INVITATION TO BID

PURCHASING DEPARTMENT

P.O. BOX 1349

327 NORTH ASHLEY ST.

VALDOSTA, GEORGIA 31601

#LC-2021-6305

FOR: One Breathing Air System Lowndes County Fire

OPENING DATE: March 8, 2021

TIME: 10:00 am EST

Amy Woods, Finance Department

(229) 671-2527

GENERAL SPECIFICATIONS

It is the intent of these specifications to furnish Lowndes County with the following requisitioned equipment/service, according to the attached. It is clearly understood that the following are minimum specifications and are made in order to show the exact specifications of the equipment/service proposed.

The bidder agrees that Lowndes County reserves the right to waive technicalities and to reject any or all bids.

If you have any questions, please call the phone number listed on the cover page.

Depending upon the purchase price, the Purchasing Agent or Lowndes County Board of Commissioners will make the final decision of purchase.

All sealed bids must have the Bid Number and Name of Vendor submitting the bid located on the front of the envelope. Sealed bids are due and opened on the date and time listed on the front cover page.

NO BID WILL BE CONSIDERED IF RECEIVED AFTER THE DATE AND TIME SPECIFIED!

Invoices are paid on a net 30 basis.

Any price(s) bid by dealer/vendor on any items offered to the
Lowndes County shall be the price effective at the date of delivery.

No delivery date of "ASAP" (As Soon As Possible) shall be considered acceptable on items that have a maximum delivery date listed in the specifications.

Addendum(s) issued in a bid must be acknowledged and submitted with the original bid package.

All Shipping is to be FOB Valdosta, GA 31601 and included in the total price unless otherwise stated in the bid document.

INSTRUCTIONS TO BIDDERS

1. Bids must be made upon the form of the proposal if attached hereto. If there is not a form attached, please submit the proposal/bid on your company letterhead in a design/layout that will best suit the price and information that the County has requested. The following information should be listed legibly on the outside of the sealed envelope: **1. Name of vendor submitting the bid. 2. Bid number and Title located on the cover page of the Bid Package.** Bids may be mailed or hand delivered **ONLY** to the Purchasing Department of Lowndes County, located at, 327 North Ashley Street, 3rd floor, Valdosta, GA 31601. In the event you choose to mail your proposal, it should be mailed to Amy Woods, Finance Department, 327 North Ashley Street, Valdosta, GA 31601. Emailed or faxed bids will not be accepted. No Exceptions!

2. No bidder will be allowed to withdraw his bid for any reason whatsoever after the bids have been opened unless otherwise stated in the specifications.

3. The following specifications represent the minimum general size, weight, capacity and performance characteristics desired in the equipment to be purchased. These requirements are not intended to prevent obtaining fair prices or to eliminate competition, but to insure, if possible, that all bids submitted would not be subject to correction or alteration after the bid has been filed, opened, and publicly read. In view of an unusual wide disparity in details of design and manufacture, complete descriptive literature and manufacturer's specifications must be submitted on each type of equipment offered. Lowndes County reserves the right to evaluate any or all bids, particularly where there is a range in specifications. Special consideration will be given to the ready availability of repair parts and service.

4. Federal or State taxes are not applicable to Georgia Counties under the United States Code Title 26 and Georgia Exemption Certificate Number 3-465-686-300-1.

5. The names of a certain brand, make, or definite specifications are to demote quality standard of the article desired. The County does not restrict bidders to be specific brand, make or manufacturer named; it is to set forth and convey to prospective bidders the general style, type, character and quality of the article desired.

6. The award of the contract will be awarded to the lowest responsible bidder taking into consideration quality performance , the time specified in the specifications for the performance of the contract, provision of needed and unneeded features, usefulness to the using department, whether bidder meets guidelines set forth in the specifications, and prior County experience.

7. Unless otherwise specifically stated in the SPECIFICATIONS, any item that the county has sent out for bid(s) must be NEW equipment with the latest technology available. No remanufactured item will be accepted unless stated otherwise in the bid specifications.

Lowndes County Fire Rescue is requesting bids on one (1) complete Breathing Air System to include at a minimum a compressor, enclosed fill station and

cascade air storage system. The specifications listed below are intended to serve as minimum specifications without regards to any specific brand or manufacturer. Any bidder who is unable to meet or exceed these specifications may still submit a bid, however, to be considered the bid must include an exceptions page listing each of the specifications they are unable to meet and provide a detailed explanation of their proposed exception and why they think it should be considered.

