Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

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**401 - 1230 Government Street**
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**V8W 3X4**
**Bid Fax: (250) 363-3344**

# SOLICITATION AMENDMENT
# MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

**Comments - Commentaires**

**Vendor/Firm Name and Address**
**Raison sociale et adresse du fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**
Public Works and Government Services Canada - Pacific Region
401 - 1230 Government Street
Victoria, B. C.
V8W 3X4

| | |
|---|---|
| **Title - Sujet**<br>UHPLC + Microwave Digestion System | |
| **Solicitation No. - N° de l'invitation**<br>F1625-190021/A | **Amendment No. - N° modif.**<br>002 |
| **Client Reference No. - N° de référence du client**<br>F1625-190021 | **Date**<br>2019-10-04 |
| **GETS Reference No. - N° de référence de SEAG**<br>PW-$VIC-246-7813 | |
| **File No. - N° de dossier**<br>VIC-9-42087 (246) | **CCC No./N° CCC - FMS No./N° VME** |
| **Solicitation Closes - L'invitation prend fin**<br>**at - à** 02:00 PM<br>**on - le** 2019-11-06 | **Time Zone**<br>**Fuseau horaire**<br>Pacific Standard Time PST |
| **F.O.B. - F.A.B.** Specified Herein - Précisé dans les présentes<br>**Plant-Usine:** ☐ **Destination:** ☐ **Other-Autre:** ☑ | |
| **Address Enquiries to: - Adresser toutes questions à:**<br>Kobenter, Hélène | **Buyer Id - Id de l'acheteur**<br>vic246 |
| **Telephone No. - N° de téléphone**<br>(250) 508-7491 (  ) | **FAX No. - N° de FAX**<br>(250) 363-3344 |
| **Destination - of Goods, Services, and Construction:**<br>**Destination - des biens, services et construction:** | |

**Instructions: See Herein**

**Instructions: Voir aux présentes**

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

Canada

**The above-noted solicitation is amended to address enquiries received from potential bidders, and amend the UHPLC requirement at Annex A as detailed herein.**

Question 1: See Solicitation Amendment number 001.

Question 2:
Re Section A – Part 1 – subsection 5: *"Must consist of chemically and biologically inert tubing, flow paths and components and be considered fully biocompatible":* We offer a full inert system operating at 600 Bar, not 1200 Bar will this be considered if offered? Alternatively, we offer a 1300 Bar system that is not considered biocompatible, however these systems are routinely used for biomolecule separations and ICPMS speciation without any issues as we offer a passivation compound and procedure to be used with this system in instances where biocompatibility is an issue. Will this be an acceptable solution? The system meets or exceeds all other specifications.

Answer:
System must be capable of pumping to a pressure of 1200 bar. System offered must be biocompatible/biologically inert in accordance with the criteria listed in Part 1 - subsection 5. See revisions to Annex A.

**Under ANNEX A - REQUIREMENT**
**Delete as shown.**
**Insert:**

**ANNEX "A"**

**REQUIREMENT**

**ULTRA HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (UHPLC) SYSTEM and MICROWAVE DIGESTION SYSTEM**

Fisheries and Oceans Canada requires applicable vendors to supply, deliver, install, and provide on-site training and warranty services for (i) one Ultra High Performance Liquid Chromatography (UHPLC) System; and (ii) one microwave digestion system in the Mass Spectrometry Laboratory at the Institute of Ocean Sciences (IOS) in Sidney, BC.

The UHPLC system will be used as a research and monitoring tool for the quantitative and qualitative analysis of a wide variety of organic and inorganic compounds present at trace- to high-levels in environmental and biological samples associated with whales, their habitat, and marine ecosystems. Environmental samples may include air, water and sediments while biological samples may include tissues and biofluids. Principal areas of application include the analysis of pharmaceuticals and personal care products, marine biotoxins, perfluorinated compounds, and endocrine-disrupting chemicals, as well as organic forms of arsenic, mercury, cadmium and lead, using various separation modes including, but not limited to: ion exchange; hydrophilic interaction; reversed and normal phase; and, semi-preparative modes.

The microwave digestion system will be used to optimize the recovery of target chemicals, especially metals, in environmental and biological samples.

The supplied UHPLC System shall include all parts, equipment, accessories and software necessary for analysis and must be fully compatible and integrate seamlessly with mass spectrometry (MS) detection systems (AB/Sciex API5000 tandem mass spectrometer with Analyst software v1.6.2, and PE/Sciex Elan DRC II inductively-coupled plasma mass spectrometer with Elan v3.5 and Chromera software) currently used in the Lab. The supplied microwave digestion system shall include all necessary parts, equipment, accessories and software and be capable of operation using available computer systems in the Lab.

The Supplier must submit, with their bid package, current literature for the make and model of system components being offered that clearly demonstrates how each system complies with the required specifications. The Supplier must respond in detail to each item in the specifications detailed below. Failure to do so, or failure to reply in sufficient detail, may severely impact on the assessment of the Vendor's system. The provision of company literature only is not acceptable and may result in the Vendor being deemed non-responsive.

The Bidder/Supplier must be an authorized distributor or manufacturer of the equipment being offered.

All systems and components must be in accordance with common industry practice including CSA and applicable ISO standards and test methods. Systems and components must be factory supplied and warranted for a minimum of 1 year by the Original Equipment Manufacturer (OEM).

The equipment being offered must be new and the current production model. The equipment must include any or all standard equipment normally included, either implied or stated, on the model quoted.

## Mandatory Technical Evaluation Criteria

### Ultra High Performance Liquid Chromatography (UHPLC) System and Microwave Digestion System

**a) The UHPLC System** consists of at least, but is not be limited to, the following major components, complete with all software/hardware and interfacing necessary to make a fully integrated system. The specifications itemized below are minimum specifications.

1. Pump Module – Section A Part 1
2. Autosampler – Section A Part 2
3. Diode Array Detector/ Photodiode Array – Section A Part 3
4. Compatibility with current systems used in the lab – Section A Part 4
5. General system requirements – Section A Part 5

**b) The Microwave digestion system**

1. Performance requirements – Section B Part 1
2. General system requirements – Section B Part 2

**Important Instructions**

Bidders must demonstrate their compliance with the following sections of the bid solicitation by providing substantial information describing completely and in detail how each mandatory technical criterion is met.

Bidders must provide with their technical bid, a document indicating clearly where the substantial information for each of the sections identified below can be found.

Canada requests that bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.

Answers stating “compliance”, “comply”, “yes”, or other types of positive responses without substantive documentation or literature to justify compliance will be deemed as non-compliant and no further evaluation of the bid will be performed.

The table provided below shows a suggested layout of technical bid to demonstrate compliance with each mandatory requirement:

| **Identifies Line #** | **Mandatory Technical Criteria**<br>**Section A**<br>**Part 1 - Pump Module(s)** | **Criterion Met?**<br>**Yes/No** | **Reference to supplied material to substantiate Yes** |
|---|---|---|---|
| *99.9.9* | *Must be accurate to 0.0001”* | *Yes* | *Refer to Page 3 of brochure titled “xxxx”* |

| # | **Mandatory Technical Criteria**<br>**Section A**<br>**UHPLC**<br>**Part 1 - Pump Module(s)**<br>***The Pump Module(s) offered must support all of the following features and performances when operated in conjunction with all other system components requirements detailed in this Annex*** | **Criterion Met?** | **Documented on page#** |
|---|---|---|---|
| 1 | Must be dual piston pump system. Pump capable of producing ternary (or greater) linear or curved gradient flow.<br>Performance Requirement:<br>i. Ternary (or greater) gradient production with a minimum of six solvent reservoirs connected to the system.<br>ii. Variable gradient composition for each gradient, programmable for linear, curved or stepped gradient flow. | | |
| 2 | Must include a thermostatted column compartment<br>Performance Requirement:<br>iii. Be capable of cooling and heating and provide a reproducible regulated temperature from 10 to 60°C selectable in at least 1 °C increment<br>iv. The column compartment or accessory module must be capable of accommodating a minimum of one chromatography column plus attached guard column up to a total length of 300mm. | | |
| 3 | Must include integrated automatic eluent degassing **or** accessory degassing module for all eluent channels<br>Performance Requirement:<br>v. Integrated eluent degassing or accessory degassing module capable of degassing a minimum of 3 eluent channels simultaneously<br>vi. Integrated eluent degassing or accessory degassing module capable of degassing a combined total eluent flow up to 2 ml/min | | |
| 4 | Pump Flow, Pressure, Accuracy and Precision<br>Performance Requirement:<br>vii. Pump must be capable of delivering flow from 0.1 to 2 mL/min<br>viii. Pump must be capable of pumping at pressures up to ~~at least~~ 1200 bar.<br>ix. Pump accuracy must be ±1% or 10 µL/min, whatever is greater<br>x. Pump precision must be ≤0.075 % RSD or 0.02 min SD, whatever is greater; based on retention time at constant temperature | | |

