Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

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 0B2 / Noyau 0B2
Gatineau, Québec K1A 0S5
Bid Fax: (819) 997-9776

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
Vehicles & Industrial Products Division
140 O'Connor, Tower East
4th Floor
140 O'Connor, Tour Est
4ème étage
Ottawa
Ontario
K1A 0S5

Title - Sujet Aircraft Rescue	
Solicitation No. - N° de l'invitation W8476-195915/C	**Amendment No. - N° modif.** 001
Client Reference No. - N° de référence du client 6000437128	**Date** 2018-12-27
GETS Reference No. - N° de référence de SEAG PW-$$HP-912-76084	
File No. - N° de dossier hp912.W8476-195915	**CCC No./N° CCC - FMS No./N° VME**
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2019-01-29	**Time Zone** **Fuseau horaire** Eastern Standard Time EST
F.O.B. - F.A.B. **Plant-Usine:** ☐ **Destination:** ☑ **Other-Autre:** ☐	
Address Enquiries to: - Adresser toutes questions à: Pearson, Neil	**Buyer Id - Id de l'acheteur** hp912
Telephone No. - N° de téléphone (613) 462-6793 ( )	**FAX No. - N° de FAX** (613) 943-7620
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

This amendment 001 is raised to address bidders questions and to extend the solicitation closing date.

The closing date is extended to 29 January 2019.

Question 1

3.14 Wheels, Rims and Tires The tires must be mounted and balanced on two piece steel or aluminium hub pilot disc wheels.

- Does DND require Michelin 395/85R20 XZL tubeless type steel belted radials with a tread designed for off road manoeuvres or approved equivalent, mounted on hub-piloted disc wheels?? Or will dual rear wheels meet the requirement??

Answer
Manufacturer is responsible to determine appropriate tires for the vehicle. Michelin 395/85R20 XZL tires are not a requirement. Dual rear wheels are acceptable. Article 3.14 b) is deleted from Purchase Description.

At Annex B Purchase Description

Delete: Annex B Purchase Description
Insert: Attached Annex B Purchase Description addendum 1

ALL OTHER TERMS AND CONDITIONS REMAIN THE SAME

ANNEX B

PURCHASE DESCRIPTION

FOR

NANOOSE - FIRE FIGHTING VEHICLE WITH WATER FOAM AND DRY CHEMICAL

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.

OPI DSVPM 5 – DAVPS 5
Issued on Authority of the Chief of the Defence Staff
Publiée avec l'autorisation du chef d'état-major de la Défense

RDIMS # 4786583

Canada

(Page intentionally left blank)

Table of Contents

(Page intentionally left blank)

1. SCOPE

1.1 Scope

a) This Purchase Description describes a 4x4 Fire Fighting Vehicle, with a minimum 2,600 litres (688 US gal) water tank, 170 litres (45 US gal) 3% Aqueous Film Forming Agent (AFFF) tank, and 90 kg (198 lb) of Purple K dry chemical, The vehicle will be used primarily to transport personnel and equipment to the scene of an rotary aircraft emergency, for rescue operations and combating fires.

1.2 Instructions

a) Requirements, which are identified by the word "***must***", are mandatory. Deviations will not be permitted.

b) Requirements identified with a "will" define actions to be performed by Canada and require no action/obligation on the Contractor's part.

c) Where "***must***" or "will" are not used, the information supplied is for guidance only.

d) In this document "provided" ***must*** mean "provided and installed".

e) Where a technical certification is referred to in this specification, a copy of the certification or an acceptable Proof of Compliance ***must*** be supplied for the vehicle when requested by the Technical Authority.

f) Metric measurements are used to define the requirement. Other measurements are for reference only and may not be exact conversions.

g) Nominal dimensions reflect a method by which materials or products are generally identified, but which differ from the actual measured dimensions.

1.3 Definitions

a) "**Technical Authority**" - The government official responsible for technical content of this requirement.

b) "**Equivalent**" - Substitutes and alternatives that are equivalent in product, performance or a standard will be considered for acceptance by the Technical Authority where Proof of Compliance for equivalency for the respective requirement is provided for evaluation.

c) "**Vehicle**" – The entire vehicle including all systems and sub-systems, in a complete manufactured state in accordance with the requirements in this Purchase Description.

d) "**Road Legal**" **–** Applies to a self-propelled vehicle designed for or capable of transporting persons, property, material or permanently or temporarily affixed apparatus on a highway.

e) **"5th percentile adult female"** – As defined in the *Motor Vehicle Safety Regulations (C.R.C., c. 1038)* a person having as physical characteristics a mass of 46.3 kg, height of 1499 mm, erect sitting height of 785 mm, normal sitting height of 752 mm, hip sitting breadth of 325 mm, hip

sitting circumference of 925 mm, waist sitting circumference of 599 mm, chest depth of 191 mm, bust circumference of 775 mm, chest upper circumference of 757 mm, chest lower circumference of 676 mm, knee height of 455 mm, popliteal height of 356 mm, elbow rest height of 180 mm, thigh clearance height of 104 mm, buttock-to-knee length of 518 mm, buttock-to-poples length of 432 mm, elbow-to-elbow breadth of 312 mm and seat breadth of 312 mm.

f) **"95th percentile adult male"** – As defined in the *Motor Vehicle Safety Regulations (C.R.C., c. 1038)* a person having as physical characteristics a mass of 97.5 kg, height of 1849 mm, erect sitting height of 965 mm, normal sitting height of 930 mm, hip sitting breadth of 419 mm, hip sitting circumference of 1199 mm, waist sitting circumference of 1080 mm, chest depth of 267 mm, chest circumference of 1130 mm, knee height of 594 mm, popliteal height of 490 mm, elbow rest height of 295 mm, thigh clearance height of 175 mm, buttock-to-knee length of 640 mm, buttock-to-poples length of 549 mm, elbow-to-elbow breadth of 506 mm and seat breadth of 404 mm.

g) **"Gross Axle Weight Rating (GAWR)" -** The value specified by the vehicle manufacturer as the load-carrying capacity of a single axle system, as measured at the tire-ground interfaces.

h) **"Gross Vehicle Weight Rating (GVWR) -** The value specified by the vehicle manufacturer as the loaded weight of a single vehicle.

