

**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 PRICE AND  
AVAILABILITY  
DEMANDE DE PRIX ET DE  
DISPONIBILITÉ**

This is not a bid solicitation but an inquiry for the purpose of obtaining price and availability information for the goods, services, and construction specified herein. The information requested herein is for budgeting and planning purposes only. Contracts will not be entered into on the basis of suppliers' responses.

Il ne s'agit pas d'une invitation à soumissionner mais d'une demande de renseignements sur les prix et la disponibilité des biens, services et construction spécifiés aux présentes. Les renseignements demandés aux présentes sont nécessaires uniquement à l'établissement du budget et à la planification. Les marchés ne seront pas attribués suite aux réponses des fournisseur/entrepreneurs.

**Comments - Commentaires**

<b>Title - Sujet</b> MULTI-GAS DETECTOR KITS	
<b>Solicitation No. - N° de l'invitation</b> W8486-12MGDK/A	<b>Date</b> 2012-04-11
<b>Client Reference No. - N° de référence du client</b> W8486-12MGDK	<b>GETS Ref. No. - N° de réf. de SEAG</b> PW-\$\$PV-935-60239
<b>File No. - N° de dossier</b> pv935.W8486-12MGDK	<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 2012-05-03</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 type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Anderson, Karen	<b>Buyer Id - Id de l'acheteur</b> pv935
<b>Telephone No. - N° de téléphone</b> (819) 956-5496 ( )	<b>FAX No. - N° de FAX</b> (819) 956-3814
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> DEPARTMENT OF NATIONAL DEFENCE 101 COLONEL BY DR. OTTAWA Ontario K1A0K2 Canada	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

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

<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 (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>

**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

Item Article	Description	Dest. Code Dest.	Inv. Code Fact.	Qty Qté	U. of I. U. de D.	Unit Price/Prix unitaire FOB/FAM Destination	Plant/Usine	Delivery Req. Livraison Req.	Del. Offered Liv. offerte
1	PRICE AND AVAILABILITY - MULTI-GAS DETECTOR KITS MULTI-GAS DETECTOR KITS FOR CONFINED SPACE ENTRY	W8486	W8486	1	Each	\$	\$	See Herein	
2	PRICE AND AVAILABILITY - MULTI-GAS DETECTOR KITS MULTI-GAS DETECTOR KITS FOR CONFINED SPACE ENTRY AND HEAVY ORGANIC COMPOUNDS	W8486	W8486	1	Each	\$	\$	See Herein	

---

### Instructions to Potential Bidders:

- Submissions must be made 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.
- Due to the nature of the Price and Availability, submissions transmitted by facsimile to PWGSC will not be accepted.
- All enquiries must be submitted in writing to the Contracting Authority no later than four (4) calendar days before the bid closing date. Enquiries received after that time may not be answered. Potential Bidders should reference as accurately as possible the numbered item of the P&A 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 potential 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.
- Canada requests that potential bidders provide in their submission:
  - One (1) hard copy and two (2) soft copies.

Multi-gas Detector Kit for Confined Space Entry  
Request for Information - Price and Availability  
Annex A: Pricing Worksheet

Question 1	The cost and lead time to provide the deliverables identified in the SOW which are fully compliant with the Mandatory (specified as "shall") requirements.
------------	--

Table 1: Base Capability Pricing

CLIN	Requirement Description	Qty	Price Per Line Item	Extended Price	Lead Time	Comments
1	Multi-gas Detector Kit for Confined Space Entry as detailed in Annex C.	375				
2	Calibration cylinders	375				
3	Initial cadre training course at CFB Kingston (Kingston, ON)	1				
4	Initial cadre training course at CFB Gagetown (Oromocto, NB)	1				
5	Operator training courses (CFBs across Canada)	35				
6	Calibration cylinders to support 2 years operation					
		Total Price				

<b>Question 2</b>	The cost and lead time to provide Repair & overhaul (R&O), Software Support and In-Service support (e.g. Reach-back for CF personnel) for the two years and (2) additional periods of 48 months (each) and the cost for additional serials of Initial Cadre Training (ICT) and operator training
-------------------	--

Table 2: Extended Support Pricing						
OLIN	Requirement Description	TIME Amount/Extent To Be Provided (how much/how often)			Price Per Option	Comments
C1	An option for Repair and Overhaul (R&O) services for 2 years beginning on date of receipt of the last shipment of CLIN 1 identified in Table 1.	24 months				
C2	An option for Repair and Overhaul (R&O) services for 4 years beginning the day after R&O services end as detailed above for OLIN C1.	48 months				
C3	An option for Software Support Services for 2 years beginning on date of receipt of the last shipment of CLIN 1 identified in Table 1.	24 months				
C4	An option for Software Support services for 4 years beginning the day after Software Support Services end as detailed above for OLIN C2.	48 months				
C5	An option for In-Service (Reach-Back) support services for 2 years beginning on date of receipt of the last shipment of CLIN 1 identified in Table 1.	24 months				
C6	An option for In-Service (Reach-Back) support services for 4 years beginning the day after In-service (Reach-Back) support services end as detailed above for OLIN C5.	48 months				

<b>Question 3</b>	Based on (Q1), the incremental cost of providing additional systems. Note: Options are not cumulative
-------------------	--

Table 3: Optional System Pricing						
Options	Requirement Description	Qty	Price Per Line Item	Extended Price	Lead Time	Comments
O1	Multi-gas Detector Kit for Confined Space Entry as detailed in Annex C.	150				
O2	Calibration cylinders	375				
O3	Initial cadre training course at CFB Kingston (Kingston, ON)	1				
O4	Initial cadre training course at CFB Gagetown (Oromocto, NB)	1				
O5	Operator training courses (CFBs across Canada)	10				

**Multi-gas Detector Kit for Confined Space Entry and HVOCs**

**Request for Information - Price and Availability**

**Annex B: Pricing Worksheet**

<b>Question 1</b>	The cost and lead time to provide the deliverables identified in the SOW which are fully compliant with the Mandatory (specified as "shall") requirements.
-------------------	--

Table 1: Base Capability Pricing							
CLIN	Requirement Description	Qty	Price Per Line Item	Extended Price	Lead Time	Comments	
1	Multi-gas Detector Kit for Confined Space Entry and HVOCs as detailed in Annex D.	230					
2	Docking station	70					
3	Calibration cylinders	230					
4	Initial cadre training course at CFB Esquimalt (Esquimalt, BC)	1					
5	Initial cadre training course at CFB Borden (Borden, ON)	1					
6	Initial cadre training course at CFB Halifax (Halifax, NS)	1					
7	Operator training courses (CFBs across Canada)	35					
8	Calibration cylinders to support 2 years operation						
		<b>Total Price</b>					

<b>Question 2</b>	The cost and lead time to provide Repair & overhaul (R&O), Software Support and In-Service support (e.g. Reach-back for CF personnel) for the two years and (2) additional periods of 48 months (each) and the cost for additional serials of Initial Cadre Training (ICT) and operator training
-------------------	--

Table 2: Extended Support Pricing						
OLIN	Requirement Description	Amount/Extent To Be Provided (how much/how often)	Price Per Option			Comments
C1	An option for Repair and Overhaul (R&O) services for 2 years beginning on date of receipt of the last shipment of CLIN 1 identified in Table 1.	24 months				
C2	An option for Repair and Overhaul (R&O) services for 4 years beginning the day after R&O services end as detailed above for OLIN C1.	48 months				
C3	An option for Software Support Services for 2 years beginning on date of receipt of the last shipment of CLIN 1 identified in Table 1.	24 months				
C4	An option for Software Support services for 4 years beginning the day after Software Support Services end as detailed above for OLIN C2.	48 months				
C5	An option for In-Service (Reach-Back) support services for 2 years beginning on date of receipt of the last shipment of CLIN 1 identified in Table 1.	24 months				
C6	An option for In-Service (Reach-Back) support services for 4 years beginning the day after In-service (Reach-Back) support services end as detailed above for OLIN C5.	48 months				



<b>Question 3</b>	Based on (Q1), the incremental cost of providing additional systems. Note: Options are not cumulative
-------------------	--

Table 3: Optional System Pricing

Options	Requirement Description	Qty	Price Per Line Item	Extended Price	Lead Time	Comments
O1	Multi-gas Detector Kit for Confined Space Entry and HVOCs as detailed in Annex D.	100				
O2	Docking station	10				
O3	Calibration cylinders	100				
O4	Initial cadre training course at CFB Esquimalt (Esquimalt, BC)	1				
O5	Initial cadre training course at CFB Borden (Borden, ON)	1				
O6	Initial cadre training course at CFB Halifax (Halifax, NS)	1				
O7	Operator training courses (CFBs across Canada)	10				

## **ANNEX C**

### **STATEMENT OF WORK**

### **MULTI-GAS DETECTOR KIT FOR CONFINED SPACE ENTRY**



#### **NOTICE**

This documentation has been reviewed by the technical authority and does not contain controlled goods.

