

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

**REQUEST FOR PROPOSAL**  
**DEMANDE DE PROPOSITION**

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

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

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

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

**Comments - Commentaires**

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

**Issuing Office - Bureau de distribution**  
**Science Procurement Directorate/**  
**Direction de l'acquisition de travaux**  
**scientifiques**  
**11C1, Phase III**  
**Place du Portage**  
**11 Laurier St. / 11, rue Laurier**  
**Gatineau, Québec K1A 0S5**

<b>Title-Sujet</b> Sample Collection Testing and Analysis, and Consulting Services for Crude Oil and Petroleum Products	
<b>Solicitation No. - N° de l'invitation</b> T8121-160031/C	<b>Date</b> 22 December 2016
<b>Client Reference No. - N° de référence du client</b> T8121-16-0031	
<b>GETS Reference No. - N° de référence de SEAG</b>	
<b>File No. - N° de dossier</b> 075ss.T8121-160031	<b>CCC No./N° CC – FMS NO. / N° VME</b>
<b>Solicitation Closes – L'invitation prend fin</b>  at – à 2:00 PM on – le 1 February 2017	<b>Time Zone</b> Fuseau horaire Eastern Time
<b>F.O.B. – F.A.B</b>  Plant-Usine : <input type="checkbox"/> Destination: <input type="checkbox"/> Other-Autre: <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> APRIL CAMPBELL	<b>Buyer Id - Id de l'acheteur</b> 075ss
<b>Telephone No. - N° de téléphone</b> 873-469-4794	<b>FAX No. - N° de FAX</b> 819-997-2229
<b>Destination of Goods, Services and Construction:</b> <b>Destinations des biens, services et construction :</b>  Specified Herein Précisé dans les présentes	

**Instructions : See Herein**

**Instructions : voir aux présentes**

<b>Delivery Required - Livraison exigée</b> See Herein	<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 telephone</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**

### **1.1 Summary**

Transport Canada is seeking professional services for the sample collection, testing and analysis of crude oil in a manner that preserves its integrity and composition, including all dissolved gasses, in support of research projects; and, to provide consulting services on:

- selecting crude oil types and sample sites,
- proper sample collection and handling,
- development and selection of means of containment for transport,
- testing procedures,
- general knowledge on industry practices

Services will be provided on an “as and when requested” basis from date of contract award to 31 March 2018 with three option periods of one year each. Services will be delivered to the National Capital Region.

The requirement is subject to the provisions of the Agreement on Internal Trade (AIT).

The requirement is limited to Canadian goods and/or services.

The Federal Contractors Program (FCP) for employment equity applies to this procurement; see Part 5 - Certifications and Additional Information, Part 7 - Resulting Contract Clauses and the annex titled *Federal Contractors Program for Employment Equity - Certification*

### **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.



## 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](#) (2016-04-04) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

### 2.2 Submission of Bids

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

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

### 2.3 Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPSs, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required 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 with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

#### Definitions

For the purposes of this clause, "former public servant" is any former member of a department as defined in the [Financial Administration Act](#), R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation



of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the [Public Service Superannuation Act](#) (PSSA), R.S., 1985, c. P-36, and any increases paid pursuant to the [Supplementary Retirement Benefits Act](#), R.S., 1985, c. S-24 as it affects the PSSA. It does not include pensions payable pursuant to the [Canadian Forces Superannuation Act](#), R.S., 1985, c. C-17, the [Defence Services Pension Continuation Act](#), 1970, c. D-3, the [Royal Canadian Mounted Police Pension Continuation Act](#), 1970, c. R-10, and the [Royal Canadian Mounted Police Superannuation Act](#), R.S., 1985, c. R-11, the [Members of Parliament Retiring Allowances Act](#), R.S., 1985, c. M-5, and that portion of pension payable to the [Canada Pension Plan Act](#), R.S., 1985, c. C-8.

#### Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes ( ) No ( )**

If so, the Bidder must provide the following information, for all FPSs in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with [Contracting Policy Notice: 2012-2](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

#### Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes ( ) No ( )**

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

## 2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 10 business 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.

## **2.5 Applicable Laws**

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

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



## **PART 3 - BID PREPARATION INSTRUCTIONS**

### **3.1 Bid Preparation Instructions**

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

- Section I: Technical Bid (4 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.

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

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

#### **Section I: Technical Bid**

In their technical bid, Bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

The technical bid should address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, 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.

#### **Section II: Financial Bid**

Bidders must submit their financial bid in accordance with the Financial Presentation Sheet in Part 4, applicable taxes extra, for the initial period and each option period of the contract, as follows:

1. Bidders must submit a firm, all inclusive, hourly rate for each area of expertise detailed in the Statement of Work, Consulting Services, excluding travel and living expenses.
2. Bidders must submit a firm, all inclusive rate for the sample collection (labour), including the associated pressurized and ambient Means of Containment for the volumes indicated and excluding travel & living.





3. Bidders must submit a firm, all inclusive rate per test for each of the tests identified in the Statement of Work of the contract.
4. Bidders should identify anticipated direct costs associated with the work, including rates for subcontractors and loan of equipment (non-consumables) that may be utilized in the performance of the work.

Prices must be in Canadian funds, Canadian customs duties and excise taxes included, and Applicable Taxes excluded.

**Section III: Certifications**

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



**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.

**4.2 Technical Evaluation**

**4.2.1 Mandatory Technical Criteria**

Item	Description	Met	Not Met
<b>Resource Experience</b>			
M-1	The Bidder must demonstrate a minimum of 5 years of experience in assessing, evaluating or developing crude oil sample collection methods or procedures as detailed in section 5.4 of the Statement of Work.		
M-2	The Bidder must demonstrate a minimum of 5 years of experience in assessing, developing or advising on crude oil analysis and testing methods or procedures as detailed in section 5.6 of the Statement of Work.		
M-3	The Bidder must demonstrate a minimum 5 years of experience in working with different crude oil types and understanding their different properties through managing or advising on projects for petroleum producers or refiners.		
M-4	The Bidder's Project Manager must demonstrate a minimum of 5 years of experience in managing complex projects.		
<b>Corporate Experience</b>			
M-5	The Bidder must demonstrate a minimum of 2 projects within the last 5 years from date of bid closing, involving the design of means of containment to transport class 2.1, class 2.3, or class 3 packing group I dangerous goods in Canada. One of these projects must involve the design of a means of containment which could be used to transport liquids containing dissolved gases. This means of containment must allow for the loading or unloading of the liquid without release of the dissolved gases.		



#### 4.2.2 Mandatory Financial Requirements

Item	Description	Met	Not Met
MF-1	For each Option Period, Bidders must not exceed +/- 3% in the firm, all inclusive hourly rate for each area of expertise detailed in the Financial Presentation Sheet below from each previous period.		
MF-2	For each Option Period, Bidders must not exceed +/- 3% in the firm, all inclusive rate per test for each test detailed in the Financial Presentation Sheet below from each previous period.		

#### 4.2.3 Point Rated Technical Criteria

Item	Description	Scoring Methodology	Maximum Available Points
R-1	<p>The Bidder should demonstrate project experience collecting crude oil samples:</p> <ul style="list-style-type: none"> <li>a) From a diverse number of petroleum producers</li> <li>b) At various sites (e.g., wellhead, transloading site, storage tank)</li> <li>c) At locations across Canada</li> </ul> <p>Only the first 5 projects will be evaluated.</p>	<p>Bidders will be allocated points per project based on the following:</p> <ul style="list-style-type: none"> <li>1 point - for each unique producer listed among the projects</li> <li>1 point - for each site listed within a project</li> <li>0.5 points - for each geographic location listed within project</li> </ul>	25
R-2	<p>The Bidder should demonstrate experience in up to 5 projects maintaining the integrity of petroleum products during:</p> <ul style="list-style-type: none"> <li>○ Sampling;</li> <li>○ Transportation and handling including loading and unloading;</li> <li>○ Experimental Design;</li> <li>○ Testing.</li> </ul> <p>Only the first 5 projects will be evaluated.</p>	<p>Bidders will be allocated up to 4 points per project based on the following:</p> <ul style="list-style-type: none"> <li>4 points –project includes experience in four of the elements.</li> <li>3 points –project includes experience in three of the elements.</li> <li>2 points –project includes experience in two of the elements.</li> <li>1 point –project includes experience in one of the elements.</li> </ul>	20
			15



Item	Description	Scoring Methodology	Maximum Available Points
R-3	<p>The Bidder should demonstrate project experience designing means of containment certified to transport class 2.1, class 2.3, or class 3 packing group I dangerous goods in Canada.</p> <p>The projects must be within the past 10 years from date of bid closing.</p>	<p>2 points per project</p> <p>OR</p> <p>3 points per project if the project involves crude oil</p>	
R-4	<p>The Bidder should demonstrate experience contributing to the development or modification of standards for crude oil property testing that are recognized by industry standards organizations such as CSA, CGSB, ISO, ASTM, GPA or others.</p>	<p>2 points per example to a maximum of 10 points.</p>	10
R-5	<p>The Bidder should identify up to a maximum of 5 projects demonstrating experience studying, researching, or working with different types of crude oil (e.g. light sweet crude, medium sour crude, condensate, dilbit)</p>	<p>2 points for the first project and any additional project in which a different type of crude oil is subsequently described. Otherwise, 1 point for any additional project in which the same crude oil type is described.</p>	10
<b>Total Available Points</b>			<b>80</b>

### 4.3 Financial Presentation Sheet

For evaluation purposes only, bidders' financial proposals will be evaluated using the following estimated level of effort and quantity. These estimates do not reflect reality and will be used solely for the purposes of evaluation.



