CITY OF CROWLEY
EXHIBIT "A"

CROWLEY FIRE DEPARTMENT
SCBA BID SPECS
2/10/2016

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 face piece assembly; (2) a removable, face piece-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 back frame 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 disqualifies 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 cylinders 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.	☐	☐	☐
• 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.			
Required Components	Product:		
Face piece	Meets	Does Not Meet	Exception
• The face piece 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 face piece 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 face piece.	☐	☐	☐
• The full face piece assembly shall fit persons of varying facial shapes and sizes with minimal visual interference.	☐	☐	☐
• The full face piece assembly shall be available in three sizes marked “S” for small, “M” for Medium and “L” for large.	☐	☐	☐
• The face piece sizes shall be easily identifiable through a color-coding scheme.	☐	☐	☐
• The face piece assembly, including head harness, shall be latex free.	☐	☐	☐
• The face piece series shall have a face seal that is secured to the lens by a U-shaped channel frame that is retained to the lens using two fasteners.	☐	☐	☐
• The face piece 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 face piece 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.	☐	☐	☐
• The face piece 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 head harness shall be a five-point suspension made in the fashion of a net hood to minimize	☐	☐	☐

interference between securing of the face piece 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 face piece-mounted positive pressure-breathing regulator shall supply and maintain air to the face piece 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.	□	□	□
	Product:		
Mask-Mounted Regulator	Meets	Does Not Meet	Exception
• The face piece-mounted positive pressure-breathing regulator shall supply and maintain air to the face piece 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 back frame.	□	□	□
• 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 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 face piece mounted regulator.	□	□	□
• The regulator shall connect to the face piece by way of a quarter (1/4) turn coupling.	□	□	□
• The user shall hear an audible sound when the regulator is attached correctly to the face piece.	□	□	□
• The regulator shall be equipped with a doughnut-shaped gasket which provides a seal against the mating surface of the face piece.	□	□	□
• 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 face piece 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 with Snap-Change Cylinder Connection	Meets	Does Not Meet	Exception
• The pressure-reducing regulator shall be mounted on the back frame and be coupled to the cylinder valve through a patented stainless steel quick connect snout for engagement and sealing within the cylinder valve outlet.	☐	☐	☐
• The cylinder shall be secured to the pressure-reducing regulator with two pull-rings 180° from each other.	☐	☐	☐
• A stainless steel rod shall secure each of the pull-rings.	☐	☐	☐
• The stainless steel rods shall be actuated when the cylinder is opened and when cylinder pressure is above 50 psig.	☐	☐	☐
• 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 face piece-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 resettable over-pressurization relief valve which shall prevent the attached low pressure hose and face piece-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 face piece.	□	□	□
• The primary EOSTI shall be located in the Face piece-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 Face piece-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.	□	□	□
• Include in this bid packet a pen which writes in the color red.	□	□	□

	Product:		
Harness and Back frame Assembly	Meets	Does Not Meet	Exception
• A lightweight, lumbar support style back frame and harness assembly shall be used to carry the cylinder and valve assembly and the pressure reducing regulator assembly.	☐	☐	☐
• The back frame shall be a solid, one-piece black powder-coated aluminum frame that is contoured to follow the shape of the user's back.	☐	☐	☐
• The back frame shall include a mounting for the pressure reducer located at the waist.	☐	☐	☐
• The back frame 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 shoulder strap shall be attached to the back plate by way of a single, articulating metal bracket.	☐	☐	☐
• The one-piece aluminum back frame 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 back frame shall include accommodation and mounting spaces suitable for installation of a distress alarm integrated with the SCBA.	☐	☐	☐
	Product:		
Shoulder-Mounted Pressure Gauge	Meets	Does Not Meet	Exception

• The pressure gauge shall be an integral part of the control 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 open the cylinder valve.	☐	☐	☐
• The control console shall contain a photo sensing diode to dim and brighten the HUD as the environment changes.	☐	☐	☐
	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 reducer and protected by the back frame.	☐	☐	☐
• 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	Meets	Does Not Meet	Exception
• 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 upper seat, 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 CGA 347 for 4500 and 5500 systems.	☐	☐	☐
• The SCBA shall be equipped with a Snap-Change Cylinder connection, the cylinder valve shall be	☐	☐	☐

designed with a quick connect that delivers air directly to the first stage pressure reducing regulator.			
• The SCBA shall be equipped with a Snap-Change Cylinder connection, the cylinder valve shall be offered with a CGA 346 or CGA 347 fitting for the purposes of filling the cylinder only.	□	□	□
• The SCBA shall be equipped with a Snap-Change Cylinder connection, the fill fitting shall have a check valve to prevent flow from the cylinder.	□	□	□
• The SCBA shall be equipped with a Snap-Change Cylinder connection, the fill fitting shall be provided with a dust cover to protect threads from damage and prevent interior surfaces from being contaminated when not in use.	□	□	□
• The SCBA shall be equipped with a Snap-Change Cylinder connection, the dust cover shall be retained to the cylinder valve.	□	□	□
• 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 back frame.	□	□	□
• 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 pressure 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.	□	□	□
• The cylinder shall be available in a 45-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 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 alkaline 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 programmable with eight alpha-numeric characters to provide identification information.	☐	☐	☐

• 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 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.	□	□	□
Sensor Module			
• The system shall include a sensor module mounted to the SCBA back frame and located in an area between the cylinder and back frame 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 back frame 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 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:		

Electronic Voice Amplifier	Meets	Does Not Meet	Exception
• The respirator shall have an face piece-mounted voice amplification device to electronically project the user's voice.	☐	☐	☐
• The voice amplification device shall be mounted to the face piece by means of a bracket that is secured around the voice emitter of the face piece.	☐	☐	☐
• 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 be able to be upgraded to a voice amplifier, radio interface, and standalone 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 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 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 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 be able to provide a minimum STI score of 0.65, even though NFPA minimum requirement is 0.60.	□	□	□
• A single voice amplifier shall be able to withstand eight, 6 foot drops, once on each side and on two edges.	□	□	□

CITY OF CROWLEY
EXHIBIT "B"

CROWLEY FIRE DEPARTMENT
SCBA BID PROPOSAL FORM
2/10/2016

The undersigned agrees to furnish Open-Circuit Self Contained Breathing Apparatus (SCBAf) and other equipment and items meeting the requirements of the specifications as contained in Exhibit "A". The Bidder acknowledges the Purchaser's right to accept or reject any and all proposals. It is further understood that any or all proposals may not be withdrawn for a period of thirty (30) days from the opening thereof.

	Unit Price	Total
36 NFPA 1981, Compliant, 2013 Edition Self Contained Breathing Apparatus with Voice Amps.	_____	_____
4 – NFPA 1981, Compliant, 2013 Edition Face Piece with Voice Amp	_____	_____
7 – Buddy Breathers added to the packs	_____	_____
1 – Firefighter Locator with truck mount	_____	_____
Total Per Unit	_____	_____

Make and Model _____

Delivery _____

BIDDER:_____
OFFICER SIGNATURE:_____
NAME TYPED:_____
TITLE:_____
STREET ADDRESS:_____
CITY, STATE, ZIP:_____
TELEPHONE:_____
FACSIMILE:_____
DATE:_____