



Jasper County  
Request for Proposal RFP #2024-9  
Refurbished 1000 Gallon Aircraft Rescue & Firefighting (ARFF) Vehicle  
OSHKOSH 4X4 P-19  
October 20, 2023

Jasper County is seeking proposals for a refurbished 1000-gallon aircraft rescue and firefighting vehicle for the Ridgeland Claude Dean Airport (3J1) located at 254 Hon. Barbara B. Clark Drive, Ridgeland, SC 29936. Proposals will be due Noon, Wednesday, November 29, 2023, and a mandatory pre-bid meeting will be held at 9:00 AM on Wednesday, November 8, 2023.

**PROPOSAL REQUIREMENTS**

The proposal must be firm for a period of at least 120 days from the due date of the proposal. The proposal must be signed by an official of the company authorized to commit to and enter into a formal contract for goods or services. Jasper County reserves the right to negotiate with all qualified vendors and to cancel in part or in its entirety this request if it is in the best interest of the County to do so. This solicitation does not commit Jasper County to award a contract or to pay for any costs incurred in the preparation or submission of a proposal. Proposers may include financing options. However, financing options are not part of the evaluation process. The successful proposer shall deliver to the County and shall become binding on the parties upon execution of the contract, a performance bond in the amount of 100 percent of the price specified in the contract.

Proposals shall include the following:

- All costs to provide a 1000-gallon ARFF vehicle, as outlined in the scope of work to include manufacture refurbishment), freight and delivery to the Jasper County Fire and Emergency Services Division Headquarters, acceptance testing and operational training.
- All costs to provide optional equipment per this "Request for Proposal."
- All costs for a 2-year Inspection & PM Service Contract
- References where proposer has provided equipment similar in size, scope and operations of that contained within this Request for Proposal within the past five (5) years.
- A material list that includes the manufacturer and model number of the key critical system components.
- Documentation of support items required by the specifications and this Request for Proposal.

- ARFF Certification for 2024
- List of supplier's ARFF Certified Service facilities within 100 miles of Ridgeland SC.
- Information as to whether the vehicle has been refurbished to Level II or equivalent in the last 2 years.
- The proposal should not be for brokered vehicles. The County will not consider brokered vehicles.

Additional Items of consideration regarding service:

- Do you have a local service facility? If so, what is the location?
- Do you have a mobile service?
- Do you provide an additional ARFF Truck while the current truck is down for repairs?
- Are there dedicated service technicians for mobile repair, if so, how many? Describe the certification process for your technicians and how many of your technicians meet your criteria.
- Do you stock manufacturer parts?
- How are parts personnel trained and do they meet this criterion?
- How is your dealership supported by the manufacturer?
- How are disputed service issues mediated between the purchaser, dealer, and manufacturer?
- Are extended warranties available for the apparatus being proposed? If so, what do they cover and the cost?

The County possesses a centralized maintenance facility and employees qualified repair technicians. Does the Proposer offer the ability for the county to perform warranty repairs? If so, what is the process for authorizing the county to act in such a fashion.

### **MANDATORY PRE-PROPOSAL MEETING**

Interested proposers are required to attend a mandatory pre-proposal meeting. The meeting will be held at the Jasper County Emergency Operations Center at 1509 Grays Highway, Ridgeland, SC 29936 in the County Council Chambers on the on the third floor at 9:00 AM on Wednesday, November 8, 2023.

### **SCOPE OF WORK**

The scope of work for the project is the PROVISION OF A REFURBISHED 1000-gallon ARFF vehicle per specification below in accordance with Federal Aviation Administration guidelines for such acquisition. The scope also includes the provision of an input-based Aqueous Film Forming Foam (Testing System compliant with NFPA 412, Standard for Evaluating Aircraft Rescue and Firefighting Foam Equipment. The final product shall be a refurbished, fully operational, vehicle to provide ARFF support at the Airport. Equipment and performance capability will meet, or exceed requirements for an ARFF vehicle contained in:

- Federal Aviation Administration Advisory Circular #150/5220-10E, Guide Specifications for Aircraft Rescue and Firefighting (ARFF) Vehicles.

- National Fire Protection Association (NFPA) 414, Standard for Aircraft Rescue and Firefighting Vehicles (2018 Edition)
- National Fire Protection Association (NFPA) 412, Standard for Evaluating Aircraft Rescue and Firefighting Foam Equipment.

### **DESCRIPTION OF SERVICES**

A detailed description of services the vendor proposes to deliver consistent with the scope of services and required work products/deliverable should be included in the proposal. The proposer shall also include a description of the type and amount of training to be provided to Fire Rescue Personnel. The proposer shall include an explanation of conferences that might be necessary during negotiation and building of the units. Tentative inspection and acceptance for the units will be conducted at a location determined by the successful vendor. However, delivery will be the responsibility of the successful proposer and final acceptance testing will be done in Jasper County, South Carolina. The description of services should be explained in the Scope of Services section of the executive summary.

### **EVALUATION & SELECTION**

Qualified responses shall be reviewed by the Jasper County Fire Rescue ARFF Vehicle committee personnel within thirty (30) days of the submittal deadline. If warranted, additional information may be requested by the Committee. A short list of proposers will be created for additional review. Jasper County reserves the right to request oral presentations and demonstrations if deemed necessary.

Jasper County reserves the right to choose the **most qualified firm** based on evaluation by the Committee. Jasper County reserves the right to accept or reject any part or the entire submitted proposal. Jasper County further reserves the right to cancel in part or in its entirety this RFP if it is in the best interest of the County to do so. To facilitate the evaluation process, an executive summary shall be submitted by the vendor that can serve as an overview of the ARFF vehicle being proposed. The executive summary will be considered part of any subsequent contract and anything contained within the executive summary must be delivered by the vendor unless a specific exception is listed in any subsequent contract. Proposals submitted without an executive summary will not be scored or considered. This executive summary must be presented in the following format and must include each of the following:

- Commitment to the general conditions contained herein (0 to 3 points)
- Completeness of the proposal, i.e., the degree that it responds to all requirements and requests for information contained herein. (0 to 3 points)
- Overall, Scope of Work (0 to 3 Points)
- Adherence to Specifications (0 to 3 points)
- Equipment Supplied by the Contractor (0 to 3 points)

- Cost (0 to 3 points)
- Warranty (0 to 3 points)
- Nature and Quality of Previous Work (0 to 3 points)
- Local Business with facility in county (0 to 3)
- Service Center Location within specification of specifications (0 to 3)

### **NATURE & QUALITY OF PREVIOUS WORK**

A list of three (3) customers for whom comparable units have been sold within the past 3 years. Include a contact name, telephone number, client size, assessment dates, and a description of the units provided. Describe any special experience, insight, or qualifications the firm has which may differentiate it from others in the field and prove beneficial to this project. This information must be provided in the Nature & Quality of Previous Work section of the executive summary.

### **ADDITIONAL INFORMATION AND CLARIFICATION**

All Questions for clarification shall be emailed directly to: [dvaughn@jaspercountysc.gov](mailto:dvaughn@jaspercountysc.gov); or mailed to:

Jasper Count Fire Rescue  
Attn: Deputy Fire Chief Vaughn  
PO Box 1509  
Ridgeland SC 29936

All requests for clarification will be posted in and replied to in the Jasper County procurement file in Vendor Registry.

All proprietary points of clarification shall be clearly identified and marked in the proposal. They will be reviewed by the apparatus committee and Jasper County Legal Counsel for determination of redacted consideration in publication of clarification documentation.

There is no express or implied obligation for Jasper County to reimburse the responding firms for any expenses incurred in preparing proposals in response to this Request for Proposal.

