CASE STUDY:

Baytown Wastewater Lift Station

ProMark's BFS-32 Scrubbers help the residents of this Texas city from breathing in undesirable sewage odors.

Challenge

- *Replace an old, poorly functioning, wastewater lift station with a modern one.*
- *Provide a system for eliminating sewage odors from the air in a residential area near the lift station.*

Solution

*ProMark's engineers designed a scrubber with a deep media bed and easy maintenance: the **BFS-32 Scrubber.** BFS-32 Scrubbers utilize **ProGuard 900®** and **ProGuard® 200** filtration media. The scrubber's bed is deep enough to hold three different layers—crushed marble to condense water and neutralize acids coming into the unit, a middle layer of carbon (PG900) to begin air filtration and a layer of chemisorbent media impregnated with potassium permanganate (PG200) to complete the process. The BFS-32's flexible design effectively handles exhaust streams going into the atmosphere and provides the highest media to air ratio at the lowest cost per CFM.*

Results

Robert Bush, president of N & S Construction and project manager, states he couldn't be more pleased with their decision to go with ProMark's BFS-32 Scrubbers. In addition to a great price and the highest quality equipment available, he said that the people at ProMark made the difference. Most important, of course, was the significant reduction of sewage odors and complaints from residents.

According to Mr. Bush, ProMark's team provided thorough pre-submittal documentation, knew their equipment well, and delivered the equipment on time. They also visited the station to start up the units, and they provided thorough on-site training. Mr. Bush was highly impressed with what he called ProMark's "commitment to providing a first-class piece of equipment," and he will recommend ProMark's scrubbers for future installations.

Description

The City of Baytown, Texas, operates three wastewater treatment facilities, rated at 16.2 million gallons per day (MGD), with plans for a fourth treatment plant to be in service by 2008 that will be rated for 4.0 MGD.

Baytown's wastewater plants have wet wells and lift stations that are located along sewer lines. These are near houses and businesses. When the hot, humid weather causes the outside air to become very unpleasant, odor control systems that remove chemical gases are critical.

The most recent installation, the Texas Avenue Lift Station, replaced an old station that had been demolished. The new station was completed in late 2005 using ProMark's BFS-32 Scrubbers. Project design and specifications were written around a competitor's product used in previous lift station installations. Robert Bush, N & S Construction, decided to try ProMark's scrubbers for this municipal project after hearing about their successful use in similar industrial applications.

Baytown's past installations were traditional scrubbers using gas phase media contained in a plastic 55 gallon drum attached to a fan that draws the air through the scrubber. The Baytown bid called for two side-by-side scrubbers, even though ProMark can handle the challenge with one scrubber.

The BFS-32 Scrubber uses a new approach. The robust stainless steel housing includes an outdoor duty fan with a stainless steel shaft. The result is a very functional scrubber requiring little maintenance. Its deep media bed puts the greatest amount of media in the path of odors and reduces both installation and electrical costs by only requiring a single-phase voltage fan.

Maintenance is straightforward. The BFS-32 is a container that can be filled with one or two media and has a removable lid for easy access. In this installation, they are using two different gas phase filtration media—one of which contains a color indicator for visually gauging its condition. Spent media can be collected into a waste drum using a shop vacuum. The waste drum can be emptied into a dumpster. Disposal is clean, easy, and safe for landfill.

Equipment Information

BFS-32 Scrubbers are available in multiple sizes and are customizable. They are skid mounted, ready to be secured to a cement pad, and can be fitted with dirt filters if needed.

- **BFS Fan**—Suitable for operation with raw discharge airstreams. Generously sized for airflow requirements with non-sparking wheels. Corrosion resistant. Close-coupled direct-drive fan matches required duty.
- **PMA Media Selection Chart**—A short list of common gaseous pollutants and the ProGuard medias that are best for controlling them.
- **ProGuard® 200 Media**—Chemisorbent media that is a round porous pellet manufactured from activated alumina and impregnated with potassium permanganate ($KMnO_4$). The $KMnO_4$ is uniformly distributed throughout for maximum availability to react with target contaminants and is very low dust for clean refilling.
- **ProGuard® 300 Media**—Chemisorbent media that is a round porous pellet manufactured from activated alumina and water. Impregnated with a high level (min. 8%) of potassium permanganate ($KMnO_4$). Contains proprietary chemistry not found in ProGuard 200 and can be substituted in this application for longer use.
- **ProGuard® 900 Media**—Carbon that contains the equivalent of 100 football fields of available surface area per pound of media. Caustic impregnate is evenly distributed throughout pellets to react with contaminant gases as they pass through. Media is effective at removing gases to very low parts per billion levels.
- **ProGuard® 910 Media**—Carbon uniquely activated for maximum capacity of hydrogen sulfide without impregnation with alkali. ProGuard 910 can capture and hold 50% of its weight in H_2S. It is the most economical wastewater odor control carbon available.

Text

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