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COMMERCIAL ITEM DESCRIPTION

TRUCK, FIRE FIGHTING (WILDLAND)

The General Services Administration has authorized the use of this commercial item description for all federal agencies.

1. SCOPE. This commercial item description covers a commercial wildland fire truck. It will have a 4x4 chassis with a diesel engine, an automatic transmission, and a four person cab with four doors. The wildland fire truck will have a mounted utility body, containing a modular agent and pump and roll delivery system, as well as fire fighting tools and equipment. The truck will be equipped with a compressed air foam system (CAFS). The wildland fire truck is intended to combat wildland and brush type fires.

2. SALIENT CHARACTERISTICS. The wildland shall be in accordance with the National Fire Protection Association (NFPA) 1906, Standard for Automotive Fire Apparatus: 2012 Edition.

2.1 Wildland description. The wildland will have a 4x4 chassis with a diesel engine, an automatic transmission and a four person cab with four doors and GVWR of between 33000 and 35000 pounds. The wildland fire truck shall have a body containing integrated agent and delivery system as well as compartment space for firefighting tools and equipment. The wildland fire truck is intended to combat wildland and brush type fires.

2.2 Design and construction. The wildland shall be designed and constructed so that no parts will work loose in service. It shall be built to withstand the strains, jars, vibrations, and other conditions incident to shipping, storage, installation, and service. It shall be weatherproof and designed to prevent the intrusion of water and sand into critical operating components.

2.2.1 Materials, protective coatings, and finish.

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FSC 4210

2.2.1.2 Protective coatings. Materials that deteriorate when exposed to sunlight, weather, or operational conditions normally encountered during the service life of the item shall not be used or shall have means of protection against such deterioration that does not prevent compliance with the performance requirements specified herein. Protective coatings that chip, crack, or scale with age or extremes of climatic conditions or when exposed to heat shall not be used. Fasteners, handles, and fittings used in the assembly of the item shall also be primed and painted.

2.2.1.3 Finish. Unless otherwise specified, the exterior finish color of the wildland shall be Candy Apple Red, Color Number Candy Apple Red, Sikkens Color Number FLNA3021, DuPont Color Number 97902U or 4737U, PPG Color Number 71528 (the PPG name for this color is Cardinal Red), or equal. When specified, the exterior finish color shall be Desert Sand, Color Number 30313 of FED-STD-595. For vehicles painted Candy Apple Red, the cab upper body (from the bottom of the windshield) and roof shall be painted White, Color Number 17875 of FED-STD-595. Compartment interiors shall have a standard commercial finish. All bright metal and anodized parts, such as mirrors, horns, light bezels, and treadplates, shall not be painted.

2.2.1.4 Exclusion of water. The design of the wildland shall be such as to prevent water leaking into, or being driven into, any part of the wildland interior when either in an operating or travelling configuration. All windows, doors, panels, covers, etc., shall be provided with sealing arrangements such that the entry of water is minimized when these items are correctly closed. Particular care shall be taken to prevent wetting of equipment inside compartments, and prevent wetting of heat and sound proofing materials. Sharp corners and recesses shall be avoided so that moisture and solid matter cannot accumulate to initiate corrosion. Sealed floors with suitable drainage shall be provided for storage compartments, engine compartments, and other areas in the wildland that could collect and retain water.

2.2.1.4.1 Fluid traps and faying surfaces. There shall be no fluid traps on the wildland. Faying surfaces of all structural joints, except welded joints, shall be sealed to preclude fluid intrusion.

2.2.1.4.2 Ventilation. Ventilation shall be sufficient to prevent moisture retention and buildup.

2.2.1.4.3 Drainage. Drain holes shall be provided to prevent collection or entrapment of water or other unwanted fluid in areas where exclusion is impractical. All designs shall include considerations for the prevention of water or fluid entrapment and ensure that drain holes are located to effect maximum drainage of accumulated fluids. The number and location of drain holes shall be sufficient to permit drainage of all fluids when the unit is stored on level ground. The minimum size of the drain holes shall be 0.25 inch. Each compartment floor and shelf shall be covered with a removable mat designed to allow for drainage of any water from the stowed equipment.

2.2.2 Markings. All external devices which require an operational or maintenance interface shall be marked in accordance with MIL-STD-130. Markings shall be applied with decals and shall be 1-inch high block letters unless prohibited by the available space. In such cases, the markings shall be the largest size possible.

2.2.3 Horizontal reflective striping. Horizontal reflective striping in accordance with 15.9.3 of NFPA 1901 shall be applied around the vehicle in an approximate plane with the headlights. Bright metal trim or anodized parts may interrupt the reflective stripes. The pattern shall be 10 inches wide with three reflective stripes (one inch reflective, one inch body color, six inches reflective, one inch body color, and one inch reflective). The reflective stripes shall be white for vehicles painted Candy Apple Red and Desert Sand.

2.2.4 Chevron striping. In accordance with 15.9.3 of NFPA 1901 at least 50 percent of the rear-facing vertical surfaces, visible from the rear of the apparatus, excluding any pump panel areas not covered by a door, shall be equipped with retroreflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees. 3M part number 983-17 (red) and 983 -23 (florescent yellow/green) reflective diamond grade or equivalent shall be utilized. Each stripe in the chevron shall be a single color alternating between red and fluorescent yellow in accordance with 15.9.3. Each stripe shall be 6-inches (150 mm) in width in accordance with 15.9.3 of NFPA 1901 and the example provided below.

2.2.5 Lettering. Vehicles painted Candy Apple Red shall have the letters "UNITED STATES" and "AIR FORCE" applied in synthetic or encapsulated gold leaf, with outline and black shadow, on the front door on both sides in long radius elliptical arches above and below the lettering center line. The size of the lettering shall be a minimum of 2½-inches to a maximum of 6-inches.

2.2.6. Identification plate. A permanently marked identification plate shall be securely mounted at the driver's compartment. The identification plate shall contain the following information:

a. NOMENCLATURE

b. MANUFACTURER'S MAKE AND MODEL

c. MANUFACTURER'S SERIAL NUMBER

d. USAF VEHICLE REGISTRATION NUMBER

e. NATIONAL STOCK NUMBER (NSN)

f. VEHICLE CURB WEIGHT: pounds (kg)

g. PAYLOAD, MAXIMUM: pounds (kg)

h. GROSS VEHICLE WEIGHT (GVW): pounds (kg)

i. FUEL CAPACITY AND TYPE: gal (gallons) / L (liters)

j. DATE OF DELIVERY (month and year)

k. WARRANTY (months and miles (km))

l. CONTRACT NUMBER

m. PAINT COLOR AND NUMBER

n. LENGTH, WIDTH, AND HEIGHT OF VEHICLE IN INCHES AND CENTIMETERS.

2.2.7 Safety.

2.2.7.1 Component protection. All space in which work is performed during operation, service, and maintenance shall be free of hazardous protrusions, sharp edges, or other features which may cause injury to personnel. All rotating and reciprocating parts and all parts subject to high operational temperatures or subject to being electrically energized, that are of such nature or so located as to be hazardous to personnel, shall be guarded or insulated to eliminate the hazard. All wires, cables, tubes, and hoses shall be supported and protected to minimize chafing and abrasion and shall be located so as to provide adequate clearance from moving parts and high operational temperatures. Grommets shall be provided wherever wires, cables, tubes, or hoses pass through bulkheads, partitions, or structural members. Wire ties may be used for bundling vehicle wiring, but not for support of wire bundles. Support must be provided by insulated metal clamps. The wildland shall be thoroughly cleaned of all foreign matter.

2.2.7.2 Foreign object damage (FOD). All loose metal parts, such as pins or connector covers, shall be securely attached to the wildland with wire ropes or chains. "Dog tag" style beaded chains shall not be provided. Removable panels, if provided, shall be attached with captive fasteners.

2.2.7.3 Sound levels. The cab interior sound levels of the first production truck shall be measured in accordance with 49 CFR 393.94(c), "Vehicular interior noise levels test procedure," except that the test shall be performed with the vehicle traveling at a steady speed of 45 MPH on a level, hard, smooth surface road.

