

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 PROPOSAL
DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government
Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services
Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Title - Sujet RANGE FIRE FIGHTING TRUCK	
Solicitation No. - N° de l'invitation W8476-133916/B	Date 2013-12-05
Client Reference No. - N° de référence du client W8476-133916	
GETS Reference No. - N° de référence de SEAG PW-\$\$HP-512-64079	
File No. - N° de dossier hp512.W8476-133916	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2014-01-15	Time Zone Fuseau horaire Eastern Standard Time EST
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Serra, Donna	Buyer Id - Id de l'acheteur hp512
Telephone No. - N° de téléphone (819) 956-3944 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: Specified Herein Précisé dans les présentes	

Instructions: See Herein

Instructions: Voir aux présentes

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

Issuing Office - Bureau de distribution
Vehicles & Industrial Products Division
11 Laurier St./11, rue Laurier
7A2, Place du Portage, Phase III
Gatineau, Québec K1A 0S5

Delivery Required - Livraison exigée See Herein	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

This cancels and supersedes the previous Request for Proposition no. W8476-133916/A, dated August 22, 2012 which was due at 2:00 p.m. on October 2, 2012.

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PART 1 - GENERAL INFORMATION

1. Security Requirement

There is no security requirement associated with this bid solicitation.

2. Requirement

Canada is seeking proposals to procure:

- 2.1 One (1) Range Fire Fighting Package with Compressed Air Foam System with 4X4 Cab and Chassis and related items as described in Annex "A" - Pricing and in accordance with Annex "B" - Range Fire Fighting Package with Compressed Air Foam System and Purchase Description Annex "C" - Purchase Description - 4X4 Cab and Chassis
- 2.2 Irrevocable options identified in Annex "A"- Pricing.
 - 2.2.1 The options may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through a contract amendment.
 - 2.2.2 The options may be exercised in whole or in part and on more than one occasion at the sole discretion of Canada, up to the maximum quantity identified in Annex "A"- Pricing.
 - 2.2.3 The options may be exercised within twenty four (24) months after contract award.

3. Debriefings

Bidders may request a debriefing on the results of the bid solicitation. Bidders should make the request to the Contracting Authority within 15 working days of receipt of notification that their bid was unsuccessful. The debriefing may be provided in writing, by telephone or in person.

PART 2 - BIDDER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions (<http://ccua-sacc.tpsgc-pwgsc.gc.ca/pub/acho-eng.jsp>) Manual issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2013-06-01) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.remove bold

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: sixty (60) days

Insert: ninety (90) days

2. Submission of Bids

Bids must be submitted 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.

3. Enquiries - Bid Solicitation

All enquiries must be submitted to the Contracting Authority no later than seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation 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 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.

4. Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in *Ontario*.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the bidders.

5. Environmental Considerations

Canada is committed to greening its supply chain. In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to acquire products and services that have a lower impact on the environment than those traditionally acquired. Environmental performance considerations include, among other things: the reduction of greenhouse gas emissions and air contaminants; improved energy and water efficiency; reduced waste and support reuse and recycling; the use of renewable resources; reduced hazardous waste; and reduced toxic and hazardous substances. In accordance with the Policy on Green Procurement, for this solicitation:

- Offerors / suppliers are requested to provide all correspondence including (but not limited to) documents, reports and invoices in electronic format unless otherwise specified by the Contracting Authority or Project Authority, thereby reducing printed material.
- Offerors / suppliers should recycle (shred) unneeded copies of non-classified/secure documents (taking into consideration the Security Requirements).
- Product components used in performing the services should be recyclable and/or reusable, whenever possible.

6. Improvement of Requirement During Solicitation Period

Should bidders consider that the specifications, Statement of Work or Purchase Description contained in the bid solicitation could be improved technically or technologically, bidders are invited to make suggestions, in writing, to the Contracting Authority named in the bid solicitation. Bidders must clearly outline the suggested improvement as well as the reason for the suggestion. Suggestions that do not restrict the level of competition nor favour a particular bidder will be given consideration provided they are submitted to the Contracting Authority at least seven (7) days before the bid closing date. Canada will have the right to accept or reject any or all suggestions.

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (2 hard copies);

Section II: Financial Bid (1 hard copy);

Section III: Certifications (2 hard copies)

Section IV Additional Information (2 hard copies).

Canada requests that bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation;

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement

(<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

- 1) use paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

2. Section I: Technical Bid

In their technical bid, bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Bidders should complete and submit with their bid the following;

- 1) Appendix 1 - Annex B- Technical Information Questionnaire - Range Fire Fighting Package with Compressed Air Foam System; and

-
- 2) Appendix 1- Annex C - Technical Information Questionnaire - 4X4 Cab and Chassis.

2.1 Substitutes and Alternatives

Bidders may propose substitutes and alternatives where "**shall^(E)**" is indicated in the technical requirement description (Purchase Description/Statement of Requirement/Statement of Work). Offerors / suppliers are encouraged to offer or suggest green solutions whenever possible.

2.1.1 Substitutes and alternatives that are equivalent in form, fit, function and performance will be considered for acceptance by the Technical Authority where the Bidder:

- (a) Clearly identifies a substitute and/or an alternative;
- (b) Designates the brand name, model and/or part number of the substitute and/or of the product, where applicable;
- (c) States that the substitute product is fully interchangeable with the item specified in the technical requirement description;
- (d) Provides complete specifications and brochures, where applicable;
- (e) Provides compliance statements that include technical details showing the substitute and/or the alternative meet all technical requirements specified in the technical requirement description; and
- (f) Clearly identifies those areas in the technical requirement description and in the brochures that support the substitute and/or the alternative compliance with the technical requirements.

2.1.2 Substitutes and alternatives offered as equivalent in form, fit, function and performance will not be considered for acceptance by the Technical Authority if:

- (a) The bid fails to provide all of the information requested to allow the Technical Authority to fully evaluate the evaluate the equivalency; or
- (b) The substitute and/or the alternative fail to meet or fail to exceed the technical requirements specified in the technical requirement description.

3. Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment.

3.1 Exchange Rate Fluctuation Risk Mitigation

- 3.1.1 The Bidder may request Canada to assume the risks and benefits of exchange rate fluctuations. If the Bidder claims for an exchange rate adjustment, this request must be clearly indicated in the bid at time of bidding. The Bidder must submit form PWGSC-TPSGC 450 , Claim for Exchange Rate Adjustments with its bid, indicating the Foreign Currency Component (FCC) in Canadian dollars for each line item for which an exchange rate adjustment is required.
- 3.1.2 The FCC is defined as the portion of the price or rate that will be directly affected by exchange rate fluctuations. The FCC should include all related taxes, duties and other costs paid by the Bidder and which are to be included in the adjustment amount.
- 3.1.3 The total price paid by Canada on each invoice will be adjusted at the time of payment, based on the FCC and the exchange rate fluctuation provision in the contract. The exchange rate adjustment will only be applied where the exchange rate fluctuation is greater than 2% (increase or decrease).
- 3.1.4 At time of bidding, the Bidder must complete columns (1) to (4) on form PWGSC-TPSGC 450 , for each line item where they want to invoke the exchange rate fluctuation provision. Where bids are evaluated in Canadian dollars, the dollar values provided in column (3) should also be in Canadian dollars, so that the adjustment amount is in the same currency as the payment.
- 3.1.5 Alternate rates or calculations proposed by the Bidder will not be accepted for the purposes of this exchange rate fluctuation provision.

4. Section III: Certifications

-

Bidders must submit the certifications required under Part 5 - Certifications.

5. Section IV Additional Information

Canada requests that bidders submit the following information:

5.1 Delivery

5.1.1 Firm Quantity

While delivery of the vehicle is requested by 30 January 2015, the best delivery that can be offered is as follows:

Item 001 – One (1) Range Fire Fighting Package with Compressed Air Foam System with 4X4 Cab and Chassis and related items will be delivered within _____ calendar days from the effective date of the contract.

5.1.2 Optional Quantity

If an option is exercised, the best delivery that can be offered is as follows:

Item 002 – One (1) Range Fire Fighting Package with Compressed Air Foam System with 4X4 Cab and Chassis and related items will be delivered within _____ calendar days after an option is exercised.

5.2 Manufacturer's Standard Warranty Period

Canada requests that the Bidder provide details of the manufacturer's standard warranty period for the vehicle/equipment and its component that exceeds the minimum warranty period of twenty four (24) months.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures

- 1.1 Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- 1.2 An evaluation team composed of representatives of Canada will evaluate the bids.

2. Technical Evaluation

- 2.1 The purpose of the technical evaluation is to determine if the goods and/or services offered meet all mandatory technical requirements outlined in the documents enumerated hereafter and as required in **Section I - Technical Bid of Part 3 - BID PREPARATION INSTRUCTIONS:**

- Appendix 1 - Technical Information Questionnaire - Range Fire Fighting Package with Compressed Air Foam System;
- Annex "B" - Purchase Description -Range Fire Fighting Package with Compressed AirFoam System;

Appendix 1 - Technical Information Questionnaire - 4X4 Cab and Chassis;
- Annex "C" - Purchase Description - 4X4 Cab and Chassis.

3. Financial Evaluation

- 3.1 The purpose of the financial evaluation is to determine the aggregate price, based on the information submitted in Annex "A" - Pricing.
- 3.2 Aggregate Price Calculation

Bids will be evaluated on an aggregate price basis for the firm quantity and the optional quantity. Since the optional quantity are to be exercised within twenty-four (24) months, the firm unit prices for the optional quantity will be averaged.

3.2.1 To determine the averaged price for the optional quantities, calculation will be as follows:

- a) The firm unit prices for the optional quantity for each period of twelve (12) months will be added; and
- b) The sum will be divided by two (2).

3.2.2 To determine the aggregate price for the firm quantity and optional quantity, calculation will be as follows:

- a) The averaged price for the optional quantity obtained in 3.2.1 b) above will be multiplied by the total estimated optional quantity identified; and
- b) The result will be added to the total price for the firm quantity.

3.3 Any **Extended Warranty Period** offered will not be included in the financial evaluation and further negotiations may be required.

4. **Basis of Selection**

4.1 A bid must comply with the requirements of the bid solicitation and meet all mandatory requirements to be declared responsive. The responsive bid with the lowest evaluated aggregate price will be recommended for award of a contract.

PART 5 - CERTIFICATIONS

Bidders must provide the required certifications and documentation to be awarded a contract.

The certifications provided by bidders to Canada are subject to verification by Canada at all times. Canada will declare a bid non-responsive, or will declare a contractor in default, if any certification made by the Bidder is found to be untrue whether during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with this request will also render the bid non-responsive or will constitute a default under the Contract.

1. Mandatory Certifications Required Precedent to Contract Award

1.1 Code of Conduct and Certifications - Related documentation

By submitting a bid, the Bidder certifies that the Bidder and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Bid of Standard Instructions 2003.. The related documentation therein required will assist Canada in confirming that the certifications are true.

1.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "[FCP Limited Eligibility to Bid](http://www.labour.gc.ca/eng/standards_equality/eq/emp/fcp/list/inelig.shtml)" list (http://www.labour.gc.ca/eng/standards_equality/eq/emp/fcp/list/inelig.shtml) available from Human Resources and Skills Development Canada (HRSDC) - Labour's website.

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "[FCP Limited Eligibility to Bid](#)" list at the time of contract award.

PART 6 - RESULTING CONTRACT CLAUSES

1. Security Requirement

There is no security requirement applicable to this contract.

2. Requirement

2.1 The Contractor must deliver One (1) Range Fire Fighting Package with Compressed Air Foam System with 4X4 Cab and Chassis and related items as described in Annex "A" - Pricing and in accordance with Annex "B" - Purchase Description Range Fire Fighting Package with Compressed Air Foam System and Annex "C" - 4X4 Cab and Chassis

2.2 The Contractor grants to Canada irrevocable options identified in Annex "A" - Pricing.

2.2.1 The options may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through a contract amendment.

2.2.2 The options may be exercised in whole or in part and on more than one occasion at the sole discretion of Canada, up to the maximum quantity identified in Annex "A" - Pricing.

2.2.3 The options may be exercised within Twenty Four (24) months after contract award.

2.3 **Optional Extended Warranty Period (if applicable)**

The Contractor grants to Canada the irrevocable option to extend the warranty period for an additional (to be inserted by PWGSC at time of contract award) months, under the same terms and conditions and at the price stated in the Contract at Annex "A" - pricing. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through a contract amendment.

The Contracting Authority may exercise the option within ninety (90) calendar days after contract award and/or the exercising of an option by sending a written notice to the Contractor.

3. Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (<http://sacc.pwgsc.gc.ca/sacc/index-e.jsp>) issued by Public Works and Government Services Canada.

3.1 General Conditions

2010A (2013-04-25) General Conditions - Goods (Medium Complexity), apply to and form part of the contract.

Section 09 entitled Warranty of general conditions 2010A is amended by deleting subsection 2 in its entirety and replacing it with the following:

The Contractor must pay the transportation cost associated with returning the Work or any part of the Work to the Contractor's plant for replacement, repair or making good. The Contractor must also pay the transportation cost associated with forwarding the replacement or returning the Work or part of the Work when rectified to the delivery point specified in the Contract or to another location as directed by Canada. If, in the opinion of Canada, it is not expedient to remove the Work from its location, the Contractor must carry out any necessary repair or making good of the Work at that location. In such cases, the Contractor will be responsible for all Costs (including travel and living expenses) incurred in so doing, Canada will not reimburse these Costs.

If action to effect repairs under warranty cannot be initiated within **two (2)** working days and completed within a reasonable length of time or if the Contractor has no repair facilities in the immediate vicinity (**within 100 kilometres**) of the specified delivery destinations (consignees), the Department of National Defence reserves the right to make such repairs and be reimbursed by the Contractor at the rate of **\$103.91** per hour for labour and the cost for replaced parts."

3.1.1 Section 09 of general conditions 2010A is amended by replacing the period of twelve (12) months by twenty-four (24) months.

All other provisions of the warranty section remain in effect.

4. Term of Contract

4.1 Delivery of Vehicle

4.1.1 Firm Quantity

Delivery date of the vehicle must be made as follows:

Item 001 - One (1) Range Fire Fighting Package with Compressed Air Foam System with 4X4 Cab and Chassis and related items must be delivered on or before _____ (Date to be inserted by PWGSC the Contracting Authority at time of contract award.)

4.1.2 Option Quantity

Item 002 - One (1) Range Fire Fighting Package with Compressed Air Foam System with 4X4 Cab and Chassis and related items to be delivered within _____ calendar days after an option is exercised. (Days to be inserted by PWGSC the Contracting Authority at time of contract award.)

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Donna Serra
Title: Supply Team Leader
Organization: Public Works and Government Services Canada - Acquisitions Branch
LEFT Directorate, HP Division,
7A2, Place du Portage, Phase 3, 11 Laurier Street, Gatineau Quebec,
K1A 0S5
Telephone: 819 956-3944
Facsimile: 819 953-2953
E-mail: donna.serra@pwgsc-tpsgc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

5.2 Procurement Authority

The Procurement Authority for the Contract is:

Name: _____ (To be inserted by PWGSC at time of contract award.)

Title: _____

Organization: _____

Telephone: ____ - ____ - ____

Facsimile: ____ - ____ - ____

E-mail: _____

The Procurement Authority is the representative of the department or agency for whom the Work is being carried out under the Contract. The Procurement Authority is responsible for the implementation of tools and processes required for the administration of the Contract. The Contractor may discuss administrative matters identified in the Contract with the Procurement Authority however the Procurement Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of Work can only be made through a contract amendment issued by the Contracting Authority.

5.3 Technical Authority:

The Technical Authority for the Contract is:

Name: _____ (To be inserted by PWGSC at time of contract award.)

Title: _____

Organization: _____

Telephone: ____ - ____ - ____

Facsimile: ____ - ____ - ____

E-mail: _____

The Technical Authority named above is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Technical Authority, however the Technical Authority has no authority to authorize changes to the scope of the Work.

Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

5.4 Contractor's Representative

Name and telephone number of the person responsible for :

General enquiries

Name: _____ (To be completed by the bidder.)

Title: _____

Telephone: ____ - ____ - ____

Facsimile: ____ - ____ - ____

E-mail: _____

Delivery follow-up

Name: _____ (To be completed by the bidder.)

Title: _____

Telephone: ____ - ____ - ____

Facsimile: ____ - ____ - ____

E-mail: _____

5.5 After Sales Service

5.5.1 The following dealer and/or agent is authorized to provide after sales service, maintenance and warranty repairs and a full range of repair parts for the vehicle/equipment offered:

Item 001

Name: _____

Address: _____

Telephone Number: _____

Distance between the delivery location and the dealer and/or agent: _____ km

6. Payment

6.1 Basis of Payment - Firm Unit Price(s)

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid the firm unit price(s) specified in Annex "A" - Pricing, and as follows:

Basis of Payment (BOP) Type 1: Firm unit prices in Canadian dollars, Delivered Duty Paid at destination, Incoterms 2000, including Canadian Custom Duties and Excise Taxes included where applicable, and applicable Taxes are extra.

Basis of Payment (BOP) Type 2: Firm unit prices in Canadian dollars, FCA Free Carrier, Incoterms 2000 at Contractor's Canadian facility or Contractor's Canadian distribution point, including Canadian Custom Duties and Excise Taxes included where applicable, and applicable Taxes are extra.

Basis of Payment (BOP) Type 3: Price to be negotiated in Canadian dollars, Delivered Duty Paid at destination, Incoterms 2000, including Canadian Custom Duties and Excise Taxes included where applicable, and applicable Taxes are extra.

The transportation cost and living expense will be "negotiated" when Canada intends to exercise an option and has identified the applicable quantities and destinations. When requested by Canada, as a basis for negotiation, the Contractor must provide the transportation price(s) and/or Travel and living expense and relevant information.

