

**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 0A1 / Noyau 0A1  
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**

<b>Title - Sujet</b> X-Ray Computed Tomography System		
<b>Solicitation No. - N° de l'invitation</b> 4M033-130069/A	<b>Date</b> 2013-08-14	
<b>Client Reference No. - N° de référence du client</b> 4M033-130069		
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$\$PV-890-63289		
<b>File No. - N° de dossier</b> pv890.4M033-130069	<b>CCC No./N° CCC - FMS No./N° VME</b>	
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2013-09-24</b>		<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Daylight Saving Time EDT
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>		
<b>Address Enquiries to: - Adresser toutes questions à:</b> Hennessey, Lisa		<b>Buyer Id - Id de l'acheteur</b> pv890
<b>Telephone No. - N° de téléphone</b> (819) 956-9001 ( )	<b>FAX No. - N° de FAX</b> ( ) -	
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> TRANSPORTATION SAFETY BOARD OF CANADA 1901 RESEARCH RD OTTAWA Ontario K1A1K8 Canada		

**Instructions: See Herein**

**Instructions: Voir aux présentes**

**Vendor/Firm Name and Address**

**Raison sociale et adresse du  
fournisseur/de l'entrepreneur**

**Issuing Office - Bureau de distribution**

Scientific, Medical and Photographic Division / Division de  
l'équipement scientifique, des produits photographiques et  
pharmaceutiques  
11 Laurier St./ 11 rue, Laurier  
6B1, Place du Portage  
Gatineau, Québec K1A 0S5

<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 téléphone</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. Security Requirement**

There is no security requirement associated with this bid solicitation.

### **2. Requirement**

The Transportation Safety Board of Canada has a requirement for the supply one x-ray computed tomography inspection system (CTIS) complete with manuals, installation, and training identified herein and in accordance with the mandatory specifications detailed in "Annex B, Mandatory Technical Specifications" for delivery to Ottawa, Ontario.

### **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 of 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>) 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 (2013-06-01) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

### **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.

### **3. Enquiries - Bid Solicitation**

All enquiries must be submitted in writing to the Contracting Authority no later than ten (10) 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 questions or may request that the Bidder do so, so that the proprietary nature of the question is

eliminated, and the enquiry can be answered with copies 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 the province of Ontario, Canada

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

#### 1. Bid Preparation Instructions

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

Section I: Technical Bid (two (2) hard copies)  
 Section II: Financial Bid (one (1) hard copy)  
 Section III: Certifications (one (1) hard copy)

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

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

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

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement

(<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 explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

## **Section II: Financial Bid**

Bidders must submit their financial bid in accordance with the Basis of Payment. The total amount of Applicable Taxes must be shown separately.

### **1.1 Exchange Rate Fluctuation**

C3011T (2010-01-11), Exchange Rate Fluctuation

## **Section III: Certifications**

Bidders must submit the certifications required under 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 and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

#### **1.1 Technical Evaluation**

##### **1.1.1 Mandatory Technical Criteria**

- (1) Ability to meet the technical requirement (mandatory)

- (a) Provision of Supporting Technical Documentation

Supporting technical documentation for the goods offered must be provided with the bid at time of bid closing. Technical brochures or technical data must be provided to verify compliancy of each technical specification detailed in Annex B, Mandatory Specifications.

- (b) For items defined by specifications

The bidder is requested to cross reference the mandatory technical criteria detailed in Annex B, Mandatory Specifications, with the supporting technical documentation supplied with their proposal.

#### **1.2 Financial Evaluation**

- (1) Bidders must submit firm prices, Canadian customs duties and excise taxes included, and Applicable Taxes excluded.
- (2) Unless the bid solicitation specifically requires bids to be submitted in Canadian currency, bids submitted in foreign currency will be converted to Canadian currency for evaluation purposes. The rate given by the Bank of Canada in effect on the bid solicitation closing date will be applied as a conversion factor to the bids submitted in foreign currency.
- (3) Bidders must provide their prices Delivered Duty Paid (DDP)

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- (4) For the purpose of the bid solicitation, bidders with an address in Canada are considered Canadian-based bidders and bidders with an address outside of Canada are considered foreign-based bidders.

## **2. Basis of Selection**

SACC Manual Clause A0069T (2007-05-25), Basis of Selection

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## PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and documentation 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 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 with this request will also render the bid non-responsive or will constitute a default under the Contract.

### 1. Mandatory Certifications Required Precedent to Contract Award

#### 1.1 Code of Conduct and Certifications - Related documentation

By submitting a bid, the Bidder certifies that the Bidder and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Bid of Standard Instructions 2003. The related documentation therein required will assist Canada in confirming that the certifications are true.

#### 1.2 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 ([http://www.labour.gc.ca/eng/standards\\_equity/eq/emp/fcp/list/inelig.shtml](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)) available from Human Resources and Skills Development Canada (HRSDC) - Labour's website.

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.

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## **PART 6 - RESULTING CONTRACT CLAUSES**

### **1. Security Requirement**

There is no security requirement applicable to this Contract.

### **2. Requirement**

The Contractor must provide one one x-ray computed tomography inspection system (CTIS) in accordance with the Requirement at Annex "A".

### **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>) issued by Public Works and Government Services Canada.

#### **3.1 General Conditions**

2010A (2013-04-25), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

#### **3.2 Supplemental General Conditions**

4004 (2013-04-25), Maintenance and Support Services for Licensed Software, apply to and form part of the Contract.

### **4. Term of Contract**

#### **4.1 Delivery Date**

Delivery will be made as per the Schedule of Milestones shown at 6.2 of the Resulting Contract Clauses.

### **5. Authorities**

#### **5.1 Contracting Authority**

The Contracting Authority for the Contract is:

Lisa Hennessey  
Supply Specialist  
Public Works and Government Services Canada  
Acquisitions Branch  
Commerical Consumer Products Directorate  
11 Laurier Street, 6A2, Phase III, Place du Portage  
Gatineau QC K1A 0S5

Telephone: 819-956-9001  
Facsimile: 819-956-3814  
E-mail address: Lisa.Hennessey@tpsgc-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.

## 5.2 Technical Authority

The Technical Authority for the Contract is:

*(to be completed at contract award)*

The Technical Authority named above 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 Technical Authority, however the Technical 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

*(to be completed at contract award)*

## 6. Payment

### 6.1 Basis of Payment - Firm Price

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm price as specified in the contract for a cost of \$ *(to be completed at contract award)*. Customs duties are included and Goods and Services Tax or Harmonized Sales Tax is included, if applicable.

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

### 6.2 Schedule of Milestones

The schedule of milestones for which payments will be made in accordance with the Contract is as follows:

Milestone No.	Description or "Deliverable"	Firm Amount		Due Date or "Delivery Date"
1	see Annex "C" Deliverables, Table C-1, item 1	maximum 60% of overall contract amount excluding advanced training	\$ <i>to be filled in at contract award</i>	January 10, 2014
2	see Annex "C" Deliverables, Table C-1, item 2 and 3	maximum of 40% of overall contract amount excluding advanced training	\$ <i>to be filled in at contract award</i>	February 14, 2014
3	see Annex "C" Deliverables,	remaining contract	\$ <i>to be filled in</i>	February 17,

	Table C-1, item 4	amount for advanced training	<u>at contract</u> <u>award</u>	2015
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### 6.3 Multiple Payments

SACC Manual Clause H1001C (2008-05-12), Multiple Payments

### 6.4 SACC Manual Clauses

C2000C (2007-11-30), Taxes - Foreign-based Contractor

## 7. Invoicing Instructions

- (1) The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions.
- (2) The Contractor must submit a separate invoice for each milestone.
- (3) Invoices must be distributed as follows:
  - (a) The original and one (1) copy must be forwarded to the following address for certification and payment.

TRANSPORTATION SAFETY BOARD OF CANADA  
Engineering Lab  
1901 Research Road  
Ottawa ON K1A 1K8

- (b) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

## 8. Certifications

### 8.1 Compliance

Compliance with the certifications and related documentation provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification, provide the related documentation 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.

## 9. Applicable Laws

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

## 10. Priority of Documents

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

- (a) the Articles of Agreement;

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- (b) the supplemental general conditions 4004 (2010-08-16), Maintenance and Support Services for Licensed Software;
  - (c) the general conditions 2010A (2013-04-25), General Conditions - Goods (Medium Complexity);
  - (d) Annex A, Requirement;
  - (e) Annex B, Mandatory Technical Specifications;
  - (f) Annex C, Deliverables
  - (g) the Contractor's bid dated *(to be completed at contract award)*.

## 11. SACC Manual Clauses

A2000C (2006-06-16), Foreign Nationals (Canadian Contractor)  
A2001C (2006-06-16), Foreign Nationals (Foreign Contractor)  
A9068C (2010-01-11), Government Site Regulations

## 12. Shipping Instructions - Delivered Duty Paid

Goods must be consigned to the destination specified in the contract and delivered:

Delivered Duty Paid (DDP) Ottawa, Ontario Incoterms 2000 for shipments from a commercial contractor.

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**ANNEX "A"****REQUIREMENT**

The Transportation Safety Board of Canada has a requirement for the supply of one x-ray computed tomography inspection system (CTIS) to support investigations into transportation occurrences. The system will be used to x-ray small items as well as large and/or thick components to allow for analysis on the internal state prior to any destructive or testing work.

The CTIS system must comply with all of the technical specifications detailed at Annex "B" Mandatory Technical Specifications.

The following applies to the Requirement and must be provided by the Contractor:

**1. Code of Conduct**

Bidders should provide, with their bid or promptly thereafter, a complete list of names of all individuals who are currently directors of the Bidder. Annex D, Other Information Required with the Bid, has been provided for this purpose.

**2. Manuals**

One complete set of operating manuals in hard copy and soft copy must be supplied at time of installation.

All user documentation must be in English.

**3. Site Preparation**

The Transportation Safety Board will be responsible for pre-installation site preparations.

The Contractor must provide the Technical Authority with all pre-installation site preparation requirements.

No costs for site preparation must be included in the price.

**4. Installation**

On-site installation, start up, and system verification must be provided and shall be carried out by a qualified service technician at a time agreed upon by the Contractor and the Technical Authority. The Contractor must notify the Contracting Authority when the installation has been scheduled.

**5. Operational Training**

On-site user training must be provided for up to four (4) users in English.

Training must take place following installation and at a time agreed upon by the Contractor and the Technical Authority. The Contractor must notify the Contracting Authority when the training will take place.

Training must include:

- (1) training manuals, and
- (2) operations of 2D radiography and CT operation.

All costs associated with the on-site training must be included in the price.

Provide complete details of training e.g. Duration, scope, etc.

## 6. Advanced Training

Advanced training must be provided for two (2) users in English within one (1) year of installation at an external facility located in North America at a date and time agreed upon by the Contractor and the Technical Authority. The Contractor must notify the Contracting Authority when the training has been scheduled.

## 7. Software Upgrades

The contractor shall provide all software updates and new releases to the purchaser for a period of one year(s) following the acceptance, at no additional cost as described in the 4004 Supplemental General Conditions.

(<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual/4/4004/5>)

## 8. Service

Purchase of the system must include:

- (1) at least one preventative maintenance inspection six (6) months after installation and acceptance;
- (2) technical phone and e-mail support; and
- (3) support via the Internet.

E-mail and telephone support must be available Monday through Friday, 0900 to 1600 EST excluding holidays.

Response for service shall be within 24 hours or less.

Also, provide the following with your bid:

- (a) Location of available service facilities (after sales service and repair). List the service facilities closest to the destination.

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- (b) Locations of available replacement parts from consumables to major components.

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- (c) Response time re: service calls, and escalation schedule, i.e (how many days with no resolution to a problem until a more experienced person is called in, and from which location).

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- (d) List the frequency of routine maintenance visits provided by a qualified service technician during the warranty period, if applicable and included in the price.

