TO: Chair and Members
Public Works Committee

WARD(S) AFFECTED: CITY WIDE

COMMITTEE DATE: April 19, 2010

SUBJECT/REPORT NO:
Business Review - Liberty Proposed Incinerator - (PW07047c) - (City Wide)
(Outstanding Business List Item)

SUBMITTED BY:
Beth Goodger
Acting General Manager
Public Works Department

PREPARED BY:
Chris Shrive
905.546.2424, Extension 7209

Jim Harnum
905.546.2424, Extension 4483

SIGNATURE:

RECOMMENDATION

(a) That the City receive the findings of the independent peer review undertaken by
Black & Veatch of the Biosolids Thermal Reduction - Unsolicited Proposal from
Liberty Energy Inc. dated November 2009;

(b) That the item “Biosolids Management Plan” be identified as completed and
removed from the Public Works Committee Outstanding Business List.

EXECUTIVE SUMMARY

In August 2009, Council endorsed the Schedule C Class EA Biosolids Management
Environmental Study Report (ESR) and its preferred strategy of thermal reduction
(fluidized bed incineration with energy recovery through steam generation) (PW07047b). At that time, staff were further authorized and directed not to proceed
with detailed design until a report was brought back to the Public Works Committee
presenting comparisons with other proponents which may have an interest in this issue.
The City received in August 2009, an Unsolicited Proposal for Biosolids Thermal
Processing from Liberty Energy Inc. (Liberty). Subsequent to discussions with City staff
with respect to the initial assumptions and base factors represented in the original
proposal, Liberty provided a revised unsolicited proposal to the City in November, 2009.

Through further discussions with Liberty, City staff developed a terms of reference for a
peer review comparison of Liberty’s proposal and the City’s own Biosolids Management
proposal contained within the Schedule C Class EA. It was proposed and agreed by both Liberty and City staff that the peer review, as a Single Source procurement funded by the City, would be undertaken by Black & Veatch (B & V), an engineering consulting firm well-known for its biosolids management expertise.

B & V made a presentation of their findings to Senior Management Team (SMT) on February 25, 2010. B & V made a presentation of their peer review findings to Liberty and SMT representatives from the City Manager’s Office, Public Works, and Finance on April 1, 2010. On the basis of the B & V findings and further discussions with Liberty at that time, SMT directed that B & V make the presentation of their findings to a session of the Public Works Committee (PWC).

Alternatives for Consideration - See Page 9

FINANCIAL / STAFFING / LEGAL IMPLICATIONS

Financial:

The following Table 1 provides the peer-reviewed Capital, levelized tipping fee and lifecycle costs for the City’s, and Liberty’s Public-Private Partnership (PPP) and Commercial (i.e. non-PPP) alternatives.

Under the Liberty proposal, all three alternative pricings are forecast upon a ‘put or pay’ stipulation, meaning that the City must commit to buying a capacity of 1,989,000 wet tonnes over the 30-year life of the agreement while the City will produce only 1,738,964 wet tonnes. The commercial rate (Liberty no PPP), while having no up-front cost, is the most expensive tipping fee available under the proposal at $119 per wet tonne.

Under a Public-Private Partnership (PPP) the City will realize up-front costs of $33M for the first unit, with $5M being returned to the City when the second unit is commissioned. Of particular interest, however, is the interpretation of the associated levelized tipping fees for the two PPP alternatives. With one commissioned unit, the City’s tipping fee is $102 per wet tonne. The reduced tipping fee of $86 per wet tonne is realized when the second unit is commissioned. The second unit being constructed and commissioned is recognized by the B & V peer review as one of the major controllable limitations of Liberty’s proposal to the City.

The City’s Biosolids Master Plan’s levelized tipping cost was determined by the peer review to be $84 per wet tonne. The Liberty proposal compares favourably with the City’s levelized tipping cost when the second unit is commissioned under a PPP.
Table 1. Peer-reviewed Capital and Lifecycle Costs for the Alternatives

<table>
<thead>
<tr>
<th>Hamilton Alternatives</th>
<th>Total Hamilton Biosolids, 30 year life (wet tonnes)</th>
<th>Up-front Capital Cost ($M)</th>
<th>Peer-Reviewed Levelized Tipping Fee ($/wet tonne)</th>
<th>City Lifecycle Cost ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City’s Biosolids Master Plan</td>
<td>1,738,964</td>
<td>$64</td>
<td>$84</td>
<td>$209</td>
</tr>
<tr>
<td>Liberty PPP w/ 1 unit</td>
<td>1,989,000</td>
<td>$33</td>
<td>$102</td>
<td>$235</td>
</tr>
<tr>
<td>Liberty PPP w/ 2 unit</td>
<td>1,989,000</td>
<td>$28</td>
<td>$86</td>
<td>$200</td>
</tr>
<tr>
<td>Liberty no PPP</td>
<td>1,989,000</td>
<td>$0</td>
<td>$119</td>
<td>$237</td>
</tr>
</tbody>
</table>

Staffing: N/A
Legal: N/A

HISTORICAL BACKGROUND

The recommendations contained within this report have City wide implications.

The City’s Biosolids Master Plan (BMP) and its preferred overall strategy of thermal reduction (with digestion for energy recovery) was approved by Council in July 2007 (see PW07047a). At that time Council added direction that, as part of the presentation of the results of the 30-day review to a future City committee meeting, staff prepare and present a peer reviewed analysis of other thermal reduction options, presently and possibly available within the City. This item was placed on Public Work’s Outstanding Business List.

In August 2009, Council endorsed the Schedule C Class EA Biosolids Management Environmental Study Report (ESR) and its preferred strategy of thermal reduction (fluidized bed incineration with energy recovery through steam generation) (PW07047b). At that time, staff were further authorized and directed not to proceed with detailed design until a report was brought back to the Public Works Committee presenting comparisons with other proponents who may have an interest in this issue.

In August 2009, the City received an Unsolicited Proposal for Biosolids Thermal Processing from Liberty Energy Inc. (Liberty). Subsequent to discussions with City staff with respect to the initial assumptions and base factors represented in the original proposal, Liberty provided a revised unsolicited proposal to the City in November 2009.

Through further discussions with Liberty, City staff developed a terms of reference for a peer review comparison of Liberty’s proposal and the City’s own Biosolids Management proposal contained within the Schedule C Class EA. It was proposed and agreed by both Liberty and City staff that the peer review, as a Single Source procurement funded by the City, would be undertaken by Black & Veatch (B & V), an engineering consulting firm well-known for its biosolids management expertise.

B & V commenced the peer review process in mid-February 2010 by reviewing background documents and meeting for interviews with Liberty staff and the City’s
biosolids consultants. B & V then adjusted both proposals to normalize or levelize for the purposes of a balanced comparison; this process included criteria relative to costs, risks, technical merits, and the City’s triple bottom line (TBL) assessment of environment, society, and finance.

B & V then met with Liberty and City staff separately to confirm the assumptions made in normalizing the proposals for comparison, and to independently confirm acceptance from each party of the basis and approach taken for assessment.

B & V made a presentation of their findings to Senior Management Team (SMT) on February 25, 2010. B & V made a presentation of their peer review findings to Liberty and SMT representatives from the City Manager’s Office, Public Works, and Finance on April 1, 2010. On the basis of the B & V findings and further discussions with Liberty at that time, SMT directed that B & V make the presentation of their findings to a session of the Public Works Committee (PWC).

POLICY IMPLICATIONS

The Public Works Business Plan, Innovate Now -

The recommendations from this Report will assist in meeting Public Works’ key goal, to be recognized as the centre of environmental and innovative excellence in Canada. In addition, implementing the recommendations will also assist Public Works in building on our Strategic Vision Drivers as follows:

- **Communities (Services our communities connect with and trust)** -
  Confirming this report’s recommendation and implementing the biosolids management strategy as described in the Environmental Study Report will improve the City’s local environment. Efficient and reliable operation of a fluidized bed incinerator will ensure excellent service to all the City's communities well into the future with comparatively much lower risk and uncertainty. The transparent and consultative nature of the Class Environmental Assessment process builds trust within the community and Review Agencies, demonstrating Hamilton’s and Public Works’ commitment to Service Excellence.

