

application	Activated Sludge Treatment Plant
location	City of Eatonton, GA
product	Geotube® Containers

Solids management at municipal wastewater treatment plants is crucial in maintaining operating efficiencies and permitted discharge levels. Drying beds and mechanical methods of dewatering bio-solids can be labor intensive and inefficient for rapid solids removal. Miratech Geotube® Dewatering Technology offers municipalities a cost effective solution for rapid solids removal and long term solids management.

THE CHALLENGE

In the spring of 2003, the city of Eatonton, Georgia faced potential discharge permit violations due to increased solids levels that hampered operations at their two activated sludge wastewater treatment plants. Solids within the aeration lagoons were exceeding 900 on the Settling Meter Test due to higher than usual rainfall and the inability to use their on-site drying beds for solids wasting. With a tight budget and labor limitations, the plant superintendent was faced with the dilemma of taking immediate action to rapidly reduce solids inventory in a short time, but without exceeding his operating budget. The city was also searching for a long term economical method for solids management without capital expenditures.

THE SOLUTION

Miratech's Geotube® Dewatering Technology was chosen for rapid removal of solids from the cities two 350 mgd wastewater treatment plants. The Geotube® was chosen because it offers:

- High volume containment
- Rapid dewatering
- Effective filtration
- Extremely high quality effluent

- 85% to 90% reduction of BOD in the effluent
- No capital expenditure
- No special equipment
- Use existing employees

The Geotube® container is a 30 ft. circumference flexible, dewatering tube fabricated from specially designed, high strength industrial textiles. These engineered textiles allow for containment of fine particles of solids, yet are permeable to allow for rapid dewatering. The Geotube® container is tailored specifically for the municipal water and wastewater market to fit within drying beds and other designated plant locations.

A total of 8 sections of 50 ft long Geotube® containers are being used per year to contain and dewater 3 million gallons of waste with 1% solids. Each of the two plants will deploy 4 Geotube® sections in their existing drying beds. Once per week at each plant, 30,000 gallons of waste will be pumped from the digester into the Geotube® container. As the waste flows through an inline mixer, 15 ppm of a .5% solution of a cationic polymer is injected into the waste stream to facilitate flocculation and precipitation of the solids. The flocculated waste then flows into one of the Geotube®

containers. Clear effluent flows through the porous surface of the textile as the solids are contained. This dewatering process allows for the 80% to 90% volume reduction of waste. The process of filling and dewatering is repeated weekly until the Geotube® container is filled to capacity.

PERFORMANCE

Within 180 days following installation of the Geotube® Dewatering Technology at both plants, more than 1.5 million gallons of bio-sludge has been pumped from the digesters into the Geotube® containers and dewatered. Settlement Meter Tests of solids taken from the aerator lagoons indicate levels below 350 at both plants. Both locations are operating at well below permitted discharge levels and within efficient parameters. The plants are on track to remove and dewater a total of 3 million gallons of waste before the end of 2003. These results were achieved without capital expenditures and without exceeding the City of Eatonton's operating budget. Because of this success, the Geotube® Dewatering System has become the long term solution for solids management.



Geotube® containers being filled with solid waste pumped from the digester. Two tubes fit within this drying bed. The city of Eatonton is pleased with the Geotube® Containers.

Geotube® Installation Guides



Step 1: Conduct a Geotube® Hanging Bag Test
Miratech provides Hanging Bags and an instructional video to successfully conduct a Hanging Bag Test. This test helps determine the rate of dewatering of bio sludge from a specific waste water treatment plant and the quality of effluent water that can be expected in the full-scale installation.



Step 2: Install the Geotube® containers
Within the prepared drying bed or other designated area, two men can easily unroll sections of 30 ft. circumference Geotube® containers.



Step 3: Filling the Geotube® Container
The Geotube® containers are filled multiple times with polymerized bio sludge.



Step 4: Removing Dewatered Solids
After the Geotube® container has been filled to capacity with dewatered and consolidated solids, it can be cut open. The solids can then be removed with a front-end loader and placed in a dump truck for disposal or in a mechanical spreader for land application.

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