Jasper County reserves the right to reject any or all proposals, to waive any irregularities or informalities in any proposal or in the proposal procedure, and to accept or reject any items or combination of items.

Jasper County does not discriminate based on race, color, national origin, sex, religion, age or disability in employment or in the provision of goods and services.

### **PROPOSAL SUBMISSIONS**

Five (5) copies of vendor proposal packages shall be delivered no later than noon, Wednesday, November 29, 2023. Packages shall be submitted to Kimberly Burgess, Director of Administrative Services for Jasper County Finance. Vendor Proposal Packages received after this cut-off shall not be considered. Sealed Proposals should be clearly marked "ARFF Vehicle Proposal" and delivered in person or via U.S. Mail or delivery service to the address below:

Kimberly Burgess, Director of Administrative Services Division  
Jasper County  
358 Third Avenue  
P. O. Box 1149  
Ridgeland, SC 29936

RE: ARFF Vehicle Proposal

**AIRCRAFT RESCUE AND FIREFIGHTING (ARFF) VEHICLE  
OSHKOSH 4X4 P-19**

1. **SCOPE.** This Procurement Specification (PS) covers a commercially produced diesel engine driven ARFF vehicle for an FAR 139/General Aviation Index airport. It includes a 1000-gallon water/ 130-gallon Aqueous Film Forming Foam (AFFF) fire suppression system: **with 500 lbs. Dry Chem only complementary system.**

The ARFF Vehicle is intended to carry rescue and firefighting equipment for the purpose of rescuing aircraft passengers, preventing aircraft fire loss, and combating fires in aircraft.

2. **CLASSIFICATION.** The ARFF vehicle covered by the (PS) are classified in accordance with Part 139. Certification and Operations: Section 317, Aircraft Rescue and Firefighting: Equipment and Agents; and Federal Aviation Administration (FAA) Advisory Circular (AC) 150-522210-10, Guide Specification for Aircraft Rescue and Firefighting (ARFF Vehicles).
3. **VEHICLE CONFORMANCE/PERFORMANCE CHARACTERISTICS.** The ARFF vehicle will be in accordance with the applicable requirements of National Fire Protection Association (NFPA) 414, Standard for Aircraft Rescue and Fire Fighting Vehicles (2018 Edition), and AC 150/5220-10E, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles. **The manufacturer will allow the addition of other options, at the buyer's expense, after bid acceptance.**

**3.1 General Administration Requirements.**

**3.1.1 Manuals:** Technical manuals will consist of operator, service, and parts manuals. All manuals are required to be provided in hardcopy and in digital format on CDs when requested.

**3.1.1.1 Technical manuals.** The overall format for the manuals will be commercial. Each technical manual will have a title page. Line art will be used to the maximum extent possible for illustrations and parts lists. One complete set of engine and transmission parts, service and operator's manual will be packed with each vehicle.

- a. The contractor will provide digitized manuals in CD format when requested in addition to or in place of printed paper copies.
- b. The contractor will provide two complete sets of hardcopy manuals and / or CDs when requested.

**3.1.1.1.1 Operator's manual.** The operator's manual will include all information required for the safe and efficient operation of the vehicle including fire extinguishing systems, equipment,

and any special attachments or auxiliary support equipment. As a minimum, the operator's manual will include the following:

- a. The location and function of all controls and instruments will be illustrated and functionally described.
- b. Safety information that is consistent with the safety standards established by the Occupational Safety and Health Administration (OSHA) and NFPA.
- c. All operational and inspection checks and adjustments in preparation for placing the vehicle into service upon receipt from the manufacturer.
- d. Tie down procedures for transport on a low-boy trailer.
- e. Warranty information and the period of the warranty coverage for the complete vehicle and for any component warranty that exceeds the warranty of the complete vehicle. Addresses and telephone numbers will be provided for all warranty providers.
- f. General description and necessary step-by-step instructions for the operation of the vehicle and its fire extinguishing system(s) and auxiliary equipment.
- g. A description of the post-operational procedures (draining, flushing, re-servicing, etc.).
- h. Daily maintenance inspection checklists that the operator is expected to perform, including basic troubleshooting procedures.
- i. Disabled vehicle towing procedures.
- j. Procedures and equipment required for changing a tire.
- k. Schedules (hours, miles, time periods) for required preventative maintenance and required periodic maintenance.
- l. Line art drawing of the vehicle, including panoramic views (front, rear, left, and right sides) showing basic dimensions and weights (total vehicle and individual axle weight for the unloaded and fully loaded vehicle). For the purposes of this AC, "unloaded" is defined as a lack of agent, occupants, and compartment load, and "loaded" is defined as including agent, occupants, and compartment load.

3.1.1.1.2 Service manual. The service manual will identify all special tools and test equipment required to perform servicing, inspection, and testing. The manual will cover troubleshooting and maintenance as well as minor and major repair procedures. The text will contain performance specifications, tolerances, and fluid capacities; current, voltage, and resistance data; test procedures; and illustrations and exploded views as may be required to permit proper maintenance by qualified vehicle mechanics. The manual will contain an alphabetical subject index as well as a table of contents. The service manual will contain at least the following, where applicable:

- a. Firefighting system schematic(s).
- b. Hydraulic schematic.
- c. Pneumatic schematic.
- d. Electrical schematic.
- e. Winterization schematic.
- f. Fuel schematic.
- g. Schedules for required preventative maintenance and required periodic maintenance.
- h. Lubrication locations, procedures, and intervals for parts of the vehicle and equipment that require lubrication.

3.1.1.1.3 Parts identification manual. The parts manual will include illustrations or exploded views (as needed) to properly identify all parts, assemblies, subassemblies, and special equipment. All components of assemblies shown in illustrations or exploded views will be identified by reference numbers that correspond to the reference numbers in the parts lists. All purchased parts will be cross-referenced with the original equipment manufacturer (OEM) name and part number. The parts identification manual will provide the description and quantity of each item used for each vehicle. The size, thread dimensions, torque specifications, and special characteristics will be provided for all nonstandard nuts, bolts, screws, washers, grease fittings, and similar items. The manual will contain a numerical index. The parts manual will contain a list of all of the component vendor names, addresses, and telephone numbers referenced in the parts list.

### 3.1.2 Painting, plating, and corrosion control.

3.1.2.1 Finish. Exterior surfaces will be prepared, primed, and painted in accordance with all of the paint manufacturer's instructions and recommendations. Vehicles will be painted and marked in accordance with AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport. The interior finish of all compartments will be based on the manufacturer's standard production practice. This may include painting, texturing, coating or machine swirling as determined by the manufacturer. All bright metal and anodized parts, such as mirrors, horns, light bezels, tread plates, and roll-up compartment doors, will not be painted. All other surfaces capable of being painted must be in the appropriate Red Coloring.

3.1.2.2 Dissimilar metals. Dissimilar metals, as defined in MIL-STD-889, Dissimilar Metals, will not be in contact with each other. Metal plating or metal spraying of dissimilar base metals to provide electromotive compatible abutting surfaces is acceptable. The use of dissimilar metals separated by suitable insulating material is permitted, except in systems where bridging of insulation materials by an electrically conductive fluid can occur.



3.1.2.3 Protection against deterioration. Materials that deteriorate when exposed to sunlight, weather, or operational conditions normally encountered during service will not be used or will have a means of protection against such deterioration that does not prevent compliance with performance requirements. Protective coatings that chip, crack, or scale with age or extremes of climatic conditions or when exposed to heat will not be used.

