Public Works and Government Services Canada

Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Réception des soumissions - TPSGC / Bid Receiving - PWGSC
1550 Avenue d'Estimauville
1550 D'Estimauville Avenue
Québec
Québec
G1J 0C7

SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

Title - Sujet STATION QUALITÉ DE L'AIR	
Solicitation No. - N° de l'invitation EF970-151211/A	**Amendment No. - N° modif.** 003
Client Reference No. - N° de référence du client EF970-151211	**Date** 2015-02-18
GETS Reference No. - N° de référence de SEAG PW-$QCW-024-16286	
File No. - N° de dossier QCW-4-37258 (024)	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2015-02-25	**Time Zone** **Fuseau horaire** Heure Normale du l'Est HNE
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☐ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: Jean, Serge	**Buyer Id - Id de l'acheteur** qcw024
Telephone No. - N° de téléphone (418) 649-2882 ( )	**FAX No. - N° de FAX** (418) 648-2209
Destination - of Goods, Services, and Construction: **Destination - des biens, services et construction:**	

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

Instructions: See Herein

Instructions: Voir aux présentes

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

Issuing Office - Bureau de distribution

TPSGC - PWGSC
601 - 1550 Avenue d'Estimauville
Québec
Québec
G1J 0C7

Canada

AMENDMENT 003
AIR QUALITY STATION PROJECT

The objective of amendment 003 is to modify the statement of work, to provide answers to questions 15 to 24 and to postpone the invitation to tender date:

Included in the present amendment:

- Amendment to the statement of work (Annex A) :
  - Replace item 2 in the “General” section of “Component No. 2 (Commissioning and operation of the station)” of article 4.1 “Services” (Page 7 of 17)
  - Replace intem 6 in “Electronic equpment and other accessories” section of aticle 4.2 “Products” (Page 13 of 17)
  - Replace section “Performance expected of air quality measurement instruments (analyzers)” of article 4.2 “Products” (Page 14 of 17)

- Questions and Answers 15 to 24.

- **Postpone the invitation to tender date. Refer to page 1 of Amendment 003.**

---

1) At Annex A “Statement of work”, article 4.1 (Services”, Item 2 in the “General” section of “Component No. 2 (Commissioning and operation of the station)” (Page 7 of 17):

Delete: Item 2 Item 2 in the “General” section of “Component No. 2 (Commissioning and operation of the station)”
Insert: Item 2 Item 2 in the “General” section of “Component No. 2 (Commissioning and operation of the station)” below:

2. Final assembly and initial calibration of the equipment, and equipment programming. The following contaminants will be analyzed continuously in order to allow for the calculation and communication of, at least, the average, maximum and minimum hourly concentrations:

   - Total suspended particulate matter (PM_{Tot});
   - Fine airborne particulate matter (PM2.5);
   - Nitrogen oxides (NOx, NO, NO2);
   - Carbon monoxide (CO);
   - Sulphur dioxide (SO2);
   - Ozone (O3).

   In the case of gaseous pollutants, the calculations shall be based on five (5) minute averages calculated from five (5) second scans.

---

2) At Annex A "Statement of work", item 6, section “Electronic equipment and other accessories”, of article 4.2 “Products” (Page 13 of 17):

Delete: Entire item 6 of section “Electronic equipment and other accessories”, of article 4.2 “Products”:
Insert: Item 6 of section “Electronic equipment and other accessories”, of article 4.2 “Products” below:

6. Heating/air conditioning system (to maintain the temperature in the structure at 20°C to 30°C) (the system must not be located on the roof, in order to avoid contamination of the air sampling intake).

Present: The air conditioner and the combined heating system are on the roof.

---

3) At Annex A “Statement of work”, section “Performance expected of air quality measurement instruments (analyzers)” of article 4.2 “Products” (Page 14 of 17):

Delete: Entire section “Performance expected of air quality measurement instruments (analyzers)” of article 4.2 “Products”
Insert: Entire section “Performance expected of air quality measurement instruments (analyzers)” of article 4.2 “Products” below:

Performance expected of air quality measurement instruments (analyzers)

1. To ensure integrity and intercomparison, it is suggested that the maximum possible number of analyzers be provided by a single manufacturer.

2. The measurement system of gaseous pollutants should, at the least, allow for calculation of the average, maximum and minimum hourly concentrations of each contaminant, based on five (5) minute averages calculated from five (5) second scans.

3. The measurement system of particulates (fine and total) shall allow average concentration to be measured on at least an hourly basis.

