

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

**Bid Receiving  
PWGSC  
33 City Centre Drive  
Suite 480  
Mississauga  
Ontario  
L5B 2N5  
Bid Fax: (905) 615-2095**

**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**

<b>Title - Sujet</b> Liquid Chromatograph	
<b>Solicitation No. - N° de l'invitation</b> KW405-120905/A	<b>Date</b> 2012-12-06
<b>Client Reference No. - N° de référence du client</b> KW405-120905	
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$TOR-002-6112	
<b>File No. - N° de dossier</b> TOR-2-35193 (002)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2013-01-16</b>	
<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Standard Time EST	
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Callahan, Kaye	<b>Buyer Id - Id de l'acheteur</b> tor002
<b>Telephone No. - N° de téléphone</b> (905) 615-2071 ( )	<b>FAX No. - N° de FAX</b> (905) 615-2060
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> DEPARTMENT OF THE ENVIRONMENT 867 LAKESHORE RD P.O.BOX 5050 BURLINGTON Ontario L7R4A6 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**

Public Works and Government Services Canada  
Ontario Region  
33 City Centre Drive  
Suite 480  
Mississauga  
Ontario  
L5B 2N5

<b>Delivery Required - Livraison exigée</b> 2013-03-31	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

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## PART 1 - GENERAL INFORMATION

### 1. Security Requirement

There is no security requirement associated with the requirement.

### 2. Requirement

Environment Canada (Canada Centre for Inland Waters, located at Burlington, Ontario, Canada) has a requirement for the supply and installation of three (3) liquid chromatograph systems, each equipped with a triple quadrupole based tandem mass spectrometer (LC-MS/MS), in accordance with Annex A, Requirement.

Each system must include, at minimum, the following components: an autosampler, a liquid chromatograph, a mass spectrometer, an uninterrupted power supply (UPS), and a computer (with keyboard, monitor, colour laser printer, and mouse) equipped with software capable of controlling all components of the LC-MS/MS systems. In addition, on-site training and installation must be provided for each of the three systems.

Delivery, installation and on-site operator training **must be completed by 28 March 2013**.

### 3. Debriefings

After contract award, 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 of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

## PART 2 –BIDDER INSTRUCTIONS

### 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 (2012-11-09) 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: sixty (60) days  
Insert: ninety (90) days

## 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.

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

## 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 questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

## 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

### 1. Bid Preparation Instructions

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

Section I: Technical Bid (2 hard copies)

Section II: Financial Bid (1 hard copy)

Section III: Certifications (1 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

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(<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.

**Section II: Financial Bid**

Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Goods and Services Tax (GST) or Harmonized Sales Tax (HST) must be shown separately, if applicable.

**1.1 Exchange Rate Fluctuation**

C3011T (2010-01-11), Exchange Rate Fluctuation

**Section III: Certifications**

Bidders must submit the certifications required under Part 5.

**PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION****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.

**1.1 Technical Evaluation****1.1.1 Mandatory Technical Criteria**

See Annex "C", Evaluation Criteria and Basis of Selection

**1.1.2 Point Rated Technical Criteria**

See Annex "C", Evaluation Criteria and Basis of Selection

**1.2 Financial Evaluation**

See Annex "C", Evaluation Criteria and Basis of Selection

## 2. Basis of Selection

See Annex "C", Evaluation Criteria and Basis of Selection

## PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and related documentation to be awarded a contract. Canada will declare a bid non-responsive if the required certifications and related documentation are not completed and submitted as requested.

Compliance with the certifications bidders provide to Canada is subject to verification by Canada during the bid evaluation period (before award of a contract) and after award of a contract. The Contracting Authority will have the right to ask for additional information to verify bidders' compliance with the certifications before award of a contract. The bid will be declared non-responsive if any certification made by the Bidder is untrue, whether made knowingly or unknowingly. Failure to comply with the certifications, to provide the related documentation or to comply with the request of the Contracting Authority for additional information will also render the bid non-responsive.

### 1. Mandatory Certifications Required Precedent to Contract Award

#### 1.1 Code of Conduct and Certifications - Related documentation

- 1.1.1** By submitting a bid, the Bidder certifies, for himself and his affiliates, to be in compliance with the Code of Conduct and Certifications clause of the Standard instructions. The related documentation hereinafter mentioned will help Canada in confirming that the certifications are true. By submitting a bid, the Bidder certifies that it is aware, and that its affiliates are aware, that Canada may request additional information, certifications, consent forms and other evidentiary elements proving identity or eligibility. Canada may also verify the information provided by the Bidder, including the information relating to the acts or convictions specified herein, through independent research, use of any government resources or by contacting third parties. Canada will declare non-responsive any bid in respect of which the information requested is missing or inaccurate, or in respect of which the information contained in the certifications is found to be untrue, in any respect, by Canada. The Bidder and any of the Bidder's affiliates, will also be required to remain free and clear of any acts or convictions specified herein during the period of any contract arising from this bid solicitation.

Bidders who are incorporated, including those bidding as a joint venture, must provide with their bid or promptly thereafter a complete list of names of all individuals who are currently directors of the Bidder. Bidders bidding as sole proprietorship, including those bidding as a joint venture, must provide the name of the owner with their bid or promptly thereafter. Bidders bidding as societies, firms, partnerships or associations of persons do not need to provide lists of names. If the required names have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply will render the bid non-responsive. Providing the required names is a mandatory requirement for contract award.

Canada may, at any time, request that a Bidder provide properly completed and Signed Consent Forms (Consent to a Criminal Record Verification form- PWGSC-TPSGC 229) (<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/formulaires-forms-eng.html>) for any or all individuals aforementioned within the time specified. Failure to provide such Consent Forms within the time period provided will result in the bid being declared non-responsive.

## 2. Additional Certifications Precedent to Contract Award

The certifications listed below should be completed and submitted with the bid, but may be submitted afterwards. If any of these required certifications is not completed and submitted as requested, the Contracting Authority will so inform the Bidder and provide the Bidder with a time frame within which to meet the requirement. Failure to comply with the request of the Contracting Authority and meet the requirement within that time period will render the bid non-responsive.

### 2.1 Federal Contractors Program – Certification

1. The Federal Contractors Program (FCP) requires that some suppliers, including a supplier who is a member of a joint venture, bidding for federal government contracts, valued at \$200,000 or more (including all applicable taxes), make a formal commitment to implement employment equity. This is a condition precedent to contract award. If the Bidder, or, if the Bidder is a joint venture and if any member of the joint venture, is subject to the FCP, evidence of its commitment must be provided before the award of the Contract.

Suppliers who have been declared ineligible contractors by Human Resources and Skills Development Canada (HRSDC) are no longer eligible to receive government contracts over the threshold for solicitation of bids as set out in the *Government Contracts Regulations*. Suppliers may be declared ineligible contractors either as a result of a finding of non-compliance by HRSDC, or following their voluntary withdrawal from the FCP for a reason other than the reduction of their workforce to less than 100 employees. Any bids from ineligible contractors, including a bid from a joint venture that has a member who is an ineligible contractor, will be declared non-responsive.

2. If the Bidder does not fall within the exceptions enumerated in 3.(a) or (b) below, or does not have a valid certificate number confirming its adherence to the FCP, the Bidder must fax (819-953-8768) a copy of the signed form LAB 1168, Certificate of Commitment to Implement Employment Equity, to the Labour Branch of HRSDC.

3. The Bidder, or, if the Bidder is a joint venture the member of the joint venture, certifies its status with the FCP, as follows:

The Bidder or the member of the joint venture

- a.  is not subject to the FCP, having a workforce of less than 100 full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada;
  - a.  is not subject to the FCP, being a regulated employer under the *Employment Equity Act*, S.C. 1995, c. 44;
  - a.  is subject to the requirements of the FCP, having a workforce of 100 or more full-time or part-time permanent employees, and/or temporary employees having worked 12 weeks or more in Canada, but has not previously obtained a certificate number from HRSDC (having not bid on requirements of \$200,000 or more), in which case a duly signed certificate of commitment is attached;
  - a.  is subject to the FCP, and has a valid certificate number as follows: \_\_\_\_\_ (e.g. has not been declared an ineligible contractor by HRSDC).

Further information on the FCP is available on the HRSDC Web site.

## 2.2 OEM Certification

- (a) Any Bidder that is not the Original Equipment Manufacturer (OEM) for every item of hardware proposed as part of its bid is required to submit the OEM's certification regarding the Bidder's authority to provide and maintain the OEM's hardware, which must be signed by the OEM (not the Bidder). No Contract will be awarded to a Bidder who is not the OEM of the hardware it proposes to supply to Canada, unless the OEM certification has been provided to Canada. Bidders are requested to use the OEM Certification Form included with the bid solicitation. Although all the contents of the OEM Certification Form are required, using the form itself to provide this information is not mandatory. For Bidders/OEMs who use an alternate form, it is in Canada's sole discretion to determine whether all the required information has been provided.
- (b) If the hardware proposed by the Bidder originates with multiple OEMs, a separate OEM certification is required from each OEM.
- (c) For the purposes of this bid solicitation, OEM means the manufacturer of the hardware, as evidenced by the name appearing on the hardware and on all accompanying documentation.