2.2.8 Electromagnetic interference (EMI). The wildland shall be in accordance with the following radiated emission and susceptibility requirements of MIL-STD-461: RE102 and RS103.

2.2.9 Fastening devices. All screws, bolts, nuts, pins, and other fastening devices shall be properly designed, manufactured, and installed with adequate means of preventing loss of torque or adjustment. Cotter pins, lock washers, or nylon patches shall not be used for this purpose, except for the attachment of trim items or as provided in commercial components. Tapped threads shall have a minimum thread engagement in accordance with Table I.

TABLE I. Minimum thread engagement.

Material	Minimum Thread Engagement
Steel	1.0 times the nominal fastener diameter
Cast iron, brass, or bronze	1.5 times the nominal fastener diameter
Aluminum, zinc, or plastic	2.0 times the nominal fastener diameter

2.2.10 Welders and welding. All welders shall be certified to weld in accordance with AWS D1.1 and AWS D1.2, as applicable. The contractor shall make available to the Government certifications for all welders being utilized on the wildland. Welding procedures and all welding on the wildland shall be in accordance with AWS D1.1 and AWS D1.2, as applicable. The surface parts to be welded shall be free from rust, scale, paint, grease, and other foreign matter. Welds shall be of sufficient size and shape to develop the full strength of the welded parts. Welds shall transmit stress without cracking or permanent distortion when the parts connected by the welds are subjected to test, proof, and service loadings.

2.3 Environmental conditions.

2.3.1 Operating temperature range. The wildland shall be capable of operating in ambient temperatures ranging from 32º F to 125º F. If selected in 6.2, the vehicle shall be equipped with a winterization system that includes an engine coolant heater and a battery heater (a blanket type battery heater is not acceptable). The winterization system shall be powered through the electrical shoreline connection. The winterization system shall have a labeled activation switch with a pilot light.

2.3.2 Altitude. Unless otherwise specified, the truck, including the pumping system, shall be designed for operation at 2,000 feet above sea level. When specified, the truck, including the pumping system, shall be designed for operation at the altitude specified.

2.3.3 Precipitation.

2.3.3.1 Rain. The wildland shall be capable of storage and operation during rainfall of 5-inches per hour for three consecutive hours and 10-inches per hour for 10 consecutive minutes, with winds of up to 35 knots; and with 6-inches of rain per hour impinging on the wildland at angles from vertical to 45°.

2.3.3.2 Snow. The wildland shall be capable of storage and operation during accretion of wet snow up to 2-inches per hour for at least 12 hours.

2.3.3.3 Ice. The wildland shall be capable of storage and operation with ice accretion up to 1.5-inches on exposed horizontal surfaces. An operator may use an ice scraper for five minutes during the start-up process.

2.3.4 Solar radiation. The wildland shall not be adversely affected by full time exposure to solar radiation, such as those conditions encountered in desert environments.

2.3.5 Fungus. All materials used in the wildland shall be fungus resistant or shall be suitably treated to resist fungus. Materials treated for fungus resistance shall retain their original electronic and physical properties, shall not present toxic hazards, and treatment shall last for the entire service life of the part. The wildland shall be suitable for operation and storage in conditions encountered in a tropical environment.

2.3.6 Salt fog. The wildland shall be capable of storage and operation in high temperature, high humidity, salt laden, sea coast environments without damage or deterioration of performance.

2.3.7 Sand and dust. The wildland shall be capable of storage and operation during exposure to wind-blown sand or dust without damage or deterioration of performance.

2.4 Dimensions. Overall dimensions shall not exceed:

Length	360 inches.
Width	96 inches.
Height	124 inches.

2.5 Surface transportability. The wildland shall be transportable via all modes of surface shipment (highway, rail, and water) in accordance with MIL-STD-1366, and shall be capable of withstanding the mechanical shock and vibration characteristics of highway, rail, and water transport, except that design for rail impact testing (see 5.2.5 of MIL-STD-1366) is not required.

2.6 Maintainability. The wildland shall be designed for maintainability in accordance with 5.9 through 5.9.18 of MIL-STD-1472; forces shall not exceed those specified for both males and females.

2.6.1 Inspection and servicing provisions.

a. Pre-use inspections shall require no hand tools.

b. Drain plugs and filters shall be directly accessible from the ground and oriented to have unimpeded drainage to a catch pan.

c. The wildland shall be designed with maximum usage of sealed lifetime lubrication bearings.

d. The wildland shall be designed so the correct oil and coolant levels can be visually checked.

2.6.2 Special tools. The design of the item shall minimize the requirement for special tools. All special tools shall be provided with, and stored on, the wildland.

2.6.3 Diagnostic software. A copy of any diagnostic software required or recommended for maintaining the wildland shall be provided with each wildland on CD-ROM or DVD-ROM.

2.7 Performance.

2.7.1 Turning diameter. The truck shall have a wall to wall turning diameter not to exceed three times the vehicle's length.

2.7.2 Mobility. The wildland shall be in accordance with SAE AS8090 for Type II, Group C mobility except as otherwise specified herein.

2.7.3 Roadability.

2.7.3.1 Operating terrain. The wildland shall operate on paved and graded gravel roads and off-road (cross country) terrain.

2.7.3.2 Acceleration. The fully loaded wildland shall accelerate from 0 to 45 miles per hour (MPH) within 25 seconds on a level, paved road.

2.7.3.3 Maximum speed. The fully loaded wildland shall attain a minimum top speed of 68 MPH on a level, paved road.

2.7.3.4 Gradeability. The fully loaded wildland shall be able to maintain a speed of at least 30 MPH while ascending any paved slope up to and including 8.0 percent. The fully loaded truck shall also be able to maintain a speed of at least 5.0 MPH while ascending any paved slope up to and including 25 percent.

2.7.3.5 Clearances. Ground clearance, ramp breakover angle, and angles of approach and departure shall be in accordance with 12.3 of NFPA 1906.

2.7.4 Suspension. The wildland shall have a suspension system in accordance with 3.4.1.2 of SAE AS8090. The front suspension shall be of a spring mounted, parabolic, taper leaf type. The rear suspension shall be vari-rate with a capacity of 23,500 pounds. Auxiliary springs shall be included; 4500-pound.

2.7.5 Steering. The wildland shall have a steering system in accordance with 3.5.1.1 of SAE AS8090. The steering wheel shall be supplied with a tilt feature.

2.8 Brake system. The wildland shall be equipped with an all-wheel antilock brake system; the brakes shall be fully air-actuated. The wildland shall be equipped with electronic stability control. The brake system shall have the following characteristics:

a. Air compressor having a capacity of not less than 13.2 standard cubic feet per minute (scfm).

b. Air storage reservoir(s), each tank equipped with drain, and with safety and check valves between the compressor and the reservoir tank.

c. Automatic moisture ejector on air storage reservoir.

d. Automatic slack adjusters on cam brakes or internal self-adjusting brakes on wedge and disc brakes on all axles.

e. Spring set parking brakes located on the rear axle service brake.

f. All components of the braking system shall be installed in such a manner as to provide maximum 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 shall 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 shall be located above the bottom edge of the axle carrier and rotated up and forward from the standard location. All brake lines located below the chassis frame rails shall be covered with protective fire wrap for protection against fire and embers.

2.9 Skid plate. A 1/8" removable steel skid plate will be fastened to the bottom side of the fuel tank hangers.

2.10 Auxiliary braking system. The service brakes shall be augmented by a system which opens all or some of the engine exhaust valves near the end of the compression stroke, thereby converting vehicle motion to a pumping loss. The engine brake shall be approved by the engine manufacturer. A dash mounted switch shall be provided to activate, modulate, or cut out the brake augmentation. The switch shall be marked to indicate its position. When active, the system shall be fully controlled by means of the conventional driving controls to apply retardation during vehicle deceleration, and to cut it out in the other operating modes.

2.11 Rear bumper. The wildland shall have a rear bumper in accordance with 3.7 of SAE AS8090. A swing down step shall be provided for fire fighter convenience and safety.

2.12 Extended front bumper. An extended front bumper shall be provided. Hose beds shall be supplied on either side of the bumper. Each hose bed shall be capable of storing 50 feet of 1.5 inch single jacket hose.