#### **AVIS**

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées.

## 1.0 Scope.

### 1.1. Purpose

The Department of National Defence has a requirement for a quantity of up to three hundred and seventy-five (375) Multi-Gas Detector Kits for Confined Space Entry. The purpose of this Statement of Work (SOW) is to define the requirement and to provide the technical, training and support requirements.

### 1.2. Background

The Department of National Defence (DND) has a requirement for a multi-gas detector that will continuously measure the presence of oxygen, explosive vapours and hazardous substances in confined spaces that are known to exceed the safe concentrations identified in the Canada Occupational Health and Safety Regulations under the Canada Labour Code. At present there are in excess of four-hundred and fifty (450+) confined space entry kits used by firefighters, linesmen, navy hull technicians, construction engineers, fuel and environment technicians and various other construction engineering trades. This particular kit will be used by the CF Firefighters and Navy Hull Technicians.

### 1.3. Terminology

AC	Alternating Current
ACGIH	American Conference of Governmental Industrial Hygienists
CD	Compact Disk
CF	Canadian Forces
CFB	Canadian Forces Base
CFTO's	Canadian Forces Technical Orders
CO	Carbon Monoxide
CSA	Canadian Standards Association
DND	Department of National Defence
DVD	Digital Versatile Disc (formerly Digital Video Disk)
EMC	Electro-Magnetic Compatibility
EMI	Electro-Magnetic Interference
EU	European Union
H <sub>2</sub> S	Hydrogen Sulfide
HVOC	Heavy Volatile Organic Compounds
ICT	Initial Cadre Training
IEC	International Electrotechnical Commission
IP	Ingress Protection (Rating)
K FACTORS	Correction factors
LCD	Liquid Crystal Display
LEL	Lower Exposure Level
MSDS	Material safety Data Sheet
NSN	NATO Stock Number
O <sub>2</sub>	Oxygen

ppm	parts per million
PC	Personal Computer
PID	Photo-Ionizing Detection
QA	Quality Assurance
QC	Quality Control
QAP	Quality Assurance Plan
QAR	Quality Assurance Representative
RFI	Radio Frequency Interference
RFP	Request for Proposal
SOW	Statement of Work
STEL	Short Term Exposure Limit
TAC	Technical Accuracy Certificate
TLVs	Threshold Limit Value
TWA	Time Weighted Average
USB	Universal Serial Bus

## 2. 0. **Applicable Documents.**

### 2.1. Applicability

- 2.1.1. The following documents of the exact issue and their current revision form a part of the Statement of Work (SOW) to the extent specified herein. In the event of conflict between the documents referenced herein and the content of the SOW, the content of the SOW shall apply.

### 2.2. Canadian Forces Technical Orders (CFTOs)

- 2.2.1. D-01-100-207/SF-000 - Specification - Preparation of Parts Identification Lists
- 2.2.2. D-LM-0080-36/SF-000 - DND Minimum Requirement for Manufacturers Standard Pack
- 2.2.3. C-01-100-100/AG-005 - Adaptation of commercial and Foreign Government Publications
- 2.2.4. D-02-006-008/SG-001 - Design Change Procedures

### 2.3. Standards

- 2.3.1. General Safety Standards – Chapter 7, Annex A Hazardous Confined Spaces Directive, 1 Jan 2003 in C-02-040-009/AG-001
- 2.3.2. CSA Standard C22.2 No. 157-92 Intrinsic Safety
- 2.3.3. CSA Standard C22.2 No.152 – M1984 Combustible Gas Detection
- 2.3.4. IEC or EU Directive 2004/108/CE Electromagnetic Compatibility
- 2.3.5. IP 65
- 2.3.6. Electro-Magnetic Compatibility (EMC) directive 89/336/ECC

### 2.4. Government Regulations

- 2.4.1. Canada Occupational Health and Safety Regulations (SOR/86-304); Section 11.4 – Confined Space Entry

## 2.5. Definitions

- 2.5.1. The Multi-Gas Detector Kit for Confined Space Entry (qty 375) shall include the monitor and all ancillary equipment identified below:
  - 2.5.1.1. sampling pump;
  - 2.5.1.2. batteries and battery charger;
  - 2.5.1.3. calibration kit;
  - 2.5.1.4. data down loading kit
  - 2.5.1.5. operator's manual/CD (hard and soft copy);
  - 2.5.1.6. laminated fault finding chart;
  - 2.5.1.7. kit checklist;
  - 2.5.1.8. consumables list; and
  - 2.5.1.9. carrying case.

## 3.0 Requirements.

- 3.1. Multi-Gas Detector Kit Mandatory Characteristics (The following mandatory characteristics shall be provided.)

- 3.1.1. **Expected In-Service Life**

- 3.1.1.1. The Multi-Gas Detector Kit shall have a minimum life expectancy of 10 years from date of delivery. *This shall not be interpreted as a requirement to provide any specific parts or any specific service support but rather as a requirement that during the 10 year minimum life expectancy of the kit, the contractor would provide for parts availability and service support if need arises.*

- 3.1.2. **Monitor.** The monitor shall be:

- 3.1.2.1. hand held and capable of providing accurate and instant results with alarms and continuous displays;
  - 3.1.2.2. provided with an adjustable, removable carrying harness enabling the monitor to be worn comfortably on the chest, shoulder and on the waist;
  - 3.1.2.3. capable of being turned on-off, mode changed, zeroed and calibrated and be easily manipulated while the operator is wearing protective gloves;

- 3.1.2.4. a hand held portable instrument with 4 sensors, and shall have the capability of adding a 5<sup>th</sup> sensor;
- 3.1.2.5. a microprocessor based technology, with a push button control panel;
- 3.1.2.6. provided with audible, vibration, and visible alarms, as a minimum there must be audible and visible alarms for faulty sensors, low battery, circuit failure and low pump flow;
- 3.1.2.7. capable of being powered by both a rechargeable and a non-rechargeable commercially available battery power source;
- 3.1.2.8. provided with a protective leather, or plastic case or formed protective outer shell;
- 3.1.2.9. designed such that a diagnostic check is performed as part of the start-up routine, that as a minimum shall verify correct operation of the audible and visual alarms, electronic circuits, the battery state of charge, sensor status and indicate which sensors are installed;
- 3.1.2.10. manufactured from materials that shall be sufficiently corrosion resistant to withstand the marine environment during the useful life of the kit and the hazardous atmosphere that the kit is exposed to during operation;
- 3.1.2.11. capable of operating over a temperature range of -10 degrees Celsius to +40 degrees Celsius;
- 3.1.2.12. capable of operating within a humidity range of 15% to ninety percent 90%, non-condensing within the temperature range specified in Para. 3.1.2.11;
- 3.1.2.13. water and dirt resistant In Accordance With (IAW) Ingression Protection (IP) 65;
- 3.1.2.14. Canadian Standards Association (CSA) certified as intrinsically safe to Class I, Division 1, Groups A, B, C and D;
- 3.1.2.15. Electro-Magnetic Interference (EMI) and Radio Frequency Interference (RFI) certified IAW Electro-Magnetic Compatibility (EMC) directive 89/336/ECC; and
- 3.1.2.16. capable of data transfer with a Personal Computer (PC).
- 3.1.3. **Display.** The monitor display shall be:

- 3.1.3.1. of the Liquid Crystal Display (LCD) type, with readout of a minimum of 5 sensor readings, peak gas readings, alarm conditions, fault conditions, date and time, low battery, elapsed time and operator prompt messages;
- 3.1.3.2. designed with a minimum character height that can easily viewed by the operator;
- 3.1.3.3. designed with a display back light that will automatically turn on in low light conditions;
- 3.1.3.4. capable of showing all 5 channel readouts simultaneously, with minimum display ranges as follows:
  - 3.1.3.4.1. 0 - 25% for O<sub>2</sub> (oxygen);
  - 3.1.3.4.2. 0 - 500 ppm for CO (carbon monoxide);
  - 3.1.3.4.3. 0 - 50 ppm for H<sub>2</sub>S (hydrogen sulphide); and
  - 3.1.3.4.4. 0 - 100% LEL for explosive gases
- 3.1.3.5. designed with the capability of displaying either French or English language prompts.
- 3.1.4. **Sensors.** The monitor shall be:
  - 3.1.4.1. provided with 4 sensor types as a minimum with the capability to add a 5<sup>th</sup> sensor. The 4 sensors shall be capable of detecting the following:
    - 3.1.4.1.1. oxygen;
    - 3.1.4.1.2. carbon monoxide;
    - 3.1.4.1.3. hydrogen sulphide; and
    - 3.1.4.1.4. LEL of explosive gases (electro-chemical sensor).
  - 3.1.4.2. capable of supporting optionally available sensors (but not to be included in the kits) that can measure and detect sulphur dioxide, ammonia, nitric oxide, chlorine, nitrogen dioxide, and hydrogen cyanide;
  - 3.1.4.3. designed such that the sensors are easily replaceable in the field, requiring no more than a screwdriver to change the sensors that shall be easily accessible, without substantial disassembly of the monitor;
  - 3.1.4.4. capable of accurately (0.1 ppm resolution for H<sub>2</sub>S) monitoring the target gases by simple infusion of the surrounding atmosphere, or by reaction to a remote sample which is pumped into the sensor housing;
  - 3.1.4.5. provided with sensors designed for a minimum of 2 year shelf life;

3.1.4.6. capable to detect and initiate alarms for the standard gases preset to the DND alarm points and the current ACGIH TLVs as follows:

3.1.4.6.1.	Oxygen:	22.0% high & 20% low
3.1.4.6.2.	Carbon monoxide:	Ceiling .....200 ppm STEL .....50 ppm TWA .....25 ppm
3.1.4.6.3.	Hydrogen Sulphide:	Ceiling .....10 ppm STEL .....5 ppm TWA .....1 ppm
3.1.4.6.4.	LEL	10%

3.1.4.7. capable of having all sensor alarm limits set or reset by the operator.

3.1.5. **Sampling Pump.** The sampling pump shall be:

3.1.5.1. easily fitted to the monitor with the use of common tools such as screwdrivers or wrenches;

3.1.5.2. provided with a 6 m and a 10 m suction hose made from chemically resistant material including filter and probe;

3.1.5.3. fitted with a liquid shut down system to exclude the ingestion of fluids;

3.1.5.4. fitted with an audible and a visual low flow alarm for the mechanical sampling pump;

3.1.5.5. backed up by a manually operated bulb type sampling pump and hose that shall be provided in each kit;

3.1.5.6. CSA certified as intrinsically safe to Class I, Division 1, Groups A, B, C and D;

3.1.5.7. EMC/RFI certified IAW EMC directive 89/336/ECC; and

3.1.5.8. capable of being turned “On” & “Off” automatically when the monitor is turned “On” & “Off”.

3.1.6. **Rechargeable Batteries and Battery Charger**

3.1.6.1. The rechargeable battery capacity shall support a minimum 10 hour run-time without the sampling pump and a minimum of 8 hours with the pump and back light on.

3.1.6.2. A 110 volt 60 hertz AC battery charger shall be provided capable of fast recharging and trickle charging of the monitor battery.



- 3.1.6.3. Lights that indicate when the battery is charging, and when charging is complete, shall be mounted on the battery charger;
- 3.1.6.4. The maximum recharging time shall be 6 hours.
- 3.1.6.5. A battery holder assembly for commercially available batteries, shall also be provided (if required).
- 3.1.6.6. Alarm points, data and set-up variables shall be maintained in memory by a secondary battery with a minimum 5 year life.
- 3.1.7. **Calibration Kit.** The calibration kit shall:
  - 3.1.7.1. include a valve type flow regulator;
  - 3.1.7.2. contain all the necessary hoses, fittings and attachments;
  - 3.1.7.3. include a storage location fitted for the calibration cylinder detailed below; and
  - 3.1.7.4. have all its components fitted into the main carrying case.
- 3.1.8. **Calibration Cylinder.** The calibration cylinder shall be:
  - 3.1.8.1. supplied separately and packaged accordingly from the Calibration Kit as this item will be a separately demandable consumable;
  - 3.1.8.2. include a metal cylinder containing appropriate compressed calibration gas for the standard 4-sensor configuration;
  - 3.1.8.3. a shelf life of 1 year minimum (from date of delivery);
  - 3.1.8.4. the expiry date clearly marked on the cylinder;
  - 3.1.8.5. a cylinder label that shall state the full name of the constituent gases, as well as the appropriate % LEL and ppm units;
  - 3.1.8.6. a bilingual Material Safety Data Sheet (MSDS) included with the gas cylinder; and
  - 3.1.8.7. a sufficient volume of gas to provide for 40 standard calibrations.
- 3.1.9. **Data Logging & Data Transfer**

- 3.1.9.1. The monitor shall have a minimum data logging capability of 40 hours at 1 minute intervals for all 5 channels.
- 3.1.9.2. The logged data shall include: date, time, instantaneous readings and calibration dates.
- 3.1.9.3. The kit shall contain all the necessary cables, adapters for downloading of stored monitoring data onto a printer and/or PC.
- 3.1.9.4. The kit shall include any data downloading software required on a CD/DVD.
- 3.1.9.5. The kit shall include bilingual (English & French) data logging and data transfer instructions if they are not included in the main operators manual.
- 3.1.9.6. The monitor shall be provided with either a USB 2.0 (minimum) port or an interface cable to allow for a connection with a USB 2.0 device, as well as any required software, that will allow for an Internet connection to send and receive reports.

#### 3.1.9 **Carrying Case**

- 3.1.9.1 A water resistant hard shell carrying/transport case shall be provided with each kit. The monitor and all ancillary equipment identified in Para. 2.5.1 shall be fitted in into specific locations within a foam filled case liner; and
- 3.1.10. A name plate with the manufacturers part number, NATO Stock Number (NSN) as well as a calibration required date label shall be affixed to the exterior of the carrying case.

### 3.2. Integrated Logistics Support (ILS)

#### 3.2.1. **ILS Information**

- 3.2.1.1. The contractor shall provide the following:
  - 3.2.1.1.1. a List of Recommended Spare Parts List (RSPL) to be maintained by the CF;
  - 3.2.1.1.2. a List of Preventative and Corrective Maintenance activities with an estimated schedule, if available;
  - 3.2.1.1.3. a Parts Manual of those components replaceable by the CF, in bilingual format (separate English and French versions are acceptable;
  - 3.2.1.1.4. a list and/or drawings of the Multi-Gas Detector Kit and its major components for cataloguing and assigning NATO Stock Numbers (NSNs); and

- 3.2.1.1.5. a copy of the basic training material (handouts, lesson plans and exercises) paper and electronic (format to be compatible with MS Windows XP)

3.2.2. **Manuals and Instructions.** (The following shall be provided with each kit).

- 3.2.2.1. A bilingual (English & French) operators manual shall be provided in both a hard copy (bound, with no loose sheets) and in electronic format on a CD/ DVD compatible with Microsoft Windows XP and Microsoft Office 2003. The Contractor shall be responsible for Technical Accuracy Certificate (TAC) when signing the Certificate of TAC, certifying the accuracy of the translated text.

3.2.2.2. The operator's manual shall:

- 3.2.2.2.1. include safety warnings and precautions, kit contents, operating instructions, zeroing and calibration instructions, routine maintenance by the operator, trouble shooting, data logging and data downloading instructions, storage criteria and a list of consumable parts; and
- 3.2.2.2.2. reflect the DND alarm limits and prompts that the operator would see on the monitor display.

3.2.2.3. A bilingual (English & French) laminated operation and fault finding chart.

3.2.2.4. A bilingual (English & French) checklist with a complete description of the kit as received in the shipping containers.

3.2.2.5. A bilingual (English & French) list of consumables and their estimated time of replacement.

3.2.3. **Operator Maintenance**

- 3.2.3.1. The Multi-Gas Detector Kit shall be designed such that the operator can perform calibration, charging of the battery, changing sensors, and setting of alarm points and downloading logged data.

3.2.4. **Training**

3.2.4.1. Operator Training

- 3.2.4.1.1. The contractor shall provide up to 35 half day operator training sessions, for a class size of approximately 5 to 15 students, at Canadian Forces Bases (CFBs). The training shall be provided in Canada's official languages. Note: The training sessions may occur prior to the kit delivery to each specific base and may occur in random order, with reference to geographical location.

#### 3.2.4.2. Initial Cadre Training (ICT)

3.2.4.2.1. The shall provide ICT courses for the user communities instructional personnel at the following locations:

- 3.2.4.2.1.1. CFB Kingston; and
- 3.2.4.2.1.2. CFB Gagetown

3.2.4.2.2. The training courses (both operator and ITC)are to include the following:

- 3.2.4.2.2.1. Equipment description;
- 3.2.4.2.2.2. Set up and pack up with/without wireless laptop connection;
- 3.2.4.2.2.3. Sampling;
- 3.2.4.2.2.4. Analysis;
- 3.2.4.2.2.5. Saving, retrieving and sending reports;
- 3.2.4.2.2.6. Power connections, battery change; and
- 3.2.4.2.2.7. Calibration.

### 3.3. Quality Assurance

- 3.3.1. The contractor shall implement and maintain a Quality Assurance Plan (QAP) and Quality Management System IAW the Request For Proposal (RFP).
- 3.3.2. The contractor shall retain Quality Control (QC) Inspection and test records for a period of no less than 3 years after completion of the contract.
- 3.3.3. The contractor shall make available to the DND Quality Assurance Representative (QAR) within 2 business days of receiving such request, the QC Inspection and Test Records for the items delivered as part of the contract.
- 3.3.4. DND reserves the right to conduct testing to verify compliance with any or all of the requirements defined within this SOW.
- 3.3.5. DND reserves the right to conduct Quality Assurance (QA) inspections and audits to verify the contractor's quality assurance procedures, practices and methods during production and any other work associated to the contract.

### 3.4. Warranty

- 3.4.1. The contractor shall provide a minimum 10 year warranty on the monitor electronics and a minimum 2 year non-prorated warranty on the sensors. The contractor is to include a warranty statement listing what is covered by warranty, for how long and the warranty claim procedure. Warranty Turn Around Time (TAT) shall not exceed 90 calendar days.

## **4.0 Multi-Gas Detector Kit Rated Characteristics**

4.1 The following rated characteristics may be provided.

### **4.2 Ergonomics**

- 4.2.1 The monitor and sampling pump (including all batteries) should weigh less than 1.0 kg.

### **4.3 Monitor**

- 4.3.1 The monitor should be capable of providing an intermittent audible tone to indicate that the monitor is operating correctly.
- 4.3.2 The monitor should be capable such that the gas alarms can be set to latching or non-latching position.
- 4.3.3 The monitor should indicate the requirement for pending sensor replacement based on an indication of sensor reserve capacity during calibration or as a selectable diagnostic display.
- 4.3.4 The monitor alarms should have a reset capability to reset all sensor alarm points to the DND default values listed in the mandatory section IAW Para. 3.1.4.8.
- 4.3.5 The monitor should have an operator selectable menu of “K” factors for a minimum of 20 pre-programmed common flammable gases.
- 4.3.6 The monitor should have the capability of allowing the operator to install a “K” factor for a non pre-programmed flammable gas.
- 4.3.7 The contractor should provide equipment software updates for 10 years at no additional cost.

### **4.4 Display**

- 4.4.1 The monitor display should be capable of displaying the date as dd/mm/yy.  
Example: 22 July 11
- 4.4.2 The monitor should have the ability to display logged data through the monitor LCD without the use of a computer.

### **4.5 Rechargeable Battery and Battery Charger**

- 4.5.1 The rechargeable monitor battery should provide power to both the monitor and the sampling pump.
- 4.5.2 The intrinsically safe battery pack should be designed such that it can be changed in a potentially explosive environment.
- 4.5.3 The rechargeable monitor battery should be designed such that it can be replaced by the operator without the use of tools.
- 4.5.4 The rechargeable monitor batteries should be capable of being charged by 12V vehicle power.
- 4.5.5 The kit should contain an adapter for 12V vehicle power charging.

#### **4.6 Sampling Pump**

- 4.6.1 The monitor and motorized sampling pump should be designed such that no tools are required to fit or remove the motorized sampling pump.

#### **4.7 Repair and Overhaul (R&O) Support**

- 4.7.1 The contractor should provide R&O services on all systems delivered under the contract, on an as required basis starting from the first system delivery to a period of 24 months from the last system delivery, plus any option periods as may be exercised by Canada.
- 4.7.2 R&O services shall be conducted at the contractor's facility or at the contractor's authorized Canadian distributors repair facility. The contractor shall have a Canada-wide parts distribution and maintenance network. The R&O services shall include free software upgrades, access to internet support, as well as the necessary parts and labour to repair kits in the event of a malfunction.
- 4.7.3 A calibration sticker identifying the date of calibration at the repair facility and the calibration due date shall be attached to the monitor and the outer case.
- 4.7.4 R&O services shall include the completion of all Preventive and Corrective Maintenance tasks beyond the scope of the Operator Maintenance tasks identified in Para 3.2.3. This shall include, but not be limited to, all the necessary disassembly, inspection, cleaning, repair or replacement of faulty parts, reassembly, adjustments, calibration, recertification, and packaging and shipping tasks to return the equipment to the Government of Canada in a fully serviceable condition.

- 4.7.5 The contractor shall supply all spare parts necessary to complete the R&O work. Spare parts shall be new and will meet the design criteria of the Original Equipment Manufacturer (OEM). It will be acceptable to make minor adjustments, calibration and/or cleaning of system components where suitable and practical. The cost of repair and/or spare parts is included in the lump sum price provided to complete the R&O work.
- 4.7.6 The contractor's turn-around-time to complete all R&O work shall not exceed 60 calendar days. The turn-around-time is defined as that period of time from the date of receipt of an item at the contractor's designated facility in Canada to the date the item is accepted as serviceable by the delegated Quality Assurance Representative (QAR) at the designated Canadian facility.
- 4.7.7 The contractor shall prepare and submit a R&O Activity Report detailing the R&O performed on the system and the components that were replaced during the reporting period. The R&O Activity Report will be used by DND to refine the logistic support requirements and/or improve the system.
- 4.7.8 Monitor should have an audible "man down" alarm.
- 4.7.9 Sensor should have a three (3) year warranty.

## **5.0 Contract Deliverables**

- 5.1 The contractor shall be responsible for the delivery of the following contract deliverables within 3 months of contract award:
  - 5.1.1 qty 375 Multi-Gas Detector Kits IAW Para. 3.1. Prior to delivery, the monitor shall be calibrated and the alarm levels must be set to DND requirements as listed; and
  - 5.1.2 qty 375 calibration cylinders IAW Para. 3.1.8 ; and
  - 5.1.3 training IAW Para. 3.2.4.
- 5.2 A ten (10) warranty on monitor electronics and a two (2) year non-prorated warranty on all sensors IAW Para. 3.4.1.
- 5.3 The following deliverables shall be provided to the Technical Authority (TA) in the contractor's response to the RFP:
  - 5.3.1 a complete description of the kit as received in the shipping containers and instruction on assembly;
  - 5.3.2 provide in writing the right for DND to reproduce, in part or in whole, all documents procured under this SOW irrevocable copyright release with the limitation that the data shall not be released outside the Canadian Government; and

5.3.3 a catalogue of consumables and their estimated time of delivery.

5.4 The following deliverables shall be provided to the TA within 1 month of contract award:

5.4.1 a List of Recommended Spare Parts List (RSPL) to be maintained by the CF;

5.4.2 a List of Preventative and Corrective Maintenance activities with an estimated schedule, if available;

5.4.3 a Parts Manual of those components replaceable by the CF, in bilingual format (separate English and French versions are acceptable);

5.4.4 a list and/or drawings of the Multi-Gas Detector Kit and its major components for cataloguing and assigning NATO Stock Numbers (NSN); and); and

5.4.5 a copy of the basic training material (handouts, lesson plans and exercises) paper and electronic (format to be compatible with MS Windows XP).

5.5 The DND equipment delivery address is:

25 CFSD Montreal  
Montreal, Que  
(514) 252-2777, ext 2363



## **ANNEX D**

### **STATEMENT OF WORK**

### **MULTI-GAS DETECTOR KIT FOR CONFINED SPACE ENTRY AND HEAVY VOLATILE ORGANIC COMPOUNDS**



#### **NOTICE**

This documentation has been reviewed by the technical authority and does not contain controlled goods.

#### **AVIS**

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées.

## 1.0 Scope.

### 1.1. Purpose

The Department of National Defence has a requirement for a quantity of up to two hundred and thirty (230) Multi-Gas Detector Kits for Confined Space Entry with Heavy Volatile Organic Compounds (HVOC) capability and a further quantity of seventy (70) Automatic Docking Stations. The purpose of this Statement of Work (SOW) is to define the requirement and to provide the technical, training and support requirements.

### 1.2. Background

The Department of National Defence (DND) has a requirement for a multi-gas detector that will continuously measure the presence of oxygen, explosive vapours and hazardous substances in confined spaces that are known to exceed the safe concentrations identified in the Canada Occupational Health and Safety Regulations under the Canada Labour Code. At present there are in excess of four-hundred and fifty (450+) confined space entry kits used by firefighters, linesmen, navy hull technicians, construction engineers, fuel and environment technicians and various other construction engineering trades. This particular kit will be used by the CF Firefighters and Navy Hull Technicians.

### 1.3. Terminology

AC	Alternating Current
ACGIH	American Conference of Governmental Industrial Hygienists
CD	Compact Disk
CF	Canadian Forces
CFB	Canadian Forces Base
CFTO's	Canadian Forces Technical Orders
CO	Carbon Monoxide
CSA	Canadian Standards Association
DND	Department of National Defence
DVD	Digital Versatile Disc (formerly Digital Video Disk)
EMC	Electro-Magnetic Compatibility
EMI	Electro-Magnetic Interference
EU	European Union
H <sub>2</sub> S	Hydrogen Sulfide
HVOC	Heavy Volatile Organic Compounds
ICT	Initial Cadre Training
IEC	International Electrotechnical Commission
IP	Ingress Protection (Rating)
K FACTORS	Correction factors
LCD	Liquid Crystal Display
LEL	Lower Exposure Level

MSDS	Material safety Data Sheet
NSN	NATO Stock Number
O <sub>2</sub>	Oxygen
ppm	parts per million
PC	Personal Computer
PID	Photo-Ionizing Detection
QA	Quality Assurance
QC	Quality Control
QAP	Quality Assurance Plan
QAR	Quality Assurance Representative
RFI	Radio Frequency Interference
RFP	Request for Proposal
SOW	Statement of Work
STEL	Short Term Exposure Limit
TAC	Technical Accuracy Certificate
TAT	Turn Around Time
TLVs	Threshold Limit Value
TWA	Time Waited Average
USB	Universal Serial Bus

## 2. 0. **Applicable Documents.**

### 2.1. Applicability

- 2.1.1. The following documents of the exact issue and their current revision form a part of the Statement of Work (SOW) to the extent specified herein. In the event of conflict between the documents referenced herein and the content of the SOW, the content of the SOW shall apply.

### 2.2. Canadian Forces Technical Orders (CFTOs)

- 2.2.1. D-01-100-207/SF-000 - Specification - Preparation of Parts Identification Lists
- 2.2.2. D-LM-0080-36/SF-000 - DND Minimum Requirement for Manufacturers Standard Pack
- 2.2.3. C-01-100-100/AG-005 - Adaptation of commercial and Foreign Government Publications
- 2.2.4. D-02-006-008/SG-001 - Design Change Procedures

### 2.3. Standards

- 2.3.1. General Safety Standards – Chapter 7, Annex A Hazardous Confined Spaces Directive, 1 Jan 2003 in C-02-040-009/AG-001
- 2.3.2. CSA Standard C22.2 No. 157-92 Intrinsic Safety

- 2.3.3. CSA Standard C22.2 No.152 – M1984 Combustible Gas Detection
- 2.3.4. IEC or EU Directive 2004/108/CE Electromagnetic Compatibility
- 2.3.5. IP 65
- 2.3.6. Electro-Magnetic Compatibility (EMC) directive 89/336/ECC

## 2.4. Government Regulations

- 2.4.1. Canada Occupational Health and Safety Regulations (SOR/86-304); Section 11.4 – Confined Space Entry

## 2.5. Definitions

- 2.5.1. The Multi-Gas Detector Kit Confined Space Entry Kit and HVOCs (qty 230) shall include the monitor and all ancillary equipment identified below:
  - 2.5.1.1. sampling pump;
  - 2.5.1.2. rechargeable battery and battery charger;
  - 2.5.1.3. calibration kit;
  - 2.5.1.4. data down loading kit
  - 2.5.1.5. operator's training manual/CD (hard and soft copy);
  - 2.5.1.6. laminated fault finding chart;
  - 2.5.1.7. kit checklist;
  - 2.5.1.8. consumables list; and
  - 2.5.1.9. carrying case
- 2.5.2. A docking station (qty 70) shall also be provided that is compatible with the monitor for the purposes of calibration and transfer of data logged by the monitor. The docking station shall not be packed in the carrying case identified in Para. 2.5.1.9.

## 3.0 **Requirements.**

- 3.1. Multi-Gas Detector Kit Mandatory Characteristics (The following mandatory characteristics shall be provided.)

### 3.1.1. **Expected In-Service Life**

- 3.1.1.1. The Multi-Gas Detector Kit and docking station shall have a minimum life expectancy of 10 years from date of delivery with parts availability and service support extending through that 10 year period. *This shall not be interpreted as a requirement to provide any specific parts or any specific service support but rather as a requirement that during the 10 year minimum life expectancy of the kit, the contractor would provide for parts availability and service support if need arises.*

- 3.1.2. **Monitor.** The monitor shall be:
- 3.1.2.1. hand held and capable of providing accurate and instant results with alarms and continuous displays;
  - 3.1.2.2. held in an adjustable, removable carrying harness enabling the monitor to be worn comfortably on the chest, shoulder and on the waist;
  - 3.1.2.3. capable of being turned on-off, mode changed, zeroed and calibrated and be easily manipulated while the operator is wearing protective gloves;
  - 3.1.2.4. a hand held portable instrument with 5 sensors, and shall have the capability of adding a 6<sup>th</sup> sensor;
  - 3.1.2.5. a microprocessor based technology, with a push button control panel;
  - 3.1.2.6. provided with audible, vibration, and visible alarms, as a minimum there shall be audible and visible alarms for faulty sensors, low battery, circuit failure and low pump flow;
  - 3.1.2.7. capable of being powered by both a rechargeable and a non-rechargeable commercially available battery power source;
  - 3.1.2.8. provided with a protective outer shell resistant to the elements;
  - 3.1.2.9. designed such that a diagnostic check is performed as part of the start-up routine, and that as a minimum, shall verify correct operation of the audible and visual alarms, electronic circuits, the battery state of charge, sensor status and indicate which sensors are installed;
  - 3.1.2.10. manufactured from materials that shall be sufficiently corrosion resistant to withstand the marine environment during the useful life of the kit and the hazardous atmosphere that the kit is exposed to during operation;
  - 3.1.2.11. capable of operating over a temperature range of -10 degrees Celsius to +40 degrees Celsius;
  - 3.1.2.12. capable of operating within a humidity range of 15% to ninety percent 90%, non-condensing within the temperature range specified in Para. 3.1.2.11;
  - 3.1.2.13. water and dirt resistant In Accordance With (IAW) Ingress Protection (IP) 65;
  - 3.1.2.14. Canadian Standards Association (CSA) certified as intrinsically safe to Class I, Division 1, Groups A, B, C and D;

