Halifax Regional Municipality
Ragged Lake Source Separated Organics
Composting Facility

Community Liaison Committee Meeting
November 23, 2017
<table>
<thead>
<tr>
<th>#</th>
<th>Agenda Item</th>
<th>Presenter</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introductions of CLC Members</td>
<td>All</td>
<td>10 minutes</td>
</tr>
<tr>
<td>2</td>
<td>Review CLC Terms of Reference</td>
<td>AIM</td>
<td>20 minutes</td>
</tr>
<tr>
<td>3</td>
<td>Discuss the CLC mandate regarding HRM’s future plans for organic waste management</td>
<td>HRM</td>
<td>10 minutes</td>
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<tr>
<td>4</td>
<td>Appointment of Chair</td>
<td>AIM</td>
<td>10 minutes</td>
</tr>
<tr>
<td>5</td>
<td>Review of existing facility and operations</td>
<td>AIM</td>
<td>25 minutes</td>
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<tr>
<td>6</td>
<td>Recent operating statistics</td>
<td>AIM</td>
<td>10 minutes</td>
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<tr>
<td>7</td>
<td>Discuss and plan tour of existing facility</td>
<td>All</td>
<td>10 minutes</td>
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<tr>
<td>8</td>
<td>Confirm dates for future meetings</td>
<td>All</td>
<td>10 minutes</td>
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<tr>
<td>9</td>
<td>Open discussion, Q&amp;A</td>
<td>All</td>
<td>15 minutes</td>
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Introductions

AIM Introductions

HRM Introductions

Public Member Introductions
Who is AIM Environmental?

AIM Environmental Group Inc.

• AIM began operations in 1989
  • First as a waste management company
  • Then moving into demolition and environmental remediation

• AIM commenced operations of organic waste management facilities in 2006 when Hamilton CCF was commissioned
  • Guelph OWPF commenced operations in 2012
  • Halifax Ragged Lake operations added in 2016
  • Calgary compost facility commenced operations in 2017

• AIM now solely focused on organics waste management
  • Facility design, material pre-processing and post-processing, operations
  • Partnerships with many technology providers, including anaerobic digestion
CLC Terms of Reference

Ragged Lake SSO Composting Facility Background

- Facility in operation since 1998
- HRM acquired ownership in December 2015 when the contract with New Era Technologies ended
- Effective October 1, 2016, AIM Environmental Group Inc. (AIM) assumed management of the facility under contract to HRM
  - Contract expires March 31, 2019, with two one-year extensions possible at HRM’s sole discretion
- AIM holds the Operating Approval issued by Nova Scotia Environment
- Community engagement is both a requirement under the operating approval, and an important principle guiding the operations of all AIM’s facilities
CLC Terms of Reference

CLC Mandate

• Forum for mutual consultation with residents, business and other stakeholders in our community regarding the impacts of our activities
• Focus on current facility operations
• Acts in an advisory capacity to the proponent (AIM)

CLC Membership

• Goal was for balanced representation from AIM, HRM staff, local residents, businesses and District 11 Councillor – 9 members
• Permanent members – AIM (2), HRM (2), Councillor (1)
• Public members – interested parties are selected by permanent members for defined terms – Local residents and businesses (2), non-governmental organizations (1), others greater than 2,000 meters away from the facility (1)
CLC Terms of Reference

CLC Membership (continued)

• Difficult to attract Public Members
  • Newspaper advertisement, website posting, direct mailing, direct personal approach
• Three Public Members Volunteered to Participate
  • 1 local business
  • 2 residents greater than 2000 m from site
• Proposed to operate CLC with eight members
  • Two AIM, two HRM, one Councillor and three public members
• Propose that all memberships run to March 31, 2019
  • Matches AIM’s current operating contract
CLC Terms of Reference

CLC Roles and Responsibilities

• All CLC members are expected to participate fully in meetings and to always engage in mutually respectful, open, and constructive dialogue.

• Proponent (AIM)

  • Formally appoints/elects a committee Chair
  • Formally document meeting minutes
  • Inform committee of proposed facility changes or concerns raised within the community and seek CLC input where appropriate
  • Provide timely responses or take appropriate action in response to issues raised that can’t be addressed during a CLC meeting.
CLC Terms of Reference

CLC Roles and Responsibilities (Continued)

• Facility and Property Owner (HRM)
  • Inform committee of proposed facility changes or concerns raised within the community and seek CLC input where appropriate
  • Assist the Chair with the effective functioning of the meeting
  • Work jointly with AIM to provide timely responses or take appropriate action in response to issues raised that can’t be addressed during a CLC meeting.

• CLC Members
  • Attend and actively participate in regular CLC meetings
  • Become informed about the Facility and its operation
  • Be open to considering a wide range of views and opinions
  • Convey any input or feedback from the broader community – their perspective, concerns, ideas for improvement opportunities.
CLC Terms of Reference

CLC Meeting Schedule and Format

• Propose six quarterly meetings from November 2017 to March 2019
• Expected meeting duration of 2 hours
• Typical agenda items as follows:
  • Review and approval of previous meeting’s minutes
  • Update on Facility operations
  • Discussion of CLC issues and concerns
  • Review of issues and complaints received from the public and their resolution
  • Other items as deemed appropriate by the committee
• AIM will prepare draft meeting minutes for review within 7 days of meeting and allow 14 days for member feedback. Final draft will be sent to members within 7 days after. Approval will occur during the next scheduled meeting.
• Other meeting materials for review will be circulated by AIM electronically 72 hours in advance of the meeting.
CLC Terms of Reference

Rules of Order

• Half the members plus one (five) constitutes a quorum
• A conflict of interest of any kind regarding a matter being considered by the committee must be declared. Members declaring a conflict of interest must be excused from the proceedings while the matter is being considered
• Only CLC members and committee-approved invited guests may attend CLC meetings.
• Meetings are not open to the public but delegates may make formal application to appear before the committee
Discuss the CLC mandate regarding HRM’s future plans for organic waste management
CLC Terms of Reference

Appointment of Chair
Facility Overview
Facility and Operations

- Underground Process Water Storage Pump Out
- Biofilter
- Biofilter Media Storage
- Curing Building
- Screening Building
- Receiving Hall
- Hot Rot Demonstration Unit
- Office
- Weigh Scale
- Biofilter Containers
- Underground Leachate Storage Pump Out
- Primary Composting Containers "Cans"
Facility and Operations

Overview

• The Halifax facility is a 25,000 tonne per year aerobic composting facility utilizing a containerized primary composting stage and an enclosed windrow secondary curing (maturation) stage

• Feedstocks are source-separated organics from residential and ICI sources within HRM:
  • Food waste
  • Fat, cooking oil, and grease
  • Coffee grounds, filters, tea bags
  • Food napkins, kitchen paper towels and soiled paper
  • Sawdust and wood shavings
  • Leaf and yard waste
Facility and Operations

Overview (continued)

• The plant employs 12 people
  • 3 management staff; and,
  • 9 hourly production workers

• Normal hours of operation are from 8:00 a.m. until 6:00 p.m.
• Some weekend work is required depending on plant needs and HRM collection schedules

• Major equipment
  • Truck scale
  • Sorting (pick) line and grinder
  • Containerized compost system and tilter
  • 1 roll off truck
  • 3 front end loaders
  • 1 dump truck
  • Finished compost screener
Facility and Operations

Process Flow

• The facility consists of a truck scale, materials receiving building, office, Stinnes-Enerco containerized composting system, curing building, and a screening building.
• The feedstock is weighed and dumped in the receiving hall where it is loaded onto a conveyor belt with a front end loader.
• The feedstock passes through a manual sort station staffed with 2-4 people who remove unacceptable materials.
• The sort line is equipped with a magnet to remove metal.
• The conveyor belt drops the sorted feedstock material into an 8” screened grinder.
• The ground feedstock is mixed with screened over-sized material (and if needed other bulking amendment) using a front end loader and is then placed in specialized composting containers.
Facility and Operations

Process Flow (continued)

• The primary composting stage is completed in one of 24 aerated and sealed containers located outdoors. Material is typically left in the container for 7-10 days.

• The containers are controlled by a central control system that monitors air temperature and airflow.

• Leachate is drained from the containers to a storage tank.

• Once this primary compost stage is complete the containers are transported individually by roll off truck to a container tipper in the curing building.

• The material is tipped out of the container and placed onto the aerated curing floor by front end loader.

• The material in the curing hall is turned and advanced down the curing building by front end loader towards the screening building.
Facility and Operations

Process Flow (continued)

• The compost remains in the curing building for approximately 2.5 months.
• All process water and leachate is collected and stored for trucking off-site to a wastewater treatment facility.
• The cured compost is loaded into a screener by front end loader in the screening building.
• The screening equipment includes a vacuum blower to collect light film plastic etc. for disposal.
• Screened oversized material (>25 mm) is used as bulking amendment for the container composting process.
• Finished compost fines (<25mm) are stockpiled and then loaded by front end loader into customer supplied transport.
## Facility and Operations

### ANNUAL PROCESSING STATISTICS

<table>
<thead>
<tr>
<th>Year</th>
<th>Residential Tonnes</th>
<th>Industrial</th>
<th>Commercial</th>
<th>Institutional</th>
<th>Total Tonnes</th>
<th>Compost Tonnes</th>
<th>Front End Residue Tonnes</th>
<th>Back End Residue Tonnes</th>
<th>Leachate Liters</th>
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<tbody>
<tr>
<td>2015</td>
<td>11,596</td>
<td>8,654</td>
<td>8,019</td>
<td>7,012</td>
<td>20,250</td>
<td>10,296</td>
<td>275</td>
<td>629</td>
<td>8,138,155</td>
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<td>2016</td>
<td>9,456</td>
<td>8,019</td>
<td>8,019</td>
<td>7,012</td>
<td>17,475</td>
<td>7,381</td>
<td>177</td>
<td>506</td>
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<td>2017 YTD</td>
<td>10,724</td>
<td>8,019</td>
<td>8,019</td>
<td>7,012</td>
<td>17,736</td>
<td>7,410</td>
<td>143</td>
<td>514</td>
<td>6,020,139</td>
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Facility and Operations

Compost Product Quality

• Incoming SSO is inspected to reject non-acceptable materials
• Outgoing finished compost is produced, tested and released per the requirements outlined in the facility’s Approval to Operate issued by Nova Scotia Environment
  • Finished compost is sampled and tested every 1000 tonnes produced
  • Compost quality analysis is completed by qualified personnel and/or certified independent commercial laboratories
Facility and Operations

Environmental Controls – Air/Odour

- All materials are collected, processed and stored in enclosed buildings or in the enclosed composting containers
- Strict rules apply for keeping doors closed
- The buildings are maintained under slight vacuum with mechanical ventilation (fans)
- The air exhausted from the buildings is treated for odour removal via a six cell in-ground biofilter equipped with organic media.
- The excess air exhausted from the composting containers treated for odour removal via six biofilter containers equipped with organic media
- Biofilters are monitored daily for operation and weekly for air pressure, pH, moisture.
- Biofilter media is irrigated, turned and replaced on a regular schedule to optimize odour removal.
Facility and Operations

Environmental Controls – Water

• All water that drains out of the organic materials (leachate) as it is received and processed, is collected in a storage tank for transport for treatment at an off-site water treatment facility.

• The site is also equipped with an interceptor trench and any water collected in that trench, as well as any excess irrigation water from the in-ground biofilters, is collected in a storage tank for transport for treatment at an off-site water treatment facility.

• Concrete floors in building are regularly monitored and cracks are repaired and sealed

• The outside paved surfaces are regularly monitored and cracks are repaired and sealed

• Surface storm water is directed to, and collected in, a holding pond where water samples are taken after each major rain event to test for suspended solids, BOD5, and fecal coliforms.
Facility and Operations

Environmental Monitoring and Compliance

• Facility must be operated as outlined in the Approval and in accordance with the Nova Scotia Environment Act and Regulations
  • Subject to Air Quality Regulations and must address odour issues and complaints formally
• Any non compliances, spills or releases must be reported immediately
• Wastewater (leachate) must be managed, monitored and treated at an approved facility
• Storm event surface water must be collected, sampled and analyzed for prescribed parameters prior to being approved for release
• 4 surface water locations are monitored semi-annually for prescribed parameters
• 11 groundwater wells are monitored quarterly (6) and annually (5) for prescribed parameters
Facility and Operations

Environmental Monitoring and Compliance (continued)

• Building floors must be inspected and repaired per schedule outlined in Approval
• Operating records must be kept and reported annually to NSE:
  • Quantities of feedstock materials, compost, residues, leachate, etc.
  • Water quality results – storm water, surface water, groundwater, leachate and bio water
  • Compost quality
  • Building floor inspection results and repair program activities
  • Registered complaints and corrective actions taken to resolve
Facility and Operations

Recent Odour Performance

• 2 odour complaints were registered in 2017:

  • September 2017: compromised container lid seal found
    • All Lids inspected and repaired as necessary

  • November 2017: doors were found open
    • Doors were immediately closed
    • Door policy reviewed with all employees
Plant Tour and Future Meetings

Plan for Facility Tour

Future Meetings?

• Propose up to a total of six meetings:
Open Discussions/Q&A

Thank you all for your commitment to public service.