2.13 Fenders. The wildland shall have fenders in accordance with 3.9 of SAE AS8090.

2.14 Mudflaps. The wildland shall have mudflaps in accordance with 3.12 of SAE AS8090.

2.15 Trailer towing package. The vehicle shall be equipped with a tow hitch with a square sleeve type receiver used to tow trailers and other ancillary firefighting equipment. The tow hitch and receiver shall be rated at the maximum inherent towing capability of the vehicle such that safety and reliability of the vehicle are not degraded. The trailer hitch shall comply with 26.8.1 and 26.8.2 of NFPA 1901. The maximum towing capacity and tongue weight capacity of the vehicle shall be clearly and visibly posted both near the tow hitch receiver and inside the cab of the vehicle. The manufacturer shall describe any hazards, risks, maximum suggested speed limits or restrictions, and special use requirements during the solicitation process. This information shall also be listed near the tow hitch receiver, inside of the cab of the vehicle, as well as in the operator's manual. A brake controller shall be provided for use with a trailer which has an electric braking system. Glad hands in accordance with SAE J318 shall be provided for use with a trailer which has an air braking system.

2.16 Safety chain attachment points. The wildland shall be equipped with two safety chain attachment points, one located on each side of the receiver sleeve, symmetrical about the receiver sleeve. The vertical centerline of the safety chain attachment points shall be located at a parallel distance of not greater than 6 inches to the left and right of the tanker centerline. Safety chains shall comply with 26.8.3 of NFPA 1901 and shall have the ability for standard safety chain hooks to be attached. The inside radius of the safety chain hook is between 1 inch and 3 inches.

2.17 Tow loops. The wildland shall be equipped with front and rear tow loops or tow eyes in accordance with 12.3.5 of NFPA 1906. Towing connections shall be attached to the chassis frame to provide maximum strength.

2.18 Tires and wheels. The wildland shall be equipped with tubeless steel belted radial tires with highway type tread rated for specified highway speeds as well as off-road conditions, mounted on steel disc wheel assemblies. If all tire and wheel assemblies are identical, one spare tire and wheel assembly shall be provided. If two different tire and wheel assemblies are provided, two spare tire and wheel assemblies shall be provided, one of each configuration. Spare tire tread patterns, size, and type will be the same as those mounted on the vehicle. Spare tires and wheels are not required to be mounted on the wildland. The spare tire(s) and rim(s) shall be inventoried, crated and shipped as loose equipment.

2.19 Engine and related equipment. The wildland shall have a diesel engine that is certified to comply with the Environmental Protection Agency (EPA) on-highway emission requirements at

the time of manufacture. The engine shall run on Ultra Low Sulfur Diesel Fuel unless otherwise specified in 6.2.

2.20 High idle switch. A high idle switch, which does not increase engine speed more than 100 percent above normal low idle speed and does not exceed the engine manufacturer's recommendation, shall be provided to increase alternator, air compressor, or air conditioning compressor output to meet the maximum load requirements. A lighted rocker switch, accessible from the driver's seated position, shall activate the high idle control unit. The high idle switch shall operate only when the vehicle is out of gear and the parking brake is engaged and shall automatically disengage if the transmission is placed in gear or the parking brake is released. The cruise control feature of the apparatus will not be disabled to achieve the high idle function.

2.21 Engine starting system.

2.21.1 Starter. The engine shall be equipped with a 12 volt DC electric starter.

2.21.2 Engine air intake system. The engine air intake system shall be in accordance with 3.13.1.4.3 of SAE ARP1247. The inlet shall not draw air from directly beneath the wildland and shall not be located near the cooling system air outlet nor the engine exhaust outlet. Joints shall be minimized between the air filter outlet and the actual engine air inlet and shall be designed to ensure no leakage of unfiltered air into the engine. A differential pressure air filter service indicator shall be provided. The air inlet shall be equipped with a stainless steel mesh to separate water and burning embers from the air intake system such that particulate matter larger than 0.039 in. (1.0 mm) in diameter cannot reach the air filter element.

2.21.3 Engine cooling system. The engine cooling system shall be in accordance with 3.13.1.4.2 of SAE ARP1247. A coolant filter, and a coolant recovery system shall be provided. Engine coolant shall be in accordance with A-A-52624, Type I, and of adequate strength to provide protection to -20 F. The engine out (top of radiator) coolant temperature shall not exceed the engine manufacturer’s recommendations.

2.21.4 Engine lubrication system. The engine lubrication system shall be designed so that the wildland can be operated on a 25 percent incline in any plane.

2.21.4.1 Engine oil. The engine shall be compatible with Grade 15W40 of MIL-PRF-2104 from 0° F to the manufacturer’s maximum recommended operating temperature. Oil pre-heat for operation below 0° F is allowed. The engine shall be compatible with arctic engine oil in accordance with MIL-PRF-46167 from 0° F to 60° F.

2.21.4.2 Engine oil operating temperature. The engine oil sump temperature shall not exceed 250° F or the engine manufacturer’s recommendations.

2.21.4.3 Engine oil consumption. The engine oil consumption shall not exceed 0.0035 pounds per brake horsepower-hour (lbs/bhp-hr) under any operating condition.

2.21.4.4 Engine oil filter. The engine oil filter shall be in accordance with 3.13.1.4.4 of SAE ARP1247.

2.22 Exhaust system. The exhaust system shall be constructed of stainless or aluminized steel. The muffler(s) shall be constructed of aluminized steel or stainless steel. Exhaust system outlet(s) shall be directed away from personnel accessing any control panel or equipment compartment and the engine air intake, and shall not be directed toward the ground. The tail pipe and muffler will be installed to provide as much ground clearance as possible. It will be routed over the rear axle housing and terminate at the side rear corner of the body on either side.

2.23 Engine fuels and fuel system.

2.23.1 Fuel system. The fuel system shall be in accordance with 3.13.1.5.1 through 3.13.1.5.11 of SAE ARP1247 except as otherwise specified herein. The fuel system shall be constructed of materials which are compatible with the fuels used in the wildland. Copper shall not be used in the fuel system. The fuel system shall be equipped with a fuel shut-off valve(s) to prevent continuous spillage when fuel lines are disconnected for service.

2.23.2 Fuel priming pump. The wildland shall be equipped with an electric fuel pump in addition to the mechanical fuel pump. The electric pump shall be used as a priming pump capable of re-priming the engine fuel system following fuel exhaustion.

2.23.3 Fuel filters. Primary and secondary fuel filters and a heated fuel/water separator shall be provided. The fuel/water separator shall include a water coalescer and a drain valve that is readily accessible by an operator or a mechanic. A combination fuel filter and fuel/water separator may be provided. Fuel filter elements shall be easily replaceable by a mechanic using nothing more than common hand tools without loss of engine prime.

2.23.4 Fuel tank. The fuel tank shall be in accordance with 3.13.1.5.5 through 3.13.1.5.9 of SAE ARP1247. The tank shall be designed so that the wildland can be operated on a 25 percent incline in any plane. The tank shall be provided with corrosion protection and baffles. A 0.25 to 0.375-inch nominal drain valve shall be provided for emptying fuel and sediment into a container underneath the wildland without removal of the tank or any other major component. The fuel tank shall have a fuel fill opening of not less than three inch inside diameter and shall be designed to drain fuel spillage overboard for collection outside the wildland. The fuel cap shall be equipped with a retention device to prevent loss and becoming FOD. The fuel fill opening, fuel cap, and fuel cap retention device shall be fabricated from non-sparking material. The fuel tank(s) shall have a minimum total capacity of 70 gallons. Signage shall be provided at the fill point to indicate “Diesel Fuel Only” or “Ultra Low Sulfur Fuel Only”.

2.23.5 Auxiliary fuel Pump. An auxiliary electric fuel pump with a pickup tube will be added to fuel tank. The pump and pick up will be for the supply of fuel to a generator or auxiliary pump. The tube will not be able to draw the fuel tank down to less than 12 gallons remaining fuel capacity in the tank, to assure that the auxiliary engine cannot exhaust the fuel supply of the wildland.

2.24 Engine diagnostic and emergency shutdown systems.

2.24.1 Engine diagnostic system. If the engine is equipped with an electronic control module, a diagnostic system shall be provided with a means to indicate engine faults; it shall be equipped with a Controller Area Network (CAN) buss connector. If the wildland is equipped with a diagnostic or built-in-test system, the engine diagnostic system shall be integrated with it; if not, it shall be a stand alone system.

2.24.2 Engine operator instruments. The following instruments shall be provided to the engine operator:

a. Tachometer.

b. Coolant temperature gauge.

c. Low coolant level indicator.

d. Oil pressure gauge.

e. Oil temperature gauge.

f. Fuel level gauge.

g. Hour meter.

h. Power Take Off (PTO) hour meter.

2.24.3 Regneration inhibition switch. A switch will be provided inside the cab that will manually prevent the emissions system from initiating its regeneration mode.

2.25 Electrical system. The wildland shall have a multiplexed, 12-volt, negative ground electrical system in accordance with 3.13.1.2 of SAE ARP1247 except as otherwise specified herein.

2.25.1 Electrical shoreline connection. The battery charger/conditioner shall be powered from a covered, three wire, straight blade, polarized, insulated, labeled, recessed, 120 volt, NEMA 5-15P male plug inlet, in a weatherproof AC auto-eject receptacle. The connection shall be located on the exterior of the vehicle, either on the left side rear corner of the cab or within 6 inches of the left side front corner of the body. A 50 foot long, three wire, 15 ampere (amp) rated, 120 volt, AC power cable, with straight blade (non twist-lock), NEMA 5-15R and 5-15P style, in accordance with NEMA WD-6, connectors, shall be provided. To support the winterization system, as specified in 2.35, two identical receptacles and cables shall be provided; the receptacles shall be clearly marked. The winterization system shall have a labeled activation switch with a pilot light. When specified (see 6.2), the receptacle(s) and power cable(s) shall be for 220 volts in lieu of 110 volts.

2.25.2 Alternator. A single or dual alternator charging system in accordance with 3.13.1.4.9 of SAE ARP1247 and 13.3 of NFPA 1906 shall be provided. The alternator shall be capable of restoring the energy expended during an engine start in less than 15 minutes of engine idle at 0 F. The minimum continuous electrical load shall include operation of the air conditioning system.

2.25.3 Batteries and battery compartment.

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

2.25.3.2 Battery compartment. The batteries shall be enclosed in a corrosion-resistant, weatherproof box or compartment and shall be readily accessible.

2.25.3.3 Battery cables. The battery cables shall be sized to handle the system voltage and current levels, be clearly identified with "+" and "-" or red and black markings, and shall not be spliced.

2.25.4 Battery charger or conditioner. The truck shall have a DC taper type battery charger or an automatic battery conditioner, providing a minimum 15 amp output. The charger/conditioner shall be permanently mounted on the truck in a properly ventilated, accessible location. The charger/conditioner shall be powered from the electrical shoreline receptacle. A charging indicator shall be installed next to the receptacle. When a battery conditioner is provided, it shall monitor the battery state of charge and, as necessary, automatically charge or maintain the batteries without gassing, depleting fluid level, overheating, or overcharging.

2.26 Winterization system. When specified, a winterization system shall be provided for starting in temperatures to 0 F. The winterization system may include heaters for engine coolant, engine oil, and the fuel tank, as well as battery warmers. The winterization system shall be designed to operate from electrical shoreline connection. The winterization system shall incorporate high-temperature shutoff switches to prevent overheating of any fluid or component.

2.27 Map lights and accessory outlets. Map lights and one duplex NEMA 5-20R, 120 volt, 20 amp shall be provided at each seat in addition to the standard cab lighting. Map lights shall have individual switch for off, on and red for night operations.

2.28 Hydraulic system. The hydraulic system shall be in accordance with 3.13.1.3 of SAE ARP1247 except as otherwise specified herein. O-ring face seal hydraulic fittings may be used in lieu of flared fittings (see 3.13.1.3.12 of SAE ARP1247). Hydraulic fluid shall be in accordance with MIL-PRF-83282. All hydraulic system components, including the hydraulic tank, shall comply with all corrosion resistance requirements specified herein.

2.29 Transmission. A fully automatic transmission with a hydraulic torque converter shall be provided. The normal driving range selector position shall provide at least four gear ratios without movement of the selector. The net torque capacity and the net power rating of the

transmission shall exceed the output ratings of the engine. Openings shall be supplied for 2 PTOs.

2.30 Driveline. Drivelines shall utilize a heavy-duty metal tube that is properly sized for the intended application. The shafts shall have a splined slip joint. The drivelines shall be protected by braces that keep the drivelines in place in the event of a failure.

2.31 Manuals.

2.31.1 Technical manuals. The overall format for the manuals may be military specification, commercial, or a combination of both. Each technical manual shall have a title page.

a. The contractor shall validate the technical manuals for accuracy prior to submission to the procuring activity for verification. The contractor shall submit one complete set to the procuring activity for verification 30 days before the first production inspection. Any changes or corrections noted by the procuring activity shall be corrected and updated pages or manuals shall be submitted to the procuring activity.

b. Once approved by the procuring activity, the contractor shall pack two complete sets of technical manuals with each vehicle. An additional two complete sets shall be submitted to the procuring activity for stock.

c. Once approved by the procuring activity and a Technical Order (TO) number is assigned, the contractor shall pack two complete sets of both hard copy and CDs with each vehicle and one complete set of both hard copy and CDs shall be submitted to the procuring activity for stock. The procuring activity's address will be provided.

d. The contractor shall grant the United States Air Force a non-exclusive, non-assignable, royalty free U.S. Government (Government) Purpose License, to scan into CENTRA (the USAF repository) and to reproduce and distribute (either electronically or via hard medium) copies or facsimiles of manuals produced and distributed by the contractor for this CID. These rights extend to Government agencies only, and the data contained in the technical manuals is not to be sold, disclosed or otherwise provided to any other entity or entities outside the Government. The license shall remain in effect as long as the vehicles described in the required technical manuals remain under Government control and usage. In addition, the contractor shall grant permission for the Government to place an Air Force TO number and publication date as well as distribution, warning, handling and destruction statements on the cover / title pages of the TO.

2.31.2 Operator's manuals. The operator's manual shall include all information required for the safe and efficient operation of the vehicle, including any special attachments or auxiliary equipment. The operator's manual shall include at least the following:

a. Location and function of all controls and instruments shall be illustrated and fully described.

b. Safety information that is consistent with the safety standards established by the Occupational Safety and Health Administration (OSHA).

c. Checks and adjustments in preparation for placing the vehicle for service upon receipt from the contractor.

d. Preparation for shipment or storage.

e. Warranty information and period of the warranty for the complete vehicle and for any component warranty that exceeds the warranty of the complete vehicle. Addresses and telephone numbers shall be provided for all warranty providers.

f. General description of, and step-by-step instructions, for the operation of the vehicle and its auxiliary equipment.

g. Description of the post-operational procedures (draining, flushing, et cetera).

h. Checklists for the daily maintenance inspection and mission readiness checks that the operator is expected to perform.

i. Procedures for towing the wildland if it becomes disabled.

j. Schedules for required preventative maintenance and required periodic maintenance.

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

a. Hydraulic schematic.

b. Pneumatic schematic.

c. Electrical schematic.

d. Winterization schematic.

e. Schedules for required preventative maintenance and required periodic maintenance.

f. Location, procedure, and interval for parts of the truck and equipment which require lubrication.

2.31.4 Parts manual. The parts manual shall include illustrations and exploded views, as needed, to properly identify all parts, assemblies, subassemblies, and special equipment. All components of assemblies shown in illustrations or exploded views shall be identified by reference numbers which correspond to the reference numbers in the parts lists. All purchased parts shall be cross-referenced with the original manufacturer's name and part number. The parts identification manual shall provide the description, length, dimensions, and quantity of each item used per vehicle. The manual shall contain a numerical index. The parts manual shall contain a list of all of the component vendor names, addresses, and telephone numbers referenced in the parts list.

2.32 Hose storage.

2.32.1 Hose storage areas. The truck body shall have a hose bed with at least 41 cubic feet of storage space. A diamond plate hose bed cover with end flaps shall be provided. An elastic webbing material to secure the hose shall be provided.

2.32.2 Deadlay hose bed. A deadlay hose bed without plumbing shall be provided in the upper front area of the pump module. It shall be positioned so that a left and a right side discharge can be used to supply the hose with water. The deadlay shall accommodate 200’ of 1.5” single jacket hose stored as a speed lay. Removable polypropylene trays shall be supplied in the deadlay. They shall be mounted on slide out strips. The approximate opening size in the pump module will be 9 inches wide by 13 1/2 inches high. The deadlay bed flooring shall consist of perforated brushed aluminum. The interior of the deadlay shall be unpainted aluminum.

2.32.3 Optional crosslay hose bed. If requested in lieu of the deadlay, a crosslay hose bed shall be installed. The crosslay shall hold 200’ of single stacked 1.5” single jacket hose. A 1.5” mechanical swivel hose connector shall be used for access of the hose in either direction. Stainless steel rollers with nylon guides will be mounted on both ends. The crosslay will have a front hinged lid with fastener to prevent opening while driving.

2.32.4 Rear hose bed. A rear hose bed capable of storing 200’of 1.5”single jacket and a minimum 400 feet of 2.5 inch double jacket shall be provided.

2.33 Front discharge valves. Two front discharge valves with 2.00" self-locking, one quarter turn, full flow ball valves with 90 degree swivels and 1.50" NH male threads shall be provided. The valve for the center and left front bumper hose baskets shall be located on the left side of the front bumper, outboard of the frame rail, and be vertically mounted behind the bumper. The valve for the right side hose basket shall be located outboard of the frame rail, be vertically mounted behind the bumper. The discharge swivel locations shall provide adequate clearance for the use of 1.50" gated wyes and be designed so as not to interfere with the opening and closing of the hood.

2.34 Suction hoses.

2.34.1 Hard suction hose. ;Two 6, and 1 4, light weight 4” hard suction hoses shall be provided. Each hard suction hose shall have 4” National Hose rocker lug handle female couplers on one end and 4” National Hose thread rocker lug male couplers on the other. Cabinet space shall be

provided for hard suction hose storage. The hose and suction strainer mounting system design shall be subject to approval by the procuring activity.

2.34.2 Soft suction hose. The wildland shall be equipped with a 20'long, 2.5" soft suction hose, with a 2.5" National Hose thread rocker coupler on both ends. Dedicated storage shall be provided for the soft suction hose and couplers.

2.35 Chassis and vehicle components.

2.35.1 Capacity. The wildland shall have a minimum Gross Vehicle Weight Rating (GVWR) of 33,000 and a maximum of 35,000 pounds. The GVWR shall be certified by the chassis manufacturer. Derating the axles shall be prohibited. The fully loaded wildland shall weigh less than the manufacturer certified GVWR.

2.35.2 Compressed air shoreline. A checked, auto-eject compressed air shoreline connection shall be provided to maintain brake system pressure while the wildland is not running. The shoreline shall be flush mounted (not to extend outside the body line). It shall be located on the exterior of the vehicle, between the driver's door and the left side crew member cab entry door. A minimum 50 foot long air supply hose equipped with an appropriate mating shoreline connector and an air fitting shall be provided with the wildland. The shoreline connection's location shall not pose a tripping hazard to pedestrians walking by the vehicle when the shore line is connected.

2.35.3 License plate bracket. A lighted license plate bracket shall be provided at the left rear.

2.35.4 Frame liner. A full-length main frame channel liner shall be provided. Front extension add on pieces are not acceptable.

2.35.5 Warning lights. All warning lights shall use light emitting diode (LED) elements. The warning light system, related components, and devices shall be in accordance with 13.8 of NFPA 1906.

2.35.6 Light bar. A six red element LED light bar, with both forward and side facing heads, shall be mounted on the cab roof. The light bar shall be separately switched from the warning light panel.

2.35.7 Warning light color. When specified (see 6.2), the rearward, red LED lights shall be replaced with amber. When specified, all red warning and LED lights shall be replaced with blue.

2.36 Audible warning devices.

2.36.1 Siren. The truck shall be equipped with an electronic siren system. The amplifier unit shall 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 shall be within reach of the driver and right front passenger. Siren activating foot

switches shall be located in front of the driver and the right front passenger. The siren speaker shall be rated at 100 watts minimum.

2.36.2 Horn. At least one air horn shall be installed near the front of the truck. An air horn activating foot switches shall be located in front of the driver and the right front passenger.

2.36.3 Back-Up Alarm. A back up alarm shall be provided in accordance with 6.11 of NFPA 1906.

2.37 Work lighting.

2.37.1 Cab interior lights. Cab shall interior light levels shall be a minimum of 2.0 foot-candles.

2.37.2 Compartment lights. Rope style Light Emitting Diode (LED) lights shall be used to provide white lighting sufficient to provide an average minimum illumination of 2.0 foot-candle in each compartment greater than 4 cubic feet and having an opening greater than 144 square inches. Rope style LED lights shall be provided on both sides of the compartment opening. Where a shelf is provided, this illumination shall be provided both above and below the shelf. Lights shall automatically illuminate only when the respective doors are opened.

2.37.3 Ladder, step, and area lights. Non-glare white lighting shall be provided at ladders and access steps where personnel work or climb during night operations. Ground lights shall be provided at the front of the body. These area lights shall be controlled with switches on the cab instrument panel and near the light sources. Two manually raised 12 volt High Intensity Discharge (HID) lights shall be provided in the dunnage area, one on each side. These lights shall be switched from the pump panel.

2.37.4 Scene lights. A total of 4 flush mounted, 12-volt LED high-mounted floodlights shall be provided to illuminate the work areas around the vehicle: two on each side of the vehicle. Individual switches shall be located in the work areas and on the instrument panel. A switch shall be provided to control the lights on the left side of the vehicle, a second switch shall be provided to control the lights on the right side of the vehicle. Three way switches shall be used.

2.38 Radio circuit. The wildland shall have two separate 30 amp circuits, with breaker and wires routed to a space provided between the driver and crew chief for a purchaser provided radio. The wires shall be tagged for their intended purpose.

2.39 Radio antennas. An antennae mounting base with coaxial cable and waterproof cap shall be provided for a 2-way radio. The mount shall be located on the cab roof to the rear of the front seats and shall be clear of any obstructions. The cable shall be routed through the center floor mounted console. A minimum of 10 feet of excess cable shall be left coiled in the console.

2.40 Additional Outlets. Two duplex NEMA 5-20R, 120 volt, 20 amp receptacles shall be provided in cab between the driver and officer’s seats.

2.41 Driving and crew areas.

2.41.1 Cab. The wildland shall have a four person, four door, non-tilting cab. At least one grab handle shall be provided for each crew member. A vehicle data recorder shall be provided in accordance with 4.11 of NFPA 1901. Provisions shall be made for fire helmet storage for all seated positions in accordance with (IAW) 14.1.8 and 14.1.11 of NFPA 1901 and 1906. The cab shall have a console for radio mounting, equipped with adjustable work lights, and be located between the driver and front passenger seats. The console shall also provide four spaces for map storage. Each section shall be section will be approximately 5.00" x 13.00" x 12.25". A hinged writing surface shall be provided.

2.41.1.1 Seats. The wildland shall have seats in accordance with 14.1 of NFPA 1901. All seats shall be of an adjustable air suspension design. Each seat shall be provided with a Type 2 seat belt assembly (i.e., 3-point restraint) in accordance with 49 CFR 571.209. All seats shall be equipped with seat belt sensors in compliance with 14.1.3.10 of NFPA 1901. All seat belts shall be red in color.

2.41.1.2 Cab interior sound level. Cab interior sound level shall be in accordance with NFPA 1906.

2.41.1.3 Heated mirrors. Remotely controlled powered outside heated rearview mirrors shall be installed on each side of the cab. Combination flat and convex outside rearview mirrors shall be installed on each side of the cab, mounted on fold-back west coast style brackets. The flat mirrors shall be of the motorized remote control type, providing not less than 60° horizontal rotational viewing range. The flat mirrors shall have electrically heated heads. Mirror remote and heating controls shall be located within reach of the seated driver.

2.41.1.4 Climate control system. The offeror/contractor's standard heater/defroster system shall be provided. The offeror/contractor's standard air conditioning system shall also be provided. In 100° F ambient temperature with 50 percent relative humidity and at maximum compressor speed, the air conditioning system shall cool the fully occupied cab to 75° F within 30 minutes.

2.41.1.5 Instruments and controls. Gauges shall be provided for oil pressure, coolant temperature, and automatic transmission temperature. In addition to the instruments and controls required by 14.3.6 of NFPA 1901, the following shall be provided within convenient reach of the seated driver:

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.

2.41.1.6 Backup camera. A rear vision camera and in-cab monitor shall be provided to aid the driver in safely backing up the vehicle. The monitor shall be located to the right side of the

driver. A switch shall be provided to allow the driver to manually activate the back-up camera from within the cab. The back-up camera shall also be switched "on" automatically whenever the vehicle is in the reverse mode of operation.

2.42 Body, compartments, and equipment mounting.

2.42.1 Body. The wildland shall have a body constructed entirely of non corroding materials. The body shall be at least as strong as if it were constructed of 0.125 inch thick aluminum. A copy of the fire apparatus manufacturer's warranty shall be included with the bid. The warranty shall state that the body shall be free of structural failures caused by defective design or workmanship for a warranty period of fifteen (15) years from the date the new wildland is first delivered or 100,000 miles, whichever occurs first, and that defective parts under the warranty shall be repaired or replaced without charge to the original purchaser.

2.42.2 Compartments. The truck body shall have compartments with a minimum of 80 cubic feet of enclosed storage space. At least one compartment shall be of appropriate size and shape for storage of shovels, rakes, and hoses.

2.42.2.1 Compartment doors. All compartment doors shall be hinged to open vertically or horizontally. Air shocks shall be provided to hold the door in the opened position. Doors shall be provided with a closed cell rubber gasket around the surface that laps onto the body. A second heavy-duty automotive rubber molding with a hollow core shall be installed on the door framing that seals onto the interior pan, to ensure a weather resisting compartment. All compartment doors shall have continuous stainless steel hinges and shall be bolted or screwed to the truck body with stainless steel fasteners. All door lock mechanisms shall be fully enclosed to prevent fouling of the lock in the event equipment inside shifts into the lock area. Doors shall be latched with recessed, polished stainless steel "D" ring handles

2.42.2.2 Scuffplates. Replaceable scuffplates shall be provided to prevent body damage from sliding equipment in and out of the compartments. The scuffplates shall be attached in a manner that does not allow them to become loose during normal use.

2.42.2.3 Drip rails. Drip rails shall be provided over each compartment door. If the drip rails are not integral with the body, they shall be of bright finish anodized extruded aluminum.

2.42.2.4 Shelves. An adjustable and removable compartment shelf shall be provided for every 18 inches of vertical compartment door opening. Shelving adjustments shall require no more than common hand tools, and shall not require disassembly of fasteners. Shelves shall support a minimum of 200 pounds without permanent deformation. Each shelf shall be accessible to crew members standing on the ground or steps mounted on the wildland. Tilt down trays shall be provided in the upper areas of the compartments. Each shelf shall have drain holes located so as to allow for drainage of any water from the stowed equipment.

2.42.2.5 Drainage mats. Each compartment floor and shelf shall be covered with a removable mat designed to allow for drainage of any water from the stowed equipment.

2.43 Windshield and windows. The windshield and windows shall be tinted safety glass IAW SAE Z26.1.

2.44 Air bottle and air pack storage. Provisions for the storage of four, 4500 psi, 1 hour, Self Contained Breathing Apparatus (SCBA) bottles will be located in the wheel well areas of the fire body. A positive locking mechanism to secure the doors shall be provided. Air pack storage brackets shall be provided on the officer's side of the vehicle.

2.45 Wheel chocks. Two folding wheel chocks and mounting hardware shall be provided as loose equipment. The wheel chocks shall hold the apparatus, when loaded to its GVWR or GCWR, on a hard surface with a 20 percent grade with the transmission in neutral and the parking brake released.

2.46 Body and compartment lighting. All standard body and compartment lighting shall be LED type.

2.47 Ladder storage compartment. The wildland shall have a storage compartment for a 16 foot extension ladder. The storage compartment shall be located at the rear of the vehicle. One 16-foot extension ladder shall be supplied by the manufacturer of the wildland.

2.48 Ladder, handrails, and walkways. Ladders, stepping, standing, and walking surfaces shall be in accordance with 15.7 of NFPA 1906. Handrails shall be provided in accordance 15.8 of NFPA 1906.

2.49 Pump and associated equipment. The pump and associated equipment shall be in accordance with Chapter 16 of NFPA 1906. It shall provide for both stationary, and pump and roll capability.

2.49.1 Pump. The pump shall be capable of providing 500 gallons per minute (gpm) at 150 pounds per square inch (psi). An impeller housing drain valve shall be provided. The Compressed Air Foam System (CAFS) pump shall also be capable of providing 500 gpm at 150 psi of matched air and water flow.

2.49.2 Piping and associated components. All surfaces of the piping and associated components that come into contact with the water shall be capable of storing brackish/saltwater. The discharge piping shall flow water at a minimum of 500 gpm.

2.49.3 Intake connections. The wildland shall have two 2 1/2-inch intake connections, one on each side, fitted with 30 degree turn-down fittings. Each intake connection shall be gated and shall have National Hose threads.

2.49.4 Drafting connection. One 4 inch male National Standard Hose (NSH) threaded intake connection shall be provided with cap on the driver's side of the wildland.

2.49.5 Discharge connections. The wildland shall be equipped with at least two 2 1/2-inch discharge connections, one on the right side, and one on the left side of the wildland. Each 2 .5"

discharge connection shall be equipped with no less than 3-inch full flow piping and valve with a 2.5” adapter and a 30 degree turn-down fitting. The wildland shall be equipped with a 1.5 -inch pre-connected swivel discharge outlet to accommodate the crosslay hose. Additionally, there shall be a 1.5” pre-connect for the rear hose bed. All discharge connections shall have National Hose threads. All discharge caps shall have cable type retaining devices. “Dog tag" style beaded chains shall not be provided.

2.49.6 Monitor. The vehicle shall be equipped with a 125 gpm, low profile, bumper mounted, discharge monitor. The pattern selector and discharge valves on the monitor shall be controlled by high speed motors. A joy stick controller shall be provided to control both the movement of the monitor and the nozzle spray pattern. The controls for the monitor shall be mounted inside the cab of the vehicle and shall be easily accessible by both the passenger and driver. Fire fighting system gauges shall be located at the pump panel and in the vehicle cab to monitor water tank level, pump pressure, tank to pump activation, and foam levels.

2.50 I-Zone brackets. Two easily removable or flip-out I-Zone brackets shall be provided and mounted at the rear of the apparatus, on either side of the body. The brackets shall be designed with adequate reinforcement to eliminate flexing of the body and not interfere with any of the rear facing lights when carrying hose.

2.51 Hose reel. A hose reel with 150 feet of 1 inch hard rubber lined hose shall be provided in an enclosed storage compartment. The storage area shall be smooth and free from all projections that might damage the hose. No other equipment shall be mounted or located where it can obstruct the removal of the hose. The discharge control to the hand line shall be adjacent to the hand line and accessible to the person using the hand line. All electrical components shall be sealed against entry of water. The hose reels shall have both electric and manual rewind provisions. The manual rewind handle shall be bracket mounted and stored in the compartment. A quick acting control to activate the hand line from the cab of the vehicle shall be provided.

2.52 Back pack pump filler valve. A 0.75" quarter turn ball valve shall be supplied for the refill of back pumps. This outlet is gravity fed from the main water tank sump. The valve plumbing shall be 0.75" I.D. A 0.75" male garden hose fitting shall extend outside the panel to allow the connection of a garden hose. A label "BACK PACK FILL" shall be provided for this outlet.

2.53 Pump engine. If the pump is driven by an auxiliary engine, it shall be a diesel engine in accordance with 16.3 of NFPA 1906. It shall be connected to the truck chassis electrical and fuel systems. The starter controls shall be accessible to an operator standing on the ground.

