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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

Scientific, Medical and Photographic Division / Division de l'équipement scientifique, des produits photographiques et pharmaceutiques
L'Esplanade Laurier
140 O'Connor Street,
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Ottawa
Ontario
K1A 0S5

Title - Sujet RFI - LBDS Project	
Solicitation No. - N° de l'invitation W8476-206286/A	**Amendment No. - N° modif.** 001
Client Reference No. - N° de référence du client W8476-206286	**Date** 2020-04-27
GETS Reference No. - N° de référence de SEAG PW-$$PV-956-78682	
File No. - N° de dossier pv956.W8476-206286	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin **at - à 02:00 PM** **on - le 2020-06-25**	**Time Zone** **Fuseau horaire** Eastern Daylight Saving Time EDT
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☐ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: Courteau, Robert	**Buyer Id - Id de l'acheteur** pv956
Telephone No. - N° de téléphone (343) 550-1614 ( )	**FAX No. - N° de FAX** ( ) -
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**	

Canada

EQUIPMENT REQUIREMENT			
Req #	Requirement	Capability	
a	b	c	d
	General Description		
1	Equipment - ID	*Example 1*	*Example 2*
2	Name	*Baby Blue*	*LIBS*
3	Model Number (if available)	*Prototype*	*Prototype*
4	Manufacturer	*Cetus Corporation*	*US Army Research Laboratory*
5	Description	*Baby blue is a thermal cycler used to amplify fragment of DNA in a laboratory setting*	*Laser-induced breakdown spectroscopy (LIBS) uses a highly energetic laser pulse to atomize and excite sample from which the light spectrum is read and compared to a database.*
6	Type of System (Biological Point Detector, Hand Held Biological Detector, Air Sampler / Collector, Personal (Wearable) Air Particle Collector, or Field-Expediant Biohazard Identification System)	*Biological Point Detector*	*Biological Point Detector*
7	What main functions does the system perform? (Detection, Identification, or Monitoring)	*Identification*	*Detection and Monitoring*
	Technical Description (Key features)		
8	Current TRL	*7*	*7*
9	Expected date of reaching TRL 9 (If applicable)	*1993*	*2010*
10	What technology does the system employ?	*PCR*	*Laser-induced breakdown spectroscopy (LIBS)*
11	Briefly describe how the system functions.	*The PCR exponentially amplify the DNA sequence through thermal cycling. A DNA specific marker is than use to confirm the presence of the colprit*	*A typical LIBS system consists of a Nd:YAG solid-state laser and a spectrometer with a wide spectral range and a high sensitivity, fast response rate, time gated detector. This is coupled to a computer which can rapidly process and interpret the acquired data. As such LIBS is one of the most experimentally simple spectroscopic analytical techniques, making it one of the cheapest to purchase and to operate.*
	Cost		
12	Currency (USD, CND, etc)	*USD*	*USD*
13	Acquition Cost (Capital)	*$ 50,000.00*	*$ 50,000.00*
14	Estimated Cost of reaching TRL 9 (if applicable)	*$ 500,000.00*	*$ 1,000,000.00*
15	Operation Cost per 24 hours (if applicable)	*$ -*	*$ 50.00*
16	Operation Cost per test (if applicable)	*$ 500.00*	*$ -*
	Operational Carateristics		
17	What is the Biological Warefare Agent (BWA) DIM rate (Continuous, minutes, hours, days, manual)	*Manual*	*Continious*
18	What type of sample needs to be presented to the system?	*Liquide*	*aire*
19	What is the minimum sample volume / flow rate?	*1 ml*	*1 L/min*
20	Can this air flow be regulated? (if applicable)		

