

LEGAL NOTICE

WAKULLA COUNTY BOARD OF COUNTY COMMISSIONERS

INVITATION TO BID

THE WAKULLA COUNTY BOARD OF COUNTY COMMISSIONERS INVITES YOU TO SUBMIT A BID ON THE FOLLOWING:

BID NUMBER: 2009-006
BID OPENING DATE AND TIME: FEBRUARY 19TH, 2009 at 2:15p.m.
ITEM: ODOR CONTROL SYSTEM AT HICKORY PARK LIFT STATION

THE WAKULLA COUNTY BOARD OF COUNTY COMMISSIONERS SHALL RECEIVE SEALED BIDS UNTIL 2:15 P.M. FEBRUARY 19TH, 2009.

ALL BIDS SHOULD BE CLEARLY MARKED AS SEALED BID, WITH THE BID NUMBER, OPENING DATE AND TIME.

A PUBLIC BID OPENING WILL BE HELD AT THE WAKULLA COUNTY PUBLIC WORKS DEPARTMENT, 340 TRICE LANE, CRAWFORDVILLE, FLORIDA ON FEBRUARY 19TH, 2009 AT 2:15 P.M.

PLANS AND SPECIFICATIONS MAY BE OBTAINED FROM WAKULLA COUNTY PUBLIC WORKS, 340 TRICE LANE, ROOM 201, CRAWFORDVILLE, FL 32327, TELEPHONE 850-926-7616. CONTACT PERSON IS BRENT PELL.

THE WAKULLA COUNTY BOARD OF COUNTY COMMISSIONERS RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS OR PORTIONS THEREOF.

PLEASE ADVERTISE IN THE WAKULLA NEWS ON 2-05-09 AND 2-12-09.

INVOICE: WAKULLA COUNTY PUBLIC WORKS
WASTEWATER DEPARTMENT
340 TRICE LANE
ROOM 201
CRAWFORDVILLE, FL. 32327

HICKORY PARK ODOR CONTROL SYSTEM

Part 1 – General

1.01 Scope

- A. The Manufacturer shall furnish all materials, equipment and incidentals required to provide an Odor Control System, complete with controls and accessories, as described herein and as shown on the drawings.
- B. The Contractor shall install the system in accordance with the Manufacturer's instructions.

1.02 System Description

- A. The system shall include but is not be limited to contact vessel, media, control system, fan and motor assembly, interconnecting piping, valves, instrumentation, and 2nd stage carbon device which is used for removal of organic compounds. The carbon system shall be installed as a separate device with the exhaust fan located between the two stages.
- B. All equipment, ductwork, and appurtenances shall be new and unused.
- C. The system shall be designed for continuous use.
- D. All components of the system shall be designed for outdoor service.
- E. All materials of construction as well as miscellaneous hardware shall be resistant to attack by the compounds being absorbed.

1.03 Qualifications

- A. All equipment specified under this section shall be furnished by a single manufacturer with single-source responsibility. The Manufacturer shall be qualified and experienced in the design, construction, and operation of odor control systems, and shall regularly produce such systems.
- B. The supplier of the system shall have at least 20 years experience with odor control systems and at least 5 years experience with ferric oxide based systems.
- C. Equipment shall be designed for operation at temperatures up to 120° F, with a 140 mph wind load without the use of guy wires.
- D. Equipment shall comply with the latest editions of the following codes and standards: Uniform Building Code (UBC), National Electrical Code (NEC), International Electrotechnical Commission (IEC), National Electrical

Manufacturers Association (NEMA), and American Society for Testing and Materials (ASTM).

- E. The system shall be JAWS Bio-Sponge™ by Jacobs Air Water Systems or approved equal. Bidders offering alternate equipment must supply drawings, design calculations, and references with bid.

