CANADIAN ENVIRONMENTAL LAW ASSOCIATION
L'ASSOCIATION CANADIENNE DU DROIT DE L'ENVIRONNEMENT

September 6, 2002 **DELIVERED BY HAND**

Ms. Ariane Heisey
Special Project Officer
EA Project Co-ordination Section
Environmental Assessment and
Approvals Branch
Ministry of the Environment
2 St. Clair Avenue West
Toronto, Ontario
M4V 1L5

Dear Ms. Heisey:

**RE: BENNETT EA – HIGH TEMPERATURE THERMAL TREATMENT FACILITY**

As you know, we are the solicitors for Northwatch with respect to the above-noted matter. Northwatch is the regional coalition of environmental and social development groups in northeastern Ontario. Founded in 1988, Northwatch addresses regional concerns, including large waste management projects and undertakings related to the import and management of hazardous and solid waste into the region. Northwatch has been involved in the review of the Bennett Environmental Inc.'s (hereinafter referred to "Bennett") proposed incinerator since August 1999, when Northwatch first contacted Bennett for information about their intentions, after receiving informal information about Bennett's interest in siting a hazardous waste incinerator in northeastern Ontario. Northwatch has participated in the environmental assessment ("EA") review process to date through review and comment on the Terms of Reference, attendance and participation at Bennett's various open houses and information sessions, review and comment on draft EA documents including the draft submisssion of Bennett Environmental Inc.'s *Environmental Assessment Act* Application. Northwatch represents the public interest and the interests of Northwatch members throughout northeastern Ontario, including members in Timiskaming District and in the immediate vicinity of the proposed incinerator.

At this time, we are writing to provide you with our client's comments on the proposed undertaking, the EA dated June 2002, and the various appendices submitted by Bennett in support of the EA.

At the outset, it should be noted that the following comments are preliminary in nature, and our client hereby reserves the right to submit further comments regarding this matter as Northwatch and its technical reviewers continue to scrutinize the EA documentation. For example, due to timing and financial constraints, our client has been unable to retain expert assistance to review the EA in relation to impacts on agriculture, mining and the social/cultural environment. Further, we have not yet done a full review of health and biophysical effects related to the

proposed incinerator. Therefore, the fact that this submission does not address such matters should not be construed as our client's acceptance or approval of the EA content in relation to these issues.

At this point, having undertaken an initial review of the EA documentation (and the approved Terms of Reference), our client has concluded that:

(a) the proposed incinerator should **not** be approved under the EA Act;
(b) the EA and appendices submitted by Bennett are inadequate, incomplete and unacceptable; and
(c) the Director should forthwith issue a deficiency statement to Bennett pursuant to section 7 of the EA Act, and the Minister should reject the EA in its entirety if Bennett does not remedy the substantive deficiencies within the prescribed seven day timeframe.

The reasons for these conclusions are set out below, and are organized into the following categories:

1. Overview Comments on the EA
2. Description of the Undertaking
3. Description of the Existing Environment/Potential Impacts
4. Human Health Risk Assessment
5. Ecological Risk Assessment
6. Description of Advantages/Disadvantages
7. Summary of Proponent Commitments
8. Changes to the EA
9. Public Consultation on the EA

## 1. OVERVIEW COMMENTS ON THE EA

*The Environmental Assessment is poorly written and organized*

As a general observation, the Bennett EA documentation is poorly written and haphazardly organized. In addition, we are astounded by the excessive number of typing mistakes, grammatical errors, and incomplete references that are found remain in the EA text. We note that similar comments were previously raised about Bennett's draft EA, which prompted Bennett to promise that the final version would be carefully proofread and edited prior to its formal submission to the Ministry of Environment ("MOE") (EA, page 446, para.1; page 457, para.2; page 511, para.7; page 555, para.1; page 580, para.49 et seq.). Despite such commitments, however, it is clear that many errors went unnoticed or unchanged by Bennett. We recognize that minor textual errors are not necessarily fatal to the EA, but they leave the reader with the distinct impression that the EA documentation was hastily assembled and submitted by Bennett without rigorous review.

*The Environmental Assessment is unsupported by sufficient evidence*

With respect to substantive matters, we find the Bennett EA documentation to be unpersuasive and unsupported by cogent evidence. In many instances, we find opinion dressed up as "fact" conclusions unsupported by evidence, "facts" and/or conclusions that are contrary to well-known scientific findings, and computer modelling based upon inappropriate data and/or questionable assumptions. Similarly, the EA contains many pages espousing numerous assumptions, theories and statements that are missing a factual basis, lack citations to supporting documents and/or are contrary to the findings of studies published in the peer-reviewed, scientific literature. In other instances, the referenced documents supporting Bennett's assumptions, theories and statements are partly or completely missing from the EA. In our view, the omissions throughout the EA are substantial and significant, and they render the EA as an incomplete and unacceptable set of review documents. This is particularly true since reviewers lack full access to all referenced technical information that Bennett has used to prepare the EA. In addition, Bennett too often summarizes the relevant technical details, thereby making it impossible to discern the completeness and accuracy of the proponent's claims and theories. Accordingly, many of Bennett's claims about environmental impacts (or lack thereof) can only be regarded as sheer speculation or mere conjecture.

For example, Bennett has acknowledged that it declined to collect and analyze long-term meteorological data from the immediate Kirkland Lake area (EA, page 59). Despite having on hand a report by their own consultants that described significant differences in meteorological conditions at Kirkland Lake and Timmins Airport, which is located approximately 110 km from the proposed location for their incinerator (EA, page 59), Bennett approved insertion of the Timmins meteorological data into the air dispersion model used to estimate the concentrations of pollutants released from the incinerator stack in the ambient air at various distances from the incinerator. These estimates were relied upon in determining the incinerator's potential impacts on public health and the environment. In the absence of evidence demonstrating that the Kirkland Lake climatic regime is identical to that of Timmins, it is our submission that it is highly inappropriate for Bennett to utilize Timmins data for the purpose of modelling air impacts from the proposed incinerator. Similarly, in determining the current air quality in the vicinity of the proposed incinerator, Bennett relied on data from a sampling period of only two weeks. It is unacceptable for Bennett to simply take a two-week "snap-shot" of ambient air quality in Kirkland Lake. In our view, these are significant evidentiary gaps, particularly since Bennett's air modelling results were, in turn, relied upon for the purposes of the human health and ecological risk assessments.

On this point, we note that Bennett has proposed to address this paucity of local data by collecting key air quality information <u>after</u> the facility has been approved and constructed. Indeed, Bennett has proposed to undertake a "comprehensive," four-season air monitoring program (including a weather station), but only if the undertaking receives EA Act approval (EA, page 625, para.10). In our view, Bennett's proposal to subsequently collect air data that are essential to the proper assessment of the public health and environmental impacts of their proposed facility is unacceptable and contrary to the public interest purpose of the EA Act. Among other things, the EA Act and the approved Terms of Reference require Bennett to fully identify and evaluate impacts upon the local airshed <u>during</u> the EA process, not afterwards as a

condition of approval. This heavy evidentiary onus upon the proponent is not satisfied by vague promises to collect the necessary data *ex post facto*. More importantly, the Minister is not in a position to even consider approval of the undertaking unless and until this critically important data is collected, analyzed, and subjected to agency and public scrutiny.

At all material times, the burden was on Bennett (not stakeholders) to gather the necessary air data (at an appropriate level of detail and of sufficient duration) for the purposes of satisfying the evidentiary requirements of the EA Act and the approved Terms of Reference. In particular, it was open to Bennett to conduct a four-season air monitoring program (including a weather station) in the Kirkland Lake area for the purposes of the EA. In our view, this would have been a prudent and reasonable response by Bennett to the apparent lack of reliable data from the Kirkland Lake airport (EA, page 59).

In comparison, when the Ontario Waste Management Corporation (OWMC) was conducting an EA for its proposed hazardous waste treatment facility (including an incinerator) in West Lincoln Township, the OWMC established a weather monitoring station at the proposed site to gather key meteorological data (e.g., wind speed, direction, atmospheric stability, mixing height, and temperature). However, Bennett has declined to do likewise during its EA, and has instead proposed to gather this key data after approval. Having made this ill-advised choice, Bennett must now live with the consequences of its questionable air modelling and monitoring results, *viz.*, rejection of the EA on the grounds of inadequacy.

*The Environment Assessment should not rely upon the RSI Facility*

We have also noted that Bennett is heavily reliant upon its RSI facility in Quebec to support various assertions and propositions regarding the proposed incinerator in Kirkland Lake. Indeed, the EA documentation contains countless references to the RSI facility. It is our submission that the EA should not rely upon the RSI facility for a number of reasons.

First, the EA documentation provides little, if any, empirical data from the RSI facility to allow the reader to objectively assess the veracity or reliability of the claims being made about the RSI facility. In our view, to the extent that Bennett relies upon the RSI facility throughout the EA, then Bennett itself has made the RSI operating track record relevant for the purposes of the EA. However, since Bennett has largely declined to provide any real data from the RSI facility, it is our submission that little or no weight should be given to Bennett's claims regarding the environmental impacts from the RSI facility.

Second, even if relevant information is forthcoming, the proposed Bennett incinerator will be several times larger in waste incineration capacity than the RSI incinerator, and comparisons are not equivalent due to this and other significant differences. The issue of dioxin emissions provide a good example of this problem.

The EA concedes that dioxin will be emitted from the proposed incinerator, but it predicts being able to safely burn toxic waste resulting in only low levels of dioxin emissions at Kirkland Lake. Bennett's assertions and theories on predicted stack and fugitive emissions such as dioxin emissions from the proposed Kirkland Lake incinerator are based upon extrapolation from the St.

Ambroise incinerator, and upon Bennett's expectation of meeting a 99.9999% destruction removal efficiency during routine operations. However, Bennett ignores the fact that it does not utilize a dioxin continuous emissions monitoring system (CEMS) at its RSI commercial waste incinerator to measure stack dioxin emissions accurately, and, therefore, all stack dioxin emissions data for the RSI facility should be rejected as inadequate, unreliable, unsubstantiated, and underestimating the incinerator's true dioxin emissions.

If Bennett does intend to rely the RSI facility, it must provide complete disclosure of information as requested by the public.

*The EA submission does not appear to comply with Regulation 334*

The evidentiary gaps regarding the RSI facility (and other matters related to the proposed Kirkland Lake facility) appear to contravene the requirements of subsections 2(1)(b) and (c) of Regulation 334. These provisions require proponents to submit two key lists with their EAs: first, "a list of studies and reports which are under the control of the proponent and which were done in connection with the undertaking or matters related to the undertaking;" and second, a list of studies and reports done in connection with the undertaking or matters related to the undertaking of which the proponent is aware and that are not under the control of the proponent." We note that the last page of Bennett's EA document contains only a short list of scientific references (page 635), rather than a list of all studies and reports done in connection with the proposed undertaking (which may or may not be limited to the handful of reports commissioned by Bennett and reflected in the various appendices to the EA). Unless and until the two prescribed lists are submitted by Bennett and made available to the public, it remains unclear whether there has been full disclosure by the proponent in accordance with Regulation 334.

Similarly, we note that subsection 2(1)(a) of Regulation 334 requires proponents to submit "a brief summary" of the EA to the Minister. Again, we are unclear whether the prescribed summary has been submitted by Bennett, particularly since no such summary is contained within the main EA document. In our view, provision of a brief summary would have facilitated public and agency review of the proposed undertaking, especially given the voluminous and technical nature of Bennett's EA and appendices.

*The EA submission does not include a thorough analysis of potential transportation impacts*

The Bennett EA limits its assessment of transportation impacts to road transport. Interestingly, a similar analysis of rail transportation is not included in the EA, even though, on its website, Bennett specifies "accessibility to **rail** and truck transportation" [emphasis added] as one of the reasons for choosing Kirkland Lake as the site for the proposed new facility.[1]

In any event, these and other significant evidentiary gaps (described below) point to an inevitable conclusion – Bennett's EA fails to demonstrate that the proposed incinerator will not create a hazard to human health or the environment. Accordingly, the proposed incinerator is not consistent with the public interest, and therefore should not be approved under the EA Act.

## 2. DESCRIPTION OF THE UNDERTAKING

In the EA, Bennett contends that the market for their thermal treatment service is growing. This contention is not supported by a recent evaluation of the commercial hazardous waste incineration market for North America, which reports that the current demand of 768,000 tons per year is outstripped by an existing capacity of 930,000 tons per year, as follows: *"Current market pricing is heavily discounted from where it needs to be to support new incineration facilities. … There is a distinct difference between facilities operating at near practical capacity and facilities operating profitably.*"[2]

### (a) Siting

It is unfortunate that the Terms of Reference for the undertaking has been scoped since many issues are raised in this EA that should be the subject of intense discussion. One issue is the siting if the facility. For example, he siting of Bennett's proposal is inconsistent with #3 and perhaps even #2 and #4 of the siting recommendations of the U.S. Environmental Protection Agency ("U.S. EPA").

In May 1997, the U.S. EPA adopted a set of new siting criteria for hazardous waste management facilities, including toxic waste incinerators. The U.S. EPA published this list of siting recommendations:

> Hazardous waste management facilities should avoid locating near sensitive populations or in densely populated areas. Areas near schools, nursing homes, day care centers, or hospitals should be avoided. Many states have setback distances that prescribe the minimum distance a hazardous waste facility can be from certain types of land use. These minimum distances are meant to protect the public or the environment from potential exposure to hazardous waste. EPA recommends NOT siting hazardous waste facilities in sensitive locations for the following reasons: [1]

| Location | Environmental Consequences |
|---|---|
| 1. Floodplains | Waste Ponds may wash out. Tanks may be moved from foundations. |
| 2. Wetlands | Fish and wildlife are threatened. Spills are spread to groundwater and surface waters faster. |
| 3. Land Use | Sensitive populations such as the elderly, children, and the sick are more affected by toxic exposure. |

[1] "Sensitive Environments and the Siting of Hazardous Waste Management Facilities," EPA530-K-97-003. May 1997. U.S. EPA, Solid Waste & Emergency Response (5305W), 401 M. St., S.W., Washington, DC 20460.

| | |
|---|---|
| 4. High-Value Groundwater | Contaminants are transported quickly. Cleanup is costly and difficult. |
| 5. Earthquake Zones | Ground fractures and shaking damage structures, leading to spills. |
| 6. Karst Terrain | Sinkholes may develop, leading to structure failure and spills. |
| 7. Unstable Terrain | Soil movement can shift and damage structures causing waste releases. |
| 8. Unfavorable Weather Conditions | Stagnant air concentrates pollutants. Mountains may block pollutant dispersion." |

**(b) Waste Stream and Service Area**

*The Environmental Assessment contains exceedingly vague descriptions of the proposed waste stream and service area*

Bennett has proposed to "treat" up to 50,000 kg/hour of waste at the Kirkland Lake facility (EA, page 19). Bennett has broadly defined this waste stream as "hazardous waste impacted soils, sediments, dredgings, dewatered sludge, aggregates, concrete, bricks, tiles, asphalt, wood, packaging materials, sorbents, granular materials, spent activated carbon and other similar materials contaminated with chlorinated and non-chlorinated compounds" (EA, page 19).

However, Bennett goes on to state that the facility "may" also accept "miscellaneous items," such as "gloves, personal protective equipment, paper and packaging materials from site remediation projects." Similarly, Bennett further claims that various organic compounds are suitable for treatment by thermal oxidation, "including, but not limited to, pesticides, herbicides, fungicides, wood preservatives, polychlorinated biphenyls (PCBs), pentachlorophenol (PCP), polychlorinated dibenzofurans (PCDF), polycyclic aromatic hydrocarbons (PAH), ploychlorinated dibenzodioxins (PCDD), trichloroethylene (TCE), coal tars, hydrocarbons, and creosote" (EA, page 19), [emphasis added]. Further, Bennett identifies the chemicals of concern that may potentially be present in the feedstock as including 14 metals, 16 pesticides, 6 polyaromatic hydrocarbons, 34 volatile organic compounds, dichlorobenzidine, PCBs and dioxins (EA, page 84). According to Bennett, the feedstock for their incinerator may be as much as 100% of any of these substances -- antimony, boron, copper, zinc, b-naphthalene, acenapthene, anthracene, ethylbenzene, styrene, 1,2,4-trimethylbenzene, toluene, xylene, cresols, 2-hexanone, and methyl ethyl ketone; as much as 50% 2,4-D, Diazinon, benzene, and acetone; as much as 40% tin; as much as 30% selenium; as much as 20% 2,4,5-T; 4,6-dinitro-o-cresol, chlordane, DDD, DDE, DDT, endosulphan, endrin, lindane, and heptachlor; as much as 0.5% (5,000 parts per million) PCBs; and as much as 1 mg/kg (1 part per million) dioxins (as TEQ).

It is also important to note that the recommended initial contaminant limit for dioxins in the wastes to be accepted at the proposed Bennett facility is only 2% of the value given as the "Maximum Concentrations in Feedstock" (EA, Table 7-2, page 211 vs. Table 4-8, page 84,). This suggests either a major inconsistency or an intent to accept more wastes more highly contaminated with dioxins after the proposed facility is in place.

The EA's proposed acceptable waste stream is extremely open-ended with regard to the allowable concentrations of the chemicals of concern in the wastes. The wisdom and necessity of consigning wastes which consist entirely and/or largely of metals that can be economically recovered and recycled to a waste incinerator should be put into question. Moreover, a question should also be asked with respect to the capability of the proposed incinerator to perform adequately much less to safeguard public health and the environment with inputs of either these metals or organics that are present in concentrations of 20% of more. Of greatest concern in this regard are, of course, the organochlorines (e.g., 2,4-D, 2,4,5-T, chlordane, endrin, lindane, heptachlor, etc.) since combustion of these chlorine-containing substances is associated with increased formation of dioxins.

In terms of the facility's service area, Bennett has simply proposed to "accept waste from NAFTA signatory countries." However, Bennett has failed to specifically name these countries, which leaves open the question of whether Bennett means only the current NAFTA signatories (e.g., Canada, U.S. and Mexico), or other countries that may join NAFTA in the future. Again, this vagueness will undoubtedly lead to ongoing debate about which countries should – or should not – be sending waste to the proposed facility for treatment.

Further, this intended service area is explicitly in conflict with the Ontario Ministry of the Environment's policies, as have been stated by senior MOE staff. For example, in Environmental Appeal Board Case No. 99-106, Ministry witnesses stated that an application by Trans-Cycle Industries ("TCI") to broaden its service area beyond Canada that the TCI application to broaden their service area "represented a fundamental change in policy direction in that the Ministry is committed to reducing the inventory of PCBs and PCB waste in Ontario". [2]

On this point, it should be noted that the EA states that "Bennett will abide by all laws including all import restrictions that are in place" (EA, page 19). In our view, this statement simply amounts to a promise by Bennett to obey the law, which is expected of all persons (including corporations) in Ontario. Accordingly, no special significance should be attached to Bennett's promise to comply with regulatory requirements regarding waste importation.

**(c) Design and Operations**

*The Environmental Assessment fails to specify the fuel or fuels with which the primary combustion chamber of the proposed incinerator will be fired, although it suggests that the secondary combustion chamber will be fired with natural gas and the emergency generator with diesel fuel.*

It is essential that the fuels for each of these sub-systems are clearly and specifically identified, since the choice of fuels can markedly influence the quantities and species of pollutants. This issue is made even more important by Bennett's disclosure in earlier draft Terms of Reference that *"BEI may use Liquid Waste Derived Fuel (As defined by the Ontario MOE) or tire derived fuel as an auxiliary fuel…"*[3]

[2] Witness Statement of Steven Radcliffe, P.Eng., Senior Project Co-ordinator, Industrial Hazardous Waste Section, Waste Management Policy Branch, Ministry of the Environment, 20 April 2000.

*The Environmental Assessment fails to adequately address catastrophic failure as a potential worst-case accident in the rotary kiln and/or Secondary Combustion Chamber (SCC)*

The EA provides an incomplete review and analysis of Bennett's incinerator design hazards and accident-potential, including catastrophic failure in the rotary kiln and SCC. Bennett attempts to dismiss or downplay the potential for catastrophic failures in the rotary kiln and SCC, which have occurred at other hazardous waste combustors and dual-chambered incinerators that likewise utilize a rotary kiln with a SCC (see Appendix A attached hereto). In short, Bennett fails to present and discuss the history of catastrophic failures in similarly designed waste-burning rotary kilns and SCCs that have occurred many times. Nevertheless, Bennett acknowledges that it expects to experience combustion problems and equipment failures in the thermal treatment system, which is presumably why Bennett proposes to install an emergency vent stack -- a thermal bypass vent stack -- as a safety measure to protect the Air Pollution Control System during major upset conditions in the rotary kiln and SCC.

It is our opinion that thermal oxidizers, including Bennett's proposed hazardous waste incinerator for Kirkland Lake, are inherently accident prone and hazardous to operate due to one or more factors working in combination with each other. These factors, which are known to have occurred at other large incinerators, include but are not limited to:

1) Characteristic design hazards of large thermal combustion systems demonstrated by accidents at other incinerators including fires and explosions;

2) Requirements for high operating temperatures make a large combustion system vulnerable to fluctuations in operating parameters such as oxygen, waste gas pressures, ash content, slagging buildup, refractory deterioration, fugitive leaks, sensor measurement errors, calibration errors, computer errors, miscellaneous electronic glitches, power failures, etc.;

3) Requirements of sensitive system pressure conditions to maintain sufficient negative rotary kiln and SCC pressures due to combustion system fluctuations and bounces;

4) Rotary primary kiln's slagging build-up effects of ash and solids attaching to the kiln's refractory wall that disrupt waste gas flow and ash removal;

5) SCC slagging build-up effects on the secondary kiln's refractory and disruption in waste gas flows and oxidation;

6) Kiln puffs (smoke) of incompletely burned gases (PICs) and smoke resulting from leakage around the seals, cracks, small holes, hydraulic waste loading system, transfer points, and connection points on the rotary kiln and SCC;

7) Routine combustion condition fluctuations inside the primary kiln and SCC;

8) Frequency of automatic waste fee cutoffs;

9) Operator reaction capabilities and operator errors in addressing automatic waste fee cutoffs and incinerator perturbations;

10) Volume of hazardous waste materials being incinerated;

11) Qualitative nature of the hazardous waste materials being incinerated;

12) Incorrect kiln and SCC pressure readings (e.g., poor calibration, electronic glitches or transmitter failure) from the pressure transmitters indicating the rotary kiln and/or SCC are under a false negative pressure when a positive pressure condition is occurring;

13) Less optimum preventive maintenance in the proposed schedule;

14) Weak repair program plan;

15) Abbreviated and inadequate incinerator operator training program;

16) Lack of combustion-incinerator engineer on duty at all times during routine incineration and upset incidents; and

17) Control systems which lack adequate backup safety measures including triple redundancy equipment and electrical controls to assure that explosions and catastrophic failures will not transpire.

