



**RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:**

**Bid Receiving - PWGSC / Réception des
soumissions - TPSGC**
11 Laurier St./ 11 rue, Laurier
Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

**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

Title - Sujet FLOW TRANSMITTERS	
Solicitation No. - N° de l'invitation 23375-160898/A	Date 2016-02-05
Client Reference No. - N° de référence du client 23375-160898	
GETS Reference No. - N° de référence de SEAG PW-\$\$PV-941-69168	
File No. - N° de dossier pv941.23375-160898	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2016-03-21	
Time Zone Fuseau horaire Eastern Daylight Saving Time EDT	
F.O.B. - F.A.B.	
Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Martins, Christina	Buyer Id - Id de l'acheteur pv941
Telephone No. - N° de téléphone (613) 355-1973 ()	FAX No. - N° de FAX (819) 956-3814
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: DEPARTMENT OF NATURAL RESOURCES 1 HAANEL DR. OTTAWA Ontario K1A1M1 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Vendor/Firm Name and Address

**Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Scientific, Medical and Photographic Division / Division de
l'équipement scientifique, des produits photographiques et
pharmaceutiques
11 Laurier St./ 11 rue, Laurier
6B1, Place du Portage
Gatineau, Québec K1A 0S5

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



Item Article	Description	Dest. Code Dest.	Inv. Code Fact.	Qty Qté	U. of I. U. de D.	Unit Price/Prix unitaire FOB/FAM Destination	Plant/Usine	Delivery Req. Livraison Req.	Del. Offered Liv. offerte
1	FLOW TRANSMITTERS FLOW TRANSMITTERS in accordance with the Requirement listed in both Annex "A" and Annex "B." Shipping and manuals included.	23375	I - 1	1	LOT	\$	XXXXXXXXXXXX	See Herein	

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PART 1 - GENERAL INFORMATION

1.1 Security Requirement

There is no security requirement associated with this bid solicitation.

1.2 Requirement

The Requirement is detailed under Annex "A" and herein.

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 North American Free Trade Agreement (NAFTA), and the Agreement on Internal Trade (AIT)."

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

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days

Insert: 90 days

2.1.1 SACC Manual Clauses

B1000T Condition of Material

2014-06-26

2.2 Submission of Bids

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

2.3 Enquiries - Bid Solicitation

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

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

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

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

Section I: Technical Bid (Three hard copies)
Section II: Financial Bid (One hard copy)
Section III: Certifications (One hard copy)

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

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

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

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

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and

- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

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

3.1.1 Product(s) Offered (BIDDER TO COMPLETE)

The Bidder must indicate the make and model number of the products offered (identify specific components which make up the system):

Name of Manufacturer: _____
Model/Part Number: _____
Literature attached: Yes (____) No (____)

3.1.2 Point of Manufacture/Shipping (BIDDER TO COMPLETE)

The Bidder must state the point of manufacture/shipping of goods or where service is to be performed:

Location: _____
Postal Code: _____

3.1.3 Delivery (BIDDER TO COMPLETE)

While delivery is requested by May 31, 2016, the best delivery that could be offered by the Bidder is _____.

3.1.4 Contacts

Bidders are requested to provide the following: Information pertaining to Article 6.5.4. Contractor Representatives under Part 6, Resulting Contract Clauses.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

3.1.1 Exchange Rate Fluctuation

C3011T Exchange Rate Fluctuation 2013-11-06

Section III: Certifications

Bidders must submit the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

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

4.1.1 Technical Evaluation

All proposals submitted must be completed in full and provide all of the information requested in the Request for Proposal (RFP) package to enable a full and complete evaluation. If the requirement is not addressed in the bidder's proposal, the proposal will be considered incomplete or non-responsive and will be rejected. The onus is on the bidder to provide all the information necessary to ensure a complete and accurate assessment.

Factors for Evaluation

1. **PRICING BASIS (MANDATORY):** Prices must be firm, DDP Delivered Duty Paid.
2. **ABILITY TO MEET THE TECHNICAL REQUIREMENT (MANDATORY):**
 - a) For Items Defined by Specifications:

The bidder is requested to cross reference the mandatory technical criteria contained herein to their supporting technical documentation.
 - b) Provision of Supporting Technical Documentation:

Supporting technical documentation for the stores offered must be provided with the bid at time of bid closing.