## 2.3 Software Publisher Certification and Software Publisher Authorization

- (a) If the Bidder is the Software Publisher for any of the proprietary software component(s) it bids, Canada requires that the Bidder confirm in writing that it is the Software Publisher. Bidders are requested to use the Software Publisher Certification Form included with the bid solicitation. Although all the contents of the Software Publisher Certification Form are required, using the form itself to provide this information is not mandatory. For bidders who use an alternate form, it is in Canada's sole discretion to determine whether all the required information has been provided.
- (b) Any Bidder that is not the Software Publisher of all the proprietary software products or components proposed as part of its bid is required to submit proof of the Software Publisher's authorization, which must be signed by the Software Publisher (not the Bidder). No Contract will be awarded to a Bidder who is not the Software Publisher of all of the proprietary software it proposes to supply to Canada, unless proof of this authorization has been provided to Canada. If the proprietary software proposed by the Bidder originates with multiple Software Publishers, authorization is required from each Software Publisher. Bidders are requested to use the Software Publisher Authorization Form included with the bid solicitation. Although all the contents of the Software Publisher Authorization Form are required, using the form itself to provide this information is not mandatory. For Bidders/Software Publishers who use an alternate form, it is in Canada's sole discretion to determine whether all the required information has been provided.
- (c) In this bid solicitation, "Software Publisher" means the owner of the copyright in any software included in the bid, who has the right to license (and authorize others to license/sub-license) its software products.

## PART 6 - RESULTING CONTRACT CLAUSES

### 1. Security Requirement

There is no security requirement associated with the requirement.

### 2. Requirement

The Contractor must provide the liquid chromatograph systems in accordance with the Requirement at Annex "A" and the Contractor's technical bid entitled \_\_\_\_\_, dated \_\_\_\_\_.



### 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>) issued by Public Works and Government Services Canada.

#### 3.1 General Conditions

2030 (2012-11-19), General Conditions – Higher Complexity - Goods, apply to and form part of the Contract.

#### 3.2 Supplemental General Conditions

4001 (2010-08-16) Hardware Purchase, Lease and Maintenance;  
4003 (2010-08-16) Licensed Software; and  
4004 (2010-08-16) Maintenance and Support Services, apply to and form part of the Contract.

### 4. Term of Contract

#### 4.1 Delivery Date

All the deliverables must be received on or before 28 March 2013.

### 5. Authorities

#### 5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Kaye Callahan  
Title: Supply Team Leader  
Public Works and Government Services Canada  
Acquisitions Branch  
Ontario Region  
33 City Centre Dr., Ste. 480  
Mississauga, ON  
L2B 2N1

Telephone: 905-615-2071  
Facsimile: 905-615-2060  
E-mail address: [kaye.callahan@pwgsc.gc.ca](mailto:kaye.callahan@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.

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## 5.2 Project Authority (to be provided upon award)

The Project Authority for the Contract is:

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

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

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

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

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

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

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

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority, however the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

## 5.3 Contractor's Representative

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

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

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

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

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

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

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

## 6. Payment

### 6.1 Basis of Payment – Firm Price

Contractor will be paid firm unit prices as specified in Annex "B", for a cost of \$\_\_\_\_\_.  
Customs duties are included and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

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

### 6.2 Single Payment

SACC *Manual* clause H1000C (2008-05-12) Single Payment

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

## 8. Certifications

### 8.1 Compliance

Compliance with the certifications and related documentation provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification, provide the related documentation or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

## 9. Applicable Laws

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

## 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  
4001 (2010-08-16) Hardware Purchase, Lease and Maintenance;  
4003 (2010-08-16) Licensed Software; and  
4004 (2010-08-16) Maintenance and Support Services
- (c) the general conditions 2030 (2012-07-16) Higher Complexity - Goods
- (d) Annex A, Requirement;
- (e) Annex B, Basis of Payment;
- (f) the Contractor's bid dated \_\_\_\_\_

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## 11. **SACC Manual Clauses**

B1501C (2012-07-16) Electrical Equipment

G1005C (2008-05-12) Insurance

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**ANNEX "A"**  
**REQUIREMENT**

Docuemnt is attached separately.

**ANNEX "B"****BASIS OF PAYMENT**

Firm all inclusive unit price, in Canadian funds, FOB Environment Canada, Burlington ON including delivery, installation, set-up and performance testing. It also includes on-site training, one year warranty and 1 year extended warranty, **if applicable**, and any other item or service required to complete the system as specified in Annex A. Prices include Canadian customs duties and excise taxes as applicable and Goods and Services Tax/Harmonized Sales Tax EXCLUDED.

**Firm Requirement**

- |    |   |                               |
|----|---|-------------------------------|
| 1. | Instrument # 1 – in accordance with Annex A<br>Model and Number(s)<br><br>_____ | \$ _____ Firm Unit price      |
| 2. | Instrument # 2 – in accordance with<br>Model and Number(s)<br><br>_____         | \$ _____ Firm Unit price      |
| 3. | Instrument # 3 – in accordance<br>Model and Number(s)<br><br>_____              | \$ _____ Firm Unit price      |
|    | <b>Total Firm Price</b>   | <b>\$ _____ GST/HST Extra</b> |

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## ANNEX C

### EVALUATION CRITERIA AND BASIS OF SELECTION

Document is attached separately

**ANNEX D**

**Bidder Forms**

**Form 1**

**OEM Certification Form**

This confirms that the original equipment manufacturer (OEM) identified below has authorized the Bidder named below to provide and maintain its products under any contract resulting from the bid solicitation identified below.

Name of OEM \_\_\_\_\_

Signature of authorized signatory of OEM \_\_\_\_\_

Print Name of authorized signatory of OEM \_\_\_\_\_

Print Title of authorized signatory of OEM \_\_\_\_\_

Address for authorized signatory of OEM \_\_\_\_\_

Telephone no. for authorized signatory of OEM \_\_\_\_\_

Fax no. for authorized signatory of OEM \_\_\_\_\_

Date signed \_\_\_\_\_

Solicitation Number \_\_\_\_\_

Name of Bidder \_\_\_\_\_

**Form 2**

**Software Publisher Certification Form**

(to be used where the Bidder itself is the Software Publisher)

The Bidder certifies that is the software publisher of all the following software products and components and that it has all the rights necessary to license them (and any non-proprietary sub-components incorporated into the software) on a royalty-free basis to Canada:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*[bidders should add or remove lines as needed]*



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**Form 3**

**Software Publisher Authorization Form**

(to be used where the Bidder is not the Software Publisher)

This confirms that the software publisher identified below has authorized the Bidder named below to license its proprietary software products under any contract resulting from the bid solicitation identified below.

This authorization applies to the following software products:

\_\_\_\_\_  
\_\_\_\_\_

*[bidders should add or remove lines as needed]*

Name of Software Publisher (SP) \_\_\_\_\_

Signature of authorized signatory of SP \_\_\_\_\_

Print Name of authorized signatory of SP \_\_\_\_\_

Print Title of authorized signatory of SP \_\_\_\_\_

Address for authorized signatory of SP \_\_\_\_\_

Telephone no. for authorized signatory of SP \_\_\_\_\_

Fax no. for authorized signatory of SP \_\_\_\_\_

Date signed \_\_\_\_\_

Solicitation Number \_\_\_\_\_

Name of Bidder \_\_\_\_\_

## **ANNEX "A"**

### **REQUIREMENT**

#### **1.0 General Information**

##### **1.1 Requirement**

Environment Canada (Canada Centre for Inland Waters, located at Burlington, Ontario, Canada) has a requirement for the supply and installation of three (3) liquid chromatograph systems, each equipped with a triple quadrupole based tandem mass spectrometer (LC-MS/MS).

Each system must include, at minimum, the following components: an autosampler, a liquid chromatograph, a mass spectrometer, an uninterrupted power supply (UPS), and a computer (with keyboard, monitor, colour laser printer, and mouse) equipped with software capable of controlling all components of the LC-MS/MS systems. In addition, on-site training and installation must be provided for each of the three systems.

##### **1.2 Delivery**

All of the components of the systems (LC, MS, autosampler, software, data system, training module(s), installation, on-site training, etc...) must be delivered to the Aquatic Contaminants Research Division (ACRD), Environment Canada at 867 Lakeshore Road, Burlington, ON, Canada no later than March 28, 2013.

##### **1.3 List of Abbreviations**

APCI	Atmospheric pressure chemical ionization
APPI	Atmospheric pressure photoionization
CCIW	Canada Centre for Inland Waters
ESI	Electrospray Ionization
HBCD	Hexabromocyclododecane
HPLC	High Performance Liquid Chromatography
LC-MS/MS	tandem Liquid Chromatograph-Mass Spectrometer
LOD	Limit of Detection
LOQ	Limit of Quantitation
PDA	Photodiode Array (detector)
RMS	Root Mean Square
RSD	Relative Standard Deviation
SIM	Selected Ion Monitoring
S/N	Signal-to-Noise Ratio
UHPLC	Ultra High Performance Liquid Chromatography

## **2.0 General Requirements – All Instruments**

1. All equipment must be NEW. Demo models, used, refurbished or prototype models will not be considered;
2. If prior to delivery of goods, any component of the purchased LC-MS/MS system is upgraded or there is a new equipment release which would render the system obsolete or inferior in performance/sensitivity, the Contractor will provide Environment Canada with the upgrade or new equipment at no additional cost;
3. Full and complete hardcopies of operating, maintenance and troubleshooting manuals for all equipment must be provided upon delivery of the instrument;
4. The Contractor must supply a UPS system and all transformers required to connect the LC-MS/MS systems to the Department's power grid;
5. The Contractor must include, at a minimum, a 1 year on-site warranty including parts and labour, travel, yearly preventative maintenance from the date of installation completion including any travel and living expenses from date of final acceptance sign-off;
6. The Contractor must include 72 hour on-site response time during the warranty period;
7. The Contractor must provide basic on-site training at Environment Canada, Burlington, Ontario (consisting of a minimum of 3 days training per instrument) and off-site ( at Contractor's site) training for 6 operators (2 operators per instrument);
8. Each system must have a 10-year use guarantee. The Contractor must fully support the instruments for a minimum period of 10 years from the date of purchase. Full support is to include maintenance of parts and trained personnel to service, troubleshoot, and repair the instruments and restore them to factory operating specifications.
9. 24 hour telephone call back service must be available for as long as Environment Canada owns the instruments;
10. All of the components of the systems (LC, MS, PDA, software, data system, etc...) must be serviced and maintained by the Contractor;
11. The Contractor must have in stock all consumables used on an annual basis for delivery within 24 hours of an order, and be able to deliver non-stocked items within 5 working days;
12. Three (3) full and complete sets of operating, maintenance and troubleshooting manuals, along with diagnostic protocols and lists of spare parts for each entire system must be provided on a CD or DVD with delivery of the systems; and
13. The Contractor must provide complete installation of the full systems (including LC, MS, PDA autosampler, computer system, and printer), and upon installation, must demonstrate that the system operates as required in these specifications and each component of each instrument meets published performance specifications.

### **3.0 Mandatory Specifications/Requirements – All Instruments**

#### **3.1 Mass spectrometer (MS):**

1. Must be based on tandem triple quadrupole mass spectrometry technology;
2. Must be capable of precursor ion, neutral loss, product ion, multiple reaction monitoring (MRM) and scheduled (i.e. specified time windows) MRM mode;
3. Must have an electrospray ionization (ESI) source. However, as the users intend to share the atmospheric pressure chemical ionization (APCI) source amongst themselves, only one APCI source must be provided, as long as that APCI source is compatible with all three systems being purchased. If the APCI source is only compatible between two systems, but not the third system, then two APCI sources must be provided (one to be shared between the two compatible systems and one for the third system). If the APCI source is not compatible amongst any of three systems, then three APCI sources must be provided (one for each instrument). The APCI source and the ESI source can be provided either as a dual source or as two separate sources. All instruments must have the capability of being equipped with a photoionization source (see Annex A, 4.3 Instrument # 3, Item 2:).
4. Must be capable of rapid polarity switching between positive and negative ion mode operating with at least 50 ms inter-scan delay when switching between polarities for all sources;
5. Have two quadrupole mass analyzers with pre filters to reduce contamination of the mass analyzers;
6. The collision cell must be able to provide MS to MS/MS switching times of less than 5 ms and dwell times as low as 1 ms per MRM channel;
7. The scan speed must be 5000 amu/s or faster to accommodate UHPLC separation;
8. The ion detector must have a digital dynamic range of at least  $4 \times 10^6$  for linear quantitative response of at least 5 orders of magnitude from the limit of detection;
9. The system must have self diagnostics for monitoring system parameters with the ability to alert the user;
10. Must have a syringe pump (10 mL) for infusion; and
11. Must have zero cross talk; in MRM (SRM, etc) mode when two consecutive precursor ions have the same product ion, the collision cell must be cleared within the inter-channel delay. For each compound no signal can be observed in the channel corresponding to the other compound.

#### **3.2 Liquid Chromatograph:**

1. Must be an ultra high performance liquid chromatograph (UHPLC), capable of operating at pressures at least 1000 bar;
2. Must be capable of maintaining stable pressure ( $\pm 5\%$ ) when operating 1 mL/min flow rate using a 50 mm long stationary phase with internal diameter 2.1 mm containing sub-2 micron particle diameter packing without the need for elevated temperatures;

3. Must have a solvent delivery system with a programmable binary gradient system;
4. Must be able to run UHPLC columns and HPLC columns without the need for any hardware changes between technologies and without compromising the quality of the data for either technology;
5. Must include a temperature-controllable autosampler that is compatible with the UHPLC pump and capable of holding at least 96 x 1 mL vials;
6. Must include required accessories for the autosampler in order to accommodate up to 10  $\mu$ L injections; with precision of < 0.5% RSD, linearity of > 0.99 and carryover of < 0.1%;
7. Must include a column heater which can accommodate UHPLC columns and up to 150 mm HPLC columns;
8. Must have a local console controller for UHPLC operation that is independent of software; and
9. Must include a needle wash system, in which needle wash volume and/or needle wash time can be programmed via software.

### 3.3 Data System

1. The Contractor must supply computers (data systems) interfaced to each LC-MS/MS system to provide complete control of all components of the LC, PDA (where applicable), auto sampler (including temperature controller) and all components of the MS, including acquisition of data.
2. Each data system must consist of:
  - (a) a computer (2 TB hard disk space, 8 GB of RAM, minimum 32 bit OS (64 bit preferred), at least 2.6 GHz speed, an HDMI output, and multiple USB ports (for data transfer, LAN cards, software installation and operation of the instrument, etc...)) with an external Hard Drive (3 TB)
  - (b) dual 19" LCD flat screen monitor
  - (c) a colour Laser Printer
  - (d) a mouse
  - (e) a keyboard
  - (f) software capable of simultaneously controlling all elements of the LC-MS/MS system (including the PDA, where applicable).
3. The data acquisition/data processing software and systems used to control the LC-MS/MS instruments must be based on Microsoft Windows XP or Windows 7;
4. The data acquisition/data processing software and systems used to control the LC-MS/MS instrument must be compatible with the current version of the McAfee Antivirus system;
5. The data acquisition/data processing software and systems must have an automated data processing and quantification package;
6. The data acquisition/data processing software and systems must be capable of both manual and automatic baseline integration of all peaks obtained by the detector(s) employed;

7. The data acquisition/data processing software and systems must be able to run in “scan”, “SIM” and “MRM” modes synchronously.
8. The data acquisition/data processing software and systems must be able to transfer quantification results with cut and paste capability for mass spectra and chromatograms into Microsoft Office software (Excel, PowerPoint, Word);
9. The data acquisition/data processing software and systems must be able to send and read data in a “CSV” format;
10. All components of each individual instrument (LC, MS, autosampler, PDA etc...) must be controlled by the same data acquisition/data processing software program, including (but not limited to) operating and setting up the LC, MS and PDA methods, monitoring the instrument diagnostics, integrating chromatograms, and data analysis;
11. The data acquisition/data processing software used on each individual system must be able to produce a hardcopy of instrument settings;
12. The data acquisition/data processing software and systems must be capable of remote operation and diagnostics via modem/internet, and provide enhanced security by using password restricted access (in the event of remote operation);
13. Instrument interface and control via LAN (TCP/IP protocol) to the data acquisition/data processing software and systems must be included;
14. The data systems must be supported by the manufacturer for at least 10 years after final acceptance;
15. Complete licensed data acquisition/data processing software available for off-line data analysis must be included for each system;
16. From the date of final acceptance, software revisions must be included for duration of the warranty period and any service contracts (if purchased) for each system:
17. Software must have the ability to allow unattended operation; and
18. Should new software becomes available during the warranty period, Environment Canada has the option to upgrade free of charge.

#### **4.0 Additional Mandatory Specifications/Requirements for Individual Instruments**

\* For RMS signal to noise the signal is defined as the height of the maximum of the chromatographic signal of the analyte of interest above the baseline; baseline noise is defined as the root mean square (standard deviation) of the measured baseline both 30 seconds before and 30 seconds after the chromatographic signal of the analyte of interest.