- 3.1.2.15. Electro-Magnetic Interference (EMI) and Radio Frequency Interference (RFI) certified IAW Electro-Magnetic Compatibility (EMC) directive 89/336/ECC; and
- 3.1.2.16. capable of data transfer with both a Personal Computer (PC) and the provided automatic docking station.
- 3.1.3. **Display.** The monitor display shall be:
  - 3.1.3.1. of the Liquid Crystal Display (LCD) type, with readout of a minimum of 6 sensor readings, peak gas readings, alarm conditions, fault conditions, date and time, low battery, elapsed time and operator prompt messages;
  - 3.1.3.2. designed with a minimum character height that can be easily viewed by the operator;
  - 3.1.3.3. designed with a display back light that will automatically turn on in low light conditions;
  - 3.1.3.4. capable of showing all 6 channel readouts simultaneously, with minimum display ranges as follows:
    - 3.1.3.4.1. 0 - 25% for O<sub>2</sub> (oxygen);
    - 3.1.3.4.2. 0 - 500 ppm for CO (carbon monoxide);
    - 3.1.3.4.3. 0 - 50 ppm for H<sub>2</sub>S (hydrogen sulfide);
    - 3.1.3.4.4. 0 - 100% LEL for explosive gases; and
    - 3.1.3.4.5. 200 - 2000 ppm isobutylene for HVOCs
  - 3.1.3.5. designed with the capability of displaying both French and English language prompts.
- 3.1.4. **Sensors.** The monitor shall be:
  - 3.1.4.1. provided with 5 sensor types as a minimum with the capability to add a 6<sup>th</sup> sensor. The 5 sensors shall be capable of detecting the following:
    - 3.1.4.1.1. oxygen;
    - 3.1.4.1.2. carbon monoxide;
    - 3.1.4.1.3. hydrogen sulfide;
    - 3.1.4.1.4. LEL of explosive gases (electro-chemical sensor); and
    - 3.1.4.1.5. Threshold Limit Values (TLVs) for HVOCs (photo ionization sensor).
  - 3.1.4.2. designed with the capability to detect the TLVs of HVOCs such as JP5/JP8 and diesel fuel with the resolution of:

- 3.1.4.2.1. Range: 0 to 200 ppm isobutylene equivalent (Sensitivity: 0.1 ppm isobutylene); and
- 3.1.4.2.2. Range: 200 to 2000 ppm isobutylene equivalent (Sensitivity: 1.0 ppm isobutylene).
- 3.1.4.3. capable of supporting optionally available sensors (but not to be included in the kits) that can measure and detect sulphur dioxide, ammonia, nitric oxide, chlorine, nitrogen dioxide, and hydrogen cyanide;
- 3.1.4.4. designed such that the sensors are easily replaceable in the field, requiring no more than a screwdriver to change the sensors that shall be easily accessible, without substantial disassembly of the monitor;
- 3.1.4.5. capable of accurately (0.1 ppm resolution for H<sub>2</sub>S) monitoring the target gases by simple infusion of the surrounding atmosphere, or by reaction to a remote sample which is pumped into the sensor housing;
- 3.1.4.6. provided with sensors designed for a minimum of 2 year shelf life;
- 3.1.4.7. capable to detect and initiate alarms for the standard gases preset to the DND alarm points and the current ACGIH TLVs as follows:
  - 3.1.4.7.1. Oxygen: 22.0% high & 20% low
  - 3.1.4.7.2. Carbon monoxide: Ceiling .....200 ppm  
STEL .....50 ppm  
TWA .....25 ppm
  - 3.1.4.7.3. Hydrogen Sulfide: Ceiling .....10 ppm  
STEL .....5 ppm  
TWA .....1 ppm
  - 3.1.4.7.4. LEL 10%
  - 3.1.4.7.5. HVOC STEL.....25 ppm  
TWA.....10 ppm
- 3.1.4.8. capable of having all sensor alarm limits set or reset by the operator.
- 3.1.5. **Sampling Pump.** The sampling pump shall be:
  - 3.1.5.1. easily fitted to the monitor with the use of common tools such as screwdrivers or wrenches;
  - 3.1.5.2. provided with a 6 m and a 10 m suction hose made from chemically resistant material including filter and probe;
  - 3.1.5.3. fitted with a liquid shut down system to exclude the ingestion of fluids;

- 3.1.5.4. fitted with an audible and a visual low flow alarm for the mechanical sampling pump;
- 3.1.5.5. backed up by a manually operated bulb type sampling pump and hose that shall be provided in each kit;
- 3.1.5.6. CSA certified as intrinsically safe to Class I, Division 1, Groups A, B, C and D;
- 3.1.5.7. EMC/RFI certified IAW EMC directive 89/336/ECC; and
- 3.1.5.8. turned “On” & “Off” automatically when the monitor is turned “On” & “Off”.

**3.1.6. Rechargeable Battery and Battery Charger**

- 3.1.6.1. The rechargeable battery capacity shall support a minimum 10 hour run-time without the sampling pump and a minimum of 8 hours with the pump and back light on.
- 3.1.6.2. A 110 volt 60 hertz AC battery charger shall be provided capable of fast recharging and trickle charging of the monitor battery.
- 3.1.6.3. Lights that indicate when the battery is charging, and when charging is complete, shall be mounted on the battery charger;
- 3.1.6.4. The maximum recharging time shall be 6 hours.
- 3.1.6.5. A battery holder assembly for commercially available non-rechargeable batteries, shall also be provided (if required).
- 3.1.6.6. Alarm points, data and set-up variables shall be maintained in memory by a secondary battery with a minimum 5 year life.

**3.1.7. Calibration Kit.** The calibration kit shall:

- 3.1.7.1. include a valve type flow regulator;
- 3.1.7.2. contain all the necessary hoses, fittings and attachments;
- 3.1.7.3. include a storage location fitted for the calibration cylinder detailed below; and
- 3.1.7.4. have all its components fitted into the main carrying case.

**3.1.8. Calibration Cylinder.** The calibration cylinder shall be:



- 3.1.8.1. supplied separately and packaged accordingly from the Calibration Kit as this item will be a separately demandable consumable;
- 3.1.8.2. include a metal cylinder containing appropriate compressed calibration gas for the standard 4-sensor configuration;
- 3.1.8.3. a shelf life of 1 year minimum (from date of delivery);
- 3.1.8.4. the expiry date clearly marked on the cylinder;
- 3.1.8.5. a cylinder label that shall state the full name of the constituent gases, as well as the appropriate % LEL and ppm units;
- 3.1.8.6. a bilingual Material Safety Data Sheet (MSDS) included with the gas cylinder; and
- 3.1.8.7. a sufficient volume of gas to provide for 40 standard calibrations.

**3.1.9. Data Logging & Data Transfer**

- 3.1.9.1. The monitor shall have a minimum data logging capability of 40 hours at 1 minute intervals for all 6 channels.
- 3.1.9.2. The logged data shall include: date, time, instantaneous readings and calibration dates.
- 3.1.9.3. The data down loading kit shall contain all the necessary cables, adapters for downloading of stored monitoring data onto a printer and/or PC.
- 3.1.9.4. The data down loading kit shall include any data downloading software required on a CD/DVD.
- 3.1.9.5. The kit shall include bilingual (English & French) data logging and data transfer instructions if they are not included in the main operators manual.
- 3.1.9.6. The monitor shall be provided with either a USB 2.0 (minimum) port or an interface cable to allow for a connection with a USB 2.0 device, as well as any required software, that will allow for an Internet connection to send and receive reports.

**3.1.9 Carrying Case**

- 3.1.9.1 A water resistant hard shell carrying/transport case shall be provided with each kit. The monitor and all ancillary equipment identified in Para. 2.5.1 shall be fitted in into specific locations within a foam filled case liner; and

- 3.1.9.2 A name plate with the manufacturers part number, NATO Stock Number (NSN) as well as a calibration required date label shall be affixed to the exterior of the carrying case.

