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PART 1 – GENERAL INFORMATION

1. Introduction

The bid solicitation is divided into seven parts plus attachments and annexes, as follows:

- Part 1 General Information:** provides a general description of the requirement;
- Part 2 Bidder Instructions:** provides the instructions, clauses and conditions applicable to the bid solicitation;
- Part 3 Bid Preparation Instructions:** provides bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection:** indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;
- Part 5 Certifications:** includes the certifications to be provided;
- Part 6 Security, Financial and Other Requirements:** includes specific requirements that must be addressed by bidders; and
- Part 7 Resulting Contract Clauses:** includes the clauses and conditions that will apply to any resulting contract.

The Annexes include:

Annex "A" - the Statements of Work

Annex "B" - the Basis of Payment

and any other annexes.

2. Summary

By means of the RFP, NRCAN is seeking proposals from suppliers to design and carry-out large-scale furnace tests at the kilogram-scale, and perform a critical review of furnaces used in the direct reduction of iron and simulations of two (2) relevant furnaces for assessing their applicability and use on direct reduction of chromite.

The period of the Contract for Requirement 1 shall be from **date of award** to **March 31, 2018**.

2.1 Security Requirement

There is no security requirements associated with either of these requirements and any resulting contract(s).

2.2 Trade Agreements

The requirement is subject to the provisions of the North American Free Trade Agreement (NAFTA), the Canada-Chile Free Trade Agreement, the Canada-Colombia Free Trade Agreement, the Canada-Honduras Free Trade Agreement, the Canada-Panama Free Trade Agreement, The Canada-Peru Free Trade Agreement and the Agreement on Internal Trade (AIT).

3. 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

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 (2017-04-27), Standard Instructions - Goods or Services - Competitive Requirements**, are incorporated by reference into and form part of the bid solicitation with the modifications to the text below. If there is a conflict between the provisions of 2003 and this document, this document prevails.

In the complete text content (except Section 1 – Integrity Provisions – Bid):

DELETE: Public Works and Government Services Canada (PWGSC)

INSERT: Natural Resources Canada (NRCan)

In Section 2 – Procurement Business Number:

DELETE: “Suppliers are required to”

INSERT: “It is suggested that suppliers”

In Section 5.4 – Submission of Bids:

DELETE: sixty (60) days

INSERT: one hundred and twenty (120) days

In Section 8.1 – Transmission by Facsimile:

DELETE: 819-997-9776

INSERT: 613-992-2920

In Section 20.2 – Further Information:

DELETE: in its entirety

2. Submission of Bids

It is the Bidders responsibility to ensure that proposals are delivered to the following location, by the time and date indicated on page 1 of this RFP document:

Natural Resources Canada
Bid Receiving Unit – Loading Dock Access
588 Booth Street, Room 108
Ottawa, Ontario K1A 0Y7
Attention: **Valerie Holmes**

It is requested that the Bidder’s name, return address, Request for Proposal Number, and Bid Closing Date appear legibly on the outside of the envelope containing the Bidder’s proposal. Failure to do so may result in bids being misdirected. **NRCan will not assume responsibility for proposals directed to any other location.**

The onus is on the Bidder to ensure that the proposal is delivered to the location above. Not complying with the above instructions may result in NRCan’s inability to ascertain reception date and/or to consider the bid prior to contract award. Therefore, NRCan reserves the right to reject any proposal not complying with these instructions.



- 2.1 Due to the nature of the bid solicitation, bids transmitted by facsimile or electronic mail to NRCan will not be accepted.

3. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than **seven (7)** calendar days before the bid closing date. Enquiries received after that time may not be answered.

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

4. Applicable Laws

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

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

5. Improvement of Requirement During Solicitation Period

Should bidders consider that the specifications or Statement of Work contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least **five (5)** days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

6. Basis for Canada's Ownership of Intellectual Property

Natural Resources Canada has determined that any intellectual property rights arising from the performance of the Work under the resulting contract will belong to Canada, on the following grounds:

- the main purpose of the contract, or of the deliverables contracted for, is to generate knowledge and information for public dissemination



PART 3 – BID PREPARTION INSTRUCTIONS

1. Bid Preparation Instructions

NRCan will accept your bids in one of the following formats:

HARD COPY:

Section I: Technical Bid – 4 copies (1 original, 3 copies)

Section II: Financial Bid - 1 copy, **under separate cover**. Prices related to the current solicitation must appear in the financial bid only and are not to be indicated in any other section of the bid; prices referenced in the financial bid should not to be repeated in any other section of the bid.

Section III: Certifications – 1 copy

Natural Resources Canada encourages the use of recycled paper and **two-sided printing**. Reduction in the size of documents will contribute to Natural Resources Canada’s sustainable development initiatives and reduce waste.

OR:

In support of the Policy on Green Procurement, it is requested that bidders provide their bid as follows:

ELECTRONIC STORAGE MEDIA:

Since NRCan is working towards a greener environment by eliminating all hard copy file folders, we prefer to have all bids on a CD/DVD or USB. If you wish to submit in this format, please provide the following:

Section I: Technical Bid – 1

NOTE: 1 CD/DVD/USB will contain: 1 Technical, sole Financial Bid, Certifications and signed first page (Original)

Section II: Financial Bid - 1 copy (included with original Technical Bid – saved separately).

Section III: Certifications – 1 copy (included with original Technical Bid and sole Financial Bid – saved separately)

Note: NRCan will accept either Hard copy or Electronic Storage Media submitted bids. However, it is NRCan’s preference that you submit using Electronic Storage Media in order to adhere to our green initiative.

NOTE: WHEN SUBMITTING A BID TO THIS SOLICITATION AND YOU USE A COURIER SERVICE, YOU ARE ADVISED TO WRITE THE BID SOLICITATION NUMBER, CLOSING DATE AND TIME ON THE FRONT OF THE COURIER PACKAGE; NOT JUST ON THE ENVELOPES WITHIN THE COURIER PACKAGE IN ORDER TO AVOID ANY UNCERTAINTY FROM OUR BID RECEIPT UNIT WHEN RECEIVING BIDS WITHOUT ANY INDICATION WHAT THEY ARE FOR.

No payment shall be made for costs incurred by the Bidder in the preparation and submission of a proposal in response to this RFP.

To assist Canada in reaching its objectives, bidders are encouraged to:

- i. use paper containing fibre certified as originating from a sustainably-managed forest and/or containing minimum 30% recycled content; and



- ii. 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.
- iii. use a numbering system that corresponds to the bid solicitation.

1. 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 must demonstrate their capability and describe their approach in a thorough, concise and clear manner for successfully carrying out the work as described in the Annex "A" – Statement of Work".

Bidders must respond to government bid solicitations in an honest, fair and comprehensive manner, accurately reflect their capacity to satisfy the requirements stipulated in the bid or contract documents, and submit bids and enter into contracts only if they will fulfill all obligations of the contract.

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 and may result in a loss of points. 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.

It is the responsibility of the Bidder to obtain clarification of the requirements contained in the RFP, if necessary, prior to submitting a proposal. The Bidder must provide sufficient details in its proposal to substantiate compliance with what is required; all professional experience must be fully documented and substantiated in the proposal(s).

In the event of a proposal submitted through contractual joint venture, the proposal shall either be signed by all members of the joint venture or a statement shall be provided to the effect that the signatory represents all parties of the joint venture. (All members of the joint venture shall be jointly and severally or solidarily liable for the performance of any resulting contract awarded as a result of a joint venture.)

2. Page 1 of the RFP Document

It is mandatory that all bidders sign their submitted proposal. It is requested that all bidders complete, sign and date Page 1 of this RFP (including the name of the submitting organization, the name of the authorized signing person, appropriate addresses, telephone and facsimile numbers and business contact) when submitting their proposal. As the signature indicates a clear acceptance of the terms and conditions set out in the RFP, it is the Bidder's responsibility to ensure that the signatory has the authority within its organization to commit the Bidder by making such a contractual offer.

As per article 1 of Part 2, the Bidder hereby agrees, by submitting his/her proposal in response to this RFP, to all the instructions, terms, conditions and clauses detailed herein.

3. Section II: Financial Bid

Bidders must submit their financial bid in accordance with Annex "B"- Financial Proposal at the pre-determined rates provided. The total amount of Goods and Services Tax or Harmonized Sales Tax must be shown separately, if applicable.

All bids are evaluated in Canadian currency. Therefore, for evaluation purposes, the noon rate quoted by the Bank of Canada as being in effect on date of bid closing will be applied as the initial conversion factor for the specified currency.



Canada will pay the exchange rate adjustment amount in Canadian currency using the prevailing noon rate on the date of payment by Canada.

3.1 Exchange Rate Fluctuation

C3011T (2013-11-06), Exchange Rate Fluctuation

4. Section III: Certifications

Bidders must submit the certifications as per Part 5.



PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

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

1.1 Mandatory Technical Evaluation

Item	Mandatory Requirement	Compliant (Yes/No)	Reference to Bidder's Proposal
M1	<p>General Description of the Work to be Performed:</p> <p>The Bidder MUST provide a proposal including a detailed work plan for fulfilling the mandate, specifically, describing the work to be done to meet the requirements and a full description of how all deliverables described in this Statement of Work will be met.</p> <p>The work plan will include:</p> <ul style="list-style-type: none"> • Introduction: that demonstrates the Bidder understands the project mandate, the Ring of Fire chromite issues, the NRCan program for chromite R&D, and potential challenges and risks; • Detailed Work Plan: information on the work to be performed, including a complete description of the approach, methodology, equipment, activities to be carried out in relation to each task, resources to be used and contingencies for mitigating risks to ensure deliverables are completed on time; • Task Framework: a table showing the breakdown of work including the number of hours allowed on each task, delivery dates of each deliverable and the resource name; • Proposal Length: the technical proposal (work description) must not exceed twenty (20) pages. If the technical proposal exceeds the maximum number of pages, NRCan reserves the right to only review the first twenty (20) pages. (Note: CVs are not part of this total) 	<input type="checkbox"/> Yes <input type="checkbox"/> No	
M2	<p>Bidder's Company Experience:</p> <p>The Bidder MUST provide at least one (1) project example related to previous work of a similar nature related to smelting tests completed within the past ten (10) years. The Bidder MUST have experience in performing smelting tests / experiments that are similar in scope to the proposed worked detailed in Annex "A" – Statement of Work.</p> <p>The project example should contain the following:</p> <ul style="list-style-type: none"> • Project description • Time period (e.g. October 2012 to September 2016) 	<input type="checkbox"/> Yes <input type="checkbox"/> No	



Item	Mandatory Requirement	Compliant (Yes/No)	Reference to Bidder's Proposal
	<ul style="list-style-type: none"> Client name and point of contact information (for validation purposes only) 		
M3	<p>Bidder's Proposed Resources:</p> <p>The Bidder MUST demonstrate that they have the proper facilities and equipment to perform the proposed work (i.e. ferrochrome smelting experiments aimed at sampling dust and fumes) and that the Project Manager and/or the Principal Investigator must have experience in conducting studies similar to the proposed work (i.e. smelting studies)</p> <p>All experience requirements must have been acquired within the last ten (1) years. The Bidder may propose more than one (1) resource but at a minimum, main resources must have experience in each field</p> <ul style="list-style-type: none"> List of equipment and description of the facility Copies of the curriculum vitae (CV) – not part of the 20 page total 	<input type="checkbox"/> Yes <input type="checkbox"/> No	

1.2 Point Rated Technical Criteria

Point Rated Requirements:																								
Item	Requirement	Points Breakdown for each requirement:	Max Points per requirement	Illustrated Compliance																				
R1	<p>Resource Qualifications:</p> <p>The proposal should demonstrate that the Bidder has the appropriate facility and equipment to conduct the proposed work (i.e. ferrochrome smelting experiments aimed at sampling of dust and fumes) and that the proposed resources have knowledge and experience directly related to the project requirements. (CV of resources including the list of projects completed)</p> <ol style="list-style-type: none"> Facilities and Consultants Experience: <ul style="list-style-type: none"> Facility and equipment (10 points) Team Experience (two (2) main resources (e.g. Project Manager, Principal Investigator) in smelting test work with satisfactory client feedback (10 points) Team experience in conducting ferrochrome-related smelting or reduction tests and experiments (10 points) Team experience with chromite stakeholders (5 points) 	<p>10 points for facilities and equipment:</p> <table> <tr><td>Excellent</td><td>10</td></tr> <tr><td>Very Good</td><td>8</td></tr> <tr><td>Good</td><td>6</td></tr> <tr><td>Poor/Unsatisfactory</td><td>1</td></tr> <tr><td>Inadequate</td><td>0</td></tr> </table> <p>10 points for team experience in smelting test work with satisfactory client feedback:</p> <table> <tr><td><5 years of experience and/or unsatisfactory client feedback</td><td>0</td></tr> <tr><td>5 years</td><td>1</td></tr> <tr><td>>5 – 7 years</td><td>6</td></tr> <tr><td>>7 – 10 years</td><td>8</td></tr> <tr><td>>10 years</td><td>10</td></tr> </table> <p>10 points for team experience in</p>	Excellent	10	Very Good	8	Good	6	Poor/Unsatisfactory	1	Inadequate	0	<5 years of experience and/or unsatisfactory client feedback	0	5 years	1	>5 – 7 years	6	>7 – 10 years	8	>10 years	10	40	
Excellent	10																							
Very Good	8																							
Good	6																							
Poor/Unsatisfactory	1																							
Inadequate	0																							
<5 years of experience and/or unsatisfactory client feedback	0																							
5 years	1																							
>5 – 7 years	6																							
>7 – 10 years	8																							
>10 years	10																							



Point Rated Requirements:				
Item	Requirement	Points Breakdown for each requirement:	Max Points per requirement	Illustrated Compliance
	5. Team and facility experience for conducting collaborative research and development work leading to commercializing results (5 points)	<p>conducting ferrochrome-related smelting or reduction tests and experiments:</p> <ul style="list-style-type: none"> <5 years of experience and/or unsatisfactory client feedback 0 5 years 1 >5 – 7 years 6 >7 – 10 years 8 >10 years 10 <p>5 points for teams experience with chromite project stakeholders:</p> <ul style="list-style-type: none"> <1 year of experience and/or unsatisfactory client feedback 0 1 – 4 years 2 >4 – 7 years 4 >7 years 5 <p>5 points for team and facility experience for conducting collaborative research and development work leading to commercializing results:</p> <ul style="list-style-type: none"> <1 year of experience and/or unsatisfactory client feedback 0 1 – 4 years 2 >4 – 7 years 4 >7 years 5 		
R2	<p>Approach and Methodology:</p> <p>The Bidder will present a methodology clearly demonstrating an approach that will lead to the successful completion of the project.</p> <p>The proposal will be evaluated based on the following factors:</p> <p>a) Comprehension of the project needs and objectives (10 points)</p>	<p>a) 10 points for compensation of the project needs and objectives:</p> <ul style="list-style-type: none"> 0 = comprehension of the project needs and objectives and how the proposal addresses them poorly demonstrated 	50	



Point Rated Requirements:				
Item	Requirement	Points Breakdown for each requirement:	Max Points per requirement	Illustrated Compliance
	b) Methodology and work plan (40 points) – includes contingencies for mitigating risks and ensuring deliverables are met on time	<p>1-3 = comprehension of the project needs and objectives demonstrated, but little indication of how the proposal addresses needs</p> <p>4-10 = comprehension of the project needs and objectives clearly demonstrated, and excellent description of how the proposal addresses needs.</p> <p>b) 40 points for the research plan: 0-1 = limited description of methodology and work plan; requirements not all addressed clearly</p> <p>5-8 = basic description of methodology and work plan, but not all requirements addressed</p> <p>10-20 = adequate description of methodology and work plan, with all requirements clearly addressed including some contingencies for risks and alternate routes forward.</p> <p>30-40 = comprehensive description of methodology and work plan, with all requirements clearly addressed including contingencies for risks and a robust alternate route forward</p>		



Point Rated Requirements:				
Item	Requirement	Points Breakdown for each requirement:	Max Points per requirement	Illustrated Compliance
R3	Task Framework: The Bidder is to submit a clear, logical and well organized table indicating: <ul style="list-style-type: none"> • Tasks; • Proposed resources; • Milestones; • Schedule 	10 points for the task framework 0-1 = table is not well organized and/or does not contain all required information 4-6 = table is well organized and clearly shows all required information 7-10 = table is well organized, clearly shows all required information and demonstrates a realistic means of achieving deliverables	10	
Total Points Available			100	
Total Points Needed to be Considered Compliant (60%)			60	

2. Basis of Selection

Highest Combined Rating of Technical Merit and Price

The responsive (compliant) Bidder with the highest combined rating of technical merit (**70%**) and price (**30%**) will be recommended for award of a contract. See the following example table below.

Example of 70% Technical Merit and 30% Price Determination			
	Bidder 1	Bidder 2	Bidder 3
Technical Points Achieved by Bidder	88	82	76
Price Quoted by Bidder	\$85,000	\$80,000	\$75,000
CALCULATIONS			
	Technical Points Achieved	Rated Price Points Achieved	Total Points Achieved
Bidder 1	$\frac{88 \times 70}{88} = 70.00$	$\frac{**75 \times 30}{85} = 26.47$	96.47
Bidder 2	$\frac{82 \times 70}{88} = 65.23$	$\frac{**75 \times 30}{80} = 28.13$	93.36



Bidder 3	$\frac{76 \times 70}{*88} = 60.45$	$\frac{**75 \times 30}{75} = 30.00$	90.45
* Represents the highest technical score ** Represents the lowest priced proposal			

Assumption: Three responsive (compliant) bids have been received. The maximum technical score that can be obtained is 100 points. The highest technical score and lowest bid price receive full rated percentage and other proposals are pro-rated accordingly.

The winner is the Bidder scoring the highest Total Points as a result of applying the Best Value Calculations to the technical bid and the bid price respectively. Based on the above calculations a contract would be awarded to Bidder 1.



PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. 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.

1. Certifications Required with the Bid

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

1.1 Declaration of Convicted Offences

In accordance with the Ineligibility and Suspension Policy (<http://www.tpsgcpwgsc.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.

Note: Bidders are only required to fill out this form if they have been convicted of a criminal offence.

2. Certifications Precedent to Contract Award and Additional Information

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

2.1 Integrity Provisions – List of Names

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.

- Bidders who are incorporated, including those bidding as a joint venture, must provide a complete list of names of all individuals who are currently directors of the Bidder or, in the case of a private company, the owners of the company.
- Bidders bidding as sole proprietorship, as well as those bidding as a joint venture, must provide the name of the owner(s).
- Bidders bidding as partnerships do not need to provide lists of names.
Name of Bidder: _____

OR

Name of each member of the joint venture:

Member 1: _____

Member 2: _____



Member 3: _____

Member 4: _____

Identification of the administrators/owners:

SURNAME	NAME	TITLE

3. Additional Certifications Precedent to Contract Award

3.1 Status and Availability of Resources

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability.

3.2 Rate or Price Certification

The Bidder certifies that the price proposed is not in excess of the lowest price charged anyone else, including the Bidder's most favoured customer, for the like quality and quantity of the goods, services or both.

3.3 Education and Experience

The Bidder certifies that all the information provided in the résumés and supporting material submitted with its bid, particularly the information pertaining to education, achievements, experience and work history, has been verified by the Bidder to be true and accurate. Furthermore, the Bidder warrants that every individual proposed by the Bidder for the requirement is capable of performing the Work described in the resulting contract.



3.4 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**" means a 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 and includes:

- (a) An individual;
- (b) An individual who has incorporated;
- (c) A partnership made up of former public servants; or
- (d) 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 Public Service.

"**Pension**" means, in the context of the fee abatement formula, 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 (FPS) in Receipt of a Pension

Is the Bidder a FPS in receipt of a pension as defined above? **YES () NO ()**

If so, the Bidder must provide the following information:

- (a) Name of former public servant: _____
- (b) Date of termination of employment or retirement from the Public Service. _____

Work Force Reduction Program

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of a work force reduction program?
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: _____
 - Number of weeks: _____
- (g) Number and amount (professional fees) of other contracts subject to the restrictions of a work force reduction program.

Contract Number:

Contract Amount:

For all contracts awarded during the lump sum payment period, the total amount of fee that may be paid to a FPS who received a lump sum payment is \$5,000, including the Goods and Services Tax or Harmonized Sales Tax.

3.5 *Aboriginal Designation*

Who is eligible?

- a) An Aboriginal business, which can be:
 - i. a band as defined by the Indian Act
 - ii. a sole proprietorship
 - iii. a limited company
 - iv. a co-operative
 - v. a partnership
 - vi. a not-for-profit organization

in which Aboriginal persons have at least 51 percent ownership and control,

OR

- b. A joint venture consisting of two or more Aboriginal businesses or an Aboriginal business and a non-Aboriginal business(es), provided that the Aboriginal business(es) has at least 51 percent ownership and control of the joint venture.

When an Aboriginal business has six or more full-time employees at the date of submitting the bid, at least thirty-three percent of them must be Aboriginal persons, and this ratio must be maintained throughout the duration of the contract.

The bidder must certify in its submitted bid that it is an Aboriginal business or a joint venture constituted as described above.

- Our Company is NOT an Aboriginal Firm, as identified above.
- Our Company is an Aboriginal Firm, as identified above. The supplier must complete the certificate in the appropriate clause below.

SACC Manual clauses [A3000T](#), [A3001T](#), [M3030T](#), [M9030T](#), [S3035T](#) and [S3036T](#) contain a certification that suppliers must complete and submit with their bid/offer/arrangement. Failure by suppliers to submit this completed certification form with their bids/offers/arrangements may render the bid/offer/arrangement non-responsive.

Signature of Authorized Representative

Date



PART 6 - SECURITY, FINANCIAL AND OTHER REQUIREMENTS

1. Security Requirements

NRCan has determined that there is no security requirement associated with this Contract.

2. Insurance Requirements

The Contractor is responsible for deciding if insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any insurance acquired or maintained by the Contractor is at its own expense and for its own benefit and protection. It does not release the Contractor from or reduce its liability under the Contract.



PART 7 - RESULTING CONTRACT CLAUSES

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

1. Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex "A" and the Contractor's technical bid dated _____. (*to be completed at contract award*)

2. 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](#) issued by Public Works and Government Services Canada.

2.1 General Conditions

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

As applicable, replace references to Public Works and Government Services Canada (PWGSC) with Natural Resources Canada (NRCan).

2.2 Supplemental General Conditions

2.2.1 4007 (2010-08-16), Canada to Own Intellectual Property Rights to Foreground Information

2.2.2 Dispute Resolution

Mediation

If a dispute arising from this contract cannot be settled amicably through negotiation, then the parties agree in good faith to submit the dispute to mediation as administered by the Arbitration and Mediation Institute of Canada Inc. (AMIC). The parties acknowledge receipt of the rules of AMIC. The cost of mediation shall be borne equally by the parties.

Arbitration

If the parties cannot resolve the dispute through mediation within sixty (60) days, the parties agree to submit the dispute to arbitration pursuant to the Commercial Arbitration Act (Canada). The party requesting such arbitration shall do so by written notice to the other party/parties. The cost of the arbitration and fees of the arbitrator shall be borne equally by the parties. The arbitration shall take place in the city where the contractor carries on business before a single arbitrator to be chosen jointly by the parties. If the parties cannot agree on the choice of arbitrator within thirty (30) days of written notice to submit the dispute to arbitration, each party will choose a representative who will select the arbitrator.

The parties may determine the procedure to be followed by the arbitrator in conducting the proceedings, or may ask the arbitrator to do so. The arbitrator shall issue a written award within thirty (30) days of hearing the parties. The award may be entered in any court having jurisdiction and enforced as a judgment of that court.

Meaning of "Dispute"

The parties agree that the word "dispute" in this clause refers to a dispute of fact or of law, other than a dispute of public law.



The parties understand that the Procurement Ombudsman appointed pursuant to Subsection 22.1(1) of the *Department of Public Works and Government Services Act* will, on request or consent of the parties to participate in an alternative dispute resolution process to resolve any dispute between the parties respecting the interpretation or application of a term and condition of this contract and their consent to bear the cost of such process, provide to the parties a proposal for an alternative dispute resolution process to resolve their dispute. The Office of the Procurement Ombudsman may be contacted by telephone at 1-866-734-5169 or by e-mail at boa.opo@boa.opo.gc.ca.

3. Security Requirements

There is no security requirement applicable to this Contract.

4. Term of Contract

4.1 Period of the Contract

The period of the contract shall be from approximately **date of award** to **March 31, 2018**.

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: **Valerie Holmes**
Title: Procurement Specialist
Organization: Natural Resources Canada
Address: 580 Booth Street, 5th Floor, Room 5-D4-2
Ottawa, Ontario, K1A 0E4
Telephone: (343) 292-8371
Facsimile: (613) 947-5477
E-mail address: Valerie.holmes@canada.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.

5.2 Project Authority (to be provided at contract award)

The Project Authority for the Contract is:

Name:
Title:
Organization:
Address:
Telephone:
Facsimile:
E-mail address:

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority; however, the Project Authority has no authority to authorize changes to the



scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

5.3 Contractor's Representative

Name:
Title:
Tel:
Fax:
Email:

6. 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. Payment

7.1 Basis of Payment – Limitation of Expenditure

The Contractor will be reimbursed for the costs reasonably and properly incurred in the performance of the Work, as determined in accordance with the Basis of Payment in Annex "A", to a limitation of expenditure of \$ _____ (*insert the amount at contract award*). Customs duties are included and Applicable Taxes are extra.

1. Canada's total liability to the Contractor under the Contract must not exceed \$ _____. (*inserted at time of contract award*) Customs duties are included and Applicable Taxes are extra.
2. No increase in the total liability of Canada or in the price of the Work 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 approved, in writing, by the Contracting Authority before their incorporation into the Work. The Contractor must not perform any work or provide any service that would result in Canada's total liability being exceeded before obtaining the written approval of 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 contract funds provided are inadequate for the completion of the Work, whichever comes first.
3. 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.



7.2 Method of Payment

Milestone Payment

Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Contract and the payment provisions of the Contract if:

- a. an accurate and complete claim for payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- b. all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

8. Invoicing Instructions

Invoices shall be submitted using one of the following methods:

<p><u>E-mail:</u></p> <p>NRCAN.invoice_imaging-service_dimagerie_des_factures.RNCan@canada.ca</p> <p>Note: Attach "PDF" file. No other formats will be accepted</p>
OR
<p><u>Fax:</u></p> <p>Local NCR region: 613-947-0987 Toll-free: 1-877-947-0987</p> <p>Note: Use highest quality settings available.</p>

Please do not submit invoices using more than one method as this will not expedite payment.

Invoices and all documents relating to a contract must be submitted on the Contractor's own form and shall bear the following reference numbers: Contract number: _____

Invoicing Instructions to suppliers: <http://www.nrcan.gc.ca/procurement/3485>

9. Certifications

9.1 Compliance

The continuous compliance with the certifications provided by the Contractor in its bid and the ongoing cooperation in providing additional information are conditions of the Contract. Certifications are subject to verification by Canada during the entire period of the Contract. If the Contractor does not comply with any certification, fails to provide the additional information, or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.



10. Applicable Laws

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

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 supplemental general conditions, **4007 (2010-08-16), Canada to Own Intellectual Property Rights in Foreground Information**, and those contained herein;
- c) the general conditions **2035 (2016-04-04), Higher Complexity – Services**
- d) Annex “A”, Statement of Work;
- e) Annex “B”, Basis of Payment;
- f) the Contractor's bid dated _____

12. Foreign Nationals (Canadian Contractor OR Foreign Contractor)

SACC Manual clause [A2000C](#) (2006-06-16) - Foreign Nationals (Canadian Contractor)

SACC Manual clause [A2001C](#) (2006-06-16) - Foreign Nationals (Foreign Contractor)

13. Insurance

It is the sole responsibility of the Contractor to decide whether or not any insurance coverage is necessary for its own protection or to fulfill its obligations under the Contract, and to ensure compliance with required federal, provincial or municipal law. Any such insurance shall be provided and maintained by the Contractor at its own expense.

14. Contract Administration

The parties understand that the Procurement Ombudsman appointed pursuant to Subsection 22.1(1) of the *Department of Public Works and Government Services Act* will review a complaint filed by [*the supplier or the contractor or the name of the entity awarded this contract*] respecting administration of this contract if the requirements of Subsection 22.2(1) of the *Department of Public Works and Government Services Act* and Sections 15 and 16 of the *Procurement Ombudsman Regulations* have been met, and the interpretation and application of the terms and conditions and the scope of the work of this contract are not in dispute. The Office of the Procurement Ombudsman may be contacted by telephone at 1-866-734-5169 or by e-mail at boa.opo@boa.opo.gc.ca.



ANNEX “A” – STATEMENTS OF WORK

SW1 Title

Scaling-up processes on direct reduction of chromite and CFD modelling of relevant furnaces

SW2 Background

In recent years, a steady, reliable, and secure supply of critical metals has become increasingly important to major industrialized economies that seek to sustain their industrial base and develop advanced technologies, such as clean energy. In light of this, Canada, with its significant critical metal reserves, has an opportunity to supply some of the global demand for critical metals. However, to transition from promising mineral deposits to marketable products, investment in fundamental R&D and expertise is needed to address the complex technological challenges around the production, separation and processing of critical metals, and to better understand the global market for these key commodities.

Chromium represents an opportunity for Canada to enter an emerging and globally strategic market. The main application of chromium is in the stainless steel industry, which is a vital to modern industry. The Ring of Fire chromite resources in northern Ontario would form the only potentially commercial quantities of chromite in North America and the fourth largest deposits in the world. However, the location of these deposits makes mining of this deposits quite challenging. Moreover, processing of chromite ore to marketable ferrochromium alloy is the other challenge for this development in Ontario due to the expensive local electricity.

Natural Resources Canada (NRCan) has been directed through Budget 2015 to undertake a significant effort to support the development of Rare Earth Elements and chromite in order to maximize Canadian value and benefits from these deposits. As such, NRCan has undertaken experimental studies to enhance the knowledge on processing of chromite ores, ferrochrome production technologies and related environmental issues.

SW3 Objectives

To design and carry out large-scale furnace tests at the kilogram-scale, and perform a critical review of furnaces used in the direct reduction of iron and simulations of two relevant furnaces for assessing their applicability and use on direct reduction of chromite.

The outcomes of this project will be (1) providing knowledge for assessing potential applicability of the flux-aided direct reduction processes at industrial scales, (2) providing products from flux-aided direct reduction tests for use in comminution and beneficiation tests, and (3) serve the broader needs of NRCan’s Chromite/Ferrochrome Project in identifying innovative and clean technology options for producing marketable ferrochrome alloys from the Ring of Fire chromite ores.

SW4 Project Requirements

SW4.1 Tasks, Deliverables, Milestones and Schedule

The proposed scope of work will involve the following tasks.

Task 1 – Scaling-up:

The large-scale reduction tests at the kilogram scale will be performed on six (6) samples. The samples are mixtures of ore/concentrate, reductant (charcoal, graphite or other carbon sources) and flux/catalyst in the approximate proportions as per the table below. The table is provisional and the sample types, mass proportions and particle sizes will be defined during project kick-off meeting.



	Type	Flux	MP(O/R/F)	Particle size range (µm)
Sample 1	Pelletized	NaOH	100/22/11	-106+75
Sample 2	Pelletized	Proprietary	100/22/11	-106+75
Sample 3	Powder	Proprietary	100/22/11	-106+75
Sample 4	Pelletized	CaCl ₂	100/22/30	-106+75
Sample 5	Briquetted	CaCl ₂	100/22/30	-106+75
Sample 6	Powder	CaCl ₂	100/22/30	-106+75

MP: mass proportion; O: ore; R: reductant; F: flux/catalyst

Charcoal or graphite reductant and fluxes/catalysts will be supplied by the contractor. The ore samples and the proprietary flux/catalyst will be provided to the successful bidder. The identity and composition of the proprietary material will be kept confidential. The samples will be prepared by the contractor including grinding, sieving, mixing, pelletizing and briquetting as per the table above.

The furnace design should

- include a heating zone large enough to accommodate a minimum of 1 kg sample **preferably** placed in a refractory tray with the dimensions of 17-25x17-25x3-5 cm (Length/Width/Height) to provide a maximum bed thickness of 5 cm;
- include a power supply capable of delivering uniform heat to the sample bed for ensuring a uniform temperature distribution across the bed maintained within ± 20 °C (i.e. $T=1300\pm 20$ °C) throughout the reduction experiments;
- allow multi-point temperature measurements (a minimum of three measuring points: immediately above the sample bed, near the bottom and near the edge of the sample bed);
- allow atmosphere control;
- allow analyses of evolved gases during reduction.

The experiments will be performed for a minimum of two (2) hours at 1300 °C under an inert atmosphere until achieving a reasonable degree of reduction. The evolved gases will be monitored throughout the experiments.

The contractor will propose a detailed methodology and apparatus including the furnace design to accommodate the above requirements.

Task 2 – Review of Technologies on Direct Reduction of Iron or other Ferrous Alloys:

The review will include those that are relevant or potentially applicable to direct reduction of chromite. The list would include technologies with reactors of vertical shaft, rotary hearth, rotary kiln and fluid bed or any other possible design. The review will consider reactor sizes, unit capacity, throughput, material handling (both feed and products), heat sources, furnace liner, types of reductants (i.e. solid vs. reformed natural gas), material types and sizes (e.g. pellet, lumpy, fines), material flow, and metal-slag segregations with respect to their relevancy and applicability to direct reduction of chromite, and their potential limitations for metal recoveries. In addition, other aspects such as off-gasses, particulates and wastes will be part of the review. Following the review, two furnace designs will be selected in consultation with CanmetMINING technical team for CFD modelling (Task 3).

Task 3 – Computational Fluid Dynamics (CFD) Modelling and Design of Furnaces:

This task involves CFD modelling of two furnace types identified as per Task 2 to determine the effects of furnace design elements and requirements on unit capacity, feed rate, material flow, residence time, temperature profiles, heat transfer, carbothermic reactions and degrees of metallization. The work encompasses setting up operating and boundary conditions for the simulations, and defining limitations on mass transfer, heat transfer and furnace performance with respect to chemical reactions taking place inside the furnace and achieving reasonable degrees of reduction and metallization. The CFD models should incorporate (1) the carbothermic reduction reactions that take place in the material bed and (2) the combustion of fuels, into the simulation/modelling of both heat transport and material flow. Much higher thermal energy is required for the direct reduction of chromite in comparison to the direct reduction of iron. Therefore, special efforts should be made to address this requirement. The carbothermic reactions can consider an average composition of the additives, and the kinetic factors



needed for the simulations will be determined in consultation with CanmetMINING technical team. Based on the CFD modelling, potential advantages or limitations/challenges from using this specific type of furnace for industrial chromite direct reduction practice should be discussed. The bidder can use the CFD case study reported in the following journal publication as an example.

G.K. Gaurav and S. Khanam, Computational fluid dynamics analysis of sponge iron rotary kiln, Case Studies in Thermal Engineering, 9 (2017) 14-27.

Deliverables:

- Deliverable 1: An initial meeting within five (5) working days of signing the contract. The date, type (telephone, video-conference, WebEx, in person) and place of the meeting (if in person) will be decided jointly between NRCAN and the supplier. The objective of the meeting is to discuss the proposal, to clarify the schedule and refine/finalize the work plan.
- Deliverable 2: Revised work plan within 3 working days of Deliverable 1.
- Deliverable 3: Progress Report - The Contractor must provide a progress report that provides a summary of tests completed, results and issues encountered to date. This is to be decided upon Deliverable 2.
- Deliverable 4: Sub-samples (about 10g) of the feed to the furnace (i.e. green pellets, briquettes, or powders) for each reduction test.
- Deliverable 5: Products from the furnace experiments and data tables of evolved gas compositions and temperature profiles of different locations at the end of each test.
- Deliverable 6: Draft report summarizing the findings of Task 2. Natural Resources Canada will review and set up a meeting date for Deliverable 6 within five (5) working days after receiving the draft report.
- Deliverable 7: Meeting at the end of Task 2 to decide on the furnace types selected for simulation and providing the inputs for the simulation stage.
- Deliverable 8: Draft report summarizing the simulation and proposed design of furnaces (including the assumptions made, the operating and boundary conditions, size, type of heat and location of heat sources, effect of parameters that are evaluated) as per Task 3.
- Deliverable 9: Final Report: Submission of a report (in English) at the end of the project which must address all changes/comments provided by NRCAN.

SW4.2 Reporting Requirements

Contractor will provide regular updates and reports as per deliverables listed above.

SW4.3 Method and Source of Acceptance

All deliverables are subject to inspection by the Project Authority. The Project Authority shall have the right to reject any deliverables that are not considered satisfactory, or require their correction before payment will be authorized.

SW5 Other Terms and Conditions of the SOW

SW5.1 Contractor's Obligations

In addition to the obligations outlined in the Statement of Work, the Contractor shall:

1. keep all documents and proprietary information confidential;
2. return all materials belonging to NRCAN upon completion of the Contract;
3. submit all written reports in hard copy and electronic Microsoft Office Word or Corel WordPerfect format;
4. attend meeting with stakeholders, if necessary;
5. participate in teleconferences, as needed;
6. attend meeting at NRCAN sites, if required; and/or,
7. maintain all documentation in a secure area.



SW5.2 NRCan's Obligations

NRCan will provide comments on draft reports within five (5 working days) and/or, provide other assistance or support.

SW5.3 Estimated Period of the Contract

The estimated period of the contract is from the date of Contract Award to **March 31, 2018**.

SW5.4 Location of Work, Work Site and Delivery Point

Work is expected to be completed at Contractor's place of business.

SW5.5 Language of Work

All reports and correspondence will be made in English.



ANNEX “B” – BASIS OF PAYMENT

1. Limitation of Expenditure

Bidder tendered all-inclusive firm per diem rate to perform the work is Canadian funds, applicable taxes excluded.

A	B	C	D (BxC)
Category of Personnel	Firm daily rates	Level of Effort	Total estimate Costs for Professional Fees
1.	\$		\$
2.	\$		\$
3.	\$		\$
4.	\$		\$
5.	\$		\$
Estimated Total Price:			\$