##### **4.1 Instrument # 1**

1. The mass range of the MS system must encompass 50 to 2000 m/z;
2. The instrument must be able to measure Reserpine at 200 fg on column at a RMS signal to noise\* of 2000:1 with a standard deviation of less than 10% after 8 replicate measurements; and

#### **4.2 Instrument # 2**

1. The Contractor must include a nitrogen generator capable of supplying the requirements of the instrument. N2-45 Nitrogen Gas Generator (Parker Hannifin or equivalent) must be pre-approved by the manufacturer.
2. The mass range of the MS system must encompass 50 to 1450 m/z;
3. Must include a temperature-controlled autosampler which can maintain temperature at 5 °C that is compatible with the UHPLC pump and capable of holding at least 96 x 1 mL vials;
4. The instrument must be able to measure Reserpine at 50 fg on column at a RMS signal to noise\* of 1000:1 with a standard deviation of less than 10% after 8 replicate measurements; and

#### **4.3 Instrument #3**

This instrument is a life cycle replacement of an existing instrument. Accordingly, the specifications below are written to ensure that the new instrument has the capacity to fully replace the functionalities of the existing instrument.

1. The Contractor must include a nitrogen generator capable of supplying the requirements of the instrument. N2-45 Nitrogen Gas Generator (Parker Hannifin) or equivalent must be pre-approved by the manufacturer.
2. The mass spectrometer must include an atmospheric pressure photoionization (APPI) source;
3. The mass range of the MS system must encompass 50 to 1450 m/z;
4. Must include a temperature-controlled autosampler which can be set to temperatures in the range of 4 °C to 40 °C and that is compatible with the UHPLC pump and capable of holding at least 96 x 1 mL vials;
5. The instrument must be capable of measuring Reserpine at 50 fg on column at a RMS signal to noise\* of 1000:1 with a standard deviation of less than 10% after 8 replicate measurements.
6. Must be equipped with a photodiode array (PDA) detector which can:
  - (a) generate scanning absorbance spectra between 200 nm and 640 nm
  - (b) scan at a rate of at least 80 Hz in order to be compatible with UHPLC technology

#### **5.0 Requirements Upon Award**

1. The Contractor must install and maintain all components including nitrogen generator, auto-sampler, liquid chromatograph, PDA, mass spectrometer, computers, and printer.
2. The Contractor must meet the specification in the factory prior to shipment, and after the installation on-site.
3. The Contractor must ensure that the system is installed to Environment Canada specifications, and demonstrate satisfactory operation of the Nitrogen generator, LC, MS, PDA, and control of the Autosampler.

4. Final acceptance of each instrument is subject to meeting the performance requirements detailed above within three months of installation. Acceptance of the instruments will only occur once all specifications have been met.
5. The contractor must ensure that the system is installed to Environment Canada's specifications, and demonstrate satisfactory operation of the GC-EI/ECNIMS/MS system. Final acceptance of the instrument is subject to meeting the performance requirements detailed above within three months of installation. Acceptance of the instrument will only occur once all specifications have been met. The warranty period will commence upon final acceptance by Environment Canada.

Failure by the contractor to fulfill the specific terms and conditions of this requirement may result in termination of the purchase. In the event of termination of agreement, the contractor must remove the instruments delivered at their own expense and return all funds forwarded by Environment Canada.



## ANNEX C

### EVALUATION CRITERIA AND BASIS OF SELECTION

The Bidder may choose to propose the same instrument for each requirement (Instrument #1, #2, and #3, or they may choose to propose different types. If the Bidder proposes different types they must provide all required documentation for each type of system.

#### 1.0 Mandatory Technical Criteria

Bids not meeting the following mandatory requirements will be considered non-responsive and will not be evaluated further.

- 1.1 The Bidder must have a demonstrated provision and service history (minimum of 5 years) in the field of liquid chromatography and mass spectrometry.
- 1.2 The proposed systems must meet the mandatory requirements and technical specifications detailed at Annex A, Sections 2.0 to 4.0. If any additional components, peripherals or supplies are necessary to meet all specifications and to operate the instrument on arrival at Environment Canada's site, these must be included in the Bidder's response and must be included in the Price at Annex B; **and**
- 1.3 The Bidder must provide a concise and detailed response to each of the mandatory technical specifications/ requirements. Bidders must provide evidence (instrument specification, publication, documented data etc.) to support the fact that their system meets a specification, simply stating that the criteria is met is not sufficient.
- 1.4 The Bidder must submit test results, with their bid, achieved through analysis of standard mixtures supplied by Environment Canada, Burlington, ON. **Contact Mehran Alaei at (905) 336-4752 to obtain samples.** Instructions will be provided with the samples. The samples will consist of: selected pharmaceuticals and personal care products (PPCPs), pesticides, azo/benzidine dyes, and phthalates in various matrices. The Bidder must provide results based on each type of instrument proposed. The results will be used in Step 1 of the Point Rated evaluation. Performance must meet the minimum mandatory requirements outlined in Annex A
- 1.5 Three replicates, one for each type of instrument (#1, #2, and #3) must be performed, and chromatograms demonstrating this achievement must be provided with the bid.
- 1.6 Instrument performance check: The Bidder must provide 3 references including names and phone numbers of contact person, alternate contact person is optional. The references must be based on the performance of each of **the proposed system(s)** in environmental applications and the quality of service. These references will be used in Step 2 of the Point Rated evaluation.
- 1.7 Service records check: The Bidder must provide 3 references, from Environment Canada in Burlington, (if not available, other federal departments or other environmental laboratories within a 100 km radius of CCIW is acceptable) to provide a reference on the Bidder's service record. The Bidder must include the reference site address, and names and phone numbers of a contact person, an alternate contact person is optional. References must be for the Bidder's latest installation at the reference site. The Bidder must provide details of the type of equipment supplied and when it was supplied. These references will be used in Step 2, item 2.2.5, of the Point Rated evaluation.

- 1.8 Delivery of Instruments, including all components, on-site training and installation by 28 March 2013 is mandatory. *(It is anticipated that an award will be made 31 January 2013. The Bidder should include a date by which an order should be received to meet the delivery date )*

## **2.0 Technical Point Rated Criteria.**

### **2.1 Step 1: Benchmark Evaluation**

The Bidder should demonstrate each of the following capabilities by providing a written report on the samples provided by Environment Canada. Instructions will be provided with the samples. Bidders must receive a score of **1120 points out of a possible 1600 points or 70%** on the Benchmark Evaluation in order to proceed to the Step 2 of the evaluation.

The Bidder may choose to propose the same instrument for each requirement (Instrument #1, #2, and #3, or they may choose to propose different types. The Bidder must provide results based on each type of instrument proposed. The average of the points scored for each instrument will be used in the calculation of overall points for this section.

**Note that wherever “signal to noise ratio” or “signal:noise” is referenced in the subsequent components of this benchmark evaluation, the definition to be used is that provided for “RMS signal-to-noise” in Annex A.** Briefly, “RMS signal to noise” has been defined: the signal is the height above the baseline of the maximum chromatographic peak corresponding to the analyte of interest; baseline noise is defined as the root mean square (standard deviation) of the measured baseline **both 30 seconds before and 30 seconds after** the chromatographic signal of the analyte of interest.

Canada requests that no smoothing or noise reduction algorithms be employed to manipulate RMS signal to noise ratios.

#### **2.1.1 Phthalates, perfluorinated compounds (PFCs), pesticides, and azo/benzidine dyes.** **(Maximum 800 points)**

The Bidder should submit results obtained for selected phthalates, perfluorinated compounds (PFCs), pesticides, and azo/benzidine dyes.

Points will be awarded for each criterion in this section on a pro-rated basis with the best performer receiving full marks and all others being prorated. See **Appendix 1** for example of this calculation. If a Bidder is proposing different types of instruments the average of the points scored for each instrument, after the pro-rating, will be used in the calculation of overall points for this section.

##### **(a) Phthalates**

**(Maximum 200 points)**

- i. Sensitivity will be assessed **(Maximum 50 points)**

In Electrospray Positive mode, sensitivity will be assessed for a mixed standard of 10 phthalates including Dimethyl phthalate (DMP), Diethyl phthalate (DEP), Di-n-butyl phthalate (DBP), Di-n-pentyl phthalate (DPP), Benzylbutyl phthalate (BBP), Dihexyl phthalate (DHXP), Dicyclohexyl phthalate (DCHP), Bis-2-ethylhexyl phthalate (DEHP), Di-n-octyl phthalate (DNOP) and Diisodecyl phthalate (DIDP) in methanol.