2. APPLICABLE DOCUMENTS

2.1 Applicable Documents

a) The following documents form part of this Purchase Description. The dates of issue are those in effect on the date of release of the RFP. Canada will not be supplying these documents. Sources are as shown:

Canadian Occupational Health and Safety Regulations (COHSR), 2015
http://laws.justice.gc.ca/eng/regulations/sor-86-304/index.html

SAE Handbook
Society of Automotive Engineers Inc.
400 Commonwealth Dr,
Warrendale, PA, 15096
http://www.sae.org

Automotive (On-road) Diesel Fuel
CAN/CGSB Standard 3.517
Standards Council of Canada
270 Albert Street, suite 200
Ottawa, ON K1P 6N7
https://www.scc.ca/en

Motor Vehicle Safety Regulations (MVSR)
Government of Canada / Transport Canada
https://www.tc.gc.ca/eng/acts-regulations/regulations-crc-c1038.htm

Yearbook
Tire and Rim Association Inc.
3200 West Market St.
Akron, Ohio, 44321
http://www.us-tra.org/traHome.htm

Hazardous Products Act
Government of Canada
http://laws-lois.justice.gc.ca/eng/acts/H-3/

Transportation of Dangerous Goods Regulation, Part 5
Transport Canada, Transport Dangerous Goods
Government of Canada
330 Sparks Street, Ottawa, ON, K1A 0N5

Safety Code 6: Health Canada's Radiofrequency Exposure Guidelines
Health Canada,
Government of Canada
Address Locator 0900C2
Ottawa, ON, K1A 0K9

National Fire Protection Association
NFPA 1901 – 2016 – Standard for Automotive Fire Apparatus
National Fire Protection Association (NFPA)
1 Batterymarch Park
Quincy, Massachusetts 02169-7471

ULC-S515- 2013 - Automobile Fire Fighting Vehicle
Underwriters Laboratories of Canada (ULC)
7 Underwriters Road
Toronto, Ontario, M1R 3A9

MIL-STD-209K – Department of Defence, Interface Standard for Lifting and Tie down Provisions
http://www.sddc.army.mil/sites/TEA/Functions/Deployability/TransportabilityEngineering/Modeling/Documents/MIL-STD-209K_2005-02-22.pdf

Advisory Circulars 300 Series – Aerodromes and Airports (for additional information and guidance only)
Transport Canada
Government of Canada
330 Sparks Street
Ottawa, ON, K1A 0N5
https://www.tc.gc.ca/

Commercial Item Description A-A-50696 - Reels, Static Discharge, Grounding, 50 and 75 Foot Cable Lengths
GSA - Specification Section
470 L'Enfant Plaza
Suite 8100
Washington, DC 20407

United Nations Economic Conditions for Europe (UNECE)
Regulation No. 29, Addendum 28, Revision 1, "Uniform Provisions Concerning the Approval of Vehicles with Regard to the Protection of the Occupants of the Cab of a Commercial Vehicle"
Palais des Nations
CH-1211 Geneva 10

3. REQUIREMENTS

3.1 Standard Design

a) **Latest Model -** The vehicle design ***must*** be the manufacturer's latest model.

b) **Industry Acceptability** - The vehicle design ***must*** have demonstrated industry acceptability by having been manufactured and sold commercially for at least 2 year, or be manufactured by a company that has at least 5 years' experience in design and manufacturing of a comparable type of equipment of equivalent or greater complexity.

c) **Engineering Certification** – Upon request original manufacturers engineering certification ***must*** be provided for major drive train components, and major equipment systems and assemblies, to demonstrate that assemblies are used within their design limitations.

d) **Regulations** – The vehicle ***must*** conform to all applicable laws, regulations and industrial standards governing manufacture, safety, noise levels and pollution in effect in Canada at the time of manufacture. International equivalent laws, regulations, and industrial standards will be accepted only if certified for equivalency by a professional engineer.

e) **Published Ratings** - The vehicle ***must*** have system and component capacities equivalent to published ratings (i.e. product or component brochures).

f) **Standard Components** - The vehicle ***must*** include all standard components, equipment and accessories for the model offered, although they may not be specifically described in this Purchase Description.

g) **Spare Parts** - The manufacturer ***must*** select components readily available for a minimum period of fifteen (15) years from the date of manufacture.

h) **Couplings** – Unless otherwise specified, all inlets, discharges, and hoses ***must*** be provided with Storz couplings, complete with cap and chain where applicable.

i) **Hazardous Materials** - The contractor ***must*** comply with Hazardous Products Act of Canada concerning the use of hazardous materials, ozone depleting substances, polychlorinated biphenyls, asbestos and heavy metals used in the manufacture and assembly of the product supplied.

j) **Foreign Object Debris (FOD)** - To prevent FOD, all loose metal parts ***must*** be securely attached to the vehicle with wire lanyards. If removable panels are provided they ***must*** be attached with captive fasteners.

3.1.1 **Maintainability**

a) The vehicle ***must*** be designed to permit access to all items required for servicing and maintenance.

b) Spin on style filters ***must*** be provided where available.

3.2 Operating Conditions

3.2.1 **Weather**

a) The vehicle ***must*** operate within the extremes of weather conditions found in Canada in temperatures ranging from -40 to 40° C (-40 to 104° F)

3.2.2 **Terrain**

a) The vehicle ***must*** operate off-road.

b) Terrain conditions ***must*** include year round operations on snow, mud, sand and ice**.**

3.2.3 **Visibility**

a) The vehicle ***must*** operate in day, night, and during periods of artificial obscuration in fire suppression operations.

3.3 Safety Standards

3.3.1 **Vehicle Safety Regulations**

a) The vehicle ***must*** comply with the Motor Vehicle Safety Regulations (MVSR).

b) The completed vehicle ***must*** have Safety Compliance Certification Label with a National Safety Mark (NSM), as a seal of compliance **or** be accompanied by a Vehicle Import Form containing proof of Inspection by the Registrar of Imported Vehicles.

3.3.2 **National Fire Protection Association**

a) The vehicle ***must*** comply with all of the minimum requirements identified in the National Fire Protection Association (NFPA) 1901 Standard for Automotive Fire Apparatus edition 2016.

b) The completed vehicle ***must*** have Safety Compliance Certification Label with a National Safety Mark (NSM), as a seal of compliance **or** be accompanied by a Vehicle Import Form containing proof of Inspection by the Registrar of Imported Vehicles.

3.3.3 **Noise Level**

a) The vehicle/equipment noise level ***must*** meet the requirements of legislation relative to Canadian Occupational Health and Safety Regulations (COHSR) at locations where the vehicle/equipment is operated.

3.3.4 **Human Factors Engineering**

a) The vehicle, all systems, and components ***must*** comply with the relevant sections of the COHSR.

b) The vehicle ***must*** be manufactured/assembled for safety and ease of use by CAF users with anthropometric characteristic measurements ranging from 95th percentile male to 5th percentile female;

c) The vehicle ***must*** have entry and exit points equipped with handles and steps sized and positioned to accommodate CAF users with anthropometric characteristic measurements ranging from 95th percentile male to 5th percentile female;

d) The vehicle ***must*** be equipped, with warning and instruction plates, non-slip walking surfaces and heat shields, for operator safety; and

3.4 Vehicle Performance, Ratings and Dimensions

3.4.1 **Performance**

a) As a minimum, the vehicle ***must*** meet the fully loaded vehicle performance parameters identified in NFPA 1901, applicable to the vehicle size.

3.4.2 **Weight**

a) The actual gross vehicle weight of the fully staffed, loaded and equipped vehicle for service ***must*** not exceed the manufacturer's tested weight rating as recorded on the vehicle information data plate.

3.4.3 **Dimensions**

a) The vehicle ***must*** have road legal dimensions across Canada;

b) The maximum overall **height** of the vehicle ***must*** not exceed a maximum of 3.81 metres (11.5 feet).

c) The maximum overall **length** of the vehicle ***must*** not exceed a maximum of 9.14 metres (30 feet).

d) The maximum overall body **width** of the vehicle ***must*** not exceed a maximum of 2.59 metres (8.5 feet).

e) The maximum overall **width** of the vehicle ***must*** not exceed a maximum of 3.30 metres (10.83 feet) including mirrors and accessories.