Thermal oxidizers used in the hazardous waste incineration industry for years have a lengthy history of worst-case accidents, fires and explosions including catastrophic kiln failures, deaths, injuries, equipment failures, human errors, and episodic pollution releases (see Appendix A attached hereto). Nevertheless, Bennett's EA basically ignores a majority of the risks associated with hazardous waste incineration based on inherently flawed system design proposed by Bennett.

*The proposed emergency vent stack ("Thermal Relief Vent") is an unacceptable response to design risks*

One of Bennett's proposals to address expected and unexpected emergencies is to install an emergency bypass or dump stack called a "thermal relief vent" on top of the SCC as an emergency procedure to bypass the air pollution abatement system at the tail end of the incinerator. Significantly, Bennett has not proposed to install a secondary Air Pollution Control System as a safety backup measure on the bypass vent. Accordingly, the Bennett design could potentially release uncontrolled emissions during bypass openings, which may occur thousands of times during the incinerator's lifetime. In our view, bypass vent stacks are dangerous due to their extremely hazardous emissions, primarily because vent stacks essentially operate without pollution controls. Accordingly, it is submitted that vent stacks are completely unacceptable and unsafe, particularly where a large commercial toxic waste incinerator (such as the Bennett incinerator) is to be sited near sensitive land uses (e.g., schools, daycare centres, residential

areas, hospitals, parks and businesses). We further note that Bennett has not proposed to perform air pollution monitoring of bypass vent emissions, which means that Bennett will not be collecting or reporting actual data on bypass emissions.

In addition, we see no indication that the proposed Bennett incinerator is equipped with an automatic wastefeed cut-off (AWFCO) system. According to the U.S. EPA such systems are interlinked with various continuously monitored parameters as follows: [4]

> Group A control parameters are generally continuously monitored while hazardous waste is being fed to the unit and are generally linked with automatic waste feed cutoff (AWFCO) limits to ensure that waste feed is automatically cut off when specified limits are exceeded. Examples of Group A parameters include maximum and minimum PCC and SCC temperatures, maximum combustion gas velocity, maximum waste feed rate, maximum carbon monoxide concentration, maximum combustion chamber pressure, minimum venturi scrubber differential pressure, minimum scrubber liquid-to-gas ratio and pH, minimum fabric filter differential pressure, minimum wet/dry ESP power input, and minimum wet electrostatic precipitator (WESP) liquid flow rate.

*The Environmental Assessment inadequately addresses emergency shutdown procedures*

Bennett will need at least eight hours to perform an emergency shutdown due to the high temperatures in the rotary kiln and SCC in order to avoid damaging the refractory lining.

*The Environmental Assessment inadequately addresses disposal of residuals*

Bennett states that "the largest volume of treatment residual will be treated soil and solids from the kiln (PCC) discharge," and Bennett estimates that this stream may constitute "up to 200,000 tonnes/year" (EA, page 41). At the same time, Bennett concedes that other aspects of the treatment process (e.g., SCC and GCC) will also generate residual streams (EA, page 41), but the EA fails to provide quantity estimates for these additional streams.

While the presence of metals is acknowledged as a potential concern with regard to residuals from the secondary combustion chamber and gas conditioning chamber, no consideration is given to the potential presence of undestroyed organic contaminants or newly formed products of incomplete combustion, such as dioxins, in these or other residuals, in the treated soils and solids, or the process fabric filter catch. It is well known, for example, that dioxins are found in incinerator flyash and other residues, including bottom ash or slag. Indeed, relatively high concentrations of undestroyed chemicals of concern are known to occur in such residuals from hazardous waste incinerators.[5]

If the residuals are classified as hazardous, Bennett claims that there are other facilities in Quebec, Ontario and Alberta that will receive such wastes (EA, page 42). However, there is no evidence in the EA that these other facilities have sufficient long-term capacity to accept hazardous residuals over the anticipated lifespan of the Kirkland Lake incinerator. Indeed, if one or more of these facilities becomes unwilling or unable to accept Bennett residuals, it may

become exceedingly difficult (if not impossible) to fully and properly dispose of the thousands of tonnes of residuals being generated by the Kirkland Lake facility each year.

A similar concern exists in relation to the "metallic screening rejects" (EA, pages 44-45). Bennett states that materials which cannot be shredded nor washed clean enough for recycling purposes will be sent to facilities in Ontario and Alberta that are licenced to accept such materials. However, the EA fails to provide any quantity estimates for such rejects, and further fails to provide information about the capacity, service area restrictions, or other constraints that may limit or negate the actual availability of these facilities.

*The Environmental Assessment inadequately addresses fugitive emissions control and monitoring*

Bennett states that the primary means of fugitive emission control "will be to enclose these operations [material preparation, handling and storage] inside a building [and] the ventilation system will keep the building under negative pressure" (EA, page 45). It goes without saying, however, that the negative pressure system can be easily (and inadvertently) compromised by employee error (e.g., keeping doors, windows and other apertures open, particularly during hot indoor conditions). If such error occurs, then indoor contamination may quickly become an outdoor contamination problem.

Accordingly, it is imperative that fugitive emissions (and the effectiveness of the control system) be closely monitored and reported upon by the proponent. However, in relation to fugitive emissions monitoring, the EA merely states that "a comprehensive ongoing ambient air monitoring program is underway, and will be implemented before facility operation" (EA, page 49). In our view, this *ex post facto* approach is inherently unacceptable under the EA Act. The particulars of the fugitive emission monitoring program should form part of the EA, and cannot be deferred to a later date or another regulatory process. In the absence of such details at this time, neither the MOE nor the public can assess whether the proposed monitoring program is "comprehensive" as claimed by Bennett.

It is also important to note that the EA does not address fugitive emissions from rail transport of wastes.

**(c) *Monitoring and Reporting***

*The site selection for monitoring stations where samples of ambient air were taken to establish baseline levels of chemicals of concern was, in some cases, obviously inappropriate*

Envirometrex described the background air quality evaluation as including the following sampling stations: "Four sampling locations were chosen in the local air shed … The Bennett site is located off Archer Drive on the proposed site property. The Archer site is located adjacent to the intersection of Archer Drive and Highway 66, and is approximately 0.8 kilometres west-northwest from the proposed Bennett site. The Coholic site is located 100 metres east of the south end of Industrial Drive and is approximately 1.8 kilometres east-northeast from the Bennett

site. The Linton site is located on private property, adjoining Highway 112, approximately five kilometers south of the proposed site." [6]

Ambient air samples for determining baseline air levels of PCBs and dioxins were collected at only two of the four monitoring locations – Coholic and Archer. Six of the nine samples collected and analyzed for dioxins were taken at the Coholic site. "The Coholic site is.. approximately 1.8 kilometres south-southwest from the Bennett site. It is downwind of two industrial processes, Trans-Cycle Industries (TCI) PCB treatment facility when the wind originates from the southwest and Kirkland Lake Power cogeneration facility, when the wind blows from the south," according to Environmetrix.[7] Both of these facilities are potential sources of PCBs and dioxins. [Note: The location of the Coholic monitoring site described by Envirometrex in Appendix 3 was quite different from that in Appendix 4. However, based on the map shown at page 25 of Appendix 3, the description in Appendix 4 is inaccurate.]

*The Environmental Assessment does not propose to install a CEMS for dioxins*

The EA fails to consider installing and operating a stack dioxin continuous emissions monitoring system (CEMS) at the Kirkland Lake commercial incinerator, where routine daily operations may produce variable amounts of dioxin emissions and need to be measured as accurately as possible because of its toxicity. Such systems are commercially available and have been in use at a variety of full-scale combustion facilities.[8] Apparently Bennett prefers to rely on surrogate chlorinated chemicals in a trial burn process that is riddled with errors and has no real world comparison to routine normal daily combustion operations since the waste streams may differ significantly between a trial burn scenario and routine incineration conditions.

*The air monitoring regime was too limited to be representative*

Bennett conducted ambient air monitoring from October 17-November 2, 2000 at four Kirkland Lake air monitoring sites, which represents only a two-week period and in some cases, ten days or less were used for selected criteria and toxic air pollutants. Samples for most of the air toxic chemicals (miscellaneous carbon compounds for example) with the use of the PUF and VOC devices were only operated at two sites for a total of ten days. Were these ten-days to two-weeks of monitoring representative of a 52-week year and representative of Kirkland Lake's air quality? It can not be determined whether the ten days to two weeks of ambient air monitoring is representative or not, because ten days to two weeks is only about 3-4% of the year. Is ten days to two weeks of monitoring data in 2000 representative of other years compared to 2001 or 1999? Further, two weeks of local wind speed data is not likely representative of the year as a whole. Table 3 on page 20 indicates that Kirkland Lake showed lower wind speed than Timmins and Rouyn-Noranda, which can impact air pollutant dispersion from Bennett's incinerator stack and other sources.

In sum, the monitoring period is too short to determine if the baseline air quality data is truly representative of the Kirkland Lake area. The EA emphasizes on page 40 that "the data is only available over a short period, therefore meteorological conditions were considered, coupled with an examination of levels at other locations. Unusual and inconsistent concentrations were

identified and removed from the data series before taking the average." The question is whether some or all of the "unusual and inconsistent concentrations" should have been removed or not.

Bennett needs to conduct one year's worth of air quality monitoring in the Kirkland Lake area to adequately assess the annual average baseline ambient air concentrations for all toxic air pollutants sampled. The potential exists to measure many more toxins in the air. How many more air toxins might be measured or were missed by the extremely limited monitoring period? For certain pollutants, the data may be representative but probably not for all pollutants and it is difficult to determine precisely which pollutants this applies to without better monitoring data.

Bennett also needs to conduct one year's worth of on-site meteorological monitoring at the Kirkland Lake plant site to adequately assess the annual average background meteorological conditions for all local weather scenarios likely to be measured.

*Monitoring fugitive vapours from TCI*

Another serious concern is that the extremely limited air toxics monitoring period may have readily missed PCB releases of fugitive vapours from the TCI PCB treatment plant, since a few sampling days may easily miss such emissions and the fact that no PCBs were measured in the ten day period. The potential for fugitive PCB emissions at TCI is a significant public health concern for Kirkland Lake residents and need to be measured if they are occurring. This is entirely possible given the nature of TCI's PCB operations; longer monitoring periods need to be conducted. Was TCI handling PCBs during the monitoring period? No comments are made concerning this aspect of TCI's operations. The shortened sample period of a few days might have occurred when fewer winds blew from TCI's facility and so PCBs might have been carried off in another direction; or the brief periods of winds blowing to the monitoring site may have resulted in exclusively lower levels of PCBs being collected below the minimum detection limits of the analyzer. The sampling flow rate for the air being collected by the PUF sampler may have also effected the levels of PCBs that were undetectable if present in the air.

*The need to monitor more PAHs and volatile organic compounds ("VOCs")*

The same concerns applies to failure to detect certain chlorobenzenes, polycyclic aromatic hydrocarbons ("PAHs"), and VOCs since only nine VOCs were measured. Although many carcinogens, teratogens, mutagens, endocrine disruptors, respiratory irritants and other toxins were detectable in Kirkland Lake's ambient air during the monitoring period and some different carcinogenic toxins like PCBs were not found in detectable concentrations, one year's worth of daily ambient air monitoring in Kirkland Lake may result in the detection of even more carcinogens, teratogens, mutagens, endocrine disruptors, respiratory irritants and other toxins; and these additional air toxics, in some cases, might be measured in higher concentrations than demonstrated by the limited sampling period of ten days.

One result of finding additional toxins at detectable concentrations and previously measured toxins at higher concentrations is that the Human Health Risk Assessment (Appendix 17), the Ecological Risk Assessment (Appendix 18) and the Agriculture Impact Assessment (Appendix

10) could each be significantly challenged as being less than representative of the real world impacts of the combined baseline emissions and Bennett's emissions.

Further, there are concerns with a number of specific issues relating to the EA and monitoring:

> Particulate Matter $PM_{2.5}$: Winter time $PM_{2.5}$ concentrations may be expected to be higher than other times of the year due to wood burning. The sampling for $PM_{2.5}$ was for only about two weeks. It may not be necessarily representative of the whole year or the maximum concentrations, particularly all winter. These local air quality conditions need to be fully addressed in the EA.
>
> PAHs: The EA only addresses benzo[a]pyrene although other PAHs were measured; all PAHs detectable need to be evaluated due to the potential for increased carcinogenicity. Longer sampling period might produce additional PAHs and higher concentrations for some species.
>
> PCBs: The EA indicated that no PCBs (there are ten types of PCBs) were detectable during the two weeks of air monitoring, but again two weeks of air monitoring is too limited to suggest that no airborne PCBs are falling out in Kirkland Lake since PCBs are ubiquitous around the planet's ecological systems. Failure to detect PCBs may be coincidental to the ten days of sampling October 18-27, 2000 and may not necessarily be representative of other periods of the year or other years.
>
> Other pollutants monitored: BEI had a broad range of pollutants sampled and analyzed for, however, the short sample period makes it difficult to understand if the concentrations measured are representative of annual concentrations that might occur in the Kirkland Lake area.

*The need for a better trial burn Protocol*

A major concern is the serious flaws in incinerator's trial burn protocol. Surrogate chemicals burned are certainly not the same as burning PCBs-contaminated soils since the molecules' actual chemistry may vary greatly from the surrogate to the PCB structures and effect the combustion requirements for these different chlorinated compounds as well. Surrogate chemicals may not yield representative values for dioxins, dibenzofurans and uncombusted PCBs.

Trial burns tend to sample typically no more than 1% (and often much less) of the total stack gas volumetric flow and particulates volume and so the potential for error in the sampling methodology is significant; the stack gas pollutant and particulate matter calculations will be in error according to the sampling rate error of the trial burn, but this is not easily discernible unless the entire trial burn was monitored by an independent observer present throughout the trial burn. Even small sampling rate errors may produce large calculation errors in determining the quantities of dioxin and other pollutants.

Stack sampling during trial burns commonly end prematurely before all pollutants associated with the wastes fed into the incinerator, including dioxins formed as byproducts of those wastes, have exited from the incinerator stack. A number of studies have documented the so-called 'memory effect' in full-scale incinerators, as follows: [9] [10]

> Finally, experiments have shown that facility-specific factors can affect PCDD/F yield. Production of PCDD/F may have a hysteresis or "memory" effect long after waste

> combustion is terminated indicating that preceding tests can affect production of PCDD/F.

The incinerator tends to be well tuned for the trial burn with more maintenance conducted just prior to the test rather than testing after many hours of waste incineration resulting in wear and tear, stress and strain corrosion, and damage to the unit's equipment and systems. Trial burn conditions may vary in oxygen and temperature conditions as well as slag build up in the rotary kiln and SCC.

*Trial burns are not close to being representative of normal daily operating combustion conditions in an incinerator*

The EA does not identify any role for the public in determining the trial burn protocol, or sufficient safeguards against a flawed stack test producing erronerous results suggesting only low dioxin, dibenzofuran and surrogate chemical emissions. Additionally, the EA does not indicate that independent third-party observers will to be allowed on-site during the trial burn, or that the necessary ambient air monitoring will be performed around the Bennett facility during the trial burn to test for ground level fugitives and ground level impacts.

## 3. Description of the Existing Environment/Potential Impacts

### (a) Air Quality

*Inadequate and/or inappropriate analytical methods were used in the EA to determine baseline concentrations of certain chemicals of concern in ambient air at Kirkland Lake*

Bennett's EA states that "PCBs at the Kirkland Lake sites were not detectable throughout the entire sample period." [11]

The failure to find detectable levels of PCBs in the air is not due to the absence of PCBs but is instead the result of reliance on an inappropriate analytical method. PCBs are virtually ubiquitous in the ambient air, as has been well documented by numerous studies, many of which have been carried out in the Great Lakes area. For example, in one of the more recent studies, *Chiaranzelli et al*. (2001) measured total PCB concentrations ranging from 0.22 to 1.11 ng/$m^3$ in air samples taken in areas near the Great Lakes.[12] This is corroborated by the brief description of the analytical method used for PCBs in the Bennett EA: "The method detection limit is an analyte concentration of 0.20 g, or ambient air concentration of 0.005g/$m^3$." [13] [Note: 0.005 g/$m^3$ is equal to 5 ng/$m^3$] In other words, the method selected for the Bennett EA was too insensitive to detect PCBs in ambient air at the concentrations at which they are commonly known to occur.

In addition, the Bennett EA's descriptions of the analytical methods used and results obtained in determining baseline concentrations of certain chemicals of concern did not contain sufficient information to allow results to be evaluated adequately. For example, no QA/QC data, such as spike recoveries, were presented for dioxin analyses.

*Products of incomplete combustion are inadequately listed and calculated*

Bennett estimates the incinerator's short-term emissions under Table 5.2 for "Normal Operating Maximum 1/2 hr Concentrations Compared with Point of Impingement Standards" in the EA Appendix 3 pages. 66-68. Products of incomplete combustion (PICs) are inadequately listed and inadequately calculated in the modeling in Table 5.2, since stack testing of incinerators continues to reveal new PICs and the range of possible chemical combinations of carbon compounds is nearly unlimited. Bennett assumes that the incinerator's normal combustion byproducts are well controlled 100% of the normal operating hours but fails to address bounces and fluctuations in the incineration process which will result in increases of certain PICs, including PIC compounds not represented in Table 5.2 or summarized under certain categories like PAHs, PCBs, dioxins, dibenzofurans, VOCs, and others.[3]

A number of compounds other than TCDD, TCDF and PCBs could be burned or produced as PICs at BEI incinerator and many of these compounds are structurally similar to TCDD, TCDF and PCBs. Therefore these similar compounds could act similarly to TCDD, TCDF and PCBs in terms of health effects.

Giesy *et al* list 21 categories of aromatic, benzene-containing and/or various polychlorinated compounds in Table 4 that may, based on experimental evidence or structure, be expected to have the potential to cause adverse effects through the Ah-r-mediated mechanism or action:[4]

Polycyclic aromatic hydrocarbons
Polychlorinated Biphenyls
Polychlorinated dibenzo-p-dioxins
Polychlorinated dibenzo-furans
Polychlorinated naphthalenes
Polychlorinated diphenyltoluenes
Polychlorinated diphenyl ethers
Polychlorinated anisoles
Polychlorinated xanthenes
Polychlorinated xanthones
Polychlorinated anthracenes
Polychlorinated fluorenes
Polychlorinated dihydroanthracenes
Polychlorinated diphenylmethanes
Polychlorinated phenylxylylethanes
Polychlorinated dibenzothiophenes
Polychlorinated quaterphenyls

[3] Other kinds of PICs of concern that are inadequately addressed in the ecological risk assessment and Appendix 3 are cited by John P. Giesy, James P. Ludwig and Donald E. Tillitt, Chapter 9 "Dioxins, Dibenzofurans, PCBs and Colonial, Fish-Eating Water Birds," pages 249-307 in the text Dioxins and Health edited by Arnold Schecter, Plenum Press, New York, 1994.

[4] *Ibid*., page 266.

Polychlorinated quaterphenyl ethers
Polychlorinated biphenylenes
Polychlorinated diphenyl ethers
Polychlorinated azoanthracenes

*Polybrominated compounds not addressed in EA*

Many kinds of polybrominated compounds have been identified in the last two decades in the environment continue to bioaccumulate in the ecological systems. Bennet's EA has inadequately addressed the multitude of polybrominated compounds that may be produced by the incinerator as a PIC species.

Polybrominated dibenzo-p-dioxins (PBDDs), polybrominated dibenzo-furans (PBDFs), and polybrominated biphenyl (PBBs) compounds are another potential type of carcinogenic toxins if bromine is burned which Bennett indicates a certain amount may be burned at Kirkland Lake.[5]

Below is a list of 20 potential polybrominated chemical groups based on the aromatic and polychlorinated list presented by Giesy *et al*. above. It is also known that several of these groups exist (e.g., the PBBS, PBDDs, and PBDFs) and can be created as byproducts of incomplete combustion when bromine is present. This represents another illustration of the types of PICs that could be present in Bennett's stack gases and particulates during normal combustion, upset combustion conditions, and trial burns.

Polybrominated Biphenyls
Polybrominated dibenzo-p-dioxins
Polybrominated dibenzo-furans
Polybrominated naphthalenes
Polybrominated diphenyltoluenes
Polybrominated diphenyl ethers
Polybrominated anisoles
Polybrominated xanthenes
Polybrominated xanthones
Polybrominated anthracenes
Polybrominated fluorenes
Polybrominated dihydroanthracenes
Polybrominated diphenylmethanes
Polybrominated phenylxylylethanes
Polybrominated dibenzothiophenes
Polybrominated quaterphenyls
Polybrominated quaterphenyl ethers
Polybrominated biphenylenes
Polybrominated dephenylethers

[5] H. Michael Theobald and Richard Peterson, Chapter 10 "Developmental and Reproductive Toxicity of Dioxins and Other Ah Receptor Agonists," pages 309-346, at 310 in the text Dioxins and Health edited by Arnold Schecter, Plenum Press, New York, 1994.

Polybrominated azoanthracenes

Bennett needs to provide a more comprehensive listing and analysis of all possible PICs including all detectable polybrominated species and dozens of other PICs that were completely excluded from the emissions listing, air modeling, health risk assessment, agriculture risk assessment, and ecological risk assessment. The EA can not be considered a complete submission until Bennett has comprehensively all emissions due to normal combustion, upset combustion conditions, and trial burns. Trial burns are well documented to be seriously flawed in different parameters.

*Need to consider diesel truck emissions*

One issue that needs further exploration is Bennett's diesel truck emissions of soot-bound and gaseous PAHs (i.e., benzo[a]pyrene, etc.) which the U.S. EPA describes as cancer-causing and has been inadequately addressed in the EA.[6] This may seem like a relatively minor and localized issue compared to the incinerator's emissions but it adds to the overall cancer-causing burden of total emissions projected from Bennett's incineration operations.

According to the EA, trucks will be unloading PCB-contaminated soils and other materials at plant, but it does not appear that Bennett fully incorporated any diesel emissions into its PAH modeling, which it needs to do; typically air permits do not contain modeled emissions from vehicles such as trucks but in this case Bennett needs to since these emissions are known to be cancer-causing and Bennett will have quite a few daily truck trips coming to its plant. Since diesel exhaust is recognized as highly carcinogenic, Bennett needs to model 100% of its diesel truck emissions in its EA unless its going to be allowing only trucks fueled with gasoline, propane or other less toxic fuels, an unlikely scenario. Idling diesel trucks will create significant PAHs and other air toxic emissions. Will Bennett become the largest single source of diesel truck emissions in Kirkland Lake and how much will Bennett add to Kirkland Lake's current diesel truck background emissions level? It probably would not take too many trucks for Bennett to be the largest source of diesel particulate matter and PAHs in Kirkland Lake considering the size of the community at present.

Additional concerns about the inadequacy of Bennett's air modelling and monitoring are set out below under the sub-heading "Human Health Risk Assessment".

[6] The U.S. EPA's September 3, 2002 Federal Register notice is further below.
Whole U.S. EPA doc is at: http://www.epa.gov/ncea

**(b) Water Quality**

*The proposed site is not preferable from a hydrogeological perspective*

Based on the available evidence, it is our view that the local hydrogeological regime in the vicinity of the Bennett site should be described as a fractured bedrock setting, with minimal natural containment/attenuation capability. In addition, there are complex groundwater flow conditions that may make it difficult to monitor/assess water quality impacts in the event of spills or upset conditions at the proposed facility.

The factors which support this characterization are as follows:

- there is "significant variation" of topography at the Bennett site (EA, page 80);
- the water table is at or near the surface in the swampy northeastern portion of the site (EA, page 71);
- for the central, southern and western portions of the site, there is exposed bedrock at the surface and/or thin overburden (EA, page 71);
- the bedrock consists of fractured sedimentary and volcanic rock (EA, page 81);
- there is a water divide that bisects the site (EA, Figure 4-5), causing divergent groundwater flow to both the north/northeast and to the south/southeast (EA, page 77);
- borehole investigations have revealed the presence of fractures, vugs and rubble, which are indicative of the bedrock's ability to transmit groundwater (EA, page 74);
- since the topographic slope varies across the site, "groundwater velocities are expected to vary considerably" (EA, page 80);
- the hydraulic conductivity of the bedrock is variable due to rock type and fracture distribution (EA, page 81);
- the steep southern slope will produce a high water flow gradient (EA, page 80);
- two springs exist at the base of the steep southern slope (EA, page 80); and
- all discharge zones (e.g., the swampy areas) ultimately drain into Murdock Creek (EA, page 80), which is 100 metres from the southern boundary of the site (EA, pages 71 and 94) and discharges to the Blanche River (EA, page 94).

Given this sensitive hydrogeological setting, it is submitted that the Bennett site is not a preferred location for hazardous waste management purposes.

To assess potential water quality impacts, Bennett's consultants utilized the MODFLOW computer model to predict and evaluate the impact of aerial deposition of contaminants on groundwater quality (EA, page 81). First, it is unclear why "aerial deposition" was the only contamination scenario that was modelled, particularly since contaminants may be discharged to water via other pathways at the site (e.g., catastrophic fuel spill, or fire event that results in off-site egress of water used for firefighting purposes). Second, the usage of MODFLOW is questionable since that model is generally more suited for modelling groundwater flow through relatively homogeneous porous media (e.g., sand or gravel overburden), rather than the fractured bedrock conditions present at the Bennett site (where the model may give inaccurate estimates of water travel times). In our view, it would have been more appropriate to undertake tracer testing to obtain a better understanding of actual flow characteristics at the proposed site.

For the foregoing reasons, it is submitted that little credence should be given to Bennett's claims that "impacts to the quality and quantity of surface and groundwater are minimal" (EA, page 615). In our view, the hydrogeological information presented in the EA simply does not allow this conclusion to be reached on the evidence. To the contrary, the available information raises more alarm flags than reassurances about the hydrogeological suitability of the Bennett site, as described above.

Finally, in relation to the stability of the fractured bedrock setting, we note that the Kirkland Lake area is known to be seismically active, and the region has experienced moderate earthquake activity during the past century. However, Bennett's EA does not address this issue in the description of the existing environment, nor is there any discussion of the design or operational implications of seismic activity. By comparison, we note that the proponent of the nearby Adams Mine Landfill assessed seismic activity as part of its EA, and in fact, called expert evidence on this subject at the public hearing before the EA Board. If Bennett is of the view that seismic activity is a non-issue, it ought to have properly addressed this matter in the EA.

**(c) Biophysical Resources**

*The Environmental Assessment fails to adequately identify or analyze impacts upon biophysical resources*

The rationale for limiting the biophysical impact assessment to a 1 km radius around the centre of the Bennett site (EA, page 104) has not been fully explained or justified in the EA or Appendix 7. Indeed, the 1 km study area seems particularly skimpy when compared to the broader 50 km radius used for air quality modelling (EA, page 17). Accordingly, it is questionable whether the proponent (or its consultant) has fully identified and assessed the biophysical resources that may be affected by the construction and operation of the proposed facility.

In addition, the EA attempts to discount or gloss over the importance of the several wetlands found within the 1 km study area. Indeed, the EA states that none of these wetlands have been recognized by the Ministry of Natural Resources ("MNR") as having any provincial significance (EA, pages 107-08). However, there is no evidence that the MNR has formally evaluated these wetlands. More importantly, even if these wetlands are not provincially significant, they may still possess local or regional significance, particularly to flora, fauna, and hydrological function. Therefore, it is inappropriate to dismiss these wetlands on the grounds that the MNR has not classified them as provincially significant.

The EA similarly claims that no significant ANSIs and no rare, threatened or endangered plants or fish/wildlife species were detected within the 1 km study area (EA, page 119). First, this claim begs the question of whether the 1 km study area was adequate, as described above. Second, the so-called "comprehensive" inventory of fish/wildlife (EA, Table 11-1) does include numerous species that have been prescribed as "specially protected wildlife" under Ontario's *Fish and Wildlife Conservation Act*. Third, it is indeed surprising that no snake species were detected during the field surveys, nor included in the list of "reptiles" that are potentially in the vicinity of the Bennett site (EA, page 402), nor assessed for the purposes of the ecological risk

assessment (EA, page 408). Fourth, it is even more surprising that no invertebrate species were detected during the field surveys, nor listed as wildlife species that are potentially in the vicinity of the Bennett site.

In our view, the EA's apparent failure to properly address invertebrates (other than certain soil and benthic invertebrates for the purposes of the ecological risk assessment) is a significant omission, particularly since some Ontario species have been designated as endangered under Ontario's *Endangered Species Act*, or have been prescribed as "specially protected" under Schedule 11 of the *Fish and Wildlife Conservation Act.* Given the sensitivity of some invertebrates to chemical exposure (eg. the pesticide-laden materials that may be "treated" at the proposed incinerator), it was clearly incumbent upon Bennett to ensure that its EA properly inventoried the invertebrates in the vicinity of the site, and fully assessed the potential impacts of site construction and operation upon these species. The failure by Bennett (or its consultant) to do so is both inexplicable and unacceptable.

Similarly, there appears to be inadequate consideration of the effect of habitat fragmentation (or intrusive human presence) upon "area sensitive species" that may be present in the vicinity of the Bennett site (e.g., the red shouldered hawk, which is listed in Table E3 of Appendix 7). As described below, the ecological risk assessment focused largely on chemical exposure, rather than the risks posed to area sensitive species by physical alterations to, or disruption of, local ecological functions and features (e.g., wildlife corridors). In our view, it would have been extremely helpful for the EA to include an analysis of such risks by a landscape ecologist.

Finally, we note that the EA states that "an evaluation of potential [wildlife] impacts, including light and noise pollution and the fencing of facility, will be addressed" (EA, page 286). However, it appears that this "evaluation" is largely limited to a discussion of potential mitigation measures (e.g., fences and strobe lights), and it seems that such measures do not include the use of buffers, habitat restoration/enhancement, or edge management strategies.

## 4. HUMAN HEALTH RISK ASSESSMENT

*Bennett's EA gives no consideration to the most vulnerable population segments, such as developing fetuses, local subsistence farmers and hunter/gatherers. Nor does it address other important exposure routes such as homegrown vegetables, yard chickens and eggs, etc.*

*Inappropriate meteorological data were used in the prediction, via the ISCST3 Air Dispersion Model, of long-term concentrations in ambient air of pollutants released from the proposed incinerator. This, in turn, effectively invalidates the predictions of human exposure to these pollutants and their health impacts*

Bennett's EA notes as follows: "Thus, data from Timmins Airport, located approximately 110 kilometres to the northwest of the proposed site, were used for dispersion modeling."[14] The ISCST3 air quality dispersion model "relies on hourly wind speed, wind direction and stability for describing dispersion. Rainfall data is required …"[15]

In the Air Quality Assessment, Envirometrex reported, "The ISCST3 model was driven with 5 years of Timmins Airport surface data and a concurrent 5 years of Sault Ste Marie upper air data. Precipitation, required for estimating deposition, was obtained from South Porcupine, which is located about 20 kilometres southeast of Timmins Airport."[16]

Envirometrex described the disparities between meteorological data collected at Kirkland Lake (October 18-November 1, 2000) and that from Timmins Airport (October. 19-November. 1, 2000) as follows:

> The prevailing wind direction in Kirkland Lake during the sampling program was west-southwest. This is approximately 45 degrees backed from the wind direction at the other two sites [Timmins Airport and Rouyn-Noranda]. The wind speeds monitored also differed between Kirkland Lake and the other two sites. The average wind speed calculated over the sample period for Kirkland Lake was 7 km/hr. This is approximately 3.6-km/hr less than the Timmins site, and a 4.6-km/hr less than the Rouyn-Noranda. These differences suggest that local topography in Kirkland Lake affected the wind monitoring site. The wind monitoring site appears to be more sheltered than the airport locations at Timmins and Rouyn-Noranda.[17]

Air temperature, relative humidity and barometric pressure were measured at both Timmins and Rouyn-Noranda during the sampling period. However, these data were not collected for Kirkland Lake. No rainfall or snowfall data were reported for any of the sites.

Hence, the EA is technically inadequate because the surface air meteorological data do not originate from Kirkland Lake or the nearby area, but from Timmins where five years worth of surface air data was obtained for the air modeling. The Timmins topography and meteorology is not identical or close enough to Kirkland Lake's to warrant the use of Timmins surface meteorological data. Therefore, one year's worth of surface meteorological data ought to have been collected at Kirkland Lake and used for the meteorological inputs in all air dispersion modeling.

Furthermore, the EA is technically inadequate because of reliance on upper air meteorological data file from the National Weather Service at Sault Saint Marie, Michigan. Sault Saint Marie's location is several hundred kilometers from the Kirkland Lake region, and is neither meteorologically representative of Kirkland Lake nor geographically or topographically representative of the Kirkland Lake area.

*Air releases of organic pollutants during startups, shutdowns and process upsets were inappropriately excluded from consideration in predictions of ambient air levels and of human health and environmental impacts*

While Bennett's EA generally neglects to acknowledge the impacts of startups and shutdowns on air releases of pollutants, the EA also notes as follows:

> The Air Quality Impact Assessment (Appendix 3) considered emission rates for air pollutants whose emission rates would increase during upset conditions. These include the acid gases, particulate matter and metals. All organic compounds will still undergo

> destruction in the afterburner and therefore, organic compound emission rates will not increase. Once the gases exit the stack they are quickly cooled and diluted by ambient air, stopping the formation of products of incomplete combustion.[18]

Bennett's contention that releases of organic constituents do not increase during process upsets is not supported by the scientific literature. Indeed, the National Research Council (NRC, 2000) emphasized strongly the necessity of addressing such releases in risk assessments for facilities such as the Bennett incinerator in the NRC's recent evaluation of waste incineration and public health: [19]

> Some of the available [risk] assessments, however, may now be considered inadequate for a complete characterization of risk, for example, due to their failure to account for changes in emissions during process upsets, or because of gaps in and limitations of the data or techniques of risk assessment available at the time. … Health risks attributable to emissions resulting from incinerator upset conditions need to be evaluated
>
> Thus, assessment of health risk for waste-incineration facilities should include consideration of such variations, including emissions resulting from off-normal activities, in addition to routine stack and fugitive emissions
>
> "In monitoring for compliance or other purposes, data generated during the intervals in which a facility is in startup, shutdown, and upset conditions should be included in the hourly emission data recorded and published. It is during those times that the highest emissions may occur, and omitting them systematically from monitoring data records does not allow for a full characterization of the actual emissions from an incineration facility

While the California Air Resources Board (1990) found that dioxin emissions from a municipal waste incinerator increased by fifty times during upset conditions,[20] the Eastern Research Group (1993) estimated that long-term averaged emissions are increased by two-fold by upsets and transients.[21]

Bruce and Gullett (1991) [22] concluded, for example, *"Good combustion control will minimize C [carbon] available for PCDD/PCDF [dioxin] formation, but does not completely eliminate formation (20), especially in times of incinerator upset."*

In a more recent review, Sgro *et al*. (2000)[23] stated, *"The major cause of CHC [chlorinated hydrocarbons, e.g., dioxins, PCBs, etc.] emissions in incinerators is thought to be off-design or upset conditions that cause chlorinated waste fuel to escape the flame zone and react in postflame conditions where insufficient oxygen, radicals, or residence time at high temperatures prohibits complete conversion of chlorine to HCl [4–8]."*

Similarly, in their review, McKone *et al.* (2000) observed,[24] *"Because no data are available to evaluate emissions during start-up and upset conditions, which can be much higher than normal operating conditions, it is not yet possible to evaluate the exposures and consequent potential health risks during these conditions."*

The U.S. EPA (1998)[25]also acknowledges the importance of extraordinary stack emissions during upsets, which they define as follows:

> Process Upset Emissions - Release of compounds or pollutants from a hazardous waste combustion unit into the ambient air while the unit is not being operated as intended, or during periods of startup or shutdown. Upset emissions usually result from an upset in the hazardous waste combustion process and are often known as process upset emissions. Upset emissions are generally expected to be greater than stack emissions because the process upset results in incomplete destruction of the wastes or other physical or chemical conditions within the combustion system that promote the formation and/or release of hazardous compounds from combustion stacks. …

*Impacts of modern incineration facilities are not adequately addressed in the Environmental Assessment*

Bennett states that: *"A number of references are well documented, showing that modern incineration facilities … do not adversely impact their surrounding area*.[26]

However, the EA fails to note that there are also many well documented studies showing that modern incineration facilities do have adverse impacts on public health and the environment. For example, in their recent study, Staessen *et al*. (2001)[27] found that children who lived near the waste incinerators matured sexually at an older age than others, and testicular volume was smaller in boys from the suburbs than in controls. Holdke *et al*. (1998)[28] found that PCBs in the blood of children living near a Germany hazardous waste incinerator were, on average, higher in concentration or were detected more frequently than among children in a control area. [Note: A more thorough listing of such studies is presented in the report, "Incineration and Health", which is available at www.greenpeace.org/~toxics/reports.]

*In the air dispersion modeling, the period of time during which combustion gases are vented directly to the ambient air via the Emergency Vent Stack was limited to 1-minute, which is a far shorter duration for such events than is commonly used in assessing the risks of hazardous waste incinerators*

Bennett has stated:[29] *"Dispersion modeling was carried out for a 1-minute bypass stack release."*

There are numerous concerns that must be raised about several of Bennett's assumptions regarding potential Kirkland Lake incinerator upset events and the air dispersion modeling predictions resulting from those assumptions. If the assumptions are inaccurate or erroneous even to a small degree, then the air dispersion modeling predictions may likewise be inaccurate or completely invalid. A possible outcome is that Bennett would need to revise the inputs into the air dispersion modeling and rerun it to see how much the modeled emission predictions are significantly altered.

In Annex I, section 4.1, pages 7-8, Bennett describes electrical supply system interruptions as the most significant Emergency Vent Opening Trigger event, and describes Bennett's requirement to comply with air standards of Ontario Regulation 346 for concentration limits of 30 minutes, 60 minutes and 24-hours. Bennett's theory is to minimize the frequency of emergency vent openings, duration of emergency vent openings, and protecting the Air Pollution Control Equipment from damage.

Bennett suggests that emergency use of the bypass stack can be theoretically limited to "one-minute" at a maximum, but the EA's analysis is totally inadequate to be able to reasonably conclude that 100% of emergencies will be safely controlled so as to prevent bypass venting from exceeding 60-seconds. Yet Bennett bases its 1-minute bypass theory upon installing a Uninterruptible Power Supply System ("UPS") and backup electrical generator to address grid power failures, interruptions and smaller electrical fluctuations that may cause thermal treatment perturbations and disruptions. The UPS and backup electrical generators will be helpful to prevention and control of electrical supply system interruptions, but they may be inadequate to achieve Bennett's goal of limiting uncontrolled bypass vent emissions to 60 seconds.

Bennett seems to assuming that the combination of the UPS and backup electrical generators will be adequate to minimize bypass vent releases to within acceptable toxic air pollutant concentrations. However, Bennett offers no specific instantaneous or mass emissions rate data (e.g., dioxins, dibenzofurans, acid gases, particulate matter, or other pollutants) on bypass vent stack emissions from the St. Ambroise incinerator based on real-time bypass vent stack gas/PM monitoring, since Bennett conducts no vent stack monitoring of the exhaust gases and particulate matter. Similarly, Bennett does not supply any data from St. Ambroise on the UPS and backup electrical generators, although this would be an appropriate incinerator on which to test these proposed backup systems in order to determine their reliability and effectiveness.

As noted above, Bennett has not proposed to install any kind of real-time bypass vent stack monitors or a bypass vent stack Air Pollution Control System at either the St. Ambroise or the Kirkland Lake incinerators, which means the emissions released from the Kirkland Lake incinerator's bypass vent stack will remain totally unknown. This will enable Bennett to make speculative statements and submit untestable theories about qualitative and quantitative emission releases from the Kirkland Lake bypass vent stack without a shred of solid proof as to their accuracy and reality.

Bennett's proposal to limit bypass venting of uncontrolled incinerator emissions during emergencies is an untested, unproven theoretical plan. Except for statements about the utility success of the UPS at one non-incinerator plant in North Carolina (Archer Daniels Midland, pages 23-24, 7.5, Appendix 3), Bennett does not provide a single comparable example of a similarly sized and designed hazardous waste incinerator operating with such a UPS unit that can limit 100% of emergency emissions to a one-minute maximum from the bypass vent stack. Can Bennett provide any comparable examples in other large scale, commercial hazardous waste incinerators using a UPS where bypass vents have been successfully limited to one-minute maximum? The UPS can support the ability of Kirkland Lake incinerator operators to reduce emergency emissions incidents from the bypass stack, but it remains unproven that the Kirkland Lake facility will be able to limit bypass emergency emissions to one-minute events.

In the risk assessment for a U.S. based hazardous waste incinerator that was treating contaminated soils at a Superfund site, the duration of releases during emergency venting was described as follows:[30] "The hot gases, in the range of 1,800 to 2,600 F, are released from the secondary combustion chamber when the thermal relief valve is opened. The duration of the release typically is a few minutes to one-half hour."

*The Environmental Assessment's Process Emergency Vent Trigger analysis is inadequate*

Bennett states in Appendix 3 (Air Quality Assessment - Annex I: Emergency Vent Triggers Prevention and Control) on page 5 that "based on operational experience at the Recupere Sol Inc. facility and an evaluation of each process unit operation, Bennett completed a Process Emergency Vent Trigger Analysis. This analysis identified the [incinerator's] process upsets that would result in the opening of the Emergency Vent."

The fact is that Bennett only analyzed bypass vent events at the company's smaller hazardous waste incinerator at RSI, rather than a comparable sized hazardous waste incinerator. As a result, Bennett's upset analysis was limited to eight types of triggering events at a significantly smaller incinerator. Why did Bennett limit the RSI upsets to eight types of events? Did Bennett limit its analysis to exclusively major upsets or were any minor events included that produced bypass vent emissions? What definition and criteria did Bennett use to reach the conclusion that 100% of the RSI upsets all fall into eight categories, since Bennett fails to provide adequate criteria utilized for determining its upset methodology?

Bennett has failed to provide full access to the RSI incinerator logs and pertinent records to confirm if there were only eight types of triggering events or if there were additional events. Based on information of triggering events at other hazardous waste incinerators, it is possible for additional triggering events to occur such as a catastrophic kiln failure, an explosion, a fire or other serious accidents. Bennett has ignored the potential for catastrophic kiln failures and SCC failures even though many modern hazardous waste incinerators and other state-of-the-art incinerators have a well-known history of catastrophic kiln failures and worst-case accidents.

Another significant concern is that Bennett has provided an egregious lack of technical details in Appendix 3 and its EA explaining each one of the eight triggering events at the RSI incinerator, with numerous missing event details including but not limited to:

1) Number of each type of triggering event if more than one of each occurred;
2) Duration of each triggering event as to how many minutes the bypass vent was open releasing uncontrolled emissions and the duration of each upset event;
3) Quantitative and qualitative description of emergency vent gaseous, opacity and particulate matter emissions estimate for each triggering event;
4) Quantitative and qualitative comparison of emergency vent gaseous, opacity and particulate matter emissions estimate to the final stack exhaust emissions gases, opacity and particulate matter before, during, and after the triggering event;
5) Increased releases of fugitive gaseous and smoke emissions from the rotary kiln and/or SCC during each triggering event;
6) Quantitative and qualitative description of the fugitive emissions measured around the incinerator during the triggering events, if there were any detectable increases;
7) Changes or plant personnel failure to conduct routine fugitive emissions monitoring during each triggering event;
8) Personnel reports and observations of visible smoke escaping from the rotary kiln due to kiln puffs from kiln seals or other leaks;

9) Videotapes of each incinerator triggering event, if available, as well as photographs of bypass vent emissions;
10) Known cause(s) of each triggering event assuming the cause(s) is sufficiently determined and which triggering events possessed unknown causes;
11) Event analysis reports written by Bennett and/or non-Bennett experts on the analysis of each triggering event;
12) Corrective measures and promptness taken by Bennett to try to prevent future triggering events;
13) Bennett's successes and failures in preventing additional similar triggering events after implementing each, if any, of the corrective steps;
14) Copies of RSI incinerator daily logs for each triggering event;
15) Explaining details on the effectiveness of RSI incinerator operators in reacting to each of the triggering events and whether additional operator training was necessary or if any operators were suspended or terminated as a result of negligence;
16) Copies of the revisions to the RSI incinerator operating procedures manual, if any were made as a result of one or more emergencies;
17) Volumes and types of hazardous waste being fed to the incinerator during each triggering event;
18) Ground level impacts of the estimated emissions, including air modeling predictions and fenceline-ambient air monitoring, which may have resulted in adverse human health effects to citizens living in downwind areas;
19) Role of Bennett incinerator operator-human errors in causing, aggravating and/or reacting to each emergency triggering event;
20) Analysis of the weather conditions;
21) Injuries to operators or incinerator personnel and whether the injuries contributed to the inability of plant workers to respond to the emergency;
22) Whether the incinerator was shut down or if it was in startup mode;
23) How many hours the RSI incinerator had been operating since the last maintenance shutdown prior to each triggering event and how many hours before the next maintenance period;
24) Describing all equipment damage that may have occurred to the rotary kiln, SCC, instruments, related equipment or the air pollution control system;
25) Copies of ash analysis data and reports to assess if the ash composition changed during or resulting from any of the upset events and if the ash demonstrated increases in dioxins and furans and other products of incomplete combustion;
26) Copies of all Bennett communications efforts to promptly inform and warn the RSI community of events in progress at the incinerator and related air pollution from the bypass vent stack;
27) Records of any RSI community meetings to inform nearby residents of potential off-site impacts from plant events;
28) Medical and Bennett reports concerning medical visits and treatments for any St. Ambroise community members believed to be affected by Bennett incinerator events;
29) Records of RSI community complaints of air pollution connected to any of the incinerator events;
30) Violations, penalties, enforcement orders and investigation reports prepared by the Quebec MOE in response to upsets and related events at the RSI incinerator;

31) Air, water and soil monitoring conducted by the Quebec MOE in response to upsets and related events at the RSI incinerator; and
32) Describing the spills of hazardous waste on the ground if they transpired due to the upset triggering event.

In conclusion, Bennett has failed to provide any of the above qualitative, quantitative and relevant details of the emissions during the eight types of triggering events it analyzed at the RSI incinerator. In our view, this missing data is necessary to confirm the accuracy of the Bennett analysis and proposals to address upset events at the proposed Kirkland Lake facility.

At the same time, we note that Bennett's Kirkland Lake incinerator is designed to be several times larger in treatment capacity than the RSI incinerator. Thus, comparison between the two different sized incinerators is inappropriate since they are technically so different in capacity. The larger the design treatment capacity of the rotary kiln and SCC to burn larger volumes of hazardous waste and PCB soils, the greater the potential for unanticipated failures, unexpected human errors and unknown technical glitches to instantly occur which create an operating crisis during daily incineration procedures.

Many state-of-the-art commercial hazardous waste incinerators in the last decade or more have experienced serious operating problems during thermal treatment, in numerous instances experiencing catastrophic kiln failures, SCC failures, and other serious events, resulting in significant leaks of unburned-untreated waste gases released to the local ambient air and atmosphere (see Appendix A attached hereto).

*There is need for impact on releases of a worst case serious accident scenario*

Another point of concern is that a single serious accidental release from Bennett's proposed incinerator consisting of dioxins, dibenzofurans, and uncombusted PCBs, for instance, could render the EA documents and Appendices moot as to their validity and accuracy regarding predicted impacts. Human health, agriculture and the ecological systems could be damaged for years and potentially decades from a single serious accident at the Bennett's Kirkland Lake incinerator.

Bennett needs to provide a comprehensive review and analysis of the single worst-case accidental release-catastrophic event scenario which the U.S. EPA has required of all major industrial plants in the U.S. to perform under the 1990 *Clean Air Act Amendments*. They are called RMPs or Risk Management Plans to evaluate what the worst-case most serious catastrophic event is at each of the plants and to calculate the radius of impact to the public downwind of a toxic chemical vapor cloud as to its life-threatening impacts.

## 5. ECOLOGICAL RISK ASSESSMENT

The above-noted comments about the inadequacies of the EA's air modelling are equally applicable to the ecological risk assessment (EA, Section 11). In our view, these inadequacies

effectively invalidate the predictions of wildlife exposure to airborne pollutants and their ecological impacts.

## 6. DESCRIPTION OF ADVANTAGES AND DISADVANTAGES

In our view, the EA's six-page discussion of the advantages and disadvantages of the proposed incinerator (EA, Section 13) essentially boils down to subjective, self-serving claims about the socio-economic benefits perceived by Bennett. While environmental benefits are also claimed by Bennett, this section of the EA does not undertake formal cost-benefit analysis to substantiate the claims made about the proposed undertaking.

In any event, the description of advantages/disadvantages is skewed by the fact that the approved Terms of Reference is scoped. Most imporant, the Terms of Reference did not require Bennett to:

- identify, analyze and compare non-thermal alternatives that are environmentally superior to the proposed undertaking in fact, there is little discussion, if any, of the advantages or disadvantages of the proposed technology;.
- discuss and analyze site selection criteria and alternatives;
- discuss and analyze the use of centralized location and fixed facility approach for hazardous material destruction (which is only now mentioned in the EA);
- provide a consideration and analysis of the excluded consideration of key aspects of the overall proposal (e.g., the cost, risk and acceptability of long-range transportation of hazardous waste to Kirkland Lake).

Accordingly, Bennett's advantages/disadvantages description simply amounts to a comparison of the proposed incinerator to the "do nothing" alternative (e.g., leave contaminated materials untreated *in situ*). In our view, this is a meaningless comparison and defeats the very purpose of EA planning.

## 7. SUMMARY OF PROPONENT COMMITMENTS

We note that the EA sets out a number of "commitments" that Bennett intends to honour if the undertaking is approved (EA, Section 15). If these are intended to form the basis for conditions of approval under the EA Act, then it is our submission that these "commitments" are deficient.

For example, these commitments do not mention site security funds, insurance, or financial assurance to secure the performance of all Bennett's environmental obligations (e.g., site closure, monitoring, remediation, etc.). On this latter point, we note that the EA Board held in the Adams Mine Landfill hearing that financial assurance was a proper consideration under the EA Act. In fact, the Board imposed a financial assurance condition under the *Act* despite the fact that financial assurance was going to be subsequently addressed by the MOE under the auspices of the *Environmental Protection Act*. In our view, given the ecological and public health risks associated with the proposed incinerator, Bennett's failure to properly address financial assurance is significant and astounding.

Similarly, while Bennett commits to "monitor" community concerns about "property valuation" (EA, page 631), it appears that Bennett has not yet developed (nor committed to) a formal property value protection plan, which is a common condition of approval under the EA Act for waste disposal sites in Ontario. Indeed, the Ontario Divisional Court has held that terms and conditions aimed at protecting property value cannot be imposed under the *Environmental Protection Act*. Therefore, the proper place to address this issue is under the EA Act, but it appears that Bennett has failed to present a property value protection plan in the EA.

Finally, we note that Bennett has "committed" to developing key operational details (e.g., maintenance/inspection plans, contingency plans, training plans, monitoring plans, etc.), but only if the facility first receives approval under the EA Act. If such approval is received, then Bennett intends to address such matters in its application for a certificate of approval under the *Environmental Protection Act.* In our view, Bennett's decision to "piecemeal" its proposal in this manner prejudices the ability of public and agency reviewers to fully scrutinize the proposed incinerator. By failing to submit concurrent applications under the EA Act and *Environmental Protection Act* (as is often done by waste disposal proponents), Bennett has effectively deprived technical reviewers under the EA Act of the critical details needed to properly evaluate the acceptability and safety of the proposed incinerator. At this late stage of the EA process, this fundamental problem cannot be remedied through the imposition of conditions under the EA Act. In our view, this provides an additional reason why the Director should issue a deficiency statement to Bennett pursuant to section 7 of the EA Act.

## 8. CHANGES TO THE EA

It appears that Bennett's proposals regarding an "amendment mechanism" (EA, Section 14) were included at the suggestion of the MOE (EA, page 609, para.45). However, it is unclear whether Section 14 is intended to cover amendments to the EA documentation (before or after the government review), or changes to the undertaking (or terms and conditions) if approved. In any case, the EA Act already contains provisions that govern amendments to an EA and/or an approved undertaking, thereby making Bennett's discussion in Section 14 largely superfluous.

For example, if Bennett intends to amend (or withdraw) the EA prior to the completion of the government review, then Bennett is free to do so at any time in accordance with the EA Act (subsection 6.2(2)). If Bennett intends to amend (or withdraw) the EA after the completion of the government review, then Bennett can only do so in accordance with conditions imposed by the Minister (subsections 6.2(3) and (4)). If Bennett intends to submit a second EA to replace the current EA (e.g., if it is withdrawn by the proponent or rejected by the Minister), then Bennett may do so, provided that the second EA is prepared in accordance with the approved Terms of Reference (subsections 12.1(1) and (2)).

Similarly, if the proposed incinerator is actually approved under the EA Act and Bennett wishes to subsequent change the design, waste types/sources, or the conditions of approval, then Bennett is free to apply for such changes, provided that there is compliance with the relevant provisions of the EA Act (e.g., subsections 5(5), 11.4, and 12). On this point, we note that the EA Act

clearly states that where a proponent proposes a change to an approved undertaking, the proposed change itself is deemed to be an undertaking for the purposes of the Act. Therefore, the nature of the proposed change (e.g., minor, major or "administrative") is immaterial – if the change is proposed, it is deemed to be an undertaking subject to all relevant provisions of the EA Act.

Accordingly, Bennett's discussion of the "amendment mechanism" is unclear and unnecessary, particularly since the EA Act will prevail over whatever Bennett proposes to do by way of amendments to the EA and/or undertaking.

## 9. PUBLIC CONSULTATION ON THE EA

Our client's concerns about Bennett's public consultation on the EA may be summarized as follows:

1) The documents are very poorly organized. The Appendix lacks a table of contents and numbering; the contents of the consultation sections in the *Formal Submission* are not well-planned.
2) The "Key Issues" section of the *Formal Submission* does not clearly state the public's concerns.
3) Bennett does not include "making reasonable efforts to resolve concerns" as one of their guiding principles.
4) They did not hold public meetings at which the public could hear the concerns of other people. Instead they used open houses, which are an inferior method of consultation.
5) The information summary modules given to open house attendees often failed to provide critical information on potential impacts.
6) Bennett failed to get serious involvement from the First Nations.
7) The Citizens Advisory Committee did not act as a method for input from the public. It acted more like an agency of Bennett.
8) Bennett failed to provide financial support to participants to help them make input during the public consultation program.

### (a) Review Objective and Methodology

In judging the adequacy of the public consultation program, two main documents were used to determine the criteria that should be met:

1. *Approved Terms of Reference* April 2001 [Appendix 1 of the EA].
2. *Draft Guideline on Consultation in the Environmental Assessment Process* December 15, 2000, Ontario MOE. This Draft Guideline, which was put out for public comment, is the most current version. No changes have been made to the document as a result of the public consultation process. In a phone call to the EA Branch on August 19, 2002, MOE staff said that the comments were still under review.

We also note that section 5.1 of the EA Act expressly requires proponents to undertake public consultation when preparing an EA.

Public consultation is addressed at three points in Bennett's EA documentation:

1. "Key Issues", section 1.4 of *Formal Submission* (11 pages)
2. "Record of Public Consultation", section 12 of *Formal Submission* (183 pages)
3. "Appendix 2: Public Consultation" (pages not numbered, 2 centimetres thick).

**(b) Structure of Bennett's Report**

*The information regarding public consultation is very poorly organized and presented in the EA*

Appendix 2 is extremely difficult to review because it does not have a table of contents, and does not have page numbering. It also does not have a summary of the consultations. It is largely just a compilation of meeting notices, form letters, and related material.

There is no apparent logic for the three different places at which information on public consultation is presented. The "Key Issues" section in the overall EA does not do a good job of presenting the public's concerns. It is focused on Bennett's response to the issues. The "Record of Public Consultation" section, which is also in the overall EA document, is almost 200 pages in length. It would have been much more appropriate to put most of this into Appendix 2. For example, there are 167 pages of detailing commentator concerns and Bennett responses. It would have been much more helpful to have summarized this for the overall EA document and put the detailed comments and responses into Appendix 2. Appendix 2, which supposedly shows the entire public consultation process, is very incomplete because it does not include much of what is in the "Record of Public Consultation" section.

**(c) Comments on "Key Issues" in the EA (pages 8-18)**

Arguably, this is the most important part of the EA document since it is, in effect, the proponent's summary of the public input.

In most cases, however, this section does not clearly state what was the specific concern raised by members of the public. This section is replete with generalized statements such as, "*The potential effect of increased traffic was of concern to the public, as well as response procedures should there ever be a spill of contaminated material*." Moreover, almost all of the 11 pages in this section is an explanation of why such issues need not be a concern to the public.

In two instances, the EA attempts to allay public concerns by referring to the PCB incinerator that was used in Smithville. The Smithville reference is used in response to the following concerns: proximity to schools, daycare and residences; and meeting Canadian Council of Minister of the Environment guidelines. In our view, the Smithville reference is non-responsive to these public concerns, particularly it was only a temporary operation that was in the community for less than two years. In comparison, Bennett's proposed incinerator may be present in Kirkland Lake for decades.

In a few instances, Bennett made commitments or changes in its studies as a result of the public input. These were:

- a commitment to carry out a "four-season pre-operational monitoring program" for air quality;
- a commitment to do baseline monitoring for surface and groundwater, soil and vegetation around the proposed site; and
- the preparation of an agricultural impact assessment by ESG International Inc.

**(d) Consultation Principles**

On page 430 of the EA, Bennett states four principles that purportedly guided the public consultation program: an open consultation process; a transparent consultation process; a responsive consultation process; and a meaningful consultation process.

Bennett's descriptions of these principles omits a significant component of the MOE's *Draft Guideline on Consultation in the Environmental Assessment Process* ("*Guidelines*") The *Guideline* says that the proponent should define "what role those consulted can expect to have in the decision-making process" [page 7], and that "*the proponent will make reasonable efforts to resolve concerns*" [page 18]. The document goes on to list various techniques to try to resolve issues and conflicts [page 23]. These two items are not stated in Bennett's consultation documents and there is no indication that serious efforts were made to implement these approaches beyond written answers to concerns that were raised by the public.

**(e) Consultation Methods**

*Public Open Houses*

Bennett held open houses in Kirkland Lake, New Liskeard, and Englehart, but did not hold public meetings. Bennett, however, did attend a public information seminar held by the Temiskaming Federation of Agriculture.

Open houses are sessions where people come in and see displays, and have the opportunity to talk one-on-one with company representatives or consultants at each of these displays. Public meetings, by contrast, typically involve formal presentations by the proponent, government officials, and concerned non-governmental organizations. These presentations are usually followed by questions and comments from the audience, which everyone gets to hear and consider.

In our experience, open houses alone substantially limit the effectiveness of public input. Many people who would attend a public meeting will not attend an open house because they feel that they do not know enough to be able to ask questions of the "expert" at each display, and they are intimidated by the format. Many of these people prefer to attend a public meeting because they can sit in the audience and listen and learn, without feeling pressured to speak. Many of those who do attend are likely to get less out of open houses than a public meeting because they do not know what questions to ask when they are looking at the displays.

Proponents often prefer open houses to public meetings because there is less opportunity for the critics of their project to challenge the proponent in front of the wider community that would be in the audience.

*Information Summaries for Open Houses*

Appendix 2 includes the information summaries that were given to the public on various issues (e.g., traffic impact, economic impact, acoustic impact, ecological risk impact, human health impact).

Leaving aside the question of their technical soundness, the information summaries were generally useful. However, in some striking cases, the summaries omitted basic information that the public needed and wanted, as described below:

1) Traffic Impact: The information module never says how much additional traffic will be generated by the presence of the facility. Similarly, it does not include any information on impacts on non-local roads. Bennett explains the latter omission as being outside the Terms of Reference for the EA.
2) Economic Impact: In contrast with the traffic impact module, which gives no information on impacts of the proposed facility, this summary gives substantial detail on how the proposed undertaking may help the local economy and generate additional jobs. This is an obviously self-serving information module, and it appears to have achieved the desired effect: four of the ten written responses out of the two sessions asked questions about potential job opportunities.
3) Acoustic Impact: In our opinion, this is by far the least adequate module. It essentially gives no indication of what the noise level will be -- it just says what it should be. Any information it does give is in a form that has no real meaning for the public (e.g., 45 dBA -- how loud is that)?
4) Ecological Risk Assessment: No actual risk numbers are given. The module simply says that all factors passed without any indication of how close they are to the acceptable risk level. In addition, there is no definition of what is “acceptable.”
5) Human Health Risk Assessment: It says that the risk is within the acceptable level, which is defined as one in a million additional cancers. However, it never gives a risk number so people have no idea of how close the human health risk is to that “acceptable” risk.

Bennett appears to have succeeded in sending a reply letter to each of the people who made written comments at the open houses. However, in many of the cases, the response to the issues raised by the public is that the topic will not addressed in the EA because Bennett claims it falls outside outside of the approved Terms of Reference.

*First Nations Involvement*

Bennett failed to secure serious involvement by First Nation communities in the EA process.

In Appendix 2, Bennett documents its efforts to set up meetings with the First Nations in the region. They failed, however, to achieve much involvement. To properly explore the reasons for this, it would be necessary for the MOE staff to contact the First Nations.

*Internet Site*

The Bennett documentation does not include any description of how much use was made of the site by the public. When attempts were made by CELA's consultation consultant on August 25, 2002 to access the site, the computer's repeated response was that the server could not be found. As a result, the consultant was unable to evaluate the website.

*Citizens Advisory Committee*

Bennett established a Citizens' Advisory Committee (CAC). The CAC's stated objective was "*to function as an information exchange centre where information from Bennett, experts and the Ministry of Environment and Energy would be scrutinized, analysed and discussed to reassure the public of environmental compliance by Bennett*" (EA, page 536).

This stated purpose for the CAC is inappropriate because it blatantly says that its purpose is to "reassure" the public of Bennett's environmental compliance. How can the public place any confidence in a body with such a decidedly non-neutral role?

In its *Guideline* the MOE recommends "establishing a citizen-led committee to provide a forum specifically for issue resolution" [page 23]. Clearly, Bennett's CAC does not fulfil this kind of role.

The CAC held only one public meeting. This meeting, held on January 17, 2002, was a failure by any objective standard. According to Bennett's description, after the presentations were made, there was a "brief opportunity for the public to ask questions; however, after some disruption from one member of the public, the Chairman called the meeting to a close" (EA, page 537).

Bennett's failure to hold meaningful public meetings, and the closure of the single CAC meeting, clearly demonstrate that no credible, citizen-led committee was established to facilitate public participation in the EA process.

*Participant Support*

In the *Guideline*, the MOE correctly notes that "*it is in the best interest of the proponent to ensure that interested parties are able to participate meaningfully in the EA process*" [page 24]. The methods of participant support suggested by the Ministry are:

- Providing meeting facilities that are accessible to persons with disabilities;
- Reimbursing travel costs or child care costs for participant attendance at consultation events;

- Providing administrative support (such as photocopying information materials, arranging venues for community discussions, postage and mailing services) to affected/interested parties; and/or
- Providing funding for peer review of technical work produced for the EA.

To our knowledge, Bennett has not provided any form of participant support to members of the public. In our view, this is a major failing of Bennett's consultation process.

Bennett did provide meeting support to its CAC, but this does not negate the need to provide support to a broader range of interested/affected parties who wish to be involved in the consultation process. Indeed, the acute need for participant funding was compounded by the limited, non-neutral work of the CAC.

After all, it should be recalled that Bennett released huge, very technical documents during the EA, but did not provide participants with the money to hire experts to review these documents. If a proponent is serious about public consultation, then it must provide resources to the community to review EA documents in a fair and timely manner.

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**For the foregoing reasons, Northwatch submits that**:

(a) the proposed incinerator should **not** be approved under the EA Act;
(b) the EA and appendices submitted by Bennett are inadequate, incomplete and unacceptable; and
(c) the Director should forthwith issue a deficiency statement to Bennett pursuant to section 7 of the EA Act, and the Minister should reject the EA in its entirety if Bennett does not remedy the substantive deficiencies within the prescribed seven day timeframe.

We trust that our client's comments will be considered during the Government Review of the Bennett EA. Please contact the undersigned if you have any questions or comments about this submission.

Yours truly,

**CANADIAN ENVIRONMENTAL LAW ASSOCIATION**

Paul Muldoon
Executive Director and Counsel

Richard D. Lindgren
Counsel

cc. Hon. Chris Stockwell, Minister of the Environment
Michael Williams, EAAB Director
Brennain Lloyd, Northwatch

**END NOTES**

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