Thornton Yard Geobag Sludge Management - Sustainability Initiative

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Prior to December 2013, sludge generated at the CN Thornton Wastewater Treatment Plant (WWTP) was dewatered using a filter press. Operating the filter press is a labour and energy intensive operation, therefore other sludge dewatering options were evaluated and a new dewatering process was selected in the form of a geobag. A geobag consists of a geotextile tube with small openings in the permeable fabric for the decanting of the water, while retaining the sludge inside of the bag.

From December 2013 to January 2014, the filter press was removed and replaced with the geobag system. To complete the exchange, modifications were required to the building including upgrades to the operator platform and the overhead door to the building.

The total capital cost to upgrade the sludge management system to a geobag system was $31,500 and the cost savings in operation and maintenance has been estimated at $22,000 per year. The geobag system at the Thornton WWTP has proven to be cost-effective, reliable and efficient at dewatering the plant sludge with less operator's attention than the filter press.

The benefit of the capital upgrade was a reduction in operator labour and consumables. Tasks removed from operator duties were: mixing diatomaceous earth for the pre-coat cycle, running the filter press (8 hrs vs 15 mins for the geobag system), cleaning the filter cake from the press, and replacing worn and damaged filter cloth.

Similarly, there is a reduction in the chemicals required to operate the sludge management system from using diatomaceous earth in the filter press to using no chemicals in the geobag system.

There are energy savings from operating the filter press and associated pumps (estimated at approximately $500 per year) and the cost of additional maintenance (both labour and parts) and wear associated with operating the pumps with greater resistance against flow as was present with the filter press.

The geobag system was installed in the beginning of January 2014. It is estimated that after 17 months (by the end of May 2015) the capital costs incurred to make the necessary upgrades to exchange the filter press for a geobag system will have been recovered.