3.1.2.4 Reflective stripes. Vehicle shall be painted RED (No Stripping Required)

3.1.2.5 Lettering. The manufacturer will apply the airport's 'Name' and 'Insignia' **(to be provided)** in a contrasting color or by decal on both sides of the vehicle in long radius elliptical arches above and below the lettering center line. The size of the lettering will be a minimum of 2 ½-inches to a maximum of 6-inches. Reflective lettering is allowed if the material is the same as that which is used for the reflective stripe (as specified in AC 150/5210-5).

3.1.3 Vehicle identification plate. A permanently marked identification plate will be securely mounted at the driver's compartment. The identification plate will contain the following information:

- a. NOMENCLATURE
- b. MANUFACTURER'S MAKE AND MODEL
- c. MANUFACTURER'S SERIAL NUMBER
- d. VEHICLE CURB WEIGHT: kg (pounds)
- e. PAYLOAD, MAXIMUM: kg (pounds)
- f. GROSS VEHICLE WEIGHT (GVW): kg (pounds)
- g. FUEL CAPACITY AND TYPE: gals (gallons)
- h. DATE OF DELIVERY: (month and year)
- i. WARRANTY (month and km (miles))
- j. CONTRACT NUMBER
- k. PAINT COLOR AND NUMBER

A second permanently marked information data plate will be securely mounted on the interior of the driver's compartment. The plate contains the information required by NFPA 414, Standard for Aircraft Rescue and Fire Fighting Vehicles (2007 Edition), Section 1.3.5 Vehicle Information Data Plate. A single plate that combines or contains the information required for both plates is acceptable.

3.1.4 Environmental conditions.

3.1.4.1 Vehicle operation and storage temperature conditions will vary with geographical location. Thus, the locality temperature range can go from -40° to 110° F. Refer to NFPA 414 for vehicle winterization criteria.

3.1.5 Reduction of potential foreign object damage. All loose metal parts, such as pins, will be securely attached to the vehicle with wire ropes or chains. Removable exterior access panels, if provided, will be attached with captive fasteners.

### 3.1.6 Vehicle Mobility.

3.1.6.1 Operating terrain. The vehicle will be capable of operating safely on paved roads, graded gravel roads, cross country terrain, and sandy soil environments. Cross country terrain consists of open fields, broken ground, and uneven terrain. An off-road, high-mobility suspension system resulting in no more than 0.5 G rms acceleration at the driver's seat of the vehicle when traversing an 8-inch (20 cm) diameter half round at 35 mph (56 kph) must be provided. The suspension design by which the manufacturer meets the suspension performance requirements is at the manufacturer's discretion.

3.1.6.1.1 Gradeability. The fully loaded vehicle will be able to ascend any paved slope up to and including 50-percent.

3.1.6.1.2 Side slope stability. The fully loaded vehicle will be stable on a 30° side slope when tested in accordance with NFPA 414.

3.1.6.1.3 Cornering stability. The fully loaded vehicle will be stable in accordance with NFPA 414 when tested in accordance with NFPA 414.

3.2.1 Overall dimensions. The maximum dimensions listed below are desirable to ensure vehicles can be accommodated in existing fire stations. Likewise, the overall dimensions should be held to a minimum that is consistent with the best operational performance of the vehicle and the design concepts needed to achieve this performance and to provide maximum maneuverability in accordance with NFPA 414.

**NOTE:** For Airport Operator Validation: Consult AC 150/5210-15, *Aircraft Rescue and Fire Fighting Station Building Design, Appendix A*, to ensure vehicles measurements do not exceed existing airport fire station dimensions.

3.2.2 Angles of approach and departure. The fully loaded vehicle will have angles of approach and departure of not less than 30°.

3.2.3 Field of vision. The vehicle will have a field of vision in accordance with NFPA 414.

3.2.3.1 Mirrors. Combination flat and convex outside rearview mirrors will be installed on each side of the cab. The flat mirrors will be of the motorized remote-control type, providing not less than 60° horizontal rotational viewing range. The flat mirrors will also have electrically heated heads. Mirror remote and heating controls will be located on the instrument panel within reach of the seated driver. To provide the driver a clear view of the area ahead of the vehicle and to eliminate potential blind spots, a rectangular mirror will be installed on the lower corner of each side of the windshield, having a minimum area of 35 square inches.

### 3.3. Chassis and vehicle components.

- 3.3.1 Engine. The vehicle will have a turbocharged diesel engine that is certified to comply with the Environmental Protection Agency (EPA) and state laws for off-highway emission requirements at the time of manufacture. The engine and transmission must operate efficiently and without detrimental effect to any drive train components and when lubricated with standard, commercially available lubricants according to the recommendations of the engine and transmission manufacturers.
- 3.3.1.1 Acceleration. A fully loaded vehicle will accelerate from 0 to 50 miles per hour (mph) on a level paved road within: 25 seconds.
- 3.3.1.2 Maximum speed. The fully loaded vehicle will attain a minimum top speed of 70 mph on a level paved road.
- 3.3.1.3 Pump and roll on a 40-percent grade. The fully loaded vehicle will be capable of pump and roll operations on a paved, dry, 40-percent grade in accordance with NFPA 414.
- 3.3.1.4 Altitude. Where justified, the vehicle, including the pumping system, will be designed for operation at 2,000 feet above sea level.
- 3.3.2 Engine cooling system. The engine cooling system will be in accordance with NFPA 414. A label will be installed near the engine coolant reservoir reading “Engine Coolant Fill”.
- 3.3.3 Fuel system. The fuel system will be in accordance with NFPA 414.
- 3.3.3.1 Fuel priming pump. The vehicle will be equipped with an electric or pneumatic fuel pump in addition to the mechanical fuel pump. The electric/pneumatic pump will be used as a priming pump capable of re-priming the engine’s fuel system.
- 3.3.3.2 Fuel tank. The vehicle will have one or two fuel tanks with a minimum usable capacity in accordance with NFPA 414, as amended by NFPA 414. Each tank will have a fill opening of 3 inches minimum, readily accessible to personnel standing on the ground and designed to prevent fuel splash while refueling. Each tank will be located and mounted so as to provide maximum protection from damage, exhaust heat, and ground fire. If more than one tank is furnished, means will be provided to assure equalized fuel level in both tanks. An overturn fuel valve will be provided for each tank to prevent spillage in the event of a rollover. Each fuel tank must be prominently labeled “Diesel Fuel Only”.
- 3.3.4 Exhaust system. The exhaust system will be in accordance with NFPA 414. The exhaust system will be constructed of high-grade rust resistant materials and protected from damage resulting from travel over rough terrain. The muffler(s) will be constructed of aluminized steel or stainless steel. Exhaust system outlet(s) will be directed upward or to the rear, away from personnel accessing equipment compartments and the engine air intake and will not be directed toward the ground.
- 3.3.5 Transmission. A fully automatic transmission will be provided. The transmission will be in accordance with NFPA 414.

