1. Advance Contract Award Notice (ACAN)

1.1 An ACAN is a public notice indicating to the supplier community that a department or agency intends to award a contract for goods, services or construction to a pre-identified supplier, thereby allowing other suppliers to signal their interest in bidding, by submitting a statement of capabilities. If no supplier submits a statement of capabilities that meets the requirements set out in the ACAN, on or before the closing date stated in the ACAN, the contracting officer may then proceed with the award to the pre-identified supplier.

2. Definition of the Requirement

2.1 Environment and Climate Change Canada (ECCC) requires a Contractor to provide on demand technical support to ECCC related to its analysis of polycyclic aromatic compounds (PACs) in vertebrate tissues and abiotic matrices to support high priority biomonitoring programs.

3. Background

3.1 The analysis of these PACs is of high importance to meet the Department's obligations under the Canada-Alberta Oil Sands Monitoring Program and the other high priority programs such as the Saint Lawrence Action Plan (SLAP), the Northern Contaminants Program (NCP), the Oceans Protection Plan (OPP) and the Government of the Northwest Territories Cumulative Impacts Monitoring Program (CIMP). It is also of high importance to meet other emerging priorities, such as activities related to the Wood Bison Imminent Threats Assessment and the recovery of bison and caribou in oil and gas-impacted landscapes.

3.2 All of these programs are of very high priority for the Department, including providing support for Species at Risk initiatives, and many are conducted in close partnership with Indigenous communities and organizations, placing a high burden of responsibility on the laboratory for high levels of precision in their analyses and for timely provision of results.

4. Scope of Work

4.1 The successful Contractor must perform trace organic contaminant analysis of Polycyclic Aromatic Compounds (including parent, alkylated and halogenated congeners) on an 'as and when requested' basis through Task Authorizations.

4.2 General Description of Requirement

4.2.1 The Contractor must provide "as requested" analyses of a series of trace organic contaminants on multiple biota samples and abiotic matrices from various locations across Canada. This will include samples from oil sands affected areas from the Canadian Arctic, the North Shore of the St Lawrence, the Prairies and the Atlantic and Pacific coasts.

4.2.2 Samples will be collected as part of high priority funded programs, including the Oil Sands Monitoring program, the Saint Lawrence Action Plan (SLAP), the Northern Contaminants Program (NCP), the Oceans Protection Plan (OPP) and the Northwest Territories Cumulative Impacts Monitoring Program (CIMP). Samples include tissues from bison, muskrat, river otter, prey and predator fish, as well as from the following bird species: fulmars, murres, guillemots, common eiders and whooping cranes. Whole snail and mussel samples are also included in the sample collection as well as bird feathers, water and sediment samples.

4.2.3 Samples will be prepared in accordance with ECCC standardized operating protocols (SOPs) for submission to the proposed Contractor. All samples are homogenized and frozen at -40°C in chemically treated amber glass jars before shipment and require analysis for polycyclic aromatic compounds (including polycyclic aromatic hydrocarbons and their alkylated and halogenated congeners).

4.3 Description of PAC Analysis

4.3.1 The Contractor must provide measurements (including polycyclic aromatic hydrocarbons and their alkylated and halogenated congeners; APACs and HPACs respectively) of PAC levels in submitted samples (up to 314/year of frozen biota homogenates, as well as abiotic samples). The samples will be analysed using dual quad gas chromatography/mass spectrometry (GC-MS-MS) and 2D-GC (two-dimensional gas chromatography) while using an internal standard method following fully accredited analytical laboratory methods. No more than 314 samples per year will be submitted for analysis, for a maximum of 942 samples total over the course of three (3) years.

4.3.2 The list of PACs to be reported includes, but is not limited to:

- 1-Methylnaphthalene;
- 2-Fluorobiphenyl;
- 2-Methylnaphthalene;
- Acenaphthene;
- Acenaphthylene;
- Anthracene;
- Benzo(a)anthracene;
- Benzo(a)pyrene;
- Benzo(b,j,k)fluoranthene;
- Benzo(b)naphtothiophene;

  - Benzo(e)pyrene;
  - Benzo(ghi)perylene;
  - C1-Chrysene;
  - C1-Dibenzothiophene;
  - C1-Fluoranthene/pyrene;
  - C1-Fluorene;
  - C1-Phenanthrene/anthracene;
  - C2-Chrysene;
  - C2-Dibenzothiophene;
  - C2-Fluoranthene/pyrene;
  - C2-Fluorene;
  - C2-Naphthalene;
  - C2-Phenanthrene/anthracene;
  - C3-Chrysene;
  - C3-Dibenzothiophene;
  - C3-Fluoranthene/pyrene;
  - C3-Fluorene;
  - C3-Naphthalene;
  - C3-Phenanthrene/anthracene;
  - C4-Chrysene;
  - C4-Dibenzothiophene;
  - C4-Fluoranthene/pyrene;
  - C4-Fluorene;
  - C4-Naphthalene;
  - C4-Phenanthrene/anthracene;
  - Chrysene;
  - Dibenzo(ah)anthracene;
  - Fluoranthene;
  - Fluorene;
  - Indeno(1,2,3-cd)pyrene;
  - Naphthalene;
  - Perylene;
  - Phenanthrene;
  - Pyrene;
- and the following HPACs:
  - 2-Bromonaphthalene,
  - α-Bromonaphthalene;
  - 1,4-Dibromonaphthalene;
  - 2,7-Dibromonaphthalene;
  - 9-chlorofluorene;
  - 9-Bromofluorene;
  - 2-Bromofluorene;
  - 9-chlorophenanthrene;
  - 2-chloroanthracene;
  - 1-chloroanthracene;
  - 9-chloroanthracene;

- 9-Bromophenanthrene;
- 9-Bromoanthracene;
- 3,9-dichlorophenanthrene;
- 9,10-dichloroanthracene;
- 1,9-dichlorophenanthrene;
- 9,10-dichlorophenanthrene;
- 3-chlorofluoranthene;
- 8-chlorofluoranthene;
- 1-chloropyrene;
- 3,9,10-trichlorophenanthrene;
- Bromofluoranthene;
- 9,10-Dibromoanthracene;
- 1,3-dichlorofluoranthene;
- 1-Bromopyrene;
- 3,8-dichlorofluoranthene;
- 3,6,9-trichlorophenanthrene;
- Dichloropyrene;
- 3,4-dichlorofluoranthene;
- 6-chlorochrysene;
- 7-chlorobenz[a]anthracene;
- Trichloropyrene;
- 7-Bromobenz[a]anthracene;
- Dibromopyrene;
- 6,12-dichlorochrysene;
- 7,12-dichlorobenz[a]anthracene;
- Tetrachloropyrene;
- Tetrachlorofluoranthene;
- 7,11-Dibromobenz[a]anthracene;
- 6-chlorobenzo[a]pyrene;
- 7,12-Dibromobenz[a]anthracene;
- Chloroperylene;
- 4,7-Dibromobenz[a]anthracene;
- 5,7-Dibromobenz[a]anthracene;
- 6-Bromobenzo[a]pyrene;
- Dichlorobenzo[a]pyrene;
- Dichloroperylene;
- Tetrabromopyrene;
- Trichlorobenzo[a]pyrene;
- Dibromobenzo[a]pyrene;
- Tribromobenzo[a]pyrene

4.3.3 Detection limits of at least 1.25 ng/g in certified reference materials (CRM) are required by ECCC, as well as the use of accredited methods.

4.3.4 ECCC requires the analyses to be conducted using dual quad gas chromatography/mass spectrometry (GC-MS-MS) and 2D-GC (two-dimensional

gas chromatography) or equivalent instrumentation. The instrument must meet or exceed the performance criteria for all listed compounds (see Table 1). The working range must be based on the known concentrations of PACs in National Institute of Standards and Technology (NIST) reference material. The analysis must also use an internal standard method following fully accredited analytical laboratory methods.

