Geotube® Case Study:  
Len and Patties Butcher Block

The Challenge…

The City of Kawartha Lakes had threatened to cease accepting washwater produced by Len and Patties Butcher Block, an abattoir based out of Lindsay, Ontario, at their Sewage Treatment Plant (STP). The abattoirs washwater has elevated levels of Biological Oxygen Demand (BOD), Total Suspended Solids (TSS) and is extremely odorous. With the prospect of not having a readily available method of disposal, Len and Patties, in Partnership with the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) sought alternative solutions to managing the washwater produced at their site.

On May 26th and 27th of 2010 Bishop Water Technologies undertook a Pilot Project at Len and Patties Butcher Block to determine the effectiveness of the Geotube® technology at dewatering the waste stream in an effort to produce a material which would be less harmful to the chemistry of the City of Kawartha Lakes STP, allowing for the abattoir to continue disposing of their waste stream there.

The Solution…

The abattoir utilizes onsite tanks for the storage of the waste stream prior to hauling to the City of Kawartha Lakes STP. Washwater contained in two 5,000 USG onsite tanks were dewatered during the Pilot Project.

Through bench testing of the material it was determined that in addition to the use of a polymer; ferric chloride was required to properly chemically condition the material. Prior to processing, ferric chloride was added to the tanks, due to the inconsistency of the waste stream dosage rates of both ferric and polymer differed between the two tanks. Once the Ferric was added the waste stream was re-circulated inside the tank to produce a well-blended mixture. The material was then pumped from the holding tanks at a rate of 165 USG to an MDS Geotube® unit, designed to fit in a 30 cubic yard roll off box. As the sludge was pumped to the Geotube®, it was injected inline with a polymer.

Filtrate produced through the dewatering process was collected in a basin designed to fit the 30 cubic yard roll off box, and gravity fed back to the existing onsite storage tanks to be disposed at a later date.

Over the two day period 10,065 USG of wash water was dewatered by the MDS Geotube® unit. While the initial intention was to land apply the retained solids, it had been discovered that during the Pilot Project a screen had been removed from the abattoir operations, contaminating the storage tanks with specific risk material. The Geotube® unit was removed from the site on June 8, 2010. The MDS unit, contained two tons of retained solids and was disposed of at a facility regulated to accept Specific Risk Material.
Performance...

Based on the results gathered through analysis of the materials, it can be concluded that with proper chemical conditioning of the waste stream the Geotube® technology can significantly reduce TSS, BOD, Chemical Oxygen Demand (COD), Total Oil and Grease and Ecoli levels in filtrate produced through dewatering washwater produced at Len and Patties Butcher Block. Due to material being contaminated with SRM, limited analysis was performed on the dewatered materials retained by the Geotube®; however representatives of OMAFRA indicated that had the material not been contaminated with specific risk material, it would have been suitable for land application.

Since the completion of the Pilot Project at Len and Patties abattoir, BishopWater Technologies and OMAFRA have partnered to perform additional testing at another abattoir in Ontario, and continue to collaborate on further projects for the management of abattoir washwater. From the perspective of Bishop Water Technologies and OMAFRA representatives, Geotube® technology can be viewed as an effective means of dewatering wash water produced by abattoirs.

How the Geotube® works...

Dewatering with Geotube® technology is a three-step process.

In the confinement stage, the Geotube® container is filled with dredged waste materials. The Geotube® containers unique fabric confines the fine grains of the material.

In the dewatering phase, excess water simply drains from the Geotube® container. The decanted water is often of a quality that can be reused or returned for processing or native waterways without additional treatment.

In the final phase, consolidation, the solids continue to densify due to desiccation as residual water vapor escape through the fabric. Volume reduction can be as high as 90 percent.

Filtrate Analysis from Len and Patties Butcher Block

- 99.8 TSS Reduction
- 96.75 COD Reduction
- 92.1% Oil and Grease Reduction
- 98.7 E-Coli Reduction

A simple cost effective polymer injections system and mixing chamber was used for the pilot project.

Filtrate from the Geotube® dewatering technology in comparison to the wash water produced at the abattoir.

Once the Geotube® unit was full it was removed from the site and disposed of at the Lefleche Landfill Site