

**City of Bristol, Tennessee**  
P.O. Box 1189  
Bristol, Tennessee 37621-1189

INVITATION TO BID

Bid Reference No. 17032

June 20, 2017

Competitive sealed bids will be received by the City of Bristol, Tennessee for the following:

**45 Self-Contained Breathing Apparatus**

Bids will be accepted in the Purchasing Department, Bristol City Hall, 801 Anderson Street, Room 204, Bristol, Tennessee 37620 until **July 6, 2017 at 2:00 p.m.**, prevailing local time, at which time the bids will be publicly opened and read. Include the bid reference number on the bid envelope.

Contact Mike Carrier at 423-989-5708 if you have technical questions. Contact Crystal Key at 423-989-5528 if you have any questions regarding the bidding process.

City of Bristol, Tennessee  
Invitation to Bid

Bid Reference No. 17032

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**City of Bristol, Tennessee**  
Invitation to Bid

INSTRUCTION TO BIDDERS

1. Each bid must be signed by the bidder with his/her original signature on the Bid Pricing Sheet for consideration. Bids by a Partnership must be signed with the partnership name by one of the members of the partnership, or by an authorized representative, followed by the signature and title of the person signing. Bids by Corporations must be signed with the name of the corporation, followed by the signature and designation of the president, secretary, or person authorized to legally bind the corporation.
2. Bids must be received prior to the specified time of closing as designated in the invitation. Bids received late will be returned unopened to the bidder.
3. Envelopes must be sealed when submitted and must be properly noted with the bid reference number and the description of the bid item. Separate bids must be submitted for each reference number. The City will not be held responsible for the premature opening of unmarked envelopes if sent through regular mailing system. Facsimile transmissions of bidding documents will not be accepted.
4. Bids containing erasures or corrections thereon will be rejected unless said erasures or corrections are noted over the initials or signature of the bidder.
5. Bids may be submitted on any one item or any group of items unless otherwise stated herein. The unit price must be shown for each item or group of items as requested.
6. References in the *Description of Requirements and Specifications* describing the material, supplies, or services required of a particular trade name, catalog or model number are made for descriptive purposes to guide the bidder in interpreting the type of material or supplies or nature of the work described. They should not be construed as excluding offers on other type of materials and supplies or of performing the work in a manner other than specified. However, the bidders attention is called to Paragraph 6 of the *General Conditions* which must be strictly adhered to.
7. All bids shall remain valid for a period of sixty (60) days after bid opening unless a longer period is otherwise stated herein.
8. Bids are to be mailed to or delivered to the Purchasing Department, Bristol City Hall, 801 Anderson Street, Room 204, Bristol, Tennessee 37620. One original and one copy of each bid proposal must be submitted for review, unless otherwise stated.
9. The City of Bristol is tax-exempt and sales taxes are not to be included on the bid. Any bid including sales taxes will be adjusted at the time of the bid opening. The City's sales tax exemption number will be provided to the successful bidder.

INSTRUCTION TO BIDDERS (CONTINUED)

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10. In the event bidder fails to honor bid, they will be declared non-responsible and removed from future bid opportunities. If bidder is submitting equipment from current inventory, the bid must be valid for a period of sixty (60) days after bid opening and cannot be subject to prior sale provisions.
  
11. In accordance with T.C.A. 62-6-119 all contractor license information, including electrical, plumbing, and HVAC must be listed on the outside of the bid envelope for projects of \$25,000 or more. All masonry contractor information must be included for masonry portions of a project exceeding \$100,000. In order to comply, list the **name of the project, contract number, name, address, and contractor's license number of the Bidder, expiration date of the Contractor's license, the classification applying to this bid, and date and time of opening**. All contractor information must be included for any of the above types of contractors. If this information is not listed, the bid will be deemed non-responsive.

- End of Section -

**City of Bristol, Tennessee**  
Invitation to Bid

GENERAL CONDITIONS

1. The City of Bristol reserves the right to reject any and all bids or parts thereof, and unless otherwise specified by the bidder, to accept any item in the bid. In case of error in extending the total amount of the bid, the unit price will govern. Bid pricing should be stated in both words and numbers. In the case of a discrepancy, the price in words will govern. The City also reserves the right to waive informalities on all or any part of any bid as deemed to be in the best interests of the City.
2. The purchaser is a municipality and invoices are processed for payment not less than twice a month. It shall be understood that the cash discount period will be extended to the date that invoices are paid. Payment will commence or be made in full after delivery and/or completion of the project and acceptance of equipment. All documents, invoice, title and exception certificate shall be presented to the Purchasing Department, 801 Anderson Street, Room 204, Bristol, Tennessee 37620.
3. In case of default by the bidder or contractor, the City of Bristol may procure the articles or services from other sources and hold the bidder or contractor responsible for any excess cost occasioned thereby.
4. All prices quoted shall be United States currency. Prices shall be stated in units of quantities specified.
5. Prices quoted, unless otherwise stated by bidder, will be considered as being based on delivery to destination as designated and to include any charges for packing, crating, containers, etc., and being in strict accordance with specifications as shown.
6. Whenever a reference is made in the specifications or in describing the materials, supplies or services required, or a particular trade name, manufacturer's catalog, or model number, the bidder, if awarded a contract, will be required to furnish the particular item referred to in strict accordance with the specifications or description unless a departure or substitution is clearly noted and described in the proposal by the bidder.
7. It is the intent of these specifications to secure and to insure the delivery of the specified unit(s) complete and ready to withstand the service and continuous use encountered by the City in the course of the work for which the unit(s) is/are intended. Omission of any essential detail from these specifications does not relieve the supplier from furnishing such unit.

GENERAL CONDITIONS (CONTINUED)

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8. The bidder, by executing a contract or bid proposal on the terms of the invitation to bid, warrants the product that is supplied to the buyer shall remain fully in accordance with the specifications and to be of the highest quality. All bids must be for new equipment. This provision excludes surplus, used or demonstrator products unless so stated in the specifications.
9. In the event the product as supplied to the buyer is found to be defective or does not conform to the specifications, the buyer reserves the right to cancel the order upon written notice to the supplier and return such product to the supplier at the supplier's expenses.
10. All parts not specifically mentioned herein, but which are necessary in order to furnish complete materials and installation shall be supplied by the bidder. Each product furnished to the City shall conform to the best known practices for the most recent unit.
11. If a bidder has any exceptions to these specifications, such exceptions must be stated in writing and describe in detail what is proposed to be furnished in lieu of the specified requirements. When the detailed specifications require specific brand names, model numbers, dimensions or capacities of components, it is because they have been carefully selected and specified for the intended service due to their reliability and/or availability of replacement parts on a local basis.
12. The bidder, if awarded an order or contract, agrees to protect, defend, and save harmless the City against any demand for the use of any patented materials, process, article, or device, that may enter into the manufacture, construction, or form a part of the work covered by either order or contract and he further agrees to indemnify and save harmless the City from suits or actions of every nature and description brought against it, for or on account of any injuries or damages received or sustained by any party or parties, by or from any of the acts of the contractor, his servants, or agents.
13. It is the policy of the City of Bristol, Tennessee to ensure equal opportunity in all aspects of its programs and services without regard to race, color, sex, or national origin under Title VI of the Civil Rights Act of 1964. This policy applies to the administration of programs, facilities, benefits, or services that receive assistance from the Federal government. During the performance of this contract, the successful vendor agrees as follows:
  - A. To comply with the regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation, Title 49, Code of Federal Regulations, Part 21, (hereafter referred to as "Regulations") as they may be amended.

GENERAL CONDITIONS (CONTINUED)