- **People (Skilled teams ready for any situation)** -
  This program demonstrates the ability of our City staff to respond to an important and complex opportunity that affects our community. Implementing effective biosolids management measures requires the knowledge and skill of many staff, as well as experienced and knowledgeable independent consultants that work with the system on a daily basis. Through an extensive consultation process, stakeholders, including many employees, were invited to provide their input and contribute throughout the process of decision making. The proposed solution represents forward thinking and contemporary practice. Projects such as this have the ability to contribute to the positive image that Hamilton seeks to maintain and will promote a sense of pride in staff.
Process (Smart processes to match our needs) -
Throughout the assessment process, plans have been formulated to ensure that all aspects of the Triple Bottom Line approach to problem solving are considered. Social, Environmental, and Economic impacts were all assessed to provide a balanced approach to the recommendation. A detailed and independent evaluation process was employed in cooperation with the proponent in order to effectively arrive at the optimal solution which meets Hamilton-specific goals and objectives. The result is a sustainable long-term approach that addresses pressures from City growth, legislated requirements, and environmental protection.

Finances (Sound finance management for the long haul) -
Government policy and legislation have been considered, abided, and adhered in the development of the preferred solution. The sound economic outcomes from this recommendation for the City were a significant factor in the decision-making process.

A number of other policies, regulations and statutes pertain to this document, namely:

- Nutrient Management Act
- Water and Wastewater Master Plan Policy Paper endorsed by Council on May 11, 2005 (refer to PW05050)
- Places to Grow Legislation.
- Greenbelt Protection Act
- Safe Drinking Water Act
- Environmental Assessment Act
- Clean Water Act
- Ontario Regulation 419/05 - Air Pollution - Local Air Quality
- Environmental Protection Act

RELEVANT CONSULTATION
Liberty has proceeded through a consultation programme as would a Schedule B Class EA proponent however, within the auspices of O.Reg 101/07 for Waste Management projects. Extensive public consultation programmes have been undertaken by the City for both the BMP and the Biosolids Management Schedule C Class EA. Please refer to Council Reports PW07047a and PW07047b, respectively, or to the BMP and ESR documentation for more detailed information.

City staff have liaised with Liberty staff throughout the BMP and Schedule C processes, providing and exchanging relevant information regarding biosolids characteristics, handling and processes. With the filing of the City’s Biosolids Management ESR and the submission of Liberty’s unsolicited proposal, City staff and Liberty undertook to cooperate on Terms of Reference for peer review and the retaining of a consultant.
ANALYSIS / RATIONALE FOR RECOMMENDATION

Subject to completion of the Biosolids Management Schedule C Class EA process and obtaining the subsequent authority for proceeding to implementation, the City has garnered a firm understanding of the implications and costs of the implementation of its preferred alternative. The City has applied and utilized this understanding as a basis for a peer reviewed analysis of other thermal reduction options, presently or possibly available in the City, as outlined in the Terms of Reference provided by the City and Liberty to the peer reviewer B & V. The Council recommendation originally added to Reports PW07047a and PW07047b has thus been carried through the Schedule C Class EA process, with the resulting preferred alternative serving as the foundation against which other vendor proposals representing thermal reduction management options may be considered.

The overall peer-reviewed advantages and limitations as prepared by B & V of the Liberty proposal are presented in Table 2, grouped under the pillars of the City’s TBL philosophy as well as the additional tenet of risk. An itemized listing and brief discussion of these limitations follows:

1. The B & V peer review identified that a major risk of the proposal to the City would be the entering into of a 30-year partnership with at least three other as-yet firmly identified municipal partners (none of which are currently under contract). For example, Liberty’s Unit 1 requires 65% of its capacity to be sourced from municipalities other than Hamilton (Liberty is proposing Sudbury, Halton and Niagara). If the entire partnership required to substantiate the full capacity of Liberty’s first unit is not realized, or if any one of the partners backs out of partnership, the City’s cost will increase with a corresponding potential loss of capital.

2. There is a controlling corporate risk as the proposal includes no parent guarantee. Liberty Energy Inc., a subsidiary of Liberty Energy Resources, Inc. has been created by shareholders of McCarthy Family Farms Inc. of California, but neither McCarthy Farms nor its shareholders are providing guarantees or underwriting the finances required to build or operate the proposed facilities.

3. There is a risk of Liberty obtaining financing at a reasonable rate; the current peer review analysis assumes only 6%. Without a reasonable assurance that any or all proposed partners for a first unit are committed, further financial assessment may assign a higher risk to the proposal and set financing rates of up to 15%.

4. The Liberty proposal sets a condition that potential partners are obligated to participate with no release for 20 years without substantial penalty. There can be no assurance that this penalty be realized, thus raising the uncertainty, risks and capital costs of any remaining partners. Even at the stage of 20-year commitment there will be additional costs to any partners who off-ramp, with no guarantees to the remaining partners that those penalties will be realized.
5. Through the peer review, B & V identified survivorship risks associated with the proposal. While related to the lack of a parent guarantee mentioned in item 2 above, there are further survivorship risks associated with the ability to obtain and maintain the required partnerships, the potential for escalating costs of construction, operation and maintenance, and the viability of the expected performance of the facility.

6. The actual availability and cost of biomass as a supplemental fuel has been identified as a limitation. Liberty has projected that biomass required to fuel the incinerator will be available at no cost. The peer review sees this as a limitation because biomass is presently becoming a market-priced commodity where green energy projects are established and/or maturing, and there will be costs associated with procuring biomass as green energy markets mature further. The peer review used $10/tonne in the assessment, but caveats that the cost could be as high as $50/tonne.

Additional risks have been identified through the peer review. It is expected that these risks may be covered and/or mitigated through additional costs to the City by a performance bond, which is not included nor costed in the current proposal. These additional risks and limitations include:

7. A lack of firm pricing – costs to the City may escalate due to factors outside of their control, such as the inability to obtain and maintain partners, biomass costs and the lack of a parent guarantee.

8. Without a guarantee of a second unit being constructed, the City would be subject to higher costs. A second unit, if realized, would return some of the City’s initial investment, but there is no assurance that the additional municipal partners and feedstock necessary to warrant construction of a second unit are readily available within the timeframe of two to three years as proposed by Liberty. Liberty has not identified any biosolids or biomass sources beyond the City and those municipal sources proposed, but not committed, for the first unit.

9. The peer review has identified an electrical production risk in that there are no cost or operational contingencies in the case of revenue lost to the partnership due to a failure to produce electricity. Such a failure would be outside of any partners’ control and could be realized through plant failure, shutdown or insufficient fuel sources.

10. A contingency plan (i.e. a Plan B), required for biosolids disposal when a unit (1 unit only, or 2 units at capacity) is out of service for repairs and/or maintenance, has not been identified in the proposal by the peer review. Additional biosolids management costs may have to be assumed by the partners in the case that the facility is unable to fully service any proposed partnership municipalities.
Table 2. Comparative Advantages and Limitations of the Unsolicited Proposal

<table>
<thead>
<tr>
<th>TBL Item</th>
<th>Advantages</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>● Design for Southern California stringent emissions</td>
<td>● Increased traffic: &gt; 10,000 trucks/annum for 1 unit, &gt; 20,000 trucks/annum if 2 units – noise, dust, odours, emissions</td>
</tr>
<tr>
<td></td>
<td>● Permit in hand</td>
<td>● Increased air emissions due to higher incinerator feed rates</td>
</tr>
<tr>
<td></td>
<td>● Advanced odour control at facility</td>
<td>● SCR control is new technology – potential fouling by sulphur compounds</td>
</tr>
<tr>
<td>Social</td>
<td>● Green energy production</td>
<td>● Increased traffic on local roads</td>
</tr>
<tr>
<td></td>
<td>● Local jobs resulting from imported biosolids</td>
<td>● Becoming a regional biosolids centre with the hauling of biomass and biosolids from other regions</td>
</tr>
<tr>
<td></td>
<td>● Enhanced tax base</td>
<td></td>
</tr>
<tr>
<td>Economic - Risk</td>
<td>● Feed in tariff rate</td>
<td>● Ownership and customers (30-year partnership)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Financing risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● No parent guarantee</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● No off-ramp for 20 years (at additional cost)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Survivorship risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Risk of second unit ever being built</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Biomass cost (assumed no cost in assessment, but now becoming a market-priced commodity)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Controllable limitations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Performance bond not included</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- No firm price</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Likelihood of Unit 2 – (Additional cost)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Electrical production risk</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- No Plan B</td>
</tr>
<tr>
<td>Economic - Cost</td>
<td>● Two units are approximately same cost as City Plan</td>
<td>● One unit is more expensive than City plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Commercial rate more expensive than City Plan</td>
</tr>
</tbody>
</table>