Technical brochures or technical data **MUST** be provided to verify compliancy to the technical mandatory specifications.
3. **COMPLIANCE WITH THE TERMS AND CONDITIONS OF THIS REQUEST FOR PROPOSAL (MANDATORY)**
4. Please note that the requirements of the Federal Contractors Program for Employment Equity may apply - (see Part 5).

4.1.2 Financial Evaluation

Evaluation of Price

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, DDP (Ottawa, Ontario) Incoterms® 2000, Canadian customs duties and excise taxes included.

Unless the bid solicitation specifically requires bids to be submitted in Canadian currency, bids submitted in foreign currency will be converted to Canadian currency for evaluation purposes. The rate given by the Bank of Canada in effect on the bid solicitation closing date, or on another date specified in the bid solicitation, will be applied as a conversion factor to the bids submitted in foreign currency.

for bid evaluation purposes only, the total bid price will be determined by adding the firm all inclusive unit price of each unit together.

4.2 Basis of Selection

A0069T Basis of Selection

2007-05-25

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. 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 Declaration of Convicted Offences

As applicable, pursuant to subsection Declaration of Convicted Offences of section 01 of the Standard Instructions, the Bidder must provide with its bid, a completed Declaration Form (<http://www.tpsgc-pwgsc.gc.ca/ci-if/formulaire-form-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.

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5.2.1 Integrity Provisions – List of Names

Bidders who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder.

Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s).

Bidders bidding as societies, firms or partnerships do not need to provide lists of names.

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](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from [Employment and Social Development Canada \(ESDC\) - Labour's website](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" 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

There is no security requirement applicable to this Contract.

6.2 Requirement

The Contractor must provide the items detailed under the Line Item Detail.

6.2.1 Manuals

One complete set of manuals in English must be supplied with each Flow Transmitter.

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 (2015-09-03), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

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6.3.2 Supplemental General Conditions

4001(2015-04-01) Supplemental General Conditions – Hardware Purchase, Lease and Maintenance, apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Delivery Date

All the deliverables are requested on or before May 31, 2016.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Christina Martins
Supply Specialist
Public Works and Government Services Canada
Acquisitions Branch
Commercial and Consumer Products Directorate
Public Works and Government Services
11 Laurier St. Gatineau, Quebec
K1A 0S5

Telephone: (613) 355-1973
Facsimile: (819) 956-3814
Christina.Martins@pwgsc.gc.ca

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

6.5.2 Technical Authority (TO BE FILLED IN AT CONTRACT AWARD)

The Project Authority for the Contract is:

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 Technical Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

6.5.3 Procurement Authority (TO BE FILLED IN AT CONTRACT AWARD)

The Procurement Authority for the Contract is:

Name: _____
Telephone: (____) _____
Facsimile: (____) _____
E-mail address: _____

The Procurement Authority is responsible for the contract management and for the authorization of all work against this contract.

6.5.4 Contractor's Representative (BIDDER TO FILL IN)

General enquiries
Name: _____
Telephone No. _____
Facsimile No. _____
E-mail address: _____

Delivery Follow-up
Name: _____
Telephone No. _____
Facsimile No. _____
E-mail address: _____

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, all inclusive lot price as specified in Line Item 1, DDP Delivered Duty Paid (Ottawa, Ontario) Incoterms 2000. Customs duties are included and Applicable Taxes are extra.

6.6.2 Limitation of Price

C6000C Limitation of Price 2011-05-16

6.6.3 SACC Manual Clauses

H1001C Multiple Payments 2008-05-12

6.7 Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.

FOR PROMPT PAYMENTS, ENSURE THE CONTRACT BO./P.O. NUMBER APPEARS ON ALL DOCUMENTATION.

2. Invoices must be distributed as follows:
 - (a) The original and one copy must be forwarded to the address shown on page 1 of the Contract for certification and payment. The Contract serial number: 23375-160898 must appear on all invoices.
 - (b) One copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

(c) One copy must be forwarded to the consignee.

6.8 Certifications

6.8.1 Compliance

The continuous compliance with the certifications provided by the Contractor in its bid and the ongoing cooperation in providing additional information are conditions of the Contract. Certifications are subject to verification by Canada during the entire period of the Contract. If the Contractor does not comply with any certification, fails to provide the additional information, or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

6.9 Applicable Laws

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

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) 4001(2015-04-01) Supplemental General Conditions – Hardware Purchase, Lease and Maintenance, apply to and form part of the Contract.
- (c) 2010A (2015-09-03) General Conditions – Goods (Medium Complexity);
- (d) Annex A, Requirement; and
- (e) the Contractor's bid dated _____. (FILLED IN AT CONTRACT AWARD)

6.11 SACC Manual Clauses

B7500C	Excess Goods	2006-06-16
G1005C	Insurance	2016-01-28

6.12 Shipping Instructions - Delivery at Destination

1. Goods must be consigned to the destination specified in the Contract and delivered:

Delivered Duty Paid (DDP) Ottawa, Ontario Incoterms 2000 for shipments from a commercial contractor.
2. The Contractor will be responsible for all delivery charges, administration, costs and risk of transport and customs clearance, including the payment of customs duties and taxes.