Individual solutions can be provided upon request, however, evaluation will be based on solution mixtures

MS Method: Suggested Q1/Q3 Values (Native compounds)

Analyte	Q1	Q3
DMP	195	135/133
DEP	223	177/121
DBP	279	149/205
DPP	307	149/167
BBP	313	149/205
DHXP	335	149/233
DCHP	331	149/249
DEHP	391	167/279
DNOP	391	149/261
DIDP	447	289/141

Deuterated recovery standard mix for DMP, DEP, DBP, DHXP, DCHP and DNOP will also be included so that Isotope Dilution methods can be used when calibration curves are prepared and submitted samples are analysed. In these instances the level of deuterated compound is to remain at a constant concentration and the amount of native compound is varied to construct the calibration curve.

Detection limits (LOD) are to be determined by running serial dilutions of provided standard stocks with methanol, and without concentration or evaporation, down to a level where the intensity of the chromatographic peak acquired via MRM has a signal-to-noise ratio of **5** using 3 consecutive injections.

Laboratory blanks are to be included by each Bidder to assess any laboratory contributions which may arise.

A suggested LC method involves using a mobile phase consisting of solvent A: 0.1% formic acid in water and solvent B: Methanol using the gradient elution provided below in the table and a Phenomenex Kinetex C18 ( 2.1X100) 2.6um particle size column with a Phenomenex Kinetex C18 (4.6X100) 2um particle size trap column between the autosampler and the pump. The Bidder may use an alternative LC method provided that full disclosure of the LC method is made (solvent composition, gradient, column, injection volume, and on-column amount).

**Table 1 - Gradient Table**  
Column Temp.45°C

Time (min.)	Flow (mL/min)	%B
0.01	0.5	50
5.0	0.5	98
13	0.5	98
13.1	0.5	50
17	0.5	50

Provide the **3** integrated chromatograms with y-axis in counts, x-axis in retention time (min), analyte on-column injection mass, and specific MRM transition(s). Chromatograms are to be provided without any extra processing (**i.e. no smoothing or noise reduction**).

Provide chromatograms for 3 methanol injections with the same conditions to prove lack of background and carryover or sufficient separation of background from analytical peak and full disclosure of the LC method employed

ii. Sensitivity will be assessed in sediment extracts. **(Maximum 50 points)**

Signal:noise will be assessed for 10 phthalates including DMP, DEP, DBP, DPP, BBP, DHXP, DCHP, DEHP, DNOP and DIDP in two sediment samples. Deuterated recovery standards for DMP, DEP, DBP, DHXP, DCHP and DNOP will also be included in these two samples so that isotope dilution methods can be employed.

Using the **identical LC-MS/MS methods** applied to the analytes in 2.1.1 a(i), report the signal:noise for each analyte in the provided sample matrix **without altering the sample extracts (i.e. no further concentration, addition of modifiers, or dilution, etc..)** and using a 10 µl injection volume.

The overall signal:noise must be the average of 8 injections. Provide chromatograms for all 8 injections.

**To be awarded any points, RSD < 10%.**

iii. Chromatographic resolution will be assessed **(Maximum 25 points)**

**Using the sample provided** the average chromatographic resolution (n = 8) will be assessed for each phthalate using identical LC-MS/MS methods and sample conditions as applied in parts 1a(ii) above.

Chromatographic resolution will be defined as peak width (in seconds) at half-height.

Provide chromatograms for all 8 injections.

**To be awarded any points, RSD < 10 %**

iv. Linear dynamic range will be assessed **(Maximum 25 points)**

Linear dynamic range will be assessed 10 phthalates including DMP, DEP, DBP, DPP, BBP, DHXP, DCHP, DEHP, DNOP and DIDP and deuterated recovery standards using the same method as applied in 2.1.1 a(i).

**To be awarded any points, the linear dynamic range must extend for at least 4 orders of magnitude above the LOD determined in 2.1.1 a(i)**

v. Instrument Blank **(Maximum 50 Points)**

LC/MSMS instrument should be free on any phthalate contamination. Use of a pre-column to eliminate any background contamination from instrument and solvents is recommended. MRM chromatograms of blank injections (methanol) should be included in the final report.

**(b) PFCs**

**(Maximum 200 points)**

i. Sensitivity will be assessed **(Maximum 50 points)**

Perfluorooctanoate PFOA (ES negative 413→369) perfluorooctane sulfonate PFOS (498.9→98.9) and perfluorotetradecanoate PFTeA (712.9→669) in 50/50

aqueous/methanol with no carryover or background contamination. Dilution of the provided standard with 50/50 methanol/HPLC grade water and **without concentration or evaporation** is required to determine the LOD concentration with S/N of 5 using a 20 µl injection volume.

A suggested LC method is using mobile phase consisting of solvent A: 10 mM ammonium acetate in water and solvent B: 10 mM ammonium acetate in methanol using the gradient elution provided below in Table 2 and a C18 column; however, the Bidder may use an alternative LC method provided the injection volume remains 20 µl and provides full disclosure of the LC method (solvent composition, gradient, column type).

Provide the **3** integrated chromatograms with y-axis in counts, x-axis in retention time (min), analyte on-column injection mass and specific MRM transitions. Chromatograms are to be provided without any extra processing (i.e. no smoothing or noise reduction),

Provide chromatograms for 3 x methanol injections with the same conditions to prove lack of background and carryover or sufficient separation of background from analytical peak and full disclosure of the LC method employed.

**Table 2. Gradient for PFCs standard analysis**  
**Column temp = 40 °C**

Total Time (min)	Flow Rate	%A
0.0	350	50.0
1.0	350	50
3.0	350	5.0
7.0	350	5.0
7.1	350	50.0
10.0	350	50.0

ii. Matrix sensitivity will be assessed in biotic extracts (**Maximum 50 points**)

Using the **identical LC-MS/MS method** applied in 2.1.1 b(i), report the signal:noise for each analyte in the provided sample matrices without altering the sample extracts (i.e. **no further concentration, addition of modifiers, etc**) and using a 20 µL injection volume.

The overall signal:noise must be the average of 8 injections. Provide chromatograms of all 8 injections for each sample.

iii. Linear dynamic range will be assessed for each analyte using serial dilution of the provided standard stocks. (**Maximum 50 points**)

**NOTE: To be awarded any points, the linear dynamic range MUST extend for at least 4 orders of magnitude above the LOD determined in 2.1.1 b(i).**

vi Determining Concentrations in Biota Extracts (**Maximum 50 points**)

Using the identical LC-MS/MS method applied in 1b(i), report the concentrations for each analyte in the provided sample matrix without altering the sample extracts (i.e. **no further concentration, addition of modifiers, etc**) and using a 20 µL injection volume.

The sample extracts will contain an internal standard for calculating the concentration based on relative response (see Table 3).

Each concentration must be the average of 5 injections using a 5 point calibration curve. Provide chromatograms for all 5 injections (analytes and internal standard) and calibration curve.

**Table 3. MS/MS transitions for each PFA and corresponding IS**

Analyte and MS/MS transition	Internal Standard and MS/MS transition
PFOA (-ESI: 412.9→369 m/z)	13C4PFOA (-ESI; 416.9→371.9)
PFTeA(-ESI: 712.9→669 m/z)	13C2PFDoA (-ESI; 615→569.9)
PFOS (-ESI: 499→98.9 m/z)	13C4PFOS (-ESI; 502.9→98.9)

**(c) Pesticides**

**(Maximum 200 points)**

*i.* Sensitivity will be assessed. **(Maximum 50 points)**

Rimsulfuron (ESI positive: 432→182, 432→325 m/z); Diuron (ESI positive: 233→72, 235→72 m/z); Ethametsulfuron-methyl (ESI positive: 411→196, 411→168 m/z); Chlorsulfuron (ESI negative: 356→139, 356→107 m/z); Acifluorfen (ESI negative: 360→195, 360→222 m/z) in acetonitrile with no carryover or background contamination (see Table 3).

Dilution of the provided standard with acetonitrile and **without concentration or evaporation** is required to determine the LOD concentration with S/N of 5 using a 10 µl injection volume.

A suggested LC method is using mobile phase consisting of solvent A: 0.1% formic acid in water and solvent B: 0.1% formic acid in acetonitrile using the gradient elution provided below in Table 4 and a SB-C8 column (3.0mm x 100 mm x 3.5µm, Part # 861954-306, Agilent®); however, the Bidder may use an alternative LC method provided the injection volume remains 10 µl and provides full disclosure of the LC method (solvent composition, gradient, column type). Conduct the experiment using positive-negative polarity switching **with a minimum of 6 but ideally 8-10 points across each peak.**

Provide the **5** integrated chromatograms with y-axis in counts, x-axis in retention time (min), analyte on-column injection mass and specific MRM transitions. Chromatograms are to be provided without any extra processing (i.e. no smoothing or noise reduction).

Provide chromatograms for 3 x acetonitrile injections with the same conditions to prove lack of background and carryover or sufficient separation of background from analytical peak and full disclosure of the LC method employed.

