



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

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

1713 Bedford Row
Halifax, N.S./Halifax, (N.É.)
Halifax
Nova Scotia
B3J 1T3
Bid Fax: (902) 496-5016

**REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet Pulse Amplitude Fluorescence System	
Solicitation No. - N° de l'invitation 31028-200172/B	Date 2020-01-16
Client Reference No. - N° de référence du client 31028-20-0172	
GETS Reference No. - N° de référence de SEAG PW-\$HAL-406-10881	
File No. - N° de dossier HAL-9-83098 (406)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2020-02-11	Time Zone Fuseau horaire Atlantic Standard Time AST
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Matheson, Valerie	Buyer Id - Id de l'acheteur hal406
Telephone No. - N° de téléphone (902) 403-6236 ()	FAX No. - N° de FAX (902) 496-5016
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: NATIONAL RESEARCH COUNCIL CANADA SANDY COVE AQUACULTURE RESEARCH STA 270 SANDY COVE ROAD KETCH HARBOUR NOVA SCOTIA B3V1K9 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

Atlantic Region Acquisitions/Région de l'Atlantique
Acquisitions
1713 Bedford Row
Halifax, N.S./Halifax, (N.É.)
Halifax
Nova Scot
B3J 1T3

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

Pulse-Amplitude Modulated Fluorescence System

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PART 1 - GENERAL INFORMATION

This bid solicitation cancels and supersedes previous bid solicitation number 31028-200172 dated 2019-10-23 with a closing of 2019-12-04 at 02:00 PM (AST). A debriefing or feedback session will be provided upon request to bidders/offerors/suppliers who bid on the previous solicitation.

1.1 Statement of Requirement

The requirement is detailed under Annex A – Statement of Requirement.

1.2 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.3 Trade Agreements

The requirement is subject to the provisions of the North American Free Trade Agreement (NAFTA) and the Canadian Free Trade Agreement (CFTA).

1.4 epost Connect service

This bid solicitation allows bidders to use the epost Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<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](#) (2019-03-04) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of [2003](#), Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days
Insert: 90 days

2.1.1 SACC Manual Clauses

SACC Reference	Section	Date
C9000T	Pricing	2010-08-16
B1000T	Condition of Material	2014-06-26

2.2 Submission of Bids

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

Bid Receiving
Public Works and Government Services Canada-
Réception des soumissions Travaux publics et Services gouvernementaux Canada
1713 Bedford Row
Halifax, N.S./Halifax, (N.É.) B3J 1T3

Bid Fax: (902) 496-5016

E-mail address for epost Connect Service:

TPSGC.RARceptionSoumissionsNE-ARBidReceivingNS.PWGSC@tpsgc-pwgsc.gc.ca

NOTE:

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

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than **Five (5)** calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

2.4 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Nova Scotia.

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

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

- If the Bidder chooses to submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions. The epost Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation.

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

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

- If the Bidder chooses to submit its bid in hard copies, Canada requests that the Bidder submits its bid in separately bound sections as follows:

Section I: Technical Bid (1 hard copy)
Section II: Financial Bid (1 hard copy)
Section III: Certifications (1hard copy)
Section IV: Additional Information (1 hard copy)

If there is a discrepancy between the wording of the soft copy on electronic media and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

- If the Bidder is simultaneously providing copies of its bid using multiple acceptable delivery methods, and if there is a discrepancy between the wording of any of these copies and the electronic copy provided through epost Connect service, the wording of the electronic copy provided through epost Connect service will have priority over the wording of the other copies.

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

Canada requests that bidders follow the format instructions described below in the preparation of hard copy of their bid:

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

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573) (<https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573>). To assist Canada in reaching its objectives, bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

In their technical bid, Bidders should 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.

3.1.1 Electronic Payment of Invoices – Bid

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

If Annex “C” Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

3.1.2 Exchange Rate Fluctuation

[C3011T](#) (2013-11-16), Exchange Rate Fluctuation

3.1.3 SACC Manual Clauses

Section III: Certifications

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

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

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

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

Mandatory Technical Criteria as specified in Annex A, Statement of Requirement.

4.1.2 Financial Evaluation

SACC Manual Clause [A0220T](#) (2014-06-26), Evaluation of Price-Bid

4.2 Basis of Selection

4.2.1 Basis of Selection – Mandatory Technical Criteria

SACC Manual Clause A0031T (2010-08-16), Basis of Selection – Mandatory Technical Criteria

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real property agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 Security Requirements

6.1.1 There is no security requirement applicable to the Contract.

6.2 Statement of Requirement

The Contractor must provide the items detailed under the "Requirement" at Annex "A".