- 3.3.6 Driveline. The vehicle driveline will be in accordance with NFPA 414. If the driveline is equipped with a differential locking control, a warning/caution label will be placed in view of the driver indicating the proper differential locking/un-locking procedures. The operator's manual will also include a similar warning/caution. All moving parts requiring routine lubrication must have a means of providing for such lubrication. There must be no pressure lubrication fittings where their normal use would damage grease seals or other parts.
- 3.3.7 Axle capacity. Each axle will have a rated capacity, as established by the axle manufacturer, in accordance with NFPA 414.
- 3.3.8 Suspension. The suspension system will be in accordance with NFPA 414 and AC 150/5220-10, Guide Specification for Aircraft Rescue Fire Fighting (ARFF) Vehicles.
- 3.3.9 Tires and wheels. Tires and wheels will be in accordance with NFPA 414. The vehicle will be equipped with single tires and wheels at all wheel positions. The vehicle will be equipped with tubeless steel belted radial tires with non-directional on/off-road type tread mounted on disc wheel assemblies. Tire and wheel assemblies will be identical at all positions. Tires and wheels will be certified by the manufacturer for not less than 25 miles of continuous operation at 60 mph at the normal operational inflation pressure. A spare tire and wheel assembly will be provided; however, the spare tire and wheel assembly are not required to be mounted on the vehicle. The tires will be new. Retreads, recaps, or re-grooved tires will not be permitted.
- 3.3.10 Towing connections. The vehicle will be equipped with towing connections in accordance with NFPA 414. The vehicle will be designed for flat towing; the capability to lift and tow the vehicle is not required. The tow connections may intrude into the 30-degree approach angle.
- 3.3.11 Brake system. The vehicle will be equipped with a multi-channel all-wheel antilock brake system with at least one channel for each axle. The brakes will be automatic, self-adjusting and fully air actuated. Brakes will be in accordance with CFR 49 CFR 393.40 through 393.42(b), 393.43, and 393.43 through 393.52. The braking system, complete with all necessary components will include:
- a. Air compressor having a capacity of not less than 16 standard cubic feet per minute (SCFM).
  - b. Air storage reservoir(s), each tank equipped with drain (bleed) valves, and with safety and check valves between the compressor and the reservoir tank.
  - c. Automatic moisture ejector on each air storage reservoir. Manual air tank drains are acceptable if they are labeled, are centrally located in one compartment and are accessible by an individual standing at the side of the vehicle.
  - d. Automatic slack adjusters on cam brakes or internal self-adjusting brakes on wedge brakes on all axles.
  - e. Spring set parking brakes.

All components of the braking system will be installed in such a manner as to provide adequate road clearance when traveling over uneven or rough terrain, including objects liable to strike and cause damage to the brake system components. No part of the braking system will extend below the bottom of wheel rims, to ensure, in case of a flat tire, that the weight of the vehicle will be supported by the rim and the flat tire and not be imposed on any component of the braking system. Slack adjusters and air chambers will be located above the bottom edge of the axle carrier.

- 3.3.11.1 Air dryer. A replaceable cartridge desiccant air dryer will be installed in the air brake system. The dryer will have the capability of removing not less than 95 percent of the moisture in the air being dried. The dryer will have a filter to screen out oil and solid contaminants. The dryer will have an automatic self-cleaning cycle and a thermostatically controlled heater to prevent icing of the purge valve.
- 3.3.11.2 Compressed air shoreline or vehicle-mounted auxiliary air compressor. A flush mounted, check valve, auto-eject compressed air shoreline connection will be provided to maintain brake system pressure while the vehicle is not running. The shoreline will be flush mounted (not to extend outside the body line), located on the exterior of the vehicle, either on the left side rear corner of the cab, or at the rear of the vehicle. In lieu of a compressed air shoreline connection, the vehicle may be equipped with a 110-volt shoreline connected vehicle-mounted auxiliary air compressor. In lieu of a compressed air shoreline connection, the vehicle may be equipped with an electrical shoreline connected vehicle mounted auxiliary air compressor.
- 3.3.12 Steering. The vehicle will be equipped with power steering. Rear-wheel steering technology is not an approved vehicle option.
- 3.3.12.1 Steering effort. The steering system performance will be in accordance with NFPA 414.
- 3.3.12.2 Turning diameter. The fully loaded vehicle will have a wall to wall turning diameter of less than three times the overall length of the vehicle in both directions in accordance with NFPA 414.
- 3.3.13 License plate bracket. A lighted license plate bracket will be provided at the left rear and left front of the vehicle. The location of the left front bracket will be placed so as not to interfere with the operation of firefighting systems.
- 3.3.14 Vehicle Color and Stripping; Vehicle **will be painted RED (No Stripping Required)**
- 3.4 Cab. The vehicle will have a fully enclosed two door cab of materials which are corrosion resistant, such as aluminum, stainless steel, or glass reinforced polyester construction. Steps and handrails will be provided for all crew doors, and at least one grab handle will be provided for each crew member, located inside the cab for use while the vehicle is in motion. The lowermost step(s) will be no more than 22 inches above level ground when the vehicle is fully loaded. A tilt and telescoping steering column will be provided.
- 3.4.1 Windshield and windows. The windshield and windows will be of tinted safety glass. Each door window will be capable of being opened far enough to facilitate emergency occupant escape in the event of a vehicle accident. The vehicle window will have **an electric** control system.
- 3.4.2 Cab interior sound level. The maximum cab interior sound level will be in accordance with NFPA 414.
- 3.4.3 Instruments and controls. All instruments and controls will be illuminated and designed to prevent or produce windshield glare. Gauges will be provided for oil pressure, coolant temperature, and automatic transmission temperature. In addition to the instruments and

controls required by NFPA 414, the following will be provided within convenient reach of the seated driver: a.

- a. Master warning light control switch
- b. Work light switch(es), and
- c. Compartment “Door Open” warning light and intermittent alarm that sounds when a compartment door is open, and the parking brakes are released or the transmission is in any position other than neutral.

3.4.4 Windshield deluge system. The vehicle will be equipped with a powered windshield deluge system. The deluge system will be supplied from the agent water tank and will have an independent pumping system. The deluge system activation switch will be located within reach of the seated driver and turret operator.

3.4.5 Climate control system. The offeror/contractor’s standard heater/defroster and air conditioning system (Fully operational) will be provided. The climate control system will induct at least 60 cubic feet per minute of fresh air into the cab. Cab mounted components will be protected from inadvertent damage by personnel.

3.4.6 Seats. The driver seat will be adjustable fore and aft and for height. The turret operator’s seat, located to the right front of the driver’s seat, will be a fixed (non-suspension) type. Each seat will be provided with a Type 3 seat belt assembly (i.e., 3-point retractable restraint) in accordance with CFR 49 CFR 571.209. Seat belts must be of sufficient length to accommodate crew members in full Personal Protective Equipment (PPE).

3.4.6.1 Seat options. Two types of seat options are allowed in the vehicle. A standard seat contains a hard/fixed back. For these seats, a remote-mounted bracket designed to store a Self- Contained Breathing Apparatus (SCBA) will be provided. The remote-mounted bracket for the driver and turret operator (at a minimum) must be placed outside the cab if necessary. An SCBA seat, on the other hand, contains an opening which can accommodate someone wearing an SCBA. The chart below represents the user’s stated preference for the vehicle seating configuration.

Position	Standard	SCBA-Seat	N/A
Driver	X		
Turret	X		
#3	X		
#4	X		

3.4.7 Windshield wipers and washer. The vehicle will be equipped with electrically powered windshield wipers. The wiper arms and blades will be of sufficient length to clear the windshield area described by SAE J198, Windshield Wiper Systems – Trucks. Individual wiper controls will include a minimum of two speed settings and an intermittent setting. The wiper blades will automatically return to a park position, out of the line of vision. The vehicle will be equipped with a powered windshield washer system, including an electric fluid pump, a minimum one-gallon fluid container, washer nozzles mounted to the wiper arms (wet arms), and a momentary switch.