2.54 Water tank. The wildland shall have a water tank with a certified capacity of at least 500 gallons. Fill tower shall be at least 8 inches wide and 12 inches long. A hinged cover and polypropylene screen shall be provided. Tank shall "float" in cradle to avoid torsional stress caused by chassis frame flexing. Rubber cushions, .50"thick x 3.00" wide, shall be placed on all horizontal surfaces that the tank rests on. Stops or other provision shall be provided to prevent an empty tank from bouncing excessively while moving vehicle. The water tank shall be constructed of polypropylene and shall be supplied with a life time warranty. The water tank shall be baffled in accordance with 18.2 of NFPA 1906.

2.55 Tank to pump intake line. All metallic surfaces of the tank to pump intake line and associated components that come into contact with the water shall be capable of storing brackish/saltwater.

2.56 Tank fill. A 2.00" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

2.57 Foam proportioning system. The truck shall be equipped with an electronic, variable speed, fully automatic, discharge side, direct injection foam proportioning system for Class A foam concentrate. It shall be in accordance with Chapter 20 of NFPA 1906. With 0.5% concentration of Class A foam, the system shall properly proportion foam for flow rates of up to and including 200 gpm. The system shall also accommodate 1% Class A foam concentrate. A polypropylene tank with a minimum usable capacity of 20 gallons shall be provided for Class A foam concentrate. Foam shall be supplied to all discharge outlets in both stationary and pump and roll modes.

2.58 Compressed air foam system (CAFS). The truck shall be equipped with a CAFS in accordance with Chapter 21 of NFPA 1906. The CAFS shall include an air compressor capable of providing 125 standard cubic feet per minute (scfm) at 125 psi of matched air and water flow. The CAFS shall be plumbed to all discharge outlets. The CAFS shall operate in the stationary and pump and roll modes.

2.59 Vehicle protection systems. The truck shall be equipped with grill guards, and skid plates, which shall be in accordance with Chapter 27 of NFPA 1906. Skid plates shall be removable.

2.60 Winch. A winch with at least 12,000 pound-pull shall be installed, recessed behind the front bumper. The winch shall be electric or hydraulic powered and shall have one or more forward and reverse speeds of not less than 15 feet per minute. The winch shall be equipped with a minimum 125 feet of 3/8” galvanized aircraft cable, with 36 inch end chain and hook. The winch shall include a four way cable guide. A 25 foot minimum remote control cable shall be provided for operation of the winch. If an extended bumper is used, a cover fabricated of treadplate shall be installed over the winch and the space between the cab and bumper. The remote controller shall be inventoried and shipped as loose equipment.

2.61 Receivers. Two receivers for the mounting of a removable hose roller will be provided. They will be flush mounted on the bottom side of the front bumper and rear tailboard. These receivers will never be used in conjunction with a portable winch. A tag indicating that the use is only for the "removable hose roller" will be provided. No electrical connections of any type shall be required.

2.62 Workmanship. The wildland, including all parts and accessories, shall be constructed and finished in a thoroughly workmanlike manner. Workmanship objectives shall include freedom from blemishes, defects, burrs and sharp corners and edges; accuracy of dimensions, surface finish, and radii of fillets; thoroughness of welding, painting, and riveting; marking of parts and assemblies; and proper alignment of parts and tightness of assembly fasteners.

2.62.1 Bolted connections. Bolt holes shall be accurately punched or drilled and shall be deburred. Threaded fasteners shall be tight and shall not work loose during testing or service usage.

2.62.2 Riveted connections. Rivet holes shall be accurately punched or drilled and shall be deburred. Rivets shall be driven with pressure tools and shall completely fill the holes. Rivet heads shall be full, neatly made, concentric with the rivet holes, and in full contact with the surface of the component.

2.62.3 Gear and lever assemblies. Gear and lever assemblies shall be properly aligned and meshed and shall be operable without interference, tight spots, loose spots, or other irregularities. Where required for accurate adjustment, gear assemblies shall be free of excessive backlash.

2.62.4 Cleaning. The wildland shall be thoroughly cleaned. Loose, spattered, or excess solder; welding slag; stray bolts, nuts, and washers; rust; metal particles; pipe compound; and other foreign matter shall be removed during and after final assembly.

2.63 Dissimilar metals. Dissimilar metals, as defined in MIL-STD-889, shall not be used in intimate contact with each other.

3. REGULATORY REQUIREMENTS.

3.1 Recycled recovered materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with 23.403 of the Federal Acquisition Regulation (FAR). However, used, rebuilt, or refurbished items shall not be provided.

3.2 Green Procurement Program. Green Procurement Program (GPP) is a mandatory federal acquisition program that focuses on the purchase and use of environmentally preferable products and services. GPP requirements apply to all acquisitions using appropriated funds, including services and new requirements. FAR 23.404(b) applies and states the GPP requires 100% of EPA designated product purchase that are included in the Comprehensive Procurement Guidelines list that contains recovered materials, unless the item cannot be acquired: a) competitively within a reasonable timeframe; b) meet appropriate performance standards, or c) at a reasonable price. The prime contractor is responsible for ensuring that all subcontractors comply with this requirement.

4. PRODUCT CONFORMANCE PROVISIONS.

4.1 Product conformance. The products provided shall meet the salient characteristics of this CID, 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 Government reserves the right to require proof of such conformance.

4.2 Commercial item requirement. The wildland furnished shall comply with the "commercial item" definition of FAR 2.101 as of the date of award. The Government reserves the right to require the manufacturer to prove that their product complies with the referenced commerciality requirements and each salient characteristic of this CID. The manufacturer shall provide an itemized technical proposal that describes how the proposed model complies with each salient characteristic of this CID; a paragraph by paragraph response to the salient characteristics section of this CID shall be provided. The response to each paragraph shall clearly state “Fully Comply” or “Bid with Exception” in addition to other data the contractor wishes to submit. The proposal shall be provided with the pricing submission. Failure to provide this information may deem a manufacturer as non-responsive and their proposal may be rejected. The manufacturer shall provide two copies of their commercial descriptive catalogs with their offer as supporting reference to the itemized technical proposal. The manufacturer shall identify all modifications made to their commercial model in order to comply with the requirements herein.

4.3 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. First production inspection (see 4.4).

b. Conformance inspection (see 4.5).

4.4 First production inspection. The first production wildland shall be subjected to the analyses, demonstrations, examinations, and tests described in 4.7. The manufacturer shall provide or arrange for all test equipment and facilities.

4.5 Conformance inspection. Each production wildland shall be subjected to the examination described in 4.7.1.

4.6 Inspection requirements.

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

4.6.2 Data. During all testing specified herein, at least the following data, unless not applicable, shall be recorded. Additional data shall be provided as appropriate for any specific test.

a. Date.

b. Time started.

c. Time finished.

4.6.3 Test rejection criteria. Throughout all tests specified herein, the wildland shall be closely observed for the following conditions, which shall 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. If excessive wear is suspected, the original equipment manufacturer's (OEM's) specifications or tolerances shall be utilized for making a determination.

e. Evidence of corrosion or deterioration.

f. Misalignment of components.

g. Conditions that present a safety hazard to personnel during operation, servicing, or maintenance.

h. Interference between the wildland's components or between the wildland, the ground, and all required obstacles, with the exception of normal contact by the tires.

i. Evidence of undesirable mobility characteristics, including instability in handling during cornering, braking, and while traversing all required terrain.

j. Shutdown faults from:

    i. Engine cooling system.

    ii. Engine lubrication system.

    iii. Engine protective circuits.

k. Overheating of the engine, transmission, or any other vehicle component.

l. Failure of the firefighting system.

4.7 Test methods.

4.7.1 Examination of product. Each wildland shall be examined to verify compliance with the requirements herein. A contractor-generated, Government-approved checklist shall be used to identify each requirement not verified by an analysis, certification, demonstration, or test, and shall be used to document the examination results. Particular attention shall be given to materials, workmanship, dimensions, surface finishes, protective coatings and sealants and their

application, welding, fastening, and markings. Proper operation of each wildland function shall be verified. Certifications and analyses shall be provided in accordance with Table III. Each production wildland shall be inspected to a Government-approved reduced version of the checklist.