### 3.1.10 Automatic Docking Station

- 3.1.10.1 The Automatic Docking station shall be capable of the following:

- 3.1.10.1.1 performing automatic calibration of the monitor;
- 3.1.10.1.2 bump test; and
- 3.1.10.1.3 data transfer of logged data from the monitor.

## 3.2. Integrated Logistics Support (ILS)

### 3.2.1. ILS Information

- 3.2.1.1. The contractor shall provide the following:

- 3.2.1.1.1. a List of Recommended Spare Parts List (RSPL) to be maintained by the CF;
- 3.2.1.1.2. a List of Preventative and Corrective Maintenance activities with an estimated schedule, if available;
- 3.2.1.1.3. a Parts Manual of those components replaceable by the CF, in bilingual format (separate English and French versions are acceptable;
- 3.2.1.1.4. a list and/or drawings of the Multi-Gas Detector Kit and docking station and their major components for cataloguing and assigning NATO Stock Numbers (NSNs); and
- 3.2.1.1.5. a copy of the basic training material (handouts, lesson plans and exercises) paper and electronic (format to be compatible with MS Windows XP).

### 3.2.2. Manuals and Instructions. (The following shall be provided with each kit)

- 3.2.2.1. A bilingual (English & French) language operators manual shall be provided in both a hard copy (bound, with no loose sheets) and in electronic format on a CD/ DVD compatible with Microsoft Windows XP and Microsoft Office 2003. The Contractor shall be responsible for Technical Accuracy Certificate (TAC) when signing the Certificate of TAC, certifying the accuracy of the translated text.
- 3.2.2.2. The operator's manual shall:
  - 3.2.2.2.1. include safety warnings and precautions, kit contents, operating instructions, zeroing and calibration instructions, routine maintenance by the operator, trouble shooting, data logging and data

- downloading instructions, storage criteria and a list of consumable parts; and
    - 3.2.2.2.2. reflect the DND alarm limits and prompts that the operator would see on the monitor display.
  - 3.2.2.3. A bilingual (English & French) laminated operation and fault finding chart.
  - 3.2.2.4. A bilingual (English & French) checklist with a complete description of the kit as received in the shipping containers; and
  - 3.2.2.5. A bilingual (English & French) list of consumables and their estimated time of replacement.
- 3.2.3. **Operator Maintenance**
  - 3.2.3.1. The Multi-Gas Detector Kit shall be designed such that the operator can perform calibration, charging of the battery, changing sensors, and setting of alarm points and downloading logged data.
- 3.2.4. **Training**
  - 3.2.4.1. Operator Training
    - 3.2.4.1.1. The contractor shall provide up to 35 half day operator training sessions, for a class size of approximately 5 to 15 students, at Canadian Forces Bases (CFBs). The training shall be provided in both English and French. Note: The training sessions may occur prior to the kit delivery to each specific base and may occur in random order, with reference to geographical location.
  - 3.2.4.2. Initial Cadre Training (ICT)
    - 3.2.4.2.1. The contractor shall provide ICT courses for the user communities instructional personnel at the following locations:
      - 3.2.4.2.1.1. CFB Halifax;
      - 3.2.4.2.1.2. CFB Borden; and
      - 3.2.4.2.1.3. CFB Esquimalt.
    - 3.2.4.2.2. The training courses (both operator and ICT) are to include the following:
      - 3.2.4.2.2.1. Equipment description;
      - 3.2.4.2.2.2. Set up and pack up with/without wireless laptop connection;
      - 3.2.4.2.2.3. Sampling;
      - 3.2.4.2.2.4. Analysis;

- 3.2.4.2.2.5. Saving, retrieving and sending reports;
- 3.2.4.2.2.6. Power connections, battery change; and
- 3.2.4.2.2.7. Calibration.

### **3.3. Quality Assurance**

- 3.3.1. The contractor shall implement and maintain a Quality Assurance Plan (QAP) and Quality Management System IAW the Request For Proposal (RFP).
- 3.3.2. The contractor shall retain Quality Control (QC) Inspection and test records for a period of no less than 3 years after completion of the contract.
- 3.3.3. The contractor shall make available to the DND Quality Assurance Representative (QAR) within 2 business days of receiving such request, the QC Inspection and Test Records for the items delivered as part of the contract.

### **3.4. Warranty**

- 3.4.1. The contractor shall provide a minimum 10 year warranty on the monitor electronics and a minimum 2 year non-prorated warranty on the sensors. The contractor is to include a warranty statement listing what is covered by warranty, for how long and the warranty claim procedure. Warranty Turn Around Time (TAT) shall not exceed 90 calendar days.

## **4.0 Multi-Gas Detector Kit Rated Characteristics**

4.1 The following characteristics may be provided.

### **4.2 Ergonomics**

- 4.2.1 The monitor and sampling pump (including all batteries) should weigh less than 1.0 kg.

### **4.3 Monitor**

- 4.3.1 The monitor should be capable of providing an intermittent audible tone to indicate that the monitor is operating correctly.
- 4.3.2 The monitor should be capable such that the gas alarms can be set to latching or non-latching position.
- 4.3.3 The monitor should indicate the requirement for pending sensor replacement based on an indication of sensor reserve capacity during calibration or as a selectable diagnostic display.

- 4.3.4 The monitor alarms should have a reset capability to reset all sensor alarm points to the DND default values listed in the mandatory section IAW Para. 3.1.4.8.
- 4.3.5 The monitor should have an operator selectable menu of “K” factors for a minimum of 20 pre-programmed common flammable gases.
- 4.3.6 The monitor should have the capability of allowing the operator to install a “K” factor for a non pre-programmed flammable gas.
- 4.3.7 The contractor should provide equipment software updates for 10 years at no additional cost.
- 4.3.8 Monitor should have an audible “man down” alarm.
- 4.3.9 Sensor should have a three (3) year warranty.

#### **4.4 Display**

- 4.4.1 The monitor display should be capable of displaying the date as dd/mmm/yy.  
Example: 22 Jul 11
- 4.4.2 The monitor should have the ability to display logged data through the monitor LCD without the use of a computer.

#### **4.5 Rechargeable Battery and Battery Charger**

- 4.5.1 The rechargeable monitor battery should provide power to both the monitor and the sampling pump.
- 4.5.2 The intrinsically safe battery pack should be designed such that it can be changed in a potentially explosive environment.
- 4.5.3 The rechargeable monitor battery should be designed such that it can be replaced by the operator without the use of tools.
- 4.5.4 The rechargeable monitor battery should be capable of being charged by 12V vehicle power.
- 4.5.5 The kit should contain an adapter for 12V vehicle power charging.

#### **4.6 Sampling Pump**

- 4.6.1 The monitor and motorized sampling pump should be designed such that no tools are required to fit or remove the motorized sampling pump.

#### **4.7 Repair and Overhaul (R&O) Support**

- 4.7.1 The contractor should provide R&O services on all systems delivered under the contract, on an as required basis starting from the first system delivery to a period of 24 months from the last system delivery, plus any option periods as may be exercised by Canada.
- 4.7.2 R&O services shall be conducted at the contractor's facility or at the contractor's authorized Canadian distributors repair facility. The contractor shall have a Canada-wide parts distribution and maintenance network. The R&O services shall include free software upgrades, access to internet support, as well as the necessary parts and labour to repair kits in the event of a malfunction.
- 4.7.3 A calibration sticker identifying the date of calibration at the repair facility and the calibration due date shall be attached to the monitor and the outer case.
- 4.7.4 R&O services shall include the completion of all Preventive and Corrective Maintenance tasks beyond the scope of the Operator Maintenance tasks identified in Para 3.2.3. This shall include, but not be limited to, all the necessary disassembly, inspection, cleaning, repair or replacement of faulty parts, reassembly, adjustments, calibration, recertification, and packaging and shipping tasks to return the equipment to the Government of Canada in a fully serviceable condition.
- 4.7.5 The contractor shall supply all spare parts necessary to complete the R&O work. Spare parts shall be new and will meet the design criteria of the Original Equipment Manufacturer (OEM). It will be acceptable to make minor adjustments, calibration and/or cleaning of system components where suitable and practical. The cost of repair and/or spare parts is included in the lump sum price provided to complete the R&O work.
- 4.7.6 The contractor's turn-around-time to complete all R&O work shall not exceed 60 calendar days. The turn-around-time is defined as that period of time from the date of receipt of an item at the contractor's designated facility in Canada to the date the item is accepted as serviceable by the delegated Quality Assurance Representative (QAR) at the designated Canadian facility.
- 4.7.7 The contractor shall prepare and submit a R&O Activity Report detailing the R&O performed on the system and the components that were replaced during the reporting period. The R&O Activity Report will be used by DND to refine the logistic support requirements and/or improve the system.

