2012 Ashbridges Bay Treatment Plant Biosolids Management Update

Date: April 23, 2013
To: Public Works and Infrastructure Committee
From: General Manager, Toronto Water
Wards: All
Reference Number: P:\2013\Cluster BTW\pw13008

SUMMARY

This report summarizes the services and costs incurred in 2012 for the Ashbridges Bay Wastewater Treatment Plant (ABTP) biosolids management program. Currently, the City has seven contracts in place with six service providers that undertake beneficial use of biosolids through pelletization, alkaline stabilization, agricultural land application and mine reclamation. When biosolids cannot be beneficially used, they are transported to various landfill sites for disposal.

In 2012, approximately 85% of the biosolids generated at ABTP were beneficially used and 15% were hauled to landfill for disposal. The total cost of the program in 2012 was $12,708,412.

RECOMMENDATIONS

The General Manager, Toronto Water, recommends that:

1. The Public Works and Infrastructure Committee receive this report for information.

DECISION HISTORY

At its April 25, 26 and 27, 2006 meeting, Council adopted Clause 17 in Works Committee Report 2, as amended, authorizing staff to issue a Request for Expression of
Interest to potential service providers in order to achieve a target of 100 percent beneficial use of biosolids generated at the ABTP.


At its May 23, 24, and 25, 2006 meeting, Council adopted Notice of Motion J (22) authorizing staff to issue a procurement call for contingency disposal capacity to be utilized in the event of a closure of the U.S. - Canada border or conditions that adversely impact the City’s ability to dispose of solid waste, water and wastewater treatment plant by-products and street sweepings in the U.S.


At its June 27, 28 and 29, 2006 meeting, Council adopted Notice of Motion J (32) authorizing staff, in relation to biosolids management emergency issues, to act in accordance with confidential instructions and directing a report back on the outcome of the steps subsequently taken by staff.


At its June 27, 2007 meeting, Public Works and Infrastructure Committee received an update on the outcome of steps taken by staff pursuant to the confidential instructions to staff and the authority given by Council, at its meeting on June 27, 28 and 29, 2006, by the adoption of Motion J (32).


At its July 16, 17, 18 and 19, 2007 meeting, City Council authorized staff to finalize and execute the Operations, Maintenance and Pellet Marketing Services Agreement with Veolia Water Canada, Inc.


At its February 23, 24 and 25, 2009 meeting, City Council authorized staff to procure additional beneficial use and landfill disposal services for biosolids from the ABTP on a sole source basis until such time as Council has considered and approved a Biosolids Management Master Plan.


At its August 5 and 6, 2009 meeting, City Council authorized staff to finalize negotiations with, enter into and execute any necessary amending agreement(s) with Veolia Water Canada, Inc. to transition to full time operation of the Pelletizer Facility under the Operations, Maintenance and Pellet Marketing Agreement.


At its meeting on October 27, 2011 Bid Committee granted authority to award four new contracts based on Request for Proposal No. 9155-11-7185 for the management and beneficial use of biosolids generated from ABTP.

http://app.toronto.ca/tmmis/viewAgendaltemHistory.do?item=2011.BD47.1
**ISSUE BACKGROUND**

In August 2006, Republic Services stopped accepting biosolids from Toronto at its Carleton Farms landfill facility in Michigan. Since that time, the City has diversified its ABTP biosolids management program by contracting with a number of different service providers who utilize varying technologies in order to create a more secure biosolids management program.

In December 2009, City Council approved the Biosolids Master Plan (BMP) for the management of ABTP biosolids. The BMP recommends 100% beneficial use of ABTP biosolids with landfill disposal as a contingency option.

**COMMENTS**

To ensure the ABTP continues to operate in compliance with all regulatory requirements, biosolids must be removed from the wastewater treatment process on a near continuous basis. Having in place a diverse biosolids management program (made up of multiple service providers with access to differing outlets and technologies) provides better protection against the loss of any one or more service providers.

In 2012, 139,562 wet tonnes of biosolids were generated at ABTP; approximately 85% (118,628 wet tonnes) were beneficially used and 15% (20,934 wet tonnes) were disposed of in landfill. The total ABTP biosolids management cost for 2012 was $12,708,412; an increase of 15% from 2011 and an overall reduction of 26% since 2007. The increase from 2011 to 2012 can be attributed to the annual inflation provisions contained in each service contract as well as higher volumes of biosolids being directed to beneficial use outlets.

1. **Service Providers**

   **Terratec Environmental (Terratec):**

   Terratec transports, handles and applies the biosolids to agricultural fields in Southwestern Ontario and hauls to Green Lane landfill when directed to do so by the City. Agricultural land application continues to be highly unpredictable due to inclement weather, limited seasonal storage, stringent regulations and land availability.

   A proposal was received from Terratec through the July 2011 RFP process and a new contract with Terratec took effect on March 14, 2012. In 2012, Terratec transported, stored and land applied 38,447 wet tonnes of biosolids from ABTP at a total cost of $2,652,004. Tipping fees associated with disposal of biosolids at Green Lane Landfill totalled $678,644 and were paid directly by Toronto Water to Toronto Solid Waste Management Division.
Niagara Biosolids LP (NB):

NB entered into a three (3) year contract with the City in December, 2010 to manage up to a maximum of 20,000 wet tonnes of biosolids per year through the NVIRO process. The NVIRO technology further stabilizes the biosolids by adding an alkaline material and the end product is used as a fertilizer and soil conditioner.

In 2012, NB transported and managed 3,454 wet tonnes of biosolids at their NViro Facility in the Region of Niagara at a cost of $557,602.

Integrated Municipal Services (IMS):

IMS entered into a three (3) year contract (plus two one-year options) with the City in January 2012. The terms of the new contract involve the management of a minimum of 10,000 wet tonnes of biosolids per year through the N VIRO process. The resulting material was used on mine reclamation sites.

In 2012, IMS transported and managed 2,990 wet tonnes of biosolids from ABTP to a mine reclamation site in Pennsylvania where it underwent the NVIRO process and then was spread on degraded mine sites, at a cost of $472,455.

Third High Farms (THF):

In July 2010, THF entered into a five (5) year contract with the City to manage a minimum of 10,000 wet tonnes of biosolids per year through agricultural land application in Eastern Ontario.

In December 2011, THF was awarded a second contract through the July 2011 RFP process. The terms of the contract includes the management of a minimum of 10,000 wet tonnes of biosolids per year through the Lystek process being built at the THF site and through an alkaline stabilization facility in Maine.

In 2012, under their first contract, THF transported, stored and managed 26,052 wet tonnes of biosolids through agricultural land application in Eastern Ontario and 8,886 tonnes to landfill in NY State.

Under THFs second contract, 5,627 wet tonnes of biosolids was transported and managed at the New England Organics Grasslands facility in Maine where it underwent an alkaline stabilization process.

The total cost of biosolids management under these two contracts in 2012 was $5,432,301.
Veolia:

Operation of the City's Pelletizer Facility at the ABTP site is performed by Veolia under the terms of a ten year (plus ten year option) Operations, Maintenance and Pellet Marketing (“OM&M”) Agreement executed in September 2007.

In 2012, Veolia managed an estimated 54,106 wet tonnes of biosolids, at a cost of $2,915,407. Veolia transported, stored and marketed the pellets in Ontario as a fertilizer, which was sold in bulk directly to farmers.

In addition to the fees paid to Veolia, the City incurred a cost of approximately $1.2 million for utilities to operate the pelletizer facility in 2012.

Lystek International Incorporated (Lystek):

The contract with Lystek was signed in February 2012. The terms of the contract include the management of a minimum of 10,000 wet tonnes of biosolids per year through the Lystek treatment process at a facility in Dundalk, Ontario, owned and operated by Lystek. In 2012, the facility remained under construction and was unable to accept biosolids. The guaranteed minimum annual volume of biosolids will be prorated depending on when Lystek can begin accepting material.

At the time of this report, the facility was substantially complete and was undergoing commissioning activities. Staff have hired a third party engineering consultant to undertake a due diligence review of the facility prior to sending any biosolids material. It is anticipated that haulage of biosolids from ABTP to the Dundalk facility will commence on a trial basis in late April 2013.

Third Party Field Inspection Services:

In 2012 the City continued to utilize Conestoga Rovers and Associates (CRA) as a third party field inspector and auditor for all biosolids applied directly to agricultural fields without additional processing. CRA inspected and audited THF and Terratec's practices at 63 application sites over the course of the year. The third party inspection program provides a visible presence on the City's behalf to deal with the public, help mitigate negative perceptions and issues surrounding Toronto biosolids and ensure due diligence for both the City and Contractor. The total cost of CRA's field inspection services for 2012 was $407,450.

2. Summary of Program Performance

Table 1 below summarizes the biosolids management options used by each of the City's contracted service providers in 2012 and the total quantity handled for each management option.
Table 1: 2012 Biosolids Management by Service Provider

<table>
<thead>
<tr>
<th>Biosolids Management Option*</th>
<th>IMS</th>
<th>Terratec</th>
<th>THF</th>
<th>NB</th>
<th>Veolia</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Land Application</td>
<td></td>
<td>27,062</td>
<td>25,512</td>
<td></td>
<td></td>
<td>52,574</td>
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<tr>
<td>Pelletization</td>
<td></td>
<td></td>
<td>54,106</td>
<td></td>
<td></td>
<td>54,106</td>
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<tr>
<td>Alkaline Stabilization</td>
<td></td>
<td>5,627</td>
<td>3,454</td>
<td></td>
<td></td>
<td>9,081</td>
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<tr>
<td>Mine Reclamation</td>
<td>2,990</td>
<td>540</td>
<td></td>
<td></td>
<td></td>
<td>3,530</td>
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<td>Landfill (Green Lane)</td>
<td>11,385</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11,385</td>
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<tr>
<td>Landfill (other sites)</td>
<td>8,886</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8,886</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,990</td>
<td>38,447</td>
<td>40,565</td>
<td>3,454</td>
<td>54,106</td>
<td>139,562</td>
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</tbody>
</table>

*All quantities reported in wet tonnes

Chart 1 demonstrates the trends in biosolids generation and the proportion of biosolids going to beneficial use options versus landfill over the past six years.
Table 2 summarizes the total and average annual cost per wet tonne to manage and/or dispose of the biosolids generated at ABTP over the last six years. Average cost per wet tonne has increased due to the annual inflation adjustment contained in each service contract as well as the increase in total tonnage produced. Higher biosolids tonnage results in greater use of the more expensive contracts in order to maximize beneficial use of the biosolids material.

<table>
<thead>
<tr>
<th>Year</th>
<th>Biosolids management Cost*</th>
<th>Tonnage (Wet Tonnes)</th>
<th>Average Cost per Wet Tonne</th>
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<tr>
<td>2007</td>
<td>$17,081,692</td>
<td>164,222</td>
<td>$104.02</td>
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<td>2008</td>
<td>$13,903,638</td>
<td>149,166</td>
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<tr>
<td>2009</td>
<td>$13,177,811</td>
<td>140,879</td>
<td>$93.54</td>
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<tr>
<td>2010</td>
<td>$12,104,308</td>
<td>134,185</td>
<td>$90.21</td>
</tr>
<tr>
<td>2011</td>
<td>$11,033,936</td>
<td>129,212</td>
<td>$85.39</td>
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<td>2012</td>
<td>$12,708,412</td>
<td>139,562</td>
<td>$91.06</td>
</tr>
</tbody>
</table>

*Excludes pelletizer utility costs and CRA inspection cost

Chart 2 below summarizes the volumes of biosolids managed through each of the available options over the past six years. The graph demonstrates that agricultural land application and pelletization continue to play a major role in the City's biosolids beneficial use program while landfill continues to decrease in use.
Chart 2- ABTP Biosolids Management Outlets 2007-2012

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SIGNATURE

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