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**415 Country Club Drive - Winter Park, FL 32789 - PH:407.628.1880**

***HIBOCS/HICARB ODOR CONTROL SYSTEMS***

*"Simple.....Economical.....Effective!"*



***"ARREST YOUR ODORS"***

**Date:6/2/25**

**Offered by: Heyward Florida Incorporated**

**Contact: Dustin Chisum (239-849-5093)**

<b>PROJECT NAME</b>		South Daytona Lift Station 5
<b>Biotrickling Filter</b>	<b><i>HIBOCS</i> MODEL#</b>	One (1) HIBOCS-200
<b>Carbon Polisher</b>	<b><i>HICARB</i> MODEL#</b>	N/A
<b><i>Warranty</i></b>		Three (3) years on entire system Ten (10) years on media and media support system

<b>Parameter</b>	<b>Units</b>	<b>Min / Max / Avg</b>			<b>Comments / Notes</b>
Airflow	CFM		900	600	EBRT @ Average Air Flow 20 seconds & 8.5 ACH
H2S Inlet	PPM		300	150	Short term high peaks may be treated at lower efficiencies
H2S Removal	%			99	24-hour average
Water Usage	GPD			~1,500	1,000-2,000-gallons depending on average H2S concentration
Drain Water	pH			1-3	

## System Components:

- One (1) 7'-0" diameter x 11'-7" tall (plus 2' exhaust stack) **HIBOCS-200** Biotrickling filter constructed of a UV resistant isophthalic fiberglass resin system in accordance with ASTM D3299, ASTM D4097, and PS15-69 as applicable. Vessel shall be constructed of 3/8" thick fiberglass as described above. All Biotrickling filter internals are non-fragile materials that are resistant to chemical attack of acids and alkalis. Spray header shall be designed for easy removal. Biotrickling filter shall contain 200-cubic feet of HIHP-98 "high surface" synthetic media for microbial attachment.

### **HIBOCS-200 shall include the following:**

- 6" dia. inlet
  - 6" dia. x 24" long outlet with 1" sample port assembly
  - Internal media support system
  - Removable spray nozzles
  - 12" Demister zone
  - One 18" top observation/access hatch
  - Three 12" diameter sideways access/observation hatches
  - Drilled Base
  - Two (2) 1/2" couplings for Magnahelic gauge hook-up
  - Lifting lugs
  - Room for 62" (200-ft<sup>3</sup>) of HIHP-98 media
- One (1) 600-cfm @ 6" w.c. 12" cast aluminum blower with 2-hp 460/230V, 3-phase, stainless steel washdown/inverter duty motor
- One (1) – HIBOCS-CS20 control skid for biological odor control system. The HIBOCS-CS20 is a completely assembled skid for the operation of the HIBOCS biological odor control system. The skid shall include a Power Distribution Panel in a NEMA 4X SST enclosure, a blower VFD with integral disconnect switch in a NEMA 4X enclosure, a HIBOCS-WCP20 Water/Nutrient Feed System with pressure reducing valve, flow adjustment valve and rotameter, motor actuated water control valve, 30-GPD nutrient feed pump, a Timer Control Panel with 3-timers to control the water and nutrient feed in NEMA 4X FRP enclosure, and a 110V transformer. All the items listed above to be mounted on an HDPE skid, prewired and plumbed ready for connection to existing utilities.

### **Also Included:**

- Operation and Maintenance Manuals
- Delivery of all equipment to the job site
- Start-up, training, and post start-up inspection and air testing
- Performance testing (24-hour performance test using H<sub>2</sub>S odor analyzers)
- Performance test report. Quarterly visits during the first year to ensure proper operation and H<sub>2</sub>S performance testing

- Emergency 24-hour call back response and 5 business days for on-site visit if needed during first year at NO COST to customer

## Excluded:

- Removal and disposal of existing odor control equipment
- Concrete foundation slab (existing slab area is sufficient)
- Offload all equipment and set vessel, HIBOCS skid and blower on the existing concrete slab
- Furnish and install anchor bolts
- Furnish and install PVC foul air duct and duct supports
- Furnish and install Schedule 80 PVC pipe for connection of drain and water supply
- Furnish and install all conduit and wire to connect HIBOCS skid and blower to the existing 480V, 3 phase power
- Applicable Taxes
- Any other equipment and/or services not specifically described above for a complete and operating odor control system

**Note:** The proposed HIBOCS system is designed to treat an average inlet H<sub>2</sub>S of 150-ppm H<sub>2</sub>S and a peak inlet H<sub>2</sub>S of 300-ppm while achieving 99% H<sub>2</sub>S removal. The project specification requires the system to treat an average inlet H<sub>2</sub>S of 250-ppm and a peak inlet H<sub>2</sub>S of 500-ppm. The HIBOCS is capable of treating these levels of inlet H<sub>2</sub>S, however removal efficiency may be less than 99% and media life may be shortened.

## Price:

- One (1) HIBOCS-200 Biotrickling filter in **FRP** construction as described above.

Price .....

**Delivery: 4 weeks for submittals, 14-16 weeks for delivery of equipment following submittal approval**

Should you have any questions concerning our offer, or if we may be of any further service, please do not hesitate to contact us.

Kindest regards,

*Dustin Chisum*

NE Florida Sales Representative

## PROCESS DESCRIPTION

**HIBOCS** biological odor control systems utilize a synthetic media to provide an optimal site for growth of microorganisms (aka: biomass). This media has a high surface/high void area for optimal treatment in a small

footprint. Microorganisms that attach to the media can remove H<sub>2</sub>S and other odorous VOC's when they are contacted by these compounds in the odorous air stream. A blower delivers the odorous air from the odor source to the media at the bottom of the vessel where the air passes upward through the vessel and media. As the air travels upward, it contacts the biomass growing on the media. The media is supplied with water and nutrients via a spray header system which keeps the biological population healthy. The **HIBOCS** biological odor control system counter-current flow of air and water/nutrients enhances the mass transfer to the bacteria where the biological sulfur oxidation takes place degrading the odorous compounds to weak sulfuric acid and other soluble sulfates that are removed in the drain water.

## **ADVANTAGES OF A HIBOCS SYSTEM**

The **HIBOCS** biological odor control systems offer the following advantages:

- Minimum energy consumption due to low pressure loss through system
- Small footprint
- No use of dangerous and expensive chemicals such as caustic soda and bleach
- Simple process that requires minimal maintenance and operator attention
- Simple control system with no PLC's or pH meters requiring constant calibration
- All control panel components are "off the shelf" and can be obtained locally
- Non-proprietary, low-cost nutrients that can be locally obtained
- Green technology with no harmful residuals
- Media that does not require replacement or disposal
- Proven technology
- Local, knowledgeable reps for on-site technical help when needed

## **Warranties:**

**Equipment:** All equipment supplied by Heyward Florida Incorporated is warranted against defects in material and workmanship for a period of **36 months after date of start-up**. In the event it is determined that a defect exists in such equipment, Heyward Florida Incorporated's sole obligation shall be to repair or replace the defective equipment. This is extended to the peripheral items such as blowers, pumps, control panels.

**Biological Media:** Heyward Florida Incorporated warrants the media support system along with the synthetic media against defects in material and workmanship for a period of ten (10) years from equipment delivery. In the event it is determined that a defect exists in the media, Heyward Florida Incorporated's sole obligation shall be to provide replacement media.

## **Terms & Conditions:**

### **1. Purchase Orders**

All purchase orders shall be addressed to Heyward Florida Incorporated, Winter Park, Florida and shall be subject to acceptance by Heyward Florida Incorporated.

### **2. Exceptions**

Sale of equipment and services identified on the face of this quotation will be solely upon the terms and conditions set forth herein. These terms and conditions supersede and reject any conflicting terms and conditions of the purchaser, any statement in the purchaser's terms and conditions to the contrary notwithstanding. Exceptions to any of our terms and conditions must be contained in a written or typed (not printed) statement received from you. We shall not be deemed to have waived any of our terms and conditions or to have assented to any modification or alteration of such terms and conditions unless such waiver or assent is in writing and signed by an authorized officer of Heyward Florida Incorporated.

### **3. Credit**

All purchase orders received are subject to credit approval of Heyward Florida Incorporated. We reserve the right to suspend or delay shipments of material covered by your purchase order if, in our opinion, there is sufficient reason to suspect potential payment default. In such a case, in addition to any other remedies herein or by law provided, cash payment of satisfactory security from you may be required by us before shipment of material is made. Acceptance by us of less than full payment shall not be a waiver of any of our rights.

#### **4. Shipment**

All shipments will be made F.O.B. shipping point unless otherwise specified in this quotation. In the absence of specific instructions, Heyward Florida Incorporated will select the carrier. Title to and risk of loss for the material shall pass to the purchaser upon delivery to the carrier or delivery service. Material held for the purchaser or stored for the purchaser shall be at the risk and expense of the purchaser.

#### **5. Seller's Liability**

Seller shall not be liable for any loss, damage, cost of repair, incidental or consequential damage of any kind, whether based upon warranty, contract or negligence, and arising in connection with the sale, use or repair of the products. Seller's maximum liability shall not in any case exceed the contract price for the products claimed to be defective or unsuitable.

#### **6. Returned Goods**

Heyward Florida Incorporated will not accept products for return unless prior written permission of Heyward Florida Incorporated has been obtained.

#### **7. Backcharges**

Under no circumstances will Heyward Florida Incorporated accept any backcharge from the contractor or owner unless Heyward Florida Incorporated participated in and agreed to, in writing, with the decisions which resulted in the backcharge.

#### **8. Errors**

Heyward Florida Incorporated reserves the right to correct clerical or stenographic errors or omissions.

#### **9. Field Service**

Whenever a Field Service Representative is provided by Heyward Florida Incorporated, the representative shall act only in an advisory capacity. He will interpret the Company's drawings, advise the purchaser regarding the sequence of steps in erection, installation, inspection, start-up, dismantling or repairs and explain features and components of the Company's products and their function. He will offer constructive criticism of work conditions, methods, and procedures at the job site. He will not be required to superintend or supervise personnel supplied by the purchaser or train them in their respective crafts in connection with the performance of their work. If, however, at the request of the purchaser and if Heyward Florida Incorporated agrees that the representative will act in another capacity, he shall do so in accordance with normal standards of the industry for that type of work. Whenever Heyward Florida Incorporated is involved in rehabilitative work for a customer, there is no warranty extended that repair or rehabilitative work performed will be successful. All risk in such cases shall be with the purchaser and decisions with respect to repair or replacement of the purchaser's equipment or parts thereof, shall remain solely with the purchaser. Neither Heyward Florida Incorporated nor the representative shall be responsible for any acts, omissions, or workmanship of employees, contractors, subcontractors, or agents of the purchaser or for their failure to follow the advice or instructions of the representative.

#### **10. Purchaser's Responsibility**

Purchaser shall furnish at his own expense and responsibility, all cranes, rigging, tools, facilities and equipment, material and repair or replacement parts, together with sufficient skilled and common labor and foreman, supervisors, and interpreters for the efficient performance of all work. He shall further designate a person in his organization to represent him fully at the site in all contacts and dealings with the representative. The purchaser's representative shall be responsible for coordinating the work and shall be in charge of the labor, material, supplies, tools and facilities to be furnished by the purchaser. Purchaser's representative shall inspect and shall be authorized to accept all details of the work as they are completed.

#### **11. Entire Agreement**

Terms and provisions contained in this proposal shall constitute the entire agreement between Heyward Florida Incorporated and the person of organization to whom this proposal is directed