1.04 Submittals

- A. Shop drawings and literature describing the equipment shall be submitted to the Engineer for evaluation and approval. Fabrication of equipment and ordering of system units shall not begin until the Engineer has given approval.
- B. The Manufacturer shall furnish all important details of construction including dimensions, performance curves, process and instrumentation diagrams, sequence of operation, and installation instructions.
- C. The Manufacturer shall submit a specification sheet for the base substrate and for second stage activated carbon, if so equipped.
- D. The Owner shall be furnished with seven (7) bound copies of operation and maintenance instructions. The information shall be sufficient to instruct personnel who are unfamiliar with such equipment in the operation and maintenance of the system. It shall include diagnostic procedures to be used in the event of system shutdown or malfunction.

Part II – Products

2.01 Primary Contact Vessel (Stage 1- Sulfides)

- A. The contact vessel shall be a vertical, cylindrical body, flat bottom unit. Air shall enter at the upper top side of the vessel and shall be discharged from the bottom lower side, where possible, opposite the air inlet. Where applicable, the system shall be designed to operate under negative pressure.
- B. The vessel shall be complete including media support structure, media, differential pressure gauge, air inlet and outlet, lifting lugs, anchoring lugs and other appurtenances necessary for safe and efficient operation of the system.
- C. The vessel shall be manufactured of corrosion resistant, Type II polyvinyl chloride (PVC) with commercial grade two-part UV resistant coating.
- D. The vessel shall have a removable or hinged top section to access the media. The top shall be sloped as to eliminate chance of collecting rain water. Top sections larger than 8 feet in diameter shall have lifting lugs to aid in removal from the bottom section. The top section shall be secured to the main vessel by means of 316ss stainless steel hardware.

- E. The vessel shall be sized in accordance to data provided per Appendix A.
- F. The primary vessel shall contain only iron sponge media. Due to possibility of acid formation in carbon and hydrogen sulfide service, carbon devices must be provided as a separate vessel.
- G. Two sleeved or flanged connections shall be provided for inlet and outlet air ductwork connections. See Appendix A for sizes.
- H. A 1½ inch diameter FNPT nozzle shall be provided for drain connection from the contact media vessel. Drain to be trapped or isolated with true union ball valve.
- I. Vessel shall include one (1) 4” diameter FNPT nozzle with NPT plug for sump inspection port.
- J. The vessel shall include two (2) ½” FNPT nozzles for installation of pressure taps and pressure differential gauge. Piping from the taps shall hard-piped with ½” Schedule 80 PVC pipe. Pressure gauge to be mounted to the vessel and connected to the piping with tubing not to exceed 12” in length.

2.02 Iron Sponge Media

- A. The iron sponge media shall meet the following specifications:
 - 1. The wood chips shall be coated with hydrated iron oxide. Each bushel of iron sponge shall be supplied with 15-18 pounds of iron oxide. It shall have a moisture rate of 40%. The pH should be approximately 8-10. The weight shall be approximately 48-54 lbs per bushel.
 - 2. There shall be a minimum of four (4) feet of media depth in the vessel. Please refer to Appendix A for design bed height.
 - 3. Media to be provided in bulk bags suitable for short-term outside storage.

2.03 Carbon Adsorption (2nd Stage – Organics and Mercaptans)

- A. The adsorption vessel shall be of vertical, cylindrical construction with a flat bottom, and a domed or conical top.
- B. The adsorption vessels shall be of polyvinyl chloride (PVC) construction with UV resistant coating.
- C. The vessel walls may not be used to transfer vertical loads to the foundations or to support any portion of the carbon support system. All components of the support

system shall be constructed of materials that are resistant to corrosion under the service conditions specified.

- D. A differential pressure gauge reading inches of water column across the carbon bed shall be provided.
- E. The adsorption vessel shall have sleeved air inlet and be installed on the outlet side of the exhaust fan.
- F. The structural aspects of the vessels shall be sufficient to exceed the seismic requirements of the Uniform Building Code (UBC) by a factor of two for all conditions.

2.04 CARBON MEDIA

- A. The carbon media shall consist of two layers of granular and/or extruded activated carbon (GAC). Primary layer is for removal of organics with a secondary layer for polishing of sulfur-based compounds. The activated carbon shall be virgin (i.e. not reactivated) and shall not be impregnated or catalytically modified. The activated carbon shall be derived from acceptable raw materials including bituminous coal, sub-bituminous coal and lignite coal. Carbon layers applied in the same bed without additional support structure.

B. Primary Layer (Organics)

The activated carbon supplied shall be suitable for continuous removal of VOC's and other organic contaminants removed via physical adsorption. Typical properties of the activated carbon will be as follows:

Mesh Size or Diameter	Granular	4 x 8
	Extruded	4 mm
CCl ₄ –(ASTM 3467)	Wt % min	60
Hardness Number	min	95
Moisture	% max	5
Density, Apparent	lbs/ft ³	29 - 31
Pressure Drop @ 50 fpm L.V.	WC/ft bed depth	1.0
Bed Depth	linear feet, min	2

C. Secondary Layer (H₂S Polishing and Mercaptans)

The activated carbon supplied shall be suitable for continuous removal of H₂S and other sulfur-based compounds found in wastewater or similar vapors generated by liquid or solid treatment processes, such as mercaptans, indoles, skatoles, and organics. Typical properties of the activated carbon will be as follows:

Mesh Size or Diameter	Granular	4 X 8
	Extruded	4 mm

CCl ₄ – (ASTM 3467) Wt %	min	30
H ₂ S Breakthrough capacity	g H ₂ S / cc carbon	0.2 or greater
Iodine Number	mg/g, min	400
Mean Particle Diameter	mm, min	2.0
Hardness Number	min	70
Moisture	%, max	15
Density, Apparent	lbs/ft ³	24 - 28
Pressure Drop @ 50 fpm L.V.	WC/ft bed depth	1.2
Bed Depth	linear ft., min	1

The determination of H₂S breakthrough capacity shall be made according to the parameters set forth in ASTM D-6646. A warm air stream (20-25degrees C and 80% relative humidity) containing 1% H₂S flowing at a rate of 1,450 cc/min shall be passed through uniformly packed Activated Carbon bed 1.0 inch diameter by 9.0 inch deep bed and monitored to a breakthrough point of 50 ppm. The results shall be expressed as grams of H₂S adsorbed per cc of activated carbon.

2.05 Fans or Blowers

- A. Centrifugal fan shall be provided by the system supplier. The fan housing shall be corrosion resistant Type II PVC and coated with UV resistant paint or vinyl ester reinforced plastic (FRP). The impeller shall be fabricated from steel and shall be coated with FRP or plastisol in order to make it corrosion-resistant.
- B. The wheel shall be keyed to the shaft and shall be statically and dynamically balanced before delivery.
- C. Each fan shall be furnished with belt and shaft guards, drain, and flexible connections.
- D. Each fan shall have an aluminum or epoxy-coated steel or galvanized steel pedestal base.
- E. Each fan shall have heavy-duty, grease-lubricated, self-aligning, precision, anti-friction pillow-block bearings that have a minimum average life (AFBMA L50) of 100,000 hours.
- F. Each fan shall have constant-pitch, V-belt drives with 1.5 service factor. Belts shall be minimum size "B", high-capacity type and shall be provided in matched sets.
- G. Each fan shall have a TEFC motor and appropriately sized drive.
- H. Fans shall have been tested in accordance with AMCA Standard 210 and ASHRAE Standard 51. They shall be certified by the Air Movement and Control Association (AMCA) and shall be licensed to bear the AMCA seal.

- I. The fan shall be Model RB series as manufactured by Met-Pro Corporation, Duall Division, or approved equal.

2.06 Ductwork

- A. Ductwork between the contact vessel and the exhaust fan (and the carbon device if so equipped) shall be provided by the Manufacturer. Ductwork assembly and design shall be compatible with the vessel and fan. All nuts, bolts, gaskets, and dampers shall be stainless steel and provided by the odor control system manufacturer.
- B. Ductwork for collection of vapor from the odor source to the contact vessel is provided by others. Schedule 40 PVC pipe is typical.
- C. A flexible coupling shall be installed between the vessels and the exhaust fan to dampen axial, lateral, and vibrational duct movement. The expansion joint shall be resistant to ultra-violet degradation and to the corrosive gases being processed. It shall be installed with stainless steel clamps and provided by the manufacturer.

2.07 Motors

- A. Motors shall be NEMA standard foot-mounted type with rigid base design.
- B. Motors shall be premium efficiency, wash down duty devices.
- C. Motor shall be NEMA design B (normal torque).
- D. Motors shall have a maximum operating RPM range of 1800 RPM.
- E. Motors shall be for continuous duty and shall have TEFC enclosures, minimum Class H insulation, Class B temperature rise, and 1.15 service factor.
- F. Maximum anticipated connected loads shall not exceed nameplate horsepower rating of the motor exclusive of service factor.

2.08 Control / Instrumentation Panel

- A. The system control panel shall be shall be a NEMA 4X FRP or 316SS enclosure. The panel shall include the following items:
 - Variable Frequency Drive (VFD) - Yaskawa V7 Series
 - Main breaker and disconnect
 - Fan running pilot light indicator.
 - Elapsed time meter for fan.

- 230 volt, 3-phase service
- Two additional contact relays for SCADA monitoring

B. Enclosure shall be mounted as indicated in the contract drawings.

Part III - Services

3.01 Shipping

- A. All parts shall be properly protected so that no damage or deterioration will occur in transit or during prolonged storage at the site.
- B. Each box, crate, or package shall be properly marked to show its contents and the net weight.

3.02 Installation

- A. Installation shall be in strict accordance with the system Manufacturer's instructions and recommendations. Equipment shall be placed in the locations shown on the drawings.
- B. Manufacturer shall provide stainless steel hardware for all mating flanges supplied with the system. Anchor bolts will be provided by the contractor.
- C. The contractor shall provide material and labor for any plumbing, electrical wiring, heat tracing, and similar incidentals that may be necessary to complete installation of the equipment specified in this section.

3.03 Start-up and Testing

- A. The system Manufacturer shall furnish the services of a factory representative, who has complete knowledge of the system and its components, to inspect the final installation, to train operating personnel in the proper operation and maintenance of the system, and to supervise testing of the system. These services will be performed concurrently during a single site visit of at least one (1) day duration.
- B. The system shall be tested under actual operating conditions. The manufacturer shall furnish all labor and equipment necessary for testing. The test shall last for four (4) consecutive hours and samples shall be taken from the inlet and outlet of the scrubber system at one hour intervals.

END OF SECTION

Appendix A

ODOR CONTROL SYSTEM

Hickory Lane Lift Station	
Design Air Flow (6 ac/hr)	200 CFM
Diameter of Primary Vessel	6 ft
Overall Height of Vessel	7.5 ft.
Media Depth (minimum)	4 ft.
Diameter Inlet	6 in.
Iron Sponge Media Volume	126 ft ³
H ₂ S Loadings (Average)	50 ppm
H ₂ S Loadings (Est. Peak)	100 ppm
Percentage H ₂ S Removed	99+%
Fan Static Pressure	12" W.C
Fan RPM (maximum)	2850 rpm
Fan Motor HP	5 HP
Fan Motor	230 volt, 3 phase, 60 Hz
Sound Enclosure Required	Yes
2 nd Stage Carbon Required	Yes
Diameter of Carbon Unit	42 inches
Volume of carbon	22 ft ³ (750 lbs)

WAKULLA COUNTY ROAD AND BRIDGE DEPARTMENT

VENDOR BID SHEET

BID NUMBER 2009-006

OPENING DATE: FEBRUARY 19, 2009 @ 2:15

TOTAL BID PRICE \$ _____

Company Name: _____

Signature: _____

Title: _____

Phone Number: _____