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- B. To ensure nondiscrimination on the grounds of race, color, sex, or national origin in the selection and retention of subcontractors, including procurement of materials and lease of equipment. The vendor shall not participate either directly or indirectly in discrimination prohibited by Section 21.5 of the Regulations, including employment practices.
  - C. That during solicitations either by competitive bidding or negotiation made by the vendor for work to be performed under a subcontract, including procurement of materials or lease of equipment, all potential subcontractors be notified by the vendor of their obligations under this contract and Regulations relative to nondiscrimination on the grounds of race, color, sex, or national origin.
  - D. That all information and reports required by the Regulations be readily accessible by the City of Bristol, Tennessee or the Tennessee Department of Transportation as may be pertinent to ascertain compliance with the Regulations.
  - E. That in the event of noncompliance with the nondiscrimination provisions of the contract, the City shall impose contract sanctions as it or the Tennessee Department of Transportation may determine to be appropriate, including but not limited to:
    - 1. Withholding payments until compliance is made, and/or
    - 2. Cancellation, termination, or suspension of the contract, in whole or in part.
  - F. That the vendor includes these provisions in all subcontracts, including procurement of materials and leases of equipment.
14. Samples, when requested, must be furnished free of expense prior to the opening of bids and if not destroyed will, upon request, be returned at the bidder's expense.
15. Terms and conditions, unless stated otherwise herein, are to be effective for one year from the date of bid acceptance by the City Council.
16. All federal, state, and local law requirements must be followed.
17. The City accepts responsibility of merchandise upon receipt at the City's delivery point unless otherwise noted herein.
18. The City reserves the right to purchase more or less of the Bid Items at the unit price listed on the Bid Pricing Sheet.

GENERAL CONDITIONS (CONTINUED)

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19. Special Conditions, if any, are enclosed and listed in the Table of Contents. A conflict between *Special Conditions* and *General Conditions* shall be construed in favor of the *Special Conditions*.
20. The Description of Requirements and Specifications for the procurement are enclosed herewith.
21. The specifications set forth are the minimum that are acceptable. The City of Bristol reserves the right to consider differences or variations in the character, quality or workmanship of the items offered, to reject any or all bids, and to accept any bid that it may deem to be in the best interest of the City.

- End of Section –

**City of Bristol, Tennessee**  
**DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS**

**45 Self-Contained Breathing Apparatus**

**General Self-Contained Breathing Apparatus Requirements**

The purpose of this bid specification is to establish the minimum requirements for an open-circuit self-contained breathing apparatus (SCBA). The SCBA shall consist of the following major sub-assemblies: (1) full facepiece assembly; (2) a removable, facepiece-mounted, positive pressure breathing regulator with air-saver switch; (3) an automatic dual path redundant pressure-reducing regulator; (4) end-of-service time indicators; (5) a harness and backframe assembly for supporting the equipment on the body of the wearer; (6) a shoulder strap mounted, remote gauge indicating cylinder pressure; (7) a rapid intervention crew/universal air connection (RIC/UAC); (8) Emergency breathing Support System “Buddy Breathing”; and (9) cylinder and valve assembly for storing breathing air under pressure. Equipment must be compatible with our existing Scott equipment.

The successful bidder agrees to provide, at their own expense, a factory trained instructor for such time as the respirator user shall require complete instruction in the operation and maintenance of the respirator. Any exceptions to these specifications must be detailed in a separate attachment. Failure to do so will automatically disqualify the bidder.

The successful bidder must be a sales distributor, authorized by the manufacturer, to sell the equipment specified herein. A signed document from the manufacture confirming this must be included with the bid.

The SCBA shall maintain all NIOSH standards with any of the following types of cylinders listed as provided by the SCBA manufacturer.

The City of Bristol Tennessee is seeking bids for forty-five (45) SCBA’s, 45 masks with voice amplifiers, and 90 carbon wrapped bottles with 45 minute capacity.

**Regulatory Approvals**

The SCBA shall be approved to NIOSH 42 CFR, Part 84 for chemical, biological, radiological and nuclear protection (CBRN).

The SCBA shall be compliant to the NFPA 1981, 2013 Edition, Standard on Open-Circuit Self-Contained Breathing Apparatus for Emergency Services.

The SCBA shall be compliant to the NFPA 1982, 2013 Edition (if including optional PASS Device), Standard on Personal Alert Safety Systems.

## DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS

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If the SCBA is to include an optional integrated self-rescue device, the device shall be compliant to the NFPA 1983, 2012 Edition, Standard on Life Safety Rope and Equipment for Emergency Services.

All electronic components shall be approved for Intrinsic Safety under UL 913 Class I, Groups C and D, Class II, Groups E, F and G, Hazardous locations.

### **Facepiece**

The facepiece shall have a large diameter inlet serving as the female half of a quarter (1/4) turn coupling which mates with the positive pressure breathing regulator.