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## **ANNEX "B"**

### **MANDATORY TECHNICAL SPECIFICATIONS**

The CTIS system must be a turnkey cabinet for x-ray inspection and computed tomography designed specifically for industrial and research applications. The system must utilize:

- a six axis manipulator;
- an image processing workstation with high resolution flat panel monitors;
- a high resolution digital x-ray detector;
- 225kV microfocus x-ray tube;
- a 4 GPU reconstruction workstation; and

#### **A. X-Ray Cabinet**

The x-ray cabinet must meet the following minimum requirements:

- (1) Radiation shielded to  $\geq 240$  kV.
- (2) Cabinet must fit through a 84" wide x 96" tall opening.
- (3) Have a motorized sliding access door.
- (4) Have an integrated lead glass viewing window.
- (5) Provide a minimum of two x-ray safety interlocks.
- (6) Have interior lighting.
- (7) A light clearly visible from the outside to warn when "x-ray" is operating.
- (8) Provide a covered cable access port.
- (9) Comply with the requirement of the Radiation Emitting Devices (RED) Act of Canada - Regulations, Schedule II, Part XV: Cabinet X-Ray Equipment.

#### **B. X-ray Tube**

The x-ray tube must meet the following minimum requirements:

- (1) Microfocus, directional tube with a voltage of 225 kV or higher.
- (2) Be an open design tube with user-replaceable filament.
- (3) Have a directional head configuration that includes:
  - (a)  $\leq 6$  microns focal spot;
  - (b) detail recognition  $\leq 2$  microns;
  - (c) offer a micro-focus mode and a high-power mode;
  - (d) maximum current must be 2.5 mA or higher; and
  - (e) maximum power of 225 W or higher.

#### **C. X-ray Control Unit**

The x-ray control unit must meet the following minimum requirements:

- (1) must be Microsoft Windows 7 or a later release.
- (2) provide automatic high voltage and filament current control functions.
- (3) provide automatic focusing, electron beam alignment and target loading control functions.

#### **D. X-ray Detector**

The x-ray detector must meet the following minimum requirements:

- (1) Amorphous silicon flat panel detector, computed tomography (CT) grade, or equivalent.
- (2) Active image area must be 190 mm by 240 mm or larger.

- (3) Pixel matrix must be 1536 x 1920 (approximately 3 Megapixels) or larger.
- (4) Minimum 14-bit dynamic range.
- (5) Must be capable of image acquisition at a frame rate of 30 frames per second (fps) or higher with 2x2 pixel binning; 7.5 fps or higher at full resolution.
- (6) shielded for 225 kV minimum.

## **E. Manipulator**

The manipulator must meet the following minimum requirements:

- (1) Movement of the inspection object must include X (tube to detector axis), Z (front to back axis), Y (vertical), tilt, and rotation with minimum travel of:
  - (a) traverse path (X by Z): 48" x 26";
  - (b) vertical (Y): 30";
  - (c) tilt: +20 /- 10 degrees; and
  - (d) rotation: 360 degrees continuous.
- (2) The detector to tube distance must be adjustable through a motor driven axis. Adjustability must be 36" or better.
- (3) All drives must be motorized with variable speed uni-directional operation from the desktop control console or computer.
- (4) The specimen platform must have a minimum capacity of 150 lbs.
- (5) The specimen platform must come out of the cabinet for specimen loading and unloading.

## **F. CT and X-ray Acquisition Workstation**

The CT and x-ray acquisition workstation must meet the following minimum requirements:

- (1) Must be Microsoft Windows 7 or a later release.
- (2) Quad-Core Intel Xeon processor or equivalent.
- (3) Provide 3 GB RAM or higher.
- (4) Provide 2 TB of data storage or higher.
- (5) Have a DVD+/-RW drive and a minimum of two USB ports.
- (6) 10/100/1000 network interface.
- (7) NVidia high performance display adaptor or equivalent.
- (8) Two 4 Megapixel color monitors with minimum diagonal size of 30".

## **G. CT Reconstruction Workstation**

The CT reconstruction workstation must meet the following minimum requirements:

- (1) Must be Microsoft Windows 7 or a later release.
- (2) Dual Quad-Core processor (total 8 CPUs) or equivalent.
- (3) 10/100/1000 network interface.
- (4) Provide 64 GB RAM or higher.
- (5) Have a 12 TB hard drive with high speed Raid 5 capability or better.
- (6) 4 GPU Tesla supercomputer or equivalent, including but not restricted to:
  - (a) 24 GB of GPU memory or better;
  - (b) 3D rendering capabilities; and
  - (c) Two 30" high resolution flat panel monitors.

## **H. Image Acquisition Software**

The image acquisition software must meet the following minimum requirements:



- (1) Must be Microsoft Windows 7 or a later release.
- (2) Must use a non-proprietary image storage format.
- (3) Must have image processing and measurement functions.
- (4) Live averaging, histogram, line profile and measurement capabilities.
- (5) Live image gain/offset calibration and defective pixel correction.
- (6) Allow for continuous fast CT acquisition (it must be capable of acquiring thousands of projections in seconds to minutes).
- (7) Must include detector qualification software to meet ASTM 2597 and ASTM 2737.
- (8) Automatic recording of acquisition parameters for operator record.
- (9) Capture video into AVI files.
- (10) Support digital flat panel detectors, LDAs and digital/analog cameras at 8, 10, 12 and 16 bits.
- (11) Read and store images in TIF 32-bit / 16-bit / 8-bit, BMP and JPEG formats.
- (12) DICOM/DICOM compliant.

## I. CT Software

The CT software must meet the following minimum requirements:

- (1) Must be compatible with 32-bit and 64-bit operating systems.
- (2) Must include an automatic calibration module for calibration of:
  - positions;
  - magnification;
  - focal distances;
  - scale;
  - resolution; and
  - pixel/voxel size for accurate measurements.
- (3) Cone-beam reconstruction.
- (4) CT volume reconstruction process in the graphics card (GPU reconstruction) to optimize reconstruction speed. Reconstruction results will be in direct 3D rendering, from which high resolution serial 2D slices can be extracted in any direction without any data loss. The CT reconstruction software must include, but is not restricted to:
  - (a) Must be capable of combining two data sets taken at different current settings in order to merge a dark and a light scan to facilitate imaging parts with widely varying densities;
  - (b) Image processing filters (ring artifact, mask, beam hardening correction);
  - (c) Pre-reconstruction image processing (crop, binning, selection);
  - (d) Mode for fine adjustment of reconstruction data in order to compensate for the object being off the central axis;
  - (e) Local CT allowing selection of a volume of interest (VOI); and
  - (f) Compatible with standard formats (BMP, JPG, RAW, TIF 12-bit, TIF 16-bit, DICOM/DICOM).
- (5) The CT software must include 3D real time visualization and analysis tools.
- (6) It must have spiral cone beam data processing capabilities to enable tall objects (more than 12" in the vertical direction) to be scanned in one data set with no loss in data quality.
- (7) It must have 4D CT data processing (a capability that combines time and motion with 3D CT volumes to capture time-lapsed 3D CT data).
- (8) The 3D volume rendering functionality of the CT software must include, but is not restricted to:
  - (a) Real time volume rendering
  - (b) 3D slices with a minimum of 6 user-adjustable slices
  - (c) Capability to export 2D slices in any direction in JPG, BMP, TIF 16-bit formats and videos in AVI format.
  - (d) Capability to view 2D radiographs or CT slices with density histogram, contrast adjustment, image filtering and processing (crop, resize etc).

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- (e) 2D measurements in metric and imperial units (length, diameter, angle, arc)
  - (f) User-adjustable color/transparency settings
  - (g) Density segmentation in real-time using user-defined color tables. Computation of volume numbers depending on density segmentation.
  - (h) Volume resize (e.g. from 1800x1400x780 to 500x700x500)
  - (i) Local CT reconstruction of a volume of interest not requiring reconstruction of the full data set
  - (j) Surface extraction and export in STL, point cloud, OBJ, DXF and WRL formats.
  - (k) Visualization of 3D surfaces in wireframe mode
  - (l) Capability to communicate with other workstations and scanners in DICOM format (data transfer over network).

## ANNEX C DELIVERABLES

### **MILESTONE 1**

A maximum of 60% of the final contract value, excluding operational training is payable to the Contractor as per Milestone Number 1, Part 6, paragraph 6.2, Basis of Payment.

On or before installation, for item 1 and 2 listed in Table C-1, Deliverables, the Contract must provide Canada with a copy of the report or records to verify compliance with the Radiation Emitting Devices (RED) Act of Canada - Regulations, Schedule II, Part XV: Cabinet X-Ray Equipment.

One copy of the deliverable must be received by both the Technical Authority and the Contracting Authority identified under Paragraph 5, Authorities, of the Resulting Contract Clauses. Deliverables may be received electronically or by fax on or before installation.

### **MILESTONE 2**

The remainder of the final contract value is payable to the Contractor as per Milestone Number 2, Part 5, paragraph 6.2, Basis of Payment within one year of contract award.

**TABLE C-1 DELIVERABLES**

<b>Deliverable No.</b>	<b>Description</b>
1	<p>Quantity: 1, meeting the mandatory technical specifications detailed at Annex B, Mandatory Technical Specifications</p> <ul style="list-style-type: none"> <li>• X-ray Cabinet</li> <li>• X-ray Tube</li> <li>• X-ray Control Unit</li> <li>• X-ray Detector</li> <li>• Manipulator</li> <li>• CT and X-ray Acquisition Workstation</li> <li>• CT Reconstruction Workstation</li> <li>• Image Acquisition Software</li> <li>• CT Software</li> <li>• Manuals</li> </ul>
2	Reports or records to verify compliance with the Radiation Emitting Devices (RED) Act of Canada - Regulations, Schedule II, Part XV: Cabinet X-Ray Equipment
3	Completion of installation and operational training, as detailed at Annex A, Requirement
4	Completion of Advanced Training, as detailed at Annex A, Requirement

## ANNEX D OTHER INFORMATION REQUIRED WITH THE BID

### 1. Code of Conduct

Bidders who are incorporated must provide a complete list of names of all individuals who are currently their directors. Bidders bidding as sole proprietorships, including those bidding as a joint venture, must provide with their bid or promptly thereafter the name of the owner. Suppliers bidding as a partnership, a firm or a society do not need to submit a list of names. The following table has been provided for this purpose.

Name of Director (please print)	Title or Position within the Company (please print)
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

### 2. Contractor's Representative

#### General Enquiries

Name: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

Facsimile No.: \_\_\_\_\_

E-mail address: \_\_\_\_\_

#### Delivery & Follow-Up

Name: \_\_\_\_\_

Telephone No.: \_\_\_\_\_

Facsimile No.: \_\_\_\_\_

E-mail address: \_\_\_\_\_

### 3. Delivery

While delivery is requested by January 10, 2014, the best delivery date that could be offered by the Bidder is \_\_\_\_\_.

#### 4. Firm Price

- (1) Bidders must submit firm prices, Canadian customs duties and excise taxes included, and Goods and Services Tax (GST) or Harmonized Sales Tax (HST) excluded.
- (2) Unless the bid solicitation specifically requires bids to be submitted in Canadian currency, bids submitted in foreign currency will be converted to Canadian currency for evaluation purposes. The rate given by the Bank of Canada in effect on the bid solicitation closing date will be applied as a conversion factor to the bids submitted in foreign currency.
- (3) Bidders must provide their prices DDP destination.
- (4) For the purpose of the bid solicitation, bidders with an address in Canada are considered Canadian-based bidders and bidders with an address outside of Canada are considered foreign-based bidders.

One X-ray Computed Tomography Inspection System (CTIS) including installation and training delivered DDP Ottawa, Ontario.

X-ray CTIS, operational training, and installation	Firm Unit Price \$ _____
Advanced training	Firm Unit Price \$ _____