Basis of Payment (BOP) Type 4: If exercised, the Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D

of the National Joint Council Travel Directive (<http://www.njc-cnm.gc.ca/directive/index.php?sid=90&hl=1&lang=eng>), and with the other provisions of the directive referring to "travellers", rather than those referring to "employees".

Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work, unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.

6.2 SACC Manual Clauses

H1001C Multiple Payments

2008-05-12

6.3 Exchange Rate Fluctuation Adjustment

- 6.3.1 The foreign currency component (FCC) is defined as the portion of the price or rate that will be directly affected by exchange rate fluctuation. The FCC should include all related taxes, duties and other costs paid by the Bidder and which are to be included in the adjustment amount.
- 6.3.2 For each line item where a FCC is identified, Canada assumes the risks and benefits for exchange rate fluctuation, as shown in the Basis of Payment. For such items, the exchange rate fluctuation amount is determined in accordance with the provision of this clause.
- 6.3.3 The total price paid by Canada on each invoice will be adjusted at the time of payment, based on the FCC and the exchange rate fluctuation provisions in the contract. The exchange rate adjustment amount will be calculated in accordance with the following formula:

$$\text{Adjustment} = \text{FCC} \times \text{Qty} \times (i_t - i_0) / i_0$$

where formula variables correspond to:

FCC Foreign Currency Component (per unit)

i_0

Initial exchange rate (CAN\$ per unit of foreign currency [e.g. US\$1])

i_t

exchange rate for adjustments (CAN\$ per unit of foreign currency [e.g. US\$1])

Qty quantity of units

- 6.3.4 The initial exchange rate is typically set as the noon rate as published by the Bank of Canada on the solicitation closing date.
- 6.3.5 For goods, the exchange rate for adjustment will be the noon rate as published by the Bank of Canada on the date the goods were delivered. For services, the exchange rate for adjustment will be the noon rate on the last business day of the month for which the services were performed. For advance payments, the exchange rate for adjustment will be the noon rate on the date the payment was due. The most recent noon rate will be used for non-business days.
- 6.3.6 The Contractor must indicate the total exchange rate adjustment amount (either upward, downward or no change) as a separate item on each invoice or claim for payment submitted under the Contract. Where an adjustment applies, the Contractor must submit with their invoice form PWGSC-TPSGC 450 , Claim for Exchange Rate Adjustments.
- 6.3.7 The exchange rate adjustment will only be applied where the exchange rate fluctuation is greater than 2% (increase or decrease), calculated in accordance with column 8 of form PWGSC-TPSGC 450 (i.e $[i_1 - i_0] / i_0$).
- 6.3.8 Canada reserves the right to audit any revision to costs and prices under this clause.

7. Invoicing Instructions

- 7.1 The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions including the Client Ref # BT326. Invoices cannot be submitted until all work identified in the invoice is completed. Offerors / suppliers are requested to provide invoices in electronic format unless otherwise specified by the Contracting Authority or Project Authority, thereby reducing printed material.

Each invoice must be supported by:

- (a) a copy of the release document and any other documents as specified in the Contract;

- 7.2 Invoices must be distributed as follows:

- (a) The original and one (1) copy must be forwarded to the following address for certification and payment:

National Defence Headquarters
Mgen George R. Pearkes Bldg
101 Colonel By Drive
Ottawa, Canada
K1A 0K2
Attention: DLP 5-5-1-1

- (b) One (1) copy must be forwarded to the PWGSC Contracting Authority identified under the section entitled "Authorities" of the Contract.

7.3 Holdback

A ten percent (10%) holdback will apply on the total price of each vehicle item 001 and 002 on any due payment of the said vehicle/equipment. Release of the holdback (10%) is conditional upon receipt and certified acceptance by inspection authority of the said vehicle and all related items as identified in Annex "A" - Pricing.

Applicable Taxes must be calculated on the total amount of the claim before the holdback is applied. At the time the holdback is claimed, there will be no Taxes payable as it was claimed and payable under the previous invoice.

- (a) The original and one (1) copy of the invoice for the holdback must be forwarded to the Procurement Authority identified under the section entitled "Authorities" of the Contract.
- (b) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

8. Certifications

8.1 Compliance

Compliance with the certifications and related documentation provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification, provide the related documentation or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

9. Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

10. Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) 2010A (2013-04-25) General Conditions - Goods (Medium Complexity);
- (c) Annex "A" - Pricing;
- (d) Annex "B" - Purchase Description - Range Fire Fighting Package with Compressed Air Foam System
- (e) Appendix 1- Technical Information Questionnaire - Range Fire Fighting Package with Compressed Air Foam System
- (f) Annex "C", Purchase Description - 4x4 Cab and Chassis
Appendix 1- Technical Information Questionnaire - 4x4 Cab and Chassis;
- (g) the Contractor's bid dated _____

11. SACC Manual Clauses

A1009C	Work Site Access	2008-05-12
A9006C	Defence Contract	2012-07-16
A9049C	Vehicle Safety	2011-05-16
C2800C	Priority Rating	2013-01-28
C2801C	Priority Rating - Canadian-based Contractors	2011-05-16
D3010C	Dangerous Goods/Hazardous Products	2012-07-16
D5510C	Quality Assurance Authority (DND) - Canadian-based Contractor	2012-07-16
D5515C	Quality Assurance Authority (DND) - Foreign-based and United States Contractor	2010-01-11
D5540C	ISO 9001:2008 Quality Management Systems - Requirements (QAC Q)	2010-08-16
D5604C	Release Documents - Foreign based Contractor	2008-12-12
D5605C	Release Documents - US based Contractors	2010-01-11
D5606C	Release Documents - Canadian-based Contractors	2012-07-16
D9002C	Incomplete Assemblies	2007-11-30
G1005C	Insurance	2008-05-12

12. Inspection and Acceptance

The Technical Authority or his representative is the Inspection Authority. All reports, deliverable items, documents, goods and all services rendered under the Contract are subject to inspection by the Inspection Authority or representative. Should any report, document, good or service not be in accordance with the Requirements and to the satisfaction of the Inspection Authority, as submitted, the Inspection Authority will have the right to reject it or require its correction at the sole expense of the Contractor before recommending payment.

13. Preparation for Delivery

The vehicle / equipment must be serviced, adjusted and delivered in condition for immediate use. The interior and exterior must be cleaned before leaving the factory and being released to inspection authority or consignee personnel at the final delivery location. The fuel tanks must be at least half full prior to release of the vehicle(s) to inspection authority or consignee.

All vehicles delivered to the consignee are to be delivered between the hours of 8:00 am and 4:00 pm Monday through Friday, except Federal holidays. Any attempt by the carrier to deliver vehicles before or after these hours may be refused unless arrangements have been made for authorized, qualified personnel to be available to perform inspections and to accept the delivery. When the carrier is required to return due to its failure to make an appointment for delivery, Canada will not be liable to pay for additional costs.

14. Shipping Instructions - Delivery at Destination (For Firm quantities)

14.1 The Contractor must ship the goods prepaid DDP - Delivered Duty Paid (as detailed at Annex "A" - Pricing). Unless otherwise directed, delivery must be made by the most economical means. Shipping charges must be shown as a separate item on the Contractor's invoice. The Contractor is responsible for all delivery charges, administration, costs and risks of transport and customs clearance, including the payment of customs duties and taxes.

14.2 The Contractor must deliver the goods by appointment only. The Contractor or its carrier must arrange delivery appointments by contacting the contacts specified in Annex "A" - Pricing. The consignee may refuse shipments when prior arrangements have not been made.

15. Release Documents - Distribution

The Contractor must prepare the release documents and distribute them as follows:

- (a) Copy 1: mail to consignee marked: "Attention: Receipts Officer";

- (b) Copies 2 and 3: with shipment (in a waterproof envelope) to the consignee;
- (c) Copy 4: to the Contracting Authority;
- (d) Copy 5: to:
 - National Defence Headquarters
 - Mgen George R. Pearkes Building
 - 101 Colonel By Drive
 - Ottawa, ON K1A OK2

Attention: DLP 5-5-1-1
- (e) Copy 6: to the Quality Assurance Representative;
- (f) Copy 7: to the Contractor;
- (g) Copy 8: all non-Canadian Contractors to:

DQA/Contract Administration
 National Defence Headquarters
 Mgen George R. Pearkes Building
 101 Colonel By Drive
 Ottawa, ON K1A OK2
 E-mail: ContractAdmin.DQA@forces.gc.ca.

16. Post-Contract Award Meeting/Pre-Production Meeting

Within ten (10) working days of the receipt of the Contract, the Contractor must contact the Technical Authority to determine the details of a pre-production meeting. The meeting will be held at the Contractor's plant _____ (specify location). Cost of holding such pre-production meeting must be included in the price of the bid. Please note that the travel and living expenses for Government Personnel will be arranged and paid for by the Canada. The crown reserves the right to carry out the Post-Contract Award Meeting/Pre-Production Meeting via teleconference.

17. Progress Reports

The contractor must prepare and submit monthly progress reports in two (2) copies, one to the Procurement Authority and one copy of the report must also be forwarded to the Contracting Authority.

Each progress report must address the following questions:

-
- (a) Is the delivery on schedule?
 - (b) Is the Contract free of any areas of concern in which the assistance or guidance of Canada may be required?
 - (c) Each negative response must be supported with an explanation.

18. Tools and Loose Equipment

For shipment verification, all items and tools, which are shipped loose with the vehicle/equipment must be listed on the Inspection Certificate (CF 1280) or on an attached packing note.

19. Spare Parts Availability

The contractor must ensure that spare parts required to properly maintain and repair the complete vehicle covered by this specification will be available for purchase by the Department of National Defence, or its authorized agents, for a period of 10 years.

20. Material

Material supplied must be new unused and of current production by manufacturer. (2013 model-year or newer).

21. Design Changes

The "Design Change, Design Deviation and Waiver Procedure" as defined in National Defence Standard D-02-006-008/SG-0001 must apply.

22. Interchangeability

Unless changes during the production run are authorized by Procurement Authority, all vehicles supplied against any one item of a contract must be the same make and model, and all like assemblies, sub-assemblies and parts must be interchangeable.

23. Packaging

The methods used for preservation and packaging must be in conformity with the Contractor's normal standard for domestic shipment or, if necessary, with standards for overseas shipment as below deck cargo.

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Amd. No. - N° de la modif.

File No. - N° du dossier

hp512W8476-133916

Buyer ID - Id de l'acheteur

hp512

CCC No./N° CCC - FMS No/ N° VME

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24. Service at Delivery

The Contractor must send a Service Representative to each delivery destination to perform the assembly/preparation on all vehicles delivered. Cost to provide this service must be included in the price of each vehicle.

ANNEX "A" - PRICING

Item 001 Range Fire Fighting Package with Compressed Air System with 4X4 Cab and Chassis(**Firm Quantity**)

The Contractor must deliver the vehicle/equipment including the sample manuals, CD of all manuals, data summary, photographs, warranty letter(s), recommended spare parts list, line setting ticket and Special tools list and familiarization training in accordance with the attached Annex "B" - Purchase Description - Range Fire Fighting Package with Compressed and Annex "C"- 4X4 Cab and Chassis.

The Range Fire Fighting Package with Compressed Air Foam System with 4X4 Cab and Chassis and related items must be delivered to:

CFB Borden, Ontario
Major Equipment Section
Bldg O-111
Borden, Ontario
LOM 1C0

Delivery contact: _____ (Name to be inserted by PWGSC at time of contract award.)

Date of delivery: _____ (Date to be inserted by PWGSC at time of contract award.)

Firm unit price of \$ _____ per vehicle, including all equipment and related items, in accordance with Basis of Payment Type 1 (as detailed at Clause 6.1 Basis of Payment).

Quantity: One (1)

Item 002 Range Fire Fighting Package with Compressed Air Foam System with 4X4 Cab and Chassis (**Optional Quantity**)

If this option is exercised, the Contractor must deliver the vehicle/equipment including the sample manuals, CD of all manuals, warranty letter(s) and line setting ticket in accordance with the attached Annex "B" - Purchase Description - Range Fire Fighting Package with Compressed and Annex "C"- 4X4 Cab and Chassis.

If to be exercised within 12 months of contract award

Firm unit price of \$ _____ per vehicle/equipment in accordance with Basis of Payment Type 2 (as detailed at Clause 6.1 Basis of Payment).

OR

Quantity: Up to One (1)

If to be exercised 13 to within 24 months following contract award

1st Year - 1st 12 months from Date of Contract award

Firm unit price of \$ _____ per vehicle, including all equipment and related items , in accordance with Basis of Payment Type 2 (as detailed at Clause 6.1 Basis of Payment).

2nd Year - month 13 to 24 from Date of Contract award

Firm unit price of \$ _____ per vehicle, including all equipment and related items, in accordance with Basis of Payment Type 2 (as detailed at Clause 6.1 Basis of Payment)

Quantity: Up to One (1)

Item 003 Transportation Cost (optional Quantities)

If optional vehicles are exercised, the contractor must deliver the vehicle/equipment to final destination detailed below.

The Range Fire Fighting Package with Compressed Air Foam System with 4X4 Cab and Chassis and ancillary items must be delivered to:

(to be provided by PWGSC if an option is exercised)

Delivery contact: _____ (Name to be inserted by PWGSC if an option is exercised.)

Date of delivery: _____ (Date to be inserted by PWGSC if an option is exercised.)

Quantity: Up to One(1)

Negotiated price: \$(to be negotiated if an option is exercised) per vehicle/equipment, for transportation cost, Delivered Duty Paid at destination, in accordance with Part 6, Basis of Payment Type 3.

(This item will not be included in the financial evaluation)

Item 004 Familiarization instructions/training (Option)

If this option is exercised, the Contractor must provide familiarization instruction/training, in accordance with the attached Annex "B" - Purchase Description - Range Fire Fighting Package with Compressed Air Foam System and Annex "C"- Purchase Description - 4X4 Cab and Chassis

Firm unit price of \$_____ in accordance with Basis of Payment Type 2 (as detailed at Clause 6.1 Basis of Payment).

Quantity: up to One (1)

Item 005 Travel and Living for Familiarization Instruction/Training (Option)

All travel must have the prior authorization of the Technical Authority. All payments are subject to government audit.

All travel and living expenses incurred in the performance of the work outside Canada will be the Contractor's responsibility.

When requested by Canada, the Contractor must provide an estimated cost for the travel and living.

Estimated cost: _____ Familiarization Instruction/Training, for Travel and Living expenses, Delivered Duty Paid at destination, in accordance with Part 6, Basis of Payment Type 4.

Quantity: up to One (1)

(This item will not be included in the financial evaluation)

Item 006 Optional Extended Warranty Period

Optional warranty coverage available: YES _____ NO _____

If yes, Canada requests that the Bidder provide details and pricing information of any optional extended warranty period available for the vehicle/equipment and any related items.

(This item will not be included in the financial evaluation)

If exercised, the warranty period will be extended for an additional period of _____ months/calendar days.

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Amd. No. - N° de la modif.

File No. - N° du dossier

hp512W8476-133916

Buyer ID - Id de l'acheteur

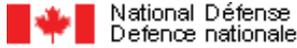
hp512

Client Ref. No. - N° de réf. du client

W8476-133916

CCC No./N° CCC - FMS No/ N° VME

Firm unit price of \$_____ Basis of Payment Type 2 (as detailed in Part 6)



**PERFORMANCE SPECIFICATION
AND
PURCHASE DESCRIPTION
FOR
RANGE FIRE FIGHTING PACKAGE
WITH COMPRESSED AIR FOAM
SYSTEM**

ECC 189208

OPI DSVPM 4 – DAPVS 4

**Issued on Authority of the Chief of the Defence Staff
Publiée avec l'autorisation du Chef d'état-major de la Défense**

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1. GENERAL SPECIFICATION

1.1 General

The Performance Specification and Purchase Description describe the requirement for a modular type Compressed Air Foam System (CAFS) fire fighting package. The fire fighting package will be installed on a cab and chassis assembly meeting the requirements of ANNEX C. The completed apparatus will provide Range Fire Fighting capability to Canadian Forces Bases within Canada.

- 1.1.1 This specification covers a CAFS modular type fire fighting package incorporating a 3,785 litres water capacity (1,000 gallons) tank, and 75 litres (20 gallons) tank of Class A foam.
- 1.1.2 When a specific brand name is specified, the intent of the specification detail is to set parameters for form, fit, function and performance. It is the bidder's sole responsibility to provide the required or requested documentation to substantiate an equivalency to the specified requirement. Failure by the bidder to meet the conditions of this requirement will render the bid submission as non-compliant.
- 1.1.3 The intent of this specification is to describe the minimum requirements applicable to the construction and performance of the CAFS system and associated equipment. Apparatus detail and or specifications contained in the chapters, sub paragraphs and Annexes of NFPA 1901 and 1906 as applicable, which although may not be specifically detailed within the DND Specification, remain in effect and **shall** be adhered to and met as a minimum requirement. In addition to the NFPA standards, specific DND requirements as outlined within this specification **shall** be met.
- 1.1.4 Unless otherwise specified, all inlets and discharges **shall** be provided with Storz couplings. The configuration of the couplings will be reconfirmed at the pre-production meeting.
- 1.1.5 The apparatus as a completed vehicle **shall** be designed to maximize both occupant and operational safety. To ensure safe operation of the apparatus while travelling on public roadways the lighting requirements described within Transport Canada Publication TP 14116E **shall** be provided. TP 14116E can be obtained at www.tc.gc.ca/roadsafety/reg/108/en.