In summary, there are no advantages or confirmed commitments in effective biosolids management that the City may realize without additional effort and cost in order to fully justify or partially offset the corresponding risks and limitations that must be assumed with entering into any option offered by this proposal.
Alternatives to the recommendation include:

1. Proceed to explore a Public-Private Partnership with Liberty by developing a Letter of Intent containing precursory milestone conditions and schedule.

2. Proceed to explore a commercial relationship (i.e. tipping fee, per tonne) by developing a Letter of Intent containing precursory milestone conditions and schedule.

3. Reserve decision on any commitment, until precursory milestone conditions under Liberty’s business plan are confirmed at some future date to be determined.

All alternatives would divert staff and management focus and finances from the City’s demonstratedly feasible plan for biosolids management, thereby limiting the opportunities for the plan’s further implementation and placing the City in a position of uncertainty and risk, and further constraining any interim and long-term commitment for the legislated responsibility of managing its own biosolids. Proceeding to implement any of the above alternatives would realize, at a minimum, some loss of control of biosolids management to the anticipated or presumed decisions of other jurisdictions or parties without an incumbent or corresponding assumption of risk or responsibility by those parties for the legislated accountability the City carries with respect to the management of its biosolids, both now and for planning in the future.

CORPORATE STRATEGIC PLAN


Financial Sustainability

- Financially Sustainable City by 2020

By accepting the findings of the B & V peer review and moving forward the City will avoid abject uncertainty and risk in the management of its biosolids. This avoidance will further the City’s financial sustainability, placing in motion other more viable and fiscally-responsible biosolids management plans that will better meet the City’s financial requirements and responsibilities over the next 30 years.

- Effective and sustainable Growth Management

By retaining biosolids management within the realm of the City’s control and without reliance on the actions or decisions of other biosolids and biomass producers, the City can better meet its obligations under regulation and continuing growth with certainty and predictability.

- Delivery of municipal services and management capital assets/liabilities in a sustainable, innovative and cost-effective manner
Accepting the findings of the peer review and moving forward permits the City to avoid many of the risks and uncertainties identified and associated with the consideration of any of the options presented in the unsolicited proposal, allowing for improved predictability in the management of capital assets/liabilities and the delivery of municipal services in a sustainable, innovative and cost-effective manner.

- Full life-cycle costing for capital
  The inability, as identified through peer review, of the City to identify full life-cycle costing for capital is a major limitation to accepting the unsolicited proposal due to the uncertainty and risk associated with as-yet uncommitted partners and pricing. Pursuing options other than those presented through the unsolicited proposal will permit the City to better identify, control and subsequently realize full life-cycle costing for capital.

**Environmental Stewardship**

- Natural resources are protected and enhanced
  By accepting the findings of the peer review the City will not contribute to nor promote the heightened emissions resulting from the establishment of a regional biosolids/biomass centre and the incumbent trucking traffic and resulting fuel usage associated with its servicing.

- Reduced impact of City activities on the environment
  By accepting the findings of the peer review the City will not contribute to nor promote the heightened emissions resulting from the establishment of a regional biosolids/biomass centre and the incumbent trucking traffic and resulting fuel usage associated with its servicing.

- Aspiring to the highest environmental standards
  By retaining biosolids management within the realm of the City’s control and without reliance on the actions or decisions of other biosolids and biomass producers, the City can better meet its obligations under regulation and aspiring to meet the highest environmental standards.

**Healthy Community**

- Plan and manage the built environment
  By retaining biosolids management within the realm of the City’s control and without reliance on the actions or decisions of other biosolids and biomass producers, the City can better plan and effectively manage its own built environment.

**APPENDICES / SCHEDULES**

None