Case Study

MIRATECH

The Leader in Geocontainment Solutions

application **Wastewater Treatment Plant**

location **Newport, New Hampshire**

product **Geotube® Containers**

THE CHALLENGE

Newport, New Hampshire is a small New England community of 6000 residents. The treatment plant treats primarily residential sewerage, although Newport is home to an internationally known firearms company, which also sends its waste to the municipal plant for treatment. This 1.3 MGD plant which operates at an average of .75 MGD, was built in 1971 and upgraded in 1988 to secondary treatment with the addition of two aerated lagoons, one 7 million gallons, the other 14 million gallons.

The plant was overloaded with too much sludge, because the lagoons had not been cleaned out in over 15 years. The overload was affecting the effluent quality, causing tremendous odor problems and the high volume of solids in the effluent had raised the phosphorous levels creating algae blooms. One proposal made to the city called for removing and dewatering over 1.5 million gallons of 6% sludge and hauling the solids across the state to a landfill at a cost of $500,000.

THE SOLUTION

Chief Operator, Arnold Greenleaf, came across an advertisement for Geotube® Containment and Dewatering Technology in a trade magazine and contacted Miratech™ who provided a 40-gallon capacity test tube (known as a Hanging Bag) for trial. Satisfied with the results, Greenleaf decided to modify two old sedimentation basins to provide a confined space where large 30' circumference by 100' long Geotube® containers could be placed. The one-foot thick concrete wall at the end of the basin was removed to provide access for a front-end loader to remove the dewatered solids. Filtrate from the Geotube® container flows out to a drain and back to the head of the plant.

Two 30' circumference x 100' long Geotube® containers were placed in the basins and existing polymer mixing and injection equipment was used to chemically condition the sludge. Greenleaf used PAC as his sludge conditioner. He achieved a good floc and in combination with the Geotube® containers they removed 99% of the phosphorus in the effluent water. Geotube® dewatering technology was put into operation in July 2003 and filling continued though November 2003 when winter set in. The well-digested sludge was in-situ at 6% solids and pumped at about that same consistency. Greenleaf's team

The treatment facilities' lagoons were overloaded with sludge, creating odor problems.

Two 100ft long Geotube containers were placed in the sedimentation basins.

uses a special attachment for his suction lines that looks like a vacuum cleaner attachment to clean the lagoon side slopes.

PERFORMANCE

When the Geotube® containers thawed out in April, tests were run on the dewatered solids. Cake solids were at 54% and qualified as Class A biosolids. A second layer of 30' circumference Geotube® containers was placed directly on top of the first layer and filling began June l, 2004. The cost for four 30' circumference Geotube® containers, chemical conditioning, piping, modifications to old basins and pumps was $22,000, representing a significant savings to the city. Perhaps equally important to the residents of Newport is the fact that the odor is gone. As Arnold Greenleaf says, "Our odor issues are now in the bag."

This attachment aided in cleaning the lagoon side slopes.

After dewatering with Geotube® containers, cake solids were at 54%.

caption Geotube®.

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