## 5.0 Deliverables

5.1 The contractor shall be responsible for the delivery of the following deliverables within 3 months of contract award:

- 5.1.1 qty 230 Multi-Gas Confined Space Entry “Kit with HVOC Detection capability IAW Para. 3.1. Prior to delivery, the monitor shall be calibrated and the alarm levels shall be set to DND requirements as listed;
- 5.1.2 qty 230 calibration cylinders IAW Para. 3.1.8;
- 5.1.3 qty 70 automatic docking stations IAW Para. 3.1.10; and
- 5.1.4 training IAW Para. 3.2.4.

5.2 A ten (10) warranty on monitor electronics and a two (2) year non-prorated warranty on all sensors IAW Para. 3.4.1.

5.3 The following deliverables shall be provided to the Technical Authority (TA) in the contractor’s response to the RFP:

- 5.3.1 a complete description of the kit as received in the shipping containers and instruction on assembly;
- 5.3.2 provide in writing the right for DND to reproduce, in part or in whole, all documents procured under this SOW irrevocable copyright release with the limitation that the data shall not be released outside the Canadian Government; and
- 5.3.3 a catalogue of consumables including costs and their estimated time of delivery.

5.4 The following deliverables shall be provided to the TA within 1 month of contract award:

- 5.4.1 a List of Recommended Spare Parts List (RSPL) to be maintained by the CF;
- 5.4.2 a List of Preventative and Corrective Maintenance activities with an estimated schedule, if available;
- 5.4.3 a Parts Manual of those components replaceable by the CF, in bilingual format (separate English and French versions are acceptable);
- 5.4.4 a list and/or drawings of the Multi-Gas Detector Kit and docking station and their major components for cataloguing and assigning NATO Stock Numbers (NSNs); and
- 5.4.5 a copy of the basic training material (handouts, lesson plans and exercises) paper and electronic (format to be compatible with MS Windows XP).

5.5 The DND equipment delivery address is:

25 CFSD Montreal  
Montreal, Que  
(514) 252-2777, ext 2363



Multi-gas Detector Kit for Confined Space Entry  
Request for Information – Price and Availability  
Annex E – Deliverables List

Requirement	Deliverables	Evaluation Compliance Method	SOW Ref	Reference in Contractor's Response
	<b>NOTE: Refer to Annex C for Para references.</b>			
1.	The contractor shall be responsible for the delivery of the following contract deliverables within 3 months of contract award:	Compliance Statement	5.1.	
2.	qty 375 Multi-Gas Detector Kits as IAW Para. 3.1.1. Prior to delivery, the monitor shall be calibrated and the alarm levels must be set to DND requirements as listed; and	Compliance Statement	5.1.1.	
3.	qty 375 calibration cylinders IAW Para. 3.1.8; and	Compliance Statement	5.1.2.	
4.	training IAW Para. 3.2.4.	Compliance Statement	5.1.3.	
5.	A ten (10) warranty on monitor electronics and a two (2) year non-prorated warranty on all sensors IAW Para. 3.4.1	Compliance Statement	5.2.	
6.	The following deliverables shall be provided to the Technical Authority (TA) in the contractor's response to the RFP:	Compliance Statement	5.3.	
7.	i. a complete description of the kit as received in the shipping containers and instruction on assembly;	Compliance Statement	5.3.1.	
8.	ii. provide in writing the right for DND to reproduce, in part or in whole, all documents procured under this SOW irrevocable copyright release with the limitation that the data shall not be released outside the Canadian Government; and	Compliance Statement	5.3.2.	
9.	iii. a catalogue of consumables and their estimated time of delivery.	Compliance Statement	5.3.3.	
10.	The following deliverables shall be provided to the TA within 1 month of contract award IAW Para. 3.2.1:	N/A.	5.4.	
11.	i. a List of Recommended Spare Parts List (RSPL) to be maintained by the CF;	Compliance Statement	5.4.1.	
12.	ii. a List of Preventative and Corrective Maintenance activities with an estimated schedule, if available;	Compliance Statement	5.4.2.	
13.	iii. a Parts Manual of those components replaceable by the CF, in bilingual format (separate English and French versions are acceptable);	Compliance Statement	5.4.3.	
14.	iv. a list and/or drawings of the Multi-Gas Detector Kit and its major components for cataloguing and assigning NATO Stock Numbers (NSN); and	Compliance Statement	5.4.4.	
15.	v. a copy of the basic training material (handouts, lesson plans and exercises) paper and electronic (format to be compatible with MS Windows XP).	Compliance Statement	5.4.5	

ti-gas Detector Kit for Confined Space Entry  
quest for Information – Price and Availability  
ex E – Deliverables List

Multi-gas Detector Kit for Confined Space Entry and HVOC  
Request for Information – Price and Availability  
Annex F – Deliverables List

Requirement	Deliverables	Evaluation Compliance Method	SOW Ref	Reference in Contractor's Response
	<b>NOTE: Refer to Annex D for Para references.</b>			
1.	The contractor shall be responsible for the delivery of the following contract deliverables within 3 months of contract award.	Compliance Statement	5.1.	
2.	qty 230 Multi-Gas Detector Kits as IAW Para. 3.1. Prior to delivery, the monitor shall be calibrated and the alarm levels must be set to DND requirements as listed.	Compliance Statement	5.1.1.	
3.	qty 230 calibration cylinders IAW Para. 3.1.8.	Compliance Statement	5.1.2.	
4.	qty 70 automatic docking stations IAW Para 3.1.10.	Compliance Statement	5.1.3.	
5.	training IAW Para. 3.2.4.	Compliance Statement	5.1.4.	
6.	A ten (10) warranty on monitor electronics and a two (2) year non-prorated warranty on all sensors IAW Para. 3.4.1.	Compliance Statement	5.2.	
7.	The following deliverables shall be provided to the Technical Authority (TA) in the contractor's response to the RFP:	Compliance Statement	5.3.	
8.	i. a complete description of the kit as received in the shipping containers and instruction on assembly;	Compliance Statement	5.3.1.	
9.	ii. provide in writing the right for DND to reproduce, in part or in whole, all documents procured under this SOW irrevocable copyright release with the limitation that the data shall not be released outside the Canadian Government; and	Compliance Statement	5.3.2.	
10.	iii. a catalogue of consumables and their estimated time of delivery.	Compliance Statement	5.3.3.	
11.	The following deliverables shall be provided to the Technical Authority (TA) within 1 month of contract award:	N/A.	5.4.	
12.	i. a List of Recommended Spare Parts List (RSPL) to be maintained by the CF;	Compliance Statement	5.4.1.	
13.	ii. a List of Preventative and Corrective Maintenance activities with an estimated schedule, if available;	Compliance Statement	5.4.2.	
14.	iii. a Parts Manual of those components replaceable by the CF, in bilingual format (separate English and French versions are acceptable);	Compliance Statement	5.4.3.	
15.	iv. a list and/or drawings of the Multi-Gas Detector Kit and its major components for cataloguing and assigning NATO Stock Numbers (NSN); and	Compliance Statement	5.4.4.	
16.	v. a copy of the basic training material (handouts, lesson plans and exercises) paper and	Compliance Statement	5.4.5	

Gas Detector Kit for Confined Space Entry and HVOC  
Request for Information – Price and Availability  
Ex F – Deliverables List

Requirement	Deliverables	Evaluation Compliance Method	SOW Ref	Reference in Contractor's Response
	NOTE: Refer to Annex D for Para references. electronic (format to be compatible with MS Windows XP).			