Specifications Breathing Air Module

The entire breathing air module shall be integrated into a single, free-standing unit third party certified to meet cTUVus standards. The outer frame shall be of heavy-duty construction consisting of welded two-inch square tube. To minimize radiant sound level the enclosure shall contain sound absorbing material.

The unit shall be designed to allow installation flush against a wall without inhibiting cooling air flow or maintenance access.

The breathing air module shall be factory assembled and tested to assure quality and reliability. The system scope of supply shall be housed within the confines of the sheet metal enclosure; to include: UL listed electrical panel, purification system, muffler reservoir and pressure bearing components as follows:

Compressor: The compressor block shall be four stage, air cooled, pressure oil lubricated of "V" configuration and rated for continuous duty at 6000 psig with a charging rate of 14.0 cfm. The crankcase shall be of all cast iron construction, fully enclosed and support an iron crankshaft with oversized ball bearings on each end. Only two connecting rods shall be utilized. Each connecting rod shall be equipped with needle bearings on each end for long life. All pistons shall be of the captive design, manufactured of aluminum or steel and incorporate rings on all stages. Cylinders shall be of aluminum or cast iron construction with deep cooling fins to provide maximum heat dissipation. The compressor flywheel shall incorporate a high velocity fan to remove heat from the compressor. Cooling air flow from the fan shall be a minimum of 3000 cfm. Individually mounted intercoolers shall be utilized after each stage of compression and the aftercooler shall be designed to deliver final air at a temperature not to exceed 18 degrees F above ambient. Suction and delivery valves shall be designed in such a manner that they can be replaced without replacing the entire assembly. Valve inspection covers are to be provided on the first and second stage cylinders. Relief valves shall be utilized after each stage of compression.

The pressure lubrication system shall include an oil pump to supply metered quantities of lubricant directly to the fourth stage piston through a regulator and replaceable spin-off type, full flow filter. The oil pump shall be directly driven off of the crankshaft. Belt driven pumps shall not be acceptable. An oil level sight

glass shall be provided for checking the crankcase oil level.

The compressor system shall have a moisture separator after every stage of compression. An automatic drain system shall be supplied to periodically discharge accumulated condensation from each moisture separator during operation and whenever the unit shuts down.

Compressor systems requiring cool down or (unloaded running periods) and those that require auxiliary cooling fans are not acceptable. The compressor system must be rated for continuous operation with no intermittent duty cycles.

The compressor manufacturer shall have an ISO 9001 quality management system standard approval on the design and manufacture process.

Compressor Enclosure: The breathing air module shall be fully enclosed with solid steel panels, minimum thickness 14 gauge. All sections of the compressor enclosure shall be lined with sound absorbing material.

An air ducting system that allows against-the-wall installation by drawing cooling air from below the unit and directing it upwards and away from the operator and control panel shall be provided.

Insulated and gasketed maintenance access doors equipped with quarter turn latches shall be located on both sides and in front of the compressor system. These latches shall be designed to draw the access doors into the frame opening. Male-female hinges on side doors shall be used to allow their fast and easy removal without requiring hand tools.

The underside of the cabinet shall be grated to prevent debris from entering the compressor compartment.

Auto Drain Muffler/Reservoir: An automatic drain muffler/reservoir system, manufactured of 14-gauge steel, shall be incorporated into the package. The reservoir shall be designed to capture discharged condensation without the need for piping to the outside and to reduce the discharge noise level. A conveniently located valve shall be supplied on the outside of the cabinet to periodically drain the condensate accumulated in the muffler/reservoir at atmospheric pressure.

Electric Motor: NEMA designed B, 2-pole, 10 horsepower, open drip proof motor shall be furnished for _1 phase, 60 hertz, 230 volts. The motor shall be suspended underneath the compressor baseplate. This baseplate shall incorporate rubber shock mounts, which isolates vibration from the rest of the cabinet. The V-belt drive shall be guarded to meet OSHA requirements.

Purification System: The purification system and replacement filter cartridges shall be manufactured by the same company as the compressor package. The

system shall be a multi-chamber arrangement each constructed of 7075T6 aluminum alloy with a tensile strength of 83,000 psi and designed for 6000 psi working pressure with a 4 to 1 safety factor. The first chamber shall be a mechanical separator to eliminate oil and water. Subsequent chambers shall utilize replaceable filter cartridges constructed of high strength, non-corrosive FDA grade polycarbonate plastic.