- 3.4.8 Warning signs. Signs that state “Occupants must be seated and wearing a seat belt when apparatus is in motion” will be provided in locations that are visible from each seated position in accordance with NFPA 414.
- 3.4.9 Lateral accelerometer and/or stability control system. The vehicle will be equipped with a lateral accelerometer and/or an electronic stability control system in accordance with NFPA 414.
- 3.5 Body, compartments, and equipment mounting.
- 3.5.1 Body. The vehicle will have a corrosion-resistant body.
- 3.5.2 Compartments. The vehicle body will have lighted compartments in accordance with NFPA 414 with a minimum of 10 cubic feet of enclosed storage space.
- 3.5.2.1 Compartment doors. Storage compartments will have clear anodized aluminum, counterbalanced, non-locking, roll-up or single hinged doors as determined by the manufacturer. Door latch handles on roll-up doors will be full-width bar type. Door straps will be provided to assist in closing the compartment doors when the rolled up or hinged door height exceeds six feet above the ground.
- 3.5.2.2 Scuff plates. Replaceable scuff plates will be provided at each compartment threshold to prevent body damage from sliding equipment in and out of the compartments. The scuff plates will be securely attached to the compartment threshold but will be easily replaceable in the event of damage.
- 3.5.2.3 Drip rails. Drip rails will be provided over each compartment door.
- 3.5.2.4 Shelves. An adjustable and removable compartment shelf will be provided for every 18 inches of each vertical storage compartment door opening. Shelving adjustments will require no more than common hand tools and will not require disassembly of fasteners. Shelves will support a minimum of 200 pounds without permanent deformation. Each shelf will be accessible to crew members standing on the ground or using a pull out and tip-down configuration. Each shelf will have drain holes located so as to allow for drainage of any water from the stowed equipment.
- 3.5.2.5 Drainage mats. Each compartment floor and shelf will be covered with a removable black mat designed to allow for drainage of any water from the stowed equipment.
- 3.5.3 Ladder, handrails, and walkways. Ladder, stepping, standing, and walking surfaces will be in accordance with NFPA 414. Handrails will be provided in accordance with NFPA 414. The lowermost step(s) or ladder rungs will be no more than 22 inches (56 cm) above level ground when the vehicle is fully loaded. The lowermost steps may extend below the angle of approach or departure or ground clearance limits if they are designed to swing clear. The tread of the bottom steps must be at least 8 inches (20 cm) in width and succeeding steps at least 16 inches (40 cm) in width. The full width of all steps must have at least 6 inches (15 cm) of unobstructed tow room or depth when measured from, and perpendicular to, the front edge of the weight-bearing surface of the step.

3.5.4 Ancillary equipment. Ancillary equipment listed in NFPA 414 A.4.2.1 (1)-(17) is not covered by the Procurement Specification in accordance with AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles. Ancillary equipment is funded separately by other sources.

**NOTE:** Equipment funding will be obtained as a separate contact under the provisions of AC 150/5210-

14. Aircraft Rescue and Fire Fighting Equipment, Tools, and Clothing.

3.6 Agent system.

3.6.1 Agent (fire) pump. The vehicle will be equipped with a centrifugal pump capable of providing the performance specified herein as prescribed by NFPA 414.

3.6.1.1 Agent system piping. All piping, couplings, valves, and associated components that come into contact with the agent will be in accordance with NFPA 414.

3.6.1.2 Tank to pump connection. A check valve and shutoff valve will be provided in each tank to pump line.

3.6.1.3 Piping, couplings, and valves. All agent system piping will conform to NFPA 414 criteria.

3.6.1.4 Overheat protection. The agent system will be equipped with an overheat protection system in accordance with NFPA 414. Overheat protection is not required on vehicles utilizing a pre- mixed pressurized foam system.

3.6.1.5 Pressure relief valves. The agent system will be equipped with pressure relief valves in accordance with NFPA 414.

3.6.1.6 Drains. The agent system will be equipped with a drainage system in accordance with NFPA 414.

3.6.2 Water tank. The vehicle will have a water tank with a manufacturer certified minimum capacity of 1000+ gallons.

3.6.2.1 Water tank construction. The water tank will be constructed of passivated stainless steel, polypropylene, or Glass Reinforced Polyester (GRP) construction. All materials used will be capable of storing water, foam concentrate, and water/AFFF solutions.

3.6.3 The water tank overhead fill cover and drain. The water tank will be equipped with a 20- inch fill tower. The tower will be designed to allow for video inspection of the water tank interior. The water tank will incorporate a drainage system in accordance with NFPA 414.

3.6.3.1 Water tank overflow system and venting. The water tank will incorporate a venting system to relieve pressure on the tank during fill and discharge operations at maximum flow rates. It will have an overflow system to relieve excess fluid in the event of tank overflow.



3.6.3.2 Water tank top fill opening. A top fill opening of not less than 8 inches internal diameter with a readily removable ¼ inch mesh strainer will be provided. The fill opening may be incorporated as part of the manhole cover and will be sized to accommodate a 2 ½ inch fill hose.

3.6.3.3 Water tank fill connection. The water tank will incorporate National Hose thread connections and will be in accordance with NFPA 414. If the vehicle is fitted with the “structural firefighting capability option.”

#### 3.6.4 Foam system.

3.6.4.1 Foam concentrate tank. The foam concentrate tank(s) will have a manufacturer certified working capacity sufficient for two tanks of water (130+ Gallon Foam Tank) at the maximum tolerance specified in NFPA 412, Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Equipment for 3 to 6 percent foam concentrate.

3.6.4.1.1 Foam tank construction. The foam tank will be constructed of passivated stainless steel, polypropylene, or GRP construction. All materials used will be capable of storing foam concentrate.

3.6.4.1.2 Foam tank drain. The foam tank will incorporate a drain and drain valve. The valve will be on the left side of the vehicle and controlled by a crew member standing on the ground. The drain line will have a minimum 1 ½ inch I.D. The foam tank drain outlet will be located so that the contents of the tank can be drained into 5-gallon cans and 55-gallon drums.

3.6.4.1.3 Foam tank top fill trough. The foam tank will incorporate a top fill trough mounted in the top of the tank readily accessible to at least two crew members on top of the vehicle. The top fill trough will incorporate a cover, latch, and sealed so as to prevent spillage under any operating condition. The top fill trough will be designed to allow two standard 5-gallon foam concentrate containers to be emptied simultaneously. The top fill trough neck will extend sufficiently close to the bottom of the tank to reduce foaming to a minimum during the fill operation. The top fill trough will incorporate readily removable, rigidly constructed 10 mesh stainless steel, brass, or polyethylene strainers. All components in and around the top fill trough will be constructed of materials that resist all forms of deterioration that could be caused by the foam concentration or water.

3.6.4.2 Foam tank fill connections. The foam tank will incorporate a 1.5-inch National Hose thread female hose connection on **driver sides** of the vehicle to permit filling by an external transfer hose at flow rates up to 25-gpm. The connections will be provided with chained-on long handled plugs or rocker lug plugs. The top of the connections will be no higher than 48 inches above the ground and readily accessible. The fill lines will incorporate check valves and readily removable, rigidly constructed. ¼ inch mesh strainers. All components in the foam tank fill system will be constructed of materials that resist all forms of deterioration that could be caused by the foam concentrate or water.

3.6.4.2.1 Foam tank vent and overflow system. The foam tank will incorporate a vent system to relieve pressure on the tank during fill and discharge operations at maximum flow rates and an overflow system to relieve excess liquid in the event of tank overflow. Drainage from the

vent and overflow system will not be in front of or behind any of the tires. Tank vent hoses will be of the non-collapsible type.

**3.6.4.3 Foam transfer pump.** A foam transfer pump will be provided and mounted in a compartment on the vehicle. The pump will be capable of transferring and drawing foam liquid concentrate at adjustable flow rates up to 25-gpm directly through the pump and loading connections (see 3.6.3.2). All materials and components that come in contact with the foam will be compatible with the foam concentrate. The pump and its plumbing will have provisions for flushing with water from the water tank. A suitable length of hose with appropriate connections will be provided for filling the foam tank from an external foam storage container.