**1. LABOUR - Consulting Services**

A firm, all inclusive hourly rate for each labour area of expertise:

<i>Area of Expertise</i>	<i>Initial Period a</i>	<i>Option Period 1 b</i>	<i>Option Period 2 c</i>	<i>Option Period 3 d</i>	<i>Sub-Total (a+b+c+d) e</i>	<i>Level of Effort (Hours) f</i>	<i>Total (e x f)</i>
<b>Junior</b>							
Modeling	\$	\$	\$	\$	\$	50	\$
Tests and standards	\$	\$	\$	\$	\$	150	\$
<b>Intermediate</b>							
Product selection	\$	\$	\$	\$	\$	48	\$
Petroleum Product Integrity Specialist*	\$	\$	\$	\$	\$	24	\$
Experimental Design	\$	\$	\$	\$	\$	4	\$
Means of Containment Design & Construction	\$	\$	\$	\$	\$	4	\$
Modeling	\$	\$	\$	\$	\$	56	\$
Tests and standards	\$	\$	\$	\$	\$	64	\$
Oil industry practices	\$	\$	\$	\$	\$	8	\$
Oil industry operations	\$	\$	\$	\$	\$	8	\$
<b>Senior</b>							
Product selection	\$	\$	\$	\$	\$	80	\$
Petroleum Product Integrity Specialist*	\$	\$	\$	\$	\$	48	\$
Experimental Design	\$	\$	\$	\$	\$	8	\$
Means of Containment Design & Construction	\$	\$	\$	\$	\$	8	\$
Modeling	\$	\$	\$	\$	\$	48	\$
Tests and standards	\$	\$	\$	\$	\$	64	\$
Oil industry practices	\$	\$	\$	\$	\$	16	\$
Oil industry operations	\$	\$	\$	\$	\$	16	\$
<b>A – TOTAL Estimated Labour Cost</b>							<b>\$</b>

\*This resource maintains the integrity of petroleum products during sampling, handling, experimental design, and testing



**2. SAMPLE COLLECTION**

A firm, all inclusive price per site, for Sample Collection, excluding travel and living:

<i>Description</i>	<i>Volumes</i>	<i>Initial Period a</i>	<i>Option Period 1 b</i>	<i>Option Period 2 c</i>	<i>Option Period 3 d</i>	<i>Sub-Total (a+b+c+d) e</i>	<i>Level of Effort (hours) f</i>	<i>Total (e x f)</i>
Sample Collection	Pressurized MoC: 0 – 1 litres	\$	\$	\$	\$	\$	550	\$
Sample Collection	Pressurized MoC: 2 – 50 litres	\$	\$	\$	\$	\$	100	\$
Sample Collection	Pressurized MoC: 51 – 250 litres	\$	\$	\$	\$	\$	70	\$
Sample Collection	Ambient MoC: 0 – 1 litres	\$	\$	\$	\$	\$	50	\$
Sample Collection	Ambient MoC: 2 – 50 litres	\$	\$	\$	\$	\$	50	\$
Sample Collection	Ambient MoC: 51 – 250 litres	\$	\$	\$	\$	\$	30	\$
<b>B - TOTAL Estimated Sample Collection Cost</b>								<b>\$</b>

**3. TESTING**

A firm, all inclusive unit price per test:

<i>Test</i>	<i>Description</i>	<i>Initial Period a</i>	<i>Option Period 1 b</i>	<i>Option Period 2 c</i>	<i>Option Period 3 d</i>	<i>Sub-Total (a+b+c+d) e</i>	<i>Qty f</i>	<i>Total (e x f)</i>
ASTM 93-15 Tester	Standard Test Methods for Flash Point by Pensky-Martens Closed Cup	\$	\$	\$	\$	\$	3	\$
ASTM D56-05 (2010)	Standard Test Method for Flash Point by Tag Closed Cup Tester	\$	\$	\$	\$	\$	6	\$
ASTM D2503-92 (2012)	Standard Test Method for Relative Molecular Mass (Molecular Weight) of Hydrocarbons by Thermoelectric Measurement of Vapor Pressure	\$	\$	\$	\$	\$	3	\$
ASTM D323-15a	Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)	\$	\$	\$	\$	\$	5	\$



<i>Test</i>	<i>Description</i>	<i>Initial Period a</i>	<i>Option Period 1 b</i>	<i>Option Period 2 c</i>	<i>Option Period 3 d</i>	<i>Sub-Total (a+b+c+d) e</i>	<i>Qty f</i>	<i>Total (e x f)</i>
	using procedure C and modified for a temperature of 50 °C							
ASTM D3828-16	Standard Test Methods for Flash Point by Small Scale Closed Cup Tester	\$	\$	\$	\$	\$	4	\$
ASTM D4052-11	Standard Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter	\$	\$	\$	\$	\$	1	\$
ASTM D4530	Standard Test Method for Determination of Carbon Residue (Micro Method)	\$	\$	\$	\$	\$	3	\$
ASTM D5002 or ASTM D70	Density via (whichever appropriate)	\$	\$	\$	\$	\$	7	\$
ASTM D5002-13	Standard Test Method for Density and Relative Density of Crude Oils by Digital Density Analyzer	\$	\$	\$	\$	\$	2	\$
ASTM D5291-10 (2015)	Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants	\$	\$	\$	\$	\$	5	\$
ASTM D5623-94 (2014)	Standard Test Method for Sulfur Compounds in Light Petroleum Liquids by Gas Chromatography and Sulfur Selective Detection	\$	\$	\$	\$	\$	2	\$
ASTM D5705-15	Standard Test Method for Measurement of Hydrogen Sulfide in the Vapor Phase Above Residual Fuel Oils	\$	\$	\$	\$	\$	4	\$
ASTM D6377-15	Standard Test Method for Determination of Vapor Pressure of Crude Oil: VPCRx (Expansion Method)	\$	\$	\$	\$	\$	7	\$
ASTM D6579-11 (2015)	Standard Practice for Molecular Weight Averages and Molecular Weight Distribution of Hydrocarbon, Rosin and Terpene Resins by Size-Exclusive Chromatography	\$	\$	\$	\$	\$	3	\$



<b>Test</b>	<b>Description</b>	<b>Initial Period a</b>	<b>Option Period 1 b</b>	<b>Option Period 2 c</b>	<b>Option Period 3 d</b>	<b>Sub-Total (a+b+c+d) e</b>	<b>Qty f</b>	<b>Total (e x f)</b>
ASTM D7169-11	Standard Test Method for Boiling Point Distribution of Samples with Residues Such as Crude Oils and Atmospheric and Vacuum Residues by High Temperature Gas Chromatography	\$	\$	\$	\$	\$	6	\$
ASTM D8003-15	Standard Test Method for Determination of Light Hydrocarbons and Cut Point Intervals in Live Crude Oils and Condensates by Gas Chromatography	\$	\$	\$	\$	\$	4	\$
ASTM D7042-14	Standard Test Method for Dynamic Viscosity and Density of Liquids by Stabinger Viscometer (and the Calculation of Kinematic Viscosity)	\$	\$	\$	\$	\$	4	\$
ASTM D7169-11	Chemical composition of components with carbon numbers from C1 (methane) to C25	\$	\$	\$	\$	\$	4	\$
ASTM D7236-16	Standard Test Method for Flash Point by Small Scale Closed Cup Tester (Ramp Method)	\$	\$	\$	\$	\$	2	\$
ASTM D7975-14	Standard Test Method for Determination of Vapor Pressure of Crude Oil: VPCRx-F(Tm°C) (Manual Expansion Field Method)	\$	\$	\$	\$	\$	8	\$
ASTM D8003-15	Chemical composition of components with carbon numbers from C1 (methane) to C25	\$	\$	\$	\$	\$	4	\$
ASTM E203-08	Standard Test Method for Water Using Volumetric Karl Fischer Titration	\$	\$	\$	\$	\$	1	\$
GPA 2103-03	Tentative Method for the Analysis of Natural Gas Condensate Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography	\$	\$	\$	\$	\$	2	\$
GPA 2177-13	Analysis of Natural Gas Liquid Mixtures Containing Nitrogen Carbon Dioxide by Gas Chromatography	\$	\$	\$	\$	\$	4	\$





<i>Test</i>	<i>Description</i>	<i>Initial Period a</i>	<i>Option Period 1 b</i>	<i>Option Period 2 c</i>	<i>Option Period 3 d</i>	<i>Sub-Total (a+b+c+d) e</i>	<i>Qty f</i>	<i>Total (e x f)</i>
	True Vapour Pressure determination using an equation of state model at a temperature and pressure	\$	\$	\$	\$	\$	5	\$
	Gas Oil Ratio by GC analysis	\$	\$	\$	\$	\$	3	\$
	Average molecular weight via freezing point depression	\$	\$	\$	\$	\$	2	\$
	Saturates, Aromatics, Resins, and Asphaltene Content (SARA)	\$	\$	\$	\$	\$	4	\$
	Mass % Carbon, Hydrogen, Nitrogen by pyrolytic technique	\$	\$	\$	\$	\$	5	\$
	Metals screening	\$	\$	\$	\$	\$	1	\$
	Total Sulfur	\$	\$	\$	\$	\$	5	\$
	Polycyclic Aromatic Hydrocarbon (PAH) analysis: characterization of petrogenic vs. pyrogenic PAHs and calculation of the Pyrogenic Index (PI)	\$	\$	\$	\$	\$	3	\$
<b>C - TOTAL Estimated Testing Cost:</b>								<b>\$</b>



#### 4.4 Financial Evaluation

For evaluation purposes only, the financial proposal will be evaluated as follows:

1. In accordance with Part 4, article 4.2.2, Mandatory Financial Criteria
2. On the total sum of:

- A – Total Estimated Labour Cost, Initial Period
- B – Total Estimated Sample Collection Cost, Initial Period
- C – Total Estimated Testing Cost, Initial Period

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

4.5.1 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 of 56 points overall for the technical evaluation criteria which are subject to point rating. The rating is performed on a scale of 80 points.

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

4.5.3 The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 70% for the technical merit and 30% for the price.

4.5.4 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 70%

4.5.5 To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30%

4.5.6 For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.

4.5.7 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.

The table below illustrates an example where all three bids are responsive and the selection of the contractor is determined by a 70/30 ratio of technical merit and price, respectively. The total available points equals 135 and the lowest evaluated price is \$45,000 (45).



<b>Basis of Selection - Highest Combined Rating Technical Merit (70%) and Price (30%) - Example</b>			
<b>fff</b>	<b>Bidder 1</b>	<b>Bidder 2</b>	<b>Bidder 3</b>
<b>Overall Technical Score</b>	115 / 135	89 / 135	92 / 135
<b>Bid Evaluated Price</b>	\$55,000.00	\$50,000.00	\$45,000.00
<b>Calculations</b>			
<b>Technical Merit Score</b>	$115 / 135 \times 70 = 59.63$	$89 / 135 \times 70 = 46.15$	$92 / 135 \times 70 = 47.70$
<b>Pricing Score</b>	$45 / 55 \times 30 = 24.55$	$45 / 50 \times 30 = 27$	$45 / 45 \times 30 = 30.00$
<b>Combined Rating</b>	$59.63 + 24.55 = 84.18$	$46.15 + 27 = 73.15$	$47.7 + 30 = 77.7$
<b>Overall Rating</b>	<b>1st</b>	<b>3rd</b>	<b>2nd</b>



## **PART 5 – CERTIFICATIONS**

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 *Ineligibility and Suspension Policy* (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide with its bid the required documentation, as applicable, to be given further consideration in the procurement process.

#### **5.1.2 Canadian Content Certification**

This procurement is limited to Canadian goods.

The Bidder certifies that:

( ) a minimum of 80 percent of the total bid price consist of Canadian goods as defined in paragraph 1 of clause [A3050T](#).

For more information on how to determine the Canadian content for a mix of goods, a mix of services or a mix of goods and services, consult Annex 3.6.(9), Example 2, of the *Supply Manual*.

#### **5.1.3 Canadian Content Definition**

*SACC Manual* clause [A3050T](#) (2014-11-27) Canadian Content Definition

### **5.2 Certifications Precedent to Contract Award**

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 specified will render the bid non-responsive.



**5.2.1 Integrity Provisions – Required Documentation**

In accordance with 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.

The Bidder certifies that:

\_\_\_\_\_ It understands, complies and respects the provisions under the Ineligibility and Suspension Policy.

Does the Bidder have a Board of Directors?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

**If so, the Bidder must submit** 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. **Canada may, at any time,** request that the Bidder provide properly completed and Signed Consent Forms (Consent to a Criminal Verification form – PWGSC-TPSGC 229), for any individuals named in the aforementioned list. (<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/229.pdf>)

Name	Title

**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](http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969#afed) website ([http://www.esdc.gc.ca/en/jobs/workplace/human\\_rights/employment\\_equity/federal\\_contractor\\_program.page?&\\_ga=1.229006812.1158694905.1413548969#afed](http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969#afed)).

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.



Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](#)" list during the period of the Contract.

The Bidder must provide the Contracting Authority with a completed attachment [Federal Contractors Program for Employment Equity - Certification](#), before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.



## **PART 6 - INSURANCE REQUIREMENTS**

### **6.1 Insurance Requirements**

The Contractor must comply with the insurance requirements specified at Annex C. The Contractor must maintain the required insurance coverage for the duration of the Contract. Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract.

The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

The Contractor must forward to the Contracting Authority within ten (10) days after the date of award of the Contract, a Certificate of Insurance evidencing the insurance coverage and confirming that the insurance policy complying with the requirements is in force. For Canadian-based Contractors, coverage must be placed with an Insurer licensed to carry out business in Canada, however, for Foreign-based Contractors, coverage must be placed with an Insurer with an A.M. Best Rating no less than "A-". The Contractor must, if requested by the Contracting Authority, forward to Canada a certified true copy of all applicable insurance policies.



## **PART 7 - RESULTING CONTRACT CLAUSES**

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

### **7.1 Statement of Work**

The Contractor must perform the Work in accordance with the Statement of Work at Annex A.

### **7.2 Task Authorization**

The Work to be performed under the Contract will be on an "as and when requested basis" using a Task Authorization (TA). The Work described in the TA must be in accordance with the scope of the Contract.

#### **7.2.1 Task Authorization Process**

The Project Authority will provide the Contractor with a description of the task using the Task Authorization Form specified in Annex D.

The Task Authorization (TA) will contain the details of the activities to be performed, a description of the deliverables, and a schedule indicating completion dates for the major activities or submission dates for the deliverables. The TA will also include the applicable basis(bases) and methods of payment as specified in the Contract.

The Contractor must provide the Project Authority, within 7 calendar days of its receipt, the proposed total estimated cost for performing the task and a breakdown of that cost, established in accordance with the Basis of Payment specified in the Contract.

The Contractor must not commence work until a TA authorized by the Project Authority has been received by the Contractor. The Contractor acknowledges that any work performed before a TA has been received will be done at the Contractor's own risk.

#### **7.2.2 Task Authorization Limit**

The Project Authority may authorize individual task authorizations up to a limit of \$ \_\_\_\_\_, Applicable Taxes included, inclusive of any revisions.

Any task authorization to be issued in excess of that limit must be authorized by the Contracting Authority before issuance.





### 7.2.3 Minimum Work Guarantee - All the Work - Task Authorizations

In this clause,

"Maximum Contract Value" means the amount specified in the "Limitation of Expenditure" clause set out in the Contract; and

"Minimum Contract Value" means 5% of the maximum contract value.

Canada's obligation under the Contract is to request Work in the amount of the Minimum Contract Value or, at Canada's option, to pay the Contractor at the end of the Contract in accordance with paragraph 3. In consideration of such obligation, the Contractor agrees to stand in readiness throughout the Contract period to perform the Work described in the Contract. Canada's maximum liability for work performed under the Contract must not exceed the Maximum Contract Value, unless an increase is authorized in writing by the Contracting Authority.

In the event that Canada does not request work in the amount of the Minimum Contract Value during the period of the Contract, Canada must pay the Contractor the difference between the Minimum Contract Value and the total cost of the Work requested.

Canada will have no obligation to the Contractor under this clause if Canada terminates the Contract in whole or in part for default.

### 7.2.4 Periodic Usage Reports - Contracts with Task Authorizations

The Contractor must compile and maintain records on its provision of services to the federal government under authorized Task Authorizations issued under the Contract.

The Contractor must provide this data in accordance with the reporting requirements detailed below. If some data is not available, the reason must be indicated. If services are not provided during a given period, the Contractor must still provide a "nil" report.

The data must be submitted on a quarterly basis to the Contracting Authority. The quarterly periods are defined as follows:

- 1st quarter: April 1 to June 30;
- 2nd quarter: July 1 to September 30;
- 3rd quarter: October 1 to December 31; and
- 4th quarter: January 1 to March 31.

The data must be submitted to the Contracting Authority no later than 15 calendar days after the end of the reporting period.

#### Reporting Requirement- Details

A detailed and current record of all authorized tasks must be kept for each contract with a task authorization process. This record must contain:



#### For each authorized task:

- i. the authorized task number or task revision number(s);
- ii. a title or a brief description of each authorized task;
- iii. the total estimated cost specified in the authorized Task Authorization (TA) of each task, exclusive of Applicable Taxes;
- iv. the total amount, exclusive of Applicable Taxes, expended to date against each authorized task;
- v. the start and completion date for each authorized task; and
- vi. the active status of each authorized task, as applicable.

#### For all authorized tasks:

- i. the amount (exclusive of Applicable Taxes) specified in the contract (as last amended, as applicable) as Canada's total liability to the contractor for all authorized TAs; and
- ii. the total amount, exclusive of Applicable Taxes, expended to date against all authorized TAs.

### 7.3 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.

#### 7.3.1 General Conditions

2035 (2016-04-04) General Conditions - Higher Complexity - Services, apply to and form part of the Contract.

### 7.4 Security Requirements

There is no security requirement applicable to the Contract.

### 7.5 Term of Contract

#### 7.5.1 Period of the Contract

The period of the Contract is from date of Contract award to 31 March 2018 inclusive

#### 7.5.2 Option to Extend the Contract

The Contractor grants to Canada the irrevocable option to extend the term of the Contract by up to 3 additional 1 year period(s) under the same conditions. The Contractor agrees that, during the extended period of the Contract, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

Canada may exercise this option at any time by sending a written notice to the Contractor within 60 calendar days before the expiry date of the Contract. The option may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.



## 7.6 Authorities

### 7.6.1 Contracting Authority

The Contracting Authority for the Contract is:

April Campbell  
Supply Specialist  
Public Services and Procurement Canada  
Acquisitions Branch  
Services and Technology Acquisition Management Sector  
11, rue Laurier  
Place du Portage, Phase III, 11C1  
Gatineau, Quebec K1A 0S5

Telephone: 873-469-4794

Email : [april.campbell@pwgsc.gc.ca](mailto:april.campbell@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.

### 7.6.2 Project Authority

The Project Authority for the Contract is: (To be determined)

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.

### 7.6.3 Contractor's Representative

(To be determined)

## 7.7 Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a [Public Service Superannuation Act](#) (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with [Contracting Policy Notice: 2012-2](#) of the Treasury Board Secretariat of Canada.



## 7.8 Payment

### 7.8.1 Basis of Payment

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work specified in the authorized Task Authorization (TA), as determined in accordance with the Basis of Payment in Annex B, to the limitation of expenditure specified in the authorized TA.

Canada's liability to the Contractor under the authorized TA must not exceed the limitation of expenditure specified in the authorized TA. Customs duties are included and Applicable Taxes are extra.

No increase in the liability of Canada or in the price of the Work specified in the authorized TA resulting from any design changes, modifications or interpretations of the Work will be authorized or paid to the Contractor unless these design changes, modifications or interpretations have been authorized, in writing, by the Contracting Authority before their incorporation into the Work.

### 7.8.2 Limitation of Expenditure - Cumulative Total of all Task Authorizations

Canada's total liability to the Contractor under the Contract for all authorized Task Authorizations (TAs), inclusive of any revisions, must not exceed the sum of \$ \_\_\_\_\_ (*to be determined*). Customs duties are included and Applicable Taxes are extra.

No increase in the total liability of Canada will be authorized or paid to the Contractor unless an increase has been approved, in writing, by the Contracting Authority.

The Contractor must notify the Contracting Authority in writing as to the adequacy of this sum:

- a. when it is 75 percent committed, or
- b. four (4) months before the contract expiry date, or
- c. as soon as the Contractor considers that the sum is inadequate for the completion of the Work required in all authorized TAs, inclusive of any revisions,

whichever comes first.

If the notification is for inadequate contract funds, the Contractor must provide to the Contracting Authority, a written estimate for the additional funds required. Provision of such information by the Contractor does not increase Canada's liability.

### 7.8.3 Method of Payment

#### 7.8.3.1 Multiple Payments

Canada will pay the Contractor upon completion and delivery of units in accordance with the payment provisions of the Contract if:

- a. an accurate and complete invoice and any other documents required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;



- b. all such documents have been verified by Canada;
- c. the Work delivered has been accepted by Canada.

#### **7.8.4 T1204 Direct Request by Customer Department**

Pursuant to paragraph 221 (1)(d) of the [Income Tax Act](#), R.S. 1985, c. 1 (5<sup>th</sup> Supp.), payments made by departments and agencies to contractors under applicable services contracts (including contracts involving a mix of goods and services) must be reported on a T1204 Government Service Contract Payments slip.

To enable departments and agencies to comply with this requirement, the Contractor must provide Canada, upon request, its business number or Social Insurance Number, as applicable. (These requests may take the form of a general call-letter to contractors, in writing or by telephone).

#### **7.8.5 Time Verification**

Time charged and the accuracy of the Contractor's time recording system are subject to verification by Canada, before or after payment is made to the Contractor. If verification is done after payment, the Contractor must repay any overpayment, at Canada's request.

#### **7.8.6 Invoicing Instructions**

##### **7.8.6.1 Invoicing**

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.

Each invoice must be supported by:

- a. a copy of time sheets to support the time claimed;
- b. a copy of the release document and any other documents as specified in the Contract;
- c. a copy of the invoices, receipts, vouchers for all direct expenses, and all travel and living expenses;
- d. a copy of the monthly progress report.

Invoices must be distributed as follows:

- a. One (1) electronic copy must be forwarded to the Project Authority for certification and payment.
- b. One (1) electronic copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

#### **7.9 Certifications - 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.



### 7.9.1 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "[FCP Limited Eligibility to Bid](#)" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

### 7.9.2 Canadian Content Certification

1. The Contractor warrants that the certification of Canadian Content submitted by the Contractor is accurate and complete, and that the goods, services or both to be provided under the Contract are in accordance with the definition contained in clause [A3050T](#).
2. The Contractor must keep proper records and documentation relating to the origin of the goods, services or both provided to Canada. The Contractor must not, without obtaining before the written consent of the Contracting Authority, dispose of any such records or documentation until the expiration of six (6) years after final payment under the Contract, or until settlement of all outstanding claims and disputes under the Contract, whichever is later. All such records and documentation must at all times during the retention period be open to audit, inspection and examination by the representatives of Canada, who may make copies and take extracts. The Contractor must provide all facilities for such audits, inspections and examinations, and must furnish all such information as the representatives of Canada may from time to time require with respect to such records and documentation.
3. Nothing in this clause must be interpreted as limiting the rights and remedies which Canada may otherwise have pursuant to the Contract.

### 7.10 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in \_\_\_\_\_. (As *specified by the Bidder in its bid, if applicable.*)

### 7.11 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 general conditions 2035 (2016-04-04) General Conditions - Higher Complexity - Services;
- (c) Annex A, Statement of Work;
- (d) Annex B, Basis of Payment;
- (e) Annex C, Insurance Requirements;
- (f) the signed Task Authorizations (including all of its annexes, if any);
- (g) the Contractor's bid dated \_\_\_\_\_, (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award.*)



## ANNEX A STATEMENT OF WORK

### Sample Collection Testing and Analysis, and Consulting Services for Crude Oil and Petroleum Products

#### 1. INTRODUCTION

The Transport Dangerous Goods Directorate (TDG) of Transport Canada (TC), as part of the Safety and Security Group at Transport Canada serves as the major source of regulatory development, information, and guidance on dangerous goods transport for the public, industry and government employees. The transportation of petroleum crude oil in Canada is regulated under the *Transportation Dangerous Goods Act, 1992 and Regulations* (TDG Regulations).

#### 2. BACKGROUND

TDG is undertaking a number of research projects on the various properties and behaviours of crude oil in different situations, including fire properties, behaviour in containers exposed to fires, and physical properties surveys. While these research projects will be governed and conducted under separate contracts and agreements, they all require that crude oil be obtained for use in a variety of tests.

#### 3. OBJECTIVE

The goal of this contract is TO:

- a) collect, transport, and test crude oil in a manner that preserves its integrity and composition, including all dissolved gasses, in support of TDG research projects,
- b) determine commercially available means of containment suitable for transporting various volumes of crude oil; and
- c) provide consulting services to TDG on:
  - selecting crude oil types and sample sites,
  - proper sample collection and handling,
  - selection of means of containment for transport,
  - testing procedures,
  - general knowledge on industry practices

#### 4. REQUIREMENT

Many of the research projects that this contract is intended to support have not been developed or are in preliminary stages of development. Therefore, details such as sampling location, delivery location, delivery schedule, quantity of oil collected, and any oil testing requirements will be known once the research projects are developed. Since much of the information will not be available until after the contract starts, and will change with the research project being supported, the work will be undertaken on an “as and when requested” basis using Task Authorizations (TA). Despite the lack of detail, generally the tasks will include, but not be limited to, the following:



- Assist TC to determine which crude oils would best meet the research objectives and the most appropriate sampling methods.
- Develop a sampling plan which describes the location and frequency of crude oils to be sampled. The sampling plan will also include the appropriate sampling methods to be used.
- Provide means of containment to collect and transport the samples.
- Arrange for the acquisition of the samples at the chosen locations and ensure that the samples are acquired in a way that meets the research objectives.
- Arrange for the transport of the crude oil to locations determined by the Technical Authority.
- Arrange for any required property testing of the crude oils and ensure that testing is completed using appropriate standards or methods.
- Advise TC on maintaining sample integrity in experimental design.

The above tasks are described in greater detail below. Regardless of these tasks, individual TAs will be defined when needed and will include more detailed information, and additional or modified specifications.

## **5. SCOPE OF WORK**

### **5.1 Product Selection**

Transport Canada will define a general type of crude oil, unrefined, partially refined, refined petroleum product, other hydrocarbon or produced water (hereafter referred to as “product”). Examples of such types include light crude, medium crude, condensate, synthetic crude, dilbit, railbit and ethanol. TAs will generally require that the Contractor define specific crude oils or products that can be acquired to meet these general specifications and provide expert advice and guidance to the Technical Authority to aid in the selection of the most appropriate product(s). The TA may also request that the Contractor assist in determining the general type of product or provide alternate methods of supply if the desired product is not available.

### **5.2 Develop Sampling Plan**

TAs will generally require that the Contractor develop sampling plans to determine when, where, and how to collect the products defined in 5.1. Depending on the project being supported, the TA may require that less than a litre to tens of thousands of litres of product(s) be collected. Sampling plans must be delivered to the Technical Authority for review and approval prior to actual sampling. The Technical Authority will review draft sampling plans and provide comments, seek clarification, or request additional information, as appropriate. The Contractor will make the required adjustments, as applicable, and submit the final draft to the Technical Authority.

The plans will be presented as reports and must detail, at a minimum, the following information:

- sampling method and means of containment;
- geographic sampling locations and number of samples to be taken in those locations;
- specific sample point location (e.g. storage tank, loading lines for tank car);
- date for sampling to occur;
- nature of sampling site (e.g. transload facility, battery, etc.);





- anticipated crude or product sample type;
- anticipated time spent in transport and storage prior to delivery; and,
- any chemical property testing arranged by the Contractor.

### 5.3 Means of Containment

Unless otherwise specified, the Contractor must supply the means of containment to transport the petroleum products. The Contractor is responsible for proper classification of the product under the TDG regulations. The Contractor must ensure the means of containment meet all applicable environmental, transportation of dangerous goods, and other relevant federal, provincial, and local laws and regulations. The Contractor must only use a means of containment that is currently commercially available; that is to say, means of containment cannot be custom designed and manufactured under this contract.

The TA or the outcome of task 5.2 may require that some petroleum products be transported to or from the United States (US). In such cases, the Contractor must also ensure that the means of containment used meet all applicable US federal, state, municipal and local regulations. The means of containment selected must already be certified by Transport Canada and any other applicable regulators and that no equivalency certificates or special permits be required.

Unless otherwise stated by the Technical Authority, the following criteria must be satisfied by any means of containment used to sample or transport product:

- The properties and composition of the sampled petroleum products, including dissolved gasses (such as methane, ethane, propane, and butane), must be maintained at the source conditions and composition throughout sampling, handling and transportation.
- Samples must be taken under pressure and remain in a single phase when sampled and entering the means of containment.
- The samples must remain sealed and not come into contact with air while in the means of containment. Samples must never be exposed to the atmosphere during sampling, transportation, handling and delivery.
- A method of allowing for expansion and contraction of the sampled product must be provided while maintaining sample and means of containment integrity and insuring no release during transport.
- The means of containment must permit the removal of samples under pressure, in a single phase, and maintaining the properties and composition of the sample.

Canada recognizes that appropriate means of containment meeting the above criteria may not exist for some volumes of product required. Thus, means of containment selection must be considered early in each task. If an appropriate means of containment does not exist then the Technical Authority must be notified within 5 business days.

Unless otherwise stated by the Technical Authority, the Contractor must ensure that any means of containment used to fulfill obligations described in this contract are cleaned and purged prior to use. Canada will not own or maintain any means of containment used to fulfill the obligations described in this contract or any individual task authorization; however, Canada may be required to retain the means of containment provided by the contractor for a mutually agreed upon period of time to be negotiated as



part of the Task Authorization. When Canada has completed its use of the means of containment the contractor is responsible for taking possession of it at a location to be determined by Canada.

#### 5.4 Sample Collection

Unless otherwise specified, the Contractor must obtain all samples requested from tasks 5.1 and 5.2 or otherwise defined. Samples must be obtained using an existing means of containment that will ensure that all components of products present at the source are maintained throughout sampling, handling, transporting, and delivery. This includes all light hydrocarbon components (components with carbon numbers 1 through 5) and other volatile components (e.g. CO<sub>2</sub>, N<sub>2</sub>, H<sub>2</sub>S).

To help ensure this, samples must be taken under pressure and be in a single phase when entering and exiting the means of containment and must not be exposed to the atmosphere at any time during sampling, handling, transport, and delivery. Sample collection must follow all applicable Canadian and US federal, provincial, state, municipal and local laws and regulations. The standards and practices for collection of samples may include the following:

ASTM D4057 - 12 "Standard Practice for Manual Sampling of Petroleum and Petroleum Products"  
ASTM GPA 2174-14 "Obtaining Liquid Hydrocarbon Samples for Analysis by Gas Chromatography"  
ASTM D3700-14 "Obtaining LPG Samples Using a Floating Piston Cylinder"  
ASTM D8009-15 "Standard Practice for Manual Piston Cylinder Sampling for Volatile Crude Oils, Condensates, and Liquid Petroleum Products"

Newer, or modified versions of the above tests as well as alternate sampling methods may also be accepted upon consultation with Canada. The Contractor must develop/maintain a chain of custody procedure that is accepted by Canada for all samples. The chain of custody of the samples must be followed and recorded from sampling to delivery or to any testing location. The following information must be recorded and provided for each sample:

- Sample ID number to uniquely identify a sample
- Means of containment ID to uniquely identify the means of containment used to hold the sample
- Sample Date
- Name of company that provided the sample
- Facility Name
- Lease Description
- Field or Area
- Pool or Zone
- Sampling Point
- Sample Pressure (kPa)
- Sample Temperature (°C)
- Ambient Temperature (°C)
- Sample Type
- Elements upstream/downstream of the sample point such as:
  - Treaters, separators, etc.
  - If the sample is stored for weathering



- Any process the sample may undergo before and during loading into the means of containment
- The mode of transportation:
  - The source transportation mode (e.g. delivered by truck to rail terminal)
  - The destination mode of transportation (e.g. from storage tank onto rail car)
- The specification of the means of containment being sampled from

## 5.5 Transportation

TAs will generally require that the Contractor transport, or arrange the transport of, the samples to locations determined by the Technical Authority and any other testing locations required for any property testing done as part of Task 5.6. The samples must be transported in the means of containment provided as per Task 5.3. The Contractor must ensure that the samples are transported following all applicable Canadian and US federal, provincial, state, municipal and local laws and regulations.

## 5.6 Testing

The Contractor must test, or arrange the testing of, the properties of collected samples via a number of standards or accepted industry practices. Testing must be conducted using accredited laboratories (accreditation by the following organizations is acceptable: the Standards Council of Canada or the Canadian Association for Laboratory Accreditation). The results of these tests must be provided to the Technical Authority within two weeks of completion. These standards and practices may include the following:

ASTM D56-16 "Standard Test Method for Flash Point by Tag Closed Cup Tester"

ASTM D93-16 "Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester"

ASTM D7169-11 "Standard Test Method for Boiling Point Distribution of Samples with Residues Such as Crude Oils and Atmospheric and Vacuum Residues by High Temperature Gas Chromatography"

ASTM D8003-15a "Standard Test Method for Determination of Light Hydrocarbons and Cut Point Intervals in Live Crude Oils and Condensates by Gas Chromatography"

ASTM D5002-16 "Standard Test Method for Density and Relative Density of Crude Oils by Digital Density Analyzer"

ASTM D6377-16 "Standard Test Method for Determination of Vapor Pressure of Crude Oil: VPCRx (Expansion Method)" at 50 °C and a Vapor/Liquid (V/L) ratio of 4:1, 3:2, 1:2, 2:10, 5:100 or other temperatures and ratios as determined by the Technical Authority

True Vapour Pressure determination using an equation of state model at a temperature and pressure as determined by the Technical Authority

ASTM D323-15a "Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method) using procedure C and modified for a temperature of 50 °C (or other modifications to be determined by the Technical Authority)

ASTM D5705-15 "Standard Test Method for Measurement of Hydrogen Sulfide in the Vapor Phase Above Residual Fuel Oils"



ASTM D5623-94(2014) "Standard Test Method for Sulfur Compounds in Light Petroleum Liquids by Gas Chromatography and Sulfur Selective Detection"

Chemical composition of components with carbon numbers from C1 (methane) to C25 using ASTM D7169-11 and ASTM D8003-15a

Gas Oil Ratio by GC analysis

Average molecular weight via freezing point depression

ASTM D6579-11(2015) "Standard Practice for Molecular Weight Averages and Molecular Weight Distribution of Hydrocarbon, Rosin and Terpene Resins by Size-Exclusive Chromatography"

ASTM E203-16 "Standard Test Method for Water Using Volumetric Karl Fischer Titration"

ASTM D7042-16e2 "Standard Test Method for Dynamic Viscosity and Density of Liquids by Stabinger Viscometer (and the Calculation of Kinematic Viscosity)"

ASTM D5002-16 "Standard Test Method for Density and Relative Density of Crude Oils by Digital Density Analyzer"

ASTM D4052-15 "Standard Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter"

ASTM D7975-14 "Standard Test Method for Determination of Vapor Pressure of Crude Oil: VPCRx-F(Tm°C) (Manual Expansion Field Method)" with temperatures and ratios determined by the Technical Authority

ASTM D5291-10(2015) "Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants"

ASTM D4530-15 "Standard Test Method for Determination of Carbon Residue (Micro Method)"

ASTM D2503-92(2012) "Standard Test Method for Relative Molecular Mass (Molecular Weight) of Hydrocarbons by Thermoelectric Measurement of Vapor Pressure"

ASTM D3828-16 "Standard Test Methods for Flash Point by Small Scale Closed Cup Tester"

ASTM D7236-16 "Standard Test Method for Flash Point by Small Scale Closed Cup Tester (Ramp Method)"

GPA 2103-03 "Tentative Method for the Analysis of Natural Gas Condensate Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography"

GPA 2177-13 "Analysis of Natural Gas Liquid Mixtures Containing Nitrogen Carbon Dioxide by Gas Chromatography"

The above list is not exhaustive but is representative of some of the tests that the Contractor may be asked to have performed. Newer, or modified versions of the above tests may also be accepted upon consultation with Canada. Unless otherwise stipulated, the Contractor must ensure that testing is conducted so that results accurately represent the presence of all light hydrocarbon components (components with carbon numbers from C1 through C5) and other volatile components (e.g. CO<sub>2</sub>, N<sub>2</sub>, H<sub>2</sub>S) present in the samples unless the nature of the test standard does not support this.

## 5.7 Demonstration of Use of Means of Containment

Canada may request that the Contractor demonstrate the use and handling of means of containment provided by the Contractor to 3<sup>rd</sup> parties. This may include in-person training, documentation, videoconferences, pre-recorded videos transmitted electronically, or some other method.



For example, a laboratory conducting fire tests for Canada will sample some crude oil provided by the Contractor, using Contractor supplied sampling cylinders, just prior to the start of a fire test. Canada may request that the 3<sup>rd</sup> party lab technicians be trained on how to use the sampling cylinders.

## 5.8 Other Consulting Services

TAs may also require that the Contractor provide consulting services by senior engineers and subject matter experts to the Technical Authority. The consulting services may include:

- Crude oil selection,
- Maintaining the integrity of petroleum products during sampling, handling, experimental design, and testing,
- Experimental Design related to sampling and testing to maintain integrity of product sample,
- Means of Containment Design,
- Modeling,
- Tests and standards,
- Oil industry practices, and
- Oil industry operations

### 5.9.1 Constraints

Canada may need to retain the means of containment provided by the Contractor for a period of time before making them available again to the Contractor. Canada does not foresee retaining the means of containment(s) for longer than one month. Canada may require that a 3<sup>rd</sup> party contractor/partner use these means of containment for crude oil storage, and transfer during testing and/or sampling.

The means of containment that may be required under this contract can range from small (e.g. cylinders) to large (e.g. highway tank).

Crude oil properties can vary widely such that some may meet the definition of a liquid under the TDG Regulations and fall under a Class 3, Flammable Liquid category, and some may meet the definition of a gas under the TDG Regulations and fall under a Class 2, Gas category. Proper classification is critical to safe and proper transport and means of containment selection.

### 5.10 Sample Task Authorization

The following represents a sample or illustrative Task Authorization which would be further defined at a later date in the Task Authorization Form.

The Contractor must provide expert advice and guidance to the Technical Authority on a commonly produced Canadian medium crude oil to collect according to section 5.1. The Contractor must develop a sampling plan containing all of the information defined in section 5.2.

4000 L (+5%/-0%) of the medium crude oil must be obtained from a location determined according to section 5.2. The integrity of the product must be maintained as described in section 5.3 throughout sampling, handling, transportation, and delivery.



The Contractor must provide appropriate means of containment as described in section 5.3. The Contractor must collect the samples as per section 5.4 and deliver them to a location determined by the Technical Authority after the contract is awarded.

In addition to the 4000 L of product collected, the Contractor must ensure that sufficient quantity of the sampled product is collected for the following physical and chemical analysis in separate means of containment. Upon initial collection of the product samples, the Contractor will ensure the samples are tested as per section 5.6 using the following standards:

- ASTM D7169
- ASTM D8003
- ASTM D5002
- ASTM D6377 @ V/L 0.05:1, 0.2:1, 1:1, 4:1
- ASTM D5705
- GPA 2103
- GPA 2177

Canada will conduct fire testing using the 4000 L of provided product. Canada will need to retain the means of containment the 4000 L of provided product were delivered in for the duration of fire testing. When the product is delivered to the Technical Authority, the Contractor will also provide cleaned and purged sampling cylinders as per section 5.4 to collect sufficient product to conduct the following testing on 4 samples of this product. To ensure no change in product properties, prior to the fire testing Canada will take samples of the product using the sampling cylinders provided by the Contractor. The Technical Authority will need to retain the sampling cylinders provided by the contractor while fire testing takes place. Upon completion of fire testing, the Contractor is responsible for arranging the collection and transportation of the filled sampling cylinders and testing the samples using the following standards:

- ASTM D7169
- ASTM D8003
- ASTM D5002
- ASTM D6377 @ V/L 0.05:1, 0.2:1, 1:1, 4:1
- ASTM D5705
- GPA 2103
- GPA 2177
- Saturates, Aromatics, Resins, and Asphaltene Content (SARA)

In addition to the sampling cylinders described above, when the product is delivered to Canada the Contractor will also provide cleaned containers as per section 5.4 to collect sufficient product to conduct the following testing on 4 samples of any product residue remaining after combustion of the product. The Technical Authority will need to retain the sampling containers provided by the contractor while fire testing takes place. Upon completion of fire testing, the Contractor is responsible for arranging the collection and transportation of the filled sampling containers and testing the samples using the following standards:

- Mass % Carbon, Hydrogen, Nitrogen by pyrolytic technique



- Saturates, Aromatics, Resins, and Asphaltene Content (SARA)
- ASTM D7169
- Metals screening
- Total Sulfur
- Density via ASTM D5002 or ASTM D70 (whichever appropriate)
- Polycyclic Aromatic Hydrocarbon (PAH) analysis: characterization of petrogenic vs. pyrogenic PAHs and calculation of the Pyrogenic Index (PI)

The Contractor must clean and purge (as appropriate) all means of containment used to complete the above work and dispose of any residue product.

A report describing the results of Contractor-led testing must be delivered to the Technical Authority.

## 6. STORAGE AND DISPOSAL OF CRUDE OIL SAMPLES

The Contractor must follow all applicable Canadian hazardous materials regulations for proper storage and disposal of product samples, including the *Canada Oil and Gas Operations Act*, 1985.

## 7. RESOURCE QUALIFICATIONS

For each Task Authorization submitted to the Contractor, the contractor’s proposed resource(s) must demonstrate the following minimum level of experience:

- For tasks associated with section 5.4: 5 years of experience in collection of crude oil samples
- For tasks associated with section 5.5: 3 years of experience in developing requirements for or preparing crude oil for transport
- For tasks associated with section 5.6: 5 years of experience in testing and analyzing crude oil properties
- For tasks associated with section 5.6: Valid ISO 17025 accreditation
- For tasks associated with section 5.3: 5 years of experience in designing and building means of containment certified to transport class 2.1, class 2.3, and class 3 packing group I dangerous goods in Canada

For each area of expertise required under the contract (as per Section 5.8 Other Consulting Services), the Contractor will be required to provide resources with the following minimum levels of expertise:

Areas of Expertise	Level of Expertise (Years)		
	Junior 0 - 3	Intermediate 3.1 - 6	Senior 6.1 +
Product selection		X	X
Petroleum Product Integrity Specialist*		X	X



Experimental Design related to sampling and testing to maintain integrity of product sample		X	X
Means of Containment Design and Construction		X	X
Tests and standards	X	X	X
Oil industry practices		X	X
Oil industry operations		X	X

\*This person maintains the integrity of petroleum products during sampling, handling, experimental design, and testing

## 8. DELIVERABLES

Deliverables under the contract may include, but are not limited to:

- Sampling plan
- Lab test reports
- Progress reports
- Draft and final reports
- Final presentations

## 9. REPORTING

The Contractor must provide written or oral progress reports at the request of the Technical Authority or his/her designated representative(s). The Progress Reports must include the following:

- The status of the project including percent work completed by time
- Proposed approach(es)
- Implementation
- Results of work

to ensure that the project is progressing in accordance with the contract.

In addition to the timely submission of all deliverables and fulfillment of obligations specified in the contract, the Contractor must facilitate and maintain regular communication with the Technical Authority and to immediately notify the Technical Authority of any issues, problems, or areas of concern (e.g. delays) in relation to any work completed under the contract, as they arise. Communication may include: phone calls, electronic mail, faxes, and meetings.

## 10. TECHNICAL ENVIRONMENT

All reports must be delivered in electronic format using the most appropriate of formats a) through d) listed below. Any hard copy final documents (excluding progress reports) shall be bound in a professional





manner (e.g. cerlox, coil, tape bound, etc.). One electronic copy of all documents (including reports, presentations, and data sets) shall be delivered in the following formats, as appropriate:

- a) Adobe Acrobat (PDF)
- b) Microsoft Office (Word/Excel/PowerPoint)
- c) Native format of modeling tool or computer program

If information is provided using “c) Native format of modeling tool or computer program” then the same information must also be provided using one or more of formats a) through d). A copy of all reports and documentation shall be provided on completion of the contract, electronically in the format requested by the Technical Authority on an appropriate media (CD/DVD, USB, e-mail attachment, electronic file transmission system).

## **11. DEPARTMENTAL SUPPORT**

The Technical Authority will be responsible for providing, as required, direction and guidance to the contractor, and accepting and approving contractor deliverables on behalf of the department.

## **12. TRAVEL**

The Contractor may be required to travel to perform the work under this contract. All travel must be approved in writing, in advance, by



**ANNEX B  
BASIS OF PAYMENT**

**1. LABOUR**

A firm, all inclusive hourly rate for each labour area of expertise related to Consulting Services:

<i>Area of Expertise</i>	<i>Initial Period</i>	<i>Option Period 1</i>	<i>Option Period 2</i>	<i>Option Period 3</i>
<b>Junior</b>				
Modeling	\$	\$	\$	\$
Tests and standards	\$	\$	\$	\$
<b>Intermediate</b>				
Product selection	\$	\$	\$	\$
Petroleum Product Integrity Specialist*	\$	\$	\$	\$
Experimental Design	\$	\$	\$	\$
Means of Containment Design and Construction	\$	\$	\$	\$
Modeling	\$	\$	\$	\$
Tests and standards	\$	\$	\$	\$
Oil industry practices	\$	\$	\$	\$
Oil industry operations	\$	\$	\$	\$
<b>Senior</b>				
Product selection	\$	\$	\$	\$
Petroleum Product Integrity Specialist*	\$	\$	\$	\$
Experimental Design	\$	\$	\$	\$
Means of Containment Design and Construction	\$	\$	\$	\$
Modeling	\$	\$	\$	\$
Tests and standards	\$	\$	\$	\$
Oil industry practices	\$	\$	\$	\$
Oil industry operations	\$	\$	\$	\$

\*This resource maintains the integrity of petroleum products during sampling, handling, experimental design, and testing

**TOTAL Cost to a Limitation of Expenditure: \$ \_\_\_\_\_**



**2. SAMPLE COLLECTION**

A firm, all inclusive price per site for Sample Collection, including the Means of Containment (MOC), excluding travel and living:

	<i>Description</i>	<i>Initial Period</i>	<i>Option Period 1</i>	<i>Option Period 2</i>	<i>Option Period 3</i>
Sample Collection	Pressurized MoC: 0 – 1 litres	\$	\$	\$	\$
Sample Collection	Pressurized MoC: 2 – 50 litres	\$	\$	\$	\$
Sample Collection	Pressurized MoC: 51 – 250 litres	\$	\$	\$	\$
Sample Collection	Ambient MoC: 0 – 1 litres	\$	\$	\$	\$
Sample Collection	Ambient MoC: 2 – 50 litres	\$	\$	\$	\$
Sample Collection	Ambient MoC: 51 – 250 litres	\$	\$	\$	\$

**TOTAL Cost to a Limitation of Expenditure: \$ \_\_\_\_\_**

Sample collection for both volumes exceed 250 litres for both pressurized and ambient MoC are to be negotiated at time of Task Authorization. Price support in the form of a prior invoice, published price list or contract must be provided.

**3. TESTING**

A firm, all inclusive unit price per test:

<i>Test</i>	<i>Description</i>	<i>Initial Period</i>	<i>Option Period 1</i>	<i>Option Period 2</i>	<i>Option Period 3</i>
ASTM 93-15 Tester	Standard Test Methods for Flash Point by Pensky-Martens Closed Cup	\$	\$	\$	\$
ASTM D56-05 (2010)	Standard Test Method for Flash Point by Tag Closed Cup Tester	\$	\$	\$	\$
ASTM D2503-92 (2012)	Standard Test Method for Relative Molecular Mass (Molecular Weight) of Hydrocarbons by Thermoelectric Measurement of Vapor Pressure	\$	\$	\$	\$
ASTM D323-15a	Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method) using procedure C and modified for a temperature of 50 °C	\$	\$	\$	\$
ASTM D3828-16	Standard Test Methods for Flash Point by Small Scale Closed Cup Tester	\$	\$	\$	\$
ASTM D4052-11	Standard Test Method for Density, Relative Density, and API Gravity of Liquids by Digital Density Meter	\$	\$	\$	\$
ASTM D4530	Standard Test Method for Determination of Carbon Residue (Micro Method)	\$	\$	\$	\$
ASTM D5002 or ASTM D70	Density via (whichever appropriate)	\$	\$	\$	\$



<b>Test</b>	<b>Description</b>	<b>Initial Period</b>	<b>Option Period 1</b>	<b>Option Period 2</b>	<b>Option Period 3</b>
ASTM D5002-13	Standard Test Method for Density and Relative Density of Crude Oils by Digital Density Analyzer	\$	\$	\$	\$
ASTM D5291-10 (2015)	Standard Test Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants	\$	\$	\$	\$
ASTM D5623-94 (2014)	Standard Test Method for Sulfur Compounds in Light Petroleum Liquids by Gas Chromatography and Sulfur Selective Detection	\$	\$	\$	\$
ASTM D5705-15	Standard Test Method for Measurement of Hydrogen Sulfide in the Vapor Phase Above Residual Fuel Oils	\$	\$	\$	\$
ASTM D6377-15	Standard Test Method for Determination of Vapor Pressure of Crude Oil: VPCRx (Expansion Method)	\$	\$	\$	\$
ASTM D6579-11 (2015)	Standard Practice for Molecular Weight Averages and Molecular Weight Distribution of Hydrocarbon, Rosin and Terpene Resins by Size-Exclusive Chromatography	\$	\$	\$	\$
ASTM D7169-11	Standard Test Method for Boiling Point Distribution of Samples with Residues Such as Crude Oils and Atmospheric and Vacuum Residues by High Temperature Gas Chromatography	\$	\$	\$	\$
ASTM D8003-15	Standard Test Method for Determination of Light Hydrocarbons and Cut Point Intervals in Live Crude Oils and Condensates by Gas Chromatography	\$	\$	\$	\$
ASTM D7042-14	Standard Test Method for Dynamic Viscosity and Density of Liquids by Stabinger Viscometer (and the Calculation of Kinematic Viscosity)	\$	\$	\$	\$
ASTM D7169-11	Chemical composition of components with carbon numbers from C1 (methane) to C25	\$	\$	\$	\$
ASTM D7236-16	Standard Test Method for Flash Point by Small Scale Closed Cup Tester (Ramp Method)	\$	\$	\$	\$
ASTM D7975-14	Standard Test Method for Determination of Vapor Pressure of Crude Oil: VPCRx-F(Tm°C) (Manual Expansion Field Method)	\$	\$	\$	\$



<b>Test</b>	<b>Description</b>	<b>Initial Period</b>	<b>Option Period 1</b>	<b>Option Period 2</b>	<b>Option Period 3</b>
ASTM D8003-15	Chemical composition of components with carbon numbers from C1 (methane) to C25	\$	\$	\$	\$
ASTM E203-08	Standard Test Method for Water Using Volumetric Karl Fischer Titration	\$	\$	\$	\$
GPA 2103-03	Tentative Method for the Analysis of Natural Gas Condensate Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography	\$	\$	\$	\$
GPA 2177-13	Analysis of Natural Gas Liquid Mixtures Containing Nitrogen Carbon Dioxide by Gas Chromatography	\$	\$	\$	\$
	True Vapour Pressure determination using an equation of state model at a temperature and pressure	\$	\$	\$	\$
	Gas Oil Ratio by GC analysis	\$	\$	\$	\$
	Average molecular weight via freezing point depression	\$	\$	\$	\$
	Saturates, Aromatics, Resins, and Asphaltene Content (SARA)	\$	\$	\$	\$
	Mass % Carbon, Hydrogen, Nitrogen by pyrolytic technique	\$	\$	\$	\$
	Metals screening	\$	\$	\$	\$
	Total Sulfur	\$	\$	\$	\$
	Polycyclic Aromatic Hydrocarbon (PAH) analysis: characterization of petrogenic vs. pyrogenic PAHs and calculation of the Pyrogenic Index (PI)	\$	\$	\$	\$

**TOTAL Cost to a Limitation of Expenditure: \$ \_\_\_\_\_**

**4. LOAN OF MEANS OF CONTAINMENT**

Firm, all inclusive daily rate for the loan of Contractor-owned means of containment (MoC):

<b>Volumes</b>	<b>Initial Period</b>	<b>Option Period 1</b>	<b>Option Period 2</b>	<b>Option Period 3</b>
Pressurized MoC: 0 – 1 litres	\$	\$	\$	\$
Pressurized MoC: 2 – 50 litres	\$	\$	\$	\$
Pressurized MoC: 51 – 250 litres	\$	\$	\$	\$
Ambient MoC: 0 – 1 litres	\$	\$	\$	\$
Ambient MoC: 2 – 50 litres	\$	\$	\$	\$
Ambient MoC: 51 – 250 litres	\$	\$	\$	\$

**TOTAL Cost to a Limitation of Expenditure: \$ \_\_\_\_\_**



**5. OTHER DIRECT COSTS**

At actual cost with no provision for mark up.

Description	Initial Period	Option Period 1	Option Period 2	Option Period 3
{ define }				
{ list subcontractors }				

**TOTAL Cost to a Limitation of Expenditure: \$ \_\_\_\_\_**

**6. TRAVEL & LIVING**

The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the [National Joint Council Travel Directive](#) and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

All travel must have the prior authorization of Project Authority.

All payments are subject to government audit.

**Total Cost to a Limitation of Expenditure: \$ \_\_\_\_\_**

**7. TOTAL ESTIMATED COST TO A LIMITATION OF EXPENDITURE:**

With the exception of the firm rate(s) and price(s), the amounts shown in the various elements specified above are estimates only. Minor changes to these estimates will be accepted for billing purposes as the Work proceeds, provided that these changes have the prior approval of the Technical Authority, and provided that the estimated cost does not exceed the Limitation of Expenditure detailed at article 5.1.2 of the Contract.

**Total Cost to a Limitation of Expenditure: \$ \_\_\_\_\_**



## ANNEX C INSURANCE REQUIREMENTS

### Commercial General Liability Insurance

1. The Contractor must obtain Commercial General Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$2,000,000 per accident or occurrence and in the annual aggregate.
2. The Commercial General Liability policy must include the following:
  - a. Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada should read as follows: Canada, as represented by Public Works and Government Services Canada.
  - b. Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.
  - c. Products and Completed Operations: Coverage for bodily injury or property damage arising out of goods or products manufactured, sold, handled, or distributed by the Contractor and/or arising out of operations that have been completed by the Contractor.
  - d. Personal Injury: While not limited to, the coverage must include Violation of Privacy, Libel and Slander, False Arrest, Detention or Imprisonment and Defamation of Character.
  - e. Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
  - f. Blanket Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
  - g. Employees and, if applicable, Volunteers must be included as Additional Insured.
  - h. Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program)
  - i. Broad Form Property Damage including Completed Operations: Expands the Property Damage coverage to include certain losses that would otherwise be excluded by the standard care, custody or control exclusion found in a standard policy.
  - j. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
  - k. If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
  - l. Owners' or Contractors' Protective Liability: Covers the damages that the Contractor becomes legally obligated to pay arising out of the operations of a subcontractor.



- m. Non-Owned Automobile Liability - Coverage for suits against the Contractor resulting from the use of hired or non-owned vehicles.
- q. Sudden and Accidental Pollution Liability (minimum 120 hours): To protect the Contractor for liabilities arising from damages caused by accidental pollution incidents.
- r. Litigation Rights: Pursuant to subsection 5(d) of the [Department of Justice Act](#), S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, by registered mail or by courier, with an acknowledgement of receipt.

**For the province of Quebec, send to:**

*Director Business Law Directorate,  
Quebec Regional Office (Ottawa),  
Department of Justice,  
284 Wellington Street, Room SAT-6042,  
Ottawa, Ontario, K1A 0H8*

**For other provinces and territories, send to:**

*Senior General Counsel,  
Civil Litigation Section,  
Department of Justice  
234 Wellington Street, East Tower  
Ottawa, Ontario K1A 0H8*

A copy of the letter must be sent to the Contracting Authority. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.

**Errors and Omissions Liability Insurance**

1. The Contractor must obtain Errors and Omissions Liability (a.k.a. Professional Liability) insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature but for not less than \$1,000,000 per loss and in the annual aggregate, inclusive of defence costs.
2. If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
3. The following endorsement must be included:





Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of cancellation.

### **Environmental Impairment Liability Insurance**

1. The Contractor must obtain Contractor's Pollution Liability insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$1,000,000 per accident or occurrence and in the annual aggregate.
2. If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
3. The Contractor's Pollution Liability policy must include the following:
  - a. Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada as additional insured should read as follows: Canada, represented by Public Works and Government Services Canada.
  - b. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
  - c. Separation of Insureds: The policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
  - d. Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
  - e. Incidental Transit Extension: The policy must extend to losses arising from any waste, products or materials transported, shipped, or delivered via any transportation mode to a location beyond the boundaries of a site at which the Contractor or any entity for which the Contractor is legally liable is performing or has performed the operations described in the contract.
  - f. Storage Tank Third-Party Liability - The policy must extend to off-site third party bodily injury and property damage due to releases from storage tanks (above and below ground). Coverage must include corrective action and clean-up due to releases from storage tanks.
  - g. Litigation Rights: Pursuant to subsection 5(d) of the [Department of Justice Act](#), S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, by registered mail or by courier, with an acknowledgement of receipt.

**For the province of Quebec, send to:**

*Director Business Law Directorate,  
Quebec Regional Office (Ottawa),  
Department of Justice,*



*284 Wellington Street, Room SAT-6042,  
Ottawa, Ontario, K1A 0H8*

**For other provinces and territories, send to:**

*Senior General Counsel,  
Civil Litigation Section,  
Department of Justice  
234 Wellington Street, East Tower  
Ottawa, Ontario K1A 0H8*

A copy of the letter must be sent to the Contracting Authority. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.

**Automobile Liability Insurance**

1. The Contractor must obtain Automobile Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$2,000,000 per accident or occurrence.
2. The policy must include the following:
  - a. Third Party Liability - \$2,000,000 Minimum Limit per Accident or Occurrence
  - b. Accident Benefits - all jurisdictional statutes
  - c. Uninsured Motorist Protection
  - d. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of cancellation.
  - e. OPCF/SEF/QEF #3 - Drive Government Automobiles Endorsement



**ANNEX D  
FORM TPSGC-PWGSC 572 TASK AUTHORIZATION**

<b>Task Authorization Autorisation de tâche</b>		Contract Number – Numéro du contrat
Contractor's Name and Address – Nom et l'adresse de l'entrepreneur	Task Authorization (TA) No. – No de l'autorisation de tâche (AT)	
	Title of the task, if applicable – Titre de la tâche, s'il y a lieu	
	Total Estimated Cost of Task (Applicable Taxes extra) Coût total estimative de la tâche (Taxes applicables en sus) \$	

Security Requirements : this task includes security requirements  
Exigences relatives à la sécurité : Cette tâche comprend des exigences relatives à la sécurité

No - Non       Yes - Oui      If YES, refer to the Security Requirements check List (SRCL) included in the contract  
Si OUI, voir la Liste de vérification des exigences relative à la sécurité (LVERS) dans le contrat

→

For Revision only – Aux fins de révision seulement		
TA Revision Number, if applicable Numéro de révision de l'AT, s'il y a lieu	Total Estimated Cost of Task (Applicable taxes extra) before the revision Coût total estimative de la tâche (Taxes applicables en sus) avant la révision \$	Increase or Decrease (Applicable taxes extra), as applicable Augmentation ou réduction (Taxes applicables en sus), s'il y a lieu \$

**Start of the Work for a TA: Work cannot commence until a TA has been authorized in accordance with the conditions of the contract.**

**Début des travaux pour l'AT : Les travaux ne peuvent pas commencer avant que l'AT soit autorisée conformément au contrat.**

**1. Required Work: – Travaux requis :**

A. Task Description of the Work Required – Description de tâche des travaux requis	See Attached – Ci-joint <input type="checkbox"/>
B. Basis of Payment – Base de paiement	See Attached – Ci-joint <input type="checkbox"/>
C. Cost of Task – Coût de la tâche	See Attached – Ci-joint <input type="checkbox"/>
D. Method of Payment – Méthode de paiement	See Attached – Ci-joint <input type="checkbox"/>



<b>2. Authorization(s) – Autorisations(s)</b>	
<p>By signing this TA, the authorized client and (or) the PWGSC Contracting Authority certify(ies) that the content of this TA is in accordance with the conditions of the contract.</p> <p>The client's authorization limit is identified in the contract. When the value of a TA and its revisions is in excess of this limit, the TA must be forwarded to the PWGSC Contracting Authority for authorization.</p>	<p>En apposant sa signature sur l'AT, le client autorisé et (ou) l'autorité contractante de TPSGC atteste(nt) que le contenu de cette AT respecte les conditions du contrat.</p> <p>La limite d'autorisation du client est précisée dans le contrat. Lorsque la valeur de l'AT et ses révisions dépasse cette limite, l'AT doit être transmise à l'autorité contractante de TPSGC pour autorisation.</p>
<hr/> <p>Name and title of authorized client – Nom et titre du client autorisé à signer</p>	
<hr/> <p>Signature</p>	<hr/> <p>Date</p>
<hr/> <p>PWGSC Contracting Authority – Autorité contractante de TPSGC</p>	
<hr/> <p>Signature</p>	<hr/> <p>Date</p>

<b>3. Contractor's Signature – Signature de l'entrepreneur</b>	
<hr/> <p>Name and title of individual authorized to sign for the Contractor Nom et titre de la personne autorisée à signer au nom de l'entrepreneur</p>	
<hr/> <p>Signature</p>	<hr/> <p>Date</p>



## ANNEX E

### FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY – CERTIFICATION

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit [Employment and Social Development Canada \(ESDC\) – Labour's](#) website.

Date: \_\_\_\_\_ (YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

A. Check only one of the following:

- A1. The Bidder certifies having no work force in Canada.
- A2. The Bidder certifies being a public sector employer.
- A3. The Bidder certifies being a federally regulated employer being subject to the Employment Equity Act.
- A4. The Bidder certifies having a combined work force in Canada of less than 100 permanent full-time and/or permanent part-time employees.

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

- A5.1. The Bidder certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.

OR

- A5.2. The Bidder certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

- B1. The Bidder is not a Joint Venture.

OR

- B2. The Bidder is a Joint venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions).