary oil pumps, oil filter, oil cooler, pressure relief valve, and piping required for a complete system. All hose ends, tubing and fittings are to be stainless.
- b) The electrical supply for heaters and pumps will be taken from the existing supply for the original compressors. (MCC #6 located in the Bubbler compartment, 575 volt, 3 phase 60Hz)
- c) During equipment idle periods, while the vessel is operating without the bubbler system, the (i.e. the compressor is not in operation) electric oil pump shall operate to ensure the load bearing components are adequately lubricated to prevent wear from the vessel vibration and movement.

- d) The oil filter shall be of the full flow, replaceable cartridge, duplex type with integral transfer valve, and capable of removing particles over ten (10) microns with a clean oil filter element pressure drop kept to a minimum. A visual gauge and electric switch connected to the LCP shall indicate when a filter is dirty and requires changing. Filters shall be designed such that changeover of the lube oil filters during operation is available.
- e) Provide an air/oil cooler to maintain constant oil temperature and mount on each compressor skid. The cooler must be suitable for corrosive marine environment. The new oil coolers are intended to fit with-in the following dimensions. 800mm x 977mm x 478mm.



Provisions for an oil heater to heat the oil if the ambient temperature around the compressor falls below 10° C (50°F). The oil heater shall be designed to heat lightweight oil as required by OEM instructions. The heater operation shall be controlled by the LCP based on the oil reservoir temperature transmitter reading. The compressor shall not start unless the oil is above a minimum permissive limit. Low oil temperature warning indication shall be provided on each LCP.

## 5.8 EQUIPMENT BASE AND MOUNTINGS

- a) A base sized to support the compressor, gearbox, motor, lubricating system, and accessories shall be supplied.
- b) The base shall be fully self-supporting and mounted on Contractor supplied vibration isolators suitable to absorb the weight and vibration of the compressor assembly without undue stress or distortion.
- c) The base and compressor assembly must be designed to withstand the forces exerted by the ship movements as specified in section 6.4.
- d) The units shall be factory precision aligned on the base prior to shipment. After installation of all equipment the complete unit will be verified to be still with-in alignment specifications prior to shipment.

## 5.9 ELECTRIC MOTORS

- a) The compressor motor horsepower shall be equal to, or in excess of, the maximum load that will be imposed at any point in the operating range of the design conditions specified. Each

motor shall have a 1.15 service factor with Class "B" temperature rise at rated load and Class "F" insulation. Motors shall be supplied with lifting lugs. The motor at no point will exceed the 450KW rating for each system in normal operation.

- b) Each Motor must have a stand still heater. The heater shall be wired to and controlled by the motor starter or compressor control panel.
- c) All motors shall be suitable for operation on 4160volts/60 Hertz/3 phase power for ambient air temperature up to 40°C. Motors shall be suitable for reduced voltage start. The motor shall be designed to start on 90% of rated voltage.
- d) Motors shall have factory installed fail-safe winding protection in each phase consisting of two embedded 3-wire, RTD temperature sensors per phase (one operational, one spare). Winding temperature RTD's shall connect to the LCP for monitoring and alarm. The temperature of each RTD will be able to be monitored at the local control panel.

#### **5.10 AIR INLET OUTLET AND BLOWOFF SILENCER**

- a) The new compressors must incorporate a custom bellows and adaptor piping of a minimum schedule 80 pipe to connect to the existing inlet, outlet and blow off piping. This will include a stainless steel bellows from the corresponding inlet/outlet/blowoff.
- b) The current inlet bellows is Vokes Type EA10, size: 450mm N/BNP6 BS.4504
- c) The current discharge bellows is Vokes EA08, size: 350mm NB/NP6 BS4504
- d) The current blow off is 12" gooseneck leading ending on the foc'cle deck. The contractor will include dimensions and arrangement drawings for a silencer including minimum distance from compressor outlet. The contractor will supply pricing for an optional silencer to be included in the evaluated total.