**3.6.4.4 Foam flushing system.** The foam concentrate system will be designed in accordance with NFPA 414 so that the system can be readily flushed with clear water.

**3.6.4.5 Foam concentrates piping.** All metallic surfaces of the piping and associated components that come into contact with the foam concentrate will be of brass, bronze, or passivated stainless steel. The foam concentrate piping will be in accordance with NFPA 414.

**3.6.5 Foam proportioning system.** The vehicle will have a foam proportioning system for Aqueous Film-Forming Foam (AFFF) (whether 3- or 6-percent foam concentrate) in accordance with NFPA 414. If a fixed orifice plate system is used, a plate will be provided for each percentage foam concentrate; the additional plate will be securely mounted in a protected location on the vehicle. A fire vehicle mechanic will be able to interchange the plates using common hand tools.

**3.6.6 Primary vehicle turret.** The vehicle will be equipped with a standard roof-mounted turret, high reach extendable turret, and/or high flow bumper mounted turret to serve as the primary source of agent delivery, as specified below:

**3.6.5.1 Roof turret.** The roof turret will be mounted near the front of the roof of the vehicle. It will have a non-air aspirating, constant flow, variable stream nozzle with dual flow rates for foam or water related as specified in NFPA 414. The discharge pattern will be infinitely variable from straight stream to full dispersed. The roof turret must be electronic, power operated: power controls will be positioned for use by the driver and crew members seated to the right of the driver. The type of nozzle or turret drain will be per the manufacturer's recommendation.

**3.6.6 Bumper turret.** The vehicle will be equipped with a joystick controlled, constant flow, non-air-aspirating, variable stream type and must also be electronic;

**Low angle high volume dual rate (minimum 375/750 GPM) bumper turret.**

The bumper turret will be capable of discharging at a minimum flow rate of foam or water as specified by the user, with a pattern infinitely variable from straight stream to fully dispersed. The bumper turret will be capable of automatic oscillation, with the range of oscillation adjustable up to 90° each side of center (left and right) with vertical travel capabilities of +45° / -20° meeting section 4.20.2 in NFPA 414

**3.6.7 A Water/Foam 1 Inch Booster Line hose reel.** A hose reel equipped with at least 100 feet of hard 1 inch diameter fire hose will be mounted in a compartment on the left-hand side. Handline agent and purge controls will be mounted in or adjacent to the compartment. All

electrical components will be sealed against entry of water. The hose reel will have both electric and manual rewind provisions. The manual rewind handle will be bracket mounted and stored in the compartment. A quick acting control will be provided to activate the control from within the compartment.

3.6.8 Structural Firefighting capability. The vehicle will be equipped with an agent system structural control panel on the left side of the vehicle, operable while standing on the ground. Structural panel activation will be interlocked to operate only with the vehicle parking brakes set and the transmission in neutral position. Controls and instruments will be grouped by function. The control panel will be hinged or accessible from the rear for maintenance. Instruments will be lit for day/night operations.

3.6.8.1 The structural panel will include, as a minimum the following:

3.6.8.1.1 Panel activation switch, including the panel light

3.6.8.1.2 Engine tachometer

3.6.8.1.3 Engine oil pressure gauge

3.6.8.1.4 Engine coolant temperature gauge

3.6.8.1.5 A liquid filled gauge, or digital indicator for pump suction, -30 inches Hg vacuum to 600 psi.

3.6.8.1.6 A liquid filled gauge, or digital indicator for pump pressure, 0 to 600 psi.

3.6.8.1.7 An adjustable pump pressure using either an electronic pressure governor or manual control with a relief valve will be provided.

3.6.8.1.8 Foam or water selection.

3.6.8.1.9 The structural firefighting capability will also require installation of the following items:

3.6.8.1.9.1 A priming pump and control (for drafting using the large intake connection).

3.6.8.2 Water tank isolation valve

3.6.8.2.1.1 Discharge connections. Two 2 ½-inch discharge connections with male National Hose threads will be provided. Each connection will be equipped with a cap, a lever control valve, a bleeder valve, and each connection will be equipped with a cap, a level control valve, a bleeder valve, and a pressure gauge. Each connection will be rated at 250-gpm minimum.

3.6.8.2.1.2 Intake connections. The vehicle will be equipped with one valved 4 ½-inch intake connection on the left side. The vehicle will be equipped with one valved 2 ½-inch intake connection on the left side. The vehicle will be equipped with one valved 2 ½-inch intake connection on the left side adjacent to the 4 ½-inch intake connection with both having either a 30° or 45° turn-down fitting.

3.6.8.2.1.3 The 4½-inch intake connection will have male National Hose threads, a quarter turn control valve, a bleeder valve, a strainer, and a cap. The 2 ½-inch intake connection will have rocker lug female National Hose threads, a quarter-turn control valve, a bleeder valve, a strainer, and a plug. The vehicle

will be capable of filling its water tank by pumping from a draft, a hydrant, or a nurse truck through either of the intake connections without the use of a hose from a discharge connection to a tank fill connection.

3.7 Dry chemical agent system. The vehicle will be equipped with a 500 lb minimum capacity potassium bicarbonate based dry chemical agent system. The propellant gas cylinder will be secured to withstand off road operations. **The Nito bottle must accompany the vehicle.** A pressure indicator will be visible to any person opening the tank fill cap. Blow down piping will be directed beneath the vehicle. The dry chemical agent tank shall include lifting rings and have a name place indicating as a minimum, the following:

- Extinguishing agent
- Capacity
- Weight Full
- Weight Empty
- Operating Pressure
- Hydrostatic test date
- Type of agent required for re-servicing.

3.7.1 Not applicable

3.7.2 Dry chemical hose reel. A reel equipped with at least 100 feet of dry chemical hose will be mounted in a compartment. Handline agent and purge controls will be mounted adjacent to the compartment. All electrical components will be sealed against entry of water. The hose reel will have both electric and manual rewind provisions. The manual rewind handle will be bracket mounted and stored in the compartment. A quick acting control will be provided to activate the handline from the cab of the vehicle or the compartment.

3.8 Not applicable

3.9 Electrical systems and warning devices. The vehicle will have a 12-volt or 24-volt electrical and starting system in accordance with NFPA 414.

3.9.1 Alternator. An appropriate charging system, in accordance with NFPA 414, will be provided. The minimum continuous electrical load will include operation of the air conditioning system.

3.9.2 Batteries. Batteries will be of the maintenance-free type; addition of water will not be required during normal service life. The battery cover and vent system will be designed to prevent electrolyte loss during service and to keep the top of the battery free from electrolyte.

3.9.2.1 Battery compartment. The batteries will be enclosed in a weatherproof enclosure, cover, or compartment and be readily accessible.

3.9.3 Battery charger or conditioner. The vehicle will have a DC taper type battery charger or an automatic battery conditioner, or voltage monitoring system, providing a minimum 12 amp

output. The charger/conditioner will be permanently mounted on the vehicle in a properly ventilated, accessible location. The charger/conditioner will be powered from the electrical shoreline receptacle (see 3.10.1). A charging indicator will be installed next to the receptacle. When a battery conditioner is provided, the conditioner will monitor the battery's state of charge and, as necessary, automatically charge or maintain the batteries without gassing, depleting fluid level, overheating, or overcharging. A slave receptacle will be provided at the rear or on either side of the vehicle cab. Battery jump studs may be installed on the exterior of the battery box in lieu of a slave receptacle.

3.9.4 Electromagnetic interference. The vehicle electrical system will be in accordance with SAE J551-2 for electromagnetic interference.