6.3 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

[2010A](#) (2018-06-21), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Delivery Date

All the deliverables to be received on or before **March 31, 2020.**

6.4.2 Delivery Points

Delivery of the requirement will be made to delivery point(s) specified at Annex "B" of the Contract.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Valerie Matheson, Supply Officer
Nova Scotia Acquisitions Directorate
Public Services and Procurement Canada
1713 Bedford Row
Halifax, Nova Scotia B3J 1T3

Telephone: 902-403-6236
Facsimile: 902-496-5016
E-mail address: Valerie.matheson@pwgsc.gc.ca

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

6.5.2 Project Authority

The Project Authority for the Contract is: **(COMPLETED AT CONTRACT AWARD)**

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.

6.5.3 Contractor's Representative **(TO BE COMPLETED BY BIDDER)**

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

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

6.6 Payment

6.6.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm unit price as specified in in Annex B for a cost of \$ _____.
Customs duties are included and Applicable Taxes are extra.

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

6.6.2 SACC Manual Clauses

SACC Manual Clause H1000C (2008-05-12), Single Payment

6.6.3 Electronic Payment of Invoices – Contract

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

- a. Visa Acquisition Card;
- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);

6.7 Invoicing Instructions

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

6.8 Certifications and Additional Information

6.8.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.9 Applicable Laws

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

6.10 Priority of Documents

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

1. the Articles of Agreement;
2. the general conditions [2010A](#) (2016-06-21), General Conditions - Goods (Medium Complexity);
3. Annex A, Statement of Requirement;
4. Annex B, Basis of Payment;
5. Annex C, Electronic Payment Instruments
6. Annex D, Integrity Provisions
7. Annex E, Mandatory Technical Requirements - Cross Reference
8. the Contractor's bid dated _____

6.11 SACC Manual Clauses

B7500C	Excess Goods	(2006-06-16)
G1005C	Insurance, No Specific Requirement	(2016-01-28)
D0018C	Delivery and Unloading	(2007-11-30)
A9068C	Government Site Regulations	(2010-01-11)
A9039C	Salvage	(2008-05-12)

6.12 Inspection and Acceptance

The Project Authority is the Inspection Authority. All reports, deliverable items, documents, goods and all services rendered under the Contract are subject to inspection by the Inspection Authority or representative. Should any report, document, good or service not be in accordance with the requirements of the Statement of Work and to the satisfaction of the Inspection Authority, as submitted, the Inspection Authority will have the right to reject it or require its correction at the sole expense of the Contractor before recommending payment.

ANNEX "A"

STATEMENT OF REQUIREMENT

1.0 Object

The National Research Council of Canada (NRC) wants to expand its capabilities in the field of microalgae photosynthesis analysis as it relates to environmental stress and nutrient limitation and/or nutrient surfeit. With this aim in mind, the NRC wishes to procure a Pulse-Amplitude Modulated Fluorescence system specifically designed for the detailed analysis of microalgae photosynthetic parameters.

The work consists of supplying the system at the NRC address and support on equipment use; all of the work to be completed by March 31, 2020.

2.0 Constraints

3.0 Mandatory technical specifications

The delivered equipment must have the following specifications:

- 3.1.** The proposed system must be configurable for use with suspensions of microalgae cells sampled from pure cultures but must also be sensitive enough to conduct fluorescence quenching analysis of environmental water samples from marine and freshwater sites containing naturally occurring microalgae populations.
- 3.2.** The proposed system must be supplied with a cuvette or similar vessel (minimum capacity of 2 milliliters) for holding microalgae samples for analysis.
- 3.3.** The proposed system must be capable of analyzing fluorescence emissions from **both** PSII and PSI excitation.
- 3.4.** The proposed system must be equipped for pulse-modulated fluorescence excitation at frequencies ranging from 10 Hz to **20** kHz at wavelengths of 440, 480, 540, 590 and 625 nm.
- 3.5.** The proposed system must be supplied with an actinic white light source.
- 3.6.** The proposed system must have the capacity to apply saturating pulses of full-spectrum light ($> 2000 \mu\text{moles photons m}^{-2} \text{ s}^{-1}$) to maximize fluorescence yield.
- 3.7.** The proposed system must be capable of estimating all of the parameters required for conducting fluorescence quenching analysis from both dark and light adapted cells. This includes, but is not limited to, dark adapted fluorescence (F_0), maximum fluorescence in dark and light-adapted cells (F_m and F_m' , respectively) and variable fluorescence at steady-state (F_v).
- 3.8.** The proposed system must be portable for use in the field.
- 3.9.** The proposed system must include a software package for managing overall system operation and fluorescence data collection and analysis.

4.0 Deliverables:

- 4.1.** Equipment: A pulse-amplitude modulated fluorometer which conforms to the mandatory technical specifications outlined above.
- 4.2.** Technical documentation: The system must include at least one operating manual in English and French operating manual is optional.
- 4.3.** Training: The supplier must also provide training to NRC staff on the operation of the system.

5.0 Delivery and Installation

The system must be delivered to 270 Sandy Cove Road, Ketch Harbour, NS, B3V 1K9.

