

September 15, 2011

Via Email with Hard Copies to Ministers By Registered Mail

Hon. John Wilkinson
Ministry of the Environment
11th Floor, Ferguson Block
77 Wellesley Street West
Toronto, ON M7A 2T5

Hon. Deborah Matthews
Ministry of Health and Long-Term Care
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Toronto, ON M7A 2C4

Dear Minister Wilkinson and Minister Matthews,

We are writing you regarding the Environmental Assessment (EA) and issuance of the Certificates of Approval (C of A) for the Durham and York Regions' mass burn incinerator project which is set to be operated by Covanta Energy of New Jersey at Courtice, Ontario on the shore of Lake Ontario.

Background

Wendy Bracken, who has authored this letter on behalf of Durham Environment Watch, Durham CLEAR and ZeroWaste4ZeroBurning, wrote to the appropriate Ministry of the Environment (MoE) staff, Mr. Ian Parrott and Ms. Doris Dumais, and copied both of you, on May 6, 2011. In that letter, Ms. Bracken alerted Mr. Parrott and Ms. Dumais to serious, substantiated problems regarding the ambient levels and with the assessment of fine and ultrafine particulate (PM2.5) emissions and with inconsistencies between the EA and C of A applications submitted by the Regions. Ms. Bracken did not receive a reply to her detailed letter which we are including as an attachment to this email.

Our Request for Ministers to Take Corrective Actions

We respectfully request that both Ministers review the new information brought forward in this letter as well as previous letters and submissions. The totality of the documented gaps, errors, inconsistencies and omissions with respect to incinerator emissions and the potential health impacts demand your immediate attention and corrective action.

Minister Wilkinson, we formally request you to review your EA approval and the issuance of the Certificates of Approval from your Ministry, especially in light of information which became available at the end of July. In your Notice of Approval to Proceed with the Undertaking you reported receiving 185 submissions requesting a hearing by the Environmental Review Tribunal. There were detailed submissions providing solid arguments supported by evidence that demonstrated the need for such a review in a scientific - as opposed to political - forum. Minister Wilkinson denied those requests. We hope that Minister Wilkinson will reconsider that decision and recognize the need for further scientific scrutiny in light of the information in this letter.

We also wish to bring to Minister Wilkinson's attention that the Emissions Monitoring Plan and Ambient Air Monitoring Plan were submitted to his Ministry several days ago and are awaiting approval. The majority of concerns that we brought to the attention of the proponents through delegations and through our participation on and submissions to the Energy From Waste Advisory Committee (EFWAC), which is the committee mandated through Condition 8 of EA approval, were not incorporated into the actual plans submitted by the Regions to the Ministry. We ask the Minister to ensure that no final decisions are taken by the Ministry around these plans until such time that the matters we raise in this letter are fully and appropriately addressed.

To date, the Ministry of Health has declined many opportunities to review and comment on the EA and C of A applications, despite public and political requests for greater health and medical scrutiny. Delegation of such important matters which have province-wide implications cannot be allowed to rest with the local Medical Officer of Health (MOH) and especially not in cases where the MOH is retained by a project's proponents.

Minister Matthews, we formally request you to direct your Ministry to thoroughly review the potential public health impacts of the Durham/York incinerator and to carefully review the current relevant medical and scientific research, especially with respect to fine and ultrafine particulate matter emissions.

Introduction

This letter documents numerous failures of Durham and York Regions and the Ministry of the Environment to properly and adequately assess the health impacts of particulate emissions from the incinerator during the Environmental Assessment (EA) and in the CofA applications which followed. For certain key pollutants, the MOE's approval was based on assessment for compliance against air criteria which were not health-based, as opposed to a proper assessment based on health considerations.

This is the first new incinerator to be built in Ontario in approximately twenty years and could set the precedent for more incineration projects. While the Ministry initiated a review of its

waste management policy in 2008 with the first discussion paper “Toward A Zero Waste Future”, the Waste Diversion Act review has not been completed. Ontario citizens lack a clearly defined and truly sustainable waste management policy and waste hierarchy.

There have been many claims regarding the safety of “modern” incinerators, however two separate reviews done in Durham/York Regions and in Halton Region found there was no epidemiological evidence of their safety. Halton Region shelved their incinerator plan, however Durham and York Regions proceeded to attempt to determine the risks of such a project through a human health and ecological risk assessment.

We remind you that the consultant firms hired by the Regions to prepare most of the EA reports, including the health documents, and the Emissions Summary Dispersion Modelling Report for the C of A applications, have been members of, or have acquired firms who belonged to, the Canadian Energy From Waste Coalition (CEFWC). The CEFWC mission statement reads in part:

“We stand for the promotion, adoption, and implementation of energy-from-waste (EFW) technology for the management of residual materials...”

Covanta is a principal funder of the CEFWC. We are concerned that the incineration industry has lobbied and continues to actively lobby at all levels of government for more incineration friendly policy, yet there has been insufficient scientific and medical scrutiny of the health and environmental impacts of incineration.

We believe there is an urgent need for completely independent scientific and medical experts to scrutinize garbage incineration and its impacts.

Incinerator Emissions And PM2.5: The Need to be Precautionary

One of the biggest concerns worldwide regarding incineration is that incinerators are a major source of fine and ultrafine particulate emissions, while at the same time also being major emitters of other toxic pollutants such as dioxins/furans, mercury, lead, cadmium, and many other pollutants of concern. Fine particulates (PM2.5) are very small particles with a diameter less than 2.5 microns. A micron is one thousandth of a millimetre. The combination of fine and ultrafine particulates (which are capable of deep penetration into the body) emitted with this suite of other toxins (which can bind to these particulates) is a major public health concern.

The health risks due to fine and ultrafine particulate are universally recognized, but they are not yet completely understood and are presently the subject of a great deal of ongoing medical and scientific research. Emerging science points to the need to be precautionary, yet in the case of

the Durham/York incinerator, which could be precedent setting, approval at the Municipal level and at the Ministry level has hinged primarily upon risk assessment.

Risk assessment is far from an exact science and is based on many inputs and assumptions. In the case of fine particulate (PM2.5) emissions, risk assessment methods have not been developed yet to adequately assess the dangerous ultrafine component. If the health risk assessment were flawed or have a high degree of uncertainty, then decisions on the approval and monitoring of this facility based on such a risk assessment could result in unacceptable public health effects.

Existing Ambient PM2.5 Levels Already Elevated at D/Y Incinerator Site in Courtice

The baseline study done for the EA documents an acute exposure, 98th percentile, 24-hour PM2.5 concentration at the Courtice site of 28.6 µg/m³. This concentration is just below the Canada Wide Standard (CWS) of 30 µg/m³. The CWS is not a health based value, but rather is an interim benchmark set as an objective for Canadian locations to be under by 2010. It may be reduced in the future. The MOE Director of Section 9 Approvals at the time of the EA submission, Mr. Victor Low, stated in his September 2009 comments to the EA that:

“Ambient air quality monitoring data included in the EA indicates that, for two contaminants (PM2.5 and ozone), the monitored data marginally complies or exceeds applicable ministry limits”.

The Health Canada September 2009 review of the EA states that:

“Given that airborne levels of PM2.5 are already elevated in the vicinity of the project and that this contaminant is considered to be a non-threshold contaminant (i.e. adverse health effects may be observed at any level of exposure), (CCME, 2000) HC suggests that the AQATSR discuss best available technologies and procedures that may be applied to mitigate PM2.5 emissions from the proposed facility.”

The Regions did not act upon this advice from Health Canada, nor does it appear that the Ministry required further action.

The baseline study done for the EA also documents a chronic exposure, annual average PM2.5 concentration of 10.2 µg/m³. The Ministry of the Environment has no applicable ministry limit for annual average PM2.5. We find this lack of a MoE limit for chronic exposure troubling as adverse health effects can result from both short term and chronic exposures to PM2.5.

The World Health Organization (WHO), however, does have a benchmark for this type of exposure and it is 10 µg/m³. The annual average PM2.5 level at Courtice exceeds the WHO benchmark. In our review of the approximately 50 stations across Ontario reporting the most recent publicly available (2008) National Air Pollution Surveillance data, only three stations -

Sarnia(12.69) , Windsor (10.48) and Hamilton (10.02) report average PM2.5 concentrations which exceed the WHO benchmark.

Gaping Hole in Ontario Regulations: No Enforceable Regulation for PM2.5 (or PM10)

Ontario Regulation 419: Air Pollution – Local Air Quality (O.Reg 419) under the Environmental Protection Act contains air standards for contaminants that are intended to protect local air quality and are legal requirements which emitters in Ontario must meet.

There is currently no legally enforceable regulatory limit for PM2.5 (or PM10).

It is our understanding that this lack of regulation and a concern for air quality prompted the Town of Oakville to take the measure of establishing their *Health Protection Air Quality By-Law* which addresses PM2.5 emissions to help protect their residents from unacceptable PM2.5 levels. It is also our understanding that the MoE is currently assessing the regulation of PM2.5 as a result of Oakville’s request to the Environmental Commissioner.

Stringent Health–Based Risk Assessment of PM2.5 Essential In the Absence of Health-Based Standards, Guidelines and Air Criteria for PM2.5

The MOE document *Summary of Standards and Guidelines to Support Ontario Regulation 419: Air Pollution – Local Air Quality* lists air standards and current MOE guidelines for various contaminants. There are no standards OR guidelines stated for particulate matter, PM2.5 or PM10 in that list.

That same document states that the standards and guidelines identified in the document are “based on Ambient Air Quality Criteria (AAQCs) developed via the MOE’s standard setting process”. The MOE publishes the list of AAQCs in a separate list in the MOE document *Ontario Ambient Air Quality Criteria*. That document states that AAQCs are effect-based levels in air and that AAQCs are set at levels below which adverse health and/or environmental effects are not expected.

In the list of AAQCs, the Canada Wide Standard of $30 \mu\text{g}/\text{m}^3$ is shown as the AAQC for PM2.5 in the table, however footnote 8 states that

“This value is not an AAQC per se but is included here, together with the following guide, for decision making”. (emphasis added)

The footnote explains that the Canada Wide Standard is only an air benchmark. It is NOT a health-based standard.

Not only are Ontario residents deprived of a regulation for PM2.5, but we also do not have a health-based guideline or a health -based AAQC.

Since Ontario currently has no health-based regulation for PM2.5, or PM10 for that matter, Ontario residents rely upon and fully expect a stringent health-based risk assessment of PM2.5 for any project. This is especially true for incinerators due to the wide variety of toxic pollutants created and emitted when burning garbage.

In the case of the Durham/York risk assessment, however, the Regions' consultants used the CWS as a toxicity reference value to characterize health risk. We have repeatedly asserted that, since the CWS is not a health-based standard, it cannot be used to assess and determine health risk.

A stringent health-based risk assessment should be consistent with the health-based principles defined and described by MOE in their guideline regarding developing standards. The MOE *Guideline For the Implementation of Air Standards in Ontario* states:

“Ontario’s air standards are based on the best scientific information available and are set at levels that safeguard the natural environment and protect sensitive populations such as children and the elderly.

... Effects-based air quality standards are developed based on our understanding and interpretation of health and environmental effects – as opposed to standards that are set with consideration of technical or economic issues.” (emphasis added)

The same guideline also states on pages 4 and 5:

“In updating/developing standards, there are factors that are considered in order to deal with uncertainty. In evaluating incremental risks, it is important to consider the uncertainty of risks posed by exposure to contaminants; the benefits of an activity that discharges the contaminant and the principle of precaution. A lack of full scientific certainty of the risks posed by exposure to a contaminant should not be used as a reason for postponing cost-effective measures to prevent incremental health and environmental effects. It is recommended that the principle of precaution be considered in establishing risk acceptability, in identifying and analyzing risks, and in selecting risk options.” (emphasis added)

This same document states

“With few exceptions, the MOE air standards objective for carcinogens is to set the standard at an incremental risk of 1 in a million (or 10^6).” .

Recent Medical Review Confirms Problems Identified to the MOE in Previous Submissions; New Data Provided Leads to New Risk Calculation

Public delegations made to Durham Region committees and Council prompted a resolution directing the Medical Officer of Health to prepare a report for Council regarding health concerns. Two new reports were produced for Council and Dr. Robert Kyle for the July 26, 2011 Special Durham Region Council Meeting. One report *Further Evaluation and Updated Risk Assessment for Particulate Matter (PM2.5) Facility Emissions* was prepared by the same consultants who prepared the AQATSR and HHERA documents for the EA. Another report was prepared for Dr. Kyle by Dr. Ray Copes of Public Health Ontario.

These two new assessments have confirmed findings which were brought to the attention of MoE staff in Ms. Bracken's May 6, 2011 letter and in subsequent June 2011 submissions to the EBR posting. Dr. Copes' report confirms our assertion that the original risk assessment did not adequately assess health impact and risk due to fine and ultrafine particulate matter emissions. His report also provided an alternate risk analysis with estimates of the number of additional deaths per year due to the project's PM2.5 emissions. If these values for additional predicted deaths per year are multiplied by the number of years of facility operation, the result is additional predicted deaths greater than the provincial acceptable risk criterion.

In the sections below, we supply a more detailed history of the problems, errors, inconsistencies and omissions with the Regions' and Ministry of Environment's handling and assessment of PM2.5 emissions in particular. We also explain how Dr. Copes' report confirms our assertion that the EA risk assessment did not adequately assess PM2.5 risks and how the new report leads to the calculation of unacceptable risk.

Failure of MOE to Correctly Evaluate Health Impacts of PM2.5 in the EA & CofA; New Calculations Show Unacceptable Risk

1. EA Health Risk Assessment Assessed Less than Half of PM2.5 Emissions

The Regions of Durham/York submitted, and the Minister of the Environment subsequently approved, an Environmental Assessment with an emissions inventory for fine particulate matter PM2.5 which contained less than half of the actual PM2.5 emissions.

For risk assessment emission inventory and reporting purposes, primary particulate emissions should include both the filterable and condensable fractions. BOTH are emitted from the stack.

The proponents recently admitted that the emissions factor used for PM2.5 in the EA only accounted for the filterable fraction (e.g. 9 mg/Rm³). The condensable fraction, which accounts for the *majority* of the PM2.5 emissions, was missing from the PM2.5 emissions assessed for health risk in the Human Health and Ecological Risk Assessment (HHERA) done for the EA. It is absolutely unacceptable that these PM2.5 emissions were not assessed for health risk in the EA. It is especially egregious since PM2.5 emissions were identified by the public and technical reviewers to be one of the pollutants of highest health concern. The Ministry and the Regions should have been paying particular attention to the assessment of this pollutant. The public naturally expected that the Regions and Covanta would provide, and that the Ministry of the Environment would insist upon, full disclosure of *all* of the PM2.5 emissions for assessment of health risk as required in the Environmental Assessment.

In addition, we are appalled that, according to the Regions' consultants, the Ministry of the Environment agreed to the Regions' failure to assess the condensable fraction of the PM2.5 emissions for health risk. In their report, *Further Evaluation and Updated Risk Assessment for Particulate Matter (PM2.5) Facility Emissions*, the Regions' consultants state

“During the EA, filterable PM2.5 stack emissions (particulate that is directly emitted from the stack) were modelled. This approach is consistent with the A-7 Guideline and was agreed upon with the MOE reviewers at the time of modeling. However, during preparation of the CoFA, based on the availability of additional information both the filterable PM2.5 emissions and the condensable particulate emissions (particulate that forms in the atmosphere as vapours in the stack plume cool and condense) were modelled.”

Why were the proponents and/or Covanta not required to provide emissions factors for the condensable fraction during the EA? If it is correct that MOE reviewers “agreed” to this, who at the MOE authorized the Regions to essentially under report PM2.5 emissions in the EA study? Minister Wilkinson, were you aware of this “agreement”? How is this consistent with the EA expectations/requirements to fully disclose emissions? Why were public stakeholders and other reviewers not informed about this “agreement” and that the condensable PM2.5 emission factor was missing?

2. Corrected Baseline PM2.5 Values Not Carried Forward Into Risk Assessment

In the spring of 2011, Wendy Bracken discovered that corrected baseline values from the baseline monitoring report *Final Report on Ambient Air Monitoring at the Courtice Road Site*, December 4, 2009 had not been corrected and carried forward into the final *Air Quality Assessment Technical Study Report* and *Human Health and Ecological Risk*

Assessment Technical Study Report. The values in the air quality and health risk assessment were understated for PM2.5 (and ozone and NOx for some averaging periods). In the case of the annual average concentration of PM2.5, the assessment of the understated value (9.8 µg/m³) resulted in a failure to identify potential risk. Their risk assessment would have shown potential risk if the correct value of 10.2 µg/m³ had been used. The EA was approved containing this error.

How did the Regions' consultants and the MoE reviewers miss this fundamental error given the high level of concern regarding this pollutant and its assessment? The Regions' consultants did not find the error or acknowledge it until their new report in July 2011, *after* members of the public had identified and brought forward this error. The lead risk assessor described the error as an "oversight".

There is a very big difference between an *annual average* concentration of 9.8 µg/m³ and 10.2 µg/m³ as these values represent long term averages. We believe that the failure to identify potential risk not only misinformed the public and Durham and York Region Councils as well as other reviewers, but may well have influenced the Ministry's recommendations and the Minister's decision on the EA as this was a key pollutant.

It must also be noted that the Certificate of Approval applications submitted in March 2011 (and which were approved in June 2011) also used the incorrect baseline values for PM2.5.

3. Ministry Issues Certificate of Approval Inconsistent With EA and Conditions of Approval

The EA Act prohibits proponents from proceeding with an undertaking in a manner that is inconsistent with EA terms/conditions (Section 12(4)) and that it is an offence not to comply with terms/conditions in an EA approval (Section 38).

In March 2011, the Regions and Covanta submitted Certificate of Approval applications which proposed PM2.5 (filterable + condensable) emissions based on a stack concentration of 21 mg/Rm³, which, again is almost 2.5 times what was assessed in the EA. Ammonia emissions in the application were almost double what they were in the EA. These represent material and significant changes from what was submitted and approved in the EA.

As stated above, the Regions admit that the emissions factor used for PM2.5 in the EA only accounted for the filterable fraction (e.g. 9 mg/Rm³). The EA was approved by Minister Wilkinson, with Conditions, in November 2010. In his Conditions of Approval, Minister Wilkinson stipulates that the stack operating requirement for PM2.5 is 9 mg/Rm³. It does not state anywhere in that document that the 9 mg/Rm³ applies only to the filterable PM2.5. It

would not make sense to only apply to filterable PM2.5, because, in that case, the Minister would be approving an EA with an emissions factor for PM2.5 significantly above what was actually assessed for health risk in the EA. When the condensable PM2.5 emissions factor is included with the filterable PM2.5 emissions factor, the emissions factor for PM2.5 would be 21 mg/Rm³, which is almost 2.5 times what was assessed for health risk in the EA. In other words, Minister Wilkinson would be granting EA approval and setting a condition of approval on an aspect of the project where the health risk was not analyzed.

Minister Wilkinson, when you stipulated the 9 mg/Rm³, was this for total PM2.5 (filterable AND condensable) or did you mean that the 9 mg/Rm³ only applied to the filterable fraction? The public requires your very clear answer on this point.

The Bowmanville Area Medical Association (representing 47 physicians who practice in Clarington) and the President of the Nurse Practitioners' Association of Ontario, as well as the general public made numerous submissions to the Ministry regarding the Certificate of Approval applications and alerted the MOE to these inconsistencies. The Municipality of Clarington's submission on the applications formally requested the Ministry of the Environment to hold the PM2.5 emissions to what was assessed for risk in the EA. Minister Wilkinson, were you aware of these submissions? Despite all of this, the Ministry of the Environment issued Certificates of Approval permitting operation at the higher PM2.5 and ammonia emission levels. The rationale for approval supplied by the MoE on the EBR site was vague and extremely general. The posting did not adequately respond to the specific and detailed concerns nor did the MoE's July 28th letter to the Municipality of Clarington.

In our opinion, the Certificate of Approval issued by the Ministry is inconsistent with the EA and EA Conditions of Approval and requires immediate review.

4. EA Risk Assessment Methodology Flawed

In addition to under reporting the facility's PM2.5 emissions in their EA submission, the risk methodology used by the Regions of Durham/York in the EA was inappropriate and used standards which were NOT health based to assess human health risk due to the incinerator's PM2.5 emissions.

As described in the May 6, 2011 letter, the methodology to assess risk due to PM2.5 exposure was flawed for multiple reasons.

- The risk assessment treated PM2.5 as a threshold pollutant and assessed risk by calculating "concentration ratios" by dividing predicted exposure concentrations by what should have been a toxicity reference values but instead were air benchmarks.

- This approach is doubly flawed since PM2.5 is a NON-threshold pollutant (Canadian Council of Ministers of the Environment, 2000) and so the threshold “concentration ratio” methodology should not have been applied.
- The methodology is further flawed by the fact that instead of using appropriate health-based toxicity reference values to compare predicted exposures against, the EA assessment used air criteria which are NOT HEALTH-based to determine if undue HEALTH risk existed.
- These problems were in turn compounded by the fact that the 24-hour predicted PM2.5 exposure used 90th percentile data to compare against the Canada Wide Standard which is a 98th percentile standard.

The result of all of the above was a risk assessment which failed to properly assess and quantify health risk due to PM2.5 exposure. These inadequacies were repeatedly brought to the attention of the Ministry of the Environment in the September 2009 and April 2010 public submissions as well as by MOE government team reviewers and the Municipality of Clarington reviewers and through letters to MOE officials. It is our opinion that the EA risk assessment for PM2.5 is not scientifically defensible.

Now there is a new report regarding PM2.5 emissions which confirms our assertion that the EA health risk assessment was inadequate. As stated previously, this past July 2011, Durham’s Medical Officer of Health sought the opinion of Dr. Ray Copes of Public Health Ontario regarding the risk assessment of PM2.5 emissions from the incinerator. We have attached his report as a PDF file.

Dr. Copes looked at the conclusions of the original EA risk assessment and read the new document *Further Evaluation and Updated Risk Assessment for Particulate Matter (PM2.5) Facility Emissions* regarding the increased PM2.5 emissions. With respect to the “concentration ratio” risk assessment methodology used in both the EA HHERA and the updated assessment prepared by the Regions’ consultants, Dr. Copes stated

“While comparing predicted ambient concentrations with target or regulatory concentrations can be useful in assessing whether or not there is potential to exceed these levels, it is not particularly informative with respect to potential human health risks. This is because there is no consistent relationship between risks to human health and ambient air quality standards, objectives or targets.” (emphasis added)

He further stated

“While for ‘compliance’ purposes, comparison of predicted PM2.5 concentrations with targets or standards may be helpful, it doesn’t give much insight into how

large or small the potential health impacts may be. For this reason, we have provided an alternative approach below.” (emphasis added)

Dr. Copes then provided an assessment of risk due to PM2.5 emissions which applied a different methodology suited to non-threshold pollutants and estimates incremental risk with increased exposure. Carcinogens are also considered to be non-threshold pollutants and also undergo an incremental risk analysis. We understand that in Ontario the acceptable level of risk for a project is one additional incidence of cancer per one million.

Dr. Copes used a slope factor taken from a World Health Organization (WHO) document with mortality (i.e. death) due to respiratory or cardiovascular disease increasing by 6% for every 10 µg/m³ increase in ambient air concentration of PM2.5.

5. New Annual Risk Predictions Applied Over Project Life Show Unacceptable Risk

In Table 1 of his report, Dr. Copes determines that the *annual* additional number of deaths per 100 000 people due to the facility’s PM2.5 emissions under normal operation is in the range of 0.01 to 0.06. This represents the range of additional number of deaths in one year of operation. However, the facility is expected to operate for around 30 years and the EA health risk assessment calculated risk over a 30 year period.

Referring to only the “per year” values in Table 1, Dr. Copes states that “The risks estimated in the table above are within the range deemed acceptable by regulatory authorities”. We believe the critical component missing from Dr. Copes’ assessment is that the incremental *lifetime* risk of the project PM2.5 emissions is not calculated over the expected operating life of the incinerator. The risk cannot just be examined due to one year of operation, but rather those annual values should have been multiplied by the number of years of operation.

Multiplying the annual additional death values calculated by Dr. Copes by the number of years of operation would amount to a risk between 0.3 and 1.8 additional deaths per 100,000. Expressing the risk as a risk per million (instead of per 100,000), the project risk would be between 3 and 18 additional deaths per one million. The project risk is over the Ontario criterion by 3 to 18 times. It should also be noted that this calculation predicts additional *deaths*, a much more serious outcome than additional *cancer incidences*.

On July 26, 2011, Dr. Copes presented his report to a Special Durham Regional Council Meeting. In a public delegation at that meeting, while Dr. Copes was still in attendance, Wendy Bracken brought forward the above information regarding the missing lifetime project risk calculation and its implication.

The Special Council meeting was broadcast by a local television station. Dr. Copes was also questioned by a councillor why the annual risk was not multiplied by the number of years the facility is scheduled to operate. His explanation seemed to be that technology may improve in future years, implying that PM2.5 emissions might be reduced in the future. We transcribed the exchange between Dr. Copes and Councillor Rodrigues and we have included this as an attachment. We do not accept Dr. Copes' explanation. Risk assessment should be based on conservative, existing conditions and the risk evaluation of future years cannot be omitted on the assumption that technology may improve. In fact, the possibility certainly exists that emerging research may determine the need for application of even higher risk slope factors for fine and ultrafine particulate matter exposure in the future .

Nevertheless, the Region still voted to accept the Co-Owners Agreement and subsequently issued a Notice to Proceed to Covanta. It is absolutely imperative that the Ministries address all of the above information.

6. MOE Issues Certificate of Approval With Monitoring Less Stringent Than What They Encourage In Ministry Documents

The Regions' Certificate of Approval application contained NO proposal to continuously monitor particulate matter or mercury even though the Ministry's A-7 Guideline for municipal solid waste incinerators DOES include these as parameters to be considered for continuous monitoring. The Ministry received many submissions from the public, physicians and the Municipality of Clarington requesting the Ministry to insist that the Regions and Covanta continuously monitor these key pollutants of concern as technology exists to do so.

Furthermore, Guideline A-7 states in Section 3.2 that

“The Ministry encourages the use of high sensitivity continuous particulate matter monitoring systems over opacity monitoring since particulate emissions have a direct environmental impact.” (emphasis added)

The Ministry of the Environment, however, did not act upon the requests from the public and host community and did not follow what is encouraged in their own Guideline A-7, and issued a Certificate of Approval which only required continuous monitoring for opacity as a surrogate for particulate matter monitoring.

Guideline A-7 also encourages continuous measurement of mercury. Section 3.2 of the Guideline states

“Proponents for thermal treatment of municipal waste are encouraged to explore technical developments with respect to continuous or long-term sampling/monitoring techniques and consider installation of such devices for measurement of emissions of mercury and dioxins/furans.” (emphasis added)

Once again, the Ministry did not act upon the concerns of the public and the host community and did not follow what is encouraged in their own A-7 Guideline for mercury.

Given what the MOE states in Guideline A-7, given all of the evidence in the EA regarding the current high levels of particulate matter (especially PM2.5), given all of the serious concerns and recommendations brought forward by the public and expert reviewers including Health Canada for this pollutant, it is astounding that the Ministry of the Environment issued an approval that does not require continuous monitoring for particulate matter.

With regards to mercury, there is no pre-sort of the waste planned, no clear bag program, no curbside hazardous waste collection and emissions vary depending on what is put at the curb and fed into the incinerator. Given there is no secondary sort, given the toxicity of mercury, and with what the Ministry suggests in their own A-7 guideline, why did the Ministry not require continuous sampling for mercury, even if not for compliance then for long term information gathering about mercury emissions?

Instead, particulate matter and mercury will be tested once a year during an annual, pre-arranged stack test. Ontario citizens should be appalled that most of the pollutants of greatest concern (PM2.5, mercury, cadmium, lead, VOCs, PAHs) will only be source tested once a year during an annual stack test. What will the emission levels be for these pollutants the other 364 days of the year? There is no way for the operators, public and other parties to know what the actual stack emissions from this incinerator will be for these pollutants and whether or not the stack test data collected on one day a year is representative of all other days of operation.

Guideline A-7 also indicates on page 15 that a continuous monitoring system for particulates could be used for other purposes stating “e.g. a filter catch of particulate matter could also be analyzed for a variety of metals”. This is another very important reason why continuous monitoring for particulate matter should have been a condition of approval and could have helped to address the inadequate monitoring of other pollutants.

Minister Wilkinson, as you review the Certificate of Approval from the Ministry, we urge you to pay particular attention to specific concerns we raise in this submission around emission monitoring of the incinerator so that you could determine for yourself that the

Ministry has not required sufficiently protective monitoring consistent with its own A-7 Guideline.

Summary

While this letter has focused primarily on the project as related to PM2.5 emissions, it must be understood that there remain many unresolved concerns regarding health impacts from the incinerator that we have already documented in previous submissions to the Minister of the Environment and the Ministry.

The Ministry of Environment has made decisions which appear to be inconsistent with its own documents and inconsistent with a health protective approach.

The Durham/York study provided no epidemiological evidence of the safety of incineration. To determine risk of the project, Durham and York Regions completed a health risk assessment.

With respect to incinerator fine and ultrafine particulate emissions, instead of a health-based assessment which considered the principle of precaution (as recommended in Guideline A-12 quoted above), we believe the sequence of errors, omissions, “oversights”, decisions, and approvals during the EA study and C of A Approval process actually moved Ontario in the opposite direction. We believe that the actions taken were not only not precautionary, but, they were also risky. The MOE appears to have allowed PM2.5 emissions to be under reported, under assessed and approved without a health-based risk assessment and, in the case of the condensable PM2.5 emissions, to not be assessed at all in the EA risk assessment.

Summarizing the issues with PM2.5, there is evidence that:

1. The approved EA contained under-reported facility emissions and accounted for less than half of the PM2.5 emissions.
2. The special health risk of the ultrafine particulate emissions was also not adequately recognized nor evaluated.
3. Amended baseline PM2.5 concentrations were not carried forward into the health risk assessment. The baseline PM2.5 concentrations in the health risk assessment were understated and the error affected determination of risk. The MOE did not catch this error.
4. The methodology used to characterize risk for PM2.5 was not only inappropriate, but it was incapable of assessing the health impacts due to the PM2.5 emissions.

5. The emissions permitted in the Certificates of Approval are materially different from what was assessed for health risk in the EA and are inconsistent with the Minister's Condition of EA Approval.
6. New analysis with more appropriate methodology to evaluate health risk due to PM2.5 emissions predicts annual additional deaths, which if multiplied by the number of years of operation yields a risk prediction for the project which **exceeds Ontario's 1 in one million risk criterion**.
7. With respect to stack emission monitoring requirements for particulate matter and mercury, the MOE went with the least precautionary and least stringent approach, which is inconsistent with what is encouraged in their own Guideline A-7. By requiring only opacity monitoring instead of continuous monitoring of particulate matter, there will be no accurate annual emissions information for this key pollutant.

Minister Wilkinson we formally request that you:

- Review your EA Approval in light of the new information.
- Require an independent expert medical and scientific review of the EA, especially since risk has been identified using proper data and risk assessment.
- Examine the options to refer the EA to the Environmental Review Tribunal. A referral to the ERT, or to other independent qualified experts, should require a review of the risk assessment methodology used by the proponents to assess project risk for PM2.5 and all other emissions of concern, and should include a review of the underlying data in the Air Quality Assessment and ambient air baseline reports.
- Direct that a referral to the ERT, or to other independent qualified experts, should also review all proposed monitoring and testing to determine if it is sufficiently precautionary and if it conforms to MoE's policies, regulations and guidelines.
- Review your Ministry's issuance of the multimedia Certificate of Approval and determine whether it is consistent with the EA Approval, the revised risk assessment, and applicable Ministry policies, regulation and guidelines. The C of A approval should be paused pending the outcome of a referral to the ERT and/or other independent qualified experts.
- Determine what "agreement", if any, was struck between your Ministry and the proponents around reporting of PM 2.5 emissions during the EA and if your Ministry had the authority to enter into such an agreement, if that is what occurred. If no

”agreement” around PM 2.5 emissions was struck, then determine why the proponents were not required to submit a complete emissions profile for PM 2.5 for the EA.

- Determine how it was possible that your Ministry did not recognize that corrected baseline values were not carried forward into the amended Risk Assessment.
- Clarify whether in your EA Approval, that the limit of 9 mg/Rm³ refers to total PM 2.5 (filterable and condensable fractions), OR, that this applies to the filterable fraction only. If this applies to filterable fraction only, please explain on what basis you have the authority to approve an EA that did not assess health risk for the condensable fraction of PM2.5.
- Thoroughly review Dr. Copes’ report for his professional opinion on the risk methodology used in the EA for PM2.5. Note that with employing his annual risk calculations using his alternate risk analysis over the lifetime of the project identifies unacceptable health risk from PM 2.5 emissions.
- Determine the status of the Ministry’s review of PM2.5 regulation now underway and how that assessment could or should affect the Durham/York incinerator approvals and plans.
- Ensure that no final decisions are taken by the Ministry regarding the EA mandated monitoring plans until such time that the matters we raise in this letter are fully and appropriately addressed.

Minister Matthews, this incinerator project has very important health implications for Ontario citizens. There is scientific and medical agreement that fine and ultra-fine particulate emissions are a high public health concern. The Ministry of Health must become actively involved in such proposals to ensure that public health impacts are appropriately addressed. Decisions must be made from a public health perspective, as opposed to an approach that focuses mainly on compliance with standards where these exist, not all of which are health based. The involvement of medical doctors and scientists is especially needed for review of relevant studies on fine and ultrafine particulate matter and its assessment.

Minister Matthews, we formally request that you:

- Direct your Ministry to review the Minister of Environment’s and Ministry of Environment’s EA and C of A approvals, including proposed monitoring and testing,

for the Durham-York incinerator, as well as the health risk assessments and underlying data reports as above.

- Direct your Ministry to review Dr. Copes' report and his alternate risk approach and the project lifetime risk calculation which demonstrates there is a health risk in relation to PM2.5.
- Direct your Ministry to ensure that they provide formal comments directly on EA applications that have the potential to result in public health impacts.

We respectfully request that you acknowledge receipt of our letter, carefully consider its contents and carefully review the decisions made by yourselves and your Ministries with regards to this project.

We are aware that you are in the middle of an election campaign. Nevertheless, we request a confirmation of receipt of this letter and we also would appreciate your advising us of the timeline when we could expect your written, detailed responses.

Should you wish to discuss this letter, please contact the author of this letter, Wendy Bracken, at the contact information shown below.

We thank you in advance and look forward to your early reply.

Yours truly,

Wendy Bracken on behalf of :

Durham Environment Watch (DEW)
Zero Waste 4 Zero Burning (ZW4ZB)
Durham Citizens Lobby for Environmental Awareness and Responsibility (DurhamCLEAR)

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cc. Ms. Gail Beggs, Deputy Minister of the Environment
Mr. Saad Rafi, Deputy Minister of Health and Long-term Care
Dr. Ray Copes, Public Health Ontario
Mr. John O'Toole, M.P.P., Durham Riding
Mr. Toby Barrett, M.P.P., Opposition Environment Critic
Ms. Christine Elliott, M.P.P., Opposition Health Critic
Mr. Peter Tabuns, M.P.P., NDP Environment Critic
Mr. Gord Miller, Environmental Commissioner of Ontario
Ms. Kerry Meydam, Durham Environment Watch
Ms. Linda Gasser, Zero Waste 4 Zero Burning
Mr. Louis Bertrand, Zero Waste 4 Zero Burning
Mr. Doug Anderson, DurhamCLEAR
Mr. Edward Yaghledjian, Durham Green Party Provincial Candidate
Ms. Betty Somerville, Durham Liberal Party Provincial Candidate
Mr. James Terry, Durham NDP Provincial Candidate
Mr. Mike Schreiner, Leader, Green Party of Ontario
Mr. Andre Marin, Ontario Ombudsman

Encl. (As Attachments)

May 6, 2011 Letter from W. Bracken to Ms. Doris Dumais and Mr. Parrott of the MoE
Dr. Copes' Report to Dr. Robert Kyle, dated July 20, 2011
Transcript of Dr. Copes' Response to Councillor Peter Rodrigues