3.9.5 Work lighting.

3.9.5.1 Cab interior lights. Cab interior light levels will be sufficient for reading maps or manuals. At least one red and one white cab interior dome light will be provided.

3.9.5.2 Compartment lights. White lighting sufficient to provide an average minimum illumination of 1.0 foot-candle will be provided in each compartment greater than 4.0 cubic feet and having an opening greater than 144 square inches. Where a shelf is provided, illumination will be provided both above and below the shelf. All compartments will be provided with weatherproof lights that are switched to automatically illuminate when compartment doors are opened, and the vehicle master switch is in the 'on' position. Light switches will be of the magnetic (non-mechanical) type.

3.9.5.3 Ladder, step, walkway, and area lights. Non-glare white or amber lighting will be provided at ladders and access steps where personnel work or climb during night operations. In addition, ground lighting will be provided. Ground lights will be activated when the parking brake is set in accordance with AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles. These area lights will be controlled with three-way switches on the cab instrument panel and near the light source. The switch located in the cab will be a master switch and must be turned on before auxiliary switches near the light sources are operational.

3.9.5.4 Spot/Floodlights. Two spot/floodlights will be attached at the end of the primary turret or at the end of the HRET assembly. The lights will illuminate the area covered by the turret. Both lights will be controlled by switches in the cab. **LED** lights will be used.

3.9.5.5 Scene lights. A total of five mounted floodlights will be provided to illuminate the work areas around the vehicle. One will be mounted on the front and two on each side of the vehicle. The lights will be powered by the vehicles alternator driven system or auxiliary generator, and the lights in the front will be controlled from switcher in the cab. **LED** light will be used.

3.9.6 Audible warning devices.

3.9.6.1 Siren. The vehicle will be equipped with an electronic siren system. The amplifier unit will include volume control and selection of "Radio", "PA", "Manual", "Yelp", "Wail", and "Hi-Lo" (European) modes, and a magnetic noise canceling microphone. The amplifier, microphone, and

controls will be within reach of the driver and the turret operator. Siren activating foot switches will be located in front of the driver and the turret operator. The siren speaker will be rated at 100 watts minimum and will be located in a guarded position as low and as far forward on the vehicle as practical.

3.9.6.2 Horn. Dual forward-facing air horns will be installed in protected locations near the front of the vehicle. Air horn activating foot switches will be located in front of the driver and the turret operator.

3.9.7 Emergency warning lights. All emergency warning lights must meet the requirements of AC 150/5210-5. Where applicable **LED** lights will be used as the primary light type. Lighting units will be installed on the top front, sides, and rear of the vehicle to provide 360° visibility. A switch will be provided on the instrument panel to control all of the top, side, front and rear emergency warning lights. A switch will also be provided on the instrument panel to disable all lower emergency warning lights when desired. All lighting systems will meet NFPA 414 emergency lighting criteria.

3.9.7.1 Emergency warning light color. All emergency warning lights will meet the requirements of AC 150/5210-5.

3.9.7.2 Headlight flashing system. A high beam, alternating/flashing, headlight system will be provided. The headlight flasher will be separately switched from the warning light panel. All emergency warning lights will meet the requirements of AC 150/5210-5.

3.9.8 Radio circuit. The vehicle will have three separate 30-amp circuits with breakers and connections provided in a space adjacent to the driver and turret operator for installation of radios and other communications equipment after the vehicle has been delivered. To facilitate the installation of the communications equipment the manufacturer will provide three antennas pre-installed on top of the cab. ***Radios are an airport responsibility and not part of this specification.***

3.9.9 Power receptacles.

3.9.9.1 Primary power receptacles. The vehicle will have two duplex 15-amp 110-volt power receptacles, one installed adjacent to the cab door on each side of the vehicle. Each duplex receptacle will include one straight blade and one twist-lock connection. These outlets will be powered by the generator.

3.9.9.2 Auxiliary power receptacle. The vehicle will have 2 12 Volt auxiliary power receptacle mounted on the rear pumper and also a slave connection for jump starting the vehicle.

3.10 Line voltage electrical system

3.10.1 Electrical shoreline connection. The battery charger/conditioner will be powered from a covered polarized insulated labeled recessed (flush mounted) male, 110-volt AC auto eject receptacle. The connection will be located on the exterior of the vehicle at the rear or on the driver's side of the cab.

### 3.11 Not Applicable

3.12 Quality of Workmanship. The vehicle, including all parts and accessories, will be fabricated in a thorough workmanlike manner. Particular attention will be given to freedom from blemishes, burrs, defects, and sharp edges; accuracy of dimensions, radii of fillets, and marking of parts and assemblies; thoroughness of welding, brazing, soldering, riveting, and painting; alignment of parts; tightness of fasteners; etc. The vehicle will be thoroughly cleaned of all foreign matter.

## 4 PRODUCT CONFORMANCE PROVISIONS

4.1 Classification of Inspections. The inspection requirements specified herein are classified as follows:

- a. Performance inspection (see 4.2)
- b. Conformance inspection (see 4.3)

4.2 Performance inspection. The vehicle will be subjected to the examinations and tests described in 5.6.3.5 (if applicable). The contractor will provide or arrange for all test equipment, personnel, schedule, and facilities.

4.3 Conformance inspection. The vehicle will be subjected to the examinations and tests described in 5.6.3.1 through 5.6.3.5 (if applicable). The contractor will provide or arrange for all test equipment, personnel, and facilities.

4.4 Product conformance. The products provided will meet the performance characteristics of this PS, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial marketplace. The purchaser reserves the right to require proof of such conformance.

4.5 Technical proposal. The offeror/contractor will provide an itemized technical proposal that describes how the proposed model complies with each characteristic of this PS; a paragraph-by-paragraph response to the characteristics section of this PS will be provided. The offeror/contractor will provide two copies of their commercial descriptive catalogs with their offer as supporting reference to the itemized technical proposal. The offeror/contractor will identify all modifications made to their commercial model in order to comply with the requirements herein. The vehicle furnished will comply with the "commercial item" definition of FAR 2.101 as of the date of award. The purchaser reserves the right to require the offeror/contractor to prove that their product complies with the referenced commerciality requirements and each conformance/performance characteristics of this PS.

### 4.6 Inspection requirements.

4.6.1 General inspection requirements. Apparatus used in conjunction with the inspections specified herein will be laboratory precision type, calibrated at proper intervals to ensure laboratory accuracy.

4.6.2 Test rejection criteria. Throughout all tests specified herein, the vehicle will be closely observed for the following conditions, which will be cause for rejection:

- a. Failure to conform to design or performance requirements specified herein or in the contractor's technical proposal.
- b. Any spillage or leakage of any liquid, including fuel, coolant, lubricant, or hydraulic fluid, under any condition, except as allowed herein.
- c. Structural failure of any component, including permanent deformation, or evidence of impending failure.
- d. Evidence of excessive wear.
- e. Interference between the vehicle components or between the vehicle, the ground, and all required obstacles, with the exception of normal contact by the tires.
- f. Misalignment of components.
- g. Evidence of undesirable road ability characteristics, including instability in handling during cornering, braking, and while traversing all required terrain.
- h. Conditions that present a safety hazard to personnel during operation, servicing, or maintenance.
- i. Overheating of the engine, transmission, or any other vehicle component.
- j. Evidence of corrosion.
- k. Failure of the firefighting system and sub-systems.