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ANNEX "B"

BASIS OF PAYMENT

A bid must comply with the requirements of the bid solicitation and meet all mandatory criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for issuance of a Contract.

The price of the bid will be evaluated in Canadian dollars, Applicable Taxes excluded, FOB destination, Canadian customs duties and excise taxes included.

The price per unit cost must include all costs associated with the supply, delivery, offloading and installation of the Pulse-Amplitude Modulated Fluorescence System in accordance with Annex "A", Statement of Requirement.

Delivery to:

**National Research Council Canada
 Sandy Cove Aquaculture Research Station
 270 Sandy Cove Road,
 Ketch Harbour, NS, Canada B3V 1K9**

	Description	Unit of Issue	Quantity (A)	Unit Price (B)	Extended Total C=(A*B)
1	Multiple Excitation Wavelength Phytoplankton and Photosynthesis analyzer as described in Annex A Section 3.0 Mandatory Technical Specifications - Requirement	Each	1	\$ _____	\$ _____
2	Training on system use as described in Section 4.3.- Training of Annex A – Requirement	Staff	2	\$ _____	\$ _____
TOTAL EVALUATED PRICE (C1 + C2) (applicable taxes extra)					\$ _____

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ANNEX “C” to PART 3 OF THE BID SOLICITATION

ELECTRONIC PAYMENT INSTRUMENTS

As indicated in Part 3, clause 3.1.2, the Bidder must identify which electronic payment instruments they are willing to accept for payment of invoices.

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

- VISA Acquisition Card;
- MasterCard Acquisition Card;
- Direct Deposit (Domestic and International);
- Electronic Data Interchange (EDI);

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ANNEX "D"

INTEGRITY PROVISIONS – REQUIRED DOCUMENTATION

Complete Legal Name of Supplier: _____

Supplier Address: _____

Supplier PBN: _____

Solicitation Number: **31028-200172/B**

List of Directors:

Please provide a list of names of all individuals currently on the Board of Directors of the above company

Name	Position

ANNEX “E”

MANDATORY TECHNICAL REQUIREMENTS – CROSS REFERENCE

THIS FORM MUST BE COMPLETED AND SUBMITTED WITH YOUR BID.

Instructions:

Proposals which do not meet all of the Mandatory Technical Requirements at bid closing will be considered to be non-compliant and will be given no further consideration. The evaluation will only be based on the information provided with the bid. References to Internet sites, or, to information that is not included, will not be evaluated.

The Bidder must provide literature to prove the requirement offered complies with each and every one of the Mandatory Technical Specifications indicated in Annex A, Requirement. Failure to meet the requirements of all of the Mandatory Technical Specifications will result in the bid being declared as non-compliant. Proof can be provided in the form of literature, descriptive documentation or brochure which clearly demonstrates how the proposed good meets each and every one the Mandatory Technical Specifications.

The onus is on the Bidder to reference the page number and section of the submitted literature which proves their proposal complies with each and every one of the Mandatory Requirements.

It will be advantageous to furnish as much detail as possible to support your claims of compliance for each of the Mandatory Criteria listed below.

NOTE: The Crown is under NO obligation to seek clarification of the bid(s) or the supporting technical documentation provided.

Mandatory Technical Specifications		Please indicate page and comment where in your descriptive documents or technical literature the mandatory technical specifications can be found
1	The proposed system must be configurable for use with suspensions of microalgae cells sampled from pure cultures but must also be sensitive enough to conduct fluorescence quenching analysis of environmental water samples from marine and freshwater sites containing naturally occurring microalgae populations.	Page _____/Comment:
2	The proposed system must be supplied with a cuvette or similar vessel (minimum capacity of 2 milliliters) for holding microalgae samples for analysis.	Page _____/Comment:
3	The proposed system must be capable of analyzing fluorescence emissions from both PSII and PSI excitation.	Page _____/Comment:
4	The proposed system must be equipped for pulse-modulated fluorescence excitation at frequencies ranging from 10 Hz to 20 kHz at wavelengths of 440, 480, 540, 590	Page _____/Comment:

	and 625 nm.	
5	The proposed system must be supplied with an actinic white light source.	Page _____/Comment:
6	The proposed system must have the capacity to apply saturating pulses of full-spectrum light (> 2000 $\mu\text{moles photons m}^{-2} \text{s}^{-1}$) to maximize fluorescence yield.	Page _____/Comment:
7	The proposed system must be capable of estimating all of the parameters required for conducting fluorescence quenching analysis from both dark and light adapted cells. This includes, but is not limited to, dark adapted fluorescence (F_0), maximum fluorescence in dark and light-adapted cells (F_m and F_m' , respectively) and variable fluorescence at steady-state (F_v).	Page _____/Comment:
8	The proposed system must be portable for use in the field.	Page _____/Comment:
9	The proposed system must include a software package for managing overall system operation and fluorescence data collection and analysis.	Page _____/Comment: