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**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

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

Issuing Office - Bureau de distribution  
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Western Region  
Room 100  
167 Lombard Ave.  
Winnipeg  
Manitoba  
R3B 0T6

Title - Sujet 5K003-157006	
Solicitation No. - N° de l'invitation 5K003-157006/A	Amendment No. - N° modif. 001
Client Reference No. - N° de référence du client 5K003-157006	Date 2014-12-29
GETS Reference No. - N° de référence de SEAG PW-\$WPG-070-9295	
File No. - N° de dossier WPG-4-37176 (070)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2015-01-28	Time Zone Fuseau horaire Central Standard Time CST
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Barenz, Leanne	Buyer Id - Id de l'acheteur wp070
Telephone No. - N° de téléphone (204) 983-0506 ( )	FAX No. - N° de FAX (204) 983-7796
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

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

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\*\*\*See Attached\*\*\*

This Amendment is raised to answer questions raised concerning **Solicitation #5K003-157006/A** as well as to amend as follows:

The closing Date of this solicitation is amended as follows:

**Delete:** January 14, 2015

**Insert:** January 28, 2015

**Question/Statement #1:**

The RFP, as written, is based on the lock-out specifications of a single vendor. Only one vendor is in a position to offer resolution of 70 000 or greater in a bench-top LC-MS instrument. In addition, the experiments proposed (direct injection or infusion) to determine performance do not reflect how the instrument will routinely be run i.e. using liquid chromatography as an inlet. As well, the experiment descriptions and the point scoring refer to the 70 000 resolution, again, which only one vendor can do but which we argue is not necessary to do the application as described.

**Response #1**

The requirement document is written based on the current and estimated future needs of the Trace Organics and Trace Elements group of the Grain Research Laboratory.

A large portion of the GRL's work in the area of grain safety is the analysis of small organic molecules (<1000 Da mycotoxins, pesticides, and biomarkers) at ultra-trace concentrations (currently pushing the parts per trillion range) in complex matrices such as extracts from cereals, pulses, and oilseeds. The GRL performs thousands of analyses each year of these analytes.

This specification was written based on this experience, as well as knowledge of the state of the grain safety, regulations, and industry needs.

**Question/Statement #2**

The requirement for Canadian-only references is also unnecessarily limiting. If the reference is doing a similar application on the equipment proposed, in what way is it prejudicial to the Technical Authority if it is a non-Canadian site?

**Response #2:**

This requirement is mainly to ensure that the equipment obtained by the GRL has been independently demonstrated (ie. by groups unaffiliated with instrument vendors) to perform in a laboratory setting that is as close as possible to that which currently exists in the GRL. In addition, this requirement will ensure:

1. That references can provide useful information to the GRL. Scientific standards, as well as laboratory infrastructure, can differ in other areas from those that are relevant in Canada.
2. That the equipment obtained by the GRL will allow the GRL to easily access and personally interact with an existing bank of independent local expertise for collaborative work as well as for help with technical aspects of the equipment.

**Question/Statement #3:**

The experiments are designed to lock-out all vendors except one. The application, as described in Annex 'A', is for the identification of unknowns and to do untargeted analysis. This requires that chromatography be used during analysis. However, the evaluation experiments described in the RFP are all infusion experiments and do not reflect how the system will actually have to be used. In order to adequately qualify and quantify both known and unknown peaks, it is necessary to obtain a minimum number of

points across a chromatographic peak. To obtain this minimum number of points a minimum scan speed is necessary, all while maintaining a resolution high enough to insure accurate mass determination.

**Response #3:**

These are not infusion experiments; the Annex does not ask for the tests to be done in this manner.

For points 2.26 and 2.27, the Annex states "The GRL will supply a test sample containing four analytes for vendors to analyze. Vendors must supply mass spectra from three successive scans taken at the apex of each analyte peak in the test sample." For point 2.28, the test solution is stated to contain three analytes.

We had assumed that the facts that the requirement is for a liquid chromatograph high resolution mass spectrometer (LC-HRMS), that the test solutions were explicitly stated to contain more than one analyte, and that we were requesting mass spectrometric data on each analyte peak, that vendors would have been automatically alerted to the need for liquid chromatography. We did not want to dictate specific chromatographic conditions because different vendor's LC-HRMS systems might better perform under their own unique chromatographic set ups. Each vendor should have the expertise to set up the chromatographic front end to best perform the requested evaluation.

**Question/Statement #4:**

For example, the instrument that is currently specified in this RFP typically offers a resolution of 17 500 at 12 Hz (12 times a second) at the low masses (pesticides, mycotoxins, etc.) targeted by the application. This scan speed (12Hz) would be close to the minimum required for good quality identification. This results in resolution that is well-below the stated resolution requirement (70 000).

This vendor feels that it has a viable and competitive solution meeting the analytically pertinent requirement of detecting, separating and unequivocally identifying expected and unexpected analytes with a combination of chromatography and a high resolution, accurate mass instrument.

The resolution requirement is to insure accurate and unequivocal identification but it is only one of several specifications necessary to achieve that end. This vendor has sold systems in Canada and the US that are successfully doing this application with a system approach that takes into account how the system will actually be used for the application i.e with a chromatograph, with a minimum resolution and sensitivity and with appropriate processing software.

The stated goal is to unequivocally identify compounds by being able to determine accurate mass. Instrument resolution, chromatography and software tools all contribute to this determination. If a vendor is able to identify the unknown compounds within the criteria of acceptability set out in 2.28 and 2.29.1. , then that meets the stated application requirement. The recurring requirement of 70 000 is a lock-out specification and is not the only element critical to the detection of isobaric or co-eluting compounds.

**Response #4:**

The requirement of a minimum resolving power of 70,000 at full width half maximum height (FWHM) for small molecules is not a "lock-out specification", but a need determined by the GRL from evaluation of independent scientific literature and discussions with independent (ie. not affiliated with instrument vendors) scientific personnel who use LC-HRMS systems for the analysis of small molecules in complex matrices. This requirement for resolving power will ensure that the GRL obtains the LC-HRMS system that best complements its current technology, and provides the best tools for future work.

A recent review of the practise of liquid chromatograph-mass spectrometry in the analysis of food contaminants also states that with respect to untargeted analysis "With no information on retention time, the false-positive rate can be high if the mass-resolving power is restricted (e.g. 10-20,000 FWHM...)" [Hird et al., Trends in Analytical Chemistry, 2014, 59:59].

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Recent published scientific work from independent researchers who have performed work comparable to that in the GRL (analyzing small organic molecules such as pesticides and mycotoxins in complex matrices) have used resolutions of 70,000 and above. For example, the analysis of pesticides in fruits and vegetables was performed at 70,000 [Wang et al., Journal of Agricultural Food Chemistry, 2014, 62:10375], as was the analysis of pesticides in honey [Cotton et al., Journal of Agricultural Food Chemistry, 2014, 62:11335]. In addition, the analysis of mycotoxins in wheat, corn, and animal feed was performed at 100,000 [Ates et al., Food Additives and Contaminants, 2013, 30:156].

**\*\*\*All other terms and conditions remain the same\*\*\***