3.5 Vehicle construction

3.5.1 **Frame**

a) The frame ***must*** be of heavy duty construction manufactured for use in all conditions specified in the weather and terrain descriptions of section 3.2.

3.5.2 **Body**

a) The vehicle body ***must*** be constructed from aluminium alloy panels and extrusions or GRP body panel design, providing the lightest weight while maximizing strength, heat, and corrosion resistance.

3.5.3 **Bumpers**

a) The vehicle ***must*** be provided with durable front and rear bumpers, secured to the vehicle frame.

3.5.4 **Bumper Accessories**

a) Two (2) towing eyes with shackles or towing hooks ***must*** be frame mounted at the front and rear of the vehicle, with sufficient strength to permit direct pull during recovery operations of the loaded vehicle.

b) The tow eyes or hooks ***must*** be of sufficient strength to pull an apparatus of equivalent GVMR to vehicle for which this document is written.

3.6 Ladders, Equipment and Racks

a) The vehicle ***must*** be provide with two 3.05m (10 feet) pike poles.

b) The vehicle ***must*** be provide with a 4.27m (14 feet) extension ladder.

c) The vehicle ***must*** be provided with a multifunction/combination step and extension ladder with a minimum fully extended length of 4,57m (15 feet).

3.7 Engine

a) The vehicle engine(s) ***must*** have the horsepower, torque and speed characteristics to meet and maintain all vehicular performance characteristics specified in NFPA 1901.

b) The engine ***must*** be turbo charged and operate on diesel fuel to the CAN/CGSB Standard 3.517.

3.7.1 **Engine Components**

a) Replaceable air filter(s) ***must*** be provided.

b) Engine cooling system ***must*** be provided.

c) A combustion air cleaning system ***must*** be provided, with an air cleaner restriction indicator visible to the operator.

d) An engine governor ***must*** be provided.

e) An engine oil drain ***must*** be provided, plumbed to allow oil changes from the underside of the engine.

f) A full flow replaceable oil filter ***must*** be installed.

g) An engine shutdown or de-rate system ***must*** be provided, controls accessible from the operator position.

h) A fast idle system ***must*** be provided, to raise engine speed when required for operations, when the transmission is in neutral and the parking brake is set.

3.7.2 **Cold Weather Starting Aids**

a) The engine ***must*** be equipped with cold weather aids applicable to the operating conditions in section 3.2.

b) A thermostatically controlled in-line fuel heater ***must*** be provided.

c) A 110-volt engine block heater(s) ***must*** be provided.

d) Cold weather aids ***must*** be powered through a dedicated auto-eject shoreline receptacle(s).

3.7.3 **Exhaust System**

a) The vehicle ***must*** be equipped with an exhaust system compliant with NFPA 1901 and shielded to prevent personnel injury from contacting a heated surface.

b) Exhaust system ***must*** meet engine manufacturer requirements.

3.7.4 **Vehicle Mounted Diesel Exhaust Filter System**

a) A vehicle mounted, direct source capture, exhaust filter system ***must*** be provided with the apparatus that prevents exposure to, and contamination from, exhaust emissions in addition to the manufacturers after treatment device (ATD) in accordance with NFPA 1500.

b) The system ***must*** be installed after the engine manufacturers ATD and before the diffuser tip in the end tailpipe.

c) The filter system ***must*** work automatically whenever the Apparatus exits or returns to the Fire Hall.

d) The filter system ***must*** have the capability to be used while on-scene, outside the Fire Hall.

e) The diesel exhaust removal system ***must*** travel with the Apparatus.

f) The system ***must*** not require building modifications or hanging hoses for the system to operate.

g) The vehicle mounted exhaust filter system ***must*** meet all NFPA, NIOSH and OSHA standards for preventing exposure to carcinogenic compounds that exist in diesel exhaust.

3.7.5 **Fuel Tank(s)**

a) The fuel tank(s) ***must*** have a fuel capacity in accordance with NFPA 1901, art. 12.3.4.

b) If more than one fuel tank is used, they ***must*** be connected to a common fuel gauge and filling point.

c) The fuel system ***must*** include a fuel water separator, incorporating a thermostatically controlled heater.

d) Lines of the fuel system ***must*** be installed such that they are protected from damage while navigating under conditions outlined in section 3.2.

3.8 <u>Batteries</u>

a) The vehicle ***must*** be supplied with heavy-duty, maintenance free batteries, compliant with NFPA 1901 Section 13.4.

b) Batteries ***must*** be mounted in an accessible, protected and ventilated location.

c) Batteries ***must*** be installed in an insulated battery box.

d) The batteries ***must*** be rated to exceed the draw, in the required operating conditions.

3.8.1 **<u>Battery Charger</u>**

a) The vehicle ***must*** be supplied with a battery charger.

b) The charging system power ***must*** be provided through an auto-eject shoreline receptacle.

c) The receptacle ***must*** be solely used to charge the battery and coloured yellow.

d) The battery charging system ***must*** provide a visual voltage signal indicator.

3.9 <u>Drivetrain</u>

a) The vehicle ***must*** be 4x4 drive.

b) The drivetrain ***must*** include a “Park” or “Neutral” starting interlock.

c) The drivetrain ***must*** include limited slip or driver controlled locking differential(s) on the drive axle(s).

3.10 <u>Transmission</u>

a) The vehicle ***must*** be equipped with an automatic transmission.

b) The transmission ***must*** have an oil cooler.

c) The transmission ***must*** have replaceable oil filter(s).

d) The transmission shift control ***must*** clearly indicate the selected gear under all lighting conditions.

e) An audible back-up alarm ***must*** be installed.

3.11 Brakes – Air System

a) The vehicle ***must*** be equipped with a braking system in accordance with NFPA 1901 Section 12.3.1.

b) The braking system ***must*** include an anti-lock (ABS) brake system.

c) The braking system ***must*** be equipped with automatic slack adjusters on all wheels.

d) The braking system ***must*** include an automatic air dryer;

e) The braking system ***must*** include brake housing dust shields and visual brake stroke indicators (as applicable).

f) The braking system ***must*** include air couplers (glad hands), service and emergency, in a protected location at the front and rear of the Apparatus.

g) The braking system ***must*** include heated automatic moisture expelling valve on the air dryer.

h) The braking system ***must*** be equipped with an auto-eject air connection to maintain charge in the air system.

i) The braking system ***must*** be equipped with air pressure protection preventing the use of air-operated accessories when the system air pressure drops below 550 kPa (80 PSI).

j) The braking system ***must*** be equipped with a quick build-up section in the air reservoir to enable the Apparatus to move within 15 seconds of start-up, when it has a completely discharged air system.

3.12 Suspension System

a) The vehicle ***must*** be equipped with heavy-duty suspension system.

3.13 Steering

a) The vehicle ***must*** be provided with a power steering system.

b) The steering system ***must*** be provided with a telescopic/tilt steering column.

c) Steering mechanism must meet the turning angle in accordance with NFPA 1901 art.12.3.2.5.1.

3.14 Wheels, Rims and Tires

a) The vehicle ***must*** be equipped with steel-belted, tubeless radial tires.

b) Not applicable.

c) The tires ***must*** be sized to meet or exceed the load requirements.

d) The tires ***must*** be mud and snow type.

e) The wheels and tires ***must*** conform to the Tire and Rim Association requirements for the Apparatus application.

3.15 <u>Cab</u>

a) The vehicle ***must*** be equipped with a four person weatherproof cab.

b) A minimum of two (2) doors ***must*** be provided keyed alike.

c) A ventilation/heater and defrosting system ***must*** be provided, with a multi-speed fan, applicable for the operating conditions as specified in Paragraph 3.2.1.

d) An air conditioning system ***must*** be provided equipped with all components and controls required for regulation of the cab interior temperature.

e) The vehicle ***must*** be equipped with powered driver and passengers side windows.

f) A powered windshield wiper/washer system ***must*** be provided with multi-speed wipers, where the wiper blades **do not** travel from a vertical center windshield position to a horizontal position near the roof line.

g) The cab floor ***must*** be weatherproof.

h) The cab floor ***must*** not be carpet.

i) The cab floor ***must*** be a material that reduces absorption of toxins and promotes ease of cleaning.

j) Two rotating interior sun visors ***must*** be installed.

k) A back-up camera system ***must*** be installed in the cab with a screen size of at least 17.7 cm (7 inches).

l) An AM/FM stereo radio with an auxiliary port ***must*** be provided.

m) Two heavy-duty, powered and heated exterior rear view mirrors, ***must*** be provided with in-cab controls.

n) The vehicle ***must*** be equipped with a horn in accordance with NFPA 1901.

o) Mobile power leads and antennae cable ***must*** be wired into the vehicle, with a service loop terminating in the cab for future installation of both UHF and VHF radio equipment.

p) Two (2) antenna bases ***must*** be mounted high on the cab exterior.

q) Two (2) dedicated USB charging ports ***must*** be installed within reach of the driver's seat.

3.15.1 **<u>Self-Contained Breathing Apparatus (SCBA)</u>**

a) The SCBA, MSA G1 model, units will be supplied by Canada at the time of vehicle delivery.

b) The SCBA release mechanism ***must*** be accessible to the user while seated.

c) The SCBA system ***must*** be equipped with a mechanical latching system accordance with NFPA 1901.

3.15.2 **Cab Seating**

a) One (1) fully adjustable, Self-Contained Breathing Apparatus (**SCBA**) style, driver's seat ***must*** be provided, with a high back.

b) One (1) fully adjustable, Self-Contained Breathing Apparatus (**SCBA**) style, officer's seat ***must*** be provided, with a high back.

c) A minimum of one (1) SCBA style, passenger seat with high back ***must*** be provided.

d) All seating ***must*** be upholstered with a material that reduces the absorption of toxins, promotes ease of cleaning, repels water, and is wear resistant, applicable to firefighting applications.

e) All SCBA style seats or SCBA backs ***must*** be provided with matching dark upholstery seat covers and equipped with a flip-up split headrest, for ease of SCBA bottle release upon exit.

f) All seating ***must*** be equipped with easily accessible, retractable 3-point seat belt assemblies.

3.15.3 **Controls**

a) Each control ***must*** be permanently marked to identify the function, in both English and French or international symbols as defined by SAE J1362.

b) Vehicle controls ***must*** be grouped together in the cab.

c) Firefighting system controls ***must*** be grouped together in the cab.

d) Controls ***must*** not restrict the operator's field of view.

e) Control panel lights ***must*** be provided for adequate dimmable lighting for night-time operations.

3.15.4 **Low Visibility Enhanced Vision System**

a) A low light thermal imager system suitable for Aircraft Rescue Fire Fighting operations ***must*** be provided.

b) The thermal imager ***must*** be mounted in a position that provides full frontal visibility of objects in the approach path of the apparatus.

c) Mounting of the thermal imager ***must*** not compromise the operations of the bumper turret in any manner.

d) A thermal imager joystick ***must*** be provided in reach of the driver and officer seat.

e) A video screen ***must*** be provided.

f) A recording system ***must*** be provided.

3.15.5 **Video camera**

a) A video camera ***must*** be provided to capture emergency scene response and activity for review and training enhancement.

b) The video camera system ***must*** record automatically whenever the emergency lighting switch is activated.

c) A recording system ***must*** be provided.

3.15.6 **Instruments**

a) Instruments ***must*** be metric, or metric and imperial with metric prominent, and visible to the seated operator in all lighting conditions.

b) An Original Equipment Manufacturer approved instruments cluster ***must*** be provided.

c) A voltmeter for the battery ***must*** be included.

d) An engine coolant temperature indicator ***must*** be provided.

e) An hour-meter with numeric display, which accurately records accumulated engine running time up to at least 9,999 hours ***must*** be provided.

f) A fuel tank indicator ***must*** be provided.

g) A tachometer ***must*** be provided.

h) A speedometer ***must*** be included.

i) A lateral stability system with dual axis display ***must*** be provided.

j) Air pressure indicator(s) ***must*** be provided.

k) A dry chemical system pressure indicator(s) ***must*** be provided in the cab with redundant indicator installed near the nitrogen tank regulator.

l) A water pump pressure indicator ***must*** be provided.

m) A water tank level indicator ***must*** be provided.

n) A foam tank level indicator ***must*** be provided.

o) Rear differential lock indicator ***must*** be included.

3.16 Fire Extinguishing System

3.16.1 Plumbing System

a) The vehicle's plumbing system ***must*** be in accordance with NFPA 1901.

b) Victaulic couplings with suitable gasket material ***must*** be used for all foam, water pipe and valve connections.

c) Drains ***must*** be provided to allow complete draining of the system.

d) The system ***must*** be provided with a thermal relieve valve for protection against pressure build up due to heat caused by deadhead pumping.

3.16.2 Water Pump

a) The vehicle ***must*** be provided with a centrifugal type water pump with a minimum discharge rate as per NFPA 1901.

b) The water pump ***must*** incorporate a mechanical type seal not requiring regular periodic adjustment.

c) The water pump ***must*** be provided with incrementally or infinitely variable discharge flow control accessible from the operator panel.

d) When operating from the water tank to supply the bumper turret, the pump ***must*** provide a turret straight stream or dispersed water/foam/secondary agent pattern over the performance ranges specified in NFPA 414, section 4.1 tables as applicable.

e) The total discharge capacity of the water pump ***must*** meet the combined flow rates of all discharges working simultaneously.

f) The water pump ***must*** be gravity primed from the vehicle tank.

g) The water pump system ***must*** have a water pressure control valve, which should consist of a relief valve or PGS (pressure sensing governor).

h) All metal components of the main system relief valve and/or pilot valve, which come in contact with water, ***must*** be manufactured in brass, bronze, or stainless steel

3.16.3 Water Tank

a) The vehicle ***must*** be equipped with a water tank in accordance with NFPA 1901.

b) The water tank ***must*** have a minimum usable capacity of 2,600 litres (688 US gal).

c) The water tank ***must*** be equipped with tank baffling appropriate to mitigate vehicle instability during travel.

d) The tank ***must*** be provided with adequate venting to the atmosphere to permit rapid and complete filling without pressure build up and to permit discharge at the maximum design flow rate without danger of tank collapse.

e) The actual capacity ***must*** be clearly indicated with 50 mm (1.97 inches) high letters, permanently embossed near the top fill point.

f) A flush mounted tank drain valve, of a minimum 65 mm pipe size and designed to drain all the water from the tank ***must*** be provided.

g) The tank fill inlet pipe diameter ***must*** be 65 mm (2 ½ inch).

h) Each connection ***must*** be provided with an angled connection to prevent hose kinking and be equipped with a bleeder valve.