Non-corrosive stainless-steel springs and spin welded end caps shall be incorporated within the cartridge boundary. The cartridges shall be designed to remove water vapor, hydrocarbons, noxious gases, taste and odors.

Systems requiring depressurization to check filter condition shall not be acceptable. Carbon monoxide shall also be eliminated by catalytic oxidation. The purification system shall process 34,200 cf (with a 70^{o} F inlet temperature) before cartridge replacement. The air delivered shall meet CGA grade D & E and NFPA 1989 (2008 edition) air quality standards.

Control System: The unit shall include all necessary controls to assure efficient operation and monitor compressor performance. All necessary electric motor controls shall also be included and rated for NEMA class 12. As a minimum, the control system shall include the following:

- Air pressure switch to automatically start and stop the unit in order to maintain system pressure.
- High air temperature shutdown.
- Direct online IEC starter package with a 24-volt control voltage.
- PLC controller.
- Illuminated power “on” switch.
- Independent “start” and “stop” push button switches.
- Emergency stop button.
- Low oil pressure switch.

Instrumentation: The unit shall include all necessary gauges and lights necessary to indicate all normal and shutdown conditions. All gauges, lights and indicators shall be mounted on a steel control panel centrally located on the front of the unit and also within the cabinet.

As a minimum, the instrumentation panels shall include the following:

- Compressor interstage and final air pressure gauges.
- Hour meter.
- High air pressure shutdown light.
- High air temperature shutdown light.
- Low oil pressure light

CMM Air Monitoring System:

The CMM is a dual monitor for both CO & moisture. It will include our standard CO monitor (see above) and the Moisture monitor with cartridge detection below:

Moisture Monitor (Cartridge Monitoring System):

The cartridge monitoring system shall be mounted on the compressor operations panel. The system is designed to monitor the quality of air being discharged after the compressor's purification systems. The system continuously evaluates the moisture content of the purified air and also confirms the presence of the cartridge filter in the purification chamber. The complete system consists of the following:

A. Moisture monitor probe
B photo cell cartridge detection sensor
C. Microprocessor control unit
D. Cartridge "ok" green light
E. Cartridge life warning light
F. Cartridge expired red warning and compressor shutdown
G. Install filter text message

The cartridge monitoring system operating procedure is as follows:

- Cartridge detection: In the event that a cartridge filter is not installed in the purification chamber, a text message will be displayed and the compressor will not start. This same condition will also occur in the event that any electrical connections in the system are faulty or otherwise not made. Note that mechanical devices, which could be subjected to corrosion, are not utilized.

- Moisture monitor: Upon start-up of the compressor, the moisture monitor probe (a) will continuously monitor the moisture content of the air stream at

pressure. A timing device within the microprocessor control unit (a) is activated upon start-up to allow the moisture sensor to stabilize. This time cycle is operative for 8 to 15 minutes. During this cycle, the cartridge "ok" green light (d) will be flashing. Once the stabilization period is complete, the applicable status light for the moisture level will illuminate.

- Status light conditions:

  Cartridge "OK" green light (d): This light will remain illuminated as long as the moisture level in the air stream is within pre-set limits. This light flashes during the initial stabilization cycle.

Cartridge life warning yellow light (e): This light will illuminate when the moisture level in the air stream approaches the pre-set limit. During this time, approximately one-hour duration, the air quality is within acceptable levels.

Cartridge expired red warning light (f): This light will illuminate when the moisture level in the air stream exceeds the pre-set limit. The compressor unit shuts down under this condition.

- Adjustable timed cycles and moisture limits: All timed cycles and moisture limits which are not specified will be factory pre-set as follows:

  - 15 minutes for initial moisture probe stabilization.

  - The air stream moisture limit will be preset at -65 degrees F atmospheric dewpoint (24 ppm water vapor content) in accordance with recommendations by NFPA 1500. Other dewpoint limits can be set provided that the following are known:

    - Operating pressure
    - Mean ambient temperature

Carbon Monoxide Monitoring System:

The CO monitor shall be mounted on the compressor operations panel.