| # | **Mandatory Technical Criteria**<br>**Section A**<br>**UHPLC**<br>**Part 1 - Pump Module(s)**<br>***The Pump Module(s) offered must support all of the following features and performances when operated in conjunction with all other system components requirements detailed in this Annex*** | **Criterion Met?** | **Documented on page#** |
|---|---|---|---|
| 5 | Must consist of chemically and biologically inert tubing, flow paths and components and be considered fully biocompatible<br>Performance Requirements for Chemical/Biological inertness:<br>xi. System resistant to extremes in pH (pH 2-12)<br>xii. System resistant to aggressive solvents, acids and chemicals including but limited to: phosphoric acid (0.02%), trifluoroacetic acid (1%), tetrahydrofuran (15%), triethylamine,(1%) nitric acid (5%), sulphuric acid (5%), dimethylsulfoxide, acetonitrile, hexane, acetone, methylene chloride<br>xiii. System resistant to high salt (buffer) concentrations (1M)<br>xiv. System must not retain phosphorylated peptides.<br>If more than one configuration is needed to meet operational requirements (i.e. normal phase vs. reverse phase), accessory kits, tubing, cells, etc. must be included in order to meet the specification. | | |
| 6 | Must have integrated pump seal wash<br>Performance Requirement:<br>xv. Must be equipped with a system that flushes pump seals with a seal wash solution | | |
| 7 | Must have effective eluent mixing and automatic solvent compression compensation.<br>Performance Requirement:<br>xvi. Must be equipped with eluent gradient mixing module (or equivalent) and solvent compressibility compensation. | | |

| # | **Mandatory Technical Criteria**<br>**Section A**<br>**UHPLC**<br>**Part 2 – Autosampler**<br>***The Autosampler offered must support all of the following features and performances when operated in conjunction with all other system components requirements detailed in this Annex*** | **Criterion Met?** | **Documented On page#** |
|---|---|---|---|
| 8 | Must be compatible with the maximum pressures and flow rates produced by the pump module being offered; specified in "Section A Part 1 - Pump Module"<br>Performance Requirement:<br>xvii. Auto sampler must be designed to operate with mobile phase flow rates to 2.0 ml/min<br>xviii. Auto sampler must be designed to operate with mobile phase pressures up to 1200 bar | | |
| 9 | Performance Requirement:<br>xix. Must be capable of variable volume injection, 1µl-200µl.<br>xx. Must have an injection volume precision of greater than 0.7% and accuracies of ±2%<br>xxi. Must operate with a sample carryover of less than 0.004% | | |
| 10 | Performance Requirement:<br>xxii. Injector needle must be of in-line design where the injector needle is part of the high pressure flow path while in inject mode. | | |
| 11 | Performance Requirement:<br>xxiii. Sample compartment temperature settable from approximately 15 °C below ambient to 40 °C | | |
| 12 | Performance Requirement:<br>xxiv. Must have integrated needle wash with external wash solution<br>xxv. Must be configurable to accommodate a variety of standard vial or plate types, including 4ml, 1.8ml/2ml vials, 1.5ml and 0.5ml micro-centrifuge tubes | | |
| 13 | Performance Requirement:<br>xxvi. Must have random access to any vial or plate position | | |
| 14 | Performance Requirement:<br>xxvii. Must have ability to perform sample dilutions or reagent additions | | |

| # | **Mandatory Technical Criteria**<br>**Section A**<br>**UHPLC**<br>**Part 3 - Diode Array Detector/Photodiode Array**<br>***The Diode Array Detector/*Photodiode Array *offered must support all of the following features and performances when operated in conjunction with all other system components requirements detailed in this Annex*** | **Criterion Met ?** | **Documented On page#** |
|---|---|---|---|
| 15 | Performance Requirements:<br>xxviii. Wavelength range from 190-800nm, resolution can be set at 1.2 nm and others<br>xxix. Equipped with deuterium lamp<br>xxx. Data collection from the full spectrum of available wavelengths simultaneously<br>xxxi. Equipped with chemically inert flow paths and biocompatible flow cell as per item 5 above<br>xxxii. Supplied with optional analytical flow cell<br>xxxiii. Capable of data acquisition rate of 80 points per second<br>xxxiv. Supports analysis from conventional LC to ultra-fast and UHPLC analysis | | |

| # | **Mandatory Technical Criteria**<br>**Section A**<br>**UHPLC**<br>**Part 4 –Compatibility with current systems used in the lab** | **Criterion Met ?** | **Documented On page#** |
|---|---|---|---|
| 16 | Compatibility Requirements:<br>xxxv. Be able to be controlled with existing Analyst v1.6.2 software during (UHP)LC-MS/MS and (UHP)LC-PDA (DAD) analysis by a computer running Windows 7 professional service pack 1.<br>xxxvi. Be able to be controlled with existing Elan v3.5 and Chromera software during (UHP)LC-ICP-MS analysis by a computer running Windows 7 professional service pack 1. | | |

| # | **Mandatory Technical Criteria**<br>**Section A**<br>**UHPLC**<br>**Part 5 - General Conditions**<br>***The complete UHPLC system offered must include and support the following:*** | **Criterion Met?** | **Documented On page#** |
|---|---|---|---|
| 1 | Designed for unattended operation and must be fully integrated with the workstation | | |
| 2 | The instrument to include all necessary wiring, connectors, tubing, and fittings for complete turn-key system installation and testing. | | |
| 3 | The system must be supplied with any specialized tools, tool kit(s) or maintenance manuals necessary for maintaining routine operation by DFO | | |
| 4 | By indicating “met”, the supplier agrees to provide pre-installation site specifications to ensure site-readiness for installation.<br>The Contractor must identify in its bid all SITE REQUIREMENTS including bench space, temperature and operating range, electrical connections (voltages and numbers), gases and regulators required, and other special requirements (venting, etc.) | | |
| 5 | The System must be powered by either 115V or 208V AC 50/60Hz power or must include equipment for conversion to compatible voltage. | | |
| 6 | All electrical equipment supplied under the Contract must be certified or approved for use in accordance with the *Canadian Electrical Code*, Part 1, before delivery, by a certification organization accredited by the Standards Council of Canada.<br>The bidder agrees to submitting a certificate evidencing compliance with this requirement upon request from the Technical Authority | | |

| # | Mandatory Technical Criteria<br>Section A<br>UHPLC<br>Part 5 - General Conditions<br>***The complete UHPLC system offered must include and support the following:*** | Criterion Met? | Documented On page# |
|---|---|---|---|
| 7 | Performance Verification:<br>Documentation demonstrating compliance with the performances requirements detailed in parts 1, 2 and 3 of Section A must be provided (Printed Paper of .PDF file) after system installation and training for on-site acceptance by the DFO Technical Authority.<br>The system performance specifications listed below are intended to supplement the Vendor's standard installation tests and are designed to ensure that the system supplied is able to meet the performance levels required.<br>By indicating "met", the supplier agrees to provide written results of actual tests performed on the supplied unit after system installation. Detection limits and precision results listed in brochures will not be accepted.<br>After installation, the system must meet or exceed the performance specifications below:<br>Part 3: Diode Array Detector/Photodiode Array – Section A Part 3:<br>a) Detect analytes such as Domoic acid to approximately 0.03 ng on column.<br>b) Demonstrate a dynamic range of 4 orders of magnitude within a single analytical run.<br>c) Demonstrate uniform non-volatile analyte response factor of +/- 15%RSD or less between a minimum of 4 different analytes within a single analytical run.<br>d) Demonstrate average detector precision of <3% RSD with nominal 0.1-100 ng analyte on column, minimum 5 injections. | | |
| 8 | A minimum of two (2) days training for 2 operators is required and to be completed simultaneously with installation/validation testing.<br>Training to be scheduled during standard work hours, approximately 9:00 am – 4:30 pm, Monday-Friday for a minimum 7 hours/day<br>Training to include usage instruction on all software and hardware components, routine maintenance requirements and equipment troubleshooting. | | |
| 9 | All deliverables listed in this Annex must be received and on or before Mar 20, 2020 (MANDATORY) | | |

| # | **Mandatory Technical Criteria**<br>**Section A**<br>**UHPLC**<br>**Part 5 - General Conditions**<br>***The complete UHPLC system offered must include and support the following:*** | **Criterion Met?** | **Documented On page#** |
|---|---|---|---|
| 10 | Comprehensive on-site warranty by approved Factory Service Representative of one (1) year from date of completion of the contract and acceptance of all deliverables by the DFO Technical Authority | | |
| 11 | The warranty period will not start until all deliverables have been completed to the satisfaction and acceptance of the DFO Technical Authority. | | |
| 12 | On-site warranty and maintenance service by authorized Factory Service Representative (FSR) must be available within five (5) calendar days of a service request. | | |
| 13 | Telephone support service calls must be responded to within one (1) calendar day of a service request | | |
| 14 | As part of the one (1) year on-site warranty service support required with the system, the Contractor must provide access to trained UHPLC application chemists to provide assistance in method development and application support pertaining to the UHPLC system delivered and installed by the Contractor pursuant to this contract. Access may be by telephone or on-line and must be responded to within three (3) calendar days of a service request | | |

| # | **Mandatory Technical Criteria**<br>**Section B**<br>**MICROWAVE DIGESTION SYSTEM**<br>**Part 1 – Performance Requirements**<br>***The microwave digestion system offered must include and support the following:*** | **Criterion Met?** | **Documented On page#** |
|---|---|---|---|
| 1 | Be able to process a minimum of 12 samples in each run. | | |
| 2 | Be able to monitor sample temperature of each vessel in real-time | | |
| 3 | Hardware interlocks to ensure safety during operation | | |
| 4 | Be able to be controlled and operated with the lab's existing computers running Windows 7 professional service pack 1 | | |
| 5 | Be able to digest high (≥3 g) and low sample amounts (≤0.1 g) as well as high (≥50 mL) and low sample volumes (≤100 µL) | | |
| 6 | The instrument to include all necessary wiring, connectors, vessels, and fittings for complete turn-key system installation and testing. | | |
| 7 | The system must be supplied with any specialized tools, tool kit(s) or maintenance manuals necessary for maintaining routine operation by DFO | | |
| 8 | Performance verification documentation must be provided (Printed Paper of .PDF file) after system installation and training for on-site acceptance by the DFO Technical Authority | | |

| # | **Mandatory Technical Criteria**<br>**Section B**<br>**MICROWAVE DIGESTION SYSTEM**<br>**Part 2 - General Conditions**<br>***The complete Microwave Digestion System offered must include and support the following:*** | **Criterion Met?** | **Documented On page#** |
|---|---|---|---|
| 1 | Designed for unattended operation and must be fully integrated with the workstation | | |
| 2 | The instrument to include all necessary wiring, connectors, tubing, and fittings for complete turn-key system installation and testing. | | |
| 3 | The system must be supplied with any specialized tools, tool kit(s) or maintenance manuals necessary for maintaining routine operation by DFO | | |
| 4 | By indicating “met”, the supplier agrees to provide pre-installation site specifications to ensure site-readiness for installation.<br>The Contractor must identify in its bid all SITE REQUIREMENTS including bench space, temperature and operating range, electrical connections (voltages and numbers), gases and regulators required, and other special requirements (venting, etc.) | | |
| 5 | The System must be powered by either 115V or 208V AC 50/60Hz power or must include equipment for conversion to compatible voltage. | | |
| 6 | All electrical equipment supplied under the Contract must be certified or approved for use in accordance with the *Canadian Electrical Code*, Part 1, before delivery, by a certification organization accredited by the Standards Council of Canada.<br>The bidder agrees to submitting a certificate evidencing compliance with this requirement upon request from the Technical Authority. | | |
| 7 | Performance Verification:<br>Documentation demonstrating compliance with the performances requirements detailed in part 1 of Section B must be provided (Printed Paper of .PDF file) after system installation and training for on-site acceptance by the DFO Technical Authority. | | |
| 8 | A minimum of one (1) day training for 2 operators is required and to be completed simultaneously with installation/validation testing.<br>Training to be scheduled during standard work hours, approximately 9:00 am – 4:30 pm, Monday-Friday for a minimum 7 hours/day<br>Training to include usage instruction on all software and hardware components, routine maintenance requirements and equipment troubleshooting. | | |

| # | **Mandatory Technical Criteria**<br>**Section B**<br>**MICROWAVE DIGESTION SYSTEM**<br>**Part 2 - General Conditions**<br>***The complete Microwave Digestion System offered must include and support the following:*** | **Criterion Met?** | **Documented On page#** |
|---|---|---|---|
| 9 | All deliverables listed in this Annex must be received and on or before Mar 20, 2020 (MANDATORY) | | |
| 10 | Comprehensive on-site warranty by approved Factory Service Representative of one (1) year from date of completion of the contract and acceptance of all deliverables by the DFO Technical Authority | | |
| 11 | The warranty period will not start until all deliverables have been completed to the satisfaction and acceptance of the DFO Technical Authority. | | |
| 12 | On-site warranty and maintenance service by authorized Factory Service Representative (FSR) must be available within five (5) calendar days of a service request. | | |
| 13 | Telephone support service calls must be responded to within one (1) calendar day of a service request | | |
| 14 | As part of the one (1) year on-site warranty service support required with the system, the Contractor must provide access to application chemists trained in the use of microwave digestion systems to provide assistance in method development and application support pertaining to the microwave digestion system delivered and installed by the Contractor pursuant to this contract. Access may be by telephone or on-line and must be responded to within three (3) calendar days of a service request | | |

**--ALL OTHER TERMS AND CONDITIONS OF THE SOLICITATION REMAIN THE SAME--**