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**ANNEX A
 REQUIREMENT
 FLOW TRANSMITTERS**

Vendors must cross reference the mandatory technical criteria in a concise format by using page, paragraph(s) & sub-paragraphs as applicable to their supporting technical documentation.

ANSI – American National Standards Institute
 NEMA – National Electric Manufacturers Association
 HART – Highway Addressable Remote Transducer
 LCD – Liquid Crystal Display
 CSA – Canadian Standards Association
 MAWP – Maximum Allowable Working Pressure

PART A:

All Flow Transmitters must meet all of the following requirements:

MANDATORY REQUIREMENTS FOR ALL FLOW TRANSMITTERS	REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
Must have an accuracy of +/- 2% of full scale or better.	
Must have a repeatability of +/- 0.5% of full scale or better.	
Must have ANSI 300# raised face flange process connections.	
Must have a NEMA 4X or equivalent enclosure.	
Must provide a 4-20 mA analog output of the flowrate.	
Must be able to accept a power supply voltage of 24 VDC.	
Must be compatible with the HART communications protocol.	
Must be suitable for use in areas classified Class 1, Division 2, Group IIB or equivalent.	
Must carry CSA or cUL electrical approval.	
Must have a Canadian Registration Number for pressurized service.	
Must have an LCD display.	
Must have a stainless steel tag attached and stamped with the specified instrument number.	

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MANDATORY REQUIREMENTS FOR ALL FLOW TRANSMITTERS	REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
Must be factory calibrated and supplied with calibration documentation.	
Engineering unit displayed must be kg/h.	

PART B: FT-2101 Flow Transmitter

The FT-2101 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-2101		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M1.	Acceptable Measurement Type:	Thermal Mass or Coriolis	
M2.	Fluid Wetted Parts Acceptable Material(s):	Material compatible with oxygen at gas velocity through sized flow meter.	
M3.	Process Medium:	Oxygen	
M4.	Minimum Acceptable MAWP:	27.5 bar(g)	
M5.	Process Operating Pressure Range:	7-15 bar(g)	
M6.	Allowable Pressure Drop:	25 kPa	
M7.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	300 kg/h	
M8.	Process Flow – Operating	225 kg/h	
M9.	Minimum Turndown Ratio	30 to 1	
M10.	Minimum Allowable Temperature Range:	20-50°C	
M11.	Multi-Variable transmitter required:	Yes	
M12.	Flow transmitter must be cleaned for oxygen service.		

PART B: FT-2122 Flow Transmitter

The FT-2122 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-2122		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M13.	Acceptable Measurement Type:	Thermal Mass or Coriolis	
M14.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M15.	Process Medium:	Carbon Dioxide	
M16.	Minimum Acceptable MAWP:	27.5 bar(g)	
M17.	Process Operating Pressure Range:	7-15 bar(g)	
M18.	Allowable Pressure Drop:	25 kPa	
M19.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	100 kg/h	
M20.	Process Flow – Operating	45 kg/h	
M21.	Minimum Turndown Ratio	10 to 1	
M22.	Minimum Allowable Temperature Range:	20-50°C	
M23.	Multi-Variable transmitter required:	No	

PART B: FT-2124 Flow Transmitter

The FT-2124 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-2124		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M24.	Acceptable Measurement Type:	Thermal Mass or Coriolis	
M25.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M26.	Process Medium:	Carbon Dioxide	
M27.	Minimum Acceptable MAWP:	27.5 bar(g)	
M28.	Process Operating Pressure Range:	7-15 bar(g)	
M29.	Allowable Pressure Drop:	25 kPa	
M30.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	50 kg/h	
M31.	Process Flow – Operating	15 kg/h	
M32.	Minimum Turndown Ratio	10 to 1	
M33.	Minimum Allowable Temperature Range:	20-50°C	
M34.	Multi-Variable transmitter required:	No	

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PART B: FT-2125 Flow Transmitter

