



City of Richmond

Report to Committee

To: General Purposes Committee

Date: November 17, 2015

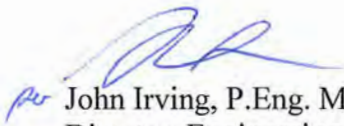
From: John Irving, P.Eng. MPA
Director, Engineering

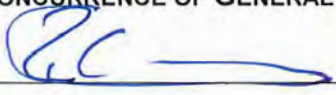

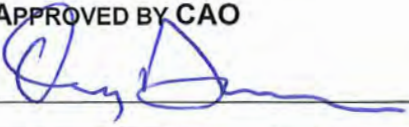
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Re: Harvest Power Air Quality Permit Review

Staff Recommendation

That comments regarding Harvest Fraser Richmond Organics Ltd. air quality permit renewal application in the report titled, "Harvest Power Air Quality Permit Review," dated November 17, 2015, from the Director, Engineering, be forwarded to Metro Vancouver's Environmental Regulation & Enforcement branch.


John Irving, P.Eng. MPA
Director, Engineering
(604-276-4140)

| REPORT CONCURRENCE | | |
|--|---|--|
| ROUTED TO: | CONCURRENCE | CONCURRENCE OF GENERAL MANAGER |
| Environmental Programs | <input checked="" type="checkbox"/> |  |
| REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE | INITIALS: | APPROVED BY CAO |
| |  |  |

Staff Report

Origin

At the October 26th, 2015 Council meeting, Council received information about actions being undertaken to reduce odour complaints at the Harvest Fraser Richmond Organics Ltd. Richmond facility (Harvest Power). The report identified that Harvest Power was in the process of working with Metro Vancouver to renew their Air Quality permit and that public and stakeholder feedback was an opportunity in the permit renewal process. On November 10, 2015, Metro Vancouver invited the City to provide input on Harvest Power's application. Staff have reviewed the draft application and have listed comments for Council's consideration for endorsement in this report.

This report supports Council's 2014-2018 Term Goal #3 A Well-Planned Community:

Adhere to effective planning and growth management practices to maintain and enhance the livability, sustainability and desirability of our City and its neighbourhoods, and to ensure the results match the intentions of our policies and bylaws.

This report supports Council's 2014-2018 Term Goal #5 Partnerships and Collaboration:

Continue development and utilization of collaborative approaches and partnerships with intergovernmental and other agencies to help meet the needs of the Richmond community.

Background

Metro Vancouver has delegated authority from the Province, under the *Environmental Management Act*, to provide the service of air pollution control and air quality management by controlling the discharge of air contaminants through bylaws adopted by the Greater Vancouver Regional District Board. Air Quality Permits are the operational tools that authorize specific discharges. Harvest Power recently submitted an application to Metro Vancouver, pursuant to the *Greater Vancouver Regional District Air Quality Management Bylaw No. 1082*, to renew their permit and public and stakeholder feedback is being sought. The permit renewal process is an iterative process which will include input from the City and consultation with Metro Vancouver engineers and subject experts. An Air Quality Permit identifies sources of odour and other air pollutants, identifies standards for various regulated parameters (nitrogen oxides, particulates, volatile organic compounds, etc.) and sets out a monitoring system to assure compliance. Harvest Power is currently operating under a temporary permit to facilitate this iterative process, and to assure the establishment of appropriate standards.

Harvest Power has been operating a compost, soil recycling, and biofuel energy production facility at 7028 York Road for several years. The operation of the green waste processing facility has held a Composting Facility License since 1997. The operation includes open row composting of mixed organic wastes (soils, lawn waste, and food scraps) and enclosed digestion of high-calorie organic wastes (residential and commercial food scraps) for the production of biogas that is in turn burned to generate electricity (the "Energy Garden"). Harvest Power has been receiving organic materials collected by the City of Richmond since it started recycling organic

waste, initially with yard trimmings then growing to include organics. The City's current agreement with Harvest Power is valid through to June 30, 2019; the City has options for two additional terms of sixty months each.

Metro Vancouver advises that odour complaints in the City are often linked to Harvest Power; odour management at the facility has been an issue of late with an increase in complaints.

Analysis

An Air Quality Permit application is an opportunity to have odour from Harvest Power addressed. In terms of odour control, the permit renewal application identifies that:

- Biofilters and best management practices will be used to control emissions;
- A desulphurization unit, regular engine maintenance, and good combustion practices will be used to control emissions from the combined heat and energy engine, which produces and supplies electricity to the main power grid;
- A smoke-less emergency flare and a back-up generator is on-site to ensure that un-combusted biogas is not released;
- The control and prevention of on-site and off-site odours will be managed with a Progressive Odour Management Plan, which is regularly updated and improved to include current best management practices and control technology; and
- No odorous air contaminants can pass the plant boundary such that pollution occurs.

