Webster Environmental Associates, Inc

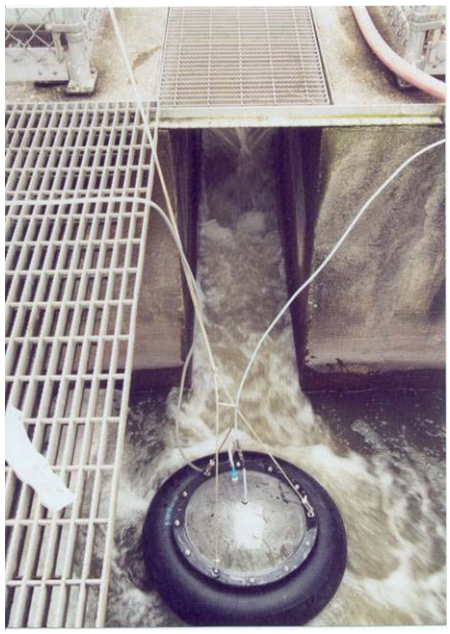
IRON BRIDGE WPCF ODOR SURVEY AND ODOR CONTROL EVALUATION ORLANDO, FL

FINAL PROJECT SCORECARD

- ❑**Identified and ranked primary odor sources**
- ❑**Survey provides direction for odor control efforts**
- ❑**Control of 80% of the odor emissions from the facility**

WEA conducted a plant-wide odor survey at the Iron Bridge WPCF in 1997. The survey included H_2S testing, odor panel analyses and fence line surveys and was conducted to identify and rank all odor sources at the facility and provide odor control options for the four highest sources. The survey indicated the headworks, grit chamber scrubber, sludge conditioning tanks and solids handling building exhaust were the four highest odor sources and contributed about 80% of the total emissions from the site.

The City of Orlando reviewed the report and implemented most of the recommendations in follow-up projects. All of the four highest odor sources identified in the survey have now been controlled.



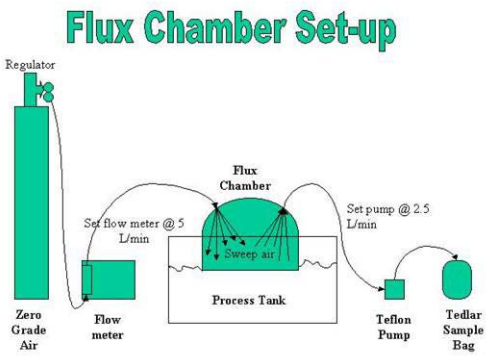


Figure __

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IRON BRIDGE ODOR STUDY AND ODOR CONTROL SYSTEM DESIGNS ORLANDO, FL

After completing two odor studies at the 40 MGD Iron Bridge WPCF, WEA, in association with CDM, designed two air collection and treatment systems.

FINAL PROJECT SCORECARD

- ❑ **Identified primary odor sources**
- ❑ **Phased construction of nearly maintenance-free biofilters**
- ❑ **H_2S removal efficiency greater than 99% for both biofilters**

Phase I of the project included the design of temporary channel covers, air collection system, humidification chamber/scrubber and 4,000 cfm at-grade custom-built biofilter. Air was collected from the Master Pumping Station, humidified and treated in the biofilter. HDPE ductwork was used to convey the odorous air to the humidification chamber. The chamber is used to humidify the air prior to entering the biofilter and can be used as a caustic scrubber when inlet H_2S levels rise above 40 ppm.

Phase II of the project included a new screening structure (designed by CDM) and a 8,300 cfm humidification chamber/scrubber and biofilter to treat air from the existing grit chamber and the new screening structure.
Both biofilters are constructed at-grade with concrete bottoms and sidewalls. The concrete is lined with calcium aluminate for corrosion protection and a specially blended mix of organic materials was used as biofilter media.

The total construction cost of the two odor control systems was about $1,800,000. Phase II construction was completed in 2002.

8,300 CFM Screening Structure Biofilter

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ODOR CONTROL EVALUATION AND DESIGN FOR IRON BRIDGE SOLIDS HANDLING PROCESS ORLANDO, FL

FINAL PROJECT SCORECARD

- ❑ **Identified and controlled odor sources**
- ❑ **Utilize abandoned storage tank**
- ❑ **Biological treatment with no chemicals, no media replacement with corrosion resistant materials**

WEA completed an odor evaluation of the recently modified solids handling process at the 40 MGD Iron Bridge Regional Water Pollution Control Facility (WPCF) in Orlando, FL. The WPCF shut down the anaerobic digesters and began using lime stabilization of the dewatered sludge.

24,000 CFM Biofilter in Existing Sludge Holding Tank

The long-term solution to controlling odors from the new process included the construction of a 24,000 cfm biofilter in an existing sludge holding tank that was no longer in service. The biofilter treats air drawn from the sludge conditioning tanks, dewatering and mixing areas and the truck loadout bay. It includes a unique fiberglass media support system and an inorganic media that will last much longer than traditional media.

Fiberglass Biofilter Media Support System Inside Lined Tank (No Corrosion)

The project also included aluminum covers on the conditioning tanks, a new cover over the mixer sludge hopper and enclosing the truck loadout bay. Construction on these odor control improvements was completed in 2003.

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IRON BRIDGE WRF IMPROVEMENTS ORLANDO, FL

FINAL PROJECT SCORECARD

- ❑**Utilized existing odor control biofilter**
- ❑**Total savings to the City in excess of $100,000**

This project at the 40 MGD Iron Bridge WRF included new headworks facilities, a new flow equalization tank and several other process modifications and improvements. WEA worked as a subconsultant to Boyle Engineers on this project to provide the odor control system design for the flow equalization tank. WEA developed a plan to treat the air collected from the tank in the existing 8,300 CFM biofilter that WEA designed and placed in service in 2002. The biofilter was originally designed to treat 3,800 CFM of air drawn from the screenings dumpster room at the screen structure. Instead of capturing and treating all of the air from this room it was determined that an enclosure could be constructed around the dumpsters to contain the odors and reduce the amount of air that had to be treated. This process modification freed up 3,500 CFM of air that could be drawn from another source, that being the flow equalization tank.

WEA's creative thinking on this project saved the City over $100,000. This project will be constructed in 2004.

Existing Screening Structure Biofilter