



INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	August 11, 2016
SUBJECT/REPORT NO:	Central Composting Facility Odour Management (PW16064) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Glenn Watt 905-546-2424, Extension 5613
SUBMITTED BY:	Betty Matthews-Malone, P.Eng. Director of Operations Public Works Department
SIGNATURE:	

Council Direction:

At the Public Works Committee meeting held on May 30th, 2016 the committee approved the following motion:

- a) That staff be directed to report to the Public Works Committee on the number of odour complaints received to date from the operation of the Central Composting Facility; and,
- b) That the report outline the existing engineering measures that are presently in place and how those engineering measures can be improved upon in order to mitigate odour complaints.

Information:

The City of Hamilton's Central Composting Facility (CCF) has been operating since June of 2006 and is an important contributor to the overall waste diversion from the Glanbrook Landfill. The CCF utilizes state-of-the-art aerobic in-vessel technology that processes Source Separated Organic (SSO) and Leaf and Yard (L&Y) waste collected from the curbside Green Bin program into an environmentally beneficial soil amendment.

The CCF operates under operational and environmental conditions outlined in the Environmental Compliance Approval (ECA) issued by the Ministry of Environment and Climate Change (MOECC). Specifically, the ECA outlines operational and monitoring requirements regarding odour control and facility emissions such as annual odour

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emissions testing. The ECA also outlines specific monitoring requirements for the odour management system and equipment.

The CCF utilizes a sophisticated odour control and monitoring system to treat odourous process air prior to release into the natural environment. This odour control and monitoring system also prevents and mitigates odours and allows the CCF operations to achieve compliance with MOECC standards. The following components are included in the CCF Odour Management Plan:

- Physical controls (i.e. equipment and instruments); and
- Procedural controls (i.e. policies and standard operating procedures); and
- Review and Continuous Improvement.

Physical Controls

- Bio-filter – Odourous process air passes through an air scrubber for the removal of particulates and for the addition of required humidity. The odourous process air is then forced through the bio-filter where odours are broken down at the molecular level by beneficial bacteria. This process ensures the CCF achieves acceptable odour emission levels as outlined by the MOECC. The bio-filter is an enclosed, above ground structure that utilizes wood as its media. The treated process air is then directed up the 30 metre stack where it is dispersed into the atmosphere.
- Supervisory Control And Data Acquisition (SCADA) – The CCF operations are controlled and monitored by a SCADA system. This includes the biofilter and related odour management components such as blowers, dampers and moisture management systems. The SCADA system is also used to control the facility air balance and to ensure negative air pressure within the CCF. The SCADA system is also equipped with an alarm feature that will notify the operator remotely if equipment failures occur.
- Enclosed Facility - Vehicles transferring compostable material to the facility are fully enclosed (including tarps) to prevent or minimize the release of odours. Vehicles enter the facility tipping floor through bay doors that are then kept closed at all times. Once a vehicle enters, the door closes before unloading begins.
- Negative Air Pressure - The CCF is maintained under negative air pressure to eliminate fugitive air emissions. The air balance within the CCF is maintained at a negative pressure to ensure that when exterior doors to the CCF, such as tipping floor doors are opened, air movement is flowing into the CCF and not out of the building.
- Air Curtains – As part of continuous improvement, air curtains have been installed on the tipping floor doors. When a tipping floor bay door is open, an air curtain will engage, preventing the odorous air from escaping through the tip floor doors.

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- Power Failure: The CCF is equipped with a diesel generator to provide power to the odour management system in the event of a power failure.

Procedural Controls

- Administrative Controls: These controls are in place to provide CCF operators with the necessary direction and understanding to manage odour. These controls include, but are not limited to various policies, procedures, training and other specialized skills that are essential to the success of these controls.
- Equipment Redundancy: The process system has been designed with redundancy. For example, if a piece of equipment such as a blower or computer control system breaks down, the various systems, including the odour filtration system, continues to operate. Manual overrides of equipment are in place at local instrument readouts and provide information to help set and monitor systems.
- Spare Parts: Spare parts for routine replacement items are stored on site or readily available from nearby suppliers.
- Routine Maintenance: Routine maintenance includes a number of activities such as bio-filter media replacement, ventilation equipment adjustment and repairs and instrument calibration.

The ECA issued by the MOECC requires that all complaints received are investigated, tracked and reported to the MOECC. Listed below is a chart that outlines complaints received at the CCF from January 1, 2013 to July 30, 2016. It should be noted that following the investigation of an odour complaint, the odour complaint is categorized into confirmed and unconfirmed complaints. Confirmed complaints indicate the odour is attributed to the CCF operations while an unconfirmed complaint indicates the odour is attributed to other sources not related to the CCF operations. Staff work closely with the MOECC Environmental Abatement Officers to determine if the odour complaint received is confirmed or unconfirmed.

Odour Complaints Received – January 1, 2006 to July 30, 2016

Year	Confirmed	Unconfirmed	Total
2016	2	3	5
2015	3	12	15
2014	2	6	8
2013	6	2	8
2012	2	1	3
2011	2	0	2
2010	9	15	24
2009	2	4	6

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**SUBJECT: Central Composting Facility Odour Management
(PW16064) (City Wide) - Page 4 of 4**

Year	Confirmed	Unconfirmed	Total
2008	0	3	3
2007	20	0	20
2006	3	0	3

Since the construction of the CCF, staff and the facility operator have continually invested and upgraded the CCF to maintain a state-of-the-art facility. Upgrades and improvements specifically related to facility odour management include the following:

- Installation of a third biofilter fan which increases the amount of fresh air entering the bio-filter which allows better control over the physical conditions of the biofilter
- Installation of a misting system that humidifies bio-filter air which improves the operating efficiency of the bio-filter
- Installation of an air exhaust stack to meet odour emission requirements outlined in the ECA
- Upgrades to the curing building which resulted in fully enclosing the building and integrating the curing building into the existing CCF odour management system
- Installation of air curtains on the tip floor doors in the main processing facility to eliminate fugitive odour emissions from the facility when the tip floor door is open to allow through traffic
- Installation of doors in the curing building where previously there were openings
- Installation of an odour neutralizing system in the curing building
- Increased the size of floor spigots that introduce air into the biofilter
- Changed the original biofilter wood media to a coarser root stock to promote increased biofilter operation

Staff are currently upgrading the CCF to ensure compliance with new provincial compost standards. Additional moisture parameters required by the standards are actions taken by the MOECC to promote compost maturity and odour mitigation. Staff will continue to monitor and evaluate the operations and related odours. Although unexpected, should the current upgrades challenge the odour management system or if it is determined that the installation of other air handling or odour control measures are required, staff will investigate the best and most cost effective solution to enhance odour control measures. Staff are proactively investigating additional odour mitigation options that could include odour control misting systems and operational air movement changes.

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