The facepiece shall be approved for use with multiple respiratory applications to enable the same user to switch from one application to another without the use of tools and without doffing the facepiece.

The full facepiece assembly shall fit persons of varying facial shapes and sizes with minimal visual interference.

The full facepiece assembly shall be available in three sizes marked "S" for small, "M" for Medium and "L" for large.

The facepiece sizes shall be easily identifiable through a color-coding scheme.

The facepiece assembly, including head harness, shall be latex free.

The facepiece series shall have a faceseal that is secured to the lens by a U-shaped channel frame that is retained to the lens using two fasteners.

The faceseal shall be a reverse reflex design for enhanced fit and comfort.

The facepiece shall contain inhalation valves that are readily visible to enable quick visual inspection.

The lens shall be a single, replaceable, modified cone configuration constructed of a non-shatter type polycarbonate material.

In accordance with NIOSH 42 CFR part 84, the facepiece meets penetration and impact requirements, including compliance with ANSI Z87.1 – 2010.

## DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS

Page 3

The lens shall have a coating to resist abrasion and chemical attack and meet the requirements of NFPA-1981, for lens abrasion.

The lens shall have an internal anti-fog coating to reduce fogging of the lens.

Multi-directional voicemitters shall be mounted on both sides of the facepiece and ducted directly to an integral silicone nosecup to enhance voice transmission.

The facepiece assembly shall be able to incorporate multiple electronic communications options (amplification, radio interface, wireless, etc) without affecting NIOSH approvals or NFPA/CBRN approvals where applicable.

The facepiece shall enable the installation of communications bracket on either the right or left side.

The head harness shall be available in a five-point suspension made in the fashion of a net hood to minimize interference between securing of the facepiece and the wearing of head protection.

The head harness shall be available in a five-strap and four-strap configuration.

The head harness shall be constructed of a para-aramid material for fire, first responder and CBRN applications.

The head harness shall include either a positioning strap (five-strap configuration) or an integrated handle (four-strap configuration) to assist with donning of the facepiece.

Two flame resistant elastic straps, attached to the facesal in four locations, shall provide adjustment for proper face sealing.

### **Mask-Mounted Regulator**

The facepiece-mounted positive pressure-breathing regulator shall supply and maintain air to the facepiece to satisfy the needs of the user at a pressure greater than atmospheric by no more than 1.5 inches of water pressure static.

The breathing regulator shall maintain positive pressure during flows of up to 500 standard liters per minute.

The regulator shall also meet or exceed a dynamic flow requirement of remaining positive while supplying a minute volume of 160 liters.

## DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS

Page 4

The breathing regulator shall have attached a low pressure hose which shall be threaded through the left shoulder strap to couple to the pressure-reducing regulator mounted on the backframe.

An optional regulator shall be available with a quick connect coupling in line for use with the optional outlet manifold and accessory hose to allow the breathing regulator to be disconnected from the unit and reconnected to the auxiliary hose of a second unit in the event rescue is required.

The optional quick connect coupling shall be easily connected and disconnected by trained individuals with a gloved hand and/or in low light conditions.

The optional quick connect coupling shall not allow the air hose to be connected without the HUD Connection.

The optional coupling shall also be guarded against inadvertent disconnect during use of the equipment.

The low-pressure hose shall be equipped with a swivel attachment at the facepiece mounted regulator.

The regulator shall connect to the facepiece by way of a quarter (1/4) turn coupling.

The user shall hear an audible sound when the regulator is attached correctly to the facepiece.

The regulator shall be equipped with a doughnut-shaped gasket which provides a seal against the mating surface of the facepiece.

The regulator cover shall be fabricated of a flame resistant, high impact plastic.

The breathing regulator shall have a demand valve to deliver air to the user, activated by a diaphragm responsive to respiration.

The demand valve shall use an extended temperature range dynamic O-ring seal composed of a fluorosilicone elastomer.

The diaphragm shall include the system exhalation valve and shall be constructed from a high strength butyl elastomer.

A purge valve shall be situated at the inlet of the breathing regulator and shall be capable of delivering airflow of between 125 and 225 standard liters per minute.

