



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

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

Pacific Region

401 - 1230 Government Street

Victoria, B.C.

V8W 3X4

Bid Fax: (250) 363-3344

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

Public Works and Government Services Canada - Pacific
Region

401 - 1230 Government Street

Victoria, B. C.

V8W 3X4

Title - Sujet Control Valve Training Modules	
Solicitation No. - N° de l'invitation W0103-198227/B	Date 2019-05-17
Client Reference No. - N° de référence du client W0103-198227	
GETS Reference No. - N° de référence de SEAG PW-\$XLV-211-7735	
File No. - N° de dossier XLV-8-41201 (211)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2019-07-02	Time Zone Fuseau horaire Pacific Daylight Saving Time PDT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Buchan, Torrey	Buyer Id - Id de l'acheteur xlv211
Telephone No. - N° de téléphone (250) 216-2092 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: National Defence Canada See Herein	

Instructions: See Herein

Instructions: Voir aux présentes

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

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PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There is no security requirement applicable to the Contract.

1.2 Requirement

The Department of National Defence (DND) has a requirement to procure **Six (6) Control Valve Training Systems (Control Valve Trainers)** that will enable practical learning and skills acquisition by The Royal Canadian Naval personnel for readiness of duty to be deployed for any of Her Majesty's Canadian Ship (HMCS) operations.

Three (3) of the **Control Valve Trainers** are required at The Naval Fleet School Pacific, CFB Esquimalt Victoria British Columbia while **the other three (3)** are for The Naval Fleet School Atlantic, CFB Halifax located in Halifax, Nova Scotia.

The Equipment will be used to offer students hands-on (practical) training on the basics of Control Valves, including their characteristics, maintenance, repair and operation, and, through simulating a series of flow type systems, allowing for training on the operation, removal, testing and troubleshooting of various Valves as is in today's Naval systems operations. Acquisition of these equipment will also enhance the Naval Fleet Schools' capabilities, and, equip The Royal Canadian Navy for real life development support of the Fleet.

The requirement includes supply, delivery, installation and commissioning of the systems at both delivery locations. There is also a requirement for training of up to 6 DND personnel at each location in the use of the equipment.

All the deliverables must be received on or before:

- (i) Equipment & Installation: November 15, 2019
- (ii) On-site Training: (within 2-5 business days of installation)

There is an option to acquire an additional two (2) units within 365 days of Contract award.

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 World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), the Canada-European Union Comprehensive Economic and Trade Agreement (CETA), and 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

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>) 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.

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

a. Unless specified otherwise in the bid solicitation, bids may be submitted by using the **epost Connect service** provided by Canada Post Corporation.

i. PWGSC, National Capital Region: The only acceptable email address to use with epost Connect for responses to bid solicitations issued by PWGSC headquarters is:

tpsgc.dgareceptiondessoumissions-abbidreceiving.pwgsc@tpsgc-pwgsc.gc.ca

or, if applicable, the email address identified in the bid solicitation.

ii. 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.

b. To submit a bid using epost Connect service, the Bidder must either:

i. 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

ii. 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.

c. 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.

d. 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.

e. The bid solicitation number should be identified in the epost Connect message field of all electronic transfers.

f. 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.

g. 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:

- i. receipt of a garbled, corrupted or incomplete bid;
- ii. availability or condition of the epost Connect service;
- iii. incompatibility between the sending and receiving equipment;
- iv. delay in transmission or receipt of the bid;
- v. 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.

ii. A bid transmitted by epost Connect service constitutes the formal bid of the Bidder and must be submitted in accordance with section 05.

2.2 Submission of Bids

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

Address:

*Bid Receiving Public Works and Government Services Canada
Pacific Region
401-1230 Government Street
Victoria, BC*

V8V 3X4

epost Connect email:

TPSGC.RPReceptiondessoumissions-PRBidReceiving.PWGSC@tpsgc-pwgsc.gc.ca

Bids/Offer will be not be accepted if emailed directly to this email address. This email is to initiate an ePost Connect conversation, as detailed in the Standard Instructions.

*Bid Facsimile number:
(250) 363-3344*

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than ten (10) 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.

2.4 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in British Columbia. 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. Bidders must provide their bid in a single transmission. The epost Connect service has the capacity to receive multiple documents, up to 1GB per individual attachment.

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

Section I: Technical Bid
Section II: Financial Bid
Section III: Certifications

- 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 (1 hard copy)
Section II: Financial Bid (1 hard copy)
Section III: Certifications (1 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 demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

The technical bid should 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.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with ANNEX C– FINANCIAL EVALUATION SHEET and address each of the cost elements.

Bids must be submitted in Canadian currency.

Bidders are requested to insert "\$0.00" for any of the cost elements for which it does not intend to charge. If any cost element is left blank, Canada will insert "\$0.00" for that element.

3.1.1 Electronic Payment of Invoices – Bid

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

If Annex "F" 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

Section III: Certifications

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

3.1.3 No Conditional Bids

The Bidder's bid must not be made conditionally. Any condition imposed by the Bidder will render the bid non-responsive and the bid will be given no further consideration.

3.1.4 Substantial Information

Bidders must demonstrate their compliance with the following sections of the bid solicitation by providing substantial information describing completely and in detail how the requirement is met or addressed. Bidders must provide with their technical bid, a document indicating clearly where the substantial information for each mandatory criterion identified in Annex E – Technical Evaluation Criteria.

3.1.5 Mandatory Tender Deliverable Check List

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

For details and to complete please refer to Annex D – Tender Deliverables.

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.

- c. Where Canada has made a determination that a bid has failed any individual mandatory element of the Solicitation, Canada reserves the right to not proceed further in the evaluation of the bid and may deem the bid non-responsive.

4.1.1 Technical Evaluation

The Technical Bid Evaluation Plan and mandatory technical evaluation criteria are included in ANNEX "E" - TECHNICAL EVALUATION CRITERIA.

4.1.2 Financial Evaluation

The price of the bid will be evaluated in Canadian dollars in accordance with Annex C, Customs duties are included and the Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

4.2 Basis of Selection

To be declared responsive, a bid must:

- a. comply with all the requirements of the bid solicitation; and
- b. meet all mandatory criteria; and
- c. obtain the required minimum of 70 points overall for the technical evaluation criteria which are subject to point rating.
- d. The rating is performed on a scale of 100 points.

Bids not meeting (choose (a) or (b) or (c)) will be declared non-responsive.

The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 60 % for the technical merit and 40 % for the price.

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 60 %.

To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 40 %.

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

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.

The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by a 60/40 ratio of technical merit and price, respectively. The total available points equals 135 and the lowest evaluated price is \$45,000 (45).

Basis of Selection - Highest Combined Rating Technical Merit (60%) and Price (40%)

		Bidder 1	Bidder 2	Bidder 3
Overall Technical Score		115/135	89/135	92/135
Bid Evaluated Price		\$55,000	\$50,000	\$45,000
Calculations	Technical Merit Score	115/135 x 60=51.11	89/135x60=39.56	92/135x60=40.89

	Pricing Score	45/55x40=32.73	45/50x40=36.00	45/45x40=40.00
Combined Rating		83.84	75.56	80.89
Overall Rating		1st	3rd	2nd

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.

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 under the "Requirement" at Annex A.

6.2.1 Optional Goods

The Contractor grants to Canada the irrevocable option to acquire the goods described at Annex A of the Contract under the same conditions and at the prices and/or rates stated in Annex B. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through a contract amendment.

The Contracting Authority may exercise the option at any time before the expiry of the Contract by sending a written notice to the Contractor.

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.

6.3.1.1 Warranty Period

Section 09 of general conditions 2010A is amended by replacing the period of 12 months by _____ months.

All other provisions of the warranty section remain in effect.

6.3.2 Supplemental General Conditions

[4009](#) (2013-06-27), Professional Services – Medium Complexity, apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from date of Contract to 365 days after contract award inclusive.

6.4.2 Delivery Date

All the deliverables must be received on or before:

- (i) Equipment & Installation: November 15, 2019
- (ii) On-site Training: (within 2-5 business days of installation)

6.4.3 Delivery Location

Goods must be consigned to the destination specified in the Contract and Delivered Duty Paid (DDP – Incoterms 2010)

The following locations are identified in Annex A as delivery locations:

- a. Department of National Defence, Canadian Forces Base, Esquimalt, Naval Fleet School (Pacific) Building 92 Fluid Power Laboratory, NADEN, Victoria, BC V9A 7N2, Canada; and,

b. Department of National Defence, Canadian Forces Base, Halifax, Naval Fleet School (Atlantic), Building S-15, Halifax, NS B3K 5X5, Canada.

6.4.3 Preparation for Delivery

Preparation for delivery and packaging are to be to the highest manufacturer's standard for the mode of transportation utilized, to ensure safe arrival at final destination.

6.4.4 Failure to keep the Contracting Authority informed

As the delivery date is an essential part of this contract, except for excusable delays notified in accordance with Article 06 (Time of Essence) of 2010A, failure to communicate any changes to the delivery schedule specified in this contract will prejudice Canada and will, at Canada's discretion, entail either:

- a. Contract Termination in accordance with General Conditions 2010A Article 06 (Time of the Essence) and Article 23 subsection 4, (Default by the Contractor), and the Contractor will be liable to Canada for all losses and damages suffered by Canada because of the default or occurrence upon which the notice was based, including any increase in the cost incurred by Canada in procuring the Work from another source; or
- b. Consideration for Contract Amendment. Delivery date(s) will not be extended without consideration being provided by the Contractor in the form of adjustment to the price, warranty, and/or services provided.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Torrey Buchan
Public Works and Government Services Canada
Acquisitions Marine, Procurement Branch
Address: 401 – 1230 Government Street
Victoria, BC V8W 3X4
Telephone: 250-216-2092
E-mail address: Torrey.Buchan2@pwgsc-tspgc.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.

In the event you are unable to contact the above noted Authority, please contact: PAC.VICCA@pwgsc-tspgc.gc.ca

6.5.2 Technical Authority

The Technical Authority for the Contract is: *(will be inserted at time of contract award)*

Name: _____
Title: _____
Organization: _____
Address: _____

Telephone: _____
Facsimile: _____
E-mail address: _____

The Technical Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the 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

Contract for:	Name	Telephone	Email
Contracting issues			
Technical issues			
Invoicing issues			

For details and to complete please refer to Annex D.

6.6 Payment

6.6.1 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" for a cost of \$ _____. Customs duties are included and Applicable Taxes are extra.

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.

6.6.2 Limitation of Price

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

6.6.3 SACC Manual Clauses

C0100C 2010-01-11 Discretionary Audit – Commercial Goods and/or Services

C6000C 2017-08-17 Limitation of Price

6.6.4 Electronic Payment of Invoices – Contract

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

- Direct Deposit (Domestic and International);
- Electronic Data Interchange (EDI);
- Wire Transfer (International Only);

6.7 Invoicing Instructions

The Contractor must submit invoices in accordance with the section of the General Conditions titled Invoice Submission.

Invoice is to be made out to:
TBD

Electronic invoice is to be sent for verification to:

PAC.MARINE@pwgsc-tpsgc.gc.ca Attention: Torrey Buchan

Please note the file number in the subject line of the email.

6.8 Certifications and Additional Information

6.8.1 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.

6.8.2 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 Applicable Laws

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

6.10 Priority of Documents

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

- a) the Articles of Agreement;
- b) the supplemental general conditions 4009 (2013-06-27), Professional Services – Medium Complexity;
- c) the general conditions 2010A (2018-06-21), General Conditions - Goods (Medium Complexity);
- d) Annex A, Statement of Work;
- e) Annex B, Basis of Payment;
- f) the Contractor's bid dated _____

6.11 SACC Manual Clauses

SACC Manual clause A9062C (2011-05-16), Canadian Forces Site Regulations;
SACC Manual clause B1501C (2006-06-16), Electrical Equipment;
SACC Manual clause B7500C (2006-06-16), Excess Goods

6.12 Insurance – No Specific Requirement

G1005C (2016-01-28), Insurance – No Specific Requirement

ANNEX A
REQUIREMENT

STATEMENT OF WORK

PROJECT PROPEL

NTDC



Control Valve Training System(Control Valve Trainer)
Technology Enabled Learning

LIST OF APPENDICES:

- Appendix 1: Control Valve Trainer, [3.0(1.0)] Technical Specification of Requirements
- Appendix 2: Control Valve Trainer, [3.0 (2)] Teaching Requirements
- Appendix 3: Royal Canadian Navy Qualification Standard and Plan (QSP) **[For Information Purposes Only]**

1.0 **SCOPE**

1.1 **Purpose.**

- 1.1.1 The purpose of this Statement of Work (SOW) is to describe the requirements and work effort required from the Contractor by the Department of National Defence (DND) for the supply of the equipment and its installation hook-up and the necessary support to meet the requirements for the acquisition of these items, **Control Valve Training Systems** (also called "**Control Valve Trainers**").

1.2 **Background**

1.2.1 Expert knowledge and competency in the practical application and repair of various Valves and its system of operation is essential to maintaining the capability and reliability of a Canadian Warship. Several critical systems on board Her Majesty's Canadian Ships are fundamentally hydraulic in function, and Valves with Piping or plumbing systems are a major part of that function. Also, the Naval Training Development Centres (NTDC) require improvement of schools' capabilities and output in providing the instructor and students an up to date training platform that integrates an instructional package with hands-on exercises, as identified by DND **QSP** (Quality Standard and Plan) in the operation of various Valves. The Naval Training Development Centre (Pacific) at Canadian Forces Base, NADEN, running the current Maritime Technology Trade training program now requires the acquisition of Control Valve Trainers to adequately teach Naval personnel the basics of Control Valves, its characteristics, MAINTENANCE, REPAIR AND OPERATIONS of Valves, and, through simulating a series of flow type systems, allowing for training on the operation, removal, testing and troubleshooting of various Valves (and its associated plumbing or piping) as found in today's Navy Systems operations. The practical experience and skills set acquisition from such learning creates the value for the readiness of well-trained technical Naval officers to be deployed for duty on board any of Her Majesty's Canadian Ship (HMCS). This acquisition will leverage process efficiencies that will improve quality.

1.3 **Intended Use**

1.3.1 *The Department of National Defence (DND) has a requirement to procure **Six (6) Control Valve Training Systems (Control Valve Trainers)** that will enable practical learning and skills acquisition by The Royal Canadian Naval personnel for readiness of duty to be deployed for any of Her Majesty's Canadian Ship (HMCS) operation.*

Three (3) of the Control Valve Trainers are required at The Naval Fleet School Pacific, CFB Esquimalt(Naden, Bldg. N92, Engineering Division), Victoria British Columbia, V9A 7N2 while the other three(3) are for The Naval Fleet School Atlantic CFB Halifax (Stadacona, Bldg. S-15, Engineering Division), Nova Scotia, B3K 3C8.

These Equipment will be used to offer students hands-on (practical) training on the basics of Control Valves, its characteristics, MAINTENANCE, REPAIR AND OPERATIONS of Valves, and, through simulating a series of flow type systems, allowing for training on the operation, removal, testing and troubleshooting of various Valves as is in today's Naval systems operations.

Acquisition of these equipment will also enhance the Naval Fleet Schools' capabilities, and, equip The Royal Canadian Navy for real life development support of the Fleet.

2.0 **APPLICABLE DOCUMENTS**

2.1 **References**

2.1.1 The following references are provided with the Request for Proposal. Where mentioned, the following Standards must be used for the preparation of deliverables to the extent specified in this SOW:

2.1.1.1 DND Specifications, Standards, and Publications:

REFERENCE	PROMULGATION	REFERENCE TITLE
QSP-USQ LS MARTECH MECH PO 002- EO 002.01 Maintain Valves	2018-03-10	PO 002 MAINTAIN FLUID SYSTEM COMPONENTS
QSP-USQ LS MARTECH MECH, PO 002 - EO 002.03 Maintain piping and components	2018-03-10	PO 002 MAINTAIN FLUID SYSTEM COMPONENTS

2.2 **Order of Precedence**

2.2.1 In the event of a conflict between the content in this Statement of Work (SOW) and the referenced documents, the content of this SOW takes precedence to inform the Request for Proposal to the Bidder.

3.0 **GENERAL REQUIREMENTS**

3.1 **Scope of Work**

3.1.1 The Contractor must supply the **Control Valve Training Systems** (with removable or interchangeable components of the equipment) that meet all the requirements identified within this SOW.

3.1.2 The Contractor must supply the following:

3.1.2.1 **Requirements** – The Deliverables are hereby described in detail including the description of the required goods, applicable specification/data and the specific delivery location(s) to satisfy Need.

- Supply, deliver, un-load, **six (6) Control Valve Trainers, the Equipment**, that meet all technical requirement and operational teaching requirements and standards stated under this SECTION (*each equipment accompanied with its training manual, student/ Instructor's courseware/handbook, Job sheets/Work order, student lab material and textbooks*); **Three of the Units shall be supplied to The Naval Fleet School Pacific, CFB Esquimalt(Naden, Bldg. N92, Engineering Division), Victoria British Columbia, V9A 7N2 and the other three(3) are for The Naval Fleet School Atlantic CFB Halifax (Stadacona, Bldg. S-15, Engineering Division), Nova Scotia, B3K 3C8.**
- Install **three (3) of the Equipment at each of the specified** delivery locations in the Canadian Forces Base (CFB), Esquimalt, Victoria BC and Halifax, Nova Scotia respectively.
- Provide for and conduct **On-site support / operational (operate and maintain)** training of Client User (DND) system instructors as listed in the deliverables table below.
- All equipment is expected to be supported by the Supplier with a minimum of 2 years running/operational spares at no additional cost to DND, the purchaser.

- e) Functional and Teaching Requirements are Attachments under this general section 3.0 containing comprehensive requirements as outlined

ATTACHMENTS UNDER THIS GENERAL SECTION 3.0:

1. PLS SEE TECHNICAL SPECIFICATION OF REQUIREMENT (TSOR) ATTACHMENT.

- a. The elements contained within the Technical Statement of Requirements are mandatory, and contractors must clearly demonstrate, within their bid submission how compliance is achieved.

2. PLS SEE TEACHING REQUIREMENT ATTACHMENT.

- a. The purpose of the Teaching Statement of Requirements, is to provide contractors with a synopsis of DND intent, of the applicable QSP courseware delivery methodology.

- f) The delivery deadline for the desired equipment is November 15, 2019.

3.2 Tasks

- 3.2.1 The Contractor must deliver all goods in line with all the requirements to the 'specified locations for delivery at Destinations' which are at:

(a) Department of National Defence, Canadian Forces Base, Esquimalt, Naval Fleet School (Pacific) Building 92 Fluid Power Laboratory, NADEN, Victoria, BC V9A 7N2, Canada; and,

(b) Department of National Defence, Canadian Forces Base, Halifax, Naval Fleet School (Atlantic), Building S-15, Halifax, NS B3K 5X5, Canada.

- 3.2.2 The Contractor must unpack the **Control Valve Trainer** (*The Equipment*, 'The Control Valve Training System'), and remove all packaging material from DND premises.

- 3.2.3 The Contractor must perform the installation of all **six (6) Control Valve Trainers** (with reference to (3.1.2.1) at the Client-User (DND) premises at *the locations as specified above in 3.2.1* and as designated by the Project Authority, and, Contractor must ensure before delivery that all electrical products provided are certified and approved for safe/operational use in accordance with the Canadian Electrical Code Part 1 by a certified organization accredited by the Standards Council of Canada.