3.16.4 **Pump Discharge, Intake and Suction**

a) The pump and pipping system ***must*** be designed to eliminate the entrapment of air.

b) One 65 mm (2 ½ inch) gated pump discharges and two 38 mm (1 ½ inch) gated pump discharge ***must*** be provided at the structural pump panel, each with a male AMA thread complete with Storz adaptor.

c) All discharge outlet ***must*** be angled.

d) The discharges ***must*** be provided with a 19mm (3/4 inch) 1/4-turn bleeder valve and individual 65 mm (2 ½ inch) minimum, liquid filled pressure gauges.

e) Side discharges ***must*** be capable of providing foam solutions.

f) Pump discharges ***must*** be provided with adapters.

g) The adapters ***must*** be provided with caps and chains.

h) One 65 mm (2 ½ inch) pump intake connections ***must*** be provided.

i) One 65 mm (2 ½ inch) suction inlet ***must*** be provided.

3.16.5 **Pump Operator Panel**

a) The vehicle ***must*** be equipped with a pump operator panel.

b) The pump operator panel ***must*** be equipped with a roll down weatherproof door to protect the panel from damage while not in use.

c) The pump operator panel ***must*** house all controls required for full operation of the fire extinguishing system.

d) Each control ***must*** be permanently marked to identify the function, in both English and French or international symbols as defined by SAE J1362.

3.16.6 **Bumper Turret**

a) The vehicle ***must*** be equipped with a power assist bumper mounted turret in accordance with NFPA 414 section 4.19.

b) The turret discharge flow ***must*** be minimum 1,100 litres per minute (291 US gallons per minute).

c) The turret ***must*** have a horizontal rotation of 180 degrees and vertical travel of +45 degrees/-20 degrees.

d) The nozzle ***must*** be a combination foam and dry chemical nozzle designed to use the foam solution as a means to propel the dry chemical.

e) The turret ***must*** incorporate an electric pattern actuation to select a straight stream or fog discharge pattern.

f) The turret ***must*** have a joystick type controller.

g) Two (2) high intensity LED lights ***must*** be attached to the nozzle assembly and ***must*** be remotely switched at the joystick box.

3.16.7 **Foam System**

a) The vehicle ***must*** be equipped with a foam system built in accordance to NFPA 1901.

b) The foam-liquid concentrate tank ***must*** have a capacity based on a foam concentration of 3% AFFF (Aqueous Film Forming Foam).

c) The tank provided ***must*** have a minimum foam capacity of 170 litres (45 US gal) in order to support foam requirements necessary for two (2) full loads of water discharge.

d) The tank ***must*** be adequately vented to permit rapid and complete filling without the build-up of excessive pressure and to permit emptying the tank at maximum design flow without danger of collapse.

e) The usable capacity ***must*** be clearly indicated with 50 mm high letters permanently embossed on the tank next to fill point.

f) A 38 mm (1½ inch) hose fill/drain connection with a strainer and plug with chain ***must*** be provided.

g) An electronically operated foam transfer pump with a 38 mm (1½ inch) hose connection ***must*** be installed to allow the foam tank to be filled or drained.

h) The foam transfer pump ***must*** be plumbed into the foam tank fill/drain connections.

i) The vehicle ***must*** be delivered without any foam in the foam system.

j) The foam system ***must*** be compatible with an Eco-Logic Mobile Foam Test System

i. The foam test system plumbing ***must*** include a mean of hooking up an external source for testing the foam system.

ii. The piping ***must*** include a manual on/off valve with a 38 mm (1 ½ inch) connector with cap and chain.

iii. The foam metering system ***must*** be designed to allow override during foam system testing (if applicable).

k) Switches used to activate the foam system ***must*** be of a lockable type to prevent accidental discharge.

3.16.8 **Foam Proportioning System**

a) An around-the-pump foam liquid proportioning system ***must*** be provided in accordance with NFPA 1901.

b) The proportioning system design ***must*** incorporate valves that prevent the flow of water into the foam tank and foam into the water tank under all operating conditions and tilt angles of the vehicle.

c) The system ***must*** incorporate a means of completely flushing all the foam making equipment and related piping downstream of the foam tank outlet valve.

3.16.9 **Secondary Agent, Dry Chemical**

a) The vehicle ***must*** be equipped with a secondary dry chemical system in accordance with NFPA 414 table 4.1.1 (c).

b) The secondary system ***must*** be equipped to handle 90 kg (198 lb) of dry chemical utilizing Purple K as the agent.

c) Dry chemical discharge ***must*** be provided for the bumper turret at a rate in accordance with NFPA 414.

d) Dry chemical discharges ***must*** be provided for the hose reel as per NFPA 414.

e) A nitrogen cylinder ***must*** be provided that will allow a complete discharge of the dry chemical agent and a blow down operation.

f) The nitrogen cylinder ***must*** be equipped with an integral pressure gauge.

g) The vehicle design ***must*** be such that it will allow for one person to perform nitrogen cylinder replacement.

h) The cylinder ***must*** not be stored on the roof of the vehicle.

i) A check valve ***must*** be provided in the gas piping to prevent the agent from being forced back into the propellant gas line.

j) Dash pressure gauges or dash and system pressure gauges ***must*** be provided to enable the operator to determine the propellant reservoir status and operating pressure when the system is activated.

k) Switches used to activate the dry chemical discharge ***must*** be of a lockable type to prevent accidental discharge.

3.16.10 **Hand Line**

a) The apparatus ***must*** be provided with two (2) pre-connected hand lines for the discharge of water/foam.

b) Each pre-connected hand lines ***must*** be a 45 mm (1 ¾ inch) diameter x 61m (200 ft.) long rubber covered fire hose.

c) Each pre-connected hand line ***must*** be provided with an Akron Assault nozzle or approved equivalent.

3.16.11 **Dual Agent Hand Line**

a) The hand line for dry chemical ***must*** be a dual agent type.

b) The hand line ***must*** be provided with a minimum 30m (100 ft.) of 25 mm (1 inch) booster type hose on a Hose Reel.

c) The hose reel ***must*** be provided with a 12 VDC or 24 VDC electric rewind motor with manual rewind provisions. A tension device should be installed to prevent the unreeling of the hose.

d) The hand line ***must*** be provided with a nozzle capable of discharging foam/water and dry chemical in accordance with NFPA 414 table 4.1.1 (c).

e) Controls at the hand line ***must*** allow charging of nitrogen into the dry chemical tank, and charging of dry chemical into the hand line.

3.16.12 **Winterization System**

a) The vehicle ***must*** be provided with a winterization system to protect the water and foam from freezing in the tanks, lines, piping and valves.

b) The system ***must*** provide sufficient insulation and heating capacity by means of hot recirculation liquids with the heat being produced from a diesel fuel fired heater to protect water and foam from freezing in the tanks, lines, piping, turret, and valves.

c) The system ***must*** permit operation of the vehicle and firefighting systems for a minimum period of two hours at minus -40ºC with the vehicle fully operational and the engine running.

3.17 Electrical System

a) The vehicle ***must*** be equipped with an NFPA 1901 compliant electrical system.

b) Wiring ***must*** be protected by insulating grommets, where passing through metal.

c) An alternator ***must*** be provided.

d) Batteries ***must*** be mounted in an accessible, protected and ventilated location.

e) The batteries ***must*** be rated to exceed the draw, in the required operating conditions.

f) Protected battery booster studs/slave receptacle ***must*** be provided in an accessible location.

g) A master disconnect switch, accessible from the ground, ***must*** be provided.

3.17.1 **Generator System**

a) The vehicle ***must*** be provided with a minimum 8kW generator system.

b) If the generator uses the same fuel tank as the vehicle, the generator ***must*** not operate when the fuel is below a quarter full (if applicable).

c) The generator ***must*** be provided with an in-cab remote start/stop control.

d) A gauge panel ***must*** be provided and display voltage, frequency, amperage and contain an hour meter.

e) The gauge panel ***must*** be readily visible from the generator hatch opening.

f) The generator ***must*** be tested operating at 100 percent of its nameplate voltage for a minimum of 2 hours in accordance with NFPA 1901, chapter 4-13, without the need to have the pump operational during the test.

3.17.2 **Receptacles**

a) Three Duplex, 120 Volt AC, 20 amp outlets with weather proof covers ***must*** be provided in the following locations:

   i. One receptacle ***must*** be provided at the left rear side of the vehicle.

   ii. One receptacle ***must*** be provided at the right rear side of the vehicle.

   iii. One receptacle ***must*** be provided at the rear of the vehicle.

b) Receptacles ***must*** be a three-wire grounding type, NEMA L5-20R.

c) Each receptacle ***must*** be clearly marked with output voltage and amperage.

3.18 Electrical Cord and Reel

a) An electric cord reel ***must*** be provided with 45 metres (150 feet) safety yellow cord.

b) The cord reel ***must*** be hard wired into the generating system and provided with a 20-amp circuit breaker.

c) The receptacle at the end of the cord ***must*** conform to NEMA L5-20R.

d) The cord ***must*** be provided with an adjustable cable stop and outlet junction box consisting of four (4) duplex receptacles.

e) The cord reel ***must*** be provided with a 12 VDC or 24 VDC electric rewind motor with the rewind switch mounted adjacent to the cord reel.

f) A means to prevent the cord reel from unreeling in the stored position ***must*** be provided.

g) A roller system ***must*** be provided to allow for deployment of the cord from the reel without chafing.

3.19 <u>Non-Emergency Lights</u>

a) All non-emergency lights ***must*** be LED were available.

b) Two (2) Floodlights ***must*** be provided.

c) The Floodlights ***must*** be provided with an anodized aluminium telescopic extension pole.

d) The Floodlights ***must*** be provided with a low voltage switch control mounted in the cab dash within easy reach/access of the driver and officer seat.

e) Each Floodlight ***must*** be capable of generating 20,000 lumens.

f) Two (2) high intensity low profile brow lights ***must*** be provided.

g) The brow lights ***must*** be hardwired into the on-board generator and provided with on/off switching from the driver and officer seat.

h) One amber beacon coloured beacon light ***must*** be mounted on the cab roof.

3.20 <u>Exterior Emergency Warning Lights</u>

a) Exterior emergency warning lights complying with NFPA 1901 ***must*** be provided.

b) All exterior emergency warning lights ***must*** be LED.

c) All exterior emergency lights controls ***must*** be accessible from the driver and officer seat.

3.20.1 The emergency lighting system ***must*** be provided with a control system for all emergency lighting.

3.21 <u>Paints, Decals, Identification and Finish</u>

a) The vehicle ***must*** be provided with lettering, numbering, and striping which comply with NFPA 1901.

3.21.1 **<u>Paint & Finish</u>**

a) All metal surfaces ***must*** be protected.

b) The prime coating ***must*** be a high durability, corrosion resistant type, such as an epoxy.

c) The colour ***must*** be Lime Yellow AKZO SIKKENS FLNA 6051 or equivalent.

d) The chassis items ***must*** be painted black. Chromed surfaces need not be painted;

e) The cab interior and dash ***must*** be finished with a non-reflective material.

f) Non-metallic hoses and wires ***must*** not be painted.

g) Working decks and walkways and the interior of storage compartments ***must*** not be painted.

3.21.2 **Decals**

a) Striping ***must*** be placed horizontally on the sides of the vehicle below the body centreline, primarily white, with red edges above and below and with a clear polyurethane coating, which contours the chassis.

b) All lettering ***must*** be applied in the ARIAL BLOCK font, sized to accommodate the required text, in the outlined areas, while complying with NFPA 1901.

c) Lettering ***must*** be red on the required yellow vehicle colour.

d) Decals ***must*** be applied using high quality vinyl with a clear polyurethane coating, or equivalent.

e) The vehicle identification number ***must*** be provided on the:

i. Front of the vehicle, with a nominal 100 mm to 150 mm (4 to 6 inch) height;

ii. Sides of the vehicle, sized to maximize the available body space, with a minimum 600 mm (24 inch) height;

iii. Topside of the vehicle, sized to fit available roof space, with a minimum 24 inch height and affixed with the base toward the back of the vehicle; and

iv. Rear of the vehicle, with a minimum 150 mm (6 inch) height;

f) The National Defence Fire Service Crest ***must*** be applied to both the driver and officer doors, sized and positioned to fit the available space.

g) A Canadian flag ***must*** be applied to each side of the vehicle.

h) The National Defence logo ***must*** be applied to each side of the vehicle.

3.21.3 **Corrosion Protections**

a) The vehicle including all components and subsystems ***must*** be designed and manufactured to prevent galvanic corrosion.

b) The materials used in the vehicle manufacturing ***must*** resist damage or deterioration as a result of cleaning with hot or cold water, steam, or detergents.

c) A commercial rust prevention undercoating ***must*** be applied to the vehicle, such as Krown Rust Control or Rust Check.

d) A decal and warranty papers for the rust prevention coating ***must*** accompany the vehicle.

3.21.4 **Warning, Markings and Instruction Plates**

a) All identification, instructional, and warning labels ***must*** be bilingual or International symbols defined in SAE J1362.

b) All identification, instructional, and warning labels ***must*** within view of the operator.

c) All gauges and controls and ***must*** be permanently labelled.

3.21.5 **Vehicle identification**

a) The vehicle ***must*** be provided with a vehicle information identification data plate, permanently affixed in a conspicuous and protected location in the cab, and containing the information required by NFPA 414 chapter 4.2.5.

3.22 **Minor Equipment** - The vehicle ***must*** be provided with the following equipment:

a) One (1) section of rubber covered hose of minimum 65 mm (2 1⁄2 in.) diameter for tank fill;

b) Appropriate spanner wrenches for the fittings on the vehicle;

c) One (1) hydrant wrench or other wrench necessary to activate the local water supply;

d) Skin penetrator/agent applicator;

e) Appropriate wheel chocks;

f) 30.5 m (100 ft) of utility rope;

g) One 2.3 kg (5 lbs) Rescue axe;

h) One 3.6 kg (8 lbs) Fire axe;

i) One 2.3 kg (5 lbs) pry bar;

j) Fire-resistant blanket;

k) Bolt cutters, minimum 610 mm (24 in.);

l) Multipurpose, forcible entry tool;

m) Two (2) Intrinsically safe LED hand lights including charger;

n) Two (2) harness cutting tools;

o) Hook, grab, or salvage tool;

p) First aid kit;

q) 1.8 kg (4 lb) hammer;

r) Two (2) backboards.

3.23 <u>Storage Compartments</u>

a) The vehicle ***must*** be provided with weatherproof storage compartments.

3.23.1 **<u>Storage Compartment Design</u>**

a) Body compartments ***must*** be constructed of corrosion resistant alloy.

b) Compartment floors and shelves ***must*** be sufficiently thick, and supported to hold the intended equipment capacity without deformation.

c) All bottoms of compartments ***must*** be equipped with one sliding shelf, labelled with a maximum capacity of 226 kg (500 pounds).

d) Compartments volume ***must*** be maximised with depending on available space on the vehicle.

e) Compartments ***must*** be equipped with accessible equipment holders, for all of the miscellaneous equipment required in this Purchase Description, designed to secure the equipment under all vehicle operating conditions.

   i. Horizontal tube cylinder compartments ***must*** be provided for secure and safe transportation of 60 minute pressurized SCBA bottles, with a minimum 4 bottle capacity.

   ii. Storage ***must*** be provided for two (2) backboards

   iii. Storage tubes for two (2) pike poles ***must*** be provided.

f) The compartments ***must*** provide ventilation and have provisions for drainage of moisture.

g) All electrical junctions or wiring within the compartments ***must*** be protected from damage resulting from equipment stored within the compartment.

h) The compartment doors ***must*** allow for access while wearing gloves.

i) Storage compartments ***must*** be equipped with compartment matting.

j) Compartments ***must*** be equipped with internal LED strip type lighting that is automatically activated when the door is opened and automatically deactivated when the door is closed.

   i. Compartment lights ***must*** have a master on/off control in the cab.

   ii. A red flashing compartment “door open” indicator with audible alarm ***must*** be provided, in a location visible to the seated driver.

iii. The compartment door open indicator ***must*** be interlocked with the parking brake, to prevent flashing during vehicle servicing and on scene operation.

3.23.2 **Miscellaneous Equipment Storage**

a) The vehicle body ***must*** be equipped with enclosed, weather resistant, equipment storage compartments, and built in accordance NFPA 1901.

b) The storage compartments ***must*** maximize the space available and be equipped with roll up type doors.

3.23.3 **Fire Hose and Hose Storage -** The vehicle body ***must*** be equipped with hose storage, provided in accordance with NFPA 1901.

4. INTEGRATED LOGISTIC SUPPORT

4.1 **Vehicle Manuals**– All manuals required for the description, operation, maintenance and repair of the complete equipment, including sub-systems, ***must*** be provide, in compliance with NFPA 1901.

4.1.1 **Operator's Manuals**

a) The operator's manuals ***must*** be bilingual (English/French).

b) The operator's manuals ***must*** include instructions for the safe operation of the vehicle.

c) The operator's manuals ***must*** include daily operator maintenance instructions/checks (including lubrication).

d) The operator's manuals ***must*** include safety warnings.

e) The operator's manuals ***must*** include hand signals (as necessary).

4.1.2 **Parts Manual(s)**

a) The parts manual(s) ***must*** be in English (bilingual is desirable).

b) The parts manual ***must*** have illustrations showing all components of the vehicle including equipment and accessories from other manufacturers that are supplied to meet the requirements of the contract, with numbers for the itemization of the parts.

c) The parts manual ***must*** have a listing for all itemized parts showing the Original Equipment Manufacturers (OEM) part number, the part name and a brief description of the item.

d) The parts manual ***must*** cross reference the OEM part number to the correct illustration and item number.

e) The parts manual ***must*** have a representation of bilingual warning signs and identification labels delivered on the equipment.

4.1.3 **Maintenance (Service) Manuals**

a) The maintenance manual ***must*** be English (bilingual is desirable).

b) The maintenance manual ***must*** include a trouble shooting guide, showing the steps and tests required to determine the exact cause of a problem and the steps required to correct a problem.

c) The maintenance manual ***must*** include a listing of the necessary tolerances, torque levels, fluid volume, and special tools (including item part numbers).

d) The maintenance manual ***must*** include information on the order of disassembly and assembly of the systems and components of the vehicle.

e) The maintenance manual ***must*** include special tools list as per 4.3.4.

f) The maintenance manual ***must*** include schematics for the vehicle plumbing system, engine, drive train components, fire pump, and pump operator's panel.

g) Electrical wiring diagrams ***must*** be included, clearly showing the routing and interface of the manufacturer's electrical circuit(s) with the cab and chassis OEM electrical system (Multiplex).

4.1.4 **Manual Delivery to Technical Authority**

a) Sample manuals ***must*** be submitted to the Technical Authority (TA) prior to the delivery of the vehicle for each model and or sub-system for approval. Sample manuals will not be returned. TA will provide approval or comments on the manuals within 30 days.

b) One (1) complete set of approved manuals (Operator's, Maintenance, and Parts) in electronic format ***must*** be delivered to the Technical Authority.

4.1.5 **Manual Delivery with Vehicle**

a) One (1) complete set of manuals (Operator's, Maintenance, and Parts) ***must*** accompany each vehicle, shipped to each location.

b) The manuals ***must*** be in electronic format.

4.1.6 **Electronic Format**

a) Approved copies of the electronic format manuals ***must*** be delivered on CD/DVD-ROM.

b) CD/DVD-ROM ***must not*** require installation, password and/or Internet connection to be accessed and be an unlocked PDF in a searchable format.

4.1.7 **Provisional Manuals**

a) In the event that approved manuals are not available at the time of delivery of the equipment, manuals marked "Provisional" ***must*** be supplied with the equipment.

b) The contractor ***must*** deliver replacement approved manuals to all destinations where Provisional manuals were delivered.

4.1.8 **Manual Supplements**

a) The contractor ***must*** supply manual supplements (Operator's, Maintenance and Parts) to support dealer-installed equipment not covered in the Vehicle Manuals.

b) Manual supplements ***must*** be delivered in accordance with 4.1.4 and 4.1.5.

4.1.9 **Translation and Reproduction Rights**

a) The Canadian Government ***must*** reserve the right to translate and reproduce, for Government use only, all or any part of the publications supplied, including the training packages delivered against the contract agreement.

4.1.10 **Changes to Manuals**

a) During the period of the contract, changes to equipment, which affect the contents of manuals, ***must*** be reflected in the revision of the electronic and paper version of the manuals.

b) Changes to the manuals ***must*** conform to the same format and presentation requirements as the original manuals.

c) The revised electronic version of the manual ***must*** be sent to the Technical Authority by the Contractor.

4.2 Warranty Letter

a) The warranty letter ***must*** include a list of all Canadian designated warranty service providers that will honour the warranty for the equipment and attachments (if applicable) procured under this contract, including the contact person and phone number at each warranty service provider.

b) The warranty letter ***must*** include additional warranty coverage of sub-systems and a copy of the warranty letter from each sub-system's Original Equipment Manufacturer (OEM).

c) The warranty letter ***must*** include warranty period as negotiated in the contract.

d) The warranty letter ***must*** include Contractor contact information, name and phone number, for warranty support.

4.2.1 **Warranty Letter Delivery**

a) The Contractor ***must*** provide a bilingual warranty letter to the Technical Authority and with each vehicle. If the Technical Authority requires the letter to be in DND format, then they will provide the Contractor a template for the DND acceptable format of the warranty letter.

4.3 Other ILS Deliverables to Technical Authority

4.3.1 **Data Summary**

a) The Contractor ***must*** provide a bilingual Data Summary for each make/model/configuration of vehicle by completing Technical Authority's template with data and a vehicle picture.

4.3.2 **Photographs**

a) The Contractor ***must*** provide photographs in colour, taken against a plain background, and in digital JPEG format with a minimum 10 megapixel resolution.

b) One left front three-quarter view of a completed unit ***must*** be provided.

c) One right rear three-quarter view of a completed unit ***must*** be provided.

4.3.3 **Dimensioned Drawing**

a) One side and front view sketch showing the dimensions ***must*** be provided. Brochure sketches are acceptable.

4.3.4 **Special Tools List** - The Contractor ***must*** provide an itemized list of specific special tools required for the servicing and repair of the vehicle and include:

a) Item name;

b) Contractor's part number;

c) Manufacturer's part number (OEM);

d) Quantity recommended per delivery location;

e) Unit price; and

f) Unit of issue.

4.3.5 **Preventive Maintenance Replacement Parts Kit List (PMRPKL)** - The contractor ***must*** provide a list detailing the parts that are required to perform preventive maintenance to the system for a period of 12 months, and include:

a) Item name;

b) Contractor's part number;

c) Manufacturer's part number (OEM);

d) Manufacturer's NATO Supply code (NCAGE) or name and address;

e) NSN (NATO Stock Number) (if known);

f) Quantity per equipment;

g) Quantity recommended;

h) Unit price; and

i) Unit of issue.

4.3.6 **Recommended Spare Parts List (RSPL)** - The Contractor ***must*** provide a list detailing the spare parts deemed necessary to maintain the vehicle for a period of 12 months exclusive of any warranty period, and include:

a) Item name;

b) Contractor's part number;

c) Manufacturer's part number (OEM);

d) Manufacturer's NATO Supply code (NCAGE) or name and address;

e) NSN (NATO Stock Number) (if known);

f) Quantity per equipment;

g) Quantity recommended;

h) Unit price; and

i) Unit of issue.

4.3.7 **Cataloguing Information**

a) The information ***must*** be in accordance with the terms of the contract in SACC Clause B4061C with the exception of paragraph 8.

b) The Contractor ***must*** provide, upon request, the information necessary to catalogue the parts for the vehicle. The Technical Authority will request information within 30 days of receiving the RSPL.

c) The Contractor ***must*** supply the information within 60 days after the request is made.

d) The Contractor ***must*** provide the serial numbers of all major equipment.

4.4 Safety Recalls and Servicing Data

a) Safety recalls, and manufacturer's technical service bulletins, or equivalent ***must*** be provided to the technical authority and the final delivery locations on a continuing basis, throughout the life expectancy of the vehicle or for no less than 10 years.

4.5 Training

4.5.1 **Maintenance Personnel Training**

a) The Contractor ***must*** provide a maintenance training course.

b) The course ***must*** be given at the delivery destination and be available in both official languages.

c) The course ***must*** have a minimum duration of two (2) days to provide training of up to eight (8) maintenance personnel and have the final dates arranged with the Technical Authority.

d) The course ***must*** have a syllabus or course outline and schedule available for review fourteen (14) days prior to the course commencement date.

e) After completion of the course, the Contractor ***must*** have a "*PROOF OF MAINTENANCE TRAINING*" certificate signed by a Canada Representative for the destination. The Technical Authority will supply this document in an electronic format.

4.5.2 **Maintenance Personnel Training Curriculum**

a) Operator's training detailed in Paragraph 4.5.3 below ***must*** be included in the curriculum.

b) Operation and maintenance safety precautions ***must*** be included in the curriculum.

c) Preventive maintenance including servicing schedules (10 % of classroom time) ***must*** be included in the curriculum.

d) Trouble shooting, testing, and adjustments (70 % of classroom time) ***must*** be included in the curriculum.

e) Special tools and test equipment ***must*** be included in the curriculum.

4.5.3 **Operator Training**

a) The Contractor ***must*** provide an operator training course.

b) The course ***must*** be given at the delivery destination and be available in both official languages.

c) The course ***must*** have minimum duration of two (2) days to provide training for up to twelve (12) operators and have the final dates arranged with the Technical Authority.

d) The course ***must*** have a syllabus or course outline and schedule available for review thirty (30) days prior to the course commencement date.

e) The course ***must*** be delivered by an instructor who is fully trained and functional on all aspects of the firefighting package, with at least three (3) years of experience within the past five (5) years on the specific vehicle or a vehicle of similar design.

f) After completion of the course the Contractor ***must*** have a "*PROOF OF OPERATOR TRAINING"* certificate signed by a Crown Representative for the destination. The Technical Authority will supply this document in an electronic format.

4.5.4 **Operator Training Curriculum**

a) Safety precautions to be observed while operating and servicing the vehicle ***must*** be included in the curriculum.

b) Vehicle operating characteristics ***must*** be included in the curriculum.

c) Vehicle operating procedures ***must*** be included in the curriculum.

d) Pre-operating and pre-shutdown procedures ***must*** be included in the curriculum.

e) Daily/weekly operator servicing procedures ***must*** be included in the curriculum.

f) A minimum of two (2) hours practical operating experience, per operator, ***must*** be provided.

4.5.5 **Training Materials**

a) Training materials ***must*** be provided to each attendee, in French for locations in Quebec.

b) Training materials ***must*** include a list of topics to be covered;

c) Training materials ***must*** include an approximate timetable showing when topics are scheduled to be covered and how much time is scheduled for each topic;

d) Training materials ***must*** list any reference material; and

e) Training materials ***must*** make available any reference material used.

4.5.6 **Training Video**

a) A bilingual operator training video ***must*** be provided.

b) The video ***must*** be used for initial training and will be kept by DND for refresher training.

c) The video ***must*** cover all training subjects as specified in Paragraph 4.5.3.

d) The video ***must*** be interactive and of high quality of 1600x720 pixels minimum resolution.

e) The video ***must*** have lessons divided into selectable sections with a maximum duration of 15 minutes per section.

f) The video ***must*** be delivered on CD/DVD-ROM.

g) The video ***must not*** require installation, password and/or Internet connection to be accessed.