**Table 4. Gradient for mixed pesticide standard analysis**  
**Column temp = 40°C**

Total Time (min)	Flow Rate	%A
0.00	450	50.0
1.00	450	15.0
4.00	450	15.0
5.50	450	50.0

ii. Matrix sensitivity will be assessed in water extracts (**Maximum 50 points**)

Using the **identical LC-MS/MS method** applied in Test 2.1.1 c(i), report the signal:noise (using pos/neg switching) for each analyte in the provided sample matrix without altering the sample extracts (**i.e. no further concentration, addition of modifiers, etc**) and using a 10  $\mu$ L injection volume.

The overall signal:noise must be the average of 8 injections. Provide chromatograms of all 8 injections.

iii. Linear dynamic range will be assessed (**Maximum 50 points**)

Linear dynamic range will be assessed for each analyte (using pos/neg switching) using serial dilution of the provided standard stocks.

NOTE: To be awarded any points, the linear dynamic range **MUST** extend for at least 4 orders of magnitude above the LOD determined in Test 1.

iv. System Stability will be assessed (**Maximum 50 points**)

LC-MSMS variability is determined by injecting the pesticide standard in full scan (using pos/neg switching) for 50 consecutive injections onto a column monitoring four MRMs: (432 $\rightarrow$ 182 and 432 $\rightarrow$ 325 m/z in ES+; 356 $\rightarrow$ 139 and 356 $\rightarrow$ 107 in ES-) with the same LC-MS/MS conditions for each injection.

**Report the ratio of the chromatographic peak areas** (i.e. numerator = peak area for 432 $\rightarrow$ 182 and denominator is 432 $\rightarrow$ 325) for all 50 injections and provide chromatograms.

Calculate average peak areas and %RSD for the 50 replicate.

**(d) Azo/benzidine dyes**

**(Maximum 200 points)**

i. Sensitivity will be assessed. (**Maximum 25 points**)

In Electrospray Positive mode, sensitivity will be assessed for Sudan Red G (279.1 >123.1 as Quan MRM, 279.1>108.1 and 279.1>156 as Qual MRMs), Sudan III (353.1>197.1 as Quan MRM and 353.1>128.1 as Qual MRM), and Disperse Yellow 7 (317.1>181.1 as Quan MRM and 317.1>105.1 as Qual MRM).

Detection limits (LOD) are to be determined by running serial dilutions of provided standard stocks down to a level where the intensity of the chromatographic peak acquired via MRM has a RMS signal-to-noise ratio equal to **5** using for 3 consecutive injections.

Dilution of the provided standard with methanol and without concentration or evaporation is required to determine the LOD concentration with S/N of 5. A suggested LC method is using mobile phase consisting of solvent A: 10:90 Milli-Q water:Acetonitrile 2mM ammonium formate acidified with 0.2% formic acid and solvent B: aqueous ammonium formate acidified to 0.2% formic acid using the gradient elution provided below in the table and a Kinetex column 2.6 $\mu$ m C18 100A (2.1mm ID x 100 mm, Part No 00D-4462-AN, Phenomenex®) or equivalent, however, the bidder may use an alternative LC method provided

that full disclosure of the LC method is made (solvent composition, gradient, column, injection volume, and on-column amount).

**Table 5 - Gradient Table**

Column Temp. 35 °C

Time (min.)	Flow (mL/min)	%A
0	0.3	70
5.0	0.3	100
8.0	0.3	100
9	0.3	70
12	0.3	70

Provide the **3** integrated chromatograms with y-axis in counts, x-axis in retention time (min), analyte on-column injection mass, and specific MRM transition(s). Chromatograms are to be provided without any extra processing (**i.e. no smoothing or noise reduction**).

Provide chromatograms for **3** methanol injections with the same conditions to prove lack of background and carryover or sufficient separation of background from analytical peak and full disclosure of the LC method employed.

**LOD must be < 500, 250, and 500 fg (femtograms) on-column for Sudan Red G, Disperse Yellow 7, and Sudan 3, respectively, in order to be awarded any points.**

- ii. Signal:noise will be assessed for Sudan Red G, Sudan III and Disperse Yellow 7 in a complex environmental matrix (sediment extract). (**Maximum 25 points**)

Using the **identical LC-MS/MS methods** applied to the analytes in the test above, report the signal:noise for each analyte in the provided sample matrix **without altering the sample extracts (i.e. no further concentration, addition of modifiers, or dilution, etc..)** and using a 1 µL injection volume.

The overall signal:noise must be the average of 8 injections. Provide chromatograms for all 8 injections.

**To be awarded any points, RSD < 10%.**

- iii. Linear dynamic range will be assessed (**Maximum 50 points**).

Linear dynamic range will be assessed for Sudan III, Sudan Red G, and Disperse Yellow 7 using serial dilution of the provided standard stocks.

**To be awarded any points, the linear dynamic range must extend for at least 4 orders of magnitude above the LOD determined in response to 2.1.1 d(i).**

- iv. Chromatographic resolution will be assessed (**Maximum 50 points**).

**Using the sample provided for question 2.1.1 d(ii)**, the average chromatographic resolution ( $n = 8$ ) will be assessed for each dye using identical LC-MS/MS methods and sample conditions as applied in parts 2.1.1 d(ii) above. (**50 points**)



Chromatographic resolution will be defined as peak width (in seconds) at half-height.

Provide chromatograms for all 8 injections.

**To be awarded any points, RSD < 10 %**

- v. **Using a PDA detector**, sensitivity will be assessed for Sudan Red G ( $\lambda_{MAX} = 495 \text{ nm}$ ), Sudan III ( $\lambda_{MAX} = 495 \text{ nm}$ ), and Disperse Yellow 7 ( $\lambda_{MAX} = 379 \text{ nm}$ ). **(Maximum 25 points)**

Detection limits (LOD) are to be determined by running serial dilutions of provided standard stocks down to a level where the intensity of the chromatographic peak acquired via the PDA has a RMS signal-to-noise ratio of 5 using 3 consecutive injections.

Dilution of the provided standard with methanol and without concentration or evaporation is required to determine the LOD concentration with S/N of 5. A suggested LC method is using mobile phase consisting of solvent A: Milli-Q water B: acetonitrile using the gradient elution provided below in the table and a Ultracarb 5um ODS (30) column (4.6 mm ID x 150 mm, Part No 00F-0351-E0, Phenomenex®); however, the Bidder may use an alternative LC method provided that full disclosure of the LC method is made (solvent composition, gradient, column, injection volume, and on-column amount).

**Table 6 - Gradient Table**

Column Temp. 30 °C

Time (min.)	Flow (mL/min)	%A
0	1.0	25
3.0	1.0	0
15.0	1.0	0
20.0	1.0	25
32.0	1.0	25

Provide the **3** integrated chromatograms with y-axis in counts, x-axis in retention time (min), analyte on-column injection mass, PDA (total absorbance) and wavelength specific absorbance (at  $\lambda_{MAX}$ ). Chromatograms are to be provided without any extra processing (**i.e. no smoothing or noise reduction**).

Provide chromatograms for **3** methanol injections with the same conditions to prove lack of background and carryover or sufficient separation of background from analytical peak and full disclosure of the LC method employed.

**LOD must be < 300, 100, 300 pg (picograms) on-column of Sudan Red G, Disperse Yellow 7, and Sudan 3, respectively to be awarded any points.**

- vi. Signal:noise will be assessed for Sudan Red G, Sudan III and Disperse Yellow 7 in a complex environmental matrix (sediment extract) using a **PDA detector**. **(Maximum 25 points)**

Using the **identical LC-PDA methods** applied to the analytes in the test above, report the signal:noise for each analyte in the provided sample matrix **without altering the sample extracts (i.e. no further concentration,**

**addition of modifiers, or dilution, etc..)** and using a 10 µl injection volume. **Noise must be defined as the signal over 30 seconds prior to the base of the analyte peak.**

The overall signal:noise must be the average of 8 injections. Provide chromatograms for all 8 injections.

**To be awarded any points, RSD < 10%.**

### **2.1.2 . Site Visit Evaluation of Control Software.**

**(Maximum 300 points)**

The Environment Canada evaluation team will visit the Bidder's site to perform an evaluation of the control software. The Bidder should provide address for site visit with their bid.

The software used to control all components of the proposed systems (including autosampler, LC, and all sources and the PDA detector) will be evaluated as follows:

#### **a) Method Development**

**(Maximum 150 points)**

- a. General evaluation of the speed and ease of method development, MRM optimization and HPLC method creation WITH seamless instrument component communication.