1.2 Welding Certification

Final stage manufacturers/Primary OEMs **shall** hold welding certification to one of the following standards:

- 1.2.1 Canadian Welding Bureau (CWB) Certified Companies
 - 1.2.1.1 Bidding companies *shall* hold current certification IAW the Canadian Welding Bureau (CWB) standards to a division three (3) level IAWCSA W47.1 and CSA W47.2.
 - 1.2.1.2 Individual welders of a bidding company *shall* hold current CWB qualifications IAW CSA W47.1 and CSA W47.2 regulations.
 - 1.2.1.3 Bid submissions *shall* include a letter of Validation from the CWB demonstrating current certification of the company and their personnel. Failure by a bidder to include this documentation *shall* render the bid submission as non-compliant.
- 1.2.2 American Welding Society (AWS) Certified Companies
 - 1.2.2.1 Bidding companies *shall* hold current certification IAW the AWS as a Welding Fabricator IAW AWS B5.17.
 - 1.2.2.2 Individual welders of a bidding company *shall* hold current AWS qualifications for D1.1, D1.2 and D1.3 regulations.
 - 1.2.2.3 Bid submissions *shall* include a letter of Validation from the AWS demonstrating current certification of the company and their personnel. Failure by a bidder to include this documentation *shall* render the bid submission as non-compliant.
- 1.2.3 International Organization for Standardization (ISO)
 - 1.2.3.1 Individual welders of a bidding company involved with the manufacturing of the apparatus *shall* hold current welder performance qualifications for steel and aluminum joint welds as outlined within ISO 9606-1 and or 9606-2 as applicable for the weld material.
- 1.2.4 American Society of Mechanical Engineers (AMSE)
 - 1.2.4.1 Individual welders of a bidding company involved with the manufacturing of the apparatus *shall* hold current welder performance qualifications for steel and aluminum joint welds as outlined within the Articles of Section IX, as applicable for the weld material.
- 1.2.5 Welding operations performed by machines *shall* be considered as meeting the welding certification standards.

1.3 Instructions

The following instructions apply to this Purchase Description:

1.3.1 Substitutes and Alternatives

Bidders may propose substitutes and alternatives where "*shall^(E)*" is indicated in the technical requirement description (Purchase Description/Statement of Requirement/Statement of Work).

1.3.1.1 Substitutes and alternatives that are equivalent in form, fit, function and performance will be considered for acceptance by the Technical Authority where the Bidder:

- (a) Clearly identifies a substitute and/or an alternative;
- (b) Designates the brand name, model and/or part number of the substitute and/or of the product, where applicable;
- (c) States that the substitute product is fully interchangeable with the item specified in the technical requirement description;
- (d) Provides complete specifications and brochures, where applicable;
- (e) Provides compliance statements that include technical details showing the substitute and/or the alternative meet all technical requirements specified in the technical requirement description; and
- (f) Clearly identifies those areas in the technical requirement description and in the brochures that support the substitute and/or the alternative compliance with the technical requirements.

1.3.1.2 Substitutes and alternatives offered as equivalent in form, fit, function and performance will not be considered for acceptance by the Technical Authority if:

- (a) The bid fails to provide all of the information requested to allow the Technical Authority to fully evaluate the equivalency; or
- (b) The substitute and/or the alternative fail to meet or fail to exceed the technical requirements specified in the technical requirement description.

1.3.1.3 In conducting the evaluation of bids, Canada may, but will have no obligation to request the bidder offering a substitute and/or an

alternative, to provide a copy of the alternative standard and to demonstrate, at the bidder's sole cost, that it is equivalent to the technical requirement.

- 1.3.2 Mandatory requirements are identified by the word *shall*. Deviations will not be permitted.
- 1.3.3 Requirements identified by " *shall*^(E) " *shall* be satisfied, however, the Technical Authority will consider alternative means for acceptance as a Technical Authority Approved Equivalent IAW the following:
- 1.3.4 In this document "provided" *shall* mean "provided and installed".
- 1.3.5 When a specific brand name is specified, the intent of the specification detail is to set parameters of form, fit, function or performance. It is the bidder's sole responsibility to provide the required or requested documentation to substantiate an equivalency to the specified requirement. Failure by the bidder to meet the conditions of this requirement will render the bid submission as non-compliant.
- 1.3.6 Where equipment certification to a standard (SAE or other) is required, the bidder *shall* provide the certification upon request.

1.4 Definitions

The following definitions apply to the interpretation of this Purchase Description:

- 1.4.1 Technical Authority - The government official responsible for technical management of this requirement. The Technical Authority is the Director Support Vehicles Program Management 4-2 (DSVPM 4-2).
- 1.4.2 Technical Authority Approved Equivalent - Means a feature, or component, which has been evaluated by the Technical Authority and determined to meet the specification requirements for form, fit, function and performance, as applicable.
- 1.4.3 Apparatus - Means the complete, self-contained Apparatus, including stowage items, tools, ancillary equipment, expendable liquids and agents, necessary to fulfill the primary mission/function that the vehicle was specifically designed for.
- 1.4.4 Nominal measurement – the term nominal measurement is the length/capacity by which something is known, which may be different from its actual measurable size.

1.5 Technical Information Appendix

The following applies:

- 1.5.1 The bidder *shall* complete the Technical Information Questionnaire APPENDIX 1 TO ANNEX B in support of their bid submission. Failure to provide any requested brochures, performance analysis, drawings, curves or tables may render the proposal non-compliant; and
- 1.5.2 A nil response to a technical information question may be considered non-compliant. Any deviation from the Purchase Description *shall* be listed and explained in detail in the Conformance Certificate.

1.6 Certificate Of Conformance

The following applies:

- 1.6.1 The Certificate of Conformance APPENDIX 1 to ANNEX B takes precedence over all other technical data submitted by a Manufacturer. When a Manufacturer intends to offer an alternate apparatus system, sub-system, component, item or product other than that specified within this Performance Specification and Purchase Description, it *shall* be the Manufacturer's responsibility to specifically detail the alternative being offered in the Certificate of Conformance. Should no alternate apparatus systems, sub-systems, components, items or products be identified within the Certificate of Conformance, the Manufacturer *shall* provide an apparatus that fully meets the requirements of the Performance Specification and Purchase Description in its entirety without exception.
- 1.6.2 Should a bidder identify a specification error, omission, or inconsistency, the item *shall* be brought to the attention of the PWGSC Contracting Authority, and a proposal to meet the intent of the specification *shall* be put forth during the Request For Proposal (RFP) phase of the contracting process.

2 APPLICABLE DOCUMENTS

2.1 Publications

The following documents form part of this Purchase Description. Effective dates *shall* be those in effect upon the date of manufacture. Sources are as shown:

Transport Canada Consolidation of the Motor Vehicle Safety Act and Motor Vehicle Safety Regulations (MVSr) and all applicable revisions TP4360E

Society of Automotive Engineers Inc. 400 Commonwealth Drive. Warrendale, PA15096

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Standards Council of Canada, International Standardization Branch 450 O'Connor St.
Suite 1200, Ottawa, Ontario, K1P 6N7

National Fire Prevention Association (NFPA) (International) 479 Atlantic Ave., Boston,
Massachusetts, 02110, USA

NFPA 1901 and 1906 as applicable

Underwriters Laboratories of Canada, 7 Crause Road, Scarborough, Ontario M1R 3A9

ULC S513 - Threaded Couplings for 1-1/2 and 2-1/2 Inch Fire Hose

ULC S515 Standard for Automobile Fire Fighting Apparatus (Latest Edition)

CAN/CGSB 28.74-M90 - Foam Liquid Concentrate, Fire Fighting, Aqueous Film-
Forming (AFFF)

American Society of Mechanical Engineers (ASME) United Engineering Centre, 345
East 47th Street, New York, NY 10017

American Society for Testing Materials (ASTM), 1916 Race Street Philadelphia, PA
19103

American National Standards Institute 1430 Broadway, New York, N.Y. 10018

ISO 9001 - International Standards For Quality Management

3 REQUIREMENTS

3.1 Standard Design

The manufacturer *shall* supply the cab and chassis assembly IAW ANNEX C, 4X4 cab and chassis Specification and Purchase Description. The following standard design criteria apply:

- 3.1.1 The Range Fire Fighting package design *shall* have engineering certification verifying conformance to all applicable laws, regulations and industry standards governing manufacture, safety, noise and pollution as applicable for the configuration in effect within Canada at the time of manufacture.
- 3.1.2 Manufacturers *shall* hold Ministry of Transport certification for affixing National Safety Marks (NSM) and Canadian Motor Vehicle Safety Standards (CMVSS) stickers to a vehicle chassis.

- 3.1.3 The manufacturer **shall** submit with their bid submission evidence of current NSM certification and number.
- 3.1.4 System and component capacities **shall** not be increased above published ratings.
- 3.1.5 **Shall** include all components, equipment and accessories normally supplied for this application, although they may not be specifically described in this purchase description.

3.2 Weight Analysis and Centre of Gravity

A weight and centre of gravity analysis summary **shall** be provided, the following applies:

- 3.2.1 The manufacturer **shall** supply a weight analysis with their bid submission to verify that the weight of the built unit is within the parameters of the GVWR and adequately distributed between the front and rear axles so as not to exceed the GAWR.
- 3.2.2 The manufacturer **shall** supply a centre of gravity calculation to verify that the built unit is within the OEM's engineering specifications as part of the pre-delivery inspection documentation.

3.3 Operating Conditions

Interfacing of the fire fighting package to the cab and chassis **shall** not negatively affect the vehicles operating characteristics. The apparatus, under all load conditions **shall** operate as follows without degradation in performance, reliability and maintenance.

- 3.3.1 The apparatus **shall** operate safely and efficiently on paved roads, gravel roads, dirt roads with severe washboard and potholes and off road terrain. Conditions include year round operation on surfaces that will be covered by snow, mud and or ice dependant on the season.

3.4 Vehicle Safety Regulations

The following applies:

- 3.4.1 The vehicle **shall** meet the provisions of the Canada Motor Vehicle Safety Act and the Regulations in effect on the date of manufacture of the vehicle.

- 3.4.2 The Fire Fighting Package **shall** comply with the applicable sections of the National Fire Protection Association (NFPA) 1901 and 1906 as applicable for this type of apparatus construction.

3.5 **Human Engineering and Safety**

The following applies:

- 3.5.1 All systems and components **shall^(E)** be safe and easy to use by a 5-95th percentile male or female under all operating conditions.
- 3.5.2 Entry and exit points **shall** be equipped with handles and steps suitably positioned where required, to accommodate a 5-95th percentile male or female under all operating conditions.
- 3.5.3 Safety features such as warning and instruction plates, non-slip surfaces and heat shields **shall** be provided where required IAW NFPA 1901 requirements.
- 3.5.4 Entry and exit points **shall** be equipped with handles and steps suitably positioned IAW NFPA 1901 requirements.
- 3.5.5 SAE Grade 5 to 8 fasteners **shall** be provided in all areas that require the application of their respective clamp load capabilities. The contractor **shall** provide a statement that no sub-standard Class 3 fasteners have been used in safety critical applications, where a fastener failure could cause death, severe injury or system loss.
- 3.5.6 All bolts, nuts, washers and associated fasteners used to mount the fire fighting package systems and subsystems to the vehicle chassis **shall** be stainless steel.

3.6 **Maintainability**

All maintenance and repair tasks, especially routine operator maintenance, **shall^(E)** be easy to perform with a minimum of special tools and skills.

3.7 **Apparatus Dimensions**

The apparatus dimensions are based on the installation of a Compressed Air Foam System on a cab and chassis unit. The apparatus **shall^(E)** be provided using the following nominal measurements:

3.7.1 **CAFS Dimensions**

- 3.7.1.1 Overall Width – 2,540-mm (100-inches)

3.7.1.2 Overall Height – 3,556-mm (140-inches)

3.7.1.3 Overall Length – 8,636-mm (340-inches)

3.7.1.4 Ground Clearance – 254-mm (11-inches)

3.7.1.5 Angle of Approach - 20°

3.7.1.6 Angle of Departure - 20°

4 WARRANTY

4.1 Single Source Warranty

Fire Fighting Apparatus are defined by DND as Mission Critical Support Vehicles. The prime function of the apparatus is to provide fire protection for Federal Government infrastructure, personnel and equipment in support of Operations. Successful staging and deployment of Fire Fighting Apparatus in support of Fire Fighting Operations rely on the serviceability of DND's vehicle fleet. DND's ability to immediately acquire warranty repair, parts or servicing for the Range Fire Fighting apparatus is an essential component of Operational Readiness and Support. To ensure that Operational delay is minimized as a result of mechanical failure, the manufacturer *shall* supply with their bid submission a Warranty Certification letter indicating their acceptance and compliance with the following:

- 4.1.1 To eliminate divided warranty responsibilities, which would lead to delay in both acquisition of parts and or warranty coverage, the Fire Fighting Package *shall* be provided with a single source warranty administered through and by the manufacturer. The manufacturer *shall* clearly state within their Warranty Certification letter ANNEX D their acceptance of the warranty conditions detailed within this document, and ability to supply Fire Package component parts for the expected life of the apparatus (15 years).
- 4.1.2 The manufacturer *shall*^(E) initiate on site warranty repair within a maximum of 72 hours following receipt of notification by DND that the vehicle is unserviceable. All costs associated with on site warranty repair *shall* be the sole responsibility of the manufacturer through out the warranty period. Evidence of the manufacturer's capability to provide warranty repair *shall* be provided with the bid submission.
- 4.1.3 When repairs are considered by DND to be of a minor nature during the warranty period, alternate repair agreements may be initiated between the holding Base and manufacturer. Warranty repair under this arrangement

shall be a DND initiated procedure and the cost of transport insurance, components, labour and shipment of both replacement parts and return of core items, to the Base of origin and return to the OEM from the Base of origin *shall* be borne solely by the manufacturer. When repairs are initiated under this agreement DND *shall* be reimbursed at a flat hour labour rate of \$103.91 per hour. Financial transaction details under this arrangement will be finalized at the preproduction meeting.

4.2 Warranty Duration

The manufacturer *shall* supply a two (2) year warranty on the Fire Package and component parts, with the exception of consumable items. The manufacturer *shall* provide details and pricing of optional extended warranty coverage for the fire fighting package and its major components that exceed the standard two year warranty duration. DND reserves the right to accept the optional extended warranty coverage within 90 calendar days following delivery.

4.3 Consumable Items

Consumable items will be maintained by DND. Items identified as consumable follow:

- 4.3.1 Batteries.
- 4.3.2 Hoses.
- 4.3.3 Belts.
- 4.3.4 Bulbs.
- 4.3.5 Filters.
- 4.3.6 Oils
- 4.3.7 Mechanical Seals and packing.

4.4 Warranty Registration

The manufacturer *shall* be responsible for warranty registration of the fire fighting package components and sub-components following completion of the Familiarization training. Two copies of all documentation in support of warranty registration *shall* be provided as follows:

- 4.4.1 One copy *shall* be provided to the CFB Base delivery location.
- 4.4.2 One copy *shall* be delivered to the Technical Authority.

4.4.3 Details to be finalized at the pre-production meeting.

5 RANGE FIRE FIGHTING PACKAGE

5.1 General

The Range Fire Fighting Package *shall* be designed as a modular type slide in/bolt on package with the exception of the front mounted bumper turret. Overall design *shall*^(E) provide the ability to remove the entire rear deck package and allow for installation onto another vehicle platform with minimal modification to the original fire package configuration. The basic fire fighting package *shall* consist of the following main components:

- 5.1.1 A Water and Foam Tank(s).
- 5.1.2 A Compressed Air Foam System (CAFS).
- 5.1.3 Hose Reel(s).
- 5.1.4 Intakes and discharge outlets.
- 5.1.5 A Front Mounted Bumper Monitor.
- 5.1.6 Controls, Gauges and Valves.
- 5.1.7 Storage Compartments.
- 5.1.8 A 12-volts electrical system and lighting package.
- 5.1.9 Under chassis water nozzles.
- 5.1.10 Tool storage compartments.

5.2 Water Tank

The water tank provided *shall* have a minimum capacity of 3,785 litres (1,000 gallons). The following applies:

- 5.2.1 The tank *shall* be provided with a minimum 20 year warranty against defects in both material and workmanship. Tank warranty *shall* cover the cost of labour, material, transport shipping and insurance charges in the event that the tank is required to be returned to the manufacturer for repair. All charges associated with the return of the tank to the CF Base of origin *shall* also be covered within the warranty period.

- 5.2.2 The tank **shall** be a low profile design to reduce the apparatus centre of gravity.
- 5.2.3 The tank **shall** be manufactured and designed to withstand structural impacts. Stiffening and or re-enforcement plates **shall** be provided in areas that are determined through a design analysis to be under either dynamic or static stresses.
- 5.2.4 The tank **shall** be constructed from a rust resistant material that is capable of withstanding the dynamic and static loads imposed during severe off road usage.
- 5.2.5 All joints and seams are to be fully welded and the tank pressure tested for leakage.
- 5.2.6 The tank **shall** have a combination vent and a manual fill tower. The fill tower **shall**^(E) be provided with a hinged cover with nominal dimensions of eight (8) x eight (8) inches. The fill tower **shall** be equipped with a six (6) mm mesh debris screen.
- 5.2.7 The tank **shall**^(E) be provided with a 2 inch tank to pump electric valve.
- 5.2.8 The fill tower **shall** be provided with a minimum two (2) inch overflow directing water to the rear of the apparatus behind the axle assembly.
- 5.2.9 The tank **shall** be designed to allow for a 95% water usage without pump cavitations.
- 5.2.10 The tank **shall** be designed and baffled in accordance with current NFPA 1901 standards to minimize water surge during on/off road travel. Both longitudinal and latitudinal baffles **shall**^(E) be interlocked and welded. Openings in the baffles **shall**^(E) be positioned to allow water flow to NFPA 1901 standards during filling or pumping operations.
- 5.2.11 The tank **shall**^(E) be provided with a 1.5 inch tank drain valve directed to the ground. The tank drain **shall** be located to ensure that all water is drained from the tank in preparation for winter climatic conditions. The operator **shall** be able to actuate the drain valve from a standing position, designs that require the operator to access the valve by crawling under the apparatus **shall** be considered non-compliant.
- 5.2.12 The manufacturer **shall** certify the capacity of the water tank prior to delivery of the apparatus.
- 5.2.13 Unless other wise detailed within the specification, all inlets and discharges **shall**^(E) be provided with Storz couplings.

5.3 Tank Mounting

The tank *shall* be mounted to an aluminum sub frame structure, the following applies:

- 5.3.1** The tanks *shall* be cradled, cushioned, spring-mounted, or otherwise protected from undue stress and or twisting resulting from travel on uneven terrain during off road operations.
- 5.3.2** The manufacturer *shall* provide evidence that the tank mounting has been designed in accordance with the tank OEM recommendations for off road use.
- 5.3.3** The tank *shall* be mounted separately from the body and *shall* be easily removable without disturbing the apparatus body.

5.4 Portable Tank System

A Wildfire Forestry FireFlex 5,680 Litres (1,500 gallon) tank system *shall*^(E) be provided. The following applies:

- 5.4.1** The system *shall* be self-supporting, light weight and compact for easy storage.
- 5.4.2** The tank fabric *shall* be durable and mould and mildew resistant.
- 5.4.3** Tank construction *shall* not utilize glued seams.
- 5.4.4** The tank *shall* be capable of supporting helicopter bucket filling operations.
- 5.4.5** The tank *shall* incorporate multi-point tie downs for protection from rotor wash.
- 5.4.6** The tank *shall* be deployable on slopes up to 7% inclines.

5.5 Water and Foam Level Gauges

One set of FRC LED miniature water and foam gauges *shall*^(E) be provided within the vehicle cab located in such a position to provide a clear view of the gauges to the driver. An additional primary set of FRC LED water and foam gauges *shall*^(E) be provided at the rear deck pump panel in a position that allows for easy visibility to the pump operator. The following applies:

- 5.5.1** Gauges *shall*^(E) be provided with flashing LED warning when tank is below 25%.

- 5.5.2 Gauges *shall^(E)* be provided with down-chasing LEDs and wide view lens to alert operator when tank is almost empty.
- 5.5.3 Gauges *shall* be calibrated for the tank design.
- 5.5.4 Gauges *shall^(E)* be waterproof and provided with a rugged aluminum housing.
- 5.5.5 Gauges *shall* provided a viewing angle of 180 degrees.
- 5.5.6 The program features *shall^(E)* be accessed from the front of the indicator module. The program *shall^(E)* support self-diagnostics capabilities, self-calibration, and a data link to connect remote indicators.
- 5.5.7 The indicator *shall^(E)* receive an input signal from an electronic pressure sensor. The sensor *shall^(E)* be mounted on the outside, bottom area of the water tank. No probe *shall^(E)* be placed on the interior of the tank. Wiring *shall^(E)* be weather resistant and have automotive type plug-in connectors.
- 5.5.8 The display module *shall^(E)* be protected from vibration and contamination.

5.6 Foam Cell

The following applies;

- 5.6.1 The foam cell *shall^(E)* be rated for a minimum capacity of 75 liters (20 gallons), in order to support two complete water tank discharges. The foam cell *shall* be manufactured from a material that is compatible with class A foam solutions.
- 5.6.2 Foam cell designs can be either integral or stand alone design.
- 5.6.3 The foam cell *shall* have a fill tower that is easily accessible by the operator without the need to disassemble any portion of the fire package to gain access.
- 5.6.4 The fill tower *shall* be provided with a hinged cover and internal seal to prevent the escape/spillage of foam solution which would be caused by agitation or sloshing of the solution during cross country operation of the apparatus.
- 5.6.5 The foam cell *shall* incorporate a pressure/vacuum vent system. The tank will automatically adjust for changes in pressure when withdrawing foam concentrate.

- 5.6.6 Tank outlet *shall*^(E) be located above the bottom of the tank and sized appropriately to permit maximum flow. The outlets *shall* be arranged to permit use of the full capacity of the tank with the vehicle level, and at least 75% of the tank capacity with the vehicle on a 20% side slope, or ascending /descending a 30% grade.

5.7 Foam Cell Re-Fill System

The following applies:

- 5.7.1 A 12 volt DC electrically operated foam transfer pump with a 38 mm (1½ inch) hose connection *shall*^(E) be provided on the right side of the vehicle to allow the foam tank to be filled or drained. The pump *shall*^(E) be plumbed into the foam tank fill/drain connections.
- 5.7.2 A fill hose with compatible fittings for connection to the transfer pump hose connection *shall* be provided. The hose *shall* be of adequate length to ensure the suction end easily reaches ground level when connected.
- 5.7.3 The pump and plumbing system *shall* be compatible with class A foam solution.
- 5.7.4 Control switch for operation of the transfer pump *shall*^(E) be located in the vicinity of the pump connection. The pump design *shall*^(E) allow for automatic shutoff when the foam tank has been filled to a preset level.
- 5.7.5 A check valve *shall* be provided to prevent backflow of the concentrate during the connection and disconnection of the fill tube.
- 5.7.6 To facilitate manual filling of the foam cell, a fill trough *shall*^(E) be provided with a fill tube that introduces concentrate into the bottom of the tank to minimize foaming of the concentrate during fill operations.
- 5.7.7 The tank *shall* 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.
- 5.7.8 A means of flushing the system *shall* be provided.

5.8 Dump Valves

The water tank *shall* be provided with two side discharge dump valves, the following applies;

- 5.8.1 The side dump valves *shall*^(E) be a 10" x 10" Zico Quic-Flow model QDV-10-UPF valves with 24-in telescoping chutes.
- 5.8.2 One (1) valve to be installed on each side of the apparatus as close as possible to the rear.
- 5.8.3 The valves *shall*^(E) also have a locking mechanism, to prevent it from accidentally opening. Each manual operated chute *shall*^(E) be designed with a spring-loaded clip enabling the chute(s) to be locked or released easily and quickly.
- 5.8.4 The steel dump valve(s) and telescoping chutes *shall* be completely disassembled and finish painted before installation at the manufacturing plant. The valves *shall* be painted to match the apparatus body.

5.9 Direct Tank Fill

The apparatus *shall* be provided with a 2½ inch direct tank fill inlet, the following applies:

- 5.9.1 The tank *shall* be provided with a 2½ inch checked valve for direct tank filling. The tank fill connection *shall*^(E) be located at the left (roadside) rear of the apparatus.
- 5.9.2 The inlet *shall* be provided with a Storz couplings.

5.10 Manual Tank Fill and Auxiliary Intake

The apparatus *shall* be provided with a pump to tank fill line and auxiliary intake on the curb side. The following applies:

- 5.10.1 A manual 2 inch full flow valve *shall* be provided.
- 5.10.2 The valve *shall* be a self locking swing out design.
- 5.10.3 The auxiliary intake *shall* be 2 ½ inch Storz couplings.

5.11 2½ Inch Rear Discharge

The apparatus *shall* be provided with one 2½ inch discharge, the following applies:

- 5.11.1 The discharge *shall* be plumbed to flow water and foam.
- 5.11.2 The discharge *shall*^(E) be provided at the right rear of the apparatus.
- 5.11.3 The discharges *shall*^(E) be provided with a 2½ inch Akron ball valve.

5.11.4 The discharge *shall* be provided with Storz couplings.

5.12 1½ Inch Side Discharges

The apparatus *shall* be provided with two 1½ inch side mounted discharge outlets, the following applies:

5.12.1 One discharge *shall*^(E) be provided on the left and right side of the apparatus. The discharges *shall*^(E) be located to the forward edge of the deck platform.

5.12.2 Discharges ends *shall*^(E) be provided with Storz couplings.

5.13 Hose Reels

Two hose reels *shall*^(E) be provided on top at the front area of the CAFS. The following applies:

5.13.1 The hose reels *shall*^(E) be provided with an aluminum frame, electric rewind motors and manual backup function.

5.13.2 The reels *shall*^(E) be provided with 60 metres (200 feet) of 38 mm (1½ inch) ReelTex model 3200 hose.

5.13.3 The reels *shall*^(E) be provided with chrome plated hose guide rollers.

5.13.4 The reels *shall* be capable of discharging water only, foam/water only or compressed air foam.

5.13.5 Each reel *shall*^(E) be provided with a 1½ inch Akron swing out valve.

5.13.6 The hose ends *shall* be provided with Storz couplings.

5.14 Front Bumper Monitor

The front bumper *shall* be provided with a cab controlled bumper turret. The following applies:

5.14.1 The monitor *shall*^(E) be capable of providing 90° horizontal travel to both sides of centre.

5.14.2 The monitor *shall*^(E) be capable of +45° to - 45° vertical travel.

5.14.3 A joy stick control *shall* be provided at the cab custom console with vertical and horizontal turret control, automatic oscillation control.

Automatic stow control, on/off electric valve control, automatic pattern control from straight stream to fog.

- 5.14.4 The monitor *shall*^(E) be rated for a discharge of 250 GPM.
- 5.14.5 The monitor *shall*^(E) be provided with an electrically operated nozzle and foam tube.
- 5.14.6 *Shall*^(E) be provided with a two (2) inch inlet.
- 5.14.7 *Shall* be plumbed into the CAFS and capable of discharging water only, foam/water or compressed air foam.
- 5.14.8 *Shall* be capable of automatic oscillation and monitor stow.
- 5.14.9 Provided with a two (2) inch electric valve.
- 5.14.10 The monitor *shall*^(E) be provided with a straight bore tube sized IAW nozzle OEM recommendations for CAFS operation.
- 5.14.11 The monitor *shall*^(E) be provided with a two (2) inch quick disconnect to allow easy removal for hood tilt operations during vehicle servicing.
- 5.14.12 The monitor design *shall* operate from a 12 volt DC electrical current feed.

5.15 Under Truck Discharges

The apparatus *shall* be provided with under truck discharges. The following applies:

- 5.15.1 Three (3) under truck discharges *shall*^(E) be provided; one discharge located at the front and rear of the apparatus and one discharge provided at the mid-frame point.
- 5.15.2 The discharges *shall*^(E) be plumbed to a 12 volt DC pump capable of a 10 GPM discharge. The pump *shall* draw water from the main tank.
- 5.15.3 A discharge activation switch *shall*^(E) be provided at the custom console.
- 5.15.4 The discharges *shall*^(E) be provided with a fog type nozzle and 12 inch flexible nozzle feed hose.
- 5.15.5 Design of the under truck discharges *shall* ensure a full under chassis fogging application from the front bumper to rear bumper area including coverage of the wheel assemblies.

6 COMPRESSED AIR FOAM SYSTEM (CAFS)

The CAFS provided *shall^(E)* be a Waterous self contained, diesel powered, slide in type unit. The following applies:

6.1 General

- 6.1.1 The CAFS *shall* be designed to discharge water only, water/foam only, air only, or compressed air foam. The consistency of the compressed air foam (expansion ratio), wet/dry *shall^(E)* be fully adjustable.
- 6.1.2 The CAFS *shall* incorporate an electronic diesel powered engine, an air cooled compressor, a water pump and a an operator control panel with associated gauges, switches, controls, and water discharges/outlets as applicable for operation and control of the system.
- 6.1.3 The compressor *shall* be air cooled and provided with an automatic means of balancing air pressure to water pressure within a 5% plus/minus percentage range of the water pump pressure throughout the operating range.
- 6.1.4 Operating controls for the air compressor *shall^(E)* be provided at the CAFS operator panel. Controls *shall* provide a means of switching between a fixed air pressure setting that can be utilized for the operation of air tools, an automatic setting that will provide balancing of the air pressure to water pressure when the CAFS is functioning and an unload mode.
- 6.1.5 Controls for the operation of the CAFS *shall^(E)* also be provided at a custom console located within the cab allowing the driver to operate/engage the CAF system from the cab seated area.

6.2 CAFS Engine

The following applies:

- 6.2.1 The engine shall draw fuel directly from the vehicle main fuel tank.
- 6.2.2 The CAFS *shall^(E)* be provided with a diesel powered four cylinder engine rated at 60 horsepower with an hour usage meter.
- 6.2.3 The engine *shall^(E)* be provided with rubber mounted pads or other suitable means to absorb vibration and off road driving.
- 6.2.4 The engine *shall^(E)* be water cooled and provided with a minimum 60 amp alternator, dry type air filter and muffler.

- 6.2.5 The engine *shall*^(E) be provided with an oil pan drain extension or other suitable means to allow for easy drainage of engine oil.
- 6.2.6 The engine *shall*^(E) be provided with spin on type fuel filters with either an electric or manual priming capability.
- 6.2.7 The engine *shall*^(E) be provided with spin on style oil filter.

6.3 Water Pump

The following applies:

- 6.3.1 The CAFS *shall*^(E) be provided with an integral single-stage centrifugal design pump with a vertically split aluminum case with replaceable bronze impeller and seal rings.
- 6.3.2 The pump *shall* be capable of providing a minimum of 150 GPM at a pressure of 200 psi.

6.4 Air Compressor

The following applies to the design requirements of the air compressor:

- 6.4.1 The compressor *shall*^(E) be rated for 80 cfm output at a minimum 125 psi.
- 6.4.2 The air compressor *shall*^(E) be an oil injected screw type design.
- 6.4.3 The compressor *shall* be provided with an indicator light at both the operators panel and interior cab panel to indicate an overheat condition.
- 6.4.4 A compressor oil sight gauge *shall*^(E) be provided to allow the operator to easily check the oil level. Viewing of the sight gauge *shall* not require the operator to remove panels to gain viewing access.
- 6.4.5 The air compressor *shall*^(E) be provided with a Gates, Poly Chain Belt Drive System to ensure positive engagement of the compressor drive and prevent belt slippage in the event of inclement weather and or inadvertent contamination of the belt surface through spillage of oil or foam solution onto the belt drive.
- 6.4.6 The compressor *shall* be capable of operation in temperature ranges up to +46° C.
- 6.4.7 The compressor *shall*^(E) be provided with a dry cartridge intake air filter and spin on style oil filter.

6.5 **Foam System**

The CAFS *shall* be provided with an integrated foam proportioning system capable of utilizing Class A foam concentrates. The following applies:

- 6.5.1** The foam system *shall* be plumbed into both hose reels and the bumper turret.
- 6.5.2** The system *shall* be provided with check valves to prevent foam concentrate from entering the water system and water from entering the foam system.
- 6.5.3** The system *shall* be sized to meet the flow requirements of the side mounted hose reels and bumper turret. Note the bumper turret will not be used simultaneously in conjunction with the hose reels.
- 6.5.4** The foam proportioning system *shall*^(E) be an electronic design, fully automatic with direct injection into the discharge side of the pump.
- 6.5.5** The foam proportioning operation *shall*^(E) be based on direct measurement of water flow through paddle-wheel type flow meters, and remain consistent within the specified flows and pressures.
- 6.5.6** The system *shall* incorporate a microprocessor that analyses water flow and foam concentrate pump output to ensure correct foam quantities are being injected into the discharge side of the fire pump.
- 6.5.7** System must be capable of delivering accuracy to within 3% of calibrated settings.
- 6.5.8** The system *shall* be provided with the following controls as a minimum mounted at the operators panel:
 - 6.5.8.1** System activation control.
 - 6.5.8.2** A control capable of varying the foam proportioning rates from .1% to 1%.
 - 6.5.8.3** Providing a foam system low concentrate warning.
 - 6.5.8.4** Providing a foam system no concentrate warning.
 - 6.5.8.5** A manual backup operation mode.
 - 6.5.8.6** Air pressure gauge.

6.5.8.7 Water pressure gauge.

6.5.9 The system *shall* operate on a 12 volt DC power supply.

6.6 *Pump Priming System*

An oil free priming system *shall* be provided. The following applies:

6.6.1 The priming system *shall* be capable of priming the pump through 20 feet of 2 ½ inch hard suction hose with a 10 foot lift.

6.6.2 The primer control *shall*^(E) be provided at the operator's panel.

6.7 *Plumbing and Piping General*

The following *shall*^(E) be provided/applies:

6.7.1 All plumbing for discharge outlets and suction inlets *shall*^(E) be constructed from schedule 10 stainless steel piping or heavy duty high pressure wire reinforced flexible hose with stainless steel couplings.

6.7.2 Victaulic couplings *shall*^(E) be used on the plumbing lines to take tension off piping and to permit flexing and movement without damage to the pump and its components.

6.7.3 Heavy duty U-bolt clamps and bracing *shall*^(E) be used on all plumbing lines and connections were required for firm vibration free installation.

6.7.4 Suction inlets and discharge outlets *shall*^(E) be provided with Storz connections.

6.7.5 A Master Drain valve *shall* be provided to completely drain the system to prevent component damage in sub-zero weather.

6.8 *Operator Control Panel*

An operator's control panel *shall*^(E) be provided at the front of the CAFS with operating controls and gauges orientated to face the rear cab window. The following applies:

6.8.1 The control panel *shall*^(E) be designed to allow for easy visibility and access of all gauges and controls by an operator in a standing position.