As part of the application process, Metro Vancouver also requires applicants to identify the total proposed authorized emissions, expressed in tonnes/year. As this metric is not practical to measure during field tests, Metro Vancouver monitors flow rates and concentrations of regulated compounds in the effluent from identified sources, and interpolates these into a total annual amount. The proposed thresholds are greater than those in the current permit, as Harvest Power's research indicates the current thresholds are significantly more stringent than any other jurisdiction in North America. Metro Vancouver reports that Harvest Power exceeded both flow rate and concentrations under the current permit many times over the course of a year. As a result, the increased permitted discharge in the proposed permit would not represent an increase in emissions relative to the current operation.

The final permitted flow rates and concentrations will be determined through ongoing review and negotiated outcomes between Metro Vancouver and Harvest Power. The City's feedback, listed below, identifies that the current requirements regarding emissions are insufficient and the City is requesting that more be done to address the emissions and odour issues.

Another important condition identified in the permit is that "no odorous air contaminants can pass the plant boundary such that pollution occurs". Similar language appears in the existing permit as "[no odours] past the plant boundary such that the District Director determines that pollution occurs". This requirement is critical for the City of Richmond, as the ongoing complaints indicate that significant nuisance and quality of life issues are being felt by residents,

which constitutes “pollution” in the City’s opinion. While Harvest Power recently implemented changes to their operations to reduce odour issues, the City anticipates that unless significant improvements are made, complaints and odour issues will arise again in the future. Also, the diversion of organics from landfills is expected to increase regionally. As a result, Harvest Power is more likely to increase plant throughput than decrease it. A growth in plant throughput could lead to a growth in odour issues.

Through the permit process, feedback is being sought from the City and stakeholders regarding the topics below. The City’s comments are as follows:

- **Comments and Concerns:**

- Based on past experience, if the permit is approved as submitted with the proposed emission thresholds and odour management measures, the City expects that odour complaints from community members will persist.
- The City met with Harvest Power and Metro Vancouver to discuss solutions and some changes were made at the Harvest Power facility as a result. The changes made have not yielded durable results.
- In consultation with experts, Harvest Power’s current methods of odour management were ‘out of date’ with best practices. The City is concerned that Harvest Power has not carefully considered all technology options.
- As the number of composting facilities is increasing across the region, a more substantial approach to odour management, and clear definitions of what constitutes “pollution” in regards to odour, will be required to mitigate community impacts. Otherwise, noticeable odours will continue unabated from non-permitted facilities.

- **Items that would Satisfy the City’s Concerns relating to odours and emissions:**

- Overall, additional approaches to odour and emissions management that go beyond current permit requirements (e.g. technologies, best practices) would satisfy the City. The following measures should be considered as part of the permitting process:
 - Measures to prevent odours and emissions: Lower pile heights, 24/7 operations, managing feedstock at other facilities in the region at peak periods and/or limit the total plant volume should be considered. Enclosed receiving areas where food waste is delivered need to be throughout the facility. By effectively managing feedstock, both emissions and respective odours will be controlled.
 - Ensuring more balanced chemical environments: Ensuring media and chemical components in biofilters and scrubbers address volatile organic compound emissions and that the pH is monitored and adjusted frequently.
 - More effective air and odour collection: Considering more enclosures or a completely enclosed facility that minimizes any fugitive emissions. If the odour management depends on staff noses, electronic noses should be considered as

odours can become insidious to site operators over time. The City believes this to be the case currently.

- **Treatment Equipment:** Requiring new and more effective chemical treatment of air emissions and/or using more filters. Biofilters have potential to create odours if not well maintained, which is potentially an issue at Harvest Power. Greater focus on biofilter maintenance and monitoring should be carried out.
- **Dispersal equipment:** The final scrubbed and treated effluent from the facility should be better collected and dispersed, potentially at a higher elevation (e.g. through a stack) to ensure year round vertical mixing of air emissions. Dispersal equipment could use activated carbon filters to reduce most, if not all, odour causing compounds.
- Creating a level playing field for all composting facilities across the region to further incentivise the adoption of more advanced odour management practices as regional organic waste management needs increase.
- The City would like an opportunity to comment on any Reporting Requirements that may be developed as part of the permitting process in later stages.
- A public meeting to give the proponent an opportunity to explain their compliance plan to the public be required

Financial Impact

None.

Conclusion

Metro Vancouver invited the City to provide input on Harvest Power's recent air quality permit renewal application. Staff have reviewed the available materials and have listed comments for Council's consideration for endorsement. While the city acknowledges that Harvest Power operates a facility of critical importance to meeting the City's zero waste goals, there remains concerns with Harvest Power's ability to consistently manage odours from their operations. The City has concerns that no new odour management measures have been included in the application and have requested that additional measures be considered as part of the permit renewal process.



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