The breathing regulator shall be designed to direct the incoming air through a spray bar and over the inner surface of the facepiece lens for defogging purposes.

#### DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS

Page 5

The components of the breathing regulator shall be constructed of materials that are not vulnerable to corrosion.

The flame resistant cover shall contain an air saver switch and pressure demand bias mechanism.

The regulator shall reactivate and supply air only in the positive pressure mode when the wearer affects a face seal and inhales.

This device shall not affect the breathing flow through the system while in operation.

#### **Pressure Reducer with CGA Cylinder Connection**

The pressure-reducing regulator shall be mounted at the waist on the backframe and be coupled to the cylinder valve through a short length of internally armored high pressure hose with a hand coupling for engagement and sealing within the cylinder valve outlet.

In lieu of a manual by-pass, the pressure-reducing regulator shall include a back-up pressure-reducing valve connected in parallel with the primary pressure-reducing valve and an automatic transfer valve for redundant control.

The back-up pressure-reducing valve shall also be the means of activating the low-pressure alarm devices in the facepiece-mounted breathing regulator.

This warning shall denote a switch from the primary reducing valve to the back-up reducing valve whether from a malfunction of the primary reducing valve or from low cylinder supply pressure.

A press-to-test valve shall be included to allow bench testing of the back-up reducing valve.

The pressure-reducing regulator shall have extended temperature range dynamic O-ring seals composed of fluorosilicone elastomer.

The pressure-reducing regulator shall have incorporated a reseatable over-pressurization relief valve which shall prevent the attached low pressure hose and facepiece-mounted breathing regulator from being subjected to high pressure.

#### **End-of-Service Time Indicator (EOSTI)**

The SCBA shall have two end-of-service time indicators (EOSTI). A tactile alarm and a Heads-Up Display (HUD).

The primary EOSTI shall be the integral low-pressure alarm device that shall combine an audible alarm with simultaneous vibration of the facepiece.

#### DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS

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The primary EOSTI shall be the integral low-pressure alarm device that shall combine an audible alarm with simultaneous vibration of the facepiece.

The primary EOSTI shall be located in the Facepiece-Mounted Positive Pressure Regulator.

This alarm device shall indicate either low cylinder pressure (33% +5%, -0%) or a malfunction of the primary pressure-reducing valve (first stage regulator).

The HUD shall serve as the secondary EOSTI.

The HUD shall be powered by the SCBA's single power supply.

It shall be mounted in the user's field of vision on the Facepiece Mounted Positive Pressure Regulator.

It shall display cylinder pressure in increments of 100%, 75%, 50% and 33%.

The display shall not have a numerical representation of bottle pressure.

At full bottle pressure, two green Light Emitting Diodes (LED) shall be illuminated.

At three-quarter bottle pressure, one green LED shall be illuminated.

At one-half bottle pressure, one "yellow" LED shall be illuminated and flash at a rate not to exceed one (1x) time per second.

At one-third bottle pressure, one "red" LED shall be illuminated and flash at a rate not to exceed ten (10x) times per second.

The HUD shall have a low battery indication that is distinct and distinguishable from the bottle pressure indications.

#### **Harness and Back frame Assembly**

A lightweight, lumbar support style backframe and harness assembly shall be used to carry the cylinder and valve assembly and the pressure-reducing regulator assembly.

The backframe shall be a solid, one-piece black powder-coated aluminum alloy frame that is contoured to follow the shape of the user's back.

It shall include a shroud to streamline hose and wire management by minimizing exposure of the low pressure hose and electronics molded cable.

#### DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS

Page 7

The backframe shall include a mounting for the pressure reducer located at the waist.

The backframe shall include an over-the-center, adjustable tri-slide fixture, a para-aramid strap and a double-locking latch assembly to secure 30, 45, 60, or 75 minute cylinders.

The harness assembly shall consist of a one size black para-aramid strap with a yellow stripe.

This harness shall include box-stitched construction with no screws or bolts.

The harness assembly shall incorporate parachute-type, quick-release buckles and shall include shoulder and hip pads. Optional spring (alligator) clips shall also be available.

The harness shall include a seat-belt type waist attachment.