6.8.2 The following components *shall*^(E) be provided and logically laid out to provide easy access for the CAFS operational control:

- 6.8.2.1 LED light strips *shall^(E)* be provided at the top and down both sides of the panel perimeter. The lights *shall^(E)* be provided with a semi-circular metal shield to lessen the possibility of damage during operations. The shield *shall^(E)* have an opening facing the operator's panel. An on/off light switch *shall* be provided at the operator's panel.
- 6.8.2.2 An LED FRC water tank and foam tank level indicator *shall^(E)* be provided at the operator's panel and inside the cab.
- 6.8.2.3 A 2 ½ inch Master water pressure liquid filled gauge.
- 6.8.2.4 A 2½ inch Master vacuum gauge.
- 6.8.2.5 A 2½ inch Master air pressure liquid filled gauge.
- 6.8.2.6 Primer control.
- 6.8.2.7 Foam system operational controls.
- 6.8.2.8 Air compressor operating controls
- 6.8.2.9 Liquid filled pressure gauge for all discharges.
- 6.8.2.10 Tank to Pump electric butter fly valve.
- 6.8.2.11 Vernier throttle control.
- 6.8.2.12 Master drain valve.
- 6.8.2.13 Auxiliary air outlet.
- 6.8.2.14 System Operation Instruction Placard
- 6.8.2.15 Engine oil pressure gauge with low pressure indicator light and buzzer
- 6.8.2.16 Engine temperature gauge with high with indicator light and buzzer
- 6.8.2.17 Voltmeter gauge
- 6.8.2.18 Hour meter gauge
- 6.8.2.19 Compressor temperature gauge with high temperature indicator light and buzzer

6.8.2.20 Engine ignition switch

6.8.2.21 2½ inch Suction Inlet.

6.9 **Cab Controls Console**

The apparatus cab *shall* be provided with a custom cab control console located between the cab seats. The console *shall*^(E) be provided with the following components:

- 6.9.1** Front bumper turret controller.
- 6.9.2** Foam system operational controls.
- 6.9.3** Air Compressor operational controls.
- 6.9.4** CAFS engine low oil pressure light and buzzer.
- 6.9.5** CAFS engine high temperature light and buzzer.
- 6.9.6** CAFS compressor high temperature light and buzzer.
- 6.9.7** Pump pressure gauge.
- 6.9.8** CAFS controls.
- 6.9.9** Engine stop/start switch.
- 6.9.10** Water tank level gauge.
- 6.9.11** Foam tank level gauge.
- 6.9.12** Siren head.
- 6.9.13** An 18 inch goose neck map light, model Federal Signal LED Littlite.
- 6.9.14** All switches and controls *shall* be identified with plastic engraved nameplates permanently affixed to the console surface.
- 6.9.15** All switches and controls *shall* be a backlit rocker design that brightens when activated to indicate to the operator that the switch has been turned on.
- 6.9.16** A master switch sized to meet the load requirements of the Fire Package and non-OEM added lighting and accessories. The switch *shall*^(E) be independently wired and provided with an on/off capability.

- 6.9.17 The console *shall^(E)* be provided with a map pocket measuring approx nine (9) inches long x three (3) inches wide x 12 inches deep.
- 6.9.18 Electrical components and wiring for console mounted equipment and accessories *shall^(E)* be secured within the console. As applicable wiring service loops *shall* be provided for servicing of components.
- 6.9.19 The console *shall^(E)* be painted black and with a scratch resistant finish.
- 6.9.20 An electric valve controller for the tank to pump water feed.

6.10 Labels

All controls, inlets and discharges *shall* be clearly labelled. The labels *shall* comply with applicable NFPA standards. Labels *shall* be in a bilingual (English & French) format or utilize International symbols.

7 REAR DECK DESIGN

7.1 General

The rear deck body *shall^(E)* be provided with an aluminum flatbed design utilizing an aluminum sub-frame with tubular cross members of sufficient size to support the rear deck equipment load.

7.2 Operator Walkway

Immediately to the rear of the cab assembly a cross frame walkway *shall^(E)* be provided for the operator to access the CAFS and controls. The following applies:

- 7.2.1 The walkway *shall^(E)* be provided with nominal dimensions of 22 inches in width x 98 inches in length (across frame dimension).
- 7.2.2 The walkway surface *shall* be provided with a slip resistant surface meeting the requirements of NFPA.
- 7.2.3 The walkway *shall* be provided with drainage holes. Drainage holes *shall^(E)* be positioned to prevent water and foam from draining/dripping directly onto apparatus components located below the walkway surface.
- 7.2.4 Entry onto the walkway *shall* be provided from either side of the apparatus. To lower the initial stepping height, a fold down entry step *shall^(E)* be provided on both sides of the walkway. Initial stepping height *shall* not exceed 24 inches IAW NFPA 1901. Should step height from the

initial step position to the walkway exceed 18 inches an additional step *shall* be provided. The lower surface of the step *shall* not extend below the vehicle frame when placed in the stowed position.

7.2.5 Step design *shall* be IAW NFPA 1901, Chapter 15.7.1.2 standards.

7.2.6 Both outer sides of the walkway *shall*^(E) be provided with Man Saver bars. Bars *shall*^(E) be provided with foam padding and covered with rip-stop vinyl. The bar design *shall*^(E) allow easy entrance through either pushing or raising of the bar; exist *shall*^(E) only occur if the bar is raised.

7.3 Handrails

Access to the walkway *shall* be provided with a three point body contact IAW NFPA 1901, Chapter 15.8 standards.

7.4 Road/Curb Side Compartments

Based on the intended use of this apparatus the potential for damage to exterior mounted cabinets exists. To facilitate easy removal and replacement of damaged cabinets, a bolt on cabinet design *shall*^(E) be provided. The following applies:

7.4.1 Cabinet design *shall*^(E) incorporate box pan door design with top mounted stainless steel hinges and internally mounted strut assemblies to hold the doors in the open position. The interior of the cabinets *shall*^(E) be provided with a rope to assist with cabinet door closure

7.4.2 The rear interior wall of the cabinets *shall*^(E) be provided with foot man loops sized to accommodate two (2) inch wide web straps that will be used to hold stowed items securely within the compartment. The loops *shall*^(E) be spaced on 10 inch centres. Two rows of foot man loops *shall*^(E) be provided; one row positioned approx six (6) inches up from the bottom of the compartment and one row positioned approx 16 inches from the top of the cabinet.

7.4.3 Cabinets *shall*^(E) be constructed of aluminum.

7.4.4 Cabinet doors *shall* be provided with interior door seals.

7.4.5 Cabinet floor *shall*^(E) be provided with a Turtle tile industrial matting..

7.4.6 Cabinet floors *shall* be designed to allow for easy sweep out of debris and provided with drain holes.

7.4.7 Heavy duty D Ring style locking handles *shall* be provided.

- 7.4.8 Each side of the Fire Package flat bed *shall*^(E) be provided with two cabinets
- 7.4.9 Individual cabinets *shall*^(E) be provided with a nominal size of 40 inches long x 32 inches high x 20 inches deep.
- 7.4.10 The top outer surface of the right side cabinet *shall*^(E) be provided with supports to hold two 10 foot sections of 2½ inch hard suction hose.
- 7.4.11 The rear surface of the cabinets *shall* be designed to ensure that no interference between the cabinet side and operation of the 10 inch dump valves exists/occurs.
- 7.4.12 LED light strips *shall*^(E) be provided at the top and down both sides of the cabinet perimeter. The lighting strips *shall*^(E) be located as close as possible to the front edge of the cabinet and protected from damage.
- 7.4.13 Compartment lights *shall* automatically turn on when the door is opened and turn off when the door is closed.

7.5 Rear (B1) Cabinet

The cabinet *shall* be a bolt on design, the following applies:

- 7.5.1 Cabinet design *shall*^(E) incorporate box pan door design with top mounted stainless steel hinges. The interior of the cabinet *shall*^(E) be provided with a rope to assist with cabinet door closure.
- 7.5.2 The cabinet door *shall* be provided with hydraulic type struts to hold the doors securely in the open position.
- 7.5.3 Cabinet *shall*^(E) be constructed of aluminum.
- 7.5.4 Cabinet door *shall* be provided with interior door seals.
- 7.5.5 Cabinet floor *shall*^(E) be provided with a Turtle tile industrial matting.
- 7.5.6 Cabinet floor *shall* be designed to allow for easy sweep out of debris and provided with drain holes.
- 7.5.7 Heavy duty D Ring style locking handle *shall* be provided.
- 7.5.8 LED light strips *shall*^(E) be provided at the top and down both sides of the cabinet perimeter. The lighting strips *shall*^(E) be located as close as possible to the front edge of the cabinet and protected from damage.

- 7.5.9** The cabinet *shall^(E)* be provided with a nominal dimension of 96 inches wide x 32 inches high x 22 inches deep. Cabinet size *shall^(E)* be maximized IAW apparatus design limitations.
- 7.5.10** The cabinet interior *shall^(E)* be a full open-space design. The top portion of the cabinet *shall^(E)* be provided with a full length adjustable shelf for storage of rakes, shovels, etc. The shelf *shall^(E)* have a rated capacity of 250 lbs and be provided with rolled edges measuring approximately four (4) inches high. The top edges of the shelf *shall^(E)* be provided with cut out slats measuring ¼ inch high x three (3) inches long and spaced on 10 inch centres.
- 7.5.11** The outer edges of the compartment *shall^(E)* be provided with an interior protective metal channel for cabling routing and protection to the rear lights.

7.6 Rear Bumper and Step

The rear of the apparatus *shall^(E)* be provided with a flip down style stepping surface to facilitate access to the rear compartment and water/foam tank fill towers.

7.7 Wheel Chalks

One set of ZICO wheel chalks sized to the manufacturer's recommendations for the GVWR with mounting brackets *shall^(E)* be provided. Wheel chalks brackets *shall^(E)* be installed below the rear deck flatbed platform and not extend below the vehicle frame.

8 LIGHTING, ELECTRICAL AND COMMUNICATION EQUIPMENT

8.1 Body Wiring General

The following applies:

- 8.1.1** All electrical equipment installed by the apparatus manufacturer *shall* conform to current automotive electrical system standard and the requirements of the applicable NFPA Apparatus Standard.
- 8.1.2** The wiring harness(s) *shall* conform to SAE J-1128 with GXL temperature properties. All exposed wiring *shall* be run in loom with a minimum 289 degree Fahrenheit rating. All wiring looms *shall* be properly supported and attached to body members along the entire run, any point where wire or looms must pass through metal, rubber grommets *shall* be installed to protect the wire from abrasion.

- 8.1.3 Wiring *shall* be individually and permanently function and colour coded every six (6) inches on the insulation.
- 8.1.4 The main low voltage chassis to body interface point and distribution panel *shall^(E)* be provided at the front of the body in a location providing easy service access. The distribution panel *shall* be labelled and contain body electrical relays and wire connection bar.
- 8.1.5 Electrical connections in exposed areas *shall* be made using heat shrink or weather proof connections and be protected with automatic reset circuit breakers.

8.2 Rear View Camera System

The apparatus *shall^(E)* be provided with a Federal Signal rear view camera system, capable of generating three distinct rear view orientations of the vehicle. The following applies:

- 8.2.1 The system *shall^(E)* incorporate a Federal Signal seven (7) inch screen model CAMSETLCD-INT-70-B mounted in an area of the dash that provides a clear sight view for the driver. Three (3) colour cameras with night vision capability shall be provided. Camera's *shall^(E)* be located to provide a maximum viewing area, the following applies:
 - 8.2.1.1 The rear camera *shall^(E)* be a Federal Signal model CAMCCD-REARNTSC. The camera *shall^(E)* be provided at a rear mount location.
 - 8.2.1.2 Two (2) Federal Signal flush mount cameras model CAMCCD-FLSHNTS *shall^(E)* be provided. One (1) camera *shall^(E)* be provided at the base of each side view mirror on the left and right side of the apparatus.
 - 8.2.1.3 All cameras *shall^(E)* be located and provided with protection from damage occurring during routine operation of the apparatus. Cameras *shall* be mounted securely to prevent image distortion and to ensure their security during operation of the apparatus.
 - 8.2.1.4 All cameras *shall^(E)* be wired into the dash mounted screen with night vision and audio capabilities.
 - 8.2.1.5 Power switch for the rear view camera system *shall^(E)* be backlit rocker type switch provided/located at the custom cab console.

8.3 Ground Lights

The following *shall* be provided/applies:

- 8.3.1 The apparatus *shall* be equipped with ground lighting that is capable of providing illumination IAW NFPA 1901 standards within 762 mm (30 in.) of the edge of the apparatus in all areas designed for personnel to climb and descend the apparatus.
- 8.3.2 Ground lighting at entry door positions *shall^(E)* automatically illuminated when the entry door(s) open.
- 8.3.3 Ground lighting *shall^(E)* be provided at all four corners of the apparatus.
- 8.3.4 Ground lighting *shall^(E)* be provided with a rocker style backlit master switch to illuminate all ground lighting simultaneously. The switch *shall^(E)* be installed at the custom cab console and provided with a nameplate to indicate function.

8.4 Hand Held Spotlight

The following *shall^(E)* be provided/applies:

- 8.4.1 One 300,000-candle power hand held spotlight, with a momentary type control switch, coiled cord, and bracket, *shall^(E)* be provided.
- 8.4.2 The spot light *shall^(E)* be mounted on the right front seating area (Officers position) of the cab and hard wired into the 12-volt electrical system.

8.5 Exterior Vehicle Lighting Emergency Response

Exterior emergency warning lights complying with NFPA 1901 *shall* be provided. All lights *shall^(E)* be strobe type operation. The following applies:

- 8.5.1 Six (6) Federal Signal GS5 red strobe lights *shall^(E)* be provided. The following applies:
 - 8.5.1.1 Two- (2) Federal Signal GS5 red strobe lights *shall^(E)* be provided on the front centre body section of the apparatus. The lights *shall^(E)* be surface mounted above the front bumper inboard of the headlights and controlled by a switch on the cab dash.
 - 8.5.1.2 Two- (2) Federal Signal GS5 red strobe lights *shall^(E)* be provided at the rear of the apparatus positioned as far apart as practical and controlled by a switch on the cab dash.

8.5.1.3 Two (2) Federal Signal GS5 red strobe light *shall^(E)* be provided at the mid point of the apparatus, one on each side and controlled by a switch on the cab dash.

8.5.2 Two (2) Federal Signal US6 UltraStar Red Strobe beacon lights *shall^(E)* be provided. The lights *shall^(E)* be provided at the rear of the apparatus positioned on poles to elevate the lights above the fire package for ease of visibility. The lights *shall^(E)* be controlled by a switch at the custom cab console. This switch *shall* be separate and distinct from the three-way emergency lighting switch described at sub-paragraph 8.8.

8.6 *Wig Wag Lighting System*

The following applies:

8.6.1 A wigwag system *shall^(E)* be provided with a control switch on the custom console.

8.7 *Roof Mounted Light Bar*

The apparatus *shall^(E)* be provided with a roof mounted light bar, the following applies:

8.7.1 The light bar provided *shall^(E)* have a nominal dimension of 52 inches in width.

8.7.2 The light bar *shall* be of an LED design.

8.7.3 The light bar *shall* be provided with traffic clearing lights interfaced with the park brake. Traffic clearing lights *shall* automatically come on when the emergency light switch is activated and the park brake is released.

8.8 *Emergency Lighting Switch*

The emergency lighting system *shall* be provided with a three way multi position switch to control all apparatus emergency lighting systems as follows:

8.8.1 Switch position one - *Shall* turn off all emergency lighting systems.

8.8.2 Switch position two - *Shall* turn on all emergency lighting systems.

8.8.3 Switch position three – *Shall* turn off all lighting systems positioned below the roof line.

8.8.4 The emergency light switch *shall^(E)* be located in a position that is easily accessible to the driver's seated position.

8.9 Exterior Vehicle Lighting Non Emergency

In addition to the standard OEM cab and Chassis lighting, the following *shall* be provided:

- 8.9.1** One amber LED clearance light located on each side of the body as far forward as practical.
- 8.9.2** One amber LED clearance/auxiliary turn light centred midway on each side of the body.
- 8.9.3** One red LED clearance light located on each side of the body as far rearward as practical.
- 8.9.4** Two red LED clearance lights located as far as practical to the outer left and right rear edge of the body.
- 8.9.5** Three red LED clearance lights centered at the rear lower section of the apparatus.

8.10 Battery Charger and Ancillary Compressor

A Kussmaul Auto Charge D Pump Plus, model #091-9-DDP, combination battery charger, air compressor and remote bar graph indicator *shall^(E)* be provided. The following applies:

- 8.10.1** A 110V Kussmaul Super Auto-Eject 20 amp receptacle with a hinged weatherproof cover.
- 8.10.2** The auto-eject receptacle *shall^(E)* be provided at the left side cab door area and provide power to the Pump Plus compressor/battery charger assembly.
- 8.10.3** The bar graph indicator *shall* be provided in close proximity to the auto eject receptacle.

8.11 Radios

The following *shall^(E)* be provided:

- 8.11.1** One Motorola XTL 1500 VHF FM mobile radio complete with antenna and antenna mounts.
- 8.11.2** The radio *shall^(E)* be installed in the cab an overhead console.

8.11.3 One Motorola XTS 1500 VHF FM portable radio complete with battery charger and mounting bracket. Location of the portable radio bracket **shall** not interfere with the crew's ability to respond to fire fighting emergency response situations.

8.11.4 Radio frequencies will be confirmed at the pre-production meeting.

8.12 Siren & Speaker

The following applies:

8.12.1 One (1) Whelen, model 295HFSA1, 100 watts electronic siren amplifier with PA and switch control center **shall^(E)** be provided.

8.12.2 Two (2) Whelen, model SA314P, 100 watt speaker **shall^(E)** be provided. One speaker mounted at the front bumper and one speaker mounted at the rear bumper area.

9 PAINT, DECAL AND CORROSION PROTECTION

9.1 Paint Finish

The apparatus **shall** be painted using the following procedures:

9.1.1 The apparatus **shall** be painted in accordance with the paint manufacturer's recommendations and the manufacturer's best production procedures, rendering a durable finish and a smooth appearance free from runs, sag and orange peel.

9.1.2 The finish **shall^(E)** consist of a corrosion-prevention pre-treatment to all bare metal, a sealer/primer, two coats of base colour, and two coats of clear finish.