- i. Instrument Tuning - real time display, choice of automated or manual; general ease of use. **(Maximum 25)**

Real time display: 5 points

Automated tuning: 5 points

Manual tuning: 5 points

General ease of use:

≤ 2 steps: 10 points

> 2 ≤ 5 steps: 5 points

> 5 steps: 0 points

- ii. MS parameter optimization for MRM development - single or multi-compound; choice of automated or manual; number of optimizable parameters. **(Maximum 50)**

Single compound: 10 points

Multiple compounds: 10 points

Automated: 10 points

Manual: 10 points

Number of optimizable parameters

≥ 10 parameter: 10 points

< 10 ≥ 5 parameters: 5 points

< 5 parameters: 0 points

- iii. HPLC method creation - availability of gradient profiles; flow-rate ramping; column switching features; general ease of use. **(Maximum 25)**

Gradient profile: 5 points

Flow rate ramping: 5 points

Column switching: 5 points

General ease of use:  
≤ 5 steps: 10 points  
>5 ≤ 10 steps: 5 points  
>10 steps; 0 points

- b.** Photodiode Array Detector will be evaluated for ease of wavelength range selection as well as options for resolution and sampling rate (**Maximum 20**)

Wavelength range  
200-nm to 850-nm: 10 points

Resolution  
< 1nm: 5 points

Sampling rate  
>160 Hz: 5 points

- c.** Availability of a method database. are existing methods available? (**Maximum 10**)

Yes: 10 points  
No: 0 points

- d.** Intelligent instrument operation;
1. detection of instrument readiness before starting a run (e.g. if collision gas or heaters aren't turned on, instrument will do it automatically and notify operator); and
  2. real run-time software decision making (e.g., are peak area/ret.time/ion ratios within limits?, if NOT – a) re-run sample, b) STOP run; or c) CONTINUE), send operator notification of other problems (e.g. sample is missing, again with STOP or CONTINUE run options) (**Maximum 20**)

Item 1  
Yes: 5 points

Item 2  
Including 2a, 2b and 2c: 15 points

**b) Data processing** **(Maximum 120 points)**

- a.** Number of steps for peak integration and blank subtraction, options for matrix matched calibration curves (number of integration algorithms) (**Maximum 30**)

peak integration  
≤ 5 steps: 10 points  
>5 ≤ 10 steps: 5 points  
> 10 steps: 0 points

blank subtraction  
≤ 5 steps: 10 points  
>5 ≤ 10 steps: 5 points  
>10 steps: 0 points

options for matrix matched calibration curves  
≤ 5 steps: 10 points  
>5 ≤ 10 steps: 5 points  
>10 steps: 0 points

- b.** Ability of software to calculate LOD, LOQ, S/N and other related parameters as well as options for flagging errors (such as retention time, ion ratios ) in processed data (**Maximum 20**)  
LOD: 5 points  
LOQ: 5 points  
S/: 5 points  
flagging errors: 5 points
- c.** Calibration table setup – options for internal/external calibration and TOTAL calculations (**Maximum 10**)  
  
Yes: 10 points
- d.** Creation of a library, library search options and library availability (**Maximum 10**)  
Creation: 4 points  
Search: 3 points  
Library availability: 3 points
- e.** Dependant data acquisition (i.e. trigger a scan if an MRM is detected) (**Maximum 10**)  
Yes: 10 points
- f.** Availability of statistical software package(s) for further comparative data manipulation (PCA) (**Maximum 20**)  
Yes: 20 points
- g.** For the PDA detector, ease of programming the extraction and integration of multiple wavelength chromatograms, and selection of time windows for integration. (**Maximum 20**)

Ease of programming  
≤ 2 steps: 10 points  
>2 ≤ 5 steps: 5 points  
>5 steps: 0 points

Ease of selection of time windows  
≤ 2 steps: 10 points  
>2 ≤ 5 steps: 5 points  
> 5 steps: 0 points

**c) Reporting**

**(Maximum 30 points)**

- a.** Ease and intuitiveness of exporting or copying and pasting data/charts/curves/chromatograms/tables to other software packages (MS Excel/Powerpoint/Word) (**Maximum 10**)  
  
≤ 2 steps: 10 points  
>2 ≤ 5 steps: 5 points  
> 5 steps: 0 points

- b. Ease of preparing and designing custom reports (**Maximum 10**)
  - ≤ 5 steps: 10 points
  - >5 ≤ 10 steps: 5 points
  - >10 steps: 0 points
- c. Are instrument operation/monitoring/troubleshooting-error reporting logs easily accessible (**Maximum 10**)
  - Yes: 10 points

**2.1.3** The proposed system(s) include(s) the following additional abilities or features (**Maximum 300 points**)

- i. MS<sup>3</sup>, excluding in-source ionization (**50 points**);
- ii. High resolution quadrupoles (**50 points**);
- iii. Linear Ion Trap (**50 points**);
- iv. Ionization source orientation in which the nebulized spray is orthogonal to the sampling aperture for source longevity and analyzer protection (**50 points**);
- v. Sample injection capabilities exceeding 10 µl. (**50 µl gets 5 points, with 15 points per additional 500 µl, maximum of 50 points total**); and,
- vi. Photodiode array detector with an extended wavelength range up to 800 nm (**50 points**).

**2.1.4.** Number of qualified service engineers within 100 km of Burlington ON. (**Maximum 50 points**)  
(25 points per engineer)

**2.1.5** One year extended warranty, included in the base instrument price for all three instruments. (**Maximum 50 points**)

The Bidder should provide the value of the extended warranty for each instrument.

Points will be awarded based on a pro-rated basis with the lowest price receiving full marks and all others being prorated. See Appendix 1 for example of this calculation.

**2.1.6** Ability to upgrade and or trade, free of charge, in within one year with equipment to provide more sensitive full scan capability for all three systems. (**Maximum 50 points**)  
Yes: 50 points  
No: 0 points

**2.1.7** 21" or greater monitors to be provided with each proposed system. (**Maximum 50 points**)

21": 25 points  
> 21" receives: 50 points.

**2.2. Step 2: Reference Evaluation** (**Maximum 1550 points**)

Instrument performance check: The 3 references provided at 1.6 above, will be contacted and asked to respond to the questions below at 2.2.1 to 2.2.4. for the proposed system(s). A reference will be given a score of 0 if the reference or alternate contact cannot be reached after 3 calls on separate days. The average score of the 3 references will be used in the evaluation.

Service records check: The 3 references provided at 1.7 above will be contacted and asked to respond to the questions at 2.2.5 below regarding service performance. A reference will be given a score of 0 if the reference or alternate contact cannot be reached after 3 calls on separate days. The average score of the 3 references will be used in the evaluation.

Bidders must receive a rating of **1085 points out of a possible 1550, or 70%**, on this reference evaluation in order to proceed to the Financial Evaluation.

**2.2.1 Installation:** **(Maximum 130 Points)**

- a) Does your instrument system program have complete control over the liquid chromatograph and autosampler operational parameters, including the API sources as well as the PDA detector? Have any problems been encountered with software control for units other than the mass spectrometer, i.e. the autosampler, the PDA, and the liquid chromatograph. **(Maximum 40 points)**

Points will be awarded/deducted as follows:

Complete control

Yes: 20 points

No: 0 points

Problems

No problems: 20 points

Points will be deducted as follows:

Minus 10 points if there were problems with autosampler or LC,

Minus 10 points if there was a problem with the PDA

- b) Was the instrument delivered on time? Was the installation done promptly? **(Maximum 40 points)**

Points will be awarded as follows:

20 points if delivered on time,

20 points if the installation was done within 4 weeks,

10 points if the installation was finished within 6 weeks.

- c) Were the specifications for sensitivity met within a reasonable amount of time after installation of the instrument? **(Maximum 50 points)**

Points will be awarded/deducted as follows:

if the specs were met within 2 weeks of the installation: 50 points

Minus 10 points for each additional week it took to meet specifications.

### 2.2.2 Operation:

(Maximum 440 Points)

- a) How does the sensitivity of the instrument in general compare with the manufacturer's specifications? **(Maximum 30 points)**

100%: 30 points  
99-85%: 20 points,  
84-70%: 10 points

- b) Are sensitivity and resolution requirements for routine analyses met within 30 minutes on a daily basis or is extensive tuning required. **(Maximum 30 points.)**

Yes within 30 minutes: 30 points  
No: 0 points

- c) Does the source require frequent cleaning and is this a difficult chore with your instrument? How much time would you say is necessary to dismantle, clean and reassemble them? **(Maximum 40 points)**

Points will be awarded as follows:

cleaning: once a year 20 points,  
cleaning: 6 months 10 points

time:

≤ 4 hours: 20 points,  
>4 hours ≤ 8 hours: 10 points  
> 8 hours: 0 points

- d) How much down-time has the instrument experienced, outside of that required for routine maintenance purposes, since installation? **(Maximum 100 points)**

Points will be awarded as follows:

<5%, 100 points,  
5-10%, 85 points,  
11-20%, 50 points,  
21-30%, 15 points,  
> 30% no points

- e) Have you found it difficult to reconfigure the instrument and system software to change ionization source? How many steps are required? **(Maximum 50 points)**

Points will be awarded as follows:

Number of steps required,  
< 4 steps: 50 points,  
Minus 10 points for each additional step

- f) Is the physical process of changing the source difficult? How quickly can it be done? How many steps are required? **(Maximum 50 points)**

Points will be awarded as follows:

Number of steps:  
< 5 steps: 25 points,

Minus 5 for each additional step

Time:

≤ 4 hours: 25 points,

>4 hours ≤ 8 hours: 10 points

> 8 hours: 0 points

- g)** How many steps are involved in the instrument software for building user-generated libraries? (**Maximum 40 points**)

Points will be awarded as follows:

< 5 steps: 40 points,

5-6 steps: 30 points,

7-8 steps: 20 points

> 8 steps: 0 points

- h)** Do you have any complaints about the instrument system program? Is it sufficiently flexible to allow some creativity in setting up extraordinary analyses? (**Maximum 50 points**)

Points will deducted as follows:

Minus 10 points per complaint

- i)** Has the PDA lamp performed as expected in terms of lifetime? Have there been any leaks or other maintenance issues with the PDA flow cell? Of the three references provided by the Bidder, at least one must be able to address this particular question. (**Maximum 50 points**)

Points will be awarded as follows:

PDA lamp:

for performing as expected: 25 points

if not: 0 points

Flow Cell:

for three continuous weekly usage or equivalent without blockage and/or leakage: 25 points

if there was only one blockage and/or leakage: 10 points

for more than one: 0 points

### **2.2.3 Laboratory Conditions:**

**(Maximum 100 points)**

- a)** Did you have to soundproof the Mass Spectrometer laboratory in which your instrument sits? If so, why? (e.g. personal taste, or necessity due to excessive noise from instrument, or some other reason) (**Maximum 50 points**)

if background noise does not impact work/operators comfort: 50 points

if the noise is distracting: 20 points

if you cannot carry a conversation in the lab: 10 points

if the noise level is above H&S guidelines and hearing protection must be worn: 0 points



- b) Does your instrument require humidity control in the laboratory for satisfactory operation? If so what was the cost to install. **(Maximum 50 points)**

If not required or cost  $\leq$ \$500: 50 points

$>$ \$500  $\leq$ \$1000: 25 points

$>$  \$1000: 0 points

#### 2.2.4 Overall

**(Maximum 280 points)**

- a) Overall, what % of time does the instrument perform to a standard deemed satisfactory by the primary users? **(Maximum 100 points)**

100 % of the time 100 points

$<$ 100% and  $\geq$ 80% of the time: 75 points

$<$ 80% and  $\geq$  75% of the time: 50 points

$<$ 75% and  $\geq$ 60% of the time: 25 points

$>$ 60%: 0 points

- b) How many long sequences have you run on your instrument (total run-time  $>$  12 h)? How often have you lost communication between any component of your instrument (including PDA detector) and the computer controlling the instrument during a long sample sequence? **(Maximum 80 points)**

Points will be awarded as follows:

If less than 10 long sequences (in total) have been run, the reference's response to this question will be disregarded and no points will be awarded

If more than 10 long sequences (in total) have been run:

No lost communications: 80 points

Once: 40 points

Twice: 20 points

- c) Are there any specific problems you would like to address? **(Maximum 100 points)**

Points will be awarded as follows:

No problems: 100 points;

1 problem: 30 points;

2 problems: 10 points;

$>$ 2 problems: 0 points

#### 2.2.5 As described at 1.7 above, the Bidder's service record with Environment Canada, other federal government departments or other environmental laboratories will be assessed. **(Maximum 600 points)**

- a) What has been the response time for any service requests, both for telephone call-backs and for on-site service? Has the response time been within the designated agreement? **(Maximum 100 points)**

Points will be awarded as follows:

Within designated response time:

Yes: 50 points

No: 0 points

$\leq$  4 hours: 50 points

>4 ≤ 8 hours: 25 points  
> 8 hours: 0 points

- b)** Have parts been available within a reasonable length of time (within a week)? Does your instrument supplier keep a good stock of expendable components on hand in North America so that repairs and replacement can be effected within 24 hours? **(Maximum 100 points)**

Points will be awarded as follows:

Parts  
Yes: 50 Points

Stock  
Yes: 50 points

- c)** If you have ever lost a turbo pump, did the instrument supplier replace the pump with a new pump or a rebuilt pump? Did the supplier remove the old pump for rebuilding or were you allowed to keep it for rebuilding yourself? **(Maximum 100 points)**

Points will be awarded as follows:

No need to replace the pump: 100 points  
If replaced with new pump: 50 points,  
If replaced with rebuilt pump: 25 points  
If replaced, were you allowed to keep the old pump: 50 points

- d)** How often were software upgrades on the data system available? What was the cost of these upgrades and have they been fully compatible with the operating system and associated hardware. **(Maximum 100 points)**

Points will be awarded as follows:

At least once every 2 years: 30 points

Cost of upgrades:  
40 points for cost (pro-rated) (The cost for each of the Bidder's references will be added together and divided by 3 to determine the cost to be used in the point rating calculation. Points will be awarded on a prorated basis with the lowest cost receiving full marks and all others being prorated accordingly. See **Appendix 1** for example of the calculation

Compatibility  
Yes: 30 points

- e)** i. Was the service engineer courteous and appropriately professional **(Maximum 50 points)?**

Points will be awarded as follows:

Yes: 50 points  
Somewhat: 25 points  
No: 0 points

- ii. Was the service engineer or technician knowledgeable and able to diagnose and rectify the issue for which they were called? If the issue was not rectified, did the service engineer or technician have a good idea of how to proceed in order to resolve the issue? **(Maximum 50 points)**

for successfully diagnosing and rectifying the issue: 50 points  
if unable to properly diagnose issue in 1 service visit: 0 points

if issue not rectified and engineer knows how to proceed: 25 points,  
if not able to confidently and correctly advise how to proceed: 0 points.

- f) Outside the service contract on average what was the cost of the service visit, for travel and labor, and how long was the instrument down while awaiting the completion of the repair? (**Maximum 100 points**)

Points will be awarded as follows:

For cost of service visit.

≤ \$1000: 50 points  
>\$1000 ≤ \$2000: 25 points  
>\$2000 ≤ \$3000: 10 points  
> \$3000: 0 points

For length of down time

½ day: 50 points  
1 day: 25 points  
2 days: 10 points  
> 2 days: 0 points

#### **4.0 Basis of Selection - Highest Combined Rating of Technical Merit and Price**

- 4.1 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 points specified for criteria numbers 2.1 and 2.2 for the technical evaluation

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

- 4.2 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. See **Appendix 1** for an example of the calculation.

- 4.3 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.

**Appendix 1 - Pro-rating Calculations**

**2.1.1 Phthalates, perfluorinated compounds (PFCs), pesticides, and azo/benzidine dyes**

a) Example where points are awarded on a pro-rated basis for sensitivity.

Maximum points available: 50

Bidder	Sensitivity	Calculation	Score
A	2 ng/L – best sensitivity	$2/2 \times 50$	50 points
B	4 ng/L	$2/4 \times 50$	25 points
C	2.2 ng/L	$2/2.2 \times 50$	45.5 points

b) Example where points are awarded on a pro-rated basis for signal to noise on an environmental standard

Maximum points available: 50

Bidder	Signal to Noise Ratio	Calculation	Score
A	10	$10/12 \times 50$	41.7 points
B	8	$8/12 \times 50$	33.3 points
C	12 – best ratio	$12/12 \times 50$	50 points

**2.1.5 Cost of one year extended warranty, included in the base instrument.**

Maximum points available: 50

Bidder	Cost	Calculation	Score
A	\$10,000.00 – lowest cost	$10/10 \times 50$	50 points
B	\$20,000.00	$10/20 \times 50$	25 points
C	\$25,000.00	$10/25 \times 50$	20 points

**2.2.5 d) Cost of upgrades**

Maximum points available: 40

Bidder	Average Cost	Calculation	Score
A	\$1,000.00 – lowest cost	$1000/1000 \times 40$	50 points
B	\$2,000.00	$1000/2000 \times 40$	20 points
C	\$4,000.00	$1000/4000 \times 40$	10 points

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

Maximum available points: 3150

	Bidder A	Bidder B	Bidder C
<b>Overall Technical Score</b>	2750/3150	2430/3150	2900/3150

<b>Offer Evaluated Price</b>	\$1,260,000	\$1,140,000	\$1,350,000
<b>Calculations</b>			
<b>Technical Merit Score</b>	$2750/3150 \times 60 = 52.38$	$2430/3150 \times 60 = 46.28$	$2900/3150 \times 60 = 55.24$
<b>Pricing Score</b>	$1,140/1,260 \times 40 = 36.19$	$1,140/1,140 \times 40 = 40$	$1,140/1,350 \times 40 = 33.77$
<b>Combined Rating</b>	88.57	86.28	89.01
<b>Overall Rating</b>	2nd	3rd	1st