- Shall be piped into the air flow downstream of the purification system

- Shall be tamper-resistant requiring a keystroke sequence to access monitor controls.

- Must have a warning light, audible alarm & shutdown for high concentrations of CO.

- Shall reliably detect co concentrations from 0 to 10 ppm. A digital readout

shall continuously indicate the amount of CO in the compressed breathing air.

- Must be capable of adjustment at any point on the monitor between 5 to 10 ppm for shutdown.

- The unit shall indicate day till next calibration; factory set every 90 days.

- Calibration kit with 20 ppm CO is to be provided. Additionally, a cylinder with 0 ppm of CO shall be provided to conveniently and accurately calibrate the monitor.

- The system shall come complete with solenoids to control system calibration.

- The unit must stop the compressor supply air to the CO cell while the compressor is not running. This extends the life of the CO cell.

Specifications Enclosed Containment Fill Station

The fill station shall be designed for stationary applications. The unit shall be

totally enclosed, constructed of 3/16 inch plate steel and designed to contain an SCBA cylinder and metal fragments in the event of rupture during the filling process. The fill station shall be designed to vent rapidly expanding air away from the operator.

The fill station shall be ergonomically designed to allow the filling of two (2) SCBA bottles either separately or simultaneously. The maximum length of the SCBA bottle with the valve and fill adapter shall be 29 inches. Access to the enclosure for loading the SCBA cylinder shall be via a manually operated, tilt out door. The fill station door shall be provided with assisting devices to assure smooth operation and reduce operator fatigue. The fill station door shall be constructed of 3/16 inch plate steel. The SCBA cradle shall contain two (2) fill positions. Each fill position shall be lined with material to protect each SCBA cylinder from abrasion. The carriage shall be mounted on a pivoting system that will lower the cylinders to a near horizontal position and allow full access to all SCBA bottles, fill hoses and valve assemblies with minimal operator fatigue.

To ensure operator protection, a fully automatic safety interlock that prevents SCBA cylinder filling until the door is completely closed shall be provided. Two (2) fill hoses with SCBA adapters shall be provided and located within the enclosure.

The fill station shall be designed to fill the SCBA cylinders within the fill station boundary. The control panel shall include a 0 to 6000 psi adjustable regulator, regulated outlet pressure gauge, one (1) SCBA fill valve and bottle pressure gauge.

A painted steel fill panel affixed with a silk screen overlay shall be mounted on the front of the unit. The overlay shall contain an embedded airflow schematic. The fill station shall be designed to cascade the air storage system. The control panel shall include pressure gauges and flow control valves for four (4) storage banks. Piping shall be arranged to permit each bank to be filled or drawn down independently of other banks. This allows the operator to draw air from one bank to fill SCBA's, while simultaneously refilling another bank from the compressor. A bypass valve shall be supplied to permit direct use of the compressor, bypassing the storage system. A regulated auxiliary fill outlet, complete with a valve and high pressure coupler with mate shall be standard.

The fill station shall be built and tested to conform to NFPA 1901 and the recommendations in NFPA 1500.

The breathing air storage system shall include the number and type of cylinders specified below mounted on a self-standing vertical inline rack. The system shall include all fittings, interconnecting piping, valves and hardware necessary to operate as a cascade system and meet all current DOT, TC, and ISO 9809 code requirements.

UN system - The breathing air storage system shall consist of four (4) UN storage cylinders each with a minimum capacity of 509 cubic feet of air at 6000 psig.

- Four 6000 PSI UN/ISO cylinders mounted in a vertical in-line rack
- Each UN/ISO cylinder is complete with a service valve, safety burst disc and ¼" male JIC outlet fitting
- Each UN/ISO cylinder has a rated capacity of 509 cf @ 6000 psig

QUESTIONS

All questions concerning the Breathing Air System must be submitted to Amy Woods at amy.woods@lowndescounty.com on or before February 26, 2021, 5p.m.EST. All questions and corresponding answers will then be emailed to all bidders as soon as possible.

Pricing Proposal
Price should include delivery and installation to:
2981 US Hwy 84 E Valdosta, GA 31606

(1) Complete Breathing Air System
According to provided specifications $_____

Signed: _____ Name: _____
(Type or print)

Title: _____ Date: _____

Phone #: _____ Fax #: _____

Firm Name: _____

Firm Address: _____

Deliver: _____ Days After Receive Order.