The FT-2125 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-2125		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M35.	Acceptable Measurement Type:	Thermal Mass or Coriolis	
M36.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M37.	Process Medium:	Carbon Dioxide	
M38.	Minimum Acceptable MAWP:	27.5 bar(g)	
M39.	Process Operating Pressure Range:	7-15 bar(g)	
M40.	Allowable Pressure Drop:	25 kPa	
M41.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	50 kg/h	
M42.	Process Flow – Operating	25 kg/h	
M43.	Minimum Turndown Ratio	10 to 1	
M44.	Minimum Allowable Temperature Range:	20-50°C	
M45.	Multi-Variable transmitter required:	No	

PART B: FT-2127 Flow Transmitter

The FT-2127 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-2127		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M46.	Acceptable Measurement Type:	Thermal Mass or Coriolis	
M47.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M48.	Process Medium:	Carbon Dioxide	
M49.	Minimum Acceptable MAWP:	27.5 bar(g)	
M50.	Process Operating Pressure Range:	7-15 bar(g)	
M51.	Allowable Pressure Drop:	25 kPa	
M52.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	100 kg/h	
M53.	Process Flow – Operating	45 kg/h	
M54.	Minimum Turndown Ratio	10 to 1	
M55.	Minimum Allowable Temperature Range:	20-50°C	
M56.	Multi-Variable transmitter required:	No	

PART B: FT-2161 Flow Transmitter

The FT-2161 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-2161		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M57.	Acceptable Measurement Type:	Thermal Mass or Coriolis	
M58.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M59.	Process Medium:	Nitrogen	
M60.	Minimum Acceptable MAWP:	27.5 bar(g)	
M61.	Process Operating Pressure Range:	7-15 bar(g)	
M62.	Allowable Pressure Drop:	25 kPa	
M63.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	100 kg/h	
M64.	Process Flow – Operating	80 kg/h	
M65.	Minimum Turndown Ratio	10 to 1	
M66.	Minimum Allowable Temperature Range:	20-50°C	
M67.	Multi-Variable transmitter required:	No	

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PART B: FT-2211 Flow Transmitter

The FT-2211 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-2211		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M68.	Acceptable Measurement Type:	Thermal Mass	
M69.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M70.	Process Medium:	Natural Gas	
M71.	Minimum Acceptable MAWP:	27.5 bar(g)	
M72.	Process Operating Pressure Range:	8-10 bar(g)	
M73.	Allowable Pressure Drop:	25 kPa	
M74.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	40 kg/h	
M75.	Process Flow – Operating	25 kg/h	
M76.	Minimum Turndown Ratio	20 to 1	
M77.	Minimum Allowable Temperature Range:	20-50°C	
M78.	Multi-Variable transmitter required:	No	

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PART B: FT-2301 Flow Transmitter

The FT-2301 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-2301		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M79.	Acceptable Measurement Type:	Thermal Mass	
M80.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M81.	Process Medium:	Air	
M82.	Minimum Acceptable MAWP:	27.5 bar(g)	
M83.	Process Operating Pressure Range:	8-10 bar(g)	
M84.	Allowable Pressure Drop:	25 kPa	
M85.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	725 kg/h	
M86.	Process Flow – Operating	480 kg/h	
M87.	Minimum Turndown Ratio	20 to 1	
M88.	Minimum Allowable Temperature Range:	20-50°C	
M89.	Multi-Variable transmitter required:	No	

PART B: FT-2302 Flow Transmitter

The FT-2302 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-2302		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M90.	Acceptable Measurement Type:	Thermal Mass	
M91.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M92.	Process Medium:	Air	
M93.	Minimum Acceptable MAWP:	27.5 bar(g)	
M94.	Process Operating Pressure:	10.5 bar(g)	
M95.	Allowable Pressure Drop:	25 kPa	
M96.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	2,400 kg/h	
M97.	Process Flow – Operating	1,200 kg/h	
M98.	Minimum Turndown Ratio	10 to 1	
M99.	Minimum Allowable Temperature Range:	20-50°C	
M100.	Multi-Variable transmitter required:	No	

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PART B: FT-2303 Flow Transmitter

The FT-2303 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-2303		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M101.	Acceptable Measurement Type:	Thermal Mass	
M102.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M103.	Process Medium:	Air	
M104.	Minimum Acceptable MAWP:	27.5 bar(g)	
M105.	Process Operating Pressure:	10.5 bar(g)	
M106.	Allowable Pressure Drop:	25 kPa	
M107.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	2,400 kg/h	
M108.	Process Flow – Operating	1,200 kg/h	
M109.	Minimum Turndown Ratio	10 to 1	
M110.	Minimum Allowable Temperature Range:	20-50°C	
M111.	Multi-Variable transmitter required:	No	