4.6.3 Detailed inspection requirements.

4.6.3.1 Examination of product. All component manufacturers' certifications, as well as the prototype and production/operational vehicle testing outlined in Table 1, will be examined to verify compliance with the requirements herein. Attention will be given to materials, workmanship, dimensions, surface finishes, protective coatings and sealants and their application, welding, fastening, and markings. Proper operation of vehicle functions will be verified as defined by NFPA 414, Acceptance

Criteria chapter. A copy of the vehicle manufacturer's certifications will be provided with each vehicle in accordance with NFPA 414. The airport may accept a manufacturer or third-party certification for any/all prototype and production/operational vehicle testing performed prior to delivery which proves that the vehicle meets the performance parameters of NFPA 414.

**Table 1. Vehicle Test Data**



NFPA 414 Paragraph	Test
<b>Production Vehicle Operational Test (NFPA 414 – Section 6.4)</b>	
(6.4.1)	Vehicle Testing, Side Slope
(6.4.2)	Weight/Weight Distribution
(6.4.3)	Acceleration. <b>NOTE:</b> <i>With the modification that the instrumentation must be a GPS-based electronic data collection system.</i>
(6.4.4)	Top Speed
(6.4.5)	Brake Operational Test
(6.4.6)	Air System / Air Compressor Test
(6.4.7)	Agent Discharge Pumping Test
(6.4.8)	Dual Pumping System Test (As Applicable)
(6.4.9)	Pump and Maneuver Test
(6.4.10)	Hydrostatic Pressure Test
(6.4.11)	Foam Concentrate Test
(6.4.12)	Primary Turret Flow Rate Test
(6.4.13)	Piercing/Penetration Nozzle Testing (As Applicable)
<b>Prototype Vehicle Test (NFPA 414-Section 6.3)</b>	
(6.3.1)	Rated Water and Foam Tank Capacity Test
(6.3.2)	Cornering Stability. <b>NOTE:</b> <i>With the modification that the evasive maneuver / double-lane change test must be conducted at 35 mph (56 kph).</i>
(6.3.3)	Vehicle Dimensions
(6.3.4)	Driver Vision Measurement
(6.3.5)	Pump and Roll on a 40 Percent Grade
(6.3.6)	Electrical Charging System
(6.3.7)	Radio Suppression
(6.3.8)	Gradability Test
(6.3.9)	Body and Chassis Flexibility Test
(6.3.10)	Service/Emergency Brake Test
(6.3.11)	Service/Emergency Brake Grade Holding Test
(6.3.12)	Steering Control Test
(6.3.13)	Vehicle Clearance Circle Test
(6.3.14)	Agent Pump(s)/Tank Vent Discharge Test
(6.3.15)	Water Tank Fill and Overflow Test
(6.3.16)	Flushing System Test
(6.3.17)	Primary Turret Flow Rate Test
(6.3.18)	Primary Turret Pattern Test
(6.3.19)	Primary Turret Control Force Measurement
(6.3.20)	Primary Turret Articulation Test
(6.3.21)	Handline Nozzle Flow Rate Test
(6.3.22)	Handline Nozzle Pattern Test
(6.3.23)	Ground Sweep/Bumper Turret Flow Rate
(6.3.24)	Ground Sweep/Bumper Turret Pattern Control Test
(6.3.25)	Undertruck Nozzle Test (N/A)

(6.3.26)	Foam Concentration/Foam Quality Test
(6.3.27)	Warning Siren Test
(6.3.28)	Propellant Gas
(6.3.29)	Pressure Regulation
(6.3.30)	AFFF Premix Piping and Valves
(6.3.31)	Pressurized Agent Purging and Venting
(6.3.32)	Complementary Agent Handline Flow Rate and Range
(6.3.33)	Dry Chemical Turret Flow Rate and Range
(6.3.34)	Cab Interior Noise Test

5 Packaging.

- 5.1 Preservation, packing, and marking will be as specified in the Procurement Specification, contract, or delivery order.
- 5.2 The Vehicle must be delivered with full operational quantities of lubricants, brake, and hydraulic fluids, and cooling system fluid, all of which must be suitable for use in the temperature range expected at the airport.
- 5.3 The vehicle must be delivered with one complete load of firefighting agents and propellants. One complete load is defined as all of the agents and propellants necessary for the vehicle to be fully operational. One load would include, at a minimum: one fill of a foam tank; one fill of a dry chemical tank (if applicable); one fill of a halogenated tank (if applicable); one spare nitrogen cylinder for a dry chemical system (if applicable); and one spare argon cylinder for a halogenated system (if applicable). Agents and propellants for required testing or training are not included. For the initial training period, water should be used in place of other extinguishing agents. The manufacturer may pre-ship agents and propellants to a receiving airport to reduce overall procurement costs.
- 5.4 The vehicle manufacturer must provide initial adjustments to the vehicle for operational readiness and mount any ancillary appliances purchased through the vehicle manufacturer as part of the vehicle.

6 TRAINING.

- 6.1 Upon delivery of the vehicle to the airport, the manufacturer must, at no additional cost, provide the services of a qualified technician for two (2) four-hour days for training. This is considered sufficient time for the purchaser to adjust shift work schedules to get maximum employee attendance to training sessions at some point during the training period. During this time sufficient repetitive learning opportunities must be provided by the manufacturer to allow various shifts to complete the training requirements.
- 6.2 The technician must provide thorough instruction in the use, operation, maintenance, and testing of the vehicle. This setup must include operator training for the primary operators, which will give them sufficient knowledge to train other personnel in the functional use of all firefighting and vehicle operating systems. Prior to leaving the vehicle, the technician should review the

maintenance instructions with the purchaser's personnel to acquaint them with maintenance procedures as well as how to obtain support services for the vehicle.

- 6.3 Training must include written operating instructions, electronic training aids (video/power point), or other graphics that depict the step-by-step operation of the vehicle. Written instructions must include materials that can be used to train subsequent new operators.

## 7 REFERENCE DOCUMENTS.

### 7.1 Source of documents.

- 8.1.1 The CFR may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402.

Title 14, Code of Federal Regulations (CFR), Part 139, Certification of Airports (14 CFR Part 139) Section 139.315 Aircraft Rescue and Firefighting: Index Determination.  
Section 139.317 Aircraft Rescue and Firefighting: Equipment and Agents.  
Section 139.319 Aircraft Rescue and Firefighting: Operational Requirements.

Title 49; Code of Federal Regulations (CFR), Part 393: Parts and Accessories Necessary for Safe Operation: Subpart C – Brakes.

Title 49; Code of Federal Regulations (CFR), Part 571, Motor Carrier Vehicle Safety Standards, Part 209, Standard No. 209; Seat Belt Assemblies.

- 8.1.2 SAE documents may be obtained from SAE, Inc., 400 Commonwealth Drive, Warrendale PA 15096.

- 8.1.3 National Fire Protection Association (NFPA): NFPA documents may be obtained from NFPA, Batterymarch Park, Quincy MA 02269-9101.

NFPA 412, Standard for Evaluating Aircraft Rescue and Fire Fighting Foam Equipment (2009 Edition)

NFPA 414, Standard for Aircraft Rescue and Fire Fighting Vehicles (2007 Edition) NFPA 1901, Standard for Automotive Fire Apparatus (2009 Edition)

- 8.1.4 Federal Aviation Administration (FAA): FAA ACs may be obtained from the FAA website: [http://www.faa.gov/regulations\\_policies/advisory\\_circulars/](http://www.faa.gov/regulations_policies/advisory_circulars/).

AC 150/5220-10, Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles

AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport

AA Orders, Specifications, and Drawings may be obtained from: Federal Aviation Administration, ATO- W CM-NAS Documentation, Control Center, 800 Independence Avenue, SW, Washington, DC 20591.

Telephone: (202) 548-5256, FAX: (202) 548-5501 and website:

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