4.3.5 Table 1- Detection Limits for Polycyclic Aromatic compounds (PACs, including select alkylated congeners) and Halogenated PACs (HPACs). Working range must include LOD (limit of detection) and LOQ (limit of quantitation)

Analyte	**LOD (ng/g)**	**LOQ (ng/g)**
Acenaphthene	1.87	6.22
Acenaphthylene	2.31	7.69
Anthracene	2.91	9.70
Benz[a]anthracene	2.16	7.22
Benzo[a]pyrene	2.97	9.90
Benzo[b]fluoranthene	2.74	9.13
Benzo[g,h,i]perylene	4.01	13.38
Benzo[k]fluoranthene	4.20	14.01
Chrysene	2.74	9.13
Dibenzo[a,h]anthracene	2.29	7.65
Fluoranthene	2.03	6.77
Fluorene	2.32	7.72
Indeno[1,2,3-c,d]pyrene	2.42	8.06
Naphthalene	2.60	8.65
Phenanthrene	1.44	4.79
Pyrene	2.54	8.48
1-Methylnaphthalene	1.62	5.41
2-Methynaphthalene	2.73	9.10
2,6-Dimethylnaphthalene	1.19	3.95
1,6-Dimethylnaphthalene	2.62	8.74
2,3,5-Trimethylnaphthalene	2.19	7.29

1,2,5,6-Tetramethylnaphthalene	2.56	8.54
1-Methylphenanthrene	2.36	7.86
2-Methylphenanthrene	1.87	6.22
2-Methylanthracene	1.01	3.37
3-Methylphenanthrene	1.40	4.66
9-Methylphenanthrene	2.22	7.39
1,7- Dimethylphenanthrene	1.99	6.64
1-Methylpyrene	1.29	7.67
4-Methylpyrene	3.94	4.31
1-Methylfluoranthene	1.57	5.24
1,3 – dimethylphenanthrene	1.84	6.14
2,6 – dimethylphenanthrene	1.58	5.25
1,7 – dimethylphenanthrene	1.94	6.48
2,6 – dimethylphenanthrene	1.95	6.49
3,6 – dimethylphenanthrene	2.00	6.65
3-Methylchrysene	2.63	8.77
1,4,6,7-Tetramethylnaphthalene	2.67	8.92
1,2,6-Trimethylphenanthrene	3.09	10.27
1,2,6,9-Tetramethylphenanthrene	3.25	10.81
2,8-dimethyldibenzothiophene	2.32	7.73
Dibenzothiophene	1.07	3.59
1-MethylFluorene	2.08	6.94
4-Methyldibenzothiophene	1.73	5.77
2,4,7-trimethyldibenzothiophene	3.02	10.08
1,3,6-trimethylchrysene	3.20	10.63
4,5-dimethylpyrene	2.23	7.43

7-methylbenzo(a)pyrene	4.26	14.16
6-Methylchrysene	1.62	5.39
5-bromoacenaphthene	2.24	7.49
2-bromofluorene	2.43	8.13
1-chloroanthracene	3.70	12.36
9-chlorophenanthrene	4.30	14.34
9-chloroanthracene	3.53	11.77
3-bromophenanthrene	3.55	11.86
9-bromophenanthrene	4.29	14.31
1,5- dichloroanthracene	3.39	11.31
2,7-dibromofluorene	1.95	6.52
1-chloropyrene	1.24	4.13
9,10-dibromoanthracene	3.00	10.01
9,10-dibromophenanthrene	4.38	14.62
1-bromopyrene	3.18	10.62
7-chlorobenz(a)anthrancene	1.81	6.04
7-bromobenz(a)anthracene	5.91	19.72
7,12-dichlorobenz(a)anthrancene	3.21	10.71

4.4 Description of Task Authorization Process

4.4.1 Task Authorizations will be used to initiate specific tasks. Task authorizations from ECCC will include:

- activities to be performed;
- identification of general or explicit deliverables; and
- Estimated time required.

4.4.2 Activities for tasks authorized will be performed at the Contractor's laboratory facility.

4.5 Quality Assurance/Quality Control (QA/QC)

4.5.1 Methods used to measure PACs (including APACs and HPACs) in biota samples must adhere to strict quality assurance and quality control procedures. To get the best reliable data possible, it is important that analytical methods are validated in strict

accordance with industry best practices such as the Eurachem Guide to Quality in Analytical Chemistry (Third edition, 2016, can be downloaded at: https://www.eurachem.org/index.php/publications/guides/qa). Measures of working range, detection limits, trueness, precision, method uncertainty and robustness must be included with each data report. The use of performance or internal standards, duplicates, triplicates and method blanks must also be reported.

4.6 Deliverables

4.6.1 The Contractor will provide the following Deliverables to the Technical Authority:

Deliverable	Deliverable Description	Format	Due Date
Microsoft Excel Report	Year 1 report providing all measured concentrations of PACs, APACs and HPACs in 314 biota samples; including all QA/QC measures	Microsoft Excel (.xls)	March 31st 2022
Microsoft Excel Report	Year 2 report providing all measured concentrations of PACs, APACs and HPACs in 314 biota samples; including all QA/QC measures	Microsoft Excel (.xls)	March 31st 2023
Microsoft Excel Report	Year 3 report providing all measured concentrations of PACs, APACs and HPACs in 314 biota samples; including all QA/QC measures	Microsoft Excel (.xls)	March 31st 2024

5. Criteria for Assessment of the Statement of Capabilities (Minimum Essential Requirements)

5.1 Any interested supplier must demonstrate by way of a statement of capabilities that they meet the following requirements:

5.1.1 Experience

5.1.1.1 Five (5) years experience in the past 10 years conducting trace contaminant analyses of PACs in biota and abiotic matrices.

5.1.1.2 Five (5) years experience in the past 10 years delivering data to national monitoring programs.

5.1.1.3 Experience conducting at least three (3) projects in the last eight (8) years that are similar in size, scope and complexity (specifically, the ability of analysing upwards of 500 biota samples per year, reporting data on the compounds listed in 4.3.2 and accompanying QA/QC data demonstrating detection limits equal to, or smaller than those listed in 4.3.4 Table 1).

5.1.1.4 Demonstrated ability to measure polycyclic aromatic hydrocarbons, including alkyl-, and halogenated-derivatives using high-resolution quadrupole time-of-flight mass spectrometry (HRQTOF), dual quad gas chromatography/mass spectrometry (GC-MS-MS) or equivalent instrumentation. The use of mass labeled compounds (i.e. standards) must also be demonstrated where appropriate. The equipment used must meet the performance criteria outlined in Table 1, Section 4.3.4. Any interested supplier must have published this data and/or methods in at least three (3) manuscripts over the last five (5) years.

5.1.1.5 Ability to perform confirmation analyses by 2D-high resolution time of flight mass spectrometry (GC x GC/HRTOF-MS) or equivalent instrumentation that meets the specifications listed in 4.3.4 (Table 1). Must have published this data and/or methods in at least three (3) manuscripts over the last five (5) years. .

5.1.2 Knowledge and understanding

5.1.2.1 Demonstration of peer-reviewed published methods for the analysis of PACs and their alkylated and halogenated congeners; must have published this data and/or methods in at least three manuscripts over the last 5 years.

5.1.3 The laboratory must be ISO/ICE 17025:2017 and RG-TMDNRT accredited.

6. Applicability of the Trade Agreement(s) to the Procurement

6.1 This procurement is subject to the following trade agreement(s)

- Canadian Free Trade Agreement (CFTA)
- Canada–Chile Free Trade Agreement (CCFTA)
- Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)
- Canada–Colombia Free Trade Agreement (CCOFTA)
- Canada-European Union Comprehensive Economic and Trade Agreement (CETA)
- Canada–Honduras Free Trade Agreement (CHFTA)
- Canada–Korea Free Trade Agreement (CKFTA)
- North American Free Trade Agreement (NAFTA)
- Canada–Panama Free Trade Agreement (CPAFTA)
- Canada–Peru Free Trade Agreement (CPFTA)
- Canada–Ukraine Free Trade Agreement (CUFTA)
- World Trade Organization - Agreement on Government Procurement (WTO-AGP)

7. Set-aside under the Procurement Strategy for Aboriginal Business

7.1 This procurement is NOT subject to a set-aside.

8. Comprehensive Land Claims Agreement

8.1 This procurement is NOT subject to the CLCA.

9. Justification for the Pre-Identified Supplier

9.1 The Centre for Oil and Gas Research and Development (COGRAD) at the University of Manitoba was selected for this project because of their third party neutral unbiased credibility and level of expertise. COGRAD is a state-of-the-art facility at the University of Manitoba accredited under Standard Council of Canada ISO17025 (CAN-P-4E ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories) and CAN-P-1595 (Test Method Development & Evaluation and Non-Routine Testing). COGRAD is committed to advancing and supporting industry and/or government mandated environmental monitoring obligations, such as those imposed by the federal/provincial Oil Sands Monitoring program (OSM) and other similar programs. They communicate

through each step of the process with their clients to address their clients' individual needs and design an approach that fully meets their objectives.

9.2 COGRAD is a unique facility; their laboratories are the state-of-the-art and i**nclude a two-dimensional gas chromatography instrument coupled to a high-resolution mass spectrometer that is needed for the data ECCC measure**s. COGRAD also use unique peer-reviewed analytical methods to generate data, including data on potentially toxic and dangerous halogenated PACs using standards that are not commercially or otherwise available. This allows COGRAD to provide a unique service that is of extreme importance to the delivery of ECCC's science and obligations under high priority research and monitoring programs that the Government of Canada is legislated to undertake. COGRAD also has a proven record in client services; their services are offered at a competitive price and are fulfilled on time and on budget.

10. Ownership of Intellectual Property

10.1 Ownership of Intellectual Property related to the development of any related process-specific analytical chemistry methods arising out of the proposed contract will vest with the Contractor, as it is not part of the contract deliverables.

10.2 Environment Canada has determined that any foreground intellectual property arising from the performance of the Work under this Contract will vest in Canada on the following grounds: the main purpose of the Contract, or of the deliverables contracted for, is to generate knowledge and information for public dissemination. Notwithstanding the above, the parties signing this contract agree that sharing of the data that is produced during this contract is an essential requirement of this contract. Therefore, the parties signing this contract agree that data generated from the studies conducted during this contract will be used for the purposes of completing student's academic degrees, or for the drafting of manuscripts, or for any other academic or research purposes agreed upon by the parties, and will be shared between the parties for a time sufficient to complete these activities, following which the data will be deposited with, archived by, and accessible to the scientific authority and the university. The parties agree that it is part of the University's function to disseminate information and to make it available for the purposes of research and teaching and the University shall not be restricted in its use of the Intellectual Property generated during this contract for research and educational purposes subject only to confidentiality provisions which continue to remain in effect after termination of this Contract.

10.3 Notwithstanding the Crown's ownership of the Foreground Information, and subject to the confidentiality provisions of this agreement, the Contractor is hereby granted a non-

exclusive, royalty-free, perpetual, license to use and reproduce such Foreground Information for any academic, research, or educational non-commercial purpose and to grant these same rights to its students and employees. For clarity, such allowed uses include the right to use the foreground information for student theses and for scientific publication.

11. Period of the Proposed Contract or Delivery Date

11.1 The proposed contract is for a period of contract award to March 31st 2024.

12. Cost Estimate of the Proposed Contract

12.1 The total contract value does not exceed $520,000, exclusive of tax.

13. Name and Address of the Pre-Identified Supplier

University of Manitoba
Center for Oil and Gas Research and Development (COGRAD)
66 Chancellors Circle
Winnipeg, MB R3T 2N2

14. Suppliers' Right to Submit a Statement of Capabilities

14.1 Suppliers who consider themselves fully qualified and available to provide the goods, services or construction services described in the ACAN may submit a statement of capabilities in writing to the contact person identified in this notice on or before the closing date of this notice. The statement of capabilities must clearly demonstrate how the supplier meets the advertised requirements.

15. Closing Date for a Submission of a Statement of Capabilities

15.1 The closing date and time for accepting statements of capabilities is December 17, 2021 at 2:00pm EST.

16. Inquiries and Submission of Statements of Capabilities

16.1 Inquiries and statements of capabilities are to be directed to:

Aurora Hudson
Procurement Officer
Procurement and Contracting Division
Corporate Services and Finance Branch
Environment and Climate Change Canada
200 Sacre-Coeur Blvd, Gatineau, QC K1A 0H3
Tel: 819.300.0314
E-Mail: aurora.hudson@ec.gc.ca