4. The data logger shall allow for the use of an IP or WIFI cable.

5. The analyzers shall be equipped with an RS232 interface and an analogue interface.

6. All gas analyzers shall be equipped with the distance activated "zero span" option (external control).

The following table summarizes the performance expected of gaseous pollutant measurement instruments. All the devices shall also be designed for federal reference methods or the federal equivalent methods of the United States Environmental Protection Agency ("referenceequivalent-methods-list.pdf" included in Appendix 4) except for PM_{ToT} measurements. These measurements will need to be performed using an instrument similar to the one used for PM2.5 measurements. However, in order to make possible any eventual comparisons between PM_{ToT} measurements of the fixed station and those of the mobile station operated by Environment Canada, the air inlet head of the PM_{ToT} analyzer should be of "mushroom" type (please refer to the images below for examples).

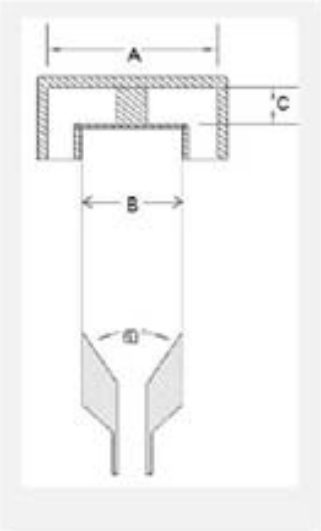
Polluants	Ozone (O3)	Monoxyde de carbone (CO)	Dioxyde de soufre (SO2)	Oxydes d'azote (NOx)	Particules en suspension (PM2.5 et PMTot)
Plage d'analyse	0.5 ppm	50 ppm	0.5 ppm	0.5 ppm	500 ug/m3
Limite de détection	0.001 ppm	0.05 ppm	0.002 ppm	0.0005 ppm	1.0 ug/m3
Bruit	0.0005 ppm RMS	0.025 ppm RMS	0.001 ppm RMS	0.00025 ppm RMS	n/a
Dérive du zéro (24h)	< 1 ppb	< 0.1 ppm	< 0.001 ppm	< 0.0005 ppm	n/a
Dérive de la sensibilité (24h)	< 1% de l'échelle	< 1% de l'échelle	< 1% de l'échelle	< 1% de l'échelle	n/a
Linéarité	< 1% de l'échelle	< 1% de l'échelle	< 1% de l'échelle	< 1% de l'échelle	< 5% de l'échelle
Précision	1 ppb ou 1% de la lecture	0.1 ppm ou 1% de la lecture	0.001 ppm ou 1% de la lecture	0.0005 ppm ou 1% de la lecture	2.0 ug/m3
Temps de montée/descente (max.)	60 secondes	60 secondes	120 secondes	60 secondes	n/a

Table 1:

Figure 1:

Definitions:

- Analysis range: Range corresponding to the full scale output of the analyzer.
- Detection limit: The lowest concentration that can be detected by the analyzer with confidence.
- Noise: Deviation from zero of a constant sampling of zero air.
- Zero drift (24-hour): The change in analyzer output response to a constant zero air input concentration over a period of unadjusted continuous opération.
- Span drift (24-hour): The percent change in analyzer output response to a constant upscale pollutant concentration over a period of unadjusted continuous opération.
- Linearity: The maximum deviation between the actual analyzer output reading and the predicted analyzer output from a least square fit to the actual readings.
- Precision: The degree of variation about the mean of repeated measurements of the same pollutant concentration by the analyzer, expressed as standard deviation about the mean.
- Maximum rise/fall time: Time interval between initial response (first observation change in analyzer output) and a level of signal output which is 95% of the steady state output after a step increase or decrease in the concentration of air analysed.



QUESTIONS AND ANSWERS:

QUESTION 15
The heating block doesn't appear in the pictures. Yet, it must be removed. Can you please confirm its location?

ANSWER 15
The module that appears on the station roof is a combined system for air conditioning AND heating. The item no. 6 of section 4.2 of the Statement of Work should therefore be amended as follows:

Heating/air conditioning system (to maintain the temperature in the structure at 20°C to 30°C) (the system must not be located on the roof, in order to avoid contamination of the air sampling intake).

Present: The air conditioner and the combined heating system are on the roof.

QUESTION 16
Can you specify the brand and the characteristics of the air conditioner. Is it in good working condition? If this is not the case or if it should be changed during the contract period, is it the responsibility of the bidder?

ANSWER 16
As indicated in item no. 6 of Section 4.2 of the Statement of Work: "Heating/air conditioning system (to maintain the temperature in the structure at 20°C to 30°C) (the system must not be located on the roof, in order to avoid contamination of the air sampling intake)". As such, the heating/air conditioning system will have to be removed and replaced with, for example, a type of Heat Pumps - split system.

QUESTION 17
The glass collector (Instruments and scientific equipment (2), p 14 of the Statement of Work) allowing outdoor air supply to analyzers, can it be a material other than glass, if the type of material chosen is consistent with the NAPS guidelines?

ANSWER 17
We prefer glass/pyrex. NAPS guidelines also guide the choice of collector material to borosilicate glass or Teflon. If another material is proposed, it is the responsibility of the bidder to demonstrate clearly and prominently the relevance of the latter and its ability to not react with the measured pollutants.

We take this opportunity to mention that filters (and filter holders) placed upstream of each gas analyzer must also meet NAPS guidelines as stated in section 3.3 (Fixed Air Quality Sampling Station Project) and in section 4.1 (Services) under Component No. 2 (Commissioning and operation of the station) of the Statement of Works.

QUESTION 18
"On page 15 of the work plan the document states: All the devices shall also be designed for federal reference methods or the federal equivalent methods of the United States Environmental Protection Agency" (referenceequivalent-methods-list.pdf' included in Appendix 4).

Under the current FEM/FRM listing measurement of PM Total Suspended Particulate (TSP) is performed using filter based samplers, however the work plan seems to indicate that the PM TSP should be measured using a continuous method based on the requirement of providing 5 minute averages based on 5 second data. Could PWGSC clarify as to which method should be used for the station. If the sample based method is to be used will supply and analysis of the filters be provided by EC?

ANSWER 18
Since the measurement method should allow knowing the hourly concentrations of PM_{ToT}, it will not be subject to Federal Reference Methods (FRM) or Federal Equivalent Methods (FEM) of the US

Environmental Protection Agency. These PM_{ToT} measurements shall, however, be performed using an instrument similar to the one used for PM2.5 measurements, but, with an adequate air inlet head for PM_{ToT}.

QUESTION 19
The air quality data will be measured at the Environment Canada's mobile station located near the construction site (Answer 6, Addendum 2).
Can you specify what are the parameters being measured? Are the total particles measured continuously? Can you provide the period during which this station has been and will be placed on this site. Was a 0 level evaluated?

ANSWER 19
This station is taking continuous readings of ambient nitrogen oxide concentrations (NO, NO2, NOx), ozone (O3), carbon monoxide (CO), sulfur dioxide (SO2) and particulate matter (PM2.5,PM_{ToT}). Volatile organic compounds (VOCs) are also being sampled in accordance with the schedule set by the National Air Pollution Surveillance Network (NAPS).This station was placed on the site on June 13, 2014. The date of withdrawal of the station has not yet been determined but it will remain on the site at least until the installation of the fixed station. The measurements currently being taken by the mobile station, until work begins, constitute the "pollutants concentration level during the period before the construction starts" (baseline).

QUESTION 20
Continuous particulate analyzers are associated with sampling heads to be located on the roof of the station, on which technicians will need regular access for maintenance and calibration reasons. The upper structure of the station, not originally planned for this purpose, would be subject to safety upgrading works. Also considering the very small space of the station, is it acceptable to link an outside particulate analyzers shelter to help free up work in the station and to ensure better security?

ANSWER 20
Although not recommended, it is allowed to link an outside particulate analyzers shelter as long as the latter are operated in the required conditions of temperature, that they are protected from rain, dust, dirt or other excessive environmental stress (please refer to page 1 of the NPSN's Guidelines) and that the data completeness criteria (Item 5, Component No. 2 (Commissioning and operation of the station), page 7 of 17) is reached.

QUESTION 21
For the Component No 2 - Part 1 - During the environmental monitoring period, may work activities information be provided to ensure an adequate "Interpretation" section of the report? If so, in what format and how often?

ANSWER 21
INFC will try to provide work activities information on a regular basis. The format and frequency have not yet been determined. Infrastructure Canada will adjust its expectations related to the Interpretation section of the report according to the available information.

QUESTION 22
For Component No 2 - Part 2 - During the environmental follow-up period, will traffic data be provided to ensure an adequate "Interpretation" section of the report? If so, in what format and will there be costs?

ANSWER 22
During environmental monitoring, in the operation phase of the infrastructure, traffic data will likely be available and free. If, however, it is not the case, Infrastructure Canada will adjust its expectations related to the Interpretation section of the report according to the available information.

QUESTION 23
In the Statement of Work, Part 4.1 Services, it is requested to proceed with electrical connection of the station. In Amendment No. 1, Answer 8, it is stated that electricity will be supplied by Canada at no cost to the contractor, but the specific parameters (voltage, wattage) will be specified later. Will the power source be in direct proximity of the station, or we need to plan for the installation of an underground cable for safety reasons, considering the duration of this mandate?

ANSWER 23
Yes, the power source will be in direct proximity of the station. Infrastructure Canada will make the necessary arrangements to bring the power cable (probably underground) to the station. The responsibility of the contractor will be to connect the cable to the station.

QUESTION 24
Will the choice of the station location by Infrastructure Canada respect the minimum distance between the road and the station as stated in Table 5.3.2, p.11, Appendix 1 (National Air Pollution Surveillance Network Guidelines)?

ANSWER 24
It will not be possible to meet the distance set out in Table 5.3.2 of the National Air Pollution Surveillance Network Guidelines. INFC and EC are trying to find the best possible location considering the very limited space on the Nun's Island.

***** All other terms and conditions remain unchanged *****