



National Defence

Défense nationale

National Defence Headquarters  
Ottawa, Ontario  
K1A 0K2

Quartier général de la Défense nationale  
Ottawa (Ontario)  
K1A 0K2

# REQUEST FOR PROPOSAL DEMANDE DE PROPOSITION

## RETURN BIDS TO: RETOURNER LES SOUMISSIONS À:

Contracting Authority:

Myriam Zakaib, DLP 9-2-2  
Myriam.Zakaib@forces.gc.ca

### Proposal To: National Defence 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 and services listed herein and on any attached sheets at the price(s) set out therefore.

### Proposition à : Défense nationale 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 et services énumérés ici et sur toute feuille ci-annexée, au(x) prix indiqué(s).

### Comments – Commentaires

<b>Title – Titre</b> Fourier Transform Infrared (FTIR) Spectrometer based Aviator's Breathing Oxygen Test Systems		<b>Solicitation No. – N° de l'invitation</b> W8486-195218/B	
<b>Date of Amendment – Date de modification</b>  13 March 2023			
<b>Address Enquiries to: – Adresser toutes questions à :</b>  Myriam Zakaib Myriam.Zakaib@forces.gc.ca			
<b>Telephone No. – N° de telephone</b>		<b>FAX No. – N° de fax</b>	
<b>Destination</b>  Department of National Defence C/O QETE Warehouse 819-997-1706 Ramp 8, Room C-1113 45 Sacré-Coeur Blvd, Gatineau, QC, J8X 1C6			

**Instructions: Municipal taxes are not applicable. Unless otherwise specified herein all prices quoted must include all applicable Canadian customs duties, GST/HST, excise taxes and are to be delivered Delivery Duty Paid including all delivery charges to destination(s) as indicated. The amount of the Goods and Services Tax/Harmonized Sales Tax is to be shown as a separate item.**

**Instructions : Les taxes municipales ne s'appliquent pas. Sauf indication contraire, les prix indiqués doivent comprendre les droits de douane canadiens, la TPS/TVH et la taxe d'accise. Les biens doivent être livrés « rendu droits acquittés », tous frais de livraison compris, à la ou aux destinations indiquées. Le montant de la taxe sur les produits et services/taxe de vente harmonisée doit être indiqué séparément.**

### Solicitation Closes – L'invitation prend fin

At: – à :14 :00 Eastern Standard Time

On: – le: 21 March 2023

<b>Delivery Required – Livraison exigée</b>  See herein.	
<b>Vendor Name and Address – Raison sociale et adresse du fournisseur</b>	
<b>Name and title of person authorized to sign on behalf of vendor (type or print) – Nom et titre de la personne autorisée à signer au nom du fournisseur (caractère d'imprimerie)</b>	
<b>Name – Nom</b> _____	<b>Title – Titre</b> _____
<b>Signature</b> _____	<b>Date</b> _____

This Q&A Doc Version 001 is raised to provide answers to the first round of bidder questions and provide the following note to Bidders.

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**Note to Bidders:**

Please email Myriam.Zakaib@forces.gc.ca and reference W8486-195218/B for a French copy of this amendment.

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Question 1	HFE Components (Annex A, Appendix A) – We include the Freons and HCFC in our ABO calibration, but HFE will be new. The spec calls for “HFE: HFE-7100, CFC” which covers a broad class of solvents. Is it sufficient to include HFE-7100 as representative of all the HFE’s?
Answer 1	Yes
Question 2	Accurate quantitative analysis requires measurement of the sample gas pressure with a pressure transducer. There is no specific mention of a pressure transducer in the RFP. It is possible for the DND to provide their own pressure transducers, but we plan to offer our FTIR system with a pressure transducer.
Answer 2	DND will not provide a pressure transducer. It is up to the manufacturer to provide a system equipped with all the required components to allow the system to meet the analytical performance requirements listed in the RFP. If a pressure transducer is required by system design, then it must be provided by the manufacturer.
Question 3	Section 3.1.8 (i) specifies that the “Contractor must supply a fit for purpose gas supply regulator and a compatible flexible gas line...” Does this include the regulator mounted onto the gas cylinders, or simply an in-line regulator after the ¼” Swagelok input? If regulators are required for the gas cylinder(s), we need the specification for each required cylinder (single stage or double stage? Chemical compatibility? Brass vs stainless? Regulator thread).
Answer 3	As the type of compressed gases required to operate the system may be design dependent, it is up to the manufacturer to provide the required gas regulators and flexible gas lines. For example, if ultra-high purity UHP nitrogen from a compressed gas cylinder is required to perform a background or zeroing the instrument, a high purity CGA 580 high purity gas regulator must be provided. If the system requires other specific gases to operate, the appropriate regulators must be provided. Important: as the samples will be high purity oxygen (aviator’s breathing oxygen) from high pressure (1000 to 2500 PSI) compressed gas cylinder, an appropriate high purity CGA-540 regulator must be provided to connect the sample cylinder to the system, brass is the preferred material for high pressure oxygen compatibility issues.
Question 4	Our bid will include shipping cases for the (1) FTIR/sample system, plus (2) purge gas generator. Is a 3 <sup>rd</sup> shipping case required for sample/validation gas cylinders?
Answer 4	The RFP requirement does not include a requirement for shipping cases for compressed gas cylinders.
Question 5	Section 3.1.10 Laptop PC Requirements specifies a Windows 10 Pro operating system. Is a Windows 11 system suitable?