#### **5.11 INSTRUMENTATION**

- a) Instrumentation components shall be provided and mounted on the compressor skid, except as noted, with all electrical connections external to the skid, wired to the LCP by the Contractor. The following design parameters apply:
  - 1. Butt type connectors for any connections shall not be used, only terminal strips are acceptable. All wires shall be marked at both ends.
  - 2. The LCP must be designed to withstand heavy vibration for icebreaking conditions and provided with compression style spring loaded terminal block isolators. Screw type isolators shall not be used.
  - 3. Instrumentation must be designed for marine environments and shall be highly resistant to vibration.
- b) Instrumentation and warning/status/alarm functions for each compressor must include, as a minimum, the following items. Digital and analog signals shall be indicated on the Operator Interface. Operator interface shall include the ability to change set points for testing and confirming functionality and accuracy.

1. Inlet air temperature gauge
  2. Inlet air temperature sensor/transmitter, Inlet high temperature and recirculation surge indicator
  3. Surge switch
  4. Discharge air pressure gauge
  5. Differential pressure (inlet/discharge) transmitter
  6. Oil temperature sensor/transmitter, installed in the oil reservoir
  7. Oil temperature gauge
  8. Oil low pressure switch
  9. Oil low-low pressure switch
  10. Oil pressure gauge
  11. Oil filter differential pressure indicator/switch – filter change warning
  12. Low oil level switch
  13. Inlet guide vane position transmitter and open/closed limit switches
  14. Blow-off valve limit switches, integral with blow-off valve and capable of being wired to the LCP
- c). The temperature monitoring system shall include 3-wire, RTD temperature sensors embedded in the motor windings (two per phase; one active, one spare) and one each per bearing of both the motor and compressor/gearbox. The system shall monitor and display actual winding and bearing temperature at the LCP. The LCP Operator Interface shall display an alarm when rising temperature levels reach the alarm set point, and then follow with a compressor shutdown when temperature levels continue rising to the trip set point. The trip shall be displayed until the condition is corrected and the trip is acknowledged at the Operator Interface.
- d) Pressure transmitters shall be 4-20 mA. Gauge pressure transmitters shall be supplied with a 316 stainless steel block and bleed valve for process isolation and calibration.
- e) Process temperature sensors (inlet/discharge air, lube oil) shall be RTD, 3- or 4-wire, assembled to a termination head that houses the temperature transmitter. Temperature sensors installed into the compressed air stream or lube oil system shall include a 316 stainless steel thermo well.
- f) A shaft vibration monitoring system must be furnished for each compressor and motor. The system must include:
1. A vibration transmitter must be installed on the compressor gearbox casing to alarm and shutdown on excessive vibration.



2. Motor velocity type vibration transmitters (2 each): The instrument shall be a combination vibration sensor/transmitter and be mounted over the bearing on each end of the motor.
- g) The LCP shall receive, and the Operator Interface must numerically display, the vibration signals. The Operator Interface shall include an adjustable alarm feature on the rising vibration levels that first alarms and is followed by unit shutdown. The alarm/shutdown shall be displayed until reset. Provide necessary hardware for direct communication between vibration probes, PLC, and Operator Interface. All components shall be designed to be highly resistant to vibration.
- h) Two modes of operation shall be selectable, ice breaking mode and thruster mode. For ice breaking mode, contractor shall coordinate with CCG on agreeable alarm and trip vibration set points to avoid nuisance alarms, while still protecting the machine.
- i) The LCP will have the ability to trend and record all parameters in this section to an external memory card. Fully licensed software to view the recorded parameters will be provided.