PART B: FT-4211 Flow Transmitter

The FT-4211 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-4211		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M112.	Acceptable Measurement Type:	Vortex or Differential Pressure	
M113.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M114.	Process Medium:	Therminol 66	
M115.	Minimum Acceptable MAWP:	10 bar(g)	
M116.	Process Operating Pressure Range:	7 bar(g)	
M117.	Allowable Pressure Drop:	25 kPa	
M118.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	10,000 kg/h	
M119.	Process Flow – Operating	5,000 kg/h	
M120.	Minimum Turndown Ratio	10 to 1	
M121.	Minimum Allowable Temperature Range:	20 to 285°C	
M122.	Multi-Variable transmitter required:	Yes	

PART B: FT-4212 Flow Transmitter

The FT-4212 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-4212		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M123.	Acceptable Measurement Type:	Vortex or Differential Pressure	
M124.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M125.	Process Medium:	Therminol 66	
M126.	Minimum Acceptable MAWP:	10 bar(g)	
M127.	Process Operating Pressure Range:	7 bar(g)	
M128.	Allowable Pressure Drop:	25 kPa	
M129.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	12,000 kg/h	
M130.	Process Flow – Operating	8,000 kg/h	
M131.	Minimum Turndown Ratio	10 to 1	
M132.	Minimum Allowable Temperature Range:	20-285°C	
M133.	Multi-Variable transmitter required:	Yes	

PART B: FT-4213 Flow Transmitter

The FT-4213 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-4213		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M134.	Acceptable Measurement Type:	Vortex or Differential Pressure	
M135.	Fluid Wetted Parts Acceptable Material(s):	Stainless Steel	
M136.	Process Medium:	Therminol 66	
M137.	Minimum Acceptable MAWP:	10 bar(g)	
M138.	Process Operating Pressure Range:	7 bar(g)	
M139.	Allowable Pressure Drop:	25 kPa	
M140.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	14,500 kg/h	
M141.	Process Flow – Operating	8,000 kg/h	
M142.	Minimum Turndown Ratio	10 to 1	
M143.	Minimum Allowable Temperature Range:	20-285°C	
M144.	Multi-Variable transmitter required:	Yes	

PART B: FT-3301 Flow Transmitter

The FT-3301 Flow Transmitter must meet all of the following requirements to be deemed compliant:

ITEM	MANDATORY REQUIREMENTS FOR FT-3301		REFERENCE TO SUBSTANTIATION IN THE TECHNICAL BID
	Criteria	Value	
M145.	Acceptable Measurement Type:	Vortex or Differential Pressure	
M146.	Fluid Wetted Parts Acceptable Material(s):	Corrosion resistant in aqueous environment (such as Inconel 625 or Hastelloy C-276)	
M147.	Process Medium:	Flue gas (CO ₂ , H ₂ O, SO ₂ , NO ₂)	
M148.	Minimum Acceptable MAWP:	27.5 bar(g)	
M149.	Process Operating Pressure Range:	7-15 bar(g)	
M150.	Allowable Pressure Drop:	25 kPa	
M151.	Process Flow – Maximum (Calibrated upper range must be equal to or greater than)	8,000 kg/h	
M152.	Process Flow – Operating	4,500 kg/h	
M153.	Minimum Turndown Ratio	10 to 1	
M154.	Minimum Allowable Temperature Range:	20-300°C	
M155.	Multi-Variable transmitter required:	Yes	
M156.	Insertion or in-line acceptable. (4" process line)		
M157.	Remote transmitter enclosure required.		

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**ANNEX B
DELIVERABLES
FLOW TRANSMITTERS**

Natural Resources Canada has a requirement for the supply and manuals for the fourteen different Flow Transmitters that are listed below.

Description	Qty
FT-2101	1
FT-2122	1
FT-2124	1
FT-2125	1
FT-2127	1
FT-2161	1
FT-2211	1
FT-2301	1
FT-2302	1
FT-2303	1
FT-4211	1
FT-4212	1
FT-4213	1
FT-3301	1

**ANNEX C
COMPLETE LIST OF DIRECTORS
(As per Standard Instructions, Clauses and Conditions Part 2)**

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Name	Position
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