The shoulder strap shall be fitted with a Drag Rescue Loop (DRL) capable of being deployed in an emergency situation to drag a downed firefighter to safety.

The shoulder strap shall be attached to the backframe by way of a single, articulating metal bracket to allow for optimal shoulder movement.

The backframe shall include accommodation and a mounting area suitable for installation of a distress alarm integrated with the SCBA.

The mounting area shall permit installation of a distress alarm sensor module in an area between the pressure reducer and the backframe.

#### **Personal Alert Safety System**

The PASS Device shall be compliant to the NFPA 1982, 2013 Edition Standard on Personal Alert Safety Systems.

Operation of this distress alarm shall be initiated with the opening of the valve of an SCBA charged cylinder.

The system shall feature a “hands-free” re-set capability that may be activated by means of a slight movement of the SCBA when the system is in a pre-alarm mode.

The system shall operate from a single power source containing six “AA” batteries.

The battery life of the SCBA with PASS only shall be no less than 200 hours.

The system shall have a battery check function that provides an LED indication of battery status while the SCBA is not pressurized.

#### DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS

Page 8

The PASS System shall be upgradeable to include a 2.4 GHz integrated locator system.

The PASS system shall be upgradeable to include a 2.4 GHz integrated SCBA air / PASS (telemetry) management system.

The PASS device shall contain two components: a Console and a Sensor Module.

When the PASS device goes into pre-alarm, the user shall be notified through a distinct light pattern in the HUD display.

#### **Console**

The console shall be located on the user's right shoulder harness.

The control console shall come with a mechanical (analog) pressure gauge that is angled at 30° with a sweeping display.

The console shall contain an integral edge lit mechanical pressure gauge that is automatically energized by opening the cylinder valve.

The console shall display to the user the following: Pre-Alarm: alternating red flashing LED's; Full Alarm: dual flashing red LED's and a flashing PASS icon; Low Battery: red flashing LED's; Normal System Operation: flashing green LED.

The console shall contain a photo sensing diode to dim and brighten the HUD as the ambient lighting changes.

The console shall contain push buttons for user interface.

The push buttons shall be designed to minimize accidental activation.

A yellow color-coded push button shall permit system re-set.

A red color-coded push button shall permit manual activation of the full alarm mode.

The console shall be equipped with a LED "External HUD" allowing others to determine the wearer's cylinder pressure through the same color-code scheme as the standard HUD.

A green LED shall be illuminated across the gauge face to indicate a cylinder with greater than half bottle pressure.

A yellow LED shall be illuminated across the gauge face to indicate a cylinder with less than half bottle pressure.

#### DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS

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A red LED shall be illuminated across the gauge face to indicate a cylinder with less than one-third bottle pressure.

#### Sensor Module

The system shall include a sensor module mounted to the SCBA backframe and located in an area between the cylinder and backframe in a manner designed to protect the assembly from damage.

The sensor module shall contain a motion sensor that is sensitive to user hip movement to reduce false activation.

The sensor module shall contain redundant, dual sound emitters for the audible alarm and dual visual “buddy” indicators.

The sensor module sound emitters shall be oriented in multidirections for optimal sound projection.

The visual indicators on the backframe mounted sensor module shall flash green during normal operation.

The visual indicators shall flash red when the device is in prealarm and full-alarm.

The visual indicators shall flash orange when the SCBA has reached one-half bottle pressure.

The visual indicators shall flash a combination of red, green, and white when the SCBA has reached one-third bottle pressure.

#### **Rapid Intervention Crew / Universal Air Connection (RIC/UAC)**

The SCBA shall incorporate a RIC/UAC fitting to be compliant with the 2013 edition of the NFPA 1981 Self-Contained Breathing Apparatus standard.

The RIC/UAC shall be an integral part of the pressure reducer and protected by the backframe.

The RIC/UAC inlet connection shall be within 4” (4-inches) of the tip of the CGA threads of the cylinder valve.

The RIC/UAC shall consist of a connection for attaching a high-pressure air source and a self-resetting relief valve allowing a higher pressure than that of the SCBA to be attached to the SCBA.

The self-resetting relief valve shall be color-coded to identify pressure rating of the SCBA.

#### DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS

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The RIC/UAC shall have a check valve to prevent the loss of air when the high-pressure air source has been disconnected.

### **Emergency Breathing Support System “Buddy Breathing”**

The Optional Dual Emergency Breathing Support System (EBSS) shall be approved to NIOSH 42CFR, Part 84 and NFPA 1981, 2013 Edition.

The Dual EBSS shall have one of each of the following requirements; (1) a manifold with one each of a female socket and male plug, both of which have check valves, (2) 40” minimum low pressure hose, (3) a pouch for storing the hose, and (4) a dust cap for the female socket and male plug.

The Dual EBSS shall be positioned on the wearer’s right side and shall be capable of allowing for six feet of hose between like systems.

The manifold shall be made of aluminum and be anodized black.

The female socket and male plug shall have spacing, no less than 15° off-center.

The female socket shall have a double action to disengage, noted as a “push-in/pull-back”.

The female socket shall have an internal check valve.

The male plug shall have an external check valve.

The hose shall be made of high temperature rubber capable of sustaining a maximum 250 psig of pressure.

The containment system shall include a pouch and shall be made of para-aramid materials and shall be capable of storing 36” of hose.

The pouch shall be attached to the SCBA by snap fasteners.

The pouch shall have a pull-strap to assist with opening of the flap and gaining access to the hose and manifold assembly.

The Dual EBSS shall have provision for connection of a supplied airline for extended duration use while reserving the cylinder supply for egress.

The Dual EBSS shall connect to a supplied airline using an extended duration airline adapter.

#### DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS

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The extended duration airline adapter shall have a female quick connect fitting on one end to connect to the Dual EBSS.

The extended duration airline adapter shall have a male quick connect fitting on one end to connect to a supplied airline. The adapter shall be able to accommodate Hansen, Foster, Hansen HK, or Schrader.

The extended duration airline adapter shall have a check valve to prevent the accidental loss of air when the adapter is disconnected from the supplied airline.

#### **Cylinder**

The cylinder threads shall be straight with an O-ring or quad-ring gasket type seal.

The cylinder valve shall be a “fail open” type, constructed of forged aluminum and designed such that no stem packing or packing gland nuts are required.

It shall contain an upper and lower seat such that the pressure will seal the stem on the upperseat, thus preventing leakage past the stem.

No adjustment shall be necessary during the life of the valve.

If the SCBA is equipped with a CGA cylinder connection, the cylinder valve outlet shall be a modification of the Compressed Gas Association (CGA) standard threaded connection number 346 for breathing air for 2216 and CGA 347 for 4500 and 5500 systems.

Each cylinder valve shall consist of the following: 1) a hand activated valve mechanism with a spring-loaded, positive action, ratchet type safety lock and lock-out release for selecting “lock open service” or “non-lock open service”; 2) an upstream connected frangible disc safety relief device; 3) a dual reading pressure gauge indicating cylinder pressure at all times; 4) an elastomeric bumper; 5) an angled outlet.

The SCBA shall maintain all NIOSH and NFPA standards with any of the following types of cylinders listed as provided by the SCBA manufacturer.

#### **Carbon-Wrapped**

The cylinder shall be manufactured in accordance with DOT specifications and meet the Transport Canada requirements with working pressures of 4500 psig.

The cylinder shall be lightweight, composite type cylinder consisting of an aluminum alloy inner shell, with a total overwrap of carbon fiber, fiberglass and an epoxy resin.

#### DESCRIPTION OF REQUIREMENTS AND SPECIFICATIONS

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The cylinder shall be a 45- minute duration based on the NIOSH breathing rate of 40 liters per minute (lpm).

#### **Electronic Voice Amplifier**

The respirator shall have an optional facepiece-mounted voice amplification device to electronically project the user's voice.

The voice amplification device shall be mounted to the facepiece by means of a bracket that is secured around the voicemitter of the facepiece.

The device shall contain a bayonet-style mounting fixture that enables the user to insert the voice amplifier into the bracket and secure it with a quarter-turn counter-clockwise when it shall lock into place.

The device shall contain a thumb latch to permit removal when it is pressed and the device is rotated a quarter-turn clockwise.

The thumb latch shall contain a captive screw that enables the user to prevent removal.