9.1.3 All components of the Fire Fighting package **shall** be painted prior to being assembled to assure full coverage of metal treatments and paint. Any vertically or horizontally hinged smooth-plate compartment door **shall** be painted separately to assure proper paint coverage on the body, doorjamb, and door edges.

9.1.4 The paint process **shall^(E)** feature Akzo-Nobel's high-solid LV products, and be performed in the following steps:

9.1.4.1 Corrosion Prevention - All raw materials **shall^(E)** be pre-treated to provide superior corrosion resistance and excellent adhesion of the top coat.

- 9.1.4.2 Akzo-Nobel Sealer/Primer LV - Acrylic urethane sealer/primer *shall^(E)* be applied to guarantee excellent gloss hold-out, chip resistance, and a uniform base colour.
- 9.1.4.3 Akzo-Nobel High Solid LV (Top coat) - A lead free, chromate free, high-solid acrylic urethane top coat *shall^(E)* be applied, providing excellent coverage and durability. A minimum of two coats *shall* be applied.
- 9.1.4.4 Akzo-Nobel High Solid LV (Clear coat) - A high-solid LV clear coat *shall^(E)* be applied as the final step in order to ensure full gloss and colour retention and durability. A minimum of two coats *shall* be applied.
- 9.1.5 Any location where a component is penetrated after painting for the purpose of mounting steps, handrails, doors, lights, or other specified components *shall* be treated at the point of penetration with a corrosion inhibiting pre-treatment. All hardware used in mounting steps, handrails, doors, lights, or other specified components *shall* be individually treated with the corrosion inhibiting pre-treatment.
- 9.1.6 The frame and undercarriage components *shall* be painted black.

9.2 Two-Tone Apparatus Paint Finish

In addition to the specification outlined in the performance specification and purchase description ANNEX C item 3.30, the apparatus *shall* be provided with a two tone paint finish. The following applies:

- 9.2.1 The upper area of the cab *shall^(E)* be painted FLNA 4006 White Akzo-Nobel lead-free, chromate-free high solid LV acrylic urethane paint.
- 9.2.2 The paint break *shall^(E)* be provided with a 3/4-inch black and gold stripe; 1/2-inch gold stripe with a 1/8-inch black outline on both sides with a clear polyurethane coating. The stripe *shall^(E)* contour with the chassis, following and covering the two-tone paint break.
- 9.2.3 The CAFS *shall^(E)* be painted with a 101.60 mm (4 inch) white and 25.4 mm (1 inch) gold stripe above and below the white stripe on both sides and the rear with a clear polyurethane coating.
- 9.2.4 The paint break line will be determined at the pre-production meeting

9.3 Decaling Package

The apparatus **shall** be provided with a decaling package consisting of the following:

- 9.3.1 The apparatus identification number **shall** be affixed to the left and right side of the rear storage compartment, centred and sized to fill the available space.
- 9.3.2 The apparatus number **shall** also be affixed to the top of the apparatus, the location and size **shall** be IAW with design limitations.
- 9.3.3 The CF Base identifier/crest **shall^(E)** be affixed to the front doors sized IAW with door dimensions.
- 9.3.4 The CF Base name **shall** be affixed to both upper sides of the body at a midway location. The lettering **shall^(E)** be in an arched format.
- 9.3.5 Centred mid way along the body on both sides will be a fire service identifier to read as follows, "FIRE SERVICE D'INCENDIE". The lettering **shall^(E)** be in a horizontal format positioned below the CF Base name referenced at paragraph 9.3.4.
- 9.3.6 A four (4) inch white reflective stripe **shall^(E)** be provided on the left and right side of the apparatus with a one (1) inch contrasting coloured reflective stripe located above and below the four (4) inch stripe.
- 9.3.7 Reflective striping **shall** meet the required standard of NFPA 1901, Section 15.9.3.
- 9.3.8 Details of the decaling package will be finalized at the pre-production meeting.

9.4 **Corrosion Protection System**

The cab, chassis and Range Fire Fighting package **shall** be provided with a rust proofing application. The following applies:

- 9.4.1 The treatment will be provided prior to delivery of the apparatus. .
- 9.4.2 The treatment **shall** have the following properties:
 - 9.4.2.1 Moisture displacing.
 - 9.4.2.2 Creeping (capillary action).
 - 9.4.2.3 Low solvent content.

9.4.2.4 Compatibility with rubbers, plastics and all other materials used in automotive construction.

9.4.2.5 Non-toxic.

9.4.2.6 Minimal dripping.

9.4.3 Written proof of a twelve hour ASTM B117 salt spray endurance test certification by an independent test laboratory. Krown Rust Control and Rust Check products have been accepted as certified, proof not required.

9.4.4 The application includes, but is not limited to the underside of fenders and hood, enclosed and boxed-in sections, seams, mouldings, crevices, weld points, under body and exposed exterior brackets.

9.4.5 A decal indicating the treatment name/company and warranty papers *shall*^(E) accompany each vehicle at time of delivery.

9.5 Corrosion Resistant Materials

The following applies:

9.5.1 All fasteners used in the construction of the apparatus for either fastening or attachment purposes *shall* be made of stainless steel.

9.5.2 Fastener application that is designed for direct threading into structural components *shall* be provided with either threaded inserts which are securely anchored into the sub structure or provided with an installation process that incorporates drilling, tapping and application of noncorrosive grease before the stainless steel bolts are installed.

9.5.3 The use of rivets and self-tapping screws in the construction of the apparatus *shall* not be acceptable with the exception of exterior name identification plates IAW Specification Item 10.2.

9.5.4 The design of the vehicle *shall*^(E) prevent galvanic corrosion. The contact surfaces of dissimilar metals *shall* be provided with a non-absorbent polypropylene tape/gasket of 1.7 mils minimum thickness with a dielectric strength of 300-400 volts/mil. The taped area *shall* be of sufficient size to provide a dielectric barrier for the immediate and surrounding contact application area.

10 TECHNICAL DATA AND INTEGRATED LOGISTIC SUPPORT

10.1 Identification Plate

The following information **shall** be provided as a minimum, permanently marked and in a conspicuous and protected location:

- 10.1.1 Apparatus make, model, year and serial number.
- 10.1.2 GAWR and GVWRs.
- 10.1.3 The manufacturer's CMVSS certification sticker.
- 10.1.4 A data plate containing metric and imperial fluid/oil type and capacity as per NFPA 1901-2009 Fluids.
- 10.1.5 Rim, tire and tire pressure.
- 10.1.6 Vehicle dimensions

10.2 Warning and Instruction Plates

The following applies:

- 10.2.1 All warning and identification plates provided on the exterior of the apparatus **shall** be fabricated from a plastic type material and **shall** be held in location by rivets.
- 10.2.2 All warning and identification plates provided on the interior of the apparatus **shall** be fabricated from a plastic type material. It is desirable that they are also riveted.
- 10.2.3 All plates **shall** be within easy view of the user.
- 10.2.4 Instructions for engine starting, transmission operation and any other special procedures to be followed **shall** be provided.
- 10.2.5 International symbols and/or bilingual markings **shall** be provided.

10.3 Photographs

The contractor **shall** supply the following high-resolution digital pictures of the completed vehicle. All photographs **shall** be taken against a plain background:

- 10.3.1 Left front three-quarter view of a completed unit.
- 10.3.2 Right rear three-quarter view of a completed unit.

10.4 Safety Recall and Servicing Data

The following information *shall* be sent to the final delivery locations and to the Technical Authority, on a continuing basis, throughout the expected life of the vehicle (15 years):

10.4.1 Safety recalls.

10.4.2 Manufacturer's technical service bulletins.

10.5 Replacement Parts Information

The manufacturer *shall* forward all information pertaining to a change in replacement parts to the Technical Authority, on a continuing basis, throughout the expected life of the vehicle (15 years).

10.6 Bid Package Information

The following *shall* be provided:

10.6.1 The contractor *shall* supply a line setting ticket with the bid submission. If the apparatus tendered is a prototype design, the line setting ticket *shall* be provided prior to the pre-delivery inspection.

10.6.2 A brochure of the vehicle or of the vehicle on which the tender is based.

10.6.3 Objective evidence of in service history or experience in designing and manufacturing Range Fire Fighting packages or similar designed apparatus.

10.6.4 Details on the warranty, including all separate component warranties.

10.6.5 A listing of all applicable operator, maintenance and parts manuals.

10.6.6 Certified performance curves of the pump showing flow, pressure and horsepower requirements.

10.6.7 Front, side and rear elevation sketches of the apparatus.

10.6.8 The technical data requested in the questionnaire *shall* be provided and in a typed format.

10.6.9 Units of measurement *shall* be clearly indicated.

10.6.10 The questionnaire *shall* be signed by an authorized representative of the contractor.

10.7 Loose Material Shipment List

Prior to delivery, the contractor *shall* supply the Technical Authority with a detailed listing of loose equipment and material that will be shipped with the apparatus.

10.8 Data Summary

Prior to delivery, the contractor *shall* submit a complete vehicle Data Summary to the Technical Authority for approval detailing dimensional data, weights and technical information for the apparatus major and sub systems. DND *shall* supply a Data Summary template and explain document details at the pre-production meeting. Should a prototype apparatus be tendered and the provision of a data summary is not available at the time of delivery, the contractor *shall* provide the Data Summary to the Technical Authority within a 30 day time frame following DND receiving the apparatus who will distribute the document to the Base(s).

10.9 Recommended Spare Parts List

Prior to delivery of the apparatus, the OEM *shall* submit to the Technical Authority a recommended spare parts list. Should a prototype apparatus be tendered and the provision of a spare parts listing is not available at the time of delivery, the contractor *shall* provide the document to the Technical Authority within 30 days of DND receiving the apparatus. DND will exercise at their discretion the option to call up spare parts listed for the apparatus. The following applies:

- 10.9.1** Spare parts listings *shall* cover all major and sub systems of the Fire Fighting package, including fire fighting systems and sub-systems, lighting, turret systems and compartments and hardware installed by the manufacturer.
- 10.9.2** Spare parts *shall* be provided with an OEM picture description, part number and applicable unit cost.
- 10.9.3** The spare parts listing *shall* be based on a requirement to support the apparatus in an isolated area for a one (1) year time frame.
- 10.9.4** The spare parts listing *shall* be based on historical OEM technical failure data.
- 10.9.5** In the event that the apparatus offered is of a prototype design the parts listing *shall* be based on historical OEM technical failure data for similar type apparatus.

10.10 Operator/Technical Maintenance and Parts Manuals

Prior to delivery, the OEM *shall* submit to the Technical Authority one (1) copy of the operator, technical maintenance and parts manuals and apparatus specific wiring diagram for review and approval of format. The Technical Authority will provide approval or comments on the manuals within 30 calendar days. Once approved, the OEM *shall* provide three (3) copies of all manuals with delivery of each apparatus. Two (2) copies per vehicle of all manuals delivered to the CF Base destination and one (1) copy (total of one) of all manuals delivered to DSVPM. Should a prototype be tendered and the provision of Manuals is not available at the time of delivery, provisional manuals *shall* accompany the vehicle/equipment. Provisional manuals *shall* be clearly identified with the word “PROVISIONAL”. Provisional manuals *shall* be replaced with approved manuals within 30 days following approval. Manuals in either an electronic format or hard copy are acceptable. The following applies:

OPERATOR MANUALS:

- 10.10.1 Operator’s manuals *shall* provide recommended procedures for servicing all apparatus systems.
- 10.10.2 Warnings and cautions pertaining to the operation and maintenance of the apparatus systems.
- 10.10.3 A detailed description covering the operation of all apparatus systems.
- 10.10.4 Operator manuals *shall* be in a bilingual English/French format.

MAINTENANCE AND PARTS MANUALS:

OEM Maintenance Repair and parts manuals *shall* be provided, the following applies:

- 10.10.5 Maintenance manuals *shall* provide all charts, tables, checklists, and illustrations relating to lubrication, cleaning, troubleshooting, diagnostics, and inspections of major components, sub-assemblies and auxiliary equipment and systems.
- 10.10.6 Complete maintenance instructions *shall* be provided, covering removal, replacement, repair, and adjustment of major components, sub-assemblies and auxiliary equipment and systems.
- 10.10.7 Parts manuals *shall* be provided, and contain a picture description with an OEM part number cross reference listing for all major apparatus systems and sub assemblies/systems.

10.11 Electronic Manuals

Manuals supplied in electronic format *shall* provide the equivalent information as outlined at Item 10.10 and be configured and/or formatted in such a manner to provide for the following:

- 10.11.1 Printing of the entire manual.
- 10.11.2 Cutting, pasting or copying of individual documents or sections to other electronic media, such as electronic mail and memos.
- 10.11.3 Inclusion of a find feature to allow for searches by text or by part number.

10.12 Apparatus Specific Wiring Diagrams

Wiring diagrams *shall* be provide and clearly detail interfacing and routing of the manufacturer's electrical circuit(s) with the cab and chassis OEM electrical system.

10.13 Operator Familiarization Training Program

The OEM *shall* provide operator familiarization training at the CF Base delivery destination as follows:

- 10.13.1 Operator training *shall* consist of a two (2) day duration course.
- 10.13.2 The operator's course *shall* cover equipment operation and location/description of the main fire fighting package systems. Particular attention *shall* be given to safety related aspects of the apparatus.
- 10.13.3 The course *shall* be designed to accommodate eight students.
- 10.13.4 The manufacturer *shall* ensure that the Factory Rep is fully trained and functional on all aspects of the fire fighting package. The Manufacturer *shall* provide proof that the Factory Rep has at least three (3) years current experience within the past five (5) years on the specific apparatus or an apparatus of similar design.

10.14 Technician Familiarization Training Program

The OEM *shall* provide technician familiarization training at the CF Base delivery destination as follows:

- 10.14.1 Technician training *shall* consist of a two-day duration course.
- 10.14.2 The technician's course *shall* cover operation, identification and familiarization with the fire fighting package systems and sub systems, with particular attention given to safety related aspects of the apparatus.

10.14.3 Servicing, adjustment and diagnostic procedures *shall* be covered for the main systems of the fire fighting package.

10.14.4 A thorough familiarization on the fire fighting package and electrical (MultiPlex) system *shall* be provided.

10.14.5 The manufacturer *shall* ensure that the Factory Rep is fully trained and functional on all aspects of the fire fighting package. The Manufacturer *shall* provide proof that the Factory Rep has at least three (3) years current experience within the past five (5) years on the specific apparatus or an apparatus of similar design.

10.15 Lubricants and Fluids

The vehicle *shall* be serviced with standard lubricants and fluids compatible with the delivery location and season.

10.16 Line Setting Ticket

Prior to delivery of the apparatus, the OEM *shall* submit to the Technical Authority a complete line setting ticket. A copy of the line setting ticket *shall* accompany each vehicle. *Shall* a prototype apparatus be tendered and the provision of the line setting ticket is not available at the time of delivery, the contractor *shall* provide the line setting ticket to the Technical Authority within 30 days of DND reception the apparatus.

11. APPARATUS DIAGNOSTIC SOFTWARE AND EQUIPMENT

The following diagnostic equipment and software *shall* be provided to enable trouble shooting and diagnosis of vehicle system faults:

11.1 Diagnostic Software

The following diagnostic software programs *shall* be provided as applicable to the manufacturer's tendered apparatus and systems:

11.1.1 Diagnostic software for the engine system(s).

11.1.2 Diagnostic software for the transmission.

11.1.3 Diagnostic software for the ABS braking system.

11.1.4 Diagnostic software for the multiplex wiring system.

11.1.5 Diagnostic software for the roll stability system as applicable.

11.2 Diagnostic Equipment

To support the interface of the diagnostic software with the apparatus on board computer systems the following *shall* be supplied:

- 11.2.1** A NEXIQ Pro-Link IQ top complete with carrying case, interconnecting cables, battery, an operating system (installed) that is compatible with the diagnostic software, and associated accessories required to function with the diagnostic test equipment *shall^(E)* be supplied with each vehicle.

12. SPECIAL TOOLING

Prior to delivery, the manufacturer *shall* provide to the Technical Authority a listing of specialized tooling (if applicable) that are required to service the fire package and apparatus systems.

13. QUALITY ASSURANCE PROVISIONS

In the performance of the work outlined within the specification, the manufacturer *shall* comply with the requirements of the current edition of ISO 9001, Quality Management Systems. It is not the intent to require the manufacturer to hold formal registration/certification; however the manufacturer's quality management system *shall* address each requirement of the standard.

TECHNICAL INFORMATION APPENDIX

BIDDERS RESPONSE SHOULD BE IN A TYPED FORMAT

1. SCOPE

1.1 Scope

This Appendix covers the technical information applicable to the Purchase Description and Specification. The Contractor *shall* complete the Appendix in its entirety to support the equipment being offered. The information is required by the Technical Authority in order to assess and evaluate the equipment offered in support of a Contractors tender. Should a Contractor not register compliance with a section of the specification, an explanation at the remarks column should be provided to ensure that their bid submission is not evaluated as non-compliant.

NOTE: It is the Contractors responsibility to clarify outstanding Technical issues by written request to the Contracting Officer prior to bid submission.

NOTE: Certificate of Conformance can be found on the last page

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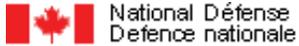
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PERFORMANCE SPECIFICATION

AND

PURCHASE DESCRIPTION

4X4 CAB AND CHASSIS

OPI DSVPM 4 – DAPVS 4

Issued on Authority of the Chief of the Defence Staff
Publiée avec l'autorisation du Chef d'état-major de la Défense



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1. SCOPE

1.1 Scope

The following Performance Specification and Purchase Description outline the requirement for a Day Cab and Chassis, 4x4, single wheels configuration which will be interfaced with a Compressed Air Foam (CAF) Fire Fighting System. The Performance Specification and Purchase Description for the Compressed Air Foam System are outlined in ANNEX B.

