Exhibit A
SCBA Specifications

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); and (8) cylinder and valve assembly for storing breathing air under pressure.

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.

	Product:		
Approvals	Meets	Does Not Meet	Exception
• 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.	☐	☐	☐
• 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 the 6th edition of UL 913 Class I, Groups C, D, E, F, and G, Hazardous locations.	☐	☐	☐
Required Components	Product:		
Facepiece	Meets	Does Not Meet	Exception
• 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.	☐	☐	☐
• 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 Scott 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 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, and be constructed of a para-aramid material for fire, first responder and CBRN applications.	☐	☐	☐
	Product:		
Mask-Mounted Regulator	Meets	Does Not Meet	Exception
• 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.	☐	☐	☐

• 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.	☐	☐	☐
• As an option, the 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 quick connect coupling shall be easily connected and disconnected by trained individuals with a gloved hand and/or in low light conditions.	☐	☐	☐
• The quick connect coupling shall not allow the air hose to be connected without the HUD connection.	☐	☐	☐
• The 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 175 standard liters per minute.	☐	☐	☐
• The breathing regulator shall be arranged to direct the incoming air over the inner surface of the facepiece for defogging purposes.	☐	☐	☐
• 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.	☐	☐	☐
• It 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.	☐	☐	☐
	Product:		
Pressure Reducer	Meets	Does Not Meet	Exception
• The pressure-reducing regulator shall be mounted 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.	☐	☐	☐
	Product:		
End-of-Service Time Indicator (EOSTI)	Meets	Does Not Meet	Exception
• 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.	☐	☐	☐
• 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 primary first stage regulator failure.	☐	☐	☐
• The HUD shall serve as the secondary EOSTI indicator.	☐	☐	☐
• 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.	☐	☐	☐
	Product:		
Harness and Backframe Assembly	Meets	Does Not Meet	Exception
• 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 frame that is contoured to follow the shape of the user’s back.	☐	☐	☐
• The backframe shall include a mounting for the pressure reducer.	☐	☐	☐
• This mounting shall contain a slide-type bracket permitting positioning of the pressure reducer to accommodate connection to either an angled or straight-type cylinder valve.	☐	☐	☐
• 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.	☐	☐	☐
• 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 one-piece aluminum backframe should include integrated donning/carry handles.	☐	☐	☐
• The handles shall allow the user to easily don the SCBA in the “over-head” style and also allow the user to carry the SCBA.	☐	☐	☐
• The backframe shall include accommodation and mounting spaces suitable for installation of a distress alarm integrated with the SCBA.	☐	☐	☐
• These mounting spaces shall permit installation of an alarm sensor module in an area between the cylinder hanger locking mechanism and the backframe.	☐	☐	☐

	Product:		
Shoulder-Mounted Pressure Gauge (replace this section if requiring a PASS device, see below)	Meets	Does Not Meet	Exception
• The pressure gauge shall be an integral part of the console assembly.	☐	☐	☐
• The control console shall come with a mechanical (analog) pressure gauge that is angled at 30°.	☐	☐	☐
• The control console shall contain an edge lit pressure gauge that requires no action by the user to turn on except opening the cylinder valve.	☐	☐	☐
• The control console shall contain a photo sensing diode to dim and brighten the HUD as the environment changes.	☐	☐	☐
• The console shall power the HUD with two AA batteries.	☐	☐	☐
	Product:		
Rapid Intervention Connection	Meets	Does Not Meet	Exception
• 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 high-pressure hose that attaches the cylinder valve to the first stage pressure reducer.	☐	☐	☐
• 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 RIC/UAC shall have a check valve to prevent the loss of air when the high-pressure air source has been disconnected.	☐	☐	☐
	Product:		
Cylinder - Each backframe shall include two cylinders	Meets	Does Not Meet	Exception
• 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.	☐	☐	☐
• 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 with a tri-lobe ergonomically designed hand-wheel.	☐	☐	☐
• The valve shall be constructed such that damage will not occur if the coupling is over-torqued by hand.	☐	☐	☐
• 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.	☐	☐	☐