The device shall weigh no more than 7 ounces 225 (grams) and its size shall not exceed the following dimensions: Length: 3.50 inches; (8.89 cm); width: 2.0 inches (5.08 cm); depth (extension from voice emitter): 1.75 inches (4.44 cm).

The device shall be able to be upgraded to a voice amplifier, radio interface, and stand-alone radio communication system that all reside in a single housing with a single power source.

The device shall contain a momentary on/off switch with a tactile indication and audible click when depressed.

The switch shall be covered with a sheath made of a silicone material.

The device shall contain an LED which illuminates green when the device is activated and flashes once per second when a low battery condition (approximately 10% of battery life remaining) is present.

The device shall provide audible tones to indicate that the system has been energized, de-energized and to provide a low battery indication.

The device shall be powered by three AAA alkaline batteries, which shall provide no less than 50 hours of continuous operation with fully-charged batteries.

The batteries shall be contained in a gasket sealed compartment secured in place by means of a fastener.

The door of the battery compartment shall be user-replaceable.

The device shall contain an automatic shutdown function that de-energizes the voice amplifier approximately 20 minutes after the last time the user speaks.

Designed to conserve battery life when a user forgets to turn off the voice amplifier, the voice amplifier shall be reactivated after shutdown by pressing the on/off switch.

The microphone shall be located on the surface of the bayonet mounting fixture and voice projection shall be facilitated by means of a circular gasket that seals the device to the communications mounting bracket.

The amplifier shall contain a custom speaker designed for pushing sound through background noises commonly found at emergency events.

The device shall not feedback for longer than 1 second when worn in a Level A HazMat suit.

The device shall be able to provide a minimum STI score of 0.65, even though NFPA minimum requirement is 0.60.

The voice amplifier, when attached to a facepiece, shall be able to withstand a 30 minute tumble test.

A single voice amplifier shall be able to withstand eight, 6 foot drops, once on each side and on two edges.

The voice amplifier shall be able to withstand a 30 minute tumble test not attached to the facepiece.

- End of Section-

**City of Bristol, Tennessee**  
**BID PRICING SHEET**

Bid Reference No. 17032

**45 SELF-CONTAINED BREATHING APPARATUS**

Total Price:                      \$ (See attached pricing sheet) (Price in Numbers)

**Delivery Date:**                      \_\_\_\_\_

Non-Collusive Bid Statement: The undersigned bidder, having fully informed himself regarding the accuracy of the statements made herein, certifies that: (1) The bid has been arrived at by the bidder independently and has been submitted without collusion with, and without any agreement, understanding, or planned common course of action with any other vendor of materials, supplies, equipment, or services described in the bid, designed to limit independent bidding or competition, and (2) The contents of the bid have not been communicated by the bidder or its employees or agents to any person not any employee or agent of the bidder or its surety on any bond furnished with the bid, and will not be communicated by any such person prior to the official opening of the bid.

\_\_\_\_\_  
Signature of Authorized Official

\_\_\_\_\_  
Name and Title (Printed)

\_\_\_\_\_  
Legal Name of Business

\_\_\_\_\_  
Physical Address

\_\_\_\_\_  
Mailing Address

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
Fax Number

\_\_\_\_\_  
Email

\_\_\_\_\_  
Date

REQUIREMENTS OF IRAN DIVESTMENT ACT

Name of Bidder: \_\_\_\_\_

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the Iran investment activities list created pursuant to T.C.A. § 12-12-106.

Name of & Title of Signer  
(Print or Type): \_\_\_\_\_  
\_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Complete and return with bid package.

TITLE VI VOLUNTARY DISCLOSURE BY VENDORS/CONTRACTORS

The purpose of this request is to provide statistical information related to Title VI regulations. This is a VOLUNTARY disclosure. The information requested pertains to the company owner.

- Race:             White/Caucasian  
                   Black/African American  
                   Hispanic  
                   Asian  
                   American Indian and Alaskan Native  
                   Native Hawaiian or other Pacific Islander  
                   Other

- Gender:         Male  
                   Female

This form will be maintained on file in the Purchasing Department for review by the City of Bristol, Tennessee and the Tennessee Department of Transportation Title VI Compliance Office.