1.2 Definitions

The following definitions **shall** be applied to the interpretation of this Performance Specification and Purchase Description:

1.2.1 "Technical Authority" is the government official responsible for technical management of this requirement. The Technical Authority is the Director Support Vehicles Program Management 4-2.

1.2.2 "Technical Authority Approved Equivalent" means a system, sub-system, component, item, or product of a system or sub-system, which has been evaluated by the Technical Authority and determined to be in or meet compliance with the specified requirements or design features in accordance with fit, form, function and performance as applicable.

1.2.3 "Technical Evaluation" of a bid submission **shall** occur during the bid evaluation process.

1.2.4 For the purposes of this Purchase Description, "vehicle" **shall** mean a cab and chassis.

1.2.5 "Contractor/Manufacturer/Bidder". The term Contractor, Manufacturer or Bidder **shall** refer to the company putting forth a tender submission to Public Works and Government Services Canada (PWGSC) in support of the Request For Proposal. The term **shall** also define and equally apply to the company that is awarded the contract to build the Range Fire Fighting Vehicle described within this Specification and Purchase Description.

1.2.6 "Nominal measurement" is the length by which something is known, which may be different from its actual, measurable size.

1.2.7 "Range Fire Fighting Vehicle" the term Range Fire Fighting Vehicle **shall** refer to as a complete manufactured unit mounted on a vehicle chassis which include all systems and subsystems, components, items or products in a complete manufactured state capable of being deployed in support of fire fighting

operations as intended for the built configuration.

1.3 Instructions

The following instructions and definitions apply to the interpretation of this purchase description:

- 1.3.1 Mandatory requirements are identified by the word "**shall**". Deviations will not be permitted.
- 1.3.2 Requirements identified by "**shall**^(E)", are mandatory. However, the Technical Authority will consider alternative standards/means/component types for acceptance as a Technical Authority Approved Equivalent. "Technical Authority Approved Equivalent" is defined as an alternative standard, design, feature, or component that is evaluated by the Technical Authority and determined to meet the specified requirements for equivalent form, fit, function and performance as applicable.
- 1.3.3 "Technical Authority Approved Equivalent" is defined as an alternative standard, design, feature, or component that is evaluated by the Technical Authority and determined to meet the specified requirements for form, fit, function and performance as applicable.
- 1.3.4 In this document "provided" **shall** mean "provided and installed".
- 1.3.5 Where a standard or specification is required and the bidder offers an equivalent, that equivalent standard **shall** be provided upon demand.
- 1.3.6 Where equipment certification to an SAE standard is required, the bidder **shall** provide the certification upon request.

1.4 Certificate of Conformance

- 1.4.1 The Certificate of Conformance APPENDIX 1 to ANNEX C **shall** take precedence over all other technical data submitted by a Manufacturer. Should a Manufacturer intend to offer an alternate Cab and Chassis system, sub-system, component, item or product other than that specified within this Performance Specification and Purchase Description, it **shall** be the Manufacturers responsibility to specifically detail the alternative being offered at the Certificate of Conformance. Should no alternate Cab and Chassis systems, subsystems, components, items or products be identified within the Certificate of Conformance, the Manufacturer **shall** provide a Cab and Chassis that fully meets the requirements of the Performance Specification and Purchase Description in it's entirety without exception.

1.5 Technical Information Appendix

The following applies:

- 1.5.1 The bidder *shall* complete the Technical Information APPENDIX 1 to ANNEX C for the Cab and Chassis being offered in support of the Request For Proposal. Failure to indicate and provide the technical data to substantiate a Technical Authority approved equivalent that your company plans to put forth could result in non-compliance of a bid submission.
- 1.5.2 A nil response to a Technical Information Questionnaire question may be considered non-compliant. Any deviation from the purchase description *shall* be listed in the Conformance Certificate, last page of APPENDIX 1 to ANNEX C.

1.6 Configuration Capacity Table

The following table details the mandatory minimum design requirements, which *shall*^(E) be met.

TABLE 1 – TRUCK, 4X4, SINGLE WHEELS				
	GVWR	GAWR FRONT	GAWR REAR	TOWED LOAD
MIN. WEIGHT RATINGS	16,818 kg (37,000 lbs)	6,363 kg (14,000 lbs)	10,433 kg (23,000 lbs)	4,536 kg (10,000 lbs)
VEHICLE SPEED	Maximum speed 105 Km			
VEHICLE GRADEABILITY	0.8 Percent at 80 km/h (50 mph)			
MIN. ENGINE HORSEPOWER	300 HP			
MIN. FRAME RBM (Pounds-inch)	1,900,000			
MIN. FUEL RESERVOIR CAPACITY	364 Litres (100 US Gallons)			

2.0 APPLICABLE DOCUMENTS.

2.1.1 Other Publications

The following documents form part of this Purchase Description. Effective dates *shall* be those in effect upon the date of manufacture. Sources are as shown:

Transport Canada Consolidation of the Motor Vehicle Safety Act and Motor Vehicle Safety Regulations (MVSR) and all applicable revisions TP4360E

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Canadian Communication Group - Publishing
Ottawa, Canada, K1A 0S9

SAE Handbook

Society of Automotive Engineers Inc
400 Commonwealth Drive, Warrendale, PA, 15096

Year Book, Tire and Rim Association Inc
3200 West Market Street, Akron, Ohio, 44313

National Fire Prevention Association

3.0 REQUIREMENT

3.1 Cab and Chassis Design

The manufacturer *shall* supply a day cab, 4x4, single wheels configuration. The following applies:

- 3.1.1** *Shall* be manufacturer's latest model;
- 3.1.2** *Shall* have demonstrated industry acceptability by having been manufactured and sold commercially; or, objective evidence of the vehicle/equipment's capability to satisfy performance requirements *shall* be provided with the proposal;
- 3.1.3** *Shall* have engineering certification available, upon demand, for this vehicle/equipment from the original manufacturers of major drive train components and major equipment systems and assemblies;
- 3.1.4** *Shall* conform to all applicable laws, regulations and industry standards governing manufacture, safety, noise levels and pollution in effect in Canada at time of manufacture;
- 3.1.5** *Shall* not have system and component capacities increased above published ratings (i.e. product or component brochures);
- 3.1.6** *Shall*^(E) include all components, equipment and accessories normally supplied for the model offered, although they may not be specifically described in this Purchase Description; and
- 3.1.7** *Shall*^(E) be provided with Vehicle documentation at time of delivery.

3.2 Operating Conditions

The vehicle offered in support of this Performance Specification and Purchase Description, **shall** be capable of operating safely and efficiently on paved, gravel and dirt roads with severe washboard and or pot holes, and off-road in year round conditions including mud, snow and ice in the temperature range of -40°C to 40°C.

3.3 Vehicle Safety Regulations

The vehicle **shall** meet the provisions of the Canada Motor Vehicle Safety Act in effect upon the date of manufacture of the vehicle.

3.4 Performance and Ratings

The vehicle **shall** have the following minimum performance and rating capabilities:

- 3.4.1 Ratings as indicated in the Configuration Capability Table Item 1.6; and
- 3.4.2 The bidder **shall** provide a computer generated vehicle performance prediction analysis with the Technical Information Questionnaire. Analysis **shall** be performed in conformance with SAE J2188, using the engine and transmission offered for the vehicle configuration submitted in support of the manufacturers bid submission.

3.5 Human Engineering and Safety

Entry and exit points **shall** be equipped with handles and steps suitably positioned. All systems and components **shall** be safe and easy to use by a 5-95th percentile male or female under all operating conditions.

3.6 Maintainability

Routine operator maintenance and repair tasks **shall** be easy to perform with a minimum of special tools and skills.

3.7 Frame Dimensions

- 3.7.1 Frame dimensions are based on the installation of a Compressed Air Foam System as detailed within this performance specification and purchase description and **shall** be clearly detailed on the Technical drawings described at ANNEX B Item 10.6.2. Frame dimensions **shall**^(E) be provided with the following nominal measurements:

3.7.1.1 Cab to Axle (CA) – 3,048 mm (120 inches).

3.7.1.2 Wheel Base (WB) – 4,953 mm (195 inches).

3.7.1.3 Axle to Frame (AF) – 1,905 mm (75 inches).

3.8 *Engine & Components*

The engine provided *shall*:

- 3.8.1** Be diesel powered and have as a minimum the Horse power rating identified in the Configuration Capacity Table Item 1.6.
- 3.8.2** Be compliant with current emission standards at time of production for model being offered;
- 3.8.3** Be turbocharged and electronically controlled;
- 3.8.4** A replaceable dry-type 2-stage air filter that includes a filter restriction gauge or an air filtration system as recommended by the engine OEM;
- 3.8.5** Extended Life Coolant (ELC) with protection down to -60°C;
- 3.8.6** Exhaust system including a vertical stack that clears the body roofline and fitted with an exhaust elbow;
- 3.8.7** A cooling system that includes a thermostatic fan; and
- 3.8.8** A fan shroud.

3.9 *Fuel System*

The vehicle fuel delivery system *shall* include fuel reservoir(s) that is mounted on standard support brackets and having a minimum total capacity of 364 liters.

3.10 *Cold Weather Starting Aids*

The vehicle *shall* be equipped with:

- 3.10.1** A 110-volt coolant block heater of the highest wattage capacity recommended by the engine manufacturer;
- 3.10.2** A fuel filter/water separator incorporating a thermostatically controlled heater;
- 3.10.3** A cold weather starting fluid injection system or air intake heater system as

recommended by the engine OEM. If a cold weather starting fluid injection system is installed, it **shall** include:

- 3.10.3.1 A thermostatically controlled safety shut-off device to prevent the injection of starting fluid into a hot air intake;
 - 3.10.3.2 An easily accessible spin-on starting fluid reservoir, changeable without special tools; and
 - 3.10.3.3 An automatic control, enabling operation only when the starter is engaged; and,
- 3.10.4 A 150-watt oil pan pre-heater.

3.11 Automatic Transmission

The truck **shall** be equipped with an electronically controlled fully automatic transmission. An automatic transmission is defined as “a transmission that requires no driver intervention to start, to change ratio, or to stop”. The transmission **shall**^(E):

- 3.11.1 Have a minimum of five (5) forward speeds and one reverse speed;
- 3.11.2 Include an oil cooler and oil filter;
- 3.11.3 Be equipped with an instant release, electronically operated high idle control. The high idle control **shall** be connected so as not to allow the high idle to engage when the transmission is in gear and the parking is applied; and
- 3.11.4 Be provided with PTO capability and access plates.

3.12 Two Speed Transfer Case

The vehicle **shall** be equipped with a driver select all-wheel drive two-speed transfer case and transfer case oil cooler.

3.13 Steering

The vehicle **shall** be equipped with a power assisted steering and telescopic tilt steering column.

3.14 Brakes

The vehicle **shall** be equipped with full air actuated service brakes and spring actuated parking brakes. Air tank **shall**^(E) be located/installed between chassis frame rails to achieve best ground clearance and to protect the air tanks. The brake system **shall**^(E) be provided with the following:

- 3.14.1 Include a 4 channel anti-lock (ABS) brake system;
- 3.14.2 Be S-Cam type air brakes with automatic slack adjusters
- 3.14.3 Include a minimum 0.367 cubic meter (13 cfm) air compressor;
- 3.14.4 Include a wet air reservoir capable of being recharged using a quick disconnect fitting for charging the air system. Mounting location of the quick disconnect fitting in an area that provides easy access for the driver from a standing position.
- 3.14.5 Include an automatic air dryer, Bendix Model AD 9 or Technical Authority approved equivalent;
- 3.14.6 Be equipped with heated automatic moisture expelling valve(s) on all tanks and air dryer;
- 3.14.7 Include brake housing dust shields and visual brake stroke indicators on front and rear brake slack adjusters;
- 3.14.8 Include long stroke brake chambers on both front and rear axles; and
- 3.14.9 Be equipped with air couplers (glad hands). Both service and emergency glad hands **shall** be provided at the rear of the vehicle. The front of the vehicle **shall** only be provided with a service air glad hand connection.

3.15 Wheels and Tires

The following applies:

- 3.15.1 The vehicle **shall** be equipped with steel-belted, tubeless radial tires mounted on 2-piece split wheels that are balanced to preclude wheel shimmy at all vehicle speeds;
- 3.15.2 Rims provided **shall** be hub piloted design and sized to mount 395/85R20 tires;
- 3.15.3 The tires provided **shall**^(E) be all Michelin, 395/85R20, with a “J” load rating and XZL tread pattern or Technical Authority approved equivalent; and
- 3.15.4 Bead locks **shall** be provided for all tires including the spare.

3.16 Spare Tire Assembly

A spare tire and rim assembly **shall** be provided and be identical to the wheels used on the front

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and rear axle. The spare tire assembly *shall* be shipped as loose equipment with the vehicle. No spare tire carrier is required.

3.17 Suspension and Axles

The following *shall* be provided:

3.17.1 The vehicle *shall* be equipped with spring suspension at the front and rear axles incorporating double acting shock absorbers.

3.17.2 A driver controlled differential rear axle lock.

3.18 Additional Frame Requirement

The frame provided *shall* be of a heavy-duty design. The following applies:

3.18.1 The frame *shall*^(E) be provided with heat-treated alloy steel frame rails, having a 120,000-PSI yield.

3.18.2 The frame RBM *shall* meet the requirements outlined in the Configuration Capability Table Item 1.6.

3.18.3 The frame *shall*^(E) be provided with a 50 cm (20 inch) front frame extension. Either an integral or bolt on frame extension would be considered as meeting Technical Authority requirements.

3.19 Chassis Preparation

The following applies:

3.19.1 The chassis configuration *shall* be inspected by the Contractor to determine if integration problems of the proposed Compressed Air Foam System design to the OEM cab and chassis exist;

3.19.2 The commercial chassis *shall* be inspected for deficiencies or quality issues. Discrepancies *shall* be brought to the attention of the Technical Authority.

3.19.3 Prior to beginning the installation process of the Compressed Air Foam System the chassis *shall* be weighed and the axle weights *shall* be recorded in the project file.

3.19.4 Examine the changes on the front steer axle and rear axle loadings with the addition of the fully loaded Compressed Air Foam System and equipment. Results *shall* be forwarded to the Technical Authority.

- 3.19.5 The chassis OEM exhaust *shall* be provided with shielding to prevent component exposure to radiant heat.
- 3.19.6 Details of any changes deemed necessary to the cab and chassis to achieve safe installation of the Compressed Air Foam System and provide the details to the Technical Authority and the chassis manufacturer as applicable.
- 3.19.7 Drawings of the complete Compressed Air Foam System as a built unit, including chassis dimension requirements *shall* be provided with the bid submission.
- 3.19.8 The contractor *shall* ensure that mounting the Compressed Air Foam System onto the chassis will not adversely affect the chassis performance, durability and reliability.
- 3.19.9 The Compressed Air Foam System manufacturing process *shall*^(E) not commence until the Technical Authority grants the Contractor an approval for system integration. Approval will depend on the analysis results obtained from the Contractor satisfying axle weight distribution and centre of gravity calculations.

3.20 Warranty

The installation of the Compressed Air Foam System *shall* not affect the OEM cab and chassis warranty. The Contractor *shall* assume full responsibility for a failure within the cab and chassis system if it is determined that the Compressed Air Foam System installation/integration was the cause of a cab and chassis component/system failure.

3.21 Front Bumper

A three-piece steel bumper with collapsible-boxed ends *shall*^(E) be provided. The bumper *shall*^(E) be provided with a 24-inch frame extension to accommodate the mounting of a bumper turret. The outer edges of the bumper *shall*^(E) be provided with upright pole style bumper markers with the top of the bumper markers provided with lighted ends interfaced with the headlight system to activate when the headlights are engaged.

3.22 Winch System

The Range Fire Fighting Vehicle *shall* be provided with a portable winching system as follows:

- 3.22.1 The winch *shall*^(E) have a minimum rated first layer capacity of at least 5,443 kg (12,000 lbs), operate from a 12 volt DC power supply and provided with a Reese winch carrier. The carrier *shall*^(E) be mounted to the winch to enable the winch to be quickly installed in the hitch receiver;

- 3.22.2. Two receivers *shall*^(E) be provided, one located behind the front bumper; one located at the rear of the Range Fire Fighting Vehicle behind/under the rear tailboard;
- 3.22.3 The receivers provided *shall* be rated to match the winch capacity;
- 3.22.4 The receivers *shall* be provided with covers;
- 3.22.5 Two waterproof receptacles equipped with covers *shall*^(E) be provided and located adjacent to the hitch receivers. The receptacle *shall*^(E) be wired to the secondary alternating system vehicle batteries with heavy-duty cable of a gauge in accordance with OEM recommendations;
- 3.22.6 The winch *shall*^(E) be provided with an automatic drag and safety brake, a free spooling feature, hook and roller fairlead.
- 3.22.7 A 30 meter (100 feet) wire rope with a minimum rated capacity of 5,443 kg (12,000 lbs) *shall*^(E) be provided.
- 3.22.8 An electric remote control with a 3.6 meter (12 foot) cable *shall*^(E) be provided.
- 3.22.9 The winch *shall*^(E) be provided with carrying handles located on each end to facilitate easy movement of the assembly by the operator/vehicle crew.

3.23 Pintle Hook

- 3.23.1 A pintle hook compatible with the winch receiver *shall* be provided at the rear of the Range Fire Fighting Vehicle.
- 3.23.2 The horizontal centre line of the pintle hook *shall* be located nominally 508 mm (20 inches) above the ground.
- 3.23.3 The pintle hook provided *shall*^(E) be rated for a minimum tow capacity of 5,443 kg (12,000 lbs) and capable of supporting a minimum tongue weight 1,000 kg (2,200 lbs).