#### **5.12 LOCAL CONTROL PANEL (LCP)**

- a) Each compressor must be furnished with a skid-mounted sequencing panel. The control panel shall be mounted on anti-vibration mounts for withstanding in both the vertical and horizontal planes. All instruments and controls on the skid shall be factory wired to the skid-mounted LCP. All controls and instruments shall fail into a safe condition. The controls shall be designed such that the compressor cannot operate unless the controls are energized, nor can they operate with any defective controls. Vibration mounts shall be designed to withstand the vibration and forces specified in section 6.4 of this Specification.
- b) The control panel must have a minimum IP55 rated enclosure fitted with a hinged door for front access.
- c) Each compressor LCP must contain controls for compressor motor starting, surge and overload detection, shutdown control and sequencing, alarm and emergency shutdown systems, inlet guide vanes, blow-off valve, and the oil lubrication system operation. The Compressor LCP must be capable of seamless interface with the existing Bubbler Master Control Panel & Bridge System.
- d) Each LCP must contain a main power disconnect, which will be fed from the existing power feed P101-12-2(120Vac) for port and P101-12-3(120VAC) for stbd. Starters for variable vane operators, air/oil cooler, and oil pump shall be mounted inside the panel. Provide for power distribution to feed motorized valve motor controllers located at the valves. Note : This is for the original control voltage only. The contractor may utilize 575volt, 3 phase, 60Hz supply if required in the same space. Currently, lube oil heaters , pumps and ancillary equipment is fed from 575volt supply with separate 120volt control. The contractor must provide details of voltage required for the intended control panel.
- e) Surge suppressors must be provided for "noise" protection and to remove transient peaks across all inductive loads. No MOV's will be allowed for surge suppression.
- f) Isolation amplifiers, R/I transmitters, RTD/vibration transmitters, and other controls must be supplied, as required, for complete system control.



- g) The contractor must identify each end of each wire by a unique wire number printed on a heat shrunk sleeve marker.
- h) The LCP must be provided with indicating lights, selector switches and pushbuttons to allow for operation and monitoring. Full monitoring and operation of the compressor should be available through the use of the selector switches, indicating lights and push buttons
- i) The LCP will contain a display screen, the Operator Interface shall provide easy access to all functions that operating personnel will need for operation and maintenance of the compressor. The controls/displays shall generally be functionally grouped as operations, service, alarms/trips or configuration. Access to these separate control functions shall always be displayed in the form of a touch-sensitive screen point selection button/tab on each operator interface screen and be accessible by one-touch selection. The following general design protocol shall be followed:
  - 1. A main operations page shall be provided that consolidates the basic control functions on one screen, including: start and stop control, local and remote operating mode selection, important operating status message display, capacity increase and decrease control, capacity indication in % and motor amperage indication. All operating parameters and transmitter values shall be accessible from the main operations page. If multiple pages are required to display operating data, navigation between pages shall be simple and obvious to the operator, in the form of one-touch selection buttons or tabs. Operating data shall be organized and clearly identified to facilitate fast and easy viewing by the operator.
  - 2. A service page shall be provided to allow maintenance and troubleshooting of the compressor controls and ancillary devices. From the service page, one-touch selection buttons shall be provided to select the normal mode of operation or the service mode of operation.
  - 3. In the event that an alarm or trip is detected, there shall be a message displayed and/or a visual indication of the presence of an alarm on the main operations page. An alarm/trip status page shall be accessible from any other page or mode of operation with a one-touch push button selection. The Alarm/Trip status page shall give a listing of all active alarms or trips with a detailed description of each and the time of occurrence. All alarms, once corrected, may automatically be cleared without acknowledgement. However, any trip condition shall require an operator to acknowledge the trip condition after it has been corrected by a one-touch selection button on the alarm/trip page. Compressor start shall be inhibited if there are any active alarms. The control system shall also prevent a re-start of the compressor until all trips are corrected and acknowledged. A horn shall sound (and a beacon shall illuminate) when any alarm or trip condition occurs to alert plant operating personnel. A one-touch selection button on the alarm/trip page shall be provided to silence the alarm horn.
  - 4. A configuration page shall be provided which includes power-up default settings. The power-up default settings will determine the control mode the compressor will be in upon power up of the LCP. The configuration page shall also include a Test Mode that diverts main motor starter start signal to test logic that simulates motor start to facilitate testing of the control system without starting the drive motor.
- j) Additional selector switches, pushbuttons, and indicators shall include:

1. Emergency stop mushroom button on panel door
  2. Separate, non-resettable hour meter on panel door
  3. In addition to the OIT indicating lights, pushbuttons shall be provided to allow for operation and monitoring of the compressor in the event that the OIT is inoperable or Operator prefers not using the OIT.
- k) The Operator Interface shall display and monitor all analog signals, including, but not limited to:
1. Motor amps
  2. Inlet guide vane position
  3. Temperature signals
  4. Pressure signals
  5. Vibration signals
- l) The compressors shall start under an automatic sequence initiated by the local start signal or the remote start signal (i.e. bridge or Bubbler Master Panel) when in remote/auto control. Upon signal to start, the LCP shall confirm the inlet guide vanes are at minimum, the blow-off (bypass) valve is open, and the discharge valve (if used) is properly positioned, and bubbler vent doors are opened. All vanes and valves are equipped with limit switches on both the open and closed position to indicate position. Bubbler vent doors are provided with proximity switches to indicate open or close position of doors. If components are not properly positioned, they shall be moved to their respective start positions automatically by the control panel with the exception of bubbler vent doors. These must be manually opened by ships staff. The LCP will indicate the status of all permissive's in real time so that remedial action can be taken if a permissive is not met.
- m) The oil pre-lubrication system shall energize and run for the minimum time as required by the compressor manufacturer. Once all pre-start per missives are confirmed, the compressor motor shall be started. A feedback signal from the main motor starter shall confirm the main drive motor starter has been energized. When the compressor reaches operating speed, as determined by the motor start sequence, the controls shall open the inlet guide vanes and electrically actuated discharge valve (if used), close the blow-off (bypass) valve, stop the electric oil pump, and release control of the inlet guide vanes to local/remote control. If the components are not correctly positioned, interlocks shall prevent compressor operation after a pre-set delay time. Provide sequence fail alarm and trip if any portions of the start, run, or stop sequence are not properly executed. The Operator Interface shall annunciate the function that caused the trip.
- n) The surge detection system shall sense unbalanced/surge conditions by use of pressure sensing devices. Detection of surge conditions shall trip the compressor off-line.
- o) Motor overload protection must be provided to control the maximum vane setting on the compressor, so that motor current does not exceed a pre-set level.
- p) The output of the compressor shall be graphically and numerically displayed on the operator interface as a percentage of maximum capacity from 0 to 100%.
- q) There shall be three means of shutting down the compressor:
1. Normal Stop – Initiated by pushing the stop button on the Operator Interface or remote stop. The unit normally stops such that no surging occurs.

2. Soft Stop – Initiated by:

- i. High oil temperature
- ii. High inlet air temperature (recirculation/surge)
- iii. High motor winding temperature
- iv. High bearing temperature (compressor or motor)
- v. Discharge valve has not fully opened within two (2) minutes after feedback signal from main motor starter
- vi. Blow-off valve has not closed within five (5) minutes after feedback signal from main motor starter
- vii. High discharge temperature or pressure
- viii. High motor amps
- ix. Surge

Soft stop shall de-energize the main drive motor eight (8) seconds after alarm initiation to allow the blow-off valve to partially open. Normal post-lube and other normal stop functions follow.

3. Emergency Stop – Initiated by:

- i. Pushing emergency stop button
- ii. Low-low oil pressure
- iii. High vibration
- iv. No feedback signal from main motor starter during Start Sequence
- v. Loss of feedback signal from main motor starter during Normal Operation
- vi. Sequence failure during start-up
- vii. Stop sequence failure during shutdown (vanes not at minimum, discharge valve not closed, blow-off valve not open within 120 seconds of issuing a stop command).

Emergency stop shall de-energize the main drive motor immediately. Normal post-lube and other normal stop functions follow.

- r) The high inlet air temperature (recirculation) alarm and the zero speed switch shall be active when there is no main motor feedback present at the LCP from the main motor starter. The purpose of these sensors is to detect reverse air flow through the compressor and reverse rotation of the impeller.

### 5.13 BUBBLER MASTER CONTROL PANEL (MCP)

The following connections will have to be provided from the compressor control panel to the existing MCP. List is for one compressor only, a duplicate set of contacts will be needed for the opposite compressor.

- a) Remote start signal consisting of a Normally open/Normally closed (NO/NC) set of contacts.
- b) NO/NC for compressor running
- c) NO/NC contact for stopping of compressor
- d) NO/NC contact for low oil pressure ok
- e) NO/NC contact for compressor failure
- f) BOV open indicating lamp in panel
- g) BOV Closed indication in panel

## 6 Quality Assurance

### 6.1 **START-UP**

A. The Contractor shall provide a fully trained technician with a minimum of 5 years' experience to inspect the final installation and supervise the field start-up tests of the equipment. The services shall be provided for a minimum of four (4), eight-hour (8-hr.) days for each unit.

#### B. Compressors and controls – Initial Start-Up

1. Provide, as a minimum, the following field commissioning:
  - a) Visually inspect for proper connection of piping and installation of accessories
  - b) Verify motor rotation and operation.
  - c) Field precision align drive motor to the compressor.
  - d) Check leveling of compressor base
  - e) Confirm proper local control panel (LCP), master control panel (MCP), Bridge Control Panel terminations for all field installed instruments and devices.
2. A minimum four (4) hour field run test( to start after all temperatures have stabilized at their maximum levels) shall demonstrate that, under all conditions of operation, each unit:
  - a) Has not been damaged by transportation or installation
  - b) Has been properly installed
  - c) Has no mechanical defects
  - d) Has fully functional controls and instrumentation
  - e) Will start, run, and stop in the prescribed manner
  - f) Will run through the entire range of specified pressure and flow
  - g) Has the proper shutdown sequence of standard stop, soft stop, and emergency stop
  - h) Is free of overheating of any parts
  - i) Is free of objectionable vibration and unusual noise
  - j) Is free of overloading of any parts
  - k) Inlet guide vanes are automatically positioned by the control system according to the efficiency optimization algorithm.

7 Contractor must provide a qualified Certified Field Service Representative (FSR), to be present during two (2) five (5) day sea trials. FSR must be available to make compressor adjustments and training as required during the sea trial. There will be training for both shifts. At least one Sea Trial shall be arranged to occur during ice conditions with FSR. During this Sea Trial, vibration system shall demonstrate that unnecessary vibration trips (nuisance alarms) are not present during ice breaking mode. Deliverables

### 7.1 **Documentation**

**NOTE:** All documentation shall be provided in electronic PDF format, bookmarked and searchable.

- 7.1.1** The Contractor must supply Canadian Coast Guard Technical authority with (3) hardcopies and (1) electronic copy of all the following to the TA
- a) All readings, videos(electronic only), photos, tests, defects.
  - b) All hardware manuals from as-fitted equipment in English and an electronic copy of French to be provided if available from manufacturer.
  - c) All engineered drawings in Cad and pdf format.
  - d) Electrical drawings will show as a minimum
    - Interconnects to all shipped loose equipment
    - Full wiring diagram showing all connections (ladder diagram)
    - Door layout
    - Interior layout
  - e) All modified drawings from original in Cad and pdf format
  - f) Complete listing of service FSR's and location for installed equipment.
  - g) Hard copies of all software ( including PLC programs) on OEM supplied discs with installation procedures for all PLC's and equipment specific software.
  - h) All calibration and service procedures required for replacement of any components of new system
  - i) A full priced listing with part numbers of all parts used with contact info for ordering.
  - j) OEM specification sheets of all components with the exact revision and part number identified.
  - k) Procedures for functional testing of the entire package, including oil lube system, instrumentation, ancillary components and control panels
  - l) Instrument alarm and trip set points

**7.1.2 Final Detailed Design Submittal – a final revised and detailed version on the initial design proposal indicating any changes or modifications made.**

**7.1.3 Install Scope of Work. – shall include final engineering drawings and technical specifications for the installation on new bubbler units, and control systems.**

**7.1.4 Factory Test Reports – Compressor, main drive motor, and control panel test reports shall be submitted and approved prior to shipment of the equipment to the jobsite.**

**7.1.5 Installation, Operating and Maintenance (IOM) Manual - The final IOM Manual shall be complete with final test reports and as-built drawings. The IOM Manual must include the following specific information:**

1. Receiving and handling information, with a diagram of the recommended lifting method.
2. Storage requirements when not in service for extended periods
3. Mechanical installation instructions for shipped loose components:
  - a) Compressor skid
  - b) Compressor inlet components and instrumentation
  - c) Compressor discharge components and instrumentation
4. Electrical installation instructions
5. Lube oil filling instructions
6. Operating and maintenance instructions
  - a) Compressor troubleshooting guide
  - b) Recommended spare parts
  - c) Suggested preventative maintenance schedule
  - d) Operating manuals for all major components of the compressor and control system
7. Complete spare part drawings and listings for
  - a) Compressor units and gearboxes including pumps, sensors, couplings, and associated instrumentation
  - b) Electric propulsion (main compressor) motors
  - c) All auxiliary components (pump sets, motors, filter sets, cooler units)
  - d) All electrical control equipment in LCP and interface panels

## **7.2 Tools and spare parts**

- A. The contractor shall furnish all special tools and appliances necessary to disassemble, service, repair, and adjust the equipment and appurtenances.
- B. The following spare parts shall be furnished:
  1. Two sets of oil filter elements for each unit
  2. One set of compressor seals and bearings for each unit
  3. One set of gearbox bearings and seals
  4. One set of motor bearings for each unit
  5. One inlet guide vanes actuator
  6. One mechanical oil pump
  7. One complete auxiliary oil pump assembly
  8. One spare PLC ( will include 2 of every type of board) This includes but is not limited to:
    - a) Power supplies
    - b) CPU
    - c) Memory module
    - d) Digital and Analog Input/Output
    - e) Communication
  9. One (1) laptop loaded with PLC program and software licenses

10. One of every type of electrical component not mentioned previously:
    - a) Relays
    - b) Contactors
    - c) Power supplies
    - d) Switches
    - e) Contact blocks
    - f) Indicating lights
    - g) Breakers
  11. Two spare operator interfaces
  12. 10 of every type and denomination of fuse size used in the new panels and motor starters
  13. One motor/compressor coupling
  14. One fan motor for the oil cooler if used
  15. Two spare pressure transmitters for each pressure range.
  16. Two spare process temperature RTD's for each temperature range.
- C. All spare parts shall be suitably packaged for marine environments and long term storage. Packing shall be clearly identified with indelible marking on the containers. Tools and spare parts (except for the air and oil filters) shall be supplied in a wooden tool chest for long-term storage and marked with Equipment name, along with a description of contents and any applicable part or identifying number. Individual boxes will include a packing list in each box detailing the part number, description and qty. A master list of all parts will also be included with all spare parts provided.

## ANNEX "B"

### BASIS OF PAYMENT

#### Bubbler Compressors – CCGS Henry Larsen

This contract will consist of the supply, testing and satisfactory operation of two (2) electric motor driven, single-stage, integrally geared, single vane centrifugal compressors, local control panels and compressor motor starters, as per the Statement of Requirements attached in Annex "A."

**BID AMOUNT-** Supply two (2) electric motor driven, single-stage, integrally geared, single vane centrifugal compressors, local control panels and compressor motor starters, as per the Statement of Requirements attached as Annex "A."

\$ \_\_\_\_\_

**TESTING OF EQUIPMENT-** Testing and satisfactory operation of two (2) electric motor driven, single-stage, integrally geared, single vane centrifugal compressors, local control panels and compressor motor starters, as per the Statement of Requirements attached as Annex "A."

\$ \_\_\_\_\_

**TRAINING-** The Contractor must provide two (2) sets of training courses to be held onboard the vessel after commissioning of the compressor system. Each course must be for up to 12 students for 4 hours as per Annex "A"

\$ \_\_\_\_\_

**TRAVEL: Allowance- \$20,000 (All travel costs will be paid at actual laid down costs, supported by invoices and will be adjusted up or down.)**

#### SHIPPING COSTS\*:

\$ \_\_\_\_\_

#### TOTAL BID AMOUNT (HST EXTRA):

\$ \_\_\_\_\_

\* Shipping costs are an estimate only and will be paid at actual laid down cost supported by an invoice, with no mark-up or profit.



Solicitation No. - N° de l'invitation  
F7049-190011/A  
Client Ref. No. - N° de réf. du client  
F7049-190011

Amd. No. - N° de la modif.  
File No. - N° du dossier  
OLZ-9-42002

Buyer ID - Id de l'acheteur  
olz009  
CCC No./N° CCC - FMS No./N° VME

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## **ANNEX “C” to PART 3 OF THE BID SOLICITATION**

### **ELECTRONIC PAYMENT INSTRUMENTS**

The Bidder accepts any of the following Electronic Payment Instrument(s):

- ☐ ( ) VISA Acquisition Card;
- ☐ ( ) MasterCard Acquisition Card;
- ☐ ( ) Direct Deposit (Domestic and International);
- ☐ ( ) Electronic Data Interchange (EDI);
- ☐ ( ) Wire Transfer (International Only);
- ☐ ( ) Large Value Transfer System (LVTS) (Over \$25M)

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## ANNEX "D"

### INSURANCE REQUIREMENTS

The Bidder must provide 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 below.

If the information is not provided in the bid, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid nonresponsive.

#### 1.1 Commercial General Liability Insurance

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 \$2,000,000 per accident or occurrence and in the annual aggregate.

The Commercial General Liability policy must include the following:

- a. Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada should read as follows: Canada, as represented by Public Works and Government Services Canada.
- b. Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.
- c. 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 endeavour 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. Amendment to the Watercraft Exclusion to extend to incidental repair operations on board watercraft.

n. 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 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.

Solicitation No. - N° de l'invitation  
F7049-190011/A  
Client Ref. No. - N° de réf. du client  
F7049-190011

Amd. No. - N° de la modif.  
File No. - N° du dossier  
OLZ-9-42002

Buyer ID - Id de l'acheteur  
olz009  
CCC No./N° CCC - FMS No./N° VME

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## **ANNEX "E"**

### **TRAVEL AND LIVING EXPENSES - NATIONAL JOINT COUNCIL TRAVEL DIRECTIVE**

The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, and private vehicle allowances specified in Appendices B, C and D of the [National Joint Council Travel Directive](#), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees". Canada will not pay the Contractor any incidental expense allowance for authorized travel.

All travel must have the prior authorization of the Technical Authority.

All payments are subject to government audit.

Solicitation No. - N° de l'invitation  
F7049-190011/A  
Client Ref. No. - N° de réf. du client  
F7049-190011

Amd. No. - N° de la modif.  
File No. - N° du dossier  
OLZ-9-42002

Buyer ID - Id de l'acheteur  
olz009  
CCC No./N° CCC - FMS No./N° VME

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**ANNEX "F"**

**CLASSIFICATION SOCIETY CERTIFICATION FORM**

This confirms that the bidder has entered into an agreement with the classification society identified below to complete the work as identified:

Name of Classification Society

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Signature of Authorized Signatory of Classification Society

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Name of Authorized Signatory of Classification Society

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Title for Authorized Signatory of Classification Society

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Telephone # for Authorized Signatory of Classification Society

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Name of Bidder

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Date Signed

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## ANNEX "G" to PART 5 OF THE BID SOLICITATION

### FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY - 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 any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit [Employment and Social Development Canada \(ESDC\)-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 permanent full-time and/or permanent part-time employees.

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 ESDC-Labour.

**OR**

- ☐ A5.2. The Bidder certifies having submitted the [Agreement to Implement Employment Equity](#) (LAB1168) to ESDC-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 ESDC-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 "H"

### INTEGRITY PROVISIONS

The Integrity Provisions of the contract require that bidders supply the following:  
List of Names

(a) 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, as well as those bidding as a joint venture, must provide the name of the owner(s). Bidders bidding as societies, firms, or partnerships do not need to provide lists of names.

(b) If the required list of names has not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to provide the names within the time frame specified will render the bid non-responsive. Providing the required names is a mandatory requirement for contract award.

(c) The Bidder must immediately inform Canada in writing of any changes affecting the list of names of directors during this procurement process.

**Complete Legal Name of Company** \_\_\_\_\_

**PBN** \_\_\_\_\_

**List of names of the current Board of Directors or Owners:**

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