- 3.2.4 The Contractor must provide 6 hardcopies (paper format copies) and 2 electronic copies of the User and System Manuals in English and French. 3 hardcopies/1 e-copy CD Rom for each location.

- 3.2.5 The Contractor must maintain their Plan or Schedule to meet/satisfy the required delivery date and other deliverables as specified for the requirements, showing (timelines) dates for

- (i) The Equipment (Control Valve Trainers) delivery;
(ii) Installation of all the Equipment delivered;
(iii) On-site training of DND instructors' to acquire the competence/capability to operate equipment.

3.3 Constraints

3.3.1 The Control Valve Trainer equipment 'On-site' instructor or operator training to be offered by Vendor or contractor must take place as quoted by the contractor and as a deliverable/part of the firm requirements, at the Canadian Forces Base Esquimalt/Halifax locations identified as destinations by the Technical Authority, and as in this statement of work, to completely have satisfied all requirements (as Complete delivery).

3.3.2 Instructor training must occur between **Monday and Friday from 0730 hrs to 1930 hrs.**

3.3.3 The Contractor or their resources must provide their own meals, accommodations and travel to and from the training sites.

3.4 Client (DND) Support

3.4.1 Client, DND, will provide a suitable instructional space for the contractor to deliver training on site at CFB Esquimalt and CFB Halifax locations at their scheduled dates.

4.0 ACCEPTANCE PROCESS AND CRITERIA

4.1 General

4.1.1 Acceptance ensures that each **Control Valve Trainer** equipment has been produced and verified in accordance with all the requirements of the Contract.

4.1.2 The Contractor must provide at point of receipt for acceptance, all source documents with all other necessary documentation for operation and maintenance of equipment.

5.0 DELIVERABLES

Delivery Table (based on the final SOW Deliverables):

Item	Item Description	Quantity	UNIT	Delivery date	Delivery location
1	Supply Control Valve Trainer (i.e. the Control Valve Training Systems) to meet requirements.	3	PC	November 15, 2019	CFB Esquimalt (NFS) Pacific(P)
2	Supply Control Valve Trainer (i.e. the Control Valve Training Systems) to meet requirements.	3	PC	November 15, 2019	CFB Halifax (NFS) Atlantic(A)
3	Install delivered Equipment on site (Plug and Play)	6	PC	November 15, 2019	CFB (P/A)
4	On-site operational training (Train DND instructors for competence and capability to operate and handle the Equipment; within 2-5 business days of final delivery and installation. (at no additional cost to DND).	2	DAYS	As scheduled and agreed	CFB (P/A)
5	Optional Unit (if exercised)	1	PC	To be	CFB Esquimalt

Solicitation No. - N° de l'invitation
W0103-198227/B
Client Ref. No. - N° de réf. du client
W0103-198227

Amd. No. - N° de la modif.
File No. - N° du dossier
XLV-8-41201

Buyer ID - Id de l'acheteur
xlv211
CCC No./N° CCC - FMS No./N° VME

Item	Item Description	Quantity	UNIT	Delivery date	Delivery location
	Supply Control Valve Trainer (i.e. the Control Valve Training Systems) to meet requirements.			determined	(NFS) Pacific(P)
6	Optional Unit (if exercised) Supply Control Valve Trainer (i.e. the Control Valve Training Systems) to meet requirements.	1	PC	To be determined	CFB Halifax (NFS) Atlantic(A)

5.1 IMPORTANT NOTES:

5.1.1 Instructional/Teaching Requirements:

The Control Valve Trainer equipment must SATISFY the 'Maintain Valve/Piping' teaching requirements as specified from the applicable QSP references and **ATTACHMENTS UNDER SECTION 3.0.**

e Learning Formats: The courseware shall be made available in the following e-learning format for computer based approach use: STAND-ALONE, AVAILABLE ON CD-ROM. This format runs on a web browser and does not require any management system.

APPENDIX A1 – SEC 3.0(1) – TECHNICAL STATEMENT OF REQUIREMENT (TSOR)

GENERAL REQUIREMENTS

Scope of Work

Contents

- 1.0. Operating Conditions
- 2.0. Standard Requirements (functional)
- 3.0. Quality
- 4.0. Packaging
- 5.0. Installation and Training
- 6.0. Warranty/2 yrs Running Spares

1.0 Operating Conditions

The DND requires initial six (6) pcs of Control Valve Training Systems. The Basic system introduces students with maintenance tasks such as operation, inspection, troubleshooting, and component replacement(s). It also introduces students to the measurement of the valve parameters, valve characteristics, investigating and identifying faults. In addition, students will be presented tasks including but not limited to, gathering resources for disassembling, repairing, re-assembling and testing of components. The system shall include for the purpose of facilitating trainee testing, components with **removable features for all valves**, and have a system option for a detached air compressor. The Control Valve Training Systems priority of design shall be focused on elements of component interchangeability and system portability. These design priorities are key to optimizing modern technologies of multi-purpose reconfigurable trainers which DND will employ within a complete training delivery system. Each unit shall be of a compact and ergonomic design with a robust construction. The system pump (base and electric motor shall be fixed), to enable interchangeability (nondestructive) for flow type applications in line with courseware topics' covered. When Trainers are monitored electronically shall act independently; DND Communication Security protocol requires units to act as a **Stand-Alone System ONLY - Any Computer Device Or Network; Including But Not Limited To Personal Computers (PC), Laptops, Tablet PC's Or Others That Do Not Connect To Any Network, Either Through A Wired, Wireless Or Remote Access Connection.** (Networking functionality must be completely removed). Equipment shall also be able to perform simulation operations with faults finding functionality (fault finding is intended as a guide only and should not be construed to cover all possible faults or in which order or sequence they could be encountered while operating the system) protocol

2.0 Standard Requirements (functional):

- 2.1 The supplied units must be designed with portability in mind and must be constructed with wheels (casters) for ease of movement, and the bench/work area having adequate spaces for the storage and ease of functional use of the components.
- 2.2 The units must use North American standard 110/120 volt 50/60 hertz power.
- 2.3 Safety Relief valves must be incorporated in the design for each unit's Centrifugal Pump
- 2.4 All components must meet industrial safety standards, ISO9001.
- 2.5 Each unit must include the following components:
 - 2.5.1 Sump tank - Stainless Steel 1.5 mm thick/P.P 5mm thick, Capacity: 30 liters, Dimensions: 12 in(L)x12 in(W)x12 in (H) (1)
 - 2.5.2 Piping – 5/8 in GI, Class B with 5/8 in SS Ball valves: 10 Nos
 - 2.5.3 Centrifugal Pump – 1/2 H.P., 110/120V 50/60 Hz AC supply(1)
 - 2.5.4 Emergency Stop Station (1)

- 2.5.5 Pneumatic control Valve – 3 Nos Size 5/8 in, Type: two way Globe type for Equal Percentage, Linear Valve & Quick Opening Valve. (Air to Close) Cv: 5 US GPM, with diaphragm actuator
- 2.5.6 Rotameter, Range: 0 - 1000 LPH, Glass tube type/Acrylic body connection: 5/8 in, Mounting: Inlet Bottom Outlet Top (1)
- 2.5.7 A.F.R/F.R.L Unit (Air filter Regulator)/(Filter Air Lubricator), Range: 0 – 2.1 Kg/cm² with pressure gauge (1)
- 2.5.8 Air Compressor – Tank capacity 20 to 25 liters (min/max), 110/120V 50/60 Hz AC supply, (1)
- 2.5.9 Mechanical Seal Repair Kit (Centrifugal Pump)(1)
- 2.5.10 Pressure Gauge (High Range) (7-10) (min/max)
- 2.6 The Control Valve Training Systems (ie The Control Valve Trainer units) must include the following manuals, training literature, software and documentation:
 - 2.6.1 Control Valve Training Systems (**3x Manuals Hard Copies & 3x Manuals Soft Copies on CD-ROM**) for each CFB Esquimalt and CFB Halifax locations)

2.7 Physical features

- 2.7.1 Equipment unit must be engineered for ease of use. Self-explanatory systems. Systems dimensions (maximum) 5 feet (L) x 3 feet (W) x 4 feet (H).
- 2.7.2 Compact ergonomic design with a Robust Construction.
- 2.7.3 All components must be mounted and removed effortlessly within the working foot print of the trainer for the ease of instruction.

2.8 Electrical Requirement:

- 2.8.1 The Control Valve Training System units must be supplied and installed ready to run (Plug n Play) on 110/120 Volt, single Phase, 50/60 Hz power.
- 2.8.2 The entire system must be supplied to DND-Naval Fleet Schools' destinations with Canadian Standards Association (CSA) certified
- 2.8.3 Connected via National Electrical Manufacturers Association (NEMA) standard plugs/connectors (cannot require permanent wired connections to power sources)
- 2.8.4 Require power cord 3.0 m (min length) National Electrical Manufacturers Association (NEMA)

2.9 Equipment Certifications: ISO 9001, 14001, CSA etc.

2.10 Safety and Operation Labeling

- 2.10.1 Any pinch points, hazard areas, operator safety concerns, and moving components are clearly labeled in English.
- 2.10.2 Operating instruction labels are clearly identified and printed in English.
- 2.10.3 Mimic Charts for ease of system operation.

3.0 Quality

3.1 Performance Guarantee

- 3.1.1 Compressed clean, dry air supply at 2.1 Kg/cm², required service
- 3.1.2 The supplier will have to guarantee Equipment performance shall be fit-for-purpose, meeting all General Requirements as stated in this Technical Statement of Requirements section.
- 3.1.3 If the Control Valve Training Systems (Equipment) do not meet the specified performance, the supplier will take the necessary remedial action to achieve the specified performance at no cost to the purchaser.
- 3.1.4 The Equipment must be designed and constructed to be free from defects in manufacturing and workmanship, as well as environmentally safe.

4.0 Packaging

- 4.1 All machines, components, and accessories including the Control Valve Training System must be packaged, crated, or boxed to ensure no damage is sustained by equipment during the transport, loading, unloading, or general handling of equipment prior to the final installation.

5.0 Installation and On-Site equipment operational Training AT Destinations

- 5.1 Units must be supplied Plug and Play at Destinations (respective Naval Fleet Schools Atlantic/Pacific), **Three** (3) units installed at each destination specified (with optional quantities of 2 units {One for each delivery location} to be procured when required till the end of the acquisition).
- 5.2 On-site operational Training for unit handling must be conducted within 2-5 business days of final delivery and installation to acquaint DND Student Instructors scheduled to attend with the safe operational and preventive maintenance capabilities, and acquaint them with trainer setup, design functionalities and operability for teaching the courseware associated with the equipment. Minimum two (2) days on-site training is considered adequate starting 0730hrs to 1930hrs daily (Monday to Friday). Dates, Locations and Timings will be coordinated between the Contractor and DND post contract award.

6.0 Warranty/2yrs Running/Operational Spares

- 6.1 All Equipment supplied shall be covered by its manufacturer's warranty from defects in design, materials and workmanship. Supplier shall quote applicable warranty period and coverage. The warranty shall be the manufacturer's standard commercial warranty, which shall conform to all the requirements of the contract. Acceptance of the manufacturer's standard commercial warranty shall not minimize the rights of the Government under clauses in the contract, and in any conflict that arises between the terms and conditions of the contract and manufacturer's warranty, the terms and conditions of the contract shall take precedence. The warranty period shall commence from the date of acceptance.
- 6.2 **All Equipment be supported by the Supplier with a minimum of 2 years running/operational spares associated with OEM warranty at no additional cost to DND, the purchaser,** to cater for incidental breakdowns at start-up/commissioning and along operational usage at early stages of equipment life without downtime, and as guarantee for quality (*Estimated no of hours 2,072 hours/year of equipment usage maximum*).

APPENDIX A2 - SEC 3.0(2) – TEACHING REQUIREMENTS

PO 002 MAINTAIN FLUID SYSTEM COMPONENTS

EO 002.01 Maintain Valves

1. Performance. Maintain Valves
2. Standard. The trainee, adhering to equipment and personal safety precautions, shall independently maintain valves, IAW (In accordance with), refs by:
 - a. Troubleshooting valves, to include:
 - (1) Investigating faults; and
 - (2) Identifying faults.
 - b. Repairing valves, to include:
 - (1) Gathering resources;
 - (2) Disassembling components;
 - (3) Repairing components; and
 - (4) Assembling components.
3. Instructional Methods.
 - a. Interactive lecture; and
 - b. Demonstration – performance.

PART III – ENABLING CHECK NOTES

4. Trainees will work in pairs at a valve trainer and a fault will be incorporated into the trainer. The fault will need to be identified, valve repaired and then tested after it is replaced back into the trainer.
 - a. Testing Valves, to include:
 - (1) Verifying operation; and
 - (2) Returning to operation.

5. Teaching Points.

Teaching Point	Sub Teaching Points	Instructional Technique (Time in min)			Method	Refs	Comments
		T	D	P			
(T) = Theory, (D) = Demonstrate, (P) = Practical, (IL) = Interactive Lecture, (Sim) = Simulates Note: May be used in combination							
TP1 Troubleshoot valves, to include:							
a. Investigating faults, by: (1) Investigating proper valve configuration.		25		D			
b. Identifying faults, by: (1) Inspecting mechanical thermostatic control valve; (2) Inspecting electrically operated thermostatic control valve; (3) Inspecting pilot operated thermostatic control valve; (4) Inspecting temperature regulating valves; (5) Inspecting pressure regulating valves; (6) Electro pneumatic valve; (7) Inspecting HP air double seated valve; (8) Inspecting pressure sensing temperature control valve; (9) Inspecting variable position pneumatic controlled valve; (10) Inspecting dual pressure relief valve; (11) Inspecting reed valve; (12) Inspecting pressure/temperature relief valve; and (13) Inspecting regulator.	100	100	150	IL/D P		Use of exploded schematic for all valve types to show internal make-up of flow animations. One physical functional mock-up of each valve type. Note: DND will provide	
TP 2 Repair valves, to include:							
a. Gathering resources, by: (1) Adhering to proper lock-out/tag-out procedures; (2) Mustering tools required; (3) Mustering appropriate PPE; (4) Utilizing appropriate documentation; and (5) Reviewing all Safety and Environmental concerns with regards to the system.		15	15	DP			
b. Disassembling components, by: (1) Disassembling Mechanical thermostatic control valve; (2) Disassembling electrically operated thermostatic control valve; (3) Disassembling pilot operated		100	150	DP			

thermostatic control valve; (4) Disassembling temperature regulating valves; (5) Disassembling pressure regulating valves; (6) Disassembling electro pneumatic valve; (7) Disassembling HP air double seated valve; (8) Disassembling pressure sensing temperature control valve; (9) Disassembling variable position pneumatic controlled valve; (10) Disassembling dual pressure relief valve; (11) Disassembling reed valve; (12) Disassembling pressure/temperature relief valve; and (13) Disassembling regulator.						
c. Repairing components, by: (1) Repairing mechanical thermostatic control valve; (2) Repairing electrically operated thermostatic control valve; (3) Repairing pilot operated thermostatic control valve; (4) Repairing temperature regulating valves; (5) Repairing pressure regulating valves; (6) Repairing electro pneumatic valve; (7) Repairing HP air double seated valve; (8) Repairing pressure sensing temperature control valve; (9) Repairing variable position pneumatic controlled valve; (10) Repairing dual pressure relief valve; (11) Repairing reed valve; (12) Repairing pressure/temperature relief valve; and (13) Repairing regulator.		100	150			
d. Assembling components, by: (1) Assembling Mechanical thermostatic control valve; (2) Assembling electrically operated thermostatic control valve; (3) Assembling pilot operated thermostatic control valve; (4) Assembling temperature regulating valves; (5) Assembling pressure regulating valves; (6) Assembling electro pneumatic valve;		50	100			

(7) Assembling HP air double seated valve; (8) Assembling pressure sensing temperature control valve; (9) Assembling variable position pneumatic controlled valve; (10) Assembling dual pressure relief valve; (11) Assembling reed valve; (12) Assembling pressure/temperature relief valve; and (13) Assembling regulator.						
TP 3 Test Valves, to include:						
a. Verifying operation, by: (1) Testing mechanical thermostatic control valve; (2) Testing electrically operated thermostatic control valve; (3) Testing pilot operated thermostatic control valve; (4) Testing temperature regulating valves; (5) Testing pressure regulating valves; (6) Testing electro pneumatic valve; (7) Testing HP air double seated valve; (8) Testing pressure sensing temperature control valve; (9) Testing variable position pneumatic controlled valve; (10) Testing dual pressure relief valve; (11) Testing reed valve; (12) Testing pressure/temperature relief valve; and (13) Testing regulator.		50	100	IL / DP		
b. Returning to operation, by: (1) Ensuring system is fully re-assembled; (2) De-isolate the system components; (3) Ensuring tools and PPE are properly stowed; (4) Ensuring Lock-out/Tag-out is completed; and (5) Inform superiors that the system is fully restored.		25	25			

EO 002.03 Maintain Fluid Piping and Components

- Performance: Maintain Fluid piping and components
- Standard: The trainee, adhering to equipment and personal safety precautions, shall independently maintain fluid piping and components, IAW (In accordance with), refs by:

a. Planning a fluid piping project, to include:

- (1) Interpreting the uses for fluid plumbing parts and components;
- (2) Identifying common types of fluid plumbing mediums;
- (3) Identifying common fluid plumbing fittings; and
- (4) Inspecting common components of a fluid plumbing system.

b. Gathering resources, to include:

- (1) Mustering tools;
- (2) Performing basic maintenance on the tools;
- (3) Mustering materials; and
- (4) Reviewing all Safety and Environmental concerns with regards to working in a plumbing workshop.

c. Fabricating fluid piping parts and components; and

d. Repairing fluid piping parts and components, to include:

- (1) Disassembling the fluid piping components;
- (2) Repairing faults;
- (3) Reassembling the fluid piping components; and
- (4) Testing the fluid piping system.

3. Instructional Methods:

- a. Interactive lecture;
- b. Demonstration - performance; and
- c. Simulation.

PART III – ENABLING CHECK NOTES

4. Trainees will individually fabricate then test a piping project IAW (In accordance with), provided marking guide. There shall be one fluid piping trainer for every two trainees;

- a. To limit fluid piping trainers, half of the trainees shall work on TP3 while the other half works on TP4 simultaneously; and
- b. If the fluid piping trainer is not available, trainee shall repair each item individually found in TP4.

5. Teaching Points:

EO 002.03 Maintain Fluid Piping and Components

20200202 maintain Fluid Piping and Components							
Teaching Point	Sub Teaching Points	Instructional Technique (Time in min)			Meth od	Refs	Comments
		T	D	P			
(T) = Theory, (D) = Demonstrate, (P) = Practical, (IL) = Interactive Lecture, (Sim) = Simulates							
Note: May be used in combination							
TP1 Plan a fluid piping project, to include:							
a. Interpreting the uses for fluid plumbing parts and components, to include:		25			IL		

(1) Liquid systems; (2) Pneumatic systems; (3) Low pressure systems; and (4) High pressure systems.						
b. Identifying common types of fluid plumbing mediums, to include: (1) Aluminum; (2) Copper-nickel; (3) Brass; (4) PVC; (5) Wrought iron; and (6) Stainless steel.	10	15		IL / D		
c. Identifying common fluid plumbing fittings, to include: (1) Elbows; (2) Couplings; (3) Unions; (4) Nipples; (5) Reducers; (6) Tee's; (7) Caps; (8) Crosses; (9) Plugs; and (10) Flanges.	25	15		IL D		
d. Inspecting common components of a fluid plumbing system, to include: (1) Plate coolers; (2) Orifice plates; (3) Expansion joints; (4) Spectacle plates; (5) Flexible (hoses and piping); (6) Heat exchangers; (7) Shell and tube coolers; (8) Sink assemblies; and (9) Scuppers.	25	25		IL D		
TP2 Gathering resources, to include:						
a. Mustering tools, to include: (1) Pipe cutters; (2) Files; (3) Measuring tools; (4) Sand paper; (5) Bench grinders; (6) Vice; (7) Hack saw; (8) Oxy-acetylene kit; and (9) Band saw.			25	P		Tool box muster.
b. Performing basic maintenance on the tools listed in TP2 sub-para a.			100	D		Demonstrate the changing of saw blades, drill bits, belts, bottles, etc.
c. Mustering materials, to include: (1) Allocating materials; and (2) Marking out each project.			50	P		

(1) Gathering resources, to include: Adhering to proper lock-out/tag-out procedures;						
(2) NOT APPLICABLE – DND will be responsible for the material presented to trainees for reviewing all Safety and Environmental concerns with regards to the valve training system.	25	25		IL D		
TP3 Fabricating fluid plumbing parts and components, to include:						
a. Project (A) PVC Project, by: (1) Properly allocating materials; (2) Developing an action plan to produce the PVC project IAW provided drawing; (3) Cutting the PVC; (4) File the edges; (5) Clean the PVC with the appropriate cleaning solution; (6) Assemble the project using appropriate adhesives; and (7) Pressurize the PVC project and assess for leaks.		100	300	DP		Ensure safety equipment is worn during the use of the PVC cleaners and adhesives.
b. Project (B) Copper-nickel pipe project, by: (1) Properly allocating materials; (2) Developing an action plan to produce the copper-nickel pipe project IAW provided drawing; (3) Cutting the copper-nickel; (4) File the edges; (5) Dry fit the pipe; (6) Assemble the project using SIL-FOS; (7) Pressurize the copper-nickel pipe project and assess for leaks; and (8) Evaluate fluid piping system.		100	800	DP		Copper-nickel pipe project shall be fabricated then installed into jig for testing.
c. Project (C) Copper-nickel pipe patch, by: (1) Properly allocating materials; (2) Developing an action plan to produce the copper-nickel patch; (3) Cutting the copper-nickel; (4) File the edges; (5) Prep the damaged hole; (6) Fasten the patch to the pipe using SIL-FOS. (7) Repair low pressure piping; and (8) Pressurize the copper-nickel pipe and asses for leaks.		50	400	P		Project B shall have multiple 0.95 cm holes drilled into the pipe. Project C will involve creating a SIL-FOS patch over these holes. No defect found in Project B shall be assessed in Project C.
TP4 Repair plumbing parts and components, to include:						
a. Disassemble the fluid piping		100	150	DP		Trainees shall

components, to include: (1) Orifice plate; (2) Heat Exchanger; (3) Shell and tube cooler; (4) Expansion joint; (5) Scupper; and (6) Sink assembly.				Sim.		work in pairs to assemble the fluid piping trainer.
b. Repairing simulated faults with the fluid piping trainer, by: (1) Investigating the fault; (2) Identifying the issue; (3) Developing an action plan; (4) Repair plate cooler; (5) Repair orifice plate; (6) Repair shell and tube cooler; (7) Repair heat exchanger; (8) Repair flexible hoses; (9) Repair flexible piping; (10) Repair spectacle plate; (11) Repair custom expansion joint; and (12) Repeat TP4 sub-para a once all repairs have been made.		50	400	DP Sim.		
c. Assemble the fluid piping components, by: (1) Install shell and tube cooler; (2) Install Orifice plate; (3) Install heat exchanger; (4) Install scupper; (5) Install sink assembly; (6) Assemble/disassemble expansion joint; (7) Install fluid piping components; and d. Install fluid hoses;			150			
e. Test the fluid piping trainer, by: (1) Pressurize the fluid piping trainer and asses for leaks while: (2) Testing fluid hoses; (3) Testing heat exchanger; (4) Calibrating fluid piping components; (5) Trial fluid piping systems; and (6) Upon completion of testing, disassemble all components in TP4 sub-para a.		25	200	DP Sim.		Ensure the fluid piping trainer is fully disassembled for the next trainees.

APPENDIX A3: ROYAL CANADIAN NAVY QUALIFICATION STANDARD AND PLAN (QSP)

The following is an excerpt from the Royal Canadian Navy Qualification Standard and Plan (QSP), from which Appendix A2 was derived. This appendix is provided for Information Purposes Only.

PO 002 MAINTAIN FLUID SYSTEM COMPONENTS

1. Performance. Maintain Fluid System Components.
2. Conditions.
 - a. Given:
 - (1) Ship and applicable equipment and/or system;
 - (2) PPE;
 - (3) Testing equipment and applicable tools;
 - (4) Lock-out/tag-out equipment;
 - (5) Access to DRMIS;
 - (6) Assistance;
 - (7) References; and
 - (8) Supervision.
 - b. Denied:
 - (1) Nil.
 - c. Environmental:
 - (1) Any conditions, day or night, at sea or alongside.
3. Standard: The Marine Technician Mechanical Specialist shall independently maintain fluid system components, IAW refs by:
 - a. Maintaining valves;
 - b. Maintaining pumps; and
 - c. Maintaining piping and components.
4. References. Specified in applicable EOs.

PO 002 MAINTAIN FLUID SYSTEM COMPONENTS

EO 002.01 Maintain Valves

1. Performance. Maintain Valves
2. Conditions:
 - a. Given:

- (1) Applicable equipment and/or system;
- (2) PPE;
- (3) Testing equipment;
- (4) Applicable tools;
- (5) Lock-out/tag-out equipment;
- (6) Assistance;
- (7) References; and
- (8) Supervision.

b. Denied:

- (1) Nil.

c. Environmental:

- (1) Classroom; and
- (2) Workshop.

3. Standard. The trainee, adhering to equipment and personal safety precautions, shall independently maintain valves, IAW refs by:

c. Troubleshooting valves, to include:

- (3) Investigating faults; and
- (4) Identifying faults.

d. Repairing valves, to include:

- (5) Gathering resources;
- (6) Disassembling components;
- (7) Repairing components; and
- (8) Assembling components.

e. Testing valves, to include:

- (3) Verifying operation; and
- (4) Returning to operation.

4. Time Required:

- a. EO – 1255 minutes; and
- b. EC – 100 minutes (per pair of trainees).

5. Instructional Methods.

- c. Interactive lecture; and
- d. Demonstration – performance.

6. Training Aids:

- a. Valve schematics; and
- b. Physical functional valve mock up for each valve type.

7. Test Details. EO 002.01 will be tested in EC 002.01.

8. References: A53 and A56

9. Remarks: Nil

10. Teaching Points:

Teaching Point	Sub Teaching Points	Instructional Technique (Time in min)			Method	Refs	Comments
		T	D	P			
TP1 Troubleshoot valves, to include:							
d. Investigating faults, by: (2) Investigating proper valve configuration.			25		D	A53 A56	
e. Identifying faults, by: (14)Inspecting mechanical thermostatic control valve (ATT0460); (15)Inspecting electrically operated thermostatic control valve; (16)Inspecting pilot operated thermostatic control valve; (17)Inspecting temperature regulating valves (ATT0560); (18)Inspecting pressure regulating valves; (19)Electro pneumatic valve (ATT0370); (20)Inspecting HP air double seated valve; (21)Inspecting pressure sensing temperature control valve; (22)Inspecting variable position pneumatic controlled valve; (23)Inspecting dual pressure relief valve; (24)Inspecting reed valve; (25)Inspecting pressure/temperature relief valve; and (26)Inspecting regulator (AKT0510).	100	100	150	IL/D P		Use of exploded schematic for all valve types to show internal make-up of flow animations. One physical functional mock up of each valve type	
TP 2 Repair valves, to include:							
b. Gathering resources, by: (6) Adhering to proper lock-out/tag-out procedures; (7) Mustering tools required; (8) Mustering appropriate PPE; (9) Utilizing appropriate documentation; and (10) Reviewing all Safety and Environmental concerns with regards to the system.			15	15	DP		
c. Disassembling components, by: (14)Disassembling Mechanical thermostatic control valve (ATT0120);			100	150	DP		

(15)Disassembling electrically operated thermostatic control valve; (16)Disassembling pilot operated thermostatic control valve (ATT0130); (17)Disassembling temperature regulating valves (ATT0230); (18)Disassembling pressure regulating valves; (19)Disassembling electro pneumatic valve (ATT0040); (20)Disassembling HP air double seated valve; (21)Disassembling pressure sensing temperature control valve; (22)Disassembling variable position pneumatic controlled valve; (23)Disassembling dual pressure relief valve; (24)Disassembling reed valve; (25)Disassembling; pressure/temperature relief valve (ATT0240); and (26)Disassembling regulator.						
f. Repairing components, by: (14)Repairing mechanical thermostatic control valve; (15)Repairing electrically operated thermostatic control valve (AUT2290); (16)Repairing pilot operated thermostatic control valve (AKT2090); (17)Repairing temperature regulating valves; (18)Repairing pressure regulating valves; (19)Repairing electro pneumatic valve (ATT0970); (20)Repairing HP air double seated valve (AIT0760); (21)Repairing pressure sensing temperature control valve (AUT2600); (22)Repairing variable position pneumatic controlled valve (AKT2550); (23)Repairing dual pressure relief valve (AKT1600); (24)Repairing reed valve (AKT2270); (25)Repairing pressure/temperature relief valve (ATT0710); and (26)Repairing regulator.		100	150			
e. Assembling components, by: (14)Assembling Mechanical thermostatic control valve (ATT0120);		50	100			

(15)Assembling electrically operated thermostatic control valve; (16)Assembling pilot operated thermostatic control valve (ATT0130); (17)Assembling temperature regulating valves (ATT0230); (18)Assembling pressure regulating valves; (19)Assembling electro pneumatic valve (ATT0040); (20)Assembling HP air double seated valve; (21)Assembling pressure sensing temperature control valve; (22)Assembling variable position pneumatic controlled valve; (23)Assembling dual pressure relief valve; (24)Assembling reed valve; (25)Assembling pressure/temperature relief valve (ATT0240); and (26)Assembling regulator.						
TP 3 Test Valves, to include:						
c. Verifying operation, by: (14)Testing mechanical thermostatic control valve; (15)Testing electrically operated thermostatic control valve; (16)Testing pilot operated thermostatic control valve; (17)Testing temperature regulating valves (ATT1350); (18)Testing pressure regulating valves (ATT1270); (19)Testing electro pneumatic valve (ATT1170); (20)Testing HP air double seated valve; (21)Testing pressure sensing temperature control valve; (22)Testing variable position pneumatic controlled valve; (23)Testing dual pressure relief valve; (24)Testing reed valve; (25)Testing pressure/temperature relief valve (ATT1260); and (26)Testing regulator.		50	100	IL / DP	A53	
d. Returning to operation, by: (6) Ensuring system is fully re-assembled; (7) De-isolate the system components; (8) Ensuring tools and PPE are properly stowed; (9) Ensuring Lock-out/Tag-out is		25	25			

completed; and (10) Inform superiors that the system is fully restored.						
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ENABLING CHECK – EO 002.01

PART I – ADMINISTRATIVE INSTRUCTIONS

Material and Facilitate Instructions:

1. Workshop;
2. Valve schematics; and
3. Physical functional valve mock up for each valve type.

Arrangements and Procedures:

1. EC 002.01 will be a practical assessment based on content from EO 002.01.
2. Pass/Fail IAW EC checklist.
3. Time required: 100 minutes/pair of trainees.
4. References will not be required.

PART II – PRACTICAL ASSESSMENT INSTRUCTIONS GIVEN TO TRAINEE

1. EC 002.01 will be a practical assessment based on content from EO 002.01.
2. During this practical assessment, you will be required to maintain valves. You must pass this test to pass EO 002.01. To pass the test, you must complete the valve repair in accordance with the standard.
3. References will not be provided.
4. Pass/Fail IAW EC checklist.
5. You will have 100 minutes to complete this assessment.
6. Do you have any questions before you start?

PART III – ENABLING CHECK NOTES

In pairs, trainees will be given three valves and one fault per valve to troubleshoot, repair and test these valves. There are enough valve types that this can be assessed concurrently for the six groups of trainees.

EO 002.03 Maintain Fluid Piping and Components

4. Performance: Maintain Fluid piping and components
5. Conditions:

a. Given:

- (1) Applicable equipment and/or system;
- (2) PPE;
- (3) Testing equipment;
- (4) Applicable tools;
- (5) Lock-out/tag-out equipment;
- (6) Assistance;
- (7) References; and
- (8) Supervision.

b. Denied:

- (1) Nil.

c. Environmental:

- (1) Classroom; and
- (2) Plumbing workshop.

6. Standard: The trainee, adhering to equipment and personal safety precautions, shall independently maintain fluid piping and components, IAW refs by:

e. Planning a fluid piping project, to include:

- (5) Interpreting the uses for fluid plumbing parts and components;
- (6) Identifying common types of fluid plumbing mediums;
- (7) Identifying common fluid plumbing fittings; and
- (8) Inspecting common components of a fluid plumbing system.

f. Gathering resources, to include:

- (5) Mustering tools;
- (6) Performing basic maintenance on the tools;
- (7) Mustering materials; and
- (8) Reviewing all Safety and Environmental concerns with regards to working in a plumbing workshop.

g. Fabricating fluid piping parts and components (ATT0340); and

h. Repairing fluid piping parts and components, to include:

- (5) Disassembling the fluid piping components;
- (6) Repairing faults;
- (7) Reassembling the fluid piping components; and
- (8) Testing the fluid piping system.

7. Time Required:

- a. EO – 3190 minutes;
- b. EC – 1600 minutes (800 minutes per pair of trainees); and
- c. PC – 500 minutes (250 minutes per pair of trainees).

8. Instructional Methods:

- d. Interactive lecture;
- e. Demonstration - performance; and
- f. Simulation.

9. Training Aids:

- a. Fluid piping trainer (6 trainers).

10. Test Details: EO 002.03 will be tested in EC 002.03.

11. References: A56, A34, A51, and A69

12. Remarks:

- c. There shall be one fluid piping trainer for every two trainees;
- d. To limit fluid piping trainers, half of the trainees shall work on TP3 while the other half works on TP4 simultaneously; and
- e. If the fluid piping trainer is not available, trainee shall repair each item individually found in TP4.

13. Teaching Points:

Teaching Point	Sub Teaching Points	Instructional Technique (Time in min)			Meth od	Refs	Comments
		T	D	P			
TP1 Plan a fluid piping project, to include:							
e. Interpreting the uses for fluid plumbing parts and components, to include: (5) Liquid systems; (6) Pneumatic systems; (7) Low pressure systems; and (8) High pressure systems.	25				IL		
f. Identifying common types of fluid plumbing mediums, to include: (7) Aluminum; (8) Copper-nickel; (9) Brass; (10)PVC; (11)Wrought iron; and (12)Stainless steel.	10	15			IL / D		
g. Identifying common fluid plumbing fittings, to include: (11)Elbows; (12)Couplings; (13)Unions; (14)Nipples; (15)Reducers; (16)Tee's; (17)Caps; (18)Crosses; (19)Plugs; and	25	15			IL D		

(20) Flanges.						
h. Inspecting common components of a fluid plumbing system, to include: (10) Plate coolers; (11) Orifice plates; (12) Expansion joints; (13) Spectacle plates; (14) Flexible (hoses and piping); (15) Heat exchangers (ATT0440); (16) Shell and tube coolers (AKT0760); (17) Sink assemblies; and (18) Scuppers.	25	25		IL D		
TP2 Gathering resources, to include:						
d. Mustering tools, to include: (10) Pipe cutters; (11) Files; (12) Measuring tools; (13) Sand paper; (14) Bench grinders; (15) Vice; (16) Hack saw; (17) Oxy-acetylene kit; and (18) Band saw.			25	P		Tool box muster.
e. Performing basic maintenance on the tools listed in TP2 sub-para a.			100	D		Demonstrate the changing of saw blades, drill bits, belts, bottles, etc.
f. Mustering materials, to include: (3) Allocating materials; and (4) Marking out each project.			50	P		
g. Reviewing all Safety and Environmental concerns with regards to working in a plumbing workshop, by: (3) Mustering appropriate PPE; (4) Identifying First Aid resources; (5) PVC concerns, to include: i. Ventilation; and ii. Cleaners and Adhesives. (6) HAZMAT considerations.	25	25		IL D		Plumbing shop safety brief.
TP3 Fabricating fluid plumbing parts and components (ATT0340), to include:						
d. Project (A) PVC Project, by: (8) Properly allocating materials; (9) Developing an action plan to produce the PVC project IAW provided drawing; (10) Cutting the PVC; (11) File the edges; (12) Clean the PVC with the appropriate cleaning solution; (13) Assemble the project using appropriate adhesives; and		100	300	DP		Ensure safety equipment is worn during the use of the PVC cleaners and adhesives.

(14) Pressurize the PVC project and assess for leaks.						
e. Project (B) Copper-nickel pipe project, by: (9) Properly allocating materials; (10) Developing an action plan to produce the copper-nickel pipe project IAW provided drawing; (11) Cutting the copper-nickel; (12) File the edges; (13) Dry fit the pipe; (14) Assemble the project using SIL-FOS; (15) Pressurize the copper-nickel pipe project and assess for leaks; and (16) Evaluate fluid piping system (ATT0330).		100	800	DP		Copper-nickel pipe project shall be fabricated then installed into jig for testing.
f. Project (C) Copper-nickel pipe patch, by: (9) Properly allocating materials; (10) Developing an action plan to produce the copper-nickel patch; (11) Cutting the copper-nickel; (12) File the edges; (13) Prep the damaged hole; (14) Fasten the patch to the pipe using SIL-FOS. (15) Repair low pressure piping (AKT1930); and (16) Pressurize the copper-nickel pipe and assess for leaks.		50	400	P		Project B shall have multiple 0.95 cm holes drilled into the pipe. Project C will involve creating a SIL-FOS patch over these holes. No defect found in Project B shall be assessed in Project C.
TP4 Repair plumbing parts and components, to include:						
f. Disassemble the fluid piping components, to include: (7) Orifice plate; (8) Heat Exchanger; (9) Shell and tube cooler; (10) Expansion joint; (11) Scupper; and (12) Sink assembly.		100	150	DP Sim.		Trainees shall work in pairs to assemble the fluid piping trainer.
g. Repairing simulated faults with the fluid piping trainer, by: (13) Investigating the fault; (14) Identifying the issue; (15) Developing an action plan; (16) Repair plate cooler (AKT2100); (17) Repair orifice plate (AKT2020); (18) Repair shell and tube cooler (AKT2350); (19) Repair heat exchanger (ATT1020); (20) Repair flexible hoses (AKT1670); (21) Repair flexible piping (AKT1680); (22) Repair spectacle plate (AKT2460); (23) Repair custom expansion joint		50	400	DP Sim.		

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(ATT0930); and (24) Repeat TP4 sub-para a once all repairs have been made.						
h. Assemble the fluid piping components, by: (8) Install shell and tube cooler (ATT0770); (9) Install Orifice plate (ATT0690); (10) Install heat exchanger (ATT0670); (11) Install scupper (ATT0760); (12) Install sink assembly (ATT0780); (13) Assemble/disassemble expansion joint (ATT0050); (14) Install fluid piping components (ATT0660); and i. Install fluid hoses (ATT0650);			150			
j. Test the fluid piping trainer, by: (7) Pressurize the fluid piping trainer and asses for leaks while: (8) Testing fluid hoses (ATT1180); (9) Testing heat exchanger (ATT1220); (10) Calibrating fluid piping components (ATT0320); (11) Trial fluid piping systems (ATT1400); and (12) Upon completion of testing, disassemble all components in TP4 sub-para a.		25	200	DP Sim.		Ensure the fluid piping trainer is fully disassembled for the next trainees.

ANNEX "B"

BASIS OF PAYMENT

Note to Bidders:

Remark to Bidder: Annex B will form the Basis of Payment for the resulting contract and should not be filled in at the bid submission stage.

Pricing is in Canadian dollars, Applicable Taxes excluded, DDP destination, Canadian customs duties and excise taxes included.

B1. Contract Price

ITEM	DESCRIPTION	Unit Price	Quantity	Extended Price
1	Control Valve Training Systems: HALIFAX - in accordance with Annex A, including all associated costs, expressed as a per training unit cost.	\$	3	\$
2	Control Valve Training System: ESQUIMALT - in accordance with Annex A, including all associated costs, expressed as a per training unit cost.	\$	3	\$
3	Delivery DDP with Contractor unloading at Halifax, NS location as detailed in Annex A. For 3 Units	\$	1	\$
4	Delivery DDP with Contractor unloading at Esquimalt, BC location as detailed in Annex A. For 3 Units	\$	1	\$
5	The Contractor offers ___ Months (s) of Warranty, in accordance with Clause 09, Warranty, of the General Conditions 2010A which apply to the resulting Contract. Warranty applied on a per unit basis. Note: The minimum required warranty is 24 Months.	\$	6	\$
6	TOTAL CONTRACT PRICE: Sum of Extended Price for rows 1 – 5 =			\$

B2. Optional Units

ITEM	DESCRIPTION	Unit Price	Quantity	Extended Price
7	Control Valve Training System: HALIFAX - in accordance with Annex A, including all associated costs, expressed as a per training unit cost.	\$	1	\$
8	Control Valve Training System: ESQUIMALT - in accordance with Annex A, including all associated costs,	\$	1	\$

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	expressed as a per training unit cost.			
9	Delivery DDP with Contractor unloading at Halifax, NS location as detailed in Annex A. For 1 Unit	\$	1	\$
10	Delivery DDP with Contractor unloading at Esquimalt, BC location as detailed in Annex A. For 1 Unit	\$	1	\$
11	<p>The Contractor offers ____ (bidders are to fill the blank space as necessary) Months (s) of Warranty, in accordance with Clause 09, Warranty, of the General Conditions 2010A which apply to the resulting Contract.</p> <p>Warranty applied on a per unit basis.</p> <p>Note: The minimum required warranty is 24 Months.</p>	\$	2	\$
12	Total Optional Unit Price: Sum of Extended Price for rows 7 - 11=			\$

ANNEX C

FINANCIAL EVALUATION SHEET

Bidder's Instructions

The bidder must enter their pricing in the pricing schedule below. Bidders are requested to insert "\$0.00" for any of the cost elements for which it does not intend to charge. If any cost element is left blank, Canada will insert "\$0.00" for that element.

C.1 Pricing Schedule- Table 1

ITEM	DESCRIPTION	Unit Price	Quantity	Extended Price
A	Control Valve Training System in accordance with Annex A; expressed as a per training unit cost.	\$	6	\$
B	Warranty The Contractor offers ____ (bidders are to fill the blank space as necessary) Months (s) of Warranty, in accordance with Clause 09, Warranty, of the General Conditions 2010A which apply to the resulting Contract. Warranty applied on a per unit basis. Note: The minimum required warranty is 24 Months.	\$	6	\$
C	Cost of Setting up and testing units at Halifax Location, as per Annex A. Per unit cost value	\$	3	\$
D	Cost of Setting up and testing units at Esquimalt Location, as per Annex A.	\$	3	\$
E	Cost of Training DND staff at Halifax Location, as per Annex A, expressed as per unit cost.	\$	3	\$
F	Cost of Training DND staff at Esquimalt Location, as per Annex A, expressed as per unit cost.	\$	3	\$
G	Delivery DDP with Contractor unloading at destination, Halifax, NS location as detailed in Annex A. For 3 Units expressed as a single cost.	\$	1	\$
H	Delivery DDP with Contractor unloading at destination, Esquimalt, BC location as detailed in Annex A. For 3 Units expressed as a single cost.	\$	1	\$
I	Optional Units - Control Valve Training System in accordance with Annex A; expressed as a per training unit cost.	\$	2	\$
J	Optional Units - Warranty The Contractor offers ____ (bidders are to fill	\$	2	\$

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	<p>the blank space as necessary) Months (s) of Warranty, in accordance with Clause 09, Warranty, of the General Conditions 2010A which apply to the resulting Contract.</p> <p>Warranty applied on a per unit basis.</p> <p>Note: The minimum required warranty is 24 Months.</p>			
K	Optional Units - Cost of Setting up and testing units at Halifax Location, as per Annex A. Per unit cost value	\$	1	\$
L	Optional Units - Cost of Setting up and testing units at Esquimalt Location, as per Annex A.	\$	1	\$
M	Optional Units - Delivery DDP with Contractor unloading at destination, Halifax, NS location as detailed in Annex A. For 1 Unit expressed as a single cost.	\$	1	\$
N	Optional Units - Delivery DDP with Contractor unloading at destination, Esquimalt, BC location as detailed in Annex A. For 1 Unit expressed as a single cost.	\$	1	\$
O	TOTAL EVALUATED PRICE: Sum of Extended Price for rows A + B + C + D + E + F + G + H + I + J + K + L + M + N =			\$
DELIVERY OFFERED (After Contract Award):				
CFB Halifax, NS: _____				
CFB Esquimalt, BC: _____				

C.2 Basis of Payment Calculations

The following will be the method used to determine values entered into Annex B – Basis of Payment by the Contracting Authority prior to Contract award:

Basis of payment table B1-Item 1 Unit Price
[Unit Price for Rows A + C +E] = Unit Price of Table B1-Item 1
_____ + _____ + _____ = _____

Basis of payment table B1-Item 2 Unit Price
[Unit Price for Rows A + D + F] = Unit Price B1-Item 2
_____ + _____ + _____ + = _____

Basis of payment table B1-Item 3
[Extended Price for Row G] = B1-Item 3
= _____

Basis of payment table B1-Item 4
[Extended Price for Row H] = B1-Item 4
= _____

Basis of payment table B1-Item 5
[Extended Price for Row B] = B1-Item 5
= _____

Basis of payment table B1-Item 7 Unit Price
[Unit Price for Rows I + K] = Unit Price of Table B1-Item 7
_____ + _____ + _____ = _____

Basis of payment table B1-Item 8 Unit Price
[Unit Price for Rows I + L] = Unit Price B1-Item 8
_____ + _____ + _____ + = _____

Basis of payment table B1-Item 9
[Extended Price for Row M] = B1-Item 9
= _____

Basis of payment table B1-Item 10
[Extended Price for Row N] = B1-Item 10
= _____

Basis of payment table B1-Item 11
[Extended Price for Row J] = B1-Item 11
= _____

ANNEX D

TENDER DELIVERABLES

D1.1 Mandatory Tender Deliverables Checklist

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

The Bidder must submit a completed Annex E.

The following are mandatory and the Bidder's submission will be evaluated against the requirement as defined herein. The Bidder must be determined to be compliant on each item to be considered responsive. Bidders should include all substantiating information required to substantiate Annex E with their Technical Bid Submission.

No	Solicitation Part	Reference	Description	Document provided
1	Front page	Front page	Request for Proposal document part 1 page 1 completed and signed;	
2	3	Article 3.1 Section I	Technical Proposal	
3	3	Article 3.1 Section II, Annex C	Financial Bid Evaluation Sheet, completed	

D1.2 Supporting Deliverable Requirements

If the following information which supports the bid is not submitted with the Bid; it may be requested by the Contracting Authority, and it must be provided within 48 hours of the written request:

No	Solicitation Part	Reference	Description	Condition	Document provided
1	Part 6	6.9	Applicable Laws (if applicable)	48 hours of written request	
2	6	Articles 6.5.3, Annex D	Contractor's Representatives, table Completed	48 hours of written request	
3	Annex F	3.1.5.2	Electronic Payment Instruments, completed	48 hours of written request	
4	Annex G	5.1.1	Integrity Provisions – List of Names, completed	48 hours of written request	

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D.1.3 Contractor's Representatives

The bidder is to complete table below and submit with their bid.

Contract for:	Name	Telephone	Email
Contracting issues			
Technical issues			
Invoicing issues			

ANNEX E

TECHNICAL EVALUATION CRITERIA

E-1 GENERAL

E-1.1 The general requirement for the Bidder's Technical Bid is stated at Part 3 of the Bid Solicitation.

E-1.2 The Evaluation Procedure is stated at Part 4 of the Bid Solicitation. The evaluation procedure indicates the composition of the evaluation team. This Annex gives the detailed Evaluation Criteria and Scoring Procedure.

E-1.3 In order that a complete technical evaluation of the Bid can be conducted, the Bid must be compliant with all of the bid deliverable requirements, which are summarized under Part 3 of the Bid Solicitation. It is the Bidder's responsibility to clearly demonstrate their capabilities and capacity to complete all of the Work and other requirements stated in the Bid Solicitation, the Statement of Work and other attachments. Bidders should describe their capabilities, how they will comply with mandatory requirements, and how they will deliver any other requested goods and/or services.

E-1.4 It is requested at Article 3.1 that the Bidder present topics in the order of these evaluation criteria and under the same headings and numbering scheme. Alternatively, the Bidder should include in their Technical Bid an applicability matrix wherein they identify, by page number, where each of the criteria is addressed in their Bid.

E2 MANDATORY TECHNICAL CRITERIA

E-2.1 The Mandatory Technical Criteria are detailed in **Table E-1 Mandatory Criteria**. Mandatory Criteria will be assigned either a Pass or Fail by the evaluation team. Any Bid which fails to comply with any Mandatory Criterion will be declared non-responsive. Some (or all) of the Mandatory Criteria may also be point rated, for their technical merit, in accordance with **Table E-2 – Point-Rated Technical Criteria**.

E-2.2 The Bidder should provide, as part of its Technical Proposal, all documents essential to clearly demonstrate compliance with each technical mandatory requirement, including, without limitation, photographs, maps, drawings, calculations, Original Equipment Manufacturer (OEM) specifications, documents, purchase orders (less cost data), job or Quality Control or Quality Assurance record sheets, personnel resumes, current trade certificates and, other such evidence.

E-2.3 The Bidder should provide, as part of its Technical Proposal, a Bidder filled out **Table – E-1 Mandatory Criteria** providing references by page and section, to their Technical Proposal where each requirement is addressed.

E-3 POINT-RATED TECHNICAL CRITERIA

E-3.1 The Point-Rated Technical Criteria are detailed in **Table E-2 – Point-Rated Technical Criteria**.

E-3.2 Point rating of Criteria, for their technical merit, will be conducted in accordance with the Scoring Procedure given under Part 4 of the bid solicitation

E-3.3 The Bidder should provide, as part of its Technical Proposal, a Bidder filled out **Table E-2 – Point-Rated Technical Criteria** providing references by page and section, to their Technical Proposal where each requirement is addressed.

Table E-1 -- Mandatory Criteria

The Mandatory Technical Criteria are detailed herein. Mandatory Criteria will be assigned either a Pass or Fail by the evaluation team. Any Bid which fails to comply with any Mandatory Criterion will be declared non-responsive. Some (or all) of the Mandatory Criteria may also be point rated, for their technical merit, in accordance with Part 2 – Point-Rated Technical Criteria.

The Bidder should provide, as part of its Technical Proposal, all documents essential to clearly demonstrate compliance with each technical mandatory requirement, including, without limitation, photographs, maps, drawings, calculations, Original Equipment Manufacturer (OEM) specifications, documents, purchase orders (less cost data), job or Quality Control or Quality Assurance record sheets, personnel resumes, current trade certificates and, other such evidence.

No.	Elements for MANDATORY TECHNICAL CRITERIA	YES	NO	Remarks/Paged References In Accordance with Contractor Bid
1	The Bid includes a diagram/figure that demonstrates that the Control Valve Trainers are 110/120 Volt, single Phase, 50/60 Hz input power.			
2	The proposal includes information which demonstrates how the Control Valve Trainer will meet the Appendix A-1 Technical Statement of Requirement			
3	The Bid includes substantiating information which demonstrates how the Control Valve Trainer will meet the functional operating requirement to simulate faults and test trainees for troubleshooting skills on faulty components.			
4	DND Communication Security protocol requires each unit to act as a stand-alone system ONLY, meaning any computer device or network, including but not limited to personal computers (PC), laptops, tablet PC's or other(s), must not connect to any network, either through a wired, wireless, or remote access connection: The Bid demonstrates that each unit explicitly acts as a stand-alone system only with a networking functionality or capability be completely removed .			
5	The Bid must include a copy of Certification(s) that demonstrate that the specified equipment meets the following certification as specified in Annex A 2.8 Electrical Requirement: <ul style="list-style-type: none"> • Canadian Standards Association (CSA) and/or; 			

	<ul style="list-style-type: none"> • NEMA standards. <p>In the event that certification will be obtained during manufacturing, the bid must include substantiating information which demonstrates how certification(s) will be obtained.</p>			
6	The Bid demonstrates that the Control Valve Trainers offered include a sturdy welded steel frame mounted on four heavy duty casters with brakes.			

Table E-2 – Point-Rated Technical Criteria

Point rating of Criteria, for their technical merit, will be conducted in accordance with Scoring Procedure given under Part 4 of the bid solicitation. The minimum mandatory required points referenced in Part 4.2 is 70 points, any bid which scores below the minimum mandatory required points will be considered non-compliant.

No.	ELEMENT OF POINTS RATED CRITERIA	SCORE	Weighted Factor	Weighted Score	Remarks/Paged References In Accordance with Contractor Bid
1	<p>All equipment units shall have an electric power cord length of Minimum: 3.0 m and shall meet ANSI/NEMA standards.</p> <p>Score: Cord length of 3.0m =(70 pts) Cord length greater than 3.0m =(100 pts)</p>		0.10	/10	
2	<p>The Bid demonstrates that the Bidder offers a minimum of a 2 year total warranty in accordance with General Conditions 2010A section 09. Contractor may offer more than a two year warranty:</p> <p>Score: Equal to 2 Years (70 Points)</p> <p>Greater than 2 Years up to 3 Years = (85 Points)</p> <p>Greater than 3 Years and less than 5 Years = (90 Points)</p> <p>Equal to or greater than 5 Years = (100 Points)</p>		0.25	/25	

3	<p>The Bid demonstrates that the bidder offers a minimum of 2 years running or operational spares based on an estimated 2,072 working hrs/yr at no additional cost to DND.</p> <p>Score: Equal to 2 Years =(70 Points)</p> <p>Greater than 2 years but less than 3 Years =(85 Points)</p> <p>Equal to or Greater than 3 Years =(100 Points)</p>		0.25		/25
4	<p>The Bid demonstrates that the Bidder provides an optional independently detachable compressor and or quick air connection feature.</p> <p>Score:</p> <ul style="list-style-type: none"> - Bidder offers only a compressor with each unit as specified in Annex A =(70 Points) - Bidder offers a compressor and an external quick air connection feature to allow for a separate air distribution system to supply required air =(100 Points) 		0.10		/10
5	<p>The Bid includes a Plan or Schedule that demonstrates that the required delivery date and other deliverables as specified for the requirements, showing dates (time-lines) for:</p> <ul style="list-style-type: none"> (i) Control Valve Trainers delivery; (ii) Installation of all the Equipment delivered; (iii) On-site training of DND instructors to acquire the competence/capability to operate equipment: <p>For the purpose of the development of the Schedule, The Bidder should assume</p>				

	<p>that the contract will be awarded by <u>July 8th, 2019.</u></p> <p>Score:</p> <ul style="list-style-type: none"> - Plan provided but with limited or information which does not clearly indicate fixed dates for (i) to (iii) =(20 pts), - Plan provided and demonstrates meeting the minimum dates or up to 30 working days earlier for (i) to (iii) =(70 pts) - Plan provided and demonstrates exceeding all dates by greater than 30 working days but less than 60 working days for (i) to (iii) =(80 pts) - Plan provided and demonstrates exceeding all dates by greater than 60 working days but less than 90 working days for (i) to (iii) =(90 pts) - Plan provided and demonstrates exceeding all dates by 90 working days for (i) to (iii) =(100 pts) 		0.30		
<p>Total wt score= $\frac{\quad}{10} + \frac{\quad}{25} + \frac{\quad}{25} + \frac{\quad}{10} + \frac{\quad}{30}$</p>				/30	<p>Mandatory minimum allowed number of points is 70.</p> <p>/100</p>

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ANNEX F

ELECTRONIC PAYMENT INSTRUMENTS

As indicated in Part 3, clause 3.1.4, the Bidder must identify which electronic payment instruments they are willing to accept for payment of invoices.

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

- ☐ Direct Deposit (Domestic and International);
- ☐ Electronic Data Interchange (EDI);
- ☐ Wire Transfer (International Only);

ANNEX G

INTEGRITY VERIFICATION FORM

List of names for integrity verification form

Requirements

Section 17 of the [Ineligibility and Suspension Policy](#) (the Policy) requires suppliers, regardless of their status under the Policy, to submit a list of names with their bid or offer. The required list differs depending on the bidder or offeror's organizational structure:

- Suppliers including those bidding as joint ventures, whether incorporated or not, must provide a complete list of the names of all current directors.
- Privately owned corporations must provide a list of the owners' names.
- Suppliers bidding as sole proprietors, including sole proprietors bidding as joint ventures, whether incorporated or not, must provide a complete list of the names of all owners.
- Suppliers that are a partnership do not need to provide a list of names.

Suppliers may use this form to provide the required list of names with their bid or offer submission. Failure to submit this information with a bid or offer, where required, will render a bid or offer non-responsive, or the supplier otherwise disqualified for award of a contract or real property agreement. Please refer to [Information Bulletin: Required information to submit a bid or offer](#) for additional details.

Supplier Information

Supplier's Legal Name:
Organizational Structure: <input type="checkbox"/> Corporate entity <input type="checkbox"/> Privately owned corporation <input type="checkbox"/> Sole proprietor
Supplier's Address
Supplier's Procurement Business Number (optional):
Solicitation or Transaction Number:
Date of bid, offer submission or closing date of Invitation to Offer (yyyy-mm-dd):

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List of Names

Name	Title

Declaration

I, (name)_____, (position)_____, of (supplier's name)_____ declare that the information provided in this Form is, to the best of my knowledge and belief, true, accurate and complete. I am aware that failing to provide the list of names will render a bid or offer non-responsive, or I will be otherwise disqualified for award of a contract or real property agreement. I am aware that during the bid or offer evaluation stage, I must, within 10 working days, inform the contracting authority in writing of any changes affecting the list of names submitted. I am also aware that after contract award I must inform the Registrar of Ineligibility and Suspension within 10 working days of any changes to the list of names submitted.

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Signature

Please include with your bid or offer.