• Each cylinder and valve assembly shall be equipped with a hanger bracket for positive locking attachment of the assembly to the backframe.	☐	☐	☐
• The SCBA shall maintain all NIOSH and NFPA standards with any of the following types of cylinders listed as provided by the SCBA manufacturer.	☐	☐	☐
Aluminum			
• The cylinder shall be manufactured in accordance with DOT specifications and meet the Transport Canada requirements with a working pressure of 2216 psig.	☐	☐	☐
• The cylinder shall be made of an aluminum alloy.	☐	☐	☐
• The cylinder shall be available in a 30-minute duration based on the NIOSH breathing rate of 40 liters per minute (lpm).	☐	☐	☐
Carbon-Wrapped			
• The cylinder shall be manufactured in accordance with DOT specifications and meet the Transport Canada requirements with working pressures of 2216, 4500, or 5500 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.	☐	☐	☐
• The cylinder shall be available in a 30-minute, 45-minute, 60-minute or 75 minute duration based on the NIOSH breathing rate of 40 liters per minute (lpm).	☐	☐	☐
	Product:		
Warranty	Meets	Does Not Meet	Exception
• The unit shall be covered by a warranty providing protection against defects in materials or workmanship.	☐	☐	☐
• This warranty shall be for a period of 10 years on the SCBA, except for the pressure reducer, which shall be covered for 15 years.	☐	☐	☐
• Electronic components shall be warranted for five years.	☐	☐	☐
Optional Components	Product:		
Personal Alert Safety System	Meets	Does Not Meet	Exception
• 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-alert 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.	☐	☐	☐
• 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.	☐	☐	☐
Console			
• The console shall be located on the user's right shoulder strap.	☐	☐	☐
• 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 environment 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 reset.	☐	☐	☐
• A red color-coded push button shall permit manual activation of the full alarm mode.	☐	☐	☐
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 activations.	☐	☐	☐
• 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 multi-directions 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 1) when the device is in pre-alert; 2) when the device is in full-alert; and 3) when the SCBA has reached one-third bottle pressure.	☐	☐	☐
	Product:		
Personal Alert Safety System with Firefighter Locator	Meets	Does Not Meet	Exception
• 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-alert 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.	☐	☐	☐
• When the PASS is manually activated, the locator system shall immediately emit a 2.4 GHz signal to be received by a separate hand-held receiver.	☐	☐	☐
• When the PASS is activated due to lack of motion, the locator system shall have a ten second delay prior to emitting a 2.4 GHz signal to be received by a separate hand-held receiver.	☐	☐	☐
• The system shall utilize a 2.4 GHz signal to provide the best path to a “downed” firefighter.	☐	☐	☐
• The locating system shall be wirelessly programmable with eight alpha-numeric characters to provide identification information.	☐	☐	☐
• The PASS device shall contain two components: a Console and a Sensor Module.	☐	☐	☐
• The PASS system shall be upgradeable to include a 2.4 GHz integrated SCBA air/PASS telemetry management system.	☐	☐	☐
Console			
• The console shall be located on the user’s right shoulder strap.	☐	☐	☐
• The console shall contain an integral edge lit mechanical pressure gauge that is automatically turned on 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 environment 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 reset.	☐	☐	☐
• A red color-coded push button shall permit manual activation of the full alarm mode.	☐	☐	☐
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 activations.	☐	☐	☐
• 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 multi-directions 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 1) when the device is in pre-alert; 2) when the device is in full-alert; and 3) when the SCBA has reached 1/3-bottle pressure.	☐	☐	☐
	Product:		
Personal Alert Safety System with Accountability	Meets	Does Not Meet	Exception
• The PASS Device shall be compliant to the NFPA 1982, 2013 Edition Standard on Personal Alert Safety Systems and Transmitting Pass.	☐	☐	☐
• 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-alert 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 70 hours.	☐	☐	☐
• The system shall have a battery check function that provides an LED indication of battery status while the SCBA is not pressurized.	☐	☐	☐
• When the PASS is manually activated, the locator system shall immediately emit a 2.4 GHz signal to be received by a separate hand-held receiver.	☐	☐	☐
• When the PASS is activated due to lack of motion, the locator system shall have a ten second delay prior to emitting a 2.4 GHz signal to be received by a separate hand-held receiver.	☐	☐	☐
• The system shall utilize a 2.4 GHz signal to provide the best path to a “downed” firefighter.	☐	☐	☐
• The locating system shall be programmable with eight alpha-numeric characters to provide identification information.	☐	☐	☐
• The system shall transmit user status information at a frequency of 2.4 GHz on a self-healing mesh network system that when deployed allows each energized SCBA to function as a repeater ensuring system connectivity.	☐	☐	☐
• The system shall provide bi-directional communications between command and SCBA wearer.	☐	☐	☐
• The communication shall contain: the user’s name, cylinder pressure, PASS Alarms, PASS Acknowledgement, evacuation status, evacuation acknowledgement, Withdraw and Withdraw acknowledgement.	☐	☐	☐

• The PASS device shall contain two components: a Console and a Sensor Module.	☐	☐	☐
Console			
• The console shall be located on the user's right shoulder strap.	☐	☐	☐
• The console shall contain an integral edge lit mechanical pressure gauge that is automatically turned on 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 also include icons to indicate Range Status, Evacuation, Withdraw (self-evacuation) and when the system is ready to receive the user's ID through an RFID card.	☐	☐	☐
• The console shall contain a photo sensing diode to dim and brighten the HUD as the environment 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.	☐	☐	☐
• A gray color-coded push button shall permit the activation of the withdraw mode.	☐	☐	☐
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 activations.	☐	☐	☐
• The sensor module shall contain redundant, dual sound emitters for the audible alarm and dual visual "buddy" indicators.	☐	☐	☐
• The visual indicators on the backframe mounted sensor module shall flash green during normal operation.	☐	☐	☐
• The visual indicators shall flash red 1) when the device is in pre-alert; 2) when the device is in full-alert; and 3) when the SCBA has reached 1/3-bottle pressure.	☐	☐	☐
	Product:		
Emergency Breathing Support System "Buddy Breathing"	Meets	Does Not Meet	Exception
• 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 system shall be on the wearer’s left 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 pull-the-dot fasteners.	☐	☐	☐
	Product:		
Extended Duration Airline System	Meets	Does Not Meet	Exception
• An optional manifold shall also have provision for connection of an airline supply for extended duration use while reserving the cylinder supply for egress.	☐	☐	☐
• The air supply hose length shall be up to 300 feet and require an inlet pressure range of 60 to 115 psig, depending on the length of supply hose used.	☐	☐	☐
• The check valve within the outlet manifold shall prevent the external release of cylinder air in the event the air supply is either not used or disconnected.	☐	☐	☐
• Switching from airline supply to cylinder supply shall be accomplished manually by the user by opening the cylinder valve to prevent inadvertent use of the cylinder supply without the user’s knowledge.	☐	☐	☐
	Product:		
Electronic Voice Amplifier	Meets	Does Not Meet	Exception
• The respirator shall have a 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 voice emitter 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 gasketed 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 shut down 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 shut down 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 on a level A haz-mat 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.	☐	☐	☐