Answer 5	Windows 11 operating system is acceptable.
Question 6	Attachment 1 to Part 3, Table 2b: Replacement Parts calls for qty 10-each of 3 different parts (laser, infrared source, and detector). We strongly recommend the detectors be packaged for long-term storage as per MilSpec 2073 Packaging
Answer 6	Recommendation, not question.
Question 7	Commissioning and user training will require support from US citizens. Please advise how to proceed to gain security clearance to come on-site to Canadian DND sites.
Answer 7	The process for security assurances for foreign personnel is explained on the Government of Canada website for the Public Services and Procurement Canada's (PSPC) Contract Security Program (CSP) for international contract security requirements: <a href="https://www.tpsgc-pwgsc.gc.ca/esc-src/international-eng.html">https://www.tpsgc-pwgsc.gc.ca/esc-src/international-eng.html</a>
Question 8	<p>What gas and concentration in ppmv is the certified reference standard gas mixture referenced in 3.1.8 (c) &amp; 3.1.8 (e) as shown below?</p> <div style="border: 1px solid black; padding: 10px;"> <p>3.1.8. Performance and Physical Requirements: the ABO Test Systems must deliver, enable and support the following performance specifications and physical parameters:</p> <ul style="list-style-type: none"> <li>(a) Must use FTIR spectroscopy technology.</li> <li>(b) Detector: Detector must not require the need for cryogenic liquid cooling. Thermoelectric cooling (Peltier) is acceptable.</li> <li>(c) Quantitative analysis relative accuracy: between 80% and 120% when compared against the concentration of a certified reference standard gas mixture at the concentrations listed in 3.1.7.</li> <li>(d) The system must be factory calibrated for the quantitative analysis of all the compounds of interest at appropriate calibration ranges to meet the requirements of 3.1.8 (c). The system must not require user re-calibration of the target compounds listed in 3.1.7. A factory re-calibration of this target compound list must be required only in the event of major repairs performed at the factory.</li> <li>(e) Quantitative analysis repeatability: <math>\pm 5\%</math> RSD<sub>r</sub> between replicates of a certified reference standard.</li> </ul> </div>
Answer 8	The system must be able to provide accurate quantitative analysis results for the aviator's breathing oxygen trace contaminants potentially present at the concentrations described in 3.1.7 and detailed in Appendix 1 to Annex A of the RFP. A certified reference standard gas mixture could be a commercially available certified custom-made gas mixture with any combination of compounds (one or multiple) at concentrations near their respective maximum allowable concentration for minor contaminants in aviator's breathing oxygen listed in Appendix 1 to Annex A – Table 1 of NATO Standard AAGSP-02. Please note that at 3.2.2.5. Acceptance Testing, such a certified gas mixture could be used to verify the quantitative analysis accuracy performance of the system.
Question 9	Do the testing sites have access to a cylinder of high purity inert gas such as nitrogen, helium or argon that would negate the use of a nitrogen generator?
Answer 9	Test sites will have access to commonly available compressed gas cylinders such as UHP Nitrogen via the Canadian compressed gas suppliers such as and not limited to Linde, Messer, Air Liquide, etc. However compressed gas cylinders shall not be considered as equivalent to purge gas generators if a purge gas is required by instrument design to continuously purge, for example the FTIR optics bench. <b>UPDATED 13 MARCH:</b>

	<p>Test sites will have access to commonly available compressed gas cylinders such as UHP Nitrogen via the Canadian compressed gas suppliers such as and not limited to Linde, Messer, Air Liquide, etc.</p> <p>However compressed gas cylinders shall not be considered as equivalent to purge gas generators if a purge gas is required by instrument design to continuously purge, for example the FTIR optics bench.</p> <p>If instrument design requires purge gas flows low enough to permit infrequent changes of purge gas compressed cylinders, then it could be acceptable to provide a system without a purge gas generator/compressor. Cryogenic sources of purge gas such as liquid nitrogen are not acceptable. As a typical K (Linde) or 50 ( Air Liquide) size compressed gas cylinders contains approx. 8.44 m<sup>3</sup> of nitrogen at 2640 psi, or 8440 liters of gas, a consumption rate of smaller or equal to 0.2 l/min would require a change frequency of 1 cylinder per month, the highest change frequency that will be accepted for the purge gas source for this system.</p>
Question 10	Is this a new gas testing application or are they currently testing the breathing oxygen?
Answer 10	Aviation breathing oxygen trace contaminant testing is currently being performed by the RCAF.
Question 11	If it is not a new application, what gas technique are they currently using?
Answer 11	FTIR gas analyser.
Question 12	If they are currently using FTIR what make and model is currently being used?
Answer 12	<p>Currently, the Aviator's Breathing Oxygen Testing Program includes testing by Canadian Armed Forces personnel using the MIDAC Model I1300 FTIR Spectrometer System and its associated Servomex, Model 570 Portable Oxygen Analyser at 3 Wing Bagotville (Québec), 8 Wing Trenton (Ontario), and 4 Wing Cold Lake (Alberta). These units were acquired over 17 years ago.</p> 
<b>NOTE</b>	<b>Answer to Question 9 has been updated</b>
Question 13	<p>With respect to section 6.4.2 Supplemental General Conditions: please either remove 4004 (2013-04-25) Maintenance and Support Services for Licensed Software from section 3.3 and section 10; or modify as was done in previous public works contracts as per below:</p> <p>The 4004 (2013-04-25), Maintenance and Support Services for Licensed Software Section 02, subparagraph 3; are modified as follows:</p> <p style="padding-left: 40px;">Delete: 4004 (2013-04-25) Section 02, sub-paragraph 3 Insert:</p> <p>"Severity 1": Within seventy-two (72) hours of notification by Canada;</p>

	<p>"Severity 2": Within seven days (7) days of notification by Canada;  "Severity 3": Within fourteen (14) days of notification by Canada;  "Severity 4": Within ninety (90) days of notification by Canada.</p> <p>It currently states (Section 4.4004 - Maintenance and Support Services for Licensed Software - Buyandsell.gc.ca)  "Severity 1": within twenty-four (24) hours of notification by Canada;  "Severity 2": within seventy-two (72) hours of notification by Canada;  "Severity 3": within fourteen (14) days of notification by Canada;  "Severity 4": within ninety (90) days of notification by Canada.</p>
Answer 13	Changes to the severity 1 and 2 support response times are accepted. Amendment has been shared.
Question 14	<p><i>Reference to Answer 3:</i>  As the type of compressed gases required to operate the system may be design dependent, it is up to the manufacturer to provide the required gas regulators and flexible gas lines. For example, if ultra-high purity UHP nitrogen from a compressed gas cylinder is required to perform a background or zeroing the instrument, a high purity CGA 580 high purity gas regulator must be provided. If the system requires other specific gases to operate, the appropriate regulators must be provided. Important: as the samples will be high purity oxygen (aviator's breathing oxygen) from high pressure (1000 to 2500 PSI) compressed gas cylinder, an appropriate high purity CGA-540 regulator must be provided to connect the sample cylinder to the system, brass is the preferred material for high pressure oxygen compatibility issues.  Q: Can you please provide more details on the regulators? do you have an existing reference?</p>
Answer 14	As the required gases to operate the systems can be instrument design dependent, it is hard to provide exact specification for all the required compressed gases and associated regulators. However, for the sample inlet connection to the instrument, a CGA 540 high pressure oxygen regulator connection must be provided to connect to the high-pressure (up to 2500 PSI) ABO sampling cylinders the RCAF uses. The outlet pressure range provided by the diaphragm and outlet pressure gauge of each gas regulators required must be matching the ABO analyzer system's input gas(es) pressure requirements.
Question 15	<p><i>Reference to Answer 8:</i>  The system must be able to provide accurate quantitative analysis results for the aviator's breathing oxygen trace contaminants potentially present at the concentrations described in 3.1.7 and detailed in Appendix 1 to Annex A of the RFP. A certified reference standard gas mixture could be a commercially available certified custom-made gas mixture with any combination of compounds (one or multiple) at concentrations near their respective maximum allowable concentration for minor contaminants in aviator's breathing oxygen listed in Appendix 1 to Annex A – Table 1 of NATO Standard AAGSP-02. Please note that at 3.2.2.5. Acceptance Testing, such a certified gas mixture could be used to verify the quantitative analysis accuracy performance of the system.  Q: Do you provide validation Gases, or we have to provide them?  Q: If we provide them, a set of 8 disposable cylinders, or one larger cylinder is sufficient.</p>
Answer 15	For the needs of acceptance testing, if not waived by DND (@ 3.2.2.6), QETE will provide the certified gas mixture cylinders. Such a mixture may or may not be used as a quality control (QC) sample to run periodically by RCAF personnel.
Question 16	With reference to transport cases in the RFP @ 3.1.11, are the ABO test systems to be used in fixed positions or require portability during testing?

Answer 16	The systems require transport cases to be able to protect their components when shipped for deployed RCAF flight operations or when shipping systems between RCAF testing units and to/from
Question 17	Shall the supplier provide the regulator for the O2 gas cylinders themselves, in addition to any support gases (compressed air, N2) needed to support the FTIR.
Answer 17	Yes, the supplier must provide all gas regulators required to operate the FTIR.