3.24 Towing Hooks

Towing hooks *shall* be provided as follows:

- 3.24.1 Two (2) frame mounted front towing hooks of adequate strength to provide for towing or tie down operations and engineered to ensure adequate strength commensurate with the Range Fire Fighting Vehicle GVWR.

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- 3.24.2 Two (2) frame mounted rear towing hooks of adequate strength to provide for towing or tie down operations and engineered to ensure adequate strength commensurate with the Range Fire Fighting Vehicle GVWR.
- 3.24.3 Two (2) mid-frame mounted tie down points and be engineered to ensure adequate strength commensurate with the Range Fire Fighting Vehicle GVWR.
- 3.24.4 Towing hooks and tie down points with an opening capacity to accept one (1) inch diameter tow hooks.
- 3.24.5 Front and rear towing hooks **shall** be fabricated from stainless steel.

3.25 **Towing Eyes**

Towing eyes shall be provided as follow:

- 3.25.1 Heavy-duty towing eyes **shall** be bolted directly to the frame rails;
- 3.25.2 Two towing eyes **shall** be provided for the front and two towing eyes provided at the rear of the Range Fire Fighting Vehicle;
- 3.25.3 The towing eyes **shall** be of sufficient strength to permit a direct pull on a single towing eye equivalent to the GVWR of the Range Fire Fighting Vehicle;
- 3.25.4 The towing eyes **shall** be easily accessible form the rear of the Range Fire Fighting Vehicle; and
- 3.25.5 The towing eyes **shall** be manufactured from stainless steel.

3.26 **Cab**

The cab **shall** be a two-door day cab, engine forward design with a front tilting hood design. In addition to the OEM cab accessories the manufacturer **shall**^(E) provide the following:

- 3.26.1 A cloth high-back air suspended driver and Passenger's seats;
- 3.26.2 Handrails with anti-slip grips **shall** be provided at each cab door.
- 3.26.3 Two remotely operated heavy-duty rear view mirrors with convex mirrors;
- 3.26.4 Two rotating and pivoting interior sun visors;
- 3.26.5 Cab insulation, dark upholstery, vinyl mats as well as armrests on both doors;

- 3.26.6 An AM/FM weather band radio with CD player;
- 3.26.7 Air horns;
- 3.26.8 Air Conditioning factory installed, air conditioning system equipped with an environmentally friendly refrigerant such as R134A equipped with a filtration device with replaceable filter element to avoid dust and contaminated air to enter the cab. The system *shall* have a recirculation design that prevents entry of smoke during Fire Fighting operations;
- 3.26.9 Tinted Glass/Windows to reduce solar heating effects. Rear visibility sliding cab window *shall* be provided;
- 3.26.10 Under hood sound insulation *shall*^(E) be provided;
- 3.26.11 Nine centimeters (3.5 inches) rubber splash on front fenders;
- 3.26.12 Fixed front radiator grille with a bug screen;
- 3.26.13 One set of three dual faced triangular warning signs with foldaway base, complete with storage case, as per DOT FMVSS 125 requirements *shall* be supplied with the vehicle;
- 3.26.14 One 2.5 lbs ABC vehicle type extinguisher *shall* be provided and mounted in the chassis cab;
- 3.26.15 One set of ZICO wheel chocks sized to the manufacturer's recommendations for the GVWR with mounting brackets *shall*^(E) be provided. Wheel chocks *shall*^(E) be installed below the Compressed Air Foam System but not in a position that places the mounting brackets below the vehicle frame rails;
- 3.26.16 The Rescue Van Body *shall* be provided with front and rear glad hand air connections. The rear provided with both service and emergency connections and the front provided with only a service air connection. The glad hand connections *shall* be provided with an air shut off and plumbed into the chassis OEM air system;
- 3.26.17 Two heavy-duty unmarked mud flaps *shall* be provided on the front and rear wheel assemblies, centrally located behind the respective wheels; and
- 3.26.18 Two speed with intermittent electric windshield wipers and washer functions.

3.27 **Controls and Instruments**

The cab *shall* be equipped but not limited to the following:

- 3.27.1 Cruise control system;
- 3.27.2 Tachometer and odometer;
- 3.27.3 Air and fuel tank gauges;
- 3.27.4 Coolant temperature gauge with a high coolant temperature indicator;
- 3.27.5 Oil pressure gauge with a low engine oil pressure indicator;
- 3.27.6 Voltmeter or ammeter;
- 3.27.7 One air gauge per tank with low air pressure alarm;
- 3.27.8 Transfer case engaged indicator;
- 3.27.9 Differential lock engaged indicator; and
- 3.27.10 Self cancelling turn signal switch.

3.28 Electrical System

The vehicle *shall* be provided with the following:

- 3.28.1 A minimum of 200 amp alternating system with EMI suppression;
- 3.28.2 A multiplex wiring system;
- 3.28.3 A 2100 CCA battery system;
- 3.28.4 Wiring protected by insulating grommets where passing through metal;
- 3.28.5 LED stops, tail and clearance lights;
- 3.28.6 Halogen headlights;
- 3.28.7 A seven-pin twelve-volt trailer receptacle;
- 3.28.8 Electrical circuits protected with fuses, relays or circuit breakers;
- 3.28.9 Amber fog lights inset in the front bumper;
 - 3.28.9.1 *shall*^(E) be provided with two TruckLite yellow lens fog lights model #

80512.

- 3.28.9.2 The fog lights *shall*^(E) be designed for use on heavy/medium trucks.
- 3.28.9.3 The fog lights *shall*^(E) be interconnected with the headlight circuit. Activation of the high beam headlights *shall* automatically turn off the fog lights.
- 3.28.9.4 A backlit rocker style switch *shall*^(E) be provided for activation of the fog lights.
- 3.28.10 An under hood light *shall*^(E) be provided with activation occurring upon opening of the hood and shut off occurring upon hood closure;
- 3.28.11 Front and rear License plate holders. The rear license plate holder *shall* be provided with a light;
- 3.28.12 A Back up alarm of a minimum of 97db;
- 3.28.13 Electrical horns; and.
- 3.28.14 A master battery disconnect switch *shall* be provided in the cab near the driver seat.

3.29 Emergency Starting Systems

The following applies:

- 3.29.1 The vehicle *shall* be provided with external battery booster studs/slave receptacle equipped with color coded protective cover to prevent the possibility of short circuits. The external battery studs/slave receptacle *shall*^(E) be provided in the vicinity of the battery box and easily accessible from a ground level standing position. A permanently affix sign displaying the jumper stud voltage;
- 3.29.2 A 200 Amp heavy duty DC voltage master disconnect switch with an on/off position *shall*^(E) be provided between the positive side of the batteries and the positive slave receptacle stud. The positive battery lead *shall* be attached to one side of the switch and the positive jumper stud attached to the other side of the switch. The switch *shall*^(E) be located in the vicinity of the jumper studs; and
- 3.29.3 No part or components of the cab and chassis *shall*^(E) require removal or alteration to access the external booster studs/slave receptacles.

3.30 Paint

The Cab *shall* be painted FNLA 3225 Red Akzo-Nobel lead free, chromate free high solid LV acrylic urethane IAW CFFM FMOG EQPT-3000 or Technical Authority Equivalent. Additional paint specification is outlined in the Performance Specification and Purchase Description for the Range Fire Fighting Package ANNEX B Item 9.2. The chassis components *shall* be painted with the manufacturer's standard color.

3.31 Corrosion Protection System

In addition to standard factory rust proofing, aftermarket rust proofing *shall* be provided for the Range Fire Fighting vehicle as outlined in the Performance Specification and Purchase Description ANNEX B Item 9.4.

3.32 Corrosion Resistant Materials

The vehicle design *shall* maximize the use of corrosion resistant materials and be provided with a dielectric insulating barrier between the mating surfaces of dissimilar metals.

3.33 Lubricants and Hydraulic Fluids

The vehicle *shall*^(E) be provided with the manufacturer's standard lubricants and hydraulic fluids compatible with delivery location and season.

3.35.1 A permanent etched plastic type label affixed with rivets *shall*^(E) be provided within easy view of the operator, indicating the following:

3.35.1.1 Recommended engine oil type and capacity;

3.35.1.2 Recommended engine coolant type and capacity;

3.35.1.3 Recommended transmission fluid type and capacity; and

3.35.1.4 Recommended drive axle fluid type and capacity.

4. TECHNICAL DATA PACKAGE

4.1 Bid Package Technical Data

The following *shall*^(E) be provided in conjunction with bid submission for the Performance Specification and Purchase Description for the Compressed Air Foam System outlined in ANNEX B:

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- 4.1.1 The contractor *shall* supply a line set ticket with the bid submission. If the apparatus tendered is a prototype design, the line set ticket *shall* be provided prior to the pre-delivery inspection.
- 4.1.2 A brochure of the vehicle or of the vehicle on which the tender is based
- 4.1.3 The technical data requested in the questionnaire *shall*^(E) be provided in a typed/legible format.
- 4.1.4 Units of measurement *shall* be clearly indicated.
- 4.1.5 Information supplied by a bidder in support of their tender *shall*^(E) be in the same sequence as the Purchase Description. Failure to provide information in the same sequence as the Performance Specification and Purchase Description could result in non-compliance of a bid submission.
- 4.1.6 An authorized representative, who has delegated authority by the manufacturer to enter into contractual agreement, *shall* sign the Technical Questionnaire Appendix and Certificate of Conformance APPENDIX 1 to ANNEX C.
- 4.1.7 Failure to indicate and provide the technical data to substantiate a Technical Authority approved equivalent that your company plans to put forth could result in non-compliance of a bid submission.

4.2 **Identification**

The following information *shall*^(E) be permanently affixed in a conspicuous and protected location:

- 4.2.1 The manufacturer's name, model number, serial number and model year; and
- 4.2.2 The GVWR and GAWR ratings (as applicable).

4.3 **Warning and Instruction Plates**

The vehicle *shall*^(E) be provided with warning and equipment operation instruction plates that are in accordance SAE J115. The plates *shall*^(E):

- 4.3.1 Be within easy view of the operator, be bilingual (English and French); and/or
- 4.3.2 Make use of graphic symbols, as much as possible, as defined in SAE J1362.

4.4 **Data Summary**

Prior to delivery, the contractor **shall** provide a Data Summary to the Technical Authority for the complete vehicle assembly (same as per Performance Specification and Purchase Description for the Compressed Air Foam System outlined in ANNEX B Item 10.8. The Technical Authority **shall** provide a sample data summary at the pre-production meeting.

4.5 Photographs

Prior to delivery, the contractor **shall** provide the Technical Authority with four (4) digital cab and chassis pictures, one of each corner three-quarter view. All pictures **shall**^(E) be taken with a clear uncluttered background.

4.6 Cab and Chassis OEM Warranty

Prior to delivery, the contractor **shall** provide a copy of the cab and chassis OEMs Warranty detailing the following:

- 4.6.1** Cab and chassis OEMs warranty coverage for the vehicle systems.
- 4.6.2** Warranty procedure to be followed.
- 4.6.3** Location of nearest warranty service facility to CF Borden.
- 4.6.4** The Contractor **shall** send a copy of the OEMs Warranty to the Technical Authority and provide a copy to the CFB Base delivery destination.
- 4.6.5** The manufacturer **shall** indicate if a delayed OEM warranty is available, which would commence upon delivery of the completed Rescue Van Body.
- 4.6.6** It is highly desirable to have the cab and chassis warranty commence upon acceptance of the completed Range Fire Fighting Vehicle to the final CF Base destination.

4.7 Recommended Spare Parts List

The Contractor **shall**^(E) provide a Recommended Spare Parts List to the Technical Authority for the complete vehicle assembly (same as per Performance Specification and Purchase Description for the walk in Range Fire Fighting Vehicle outlined in ANNEX B Item 10.9.

4.8 Line Setting Ticket

Prior to delivery, the Contractor **shall** provide the cab and chassis Line Setting Ticket and a list of major components serial numbers to the Technical Authority. A copy of both lists **shall** also accompany the vehicle to the final delivery point.

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4.9 Manuals

The list of Manuals requested for the complete Range Fire Fighting Vehicle as outlined in ANNEX B Item 10.10 *shall* also include OEM Cab and Chassis Manuals and be provided prior to or at the time of delivery of the vehicle. The following *shall* be provided:

4.9.1 OEM cab and Chassis wiring diagrams up to the interface of the Range Fire Fighting Vehicle.

4.10 Electronic Manuals

Manuals supplied in electronic format *shall* provide the equivalent information as outlined for hard copy type manuals and be configured and formatted in such a manner to provide for the following:

4.10.1 Printing of the entire manual.

4.10.2 Cutting, pasting or copying of individual documents or sections to other electronic media, such as electronic mail and memos.

4.10.3 Inclusion of a find feature to allow for searches by text or by part number.

4.11 Safety Recalls and Servicing Data

The following information *shall* be sent to the final delivery locations (if known) and to the Technical Authority, on a continuing basis, throughout the expected life of the vehicle (15 years):

4.11.1 Safety recalls.

4.11.2 Manufacturer's technical service bulletins.

4.11.3 Information pertaining to a change in replacement parts.

4.12 Special Tooling

Prior to delivery, the manufacturer *shall* provide to the Technical Authority a listing of specialized tooling (if applicable) that are required to service the fire package and apparatus systems. DND will exercise at their discretion the option to purchase the special tooling.

4.13 Loose Material shipment list

Prior to delivery, the contractor *shall* supply the Technical Authority with a detailed listing of loose equipment and material that will be shipped with the vehicle. A copy of the loose material

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shipment list *shall* also accompany the vehicle to the final delivery point.

5. QUALITY ASSURANCE PROVISIONS

In the performance of the work outlined within the specification, the manufacturer *shall* comply with the requirements of the current edition of ISO 9001, Quality Management Systems. It is not the intent to require the manufacturer to hold formal registration/certification; however the manufacturer's quality management system *shall* address each requirement of the standard.

TECHNICAL INFORMATION APPENDIX

BIDDERS RESPONSE SHOULD BE IN A TYPED FORMAT

1. SCOPE

1.1 Scope

This Appendix covers the technical information applicable to the Purchase Description and Specification. The Contractor *shall* complete the Appendix in its entirety to support the equipment being offered. The information is required by the Technical Authority in order to assess and evaluate the equipment offered in support of a Contractors tender. Should a Contractor not register compliance with a section of the specification, an explanation at the remarks column should be provided to ensure that their bid submission is not evaluated as non-compliant.

NOTE: It is the Contractors responsibility to clarify outstanding Technical issues by written request to the Contracting Officer prior to bid submission.

NOTE: Certificate of Conformance can be found on the last page

PERFORMANCE SPECIFICATION AND PURCHASE DESCRIPTION	INDICATE COMPLIANCE OR PROVIDE EXPLANATION	REMARKS
1. SCOPE		
1.1. GENERAL.....		
1.2. WELDING CERTIFICATION.....		
1.3. INSTRUCTIONS.....		
1.4. DEFINITIONS.....		
1.5. TECHNICAL INFORMATION APPENDIX.....		
1.6. CERTIFICATE OF CONFORMANCE.....		
2. APPLICABLE DOCUMENTS.		
2.1. OTHER PUBLICATIONS.....		
3. REQUIREMENT		
3.1. CAB AND CHASSIS DESIGN.....		
3.2. OPERATING CONDITIONS.....		

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PERFORMANCE SPECIFICATION AND PURCHASE DESCRIPTION	INDICATE COMPLIANCE OR PROVIDE EXPLANATION	REMARKS
3.3. VEHICLE SAFETY REGULATIONS..... 3.4. PERFORMANCE AND RATINGS..... 3.5. HUMAN ENGINEERING & SAFETY..... 3.6. MAINTAINABILITY..... 3.6. FRAME DIMENSIONS..... 3.7. ENGINE..... 3.8. ENGINE & COMPONENTS 3.9. FUEL SYSTEM..... 3.10. COLD WEATHER STARTING AIDS 3.11. AUTOMATIC TRANSMISSION..... 3.12. TWO SPEED TRANSFER CASE..... 3.13. STEERING..... 3.14. BRAKES 3.15. WHEELS AND TIRES 3.16. SPARE TIRE ASSEMBLY..... 3.17. SUSPENSION AND AXLES 3.18. ADDITIONAL FRAME REQUIREMENT..... 3.19. CHASSIS PREPARATION..... 3.20. WARRANTY..... 3.21. FRONT BUMPER..... 3.22. WINCH SYSTEM..... 3.23. PINTLE HOOK..... 3.24. TOWING HOOKS..... 3.25. TOWING EYES..... 3.26. CAB..... 3.27. CONTROLS AND INSTRUMENTS.....		

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PERFORMANCE SPECIFICATION AND PURCHASE DESCRIPTION	INDICATE COMPLIANCE OR PROVIDE EXPLANATION	REMARKS
3.28. ELECTRICAL SYSTEM 3.29. EMERGENCY STARTING SYSTEMS 3.30. PAINT 3.31. CORROSION PROTECTION SYSTEM..... 3.32. CORROSION RESISTANT MATERIALS 3.33. LUBRICANTS AND HYDRAULIC FLUIDS..... 4. TECHNICAL DATA PACKAGE 4.1. BID PACKAGE TECHNICAL DATA 4.2. IDENTIFICATION..... 4.3. WARNING AND INSTRUCTION PLATES 4.4. DATA SUMMARY 4.5. PHOTOGRAPHS..... 4.6. CAB AND CHASSIS OEM WARRANTY..... 4.7. RECOMMENDED SPARE PARTS LIST..... 4.8. LINE SETTING TICKET..... 4.9. MANUALS 4.10. ELECTRONIC MANUALS..... 4.11. SAFETY RECALLS & SERVICING DATA.... 4.12. SPECIAL TOOLING..... 4.13. LOOSE MATERIAL SHIPMENT LIST..... 5. QUALITY ASSURANCE PROVISIONS.....		