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21	If appliable, does the sample preparation process remove assay inhibitors?	*No*	*N/A*
22	Does the system have the capability of processing complex environmental samples (e.g., soil)?	*No*	*No*
23	Can the system classify the biological particles as bacteria, viruses, spores, fungi and toxins? (if applicable)	*Yes*	*Yes*
24	What is the BWA DIM Analysis Speed (min) including any preparation	*60*	*Real-time*
25	What is the BWA DIM threshold?	*DNA / RNA fragment in a prepared sample*	*1 to 30 ppm by mass of air*
26	How was the DIM threshold determined?	*Theoretical analysis*	*Statistical Analysis of test sample with known concentration.*
27	Which BWA can be DIM?	*Anthrax, Brucellosis (abortus), Glanders, Botulism A-E, Epsilon Toxin, Q-fever, Tularemia, Louse-borne typhus, spotted fever, Plague, Viral Hemorrhagic fevers (ebola, Marburg), Lassa, Variola major, Venezuelan Equine Encephalitis, Yellow fever virus, and Ricin toxin*	*All BWA*
28	How many BWA can be DIM simultaniously	*48 (i.e. multiple sample process at the same time for specific BWA. Note that a false negative validation is used per sample to reduce potential error)*	*Does not perform well with mixture*
29	What is the system BWA specificity?	*Really High*	*Moderate*
30	Can the system differenciate between life BWA and dead BWA (Hoax)?	*No*	*No*
31	Does the system differenciate between biological particles and by non-biological particles?		
32	What are the known interference (if applicable)		
33	What is the probability of BWA DIM?	*High (99.9 with a 19 out of 20 confidence)*	*High detection (90%); Medium identification (60%) as it is dependent on each BWA spectra, growth medium, and background noise.*
34	What is the probability of false Positive?	*Low (5% based on near-neighboring strand)*	*Detection low; identification medium. There is a direct relation between "sentivity threshold" and "false alarme rate". The more sensitive it is "set" the more likely there will be false alarm*
35	What is the probability of False Negative?	*Generally really low: False negative is linked to the sample and sampling procedure.*	*Detection low, identification medium. The same comments from "false positive" applies to "false negative"*
36	Does the system use mitigation measure to improve DIM and minimise false alarm rate (algorithms, background noise reduction, etc) ?	*No*	*Algorisms are used to match the spectrum with database information*
37	Can the system recognize all biological particles whether hazardous or innocuous?	*Yes*	*Yes*
38	Does the system indicate the BWA agent concentration?	*No*	*No but can be developped based on number of hit per minutes*
39	Can the BWA library be updated?	*Yes, through the development and validation of specific molecular weight marker*	*Yes, but test reproductivity is difficult*

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40	If applicable, can the BWA library be modified/expanded by the user? And to what extent?	*No*	*Yes, based on spectra*
41	Is the data and information locally stored and for how long?	*No*	*Yes on local computer / server*
42	What type of Alarm is used (visual and / or auditory) and can these features be turned off for tactical operations (if applicable)?	*Humain inaterpratation*	*Humain inaterpratation*
43	Has the system been accredited?	*Yes*	*No*
	User burden		
44	How intuitive is the user interface?	*Not intuitive, require formal training*	*Not intuitive, require formal training*
45	How would you qualify its portability? (wearable, handheld, soldier portable, vehicle mounted, fixed site)	*Fixed Site*	*Fixed Site*
46	Weight (Kg)	*20*	*20*
47	Dimenssion (cm x cm x cm)	*50 x 50 x 25*	*50 x 50 x 50*
48	What are the training pre-requisite	*Lab technician*	*Lab technician*
49	How long does it take to train users on all the functionalities of the system?	*five days*	*10 days*
50	How often do users have to use the system	*3 months*	*6 months*
51	On average how long does it take to set up the system?	*1 day*	*10 days*
52	On average how long does it take to tear down the system?	*1 day*	*10 days*
53	Can the system be mounted on a tripod, ground vehicle, ship or an unmanned aerial system?	*Yes but not useful*	*Yes*
54	Is the system man-portable?	*Yes in ruggedised cases*	*Yes in ruggedised cases*
55	Can the system be used to support a mobile force and how?	*No*	*No*
56	What auxiliary equipment does the system require and are the associated costs (i.e. carrying harness, transport cases, mounting brackets, etc)?	*Stand Alone Computer, 200USD*	*Stand Alone Computer, 200USD*
57	Describe the maintenance needs of the system.	*Use fresh consumable*	*Internal components need to be clean by electro-optic technician*
58	Stand alone autonomy	*None*	*No*
59	What is the maintenance need?	*Really low maintance*	*low maintance*
60	Does the system have self-test and calibration capability?	*Yes for false negative validation procedure*	*Validation is done using a know substance*
61	Can the system be set-up and used wearing Personnal Protective Equipment?	*No*	*No*
62	Does the system allow safe transference (no individual protective equipment required) of samples for further analysis (i.e. is the sample in a sealed container).	*No*	*No*
63	Does the system create environmental Health and Safety risk?	*No but biological material need to be handle in a safe manner*	*Yes, high power laser creates eyesight risk, system must remain closed when running*
	Integration		
64	Can the system be remotely controlled?	*No*	*No but can be easily adapted for aerosolized BWA*

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65	Can the system trigger other system such as air sampler or alarm?	*No*	*No, but routing can easily be written*
66	Can the system be networked with other systems? If yes how are they networked (i.e. wired/wireless, etc) and what is the configuration (e.g., maximum number of systems and distance between them)?	*No*	*No but can be easily adapted*
67	Can the system be integrated with other components (i.e. air samplers, etc.), potentially from other manufacturers, into a system? If yes explain how?	*No*	*No but can be easily adapted*
68	What communication protocol does the system use?	*None*	*TCP/IP over ethernet*
69	Can the system transmit location, time of alarm and DIM information? If so, explain how.	*No*	*No*
70	Does the system maintain an operational log? If so, what data does it store and can it be accessed locally/remotely in near real-time?	*No*	*No*
71	Does the system allow output to be exported and reformatted for additional analysis?	*No*	*Yes*
72	Can the system be mounted on Ground Vehicle, Ship, or Air Frame?	*No*	*No*
73	Can the System be used on the move?	*No*	*No as is due to internal optic not being ruggadized*
74	What is the power requirement?	*120 VAC, 15 amps*	*220 VAC, 20 amps*
75	Can the system be powered using alternative source?	*No*	*No*
76	Can the components of the system be upgraded separately?		
77	Can the system be reconfigured by attaching or detaching component such as radio, GPS, etc?	*No*	*No*
	Ruggedness		
78	In what range of environmental conditions can the system and consummable be stored?	*Baby Blue can be stored in a control environment (4 to 30 C),*	*stored in a control environment (4 to 30 C*
79	In what range of environmental conditions can the system be used?	*Controlled lab only : Baby Blue needs to be pempered for in a controlled lab condition (21 C),*	*Controlled lab only but the system could be ruggedized for field use*
80	List all the electromagnetic interference/electromagnetic compatibility conditions to which the system has been tested/certified.	*None*	*None*
81	How is your system decontaminated?	*The system cannot be decontaminated*	*The system can be decontaminated following sensitive decon. The system could be harden for CBRN decon*
82	Are there components that cannot be decontaminated?	*The system cannot be decontaminated*	*Internal component would need to be decontaminated by an electro-optic technician*
83	Can the System be decontaminated using DF200?	*No*	*No*
	Sample		
84	Does the system produce sample?	*No, but resultant PCR cell can be stored at 4 C for short term storage*	*No,*

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85	Does the system produce sealed sample?	*No*	*No*
86	Is the system capable of automatically storing multiple samples?	*No*	*No*
	Consumables		
87	What consumables are used in the system and how often do they need to be replaced?	*Reaction mixture based on Taq polymerase enzyme and molecular weight specific marker. The are consumed each time a test is run*	*N/A*
88	What is the shelf-life of consumables?	*1 year*	*N/A*
89	What are the storage requirements for the consumables?	*The TAQ polymer is store at cool (4C) temperature*	*N/A*
90	How long does it take to replenish consumables? (i.e., what is the lead time needed to fill a consumables order?)	*1 min*	*N/A*
91	Are the consumables open source or proprietary? If proprietary	*No, proprietary*	*N/A*
92	What is the average leadtime on consumables?	*2 months*	*N/A*