TABLE III. Certifications and analyses.

Paragraph	Required Certifications and Analyses
2.3.3.2 Snow.	Contractor analysis of the snow load requirement.
2.3.4 Solar radiation.	Contractor certification that the wildland performance is not adversely affected by full time exposure to solar radiation, such as those conditions encountered in desert environments.
2.3.5 Fungus.	Contractor certification that the materials used in construction of the wildland are fungus resistant or suitably treated to resist fungus.
2.19 Engine and related equipment., 2.21.3 Engine cooling system., 2.21.4 Engine lubrication system., and 6.2.eEngine fuels	Engine manufacturer certification that the engine is in accordance with all applicable requirements, including exhaust emissions standards and fuels. Engine manufacturer application approval for the engine and its installation, including cooling system, lubrication system, and mounting system.

4.7.2 Weight and dimension tests.

4.7.2.1 Weight test. The weight of a first production wildland shall be measured to demonstrate compliance with 2.35.1.

4.7.2.2 Dimension measurement. A first production wildland shall be measured to demonstrate compliance with the dimensional requirements of 2.4.

4.7.3 Maintainability demonstration. All recommended preventive maintenance tasks shall be performed and the task times shall be recorded. The recommended frequencies of the preventive maintenance tasks and the times recorded to accomplish the tasks shall be used to develop an expected value of preventive maintenance time per measure of use, such as calendar time or hours of operation. It shall be demonstrated that the forces required do not exceed those allowed in MIL-STD-1472 and 2.6.

4.7.4 Mobility tests. A wildland shall be tested in accordance with Table VIII of SAE AS8090 to demonstrate compliance with the mobility requirements of 2.7.1 – 2.7.3.4. Note that the maximum towing force is 75 pounds per ton of gross weight, in accordance with 3.3.4 of SAE AS8090, rather than 50 pounds per ton of gross weight as stated in Table VIII of SAE AS8090.

4.7.4.1 Operating terrain. The truck shall operate on paved and graded gravel roads and off-road (cross country) terrain.

4.7.4.2 Acceleration. The fully loaded truck shall accelerate from 0 to 45 miles per hour (MPH) within 25 seconds on a level, paved road.

4.7.4.3 Maximum speed. The fully loaded truck shall attain a minimum top speed of 50 MPH on a level, paved road. The maximum top speed shall not exceed 70 MPH.

4.7.4.4 Gradeability. The fully loaded truck shall be able to maintain a speed of at least 30 MPH while ascending any paved slope up to and including 8.0 percent. The fully loaded truck shall also be able to maintain a speed of at least 5.0 MPH while ascending any paved slope up to and including 25 percent.

4.7.4.5 Side slope requirement. The vehicle shall be able to be tilted to 27 degrees before lifting a front or rear tire.

4.7.4.6 Roadability test. The fully loaded first production wildland shall be driven over 10 miles of paved and ten miles of off-road terrains. After the road test is completed, all loads shall be removed and all structure and surfaces shall be visibly inspected for failure or permanent deformation.

4.7.4.7 Turning diameter test. The first production wildland shall be tested in accordance 6.3.13 of NFPA 414.

4.7.5. Brake tests.

4.7.5.1 Parking brake test. The wildland shall be tested in accordance with 4.17 of NFPA 1906.

4.7.5.2 Service brake test. The wildland shall be tested in accordance with 4.17 of NFPA 1906.

4.7.6 Cab interior sound level test. The cab interior sound levels of the first production wildland shall be measured in accordance with 49 CFR 393.94(c), "Vehicular interior noise levels test procedure," except that the test shall be performed with the vehicle traveling at a steady speed of 45 MPH on a level, hard, smooth surface road.

4.7.7 Test of fire pump,

4.7.7.1 Pumping tests. Each wildland shall be tested in accordance with 16.13 of NFPA 1906.

4.7.7.2 Priming device test. Each wildland shall be tested in accordance with 16.13 of NFPA 1906.

4.7.7.3 Tank to pump flow test. Each wildland shall be tested in accordance with 16.13 of NFPA 1906.

4.7.7.4 Water tank capacity test. The water tank capacity of each truck shall be determined in accordance with 16.13.11 of NFPA 1906.

4.7.7.5 Piping integrity test. The pump and piping system of each truck shall be tested in accordance with 16.13.10 of NFPA 1906.

4.7.7.6 Foam proportioning system test. The foam proportioning system of each truck shall be tested in accordance with 20.11 of NFPA 1906.

4.7.7.7 CAFS test. CAFS installed on each wildland shall be tested in accordance with 21.9 of NFPA 1906.

5. PACKAGING. Preservation, packing, and marking shall be as specified in the contract or order.

6. NOTES

6.1 Source of documents.

6.1.1 Department of Defense and Federal documents. Department of Defense and Federal documents, except for GOST 10227-86, are available online at https://assist.dla.mil/quicksearch or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094. A copy of GOST 10227-86 can be obtained from the Procuring Contracting Officer (PCO).

6.1.2 FAR. FAR may be obtained from the Superintendent of Documents, P.O. Box 371954, Pittsburgh PA 15250-7954. Electronic copies of the FAR may be obtained from https://www.acquisition.gov/far/ .

6.1.3 ASTM documents. Application for copies should be addressed to ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken PA 19428-2959. Electronic copies of ASTM standards may be obtained from http://www.astm.org

6.1.4 AWS documents. Application for copies should be addressed to American Welding Society, 550 N.W. LeJeune Road, Miami FL 33126. Electronic copies of AWS standards may be obtained from http://www.aws.org.

6.1.5 NEMA documents. Application for copies should be addressed to NEMA, 1300 North 17th Street, Suite 1847, Rosslyn VA 22209, www.nema.org.

6.1.6 SAE documents. Application for copies should be addressed to SAE, Inc., 400 Commonwealth Drive, Warrendale PA 15096. Electronic copies of ASTM standards may be obtained from http://www.sae.org/servlets/index .

6.1.7 NFPA documents. Application for copies should be addressed to NFPA, Batterymarch Park, Quincy MA 02269-9101. Electronic copies of NFPA standards may be obtained from http://www.nfpa.org/index.asp

6.1.8 Code of Federal Regulations documents. Application for copies should be addressed to Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 20402. Electronic copies of The Code of Federal Regulations (CFR) may be obtained from may be obtained at http://www.gpoaccess.gov/cfr/index.html.

6.1.9 Environmental Protection Agency documents. Application for copies should be addressed to Environmental Protection Agency, Ariel Rios Building, 1200 Pennsylvania Avenue, N.W., Washington, DC 20460. Electronic copies of Environmental Protection Agency standards may be obtained from may be obtained at http://www.epa.gov/ .

6.2 Ordering data. The purchaser shall specify the following at time of purchase:

a. Altitude for which truck operation is to be designed, if greater than 2,000 feet above sea level (see 2.3.2).

b. Engine fuel type (low sulfur diesel or ultra low sulfur diesel) and units of volume (gallons or liters) (see 2.19).

c. Electrical shoreline voltage, 220 volts instead of 110 volts. (NOTE: Applies to USAFE only) (see 2.25.1).

d. If a winterization system is required (see 2.26).

e. If a crosslay is required in lieu of a deadlay hose bed (see 2.32.3).

f. Warning light color required (amber or blue in place of red) (see 2.35.7).

6.3 Definitions.

6.3.1 Common hand tool. A non-powered tool that is likely to be found in a typical mechanic's toolbox. Common hand tools include open end, boxed end, combination, socket (both 6- and 12-point in both standard and deep-well), and hex key wrenches, in SAE sizes up to and including 1-inch and metric sizes up to and including 25-mm; ratchet handles, extensions, and swivels; slotted and Phillips-head screwdrivers; regular and snap-ring pliers; and a ball-peen hammer.

6.3.2 Special tool. A tool that is not commercially and readily available from a source other than the wildland contractor.

6.4 Key words.

4x4 chassis
brush
compressed air foam system
Gallon per minute

6.5 Changes from previous issue. Asterisks (or vertical lines) are not used in this revision to identify changes with respect to the previous issue due to the extensive changes.

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Air Force - 84

Reviewer:
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NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil .