MOE Elevation Request – ENTECH-REM Proposed Facility

Port Hope Residents 4 Managing Waste Responsibly (MWR)

NOVEMBER 2013

*Photo is the view looking South from the North East corner of the property of the proposed ENTECH-REM facility. It appears on the cover of the 2012 Northumberland Tourism “Driving Tours” Brochure.

EXECUTIVE SUMMARY:

This is an Elevation Request regarding the Environmental Screening of a Waste Management, Recycling and Power Generation facility (Facility) proposed by ENTECH-REM Canada Inc. (ENTECH-REM) at 1516 Wesleyville Road, in the Municipality of Port Hope, Northumberland County, Ontario.

The Elevation Request provides detailed information about how the Proponent has failed to adequately follow the requirements of Ontario Regulation 101/07 and the "Guide to Environmental Assessment Requirements for Waste Management Projects" (Ministry of the Environment (MOE), March 15, 2007), (*the Guide*).

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1.0 - Introduction

MWR was formed in October 2012 when a group of Port Hope residents came together, united by serious concerns about a proposed project by a private company named ENTECH-REM to build a large garbage processing facility in Port Hope, Ontario. Our group is composed of a broad array of Port Hope residents including doctors, lawyers, teachers, farmers, and businesspeople, all of whom support finding positive waste solutions for our community which are both economically viable, and environmentally sustainable.

MWR continues to have serious concerns about ENTECH-REM's proposal for a number of reasons, including the facility's potential harm to human health and air quality, the damaging effects to local business and tourism, the negative impact on Port Hope's image, and the troubling fact that neither ENTECH-REM nor its proposed ENTECH 'gasification' technology have any track record in North America or Western Europe.

MWR has consistently tried to engage with ENTECH-REM throughout the Environmental Screening Process, as outlined extensively in section 10 of this document. Unfortunately, ENTECH-REM has failed to adequately address our concerns, and in many instances, has repeatedly failed to even acknowledge them. Of particular note, MWR formally requested, on multiple occasions, to be provided with a draft copy of the Environmental Screening Report (ESR). ENTECH-REM repeatedly refused to do so. Thus the formal notice of completion of the ESR was the first time that MWR had a chance to view the ESR, and its component parts.

1.1- Structure of Elevation Request

While most of this document is structured following the thematic ordering of the MOE's Screening Criteria Checklist, given the overarching importance of two specific environmental effects, namely, negative effects on air quality due to emissions, and human health, these two specific criteria have been placed at the beginning of this report.

Sections 2.0 and 3.0 thus detail these two critically important instances where the proponent has "screened in" these Screening Criteria Checklist criteria, but failed to adequately address them.

Section 4.0 details those Screening Criteria Checklist criteria which were inappropriately "screened out" by the proponent.

Section 5.0 details two criteria from the Screening Criteria Checklist that the proponent "screened out" but belatedly, and unsatisfactorily, attempted to address in the ESR.

Section 6.0, picking up where Section 2.0 and 3.0 left off, details the remaining cases where ENTECH-REM has "screened in" certain Screening Criteria Checklist criteria, but failed to adequately address them.

Section 7.0 assesses the proponent's conclusions, Section 8.0 details additional inconsistencies in the proponent's business model.

Section 9.0 details the inadequacies of ENTECH-REM's consultation process.

Section 10.0 provides the formal details necessary for an MOE elevation request.

Section 11.0 is the conclusion of this report.

1.1.1 - Reference to Appendices

Note that references in this document to an ESR Appendix are referring to an Appendix of ENTECH-REM's ESR Report, while references in this document to an MWR Appendix are referring to the various Appendices of this document.

1.1.2 – Definitions

Note that while the proposed ENTECH-REM facility is most frequently simply referred to as "the proposed facility" within this document, at times it is also referred to as an incinerator.

For the avoidance of doubt, gasification plants, as proposed, are defined to be incinerators. See the Canadian Council of Ministers of the Environment (CCME) definition of "waste incinerator" available at: http://www.ccme.ca/assets/pdf/df_incin_rvw_rpt_e.pdf; and http://www.ccme.ca/assets/pdf/d_and_f_standard_e.pdf.

Similarly, gasification plants, as proposed, are also defined to be incinerators per the relevant EU law (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000L0076:EN:NOT).

1.2 – Expert Medical Reports commissioned by MWR

1.2.1 - Report by Dr. Stan Blecher

Dr. Stan Blecher conducted a review of ENTECH-REM's ESR Human Health Risk Evaluation (HHRE). His review is provided in full as MWR Appendix C, and reference will be made to it throughout this document.

Dr. Blecher is a retired medical doctor and specialist in medical genetics. He is a Fellow of the Canadian College of Medical Geneticists. He is an Emeritus Professor of Molecular Biology and Genetics of the University of Guelph, Ontario, and is also Emeritus Director of the School of Human Biology at the same University. Prior to that he had been a Professor at Dalhousie University Medical School in Halifax, Nova Scotia, a Professor in the University of Copenhagen, Denmark, and a Professor at the University of the Witwatersrand Medical School in Johannesburg, South Africa, where he also got his medical education. During his career he had at times held tenure of a World Health Organisation (WHO) Fellowship in

Human Genetics and a Fulbright Fellowship for Post-Graduate study in Cell Biology in the USA.

1.2.2 - Report by Dr. Howard Vyvyan

Professor C. Vyvyan Howard (MB. ChB. PhD. FRCPath.) conducted a proof of evidence on potential health effects of the proposed ENTECH-REM facility. His report is provided in full as MWR Appendix D. He is a medically qualified toxico-pathologist specializing in the problems associated with the action of toxic substances on the fetus and the infant. He is a Professor of Bioimaging at the University of Ulster and has written a number of papers and book chapters and spoken in a variety of forums to draw attention to the threat posed by environmental pollutants to the developing fetus.

He is a Fellow of the Royal College of Pathologists, Past President of the Royal Microscopical Society, Member of the British Society of Toxico-Pathologists, Past President of the International Society of Doctors for the Environment and Member of the European Teratology Society. He has completed 6 years as a toxicologist on the UK Government DEFRA Advisory Committee on Pesticides.

A large part of his current research program is the investigation of the fate and toxicology of nanoparticles. His research team has been in receipt of two large EU grants; 'NanoInteract and 'NeuroNano'. He has co-edited a book entitled 'Particulate Matter: Properties and Effects upon Health' published in September 1999. He has also sat on two EU expert groups considering the threats and benefits posed by nanotechnology and recently addressed the House of Lords Select Committee on Science and Technology investigating the use of nanotechnology in food.

Most recently he was engaged as an expert by WHO Europe to be the lead author on a published core document addressing Nanotechnology and Health. A major part of this work concerned the effect of small particles on health.

1.3 - Hardy Stevenson Report

On October 23, 2013 Hardy Stevenson (HS) submitted a review of the ENTECH-REM ESR to the Municipality of Port Hope. This document was titled *Technical Memo: Peer Review of ENTECH-REM's Final Environmental Screening Report – Wesleyville Waste Management, Recycling and Power Generation Facility* (Hereafter referred to as *HS Technical Memo*). This document can be found as MWR Appendix B.

The *HS Technical Memo*, includes within it "Appendix B: Dispositioned Peer Review Comments", which examines in detail each comment which *HS* provided to ENTECH-REM in a July 23, 2013 report which reviewed ENTECH-REM's draft ESR (hereafter *HS July Review,* and included as MWR Appendix A) and to what extent those comments were satisfactorily included in ENTECH-REM's final ESR.

1.3.1 - Hardy Stevenson Conclusion

The *HS Technical Memo* concluded that: "*The peer review team is able to reach the same conclusions as ENTECH-REM that the environmental and socio-economic effects will be minimal. However, there are significant outstanding items that need to be addressed before we can concur that the facility should receive final approval*."

HS recommended that given the critical importance of the "significant outstanding items that need to be addressed", the municipality should retain HS to review all these "significant outstanding items" prior to the municipality making any final council decision regarding the facility.

1.3.2 - HS Conclusion Contingent on Completing Key Outstanding Studies with Positive Results

HS has confirmed its conclusion above is contingent on REM satisfactorily completing a host of key studies, with positive results.

HS confirmed during a October 28 2013 presentation to Port Hope town council that HS's conclusion that the facility's "environmental and socio-economic effects will be minimal" **is in fact contingent on REM satisfactorily completing the "significant outstanding items that need to be addressed", and receiving satisfactory results.** Note that these "significant outstanding items" identified by the HS technical review is essential information surrounding the facility's emission profile and potential impact on both air quality and human health (see sections 2.0 and 3.0 of this document). **The outstanding information, then, is in fact precisely the information needed in order to assess the facility's environmental and socio-economic effects**. HS has simply stated that **if** this key outstanding information is satisfactory, **then** they would agree with REM's conclusion that effects will be minimal. **It is important to note this conditional aspect of the HS conclusion.**

1.3.3 – HS Conclusion is Contingent on Unverified Emission Data and Calculations Being Correct

HS has confirmed its conclusion is contingent on REM's unverified emission source data and calculations being correct.

In the *HS July Review*, HS noted that:

> Insufficient information was contained in the documents to allow verification of many of the calculations. No electronic modeling files were supplied. **This review was based on the assumption that the information presented in the various reports was correct** (*HS Technical Memo,* Appendix B, pg. iii, comment 7/139 – **emphasis added**).

On the same subject, in its final report, after reviewing REM's final ESR, HS concluded:

> **Changes made not satisfactory…insufficient information is presented to understand how emission rates were determined.** They are stated to be based on mass balance with a standardized waste feed input. It may be possible to do a mass balance on metals but a mass balance approach cannot be used for NO_x, PM, PM_{10}, $PM_{2.5}$, VOCs etc. (*HS Technical Memo,* Appendix B, pg. iii, comment 7/139 – **emphasis added**).

HS further confirmed during a October 28 2013 presentation to Port Hope town council that HS's conclusion that the facility's "environmental and socio-economic effects will be minimal" **is based on the assumption that ENTECH-REM's unverified emission figures are correct.** Again, it is important to note this highly contingent aspect of the declaration. Particularly given the fact that ENTECH-REM has thus far refused to provide any 3rd party with sufficient information to understand how their emission rates were determined, and that what little information that has been presented has serious flaws (see section 2.0 below).

1.4 – Overarching Concerns with ESR Methodology

1.4.1 – Failure to Consider Environmental Effects Outside the LSA

In the ESR, ENTECH-REM is clear that for the purposes of the Environmental Screening Process, the existing environmental conditions that were studied and the potential environmental effects that were identified and evaluated **were limited to lands within a 1km radius of the proposed facility boundaries** (ESR, pg. 44). This 1km radius was the Local Study Area (LSA).

In fact, it is our understanding that **the MOE's Screening Criteria Checklist provides for no such 1 km limitation.** *The Guide* states that the definition of "environment" for the purposes of the checklist is broadly defined "…to include air, land and water as well as natural, cultural, social and economic components" (pg. 5). Thus where there is reason to suspect that ENTECH-REM's proposed facility might negatively impact environmental factors beyond the LSA, ENTECH-REM has a responsibility to study the issue and to propose mitigating measures. As this report will demonstrate, they have frequently failed to do so.

1.4.2 – ESR Fails to Include Critical Information

As will be made clear in this report, in response to Hardy Stevenson's concerns about insufficient information being provided in the ESR on such key subjects as emissions calculations and human heath risk evaluation, ENTECH-REM's response has been to state they will only provide such information at a later stage, during their Environmental Compliance Approval (ECA) application.

This is not following the letter or the spirit of *the Guide*. *The Guide* clearly states:

> Proponents are encouraged to conduct the Environmental Screening Process concurrently with applications for other approvals. If an environmental effect or issue identified in the Environmental Screening Process is also being addressed under another environmental approval (e.g., an approval under the *Environmental Protection Act*), **proponents should describe the other approvals required, and should provide sufficient information in their reports under the Environmental Screening Process to demonstrate that the project is feasible and that the subsequent approvals are attainable**. The proponent may decide to prepare more detailed technical information and studies in cases where there are concerns from government agencies or interested persons, including Aboriginal communities, about a potential environmental effect (*The Guide*, p.22, **emphasis added**).

By failing to provide this critical information now, ENTECH-REM fails to demonstrate during the ESR process that the project "is feasible and that the subsequent approvals are attainable." This point will be elaborated on below in sections 2.0 and 3.0.

ENTECH-REM's refusal to share this information has also resulted in an impoverished public consultation process, as residents have not had access to critical information about the facilities' potential emissions and health effects.

2.0 – Negative Effects on Air Quality due to Emissions

Per ENTECH-REM's completed screening criteria checklist / Net effects summary (ESR, pg. 88).

3.1. Might the project…cause negative effects on air quality due to emissions (for parameters such as temp, thermal treatment exhaust flue gas volume, nitrogen dioxide, sulphur dioxide, residual oxygen, opacity, hydrogen chloride, suspended particulates, or other contaminants?

ENTECH-REM Response: YES

Additional information: A Continuous Emissions Monitoring system, proven automatic control systems, coupled with Best Available Technology for Abatement systems will all work together to keep levels well below government guidelines.

ENTECH-REM's proposed mitigation measures:

> *The design of the facility, including a Continuous Emissions Monitoring System, coupled with Best Available Technology for Abatement systems, will ensure emissions levels are well below MOE Guideline A-7*

ENTECH-REM's assessment of the net effects: "Emissions present, but well below MOE's Guideline A-7"

2.1 - Problems with REM's presentation of "Existing Conditions" of Air Quality

Note that per the instructions of the MOE's *Guide to Environmental Assessment Requirements for Waste Management Projects* (hereafter referred to as '*the Guide*'):

> For each of the potential environmental effects identified in the screening criteria checklist by a "Yes" response to the questions, the proponent shall conduct necessary data collection, studies and analysis to understand the basis, extent, duration, inter-relationships and magnitude of the potential effects.

The following information suggests that REM has not done so adequately.

2.1.1 – Improper Data Collection

In the *HS Technical Memo*, HS noted outstanding concerns around REM's background concentrations estimates:

> Section 4.2.3.1 now includes estimates of background concentrations and estimate of cumulative effect of the Facility on ambient air quality. Data was taken from assessment for Durham Energy from Waste facility. The ambient PAH measurements taken for Durham had a method detection limit (MDL) of 0.05 µg/m^3 while the MOE JSL is 0.0011 µg/m^3. The 90th percentile of measured data was reported to be 0.000677 µg/m^3. **No discussion was provided on the fact that all of the collected measurements were well below the MDL and thus very unreliable.** (*HS Technical Memo*, Appendix B, pg. iii, comment 6 – emphasis added)

2.1.2 – Misleading Windrose Data

The *HS Technical Memo* also highlights the fact that ENTECH-REM has misrepresented its windrose data.

The *HS July Review* noted:

> Include wind rose of meteorological data used and isopleths of modeled concentrations to provide insight to patterns of predicted concentrations. (*HS Technical Memo*, Appendix B, pg. Ivi, comment 137)

However after analyzing ENTECH-REM's final ESR, HS concluded:

> Changes made are not satisfactory - Appendix B contains a windrose for Cobourg for the 5 year period 2008 to 2012. **However this is misleading as the modeling was stated to be undertaken using the MOE Ottawa CROPS data 1996-2000.** The isopleths shown are all incremental only with no reference to existing ambient levels or the applicable standard or guideline. (*HS Technical Memo*, Appendix B, pg. Ivi, comment 137 – **emphasis added**)

2.1.3 - Inaccurate Ambient Air Background Concentrations

ENTECH-REM's ESR states, on page 47, that:

> The majority of the compounds that are emitted from the proposed Facility are not monitored by NAPS or MOE monitoring stations. For these parameters, data available from the report entitled *Air Quality Assessment Technical Study Report* (Jaques Whitford. December10, 2009), as amended, have been utilized. The report is available at **http://www.durhamyorkwaste.ca/pdfs/study/amended-ea-study-docs/Amended-Air-Q uality-Report/Appendix-A-Y-D-Ambient-Monitoring-Dec-4-2009-final.pdf**
>
> That report was generated in support of the Durham-York Energy from Waste Project located on Courtice Road in Clarington, Ontario. The monitoring station was located on the west side of Courtice Road, approximately 1.5 km south of Highway 401 near the Courtice water pollution control plant, which is approximately 30 km west of the proposed ENTECH-REM Facility on Wesleyville Road. Ambient air monitoring occurred for approximately 15 months during 2007 and 2008. Those data are deemed to be representative of the ambient air background concentrations in the proximity of the proposed Facility for the following reasons:
>
> - Proximity to the proposed Facility in Wesleyville
> - Similar distance from Highway 401 (approx. 1.5 km south)
> - Availability of data (similar emissions profile)
> - Conservative estimate due to closer proximity to Toronto
> - Rural location
>
> (ESR, pg. 47)

In fact, deeming this data to be representative of ambient air background concentrations in the proximity of the proposed facility is not reasonable, as it fails to take into account the imminent emissions of the Durham-York Energy from Waste Project itself which will effect Port Hope's airshed, and thus ambient air background concentrations.

2.2 - Problems with ENTECH-REM's Emission Calculations

2.2.1 – No Operational ENTECH Facilities to Reasonably Base Emission Forecasts On

There are no operational ENTECH facilities on which to reasonably base this facility's emission forecasts on.

On page 10 of the ESR, ENTECH-REM states:

> A selection of documents demonstrating ENTECH's experience in designing, building and operating facilities in the USA, Australia and elsewhere is provided in Appendix P. Included are examples of agency approvals documents for a number of those facilities.

In fact, this statement is false. Appendix P includes no documents demonstrating ENTECH experience building or operating facilities in the USA. In fact, ENTECH technology has no track record of operational facilities anywhere in North America or Western Europe.

Further, there are no operational ENTECH facilities, anywhere in the world, which serve as an appropriate reference point for this project (see MWR Appendix C). This is because according to the ENTECH partial user list (a document repeatedly given by REM representatives to interested parties), *there are no operational ENTECH plants processing the waste type proposed for Wesleyville (MSW and ICI) while using a 'gasification' system and a Renewable Energy system (as proposed for Wesleyville*), *which is emissions tested and complying with current EU/US emission standards* (MWR Appendix E).

2.2.2 – Extremely Limited Emissions Data Provided

At the end of ESR Appendix P, ENTECH-REM provides limited independent emission test results for some of their facilities. Note that of the seven such facilities they provide emission test results for, only two of those facilities process MSW (ENTECH facilities 1016 and 1072). None of the seven facilities for which emission data is provided process ICI waste, as proposed for the Wesleyville facility.

Per the partial user chart (ESR Appendix P, pg. 77), ENTECH facility 1016 was located in Hong Kong and processed 58 tonnes per day of MSW. The only emissions data provided for ENTECH facility 1016 are from the year 1988, and there were no data collected as to the emissions of such key toxins as dioxins, heavy metal, cadmium, mercury, or VOC's (see ESR Appendix P, pg. 87).

Per the partial user chart, ENTECH facility 1072 was in Taiwan and processed 30 tonnes of MSW per day. The only emissions data provided for ENTECH facility 1072 are from the year 1994, and there were no data collected as to the emissions of such key toxins as VOC's, total heavy metal, mercury, cadmium and thalium, or fluorine and compounds (see ESR Appendix P, pg. 97).

Recall that ENTECH-REM proposes to process 165,000 tonnes of MSW/ICI waste annually at the proposed Wesleyville facility, which would mean they would be processing roughly 452 tonnes per day, more than eight times more than ENTECH facility 1016, and fifteen times more than ENTECH facility 1072.

The remaining ENTECH facilities for which more recent independent emission test results are provided for in ESR Appendix P (facilities 1150, 1151, 1152, and 1157) **are all facilities which process less than 3.5 tonnes per day of clinical or quarantine waste.** These facilities are obviously unacceptable reference points for the proposed Wesleyville plant as they are processing a small fraction of the proposed tonnage, and the waste itself is of a completely different nature (clinical/quarantine vs. MSW and ICI).

Note that in ESR Appendix P, emissions data for ENTECH facility 1162 is also provided, but facility 1162 is not listed on the partial user chart, there is no reference to where said facility is, how much waste it processes daily, or what type of waste it processes.

Further note that ENTECH-REM has repeatedly been asked to provide further information about these facilities, or about any other facilities which may not be included in the 'partial' user list. ENTECH-REM has repeatedly refused to provide any more information (see MWR Appendix W).

2.2.3 –Flawed and Unverified Emission Calculations

2.2.3.1 – General Unreliability of Gasification Emission Calculations

As Dr. Blecher notes in his report, estimations of gasification incinerator emissions are notoriously unreliable:

> In the world of gasification incinerator emissions this has been clearly enunciated in a study released in 2008 by the Tellus Institute, commissioned by the Massachusetts Department of Environmental Protection (Greenyes Archives, 2008). This study found that "gasification and pyrolysis facilities are unlikely to play a major role in MSW management in Massachusetts by 2020." The reasons for this included that "For....waste-to energy incinerators, as well as the gasification and pyrolysis plants, the emission factors used to compare environmental performance are based largely on modeling and/or vendor claims for modern, state-of-the art facilities, as opposed to actual operational data from real world experience. For example, actual operating performance for Massachusetts WTE [Waste to energy] facilities has been shown to produce far higher emissions than the modeled figures (MWR Appendix C, pg 10).

2.2.3.2 – Suspect Calculations, and a Refusal to Allow Third Party Verification

Just as concerning, ENTECH-REM has refused to share its emission modeling calculations with any third party, and the limited emissions information they have provided is rife with errors.

As the *HS July Review* noted in its review of ENTECH-REM's draft ESR:

> Insufficient information was contained in the documents to allow verification of many of the calculations. No electronic modelling files were supplied. This review was based on the assumption that the information presented in the various reports was correct (*HS Technical Memo,* Appendix B, pg. iii, comment 7/139).

Despite this comment on the draft, ENTECH-REM did not make satisfactory changes in their final ESR, as noted in the *HS Technical Memo:*

> **Changes made not satisfactory - Section 3.3 discusses some of the emission rate calculations but insufficient information is presented to understand how emission rates were determined. They are stated to be based on mass balance with a standardized waste feed input. It may be possible to do a mass balance on metals but a mass balance approach cannot be used for NO_x, PM, PM_{10}, $PM_{2.5}$, VOCs etc.**
>
> Section 5.0 Conclusions discusses a list of contaminants typically included for waste to energy projects that was supplied by MOE entitled *List of Contaminants Typically Included in General Categories for Waste To Energy Projects.* Two branches of the MOE – Standards Development Branch and the Environmental Assessments Branch were contacted by the reviewer. No document with that title was in their files.
>
> Table 3 of the revised Appendix M contains the same list of 26 contaminants but there is also a Table A-2 of Appendix M contains a 3 page long list of approximately 49 contaminants. No explanation is provided in the text on the purpose of these two lists of contaminants. **It appears that the individual volatile organic compound emission rates of the "extra" contaminants were conservatively estimated by assuming that each individual contaminant that makes up VOCs was numerically equal to the total organic carbon (TOC). This was not discussed in body of report. According to a footnote in this table, it appears that metals for which no speciated information was available were conservatively estimated as the sum of all speciated metals. The Report contains no description of how the metal emission rates were estimated.**
>
> The DRAFT version of the Report had 13 contaminants and it was noted by the reviewer that PM_{10} and $PM_{2.5}$ were missing. In Table 2 of revised version of the Screening Report, there is a total of 26 contaminants with the addition of PM_{10} and $PM_{2.5}$ as well as a series of metals (*HS Technical Memo,* Appendix B, pg. iii, comment 7/139 – **emphasis added**).

Dr. Howard also notes extensive problems with the emission calculations:

Modelled data presented for the Proposed Development provides only single estimates for environmental concentrations of various pollutants, without any associated CI [Confidence Envelope]. The reason for this is that the models do not appear to have been 'parameterised'. They do not have enough information to allow for an understanding of the variability of what is being modelled and therefore a CI cannot be estimated. It is not that such estimates could be obtained, for example, by studying existing plants over prolonged time frames. However it does explain the reluctance of modellers to provide CIs. It remains, therefore, a serious weakness in the data as presented and puts into question the use of such models as a means of justification for the granting of planning permission for plants that have the potential to cause human and environmental hazard.

An example of the degree on unpredictability of data is provided by the output of $PM_{2.5}$ from the Kuznica plant in Poland, which the Developer provides as reference data for the Proposed Plant in Port Hope. By taking the Annual Emission data for $PM_{2.5}$ over a 7 year period, we observe almost a 1 order of magnitude difference.

The data in Schedule 1 (p177 et. seq. of Air Quality & Accoustic Assessment) is presented as the annual emission in kg/10MW of generation. The output of the plant is 18.3 MW. Therefore the annual production of $PM_{2.5}$ particulate aerosol in tons per annum (tpa) was Yr 2 = 2.3 tpa; Yr 3 =0.95 tpa; Yr 4 = 8.9 tpa; Yr 5 = 0.19 tpa; Yr 6 = 1.87 tpa; Yr 7 = 1.19 tpa; Yr 8 = 0 tpa. **This is an enormously high level of variation, even if assuming that there is a logical explanation for the lack of any measurement in Yr 8. It is also precisely why some measure of variability in the form of a CI is essential for objective assessment of the proposal. (**MWR Appendix D, 3.1.3 – 3.1.5 **– emphasis added).**

<u>This point is critically important. ENTECH-REM's emission estimates have been seriously challenged. Further, despite specifically being asked to provide HS with documents to allow for the verification of their emission calculations, REM was unable to do so to the satisfaction of the peer-reviewer.</u>

2.2.3.3 – Questionable Emissions Calculations of $PM_{2.5}$

Dr. Howard further outlines how the proponent's emission calculations of $PM_{2.5}$ are particularly troubling:

Any estimate of $PM_{2.5}$ presented by the Developer is an underestimate because of the omission of any consideration of secondary particle formation. Modern incinerators are major sources of NOx and this can form nitrate particles with metals such as lead in the incinerator plume and thus increase the toxicity and availability of $PM_{2.5}$ emissions.

> Given the uncertainty of the modelling of $PM_{2.5}$ emissions from the Proposed Development, combined with the complete absence of information concerning the expected variability of outputs, it is reasonable to assume that the outputs of $PM_{2.5}$ will be much higher than implied by the modeling (Dr. Howard, MWR Appendix D, 3.2.6 – 3.2.7).

2.2.2.4 – Questionable Sources of Data for Calculations

As the *HS July Review* noted in its review of ENTECH-REM's draft ESR:

> There is a need to supply more information on sources of data from other ENTECH-REM facilities where source testing was undertaken. This data will be required when the facility applies for an Environmental Compliance Approval (*HS Technical Memo,* Appendix B, pg. Iix, comment 140).

Despite this comment on the draft, ENTECH-REM did not make satisfactory changes in their final ESR, as noted in the *HS Technical Memo:*

> Changes made not satisfactory – Appendix A within the Appendix M contains a large document generated by ENTECH that demonstrates BAT for this type of project. No discussion of this 105 page document was included in the Appendix M report (*HS Technical Memo,* Appendix B, pg. Iix, comment 140).

2.3 – Unsatisfactory Mitigating Measures:

To restate, ENTECH-REM's proposed mitigation measures are as follows:

> *The design of the facility, including a Continuous Emissions Monitoring System, coupled with Best Available Technology for Abatement systems, will ensure emissions levels are well below MOE Guideline A-7* (ESR, pg. 88).

This mitigation measure is unsatisfactory as it relies on the emissions profile as described by ENTECH-REM, an emissions profile which has been based on inaccurate ambient air background concentrations, and emission calculations which are both purely theoretical, and unverified by a third party.

2.4 – Unrealistic Assessment of Net Effects

To restate, ENTECH-REM's assessment of the net effects are as follows:

"Emissions present, but well below MOE's Guideline A-7" (ESR, pg. 88).

Again, ENTECH-REM's net effects assessment is inadequate, because its calculation of emissions are unreliable, and unrealistic. The potentially damaging net effects from emissions are explored fully in section 3.0, Health.

3.0 - Health

Per the proponent's ESR completed Screening Criteria Checklist / Net Effects Summary (ESR, pg. 93):

6.11: Might the project…cause negative effects on public health and safety?

ENTECH-REM Response: YES

Additional Information: Negative effects could occur in a major failure of all emission control systems. Sufficient safeguards and backups will be required to eliminate this risk.

ENTECH-REM Proposed Mitigation Measures:

- *Develop Emergency Management procedures*
- *Back-up Power source (i.e., generator) to be implemented during power failure*
- *Implement a formal process to allow for public complaints and concerns regarding the operation of the Facility to be adequately addressed.*

Net Effects as Assessed by ENTECH-REM: In terms of Public Health and Safety, the net effects are reduced with the implementation of sufficient safeguards and backups.

3.1 Problems with Assessment of Potential Negative Effects to Human Health

MWR's position on the potential negative effects of ENTECH-REM's proposed facility on public health and safety is covered in full by Dr. Blecher's report (MWR Appendix C) as well as Dr. Howard's report (MWR Appendix D). Please see these two documents.

What follows below is thus not an exhaustive list of issues, but rather a highlighting of a select few.

3.1.1 – Refusal to Conduct a HHRA for the ESR

REM has refused to conduct a Human Health Risk Assessment (HHRA) as part of the ESR, despite a request by the local Medical Officer of Health to do so.

On July 17th 2013, Lynn Noseworthy, regional medical officer of health wrote to ENTECH-REM and stated the following:

> As Medical Officer of Health for the Haliburton, Kawartha, Pine Ridge District Health Unit, which oversees the area in which your proposed facility is to be

> built, I would appreciate receiving a copy of the Environmental Screening Report for review and the opportunity to provide comment once it has been completed. Given the unique nature and complexity of the proposed facility, the potential impacts on human health must be adequately assessed. To that end, I request that you complete, at your company's expense, a peer-reviewed, Site-Specific, Human Health Risk Assessment of the proposal. (ESR Appendix N, pg. 410).

ENTECH-REM responded that the ESR would only contain a Human Health Risk Evaluation (HHRE), and that an HHRA would be completed after the ESR, as part of the ECA process (ESR Appendix N, pg. 412).

3.1.2 - Fundamental Methodological Errors of the HHRE

3.1.2.1 – Analysis by Dr. Blecher

The HHRE methodological errors are put forward in great detail in Dr. Blecher's analysis (MWR Appendix C). Excerpted below is just one of several instances of major methodological error in the HHRE:

> …quite remarkably, it is indicated that the "RfC" [Reference Concentration and "URF" [Unit Risk Factor] values used were obtained from "MOE (20111) and RAIS (20132)", i.e. the HHRE's References numbers 1 and 2. But the title of Reference 1 is MOE, 2011: Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario, Table 2.23: Toxicological Reference Values (TRVs) for Derivation of Human Health Soil & Groundwater Standards, April 15, 2011 [emphasis by bold italics added].
>
> That is, the entire document, and specifically Table 2.23 from which the data are taken, deals with soil and groundwater standards, whereas it is of course clear that what is relevant is not poisons in soil or groundwater but those that would get pumped out into the air, as stated in this paragraph, quoted from page 96 of the HHRE:
>
> "As the primary point of exposure is through the inhalation of the ambient air concentrations as a result of the emissions from the Facility [emphasis by bold italics added], an evaluation of the predicted POI concentrations relative to human health-based TRVs was undertaken."
>
> This situation is more than curious. We have here an Environmental Screening Report that presents estimates of poison concentrations in ambient air that are, as indicated above, derived from an elaborate set of calculations, the relevance of which to the real world is to start with questionable. In addition, we here learn that those real world-challenged calculations are based on data on pollution not of air but of soil and groundwater.

Thus it is not clear in what way Reference 1 of the HHRE, which deals with soil and ground water "Standards", was of assistance in estimating "RfC" and "URF" values relevant to ambient air.

Reference # 2 of the HHRE is RAIS, 2013: Toxicity values obtained from Risk Assessment Information System website http://rais.ornl.gov/cgi-bin/tools/TOX_search?select=chem accessed on August 9, 2013.

A perusal of this source shows that it gives a list of "Chemical Toxicity Levels". However, several of the poisons, listed as "Parameters" in Table 7, are not mentioned in this list. Items absent from the list include the following:

Cadmium, a value for which is given for "diet", and another for "water", but none for air; Organic carbon; Nitrous oxide; Particles (listed as PM, PM10 and PM 2.5); and Dioxins/Furans, as mentioned possibly the most important of the life threatening toxins, as explained in Section 3) of this review. (The chemical 1,4-dioxane is in the list but this is not the same as dioxin, and dioxacarb, a carbamate pesticide, is in the list, but this too is not a dioxin).

The HHRE states that its sources for the ambient air data provided for these toxins (Cadmium, Organic carbon, Nitrous oxide, Particles (PM, PM10 and PM 2.5) and Dioxins/Furans) are References 1 and 2, but no such data are evidently available in either source (Dr. Blecher – MWR Appendix C, pg. 13-14).

3.1.2.2 – Analysis by Dr. Howard

A variety of methodological errors are also noted in Dr. Howard's analysis (MWR Appendix D). A relevant passage is excerpted below:

> The [proponent's HHRE] **models adopted are not capable of dealing with many aspects of bioaccumulative persistent organic compounds** (POPS). There is no adequate account taken of bioconcentration in the food web. A large proportion of the inhaled dose of dioxins comes as part of the particulate matter, the dioxins forming during the process of particle speciation. Given the uncertainties expressed above concerning the levels of $PM_{2.5}$, on a local basis this could be an appreciable route of entry, particularly as 100% of the inhaled dose of dioxins is assumed to be internalised. Over 80% of dioxins on particles are found on the fine fraction, i.e. that part most difficult to suppress in the flu cleaning process and 50% of the total dioxin burden was found on particles of< 1.1μm, i.e. the most readily respirable particles.
>
> Given the hypothetical, rather than fact-based basis on which such calculations have been undertaken, the above modelled estimates will have a degree of uncertainty. **Such uncertainty is not discussed by the Developer, nor is an appropriate sensitivity analysis undertaken. When subsequent derivative estimates are made by combining, by multiplication, previous modelled**

estimates, then the uncertainty is also multiplied. The failure to provide an assessment of the size of the confidence envelope for these estimates makes the data unreliable. If such unreliability is the case when assuming a steady state plant operation then, when considering the dioxin results from DERL where excursions above the permitted emission levels occurred, it is clear that such an assumption is unreasonable.

In assessing the effect of emissions on human health, the Developer ought to have assessed the body burden of dioxins, rather than the TDI.

Rather than assessing the effect of emissions on human health taking account of body burden, which would provide a significantly more accurate assessment of the effect of emissions on human health, the Developer substitutes an assessment of the TDI and makes the (unstated) assumption that all members of the population will have body burdens of dioxin-like substances that are below a level that would give rise to any cause for concern. An appreciable proportion of the population have body burdens of dioxin-like substances that are associated with adverse effects. Clearly for such individuals any additional dioxin is not 'tolerable' and any additional inputs to the environment cannot be considered to be harmless. **Significantly the Developer has not assessed the levels of dioxins in the local population (body burdens). The failure to do so renders the conclusions reached unreliable.**

3.1.3 - Significant Incomplete Information Within the HHRE

As the *HS July Review* noted in its review of ENTECH-REM's draft ESR:

> **There is no discussion within the ESR with Human respect to potential health effects from the facility. This is very surprising given that the public has some concerns about the effects on health due to the emissions from the facility.** It is not expected that such a comprehensive analysis be undertaken for this facility; however a qualitative or semi- quantitative health assessment should be included with this submission to improve the transparency of the document and demonstrate that the potential effects associated with the emissions from the facility have been considered. (*HS Technical Memo* Appendix B, pg. iv, comment 8 – **emphasis added**)

Despite this comment on the draft, ENTECH-REM did not make satisfactory changes in their final ESR, as noted in the *HS Technical Memo:*

> **Changes made are not satisfactory.**
>
> Section 6 has been added to the ESR document in order to address the need for a semi-quantitative assessment of human health. The details presented in this section seem to be out of context with the rest of the document, especially Section 5. This detail should be presented within an Appendix and just general

statements with respect to health should be presented in the ESR. We do not disagree with the conclusions but the assessment provided in Section 6 has a number of problems associated with it.

If numerical numbers are being used for the toxicity evaluation then a rationale needs to be provided for the selection of each Toxicological Reference Values (TRV) being used. The MOE will expect that to be present in the documentation. In addition, Table 7 seems to be incomplete. There are a number of CAS numbers at the end of the table with no information.

In addition, the comparison of incremental concentrations to TRVs is not appropriate for non carcinogenic chemicals. Health effects are related to total exposures and thus baseline needs to be taken into account in the comparison. (*HS Technical Memo* Appendix B, pg. iv, comment 8 – **emphasis added**)

3.1.4 - Unsatisfactory Analysis of Impact of Small Particles

As the *HS July Review* noted in its review of ENTECH-REM's draft ESR:

> No concentrations have been provided in the documentation for the $PM_{2.5}$ fraction and no discussion is provided on the potential health effects associated with $PM_{2.5}$ exposure. It is expected that such a discussion on the potential effects of exposure to fine particles from the facility should be provided within the health effects assessment. (*HS Technical Memo,* Appendix B, pg. v, comment 9)

Despite this comment on the draft, ENTECH-REM did not make satisfactory changes in their final ESR, as noted in the *HS Technical Memo:*

> **Changes made are not satisfactory.**
>
> **The discussion of fine particulate matter was not carried out appropriately.**
>
> **The Reference Concentrations used for Particulate Matter in Table 7 and within the Risk Characterization Section are not appropriate. An air quality standard is not a reference concentration or Human Health Toxicity reference value.** (*HS Technical Memo* Appendix B, pg. v, comment 9 – **emphasis added**)

3.1.5 - Unsatisfactory Analysis of Nanoparticles

3.1.5.1 – Per HS Review

As the *HS July Review* noted in its review of ENTECH-REM's draft ESR:

> It must be noted that there are currently no toxicity values for evaluation of

ultrafine (nanoparticles) particles and thus quantitative evaluation is generally carried out using $PM_{2.5}$ toxicity values. The effects of $PM_{0.1}$ and $PM_{2.5}$ are essentially the same from a qualitative standpoint (*HS Technical Memo,* Appendix B, pg. v, comment 10)

Despite this comment on the draft, ENTECH-REM did not make satisfactory changes in their final ESR, as noted in the *HS Technical Memo:*

> **Changes made are not satisfactory.**
>
> A discussion of nanoparticles was provided in Appendix M; however, **it was a generic discussion of what nanoparticles are and there was no linkage to human health effects or to PM2.5** (*HS Technical Memo,* Appendix B, pg. v, comment 10 – **emphasis added**).

3.2.5.2 – Per Dr. Blecher's Report

The HHRE's unsatisfactory is also addressed in Dr. Blecher's report at some length, with information specific to the ENTECH technology REM proposes to use:

> NANOPARTICLES, also known as ultrafine particles, are minute fragments of material, much too small to be visible to the naked eye, a few millionths the size of a pinhead. In the case of incinerators, including gasification plants, the term refers to minute particles of soot or ash contained in the plant's stack emissions.
>
> Because these particles are very small, they are able to get through the filter system in human lungs that prevents larger junk items from entering the body, and thus into the blood stream. Research on airborne nanoparticles from incinerators, as well as basic research on the fate of nanoparticles in the body and the resulting damage to health, have been performed on humans and in animal experiments,. These studies show that once in the blood, nanoparticles can enter the lung, brain, heart, liver, spleen, kidney, testis, thymus - i.e. all organs studied (e.g. Benninghoff and Hessler, 2008; De Jong et al., 2008; Balbus et al., 2007; Gutierrez-Castillo et al., 2006; Penn et al., 2005; Nemmar et al., 2004; Cernuschi et al., 2012; Song et al., 2009). In these organs the particles can cause grave disruption to health, simply by their presence as foreign debris, and also because they can carry the specific poisons they have been in contact with, such as carcinogenic (cancer-causing) furans and dioxins as well as lead, mercury and other toxins. There are no regulatory standards or guidelines for release of nanoparticles anywhere in the world, because scientists have only recently discovered the extent to which they can invade the body organs and the damage they can cause, and environmental regulations have not yet caught up with this medical information.
>
> THE ENTECH SYSTEM RELEASES NANOPARTICLES, AND THERE IS NO WAY THIS CAN BE PREVENTED. For documentation of this statement see Synergetics 2012b in the Reference list below. Synergetics 2012b is a report developed by a

company called Synergetics Environmental Engineering, situated in Melbourne, Australia. Synergetics was commissioned by another company, New Energy Corporation Pty Ltd, of Perth, Western Australia, to study and prepare a report on "the potential for nanoparticle generation from the Entech process" (page 1 of Report). The following is cited directly from that source:

"... THE CURRENT TECHNOLOGY AVAILABLE TO INDUSTRY DOES NOT HAVE THE CAPACITY TO EFFECTIVELY REMOVE ULTRAFINE OR NANOPARTICLE PARTICULATES" (page 4 of Report). I emphasise here that this statement refers SPECIFICALLY TO THE ENTECH PROCESS that the Company wishes to bring to Port Hope, and the statement that there is no way of preventing the nanoparticle contamination is CURRENT AS PER 2012.

The HHRE makes no mention of nanoparticles and thus no mention of the Synergetics Report cited here. The Synergetics Report was prepared in collaboration with the parent Entech company and the results are known, or should be known, to local Entech officials. Also known to Entech officials is the fact that there are no government regulations concerning nanoparticles, and that since there is no known technology that can control their release by incinerators, the only way to prevent human damage by nanoparticles is to not produce them in the first case (Dr. Blecher – MWR Appendix C, pg. 13-14).

3.1.6 – Failing to Identify Known Carcinogens As Such

As noted in Dr. Blecher's analysis:

Eighteen specific toxic emission substances (called "parameters" in Table 7) are listed in the Table (with dioxins and furans listed together). **Since URF values are given in Table 7 for only 4 toxins out of 18 items listed, the first problem is that no documentation is given for the claim that only these 4 are carcinogenic. The second and bigger problem is that this claim is false - of the 18 items listed, in fact 16 have been shown to be carcinogenic**; only for carbon monoxide, which is usually lethal within minutes, and for tin, is there no evidence of carcinogenicity. The 4 named carcinogens are Cadmium, Lead, Arsenic and Nickel.

While it is curious that any of the carcinogens were omitted, and that only 4 of 16 carcinogens were identified, **thus grossly understating the potential medical risks of this proposed incinerator**, it is more than just curious that amongst those in the list not identified as carcinogens are the dioxins and furans, potentially the most dangerous of all incinerator carcinogens. Considered to be "The Most Toxic Chemicals Known to Science" (see Energy Justice Network, 2012 in Reference list) these poisons are of particular concern because of the proven enormous cancer-producing effect they have through their documented accumulation in the food chain in farming areas contaminated by incinerators (References: Commoner et al., 1996; WHO [World Health

Organization], 2010; Lorber et al., 1994; Huwe and Larsen, 2005; Franzblau, et al., 2010; Fries, 1995; McLachlan, et al., 1990.). It is truly astonishing that the author(s) of the HHRE document do not know that dioxins and furans are carcinogenic.

Below, documentation is given, in the form of references from the peer-reviewed scientific literature, that refutes the HHRE's undocumented statement that only 4 of the 18 listed toxic items are carcinogens. (Dr. Blecher, MWR Appendix C, pg. 12 – **emphasis added**)

3.1.7 - Accumulation of Carcinogens in the Food Chain

Carcinogens can accumulate in the food chain, from incinerator, to crops, to livestock, and to human consumption.

As noted in Dr. Blecher's report:

> It is well known to science that toxic pollutants of industrial origin, in air, water and soil, are a major potential threat to human health, being implicated in cancer (e.g. McCormack and Schuz, 2012), heart disease (e.g. Brook et al., 2010), diabetes (e.g. Lee et al., 2010; Lee and Jacobs 2011) and much more (e.g. DeYoung, 2012). A more recent discovery is that a major route to human poisoning is the transfer of toxicants of the air, through the food chain, to human consumption. This is unquestionably true of many of the noxious substances, such as mercury, lead, nitrous oxide and others released by gasification plants; here we will mention an important example that has been well studied: Dioxins.
>
> Dioxins are highly toxic pollutants that are produced as by-products of industrial processes, and are released into the environment mainly by solid waste incineration (WHO [World Health Organization], 2010). Like their chemical cousins the furans and PCBs (polychlorinated biphenyls), they contain chlorine; the term "dioxins" is commonly used to include all of these (WHO [World Health Organization], 2010). What has only relatively recently been researched is that dioxins can be carried great distances in the air, that they contaminate crops, and that through use of such contaminated vegetation as food and as livestock feed these toxins enter the human food chain. It is now estimated that over 90% of human contamination by dioxins is through this pathway (Franzblau et al., 2010). It is also estimated that dioxin intake creates a life- time cancer risk in the USA population that is 500 - 1000 times greater than the "acceptable one-in-a-million risk" (Commoner et al., 1996).
>
> The chain of events is as follows. The major source of dioxins is incinerators (WHO [World Health Organization], 2010; Health Canada 2013;) and particularly those incinerators that burn municipal and medical waste (Commoner et al., 1996). The main components of incinerator feedstock that are responsible are common MHW items such as food remnants, certain plastics,

paper, wood, and old clothes - largely what Entech-Rem states they would be processing if allowed to establish their plant (REM, 2013. Spiral-bound booklet). From incinerators, dioxins and other pollutants are carried in the air, and deposited to enter the soil locally (e.g. Franzblau et al., 2010) or carried far. Dioxins originating in Florida have been identified in the Great Lakes (Commoner et al., 1996). These authors state that "dioxin travels in the air thousands of miles, creating a toxic fallout that settles out everywhere - contaminating not only water, fish and wildlife in the Great lakes, but the farms where cattle are raised to produce milk, dairy products and beef as well" (Commoner et al., 1996).

More importantly, the dioxins do not merely settle, they are actually absorbed in to the vegetation and crops that become food and livestock feed, and they appear in the milk and meat that are destined for human consumption (McLachlan et al., 1990; Fries, 1995; Lorber et al., 1994; Huwe and Larsen, 2005; Franzblau et al., 2010). Most importantly, the poisons ACCUMULATE in the crops and in the livestock over time (e.g. WHO [World Health Organization], 2010; Commoner et al., 1996), further underscoring the point that the claim that only "low levels" are emitted by an incinerator, "within Standards", is totally meaningless. As with other mutagens, there is no lower limit below which dioxins can not cause cancer (Energy Justice Network, 2012).

The World Health Organization Fact Sheet quoted above (WHO [World Health Organization], 2010), states: "In terms of dioxin release into the environment, uncontrolled waste incinerators (solid waste and hospital waste) are often the worst culprits, due to incomplete burning" [emphasis added]. Entech-Rem have emphasised that in their form of incineration ("gasification"), waste is converted to a mixture of gases called Syngas at lower temperatures than is used in other incinerators (Entech-Rem Website, 2013). The information in this WHO report might suggest that the incompleteness of the burning in the Entech process may render the risk of dioxin production and its resulting concentration in the syngas even higher than it would be with high temperature incineration (Dr. Blecher, MWR Appendix C).

3.2 – Unsatisfactory Mitigating Measures

Again, ENTECH-REM's proposed mitigation measures are as follows:

- *Develop Emergency Management procedures*
- *Back-up Power source (i.e., generator) to be implemented during power failure*
- *Implement a formal process to allow for public complaints and concerns regarding the operation of the Facility to be adequately addressed (ESR, pg. 93).*

Note that none of these mitigating measures in any way address the potential for non-emergency related facility emissions to negatively affect human health, a very real risk that

has been extensively documented by Dr. Blecher and Dr. Howard in MWR appendices C and D, respectively.

3.3 – Unclear/Unrealistic Assessment of Net Effects

Again, ENTECH-REM's assessment of the net effects are as follows:

> *In terms of Public Health and Safety, the net effects are reduced with the implementation of sufficient safeguards and backups (ESR, pg. 93).*

As *the Guide* clearly states:

> **Net effects** are those potential negative environmental effects caused by the project and related activities **that will remain after impact management measures (which includes mitigation measures) have been applied (pg. 35).**

Thus while ENTECH-REM assures the reader that the net effects have been reduced, there is no information as to what negative environmental effects may remain post mitigation measures, which is the very definition of 'net effects'.

4.0 – Inappropriately "Screened Out" Criteria of MOE Screening Criteria Checklist

Having addressed the critically important issues of the potential impact of the proposed plant on air quality and health, this document will now turn its attention to those criteria of the MOE Screening Criteria Checklist which the proponent has inappropriately "screened out".

The Guide is very clear about the purpose and appropriate use of the MOE Screening Criteria Checklist which proponents are intended to frame their ESR around:

> The screening criteria are presented in the form of a checklist with the option of a "Yes" or "No" response. The screening criteria reflect the broad definition of "environment" contained in the Act (i.e. social, cultural and economic environment in addition to land, air, water, etc.).
>
> Mitigation measures are not to be considered in concluding that there is "No" potential negative environmental effect. **That is, if the proponent determines that there is a potential environmental effect, but that the effect could likely be addressed through mitigation, the proponent answers "Yes" to the question**. This approach will ensure that the potential environmental effects of a project and the proponent's proposed plans and methods for mitigating and managing any impacts are open to discussion and review by all interested persons, including Aboriginal communities and government agencies,

and that the proponent has made a commitment to implement mitigation measures.

If the project might cause environmental effects, the proponent provides additional information in its Environmental Screening Report, explaining the potential effect(s), methods to mitigate or address the effect(s), any net effects that are anticipated and if so, their significance. Where the proponent indicates that no environmental effects are anticipated it is recommended that they still provide additional information in the Environmental Screening Report to explain or support the "no effects" conclusion (*The Guide*, pg 29 – **emphasis added**).

It is the position of MWR that in the following cases ENTECH-REM was wrong to answer "no", and in so doing to conclude that there were no potential negative environmental effects, despite both common sense, and significant evidence, demonstrating the opposite.

Please note that in the MWR positions that follow, we believe there is ample evidence to show that the ENTECH-REM facility WILL in fact lead to negative effects on each of those environmental criteria listed. That said, we have limited ourselves to making the case that the facility MIGHT cause environmental effects, as it is this far lesser threshold which the proponent is supposed to follow in completing the screening checklist, and which we believe it is abundantly clear ENTECH-REM has failed to meet.

4.1 Full List of Inappropriately "Screened Out " Criteria

4.1.1 – Wetlands

ENTECH-REM's screening criteria checklist response is as follows:

4.3: Might the project…cause negative effects on designated wetlands?

ENTECH-REM Response: NO

Additional Information: No construction is proposed within or near provincially or non-provincially significant wetlands.

MWR position:

There are, in fact, three significant wetlands within 2km of the proposed facility, including one within 1km of it. We believe that this qualifies as "near". REM's own ESR acknowledges the presence of these wetlands, the following is an excerpt from ESR Appendix G, "Natural Environment Constraint Analysis Report":

> Significant Natural Features According to the NHIC and the Municipality of Port Hope's Official Plan (Schedule B), there are no significant natural areas that overlap with the subject property. There are however, several significant

natural areas found in the general study area including Regional and Provincial Areas of Natural and Scientific Interest (ANSI), Provincially Significant Wetlands (PSW) and unevaluated wetlands. These natural areas are described in more detail below and shown on Figure 1.

Wesleyville Ravines - This Provincially Significant Life Science ANSI is located approximately 1km west of the subject property. This mainly forested area, approximately 138ha in area, contains two steep-sided ravines with old-growth stands as well as several fresh water springs which provide habitat for several rare vascular plant species. Within this ANSI, there is a small (7.2ha) non-provincially significant wetland complex- the Wesleyville North Wetland. These wetlands are comprised of deciduous and coniferous swamp.

Wesleyville Marsh - This Regionally Significant Life Science ANSI is located approximately 2km southwest of the subject property along the shoreline of Lake Ontario and is 35ha in area. The area supports diverse wetland communities which provide important habitat for breeding and migrating waterfowl. This natural area surrounds another small (4ha) Regionally Significant Life Science ANSI, the Chrysler Point Bluffs. This site includes a steep clay bluff that provides habitat for several rare plants species and the small (6.1ha), non-provincially significant, Chrysler Point coastal wetland which is comprised of swamp and marsh communities.

Willowbeach Marsh - This Provincially Significant Wetland complex and Life Science ANSI is located approximately 1.5km southeast of the subject property along the shore of Lake Ontario. It is comprised of five distinct communities including a freshwater marsh which has formed at the outlet of a stream and other wetland areas including meadows, thickets and deciduous groves. (REM ESR, Appendix G).

Thus the facility MAY threaten sensitive wetlands as a result of its toxic emissions.

4.1.2 – Practices Inconsistent with Waste Diversion Targets

ENTECH-REM's screening criteria checklist response is as follows:

5.2: *Might the project…result in practices inconsistent with waste studies and/or waste diversion targets (e.g. result in final disposal of materials subject diversion programs)*

ENTECH-REM response: NO

Additional Information: Will work to maximize landfill diversion from current practices

MWR position:

It is reasonable to conclude that this waste management facility MIGHT result in practices inconsistent with waste diversion targets, particularly given the Government of Ontario's recent push towards increased diversion rates. Ontario's proposed Waste Reduction Act (Bill 91) as well as the draft Waste Reduction Strategy both emphasize diversion. In fact the draft Waste Reduction Strategy explicitly states that: "We all have a role to play to ensure that wastes are reduced, reused and recycled. It is our individual and collective actions that will move Ontario towards zero waste and recognize the inherent value of all materials (Ontario Draft Waste Reduction Strategy 2013, pg. 37). Obviously such targets do not match ENTECH-REM's incineration business model.

When diversion targets and zero waste were brought up on multiple occasions to ENTECH-REM during the Open Houses, ENTECH-REM representatives routinely responded that high waste diversion rates were simply unrealistic. With all due respect, this is simply not true. The municipality of Markham has already reached a 81 percent diversion rate, and is aiming higher. Finally, ENTECH-REM has refused to state if they would require their waste providers to sign "put or pay" contracts, a frequent type of contract in the waste management industry which would require companies or municipalities to guarantee the provision of a certain tonnage of waste to ENTECH-REM, or pay cash penalties for a shortfall. Obviously such contracts would dramatically reduce the incentives for ENTECH-REM's waste providers to increase their diversion rates.

Finally, note that ENTECH-REM cannot simply claim that they are part of waste diversion as they are diverting from landfill. They would *contribute* to landfill, and it would be *highly toxic bottom ash* they would be contributing. Further, the Ontario Draft Waste Reduction Strategy clearly lays out a proposed path forward, a path which does not involve mass incineration, but rather recognizing and maximizing the inherent value of all materials.

4.1.3 – Generation of Energy that Cannot be Captured/Utilized

ENTECH-REM's screening criteria checklist response is as follows:

5.2: *Might the project…result in generation of energy that cannot be captured and utilized?*

ENTECH-REM Response: NO

Additional Information: All generated energy will either be used on site, or sold to the Grid.

MWR position:

We believe that it is reasonable to conclude that this facility MIGHT at some point produce energy which cannot be utilized, given the fact that REM does not yet have a guarantee of sale of energy, and that given the current energy surplus in Ontario, this should not simply be taken for granted.

4.1.4 – Distance from Required Infrastructure

ENTECH-REM's screening criteria checklist response is as follows:

5.3: Might the project…be located a distance from required infrastructure (such as availability to customers, markets and other factors)

ENTECH-REM Response: NO

Additional Information: Sufficient raw materials can be sourced from less than 100 km radius, and the electrical grid is adjacent to the site for our energy output. Minimal infrastructure required.

MWR Position:

In fact, the proposed facility is NOT adjacent to the grid. Recent correspondence with REM (MWR Appendix P) has confirmed they are planning to connect at the Port Hope Transformer Station (TS) located near Peter St. and Moore Service Rd. This site is at least 5 km away from the proposed facility. Given this information, the project WILL be located a distance from required infrastructure.

4.1.5 – Negative Effects on Locally Significant Agricultural Lands

REM's screening criteria checklist response is as follows:

5.4: Might the project…cause negative effects on the use of Canada Land Inventory Class 1-3, specialty crop or locally significant agricultural lands?

ENTECH-REM Response: NO

Additional Information: The site is currently designated "employment-General" in the municipal official plan and is zoned "General Employment – EMP1 (H1)" in the municipal zoning by-law and was previously disturbed for construction activities and therefore is not considered locally significant agricultural land.

MWR Position:

Please see section 6.2. There is significant evidence to suggest that the emissions from the facility MIGHT have a negative impact on locally significant agricultural land. The potential for bio-accumulation of toxins must be considered. See section 6.2.4

4.1.6 – Community Character

ENTECH-REM's screening criteria checklist response is as follows:

6.1: Might the project…cause negative effects on neighbourhood or community character?

*ENTECH-REM response: NO** (*despite this response, in the ESR, ENTECH-REM has belatedly, and unsatisfactorily, tried to address potential negative effects. Hence the MWR position can be found below in section 5.0)

Additional information: Area is currently zoned "general Employment – EMPH1 (H1) in the municipal zoning by-law and is designated "Employment – General" in the municipal official plan. The zoning by law and official plan thus currently provide for future development by employment-providing businesses.

MWR Position:

See section 5.1. There is no doubt that the project MIGHT have an impact on community character. There has been an overwhelming community response against this facility. Hundreds of residents have come out to events to learn about the dangers of "gasification" facilities, and to learn about Zero Waste approaches to waste management. Hundreds of residents have put up lawn signs opposing the facility. There have been hundreds of letters to the municipality opposing this facility (see Appendix Y).

4.1.7 – Aesthetic Impacts

ENTECH-REM's screening criteria checklist response is as follows:

6.2 Might the project…result in aesthetics impacts (e.g., visual and litter impacts)?

ENTECH-REM's Response: NO

Additional Information: All materials will be stored indoors

MWR Position:

It is rather difficult to imagine that there will be no litter from many dozens of off-loading garbage trucks. Moreover, the sight of these garbage trucks is in itself an aesthetic affront in a pristine rural setting. REM's own estimate in the ESR places daily industrial truck traffic at 45-50 trucks. These vehicles, filled with municipal and industrial waste, will lead to increased exhaust emissions, the possibility of the odour of garbage, the spillage of garbage, and the importation of insects and rodents into our community. The facility itself would be an eyesore due to the stacks, and would be a constant reminder of the pollution spewing out every day.

4.1.8 – Negative Effects on Local Businesses

ENTECH-REM's screening criteria checklist response is as follows:

6.3**:** *Might the project…cause negative effects on local businesses, institutions or public facilities?*

ENTECH-REM Response: NO

Additional Information: Positive financial impacts during construction and operations phases

MWR Position:

It is reasonable to conclude that the construction of this facility MAY have a negative effect in terms of. In fact, per MWR Appendix F, there are already examples of individuals choosing not to move to Port Hope as a direct result of this proposed facility, as well as business sales falling through as a direct result of this proposed facility. REM itself as acknowledged this is a reality by offering a Property Value Protection Program (pg. 80 of ESR). Given this, it is clear that the project MAY have a negative effect on local businesses.

For further information on the threat this facility poses to local agriculture and tourism (core businesses within the community) please see sections 5.2 and 6.2.

New businesses have been reluctant to locate in Port Hope, and established businesses have closed here, as a direct affect of our past (and still present) nuclear stigma. The introduction of a new source of stigma can only ensure the continuation of this situation.

The Municipality of Port Hope has also received hundreds of messages from Port Hope residents and visitors which explicitly express concerns that the facility will hurt the town's image. These messages can be found in MWR Appendix Y.

4.1.9 – Effect on Recreation/Cottaging/Tourism

ENTECH-REM's screening criteria checklist response is as follows:

6.4: Might the project...cause negative effects on recreation, cottaging or tourism?

*ENTECH-REM response: NO** (*despite this response, in the ESR, ENTECH-REM has belatedly, and unsatisfactorily, tried to address potential negative effects. Hence the MWR position can be found below in section 5.0)

Additional information: Area is already zoned "General Employment – EMP1 (H1). Tourism exists in Port Hope but is limited within 1km of the site.

MWR Position:

See section 5.2 of this document. There is no doubt that the project MIGHT have an impact on recreation and tourism.

4.1.10 – Increased Demands on Community Services/Infrastructure

ENTECH-REM's screening criteria checklist response is as follows:

6.5. Might the project…cause negative effects related to increases in the demands on community services and infrastructure?

ENTECH-REM Response: NO

Additional information: No increase in demand for community services and infrastructure.

MWR Position:

It is reasonable to conclude that the facility MAY lead to More road maintenance. More police & ambulance service. Significantly greater potential demand for major fire & emergency response services. Building something to produce high volumes of highly flammable / explosive gas, right beside a rail line that may also carry high volumes of flammable material, it is reasonable to believe that this MAY carry implications for emergency services.

4.1.11 – Effects on the Economic Base of Community

ENTECH-REM's screening criteria checklist response is as follows:

6.6: Might the project…cause negative effects on the economic base of a municipality or community?

ENTECH-REM Response: NO

Additional information: Positive financial impacts during construction and operations phases

MWR position:

See MWR position for 4.1.9, there is ample evidence to suggest the proposed facility MAY have negative effects on the economic base of the community, given the threats to the local agriculture and tourism industries.

Further, Frankie Liberty, former Director of the Diamond Triangle Economic Development Commission (Port Hope, Cobourg, Hope and Hamilton Townships) has confirmed to MWR that in her opinion the proposed facility would create a negative climate for residential, commercial or agricultural development in Port Hope. Ms. Liberty's full comments and qualifications can be found in MWR Appendix X.

4.1.12 – Negative Effects on Local Employment/Labour Supply

ENTECH-REM's screening criteria checklist response is as follows:

6.7: Might the project…cause negative effects on local employment and labour supply?

ENTECH-REM response: NO

Additional information: Positive financial impacts during construction and operations phases

MWR position:

See MWR position for 4.1.6 There is ample evidence to suggest the proposed facility MAY have negative effects on local employment supply given the stigma associated with the proposed waste facility. There have already been documented cases of individuals abandoning buying businesses and homes in Port Hope as a direct result of the proposed ENTECH-REM facility (see MWR Appendix F).

ENTECH-REM's ESR notes that both agriculture and tourism are key sections of the economy of Port Hope. Both of these industries would be seriously threatened by this plant, please see sections 5.2 and 6.2.

4.1.14 – Any Other Negative Environmental Effects

ENTECH-REM's screening criteria checklist response is as follows:

9.3: Might the project…cause any other negative environmental effects not covered by the criteria outlined above?

ENTECH-REM Response: NO

MWR position:

Given concerns about emissions and health, the project MAY act as a stigma, and negatively impact on our community.

Again, the Municipality of Port Hope has received hundreds of messages from Port Hope residents and visitors which explicitly express concerns that the facility will hurt the town's image. These messages can be found in MWR Appendix Y.

4.2 Conclusion:

As previously noted, as per *the Guide*, the proponent's determination of which criteria on the checklist receive a "yes" response and which receive a "no" response has huge ramifications as to what sort of data collection and analysis the proponent is expected to undertake.

As *the Guide* states:

> For each of the potential environmental effects identified in the screening criteria checklist by a "Yes" response to the questions, the proponent shall conduct necessary data collection, studies and analysis to understand the basis,

extent, duration, inter-relationships and magnitude of the potential effects (pg. 29).

Thus MWR believes that ENTECH-REM has wrongly "screened out" those criteria listed above which based on both common sense and relevant evidence should have been determined by the proponent to POTENTIALLY have negative environmental effects, and thus received a "yes" response.

ENTECH-REM's failure to complete the check-list in good faith has thus led to much of the resulting ESR being based on unfounded assumptions, rather than substantial analysis as to possible environmental effects.

5.0 – Belatedly and Unsatisfactorily Addressed "Screened Out" Criteria

5.1 - Negative Effects on Neighbourhood or Community Character

ENTECH-REM's completed screening criteria checklist contains the following information:

6.1: Might the project…cause negative effects on neighbourhood or community character?

ENTECH-REM's Response: NO

Additional Information: Area is currently zoned "General Employment-EMP1 (H1) in the municipal zoning by-law and is designated "Employment – General" in the municipal Official Plan. The zoning by law and official plan thus currently provide for future development by employment-providing businesses.

5.1.1 – Inadequate Efforts to Address this "Screened Out" Criterion

Despite "screening out" Screening Criteria Checklist criterion 6.1 in the ESR, REM makes a belated attempt to address this factor in the ESR. Per page 79 of the ESR, REM states:

> As mentioned above, the Project Team received additional feedback from interested stakeholders with respect to other Socio-economic criteria that were "screened-out" as part of the initial screening checklist. Given these concerns and the desire to address and communicate in an open and transparent fashion, the proponent has included an analysis of other key socio-economic criteria (ESR pg. 79).

In fact, ENTECH-REM provides no such promised *analysis.* The portion of the ESR which addresses socio-economic factors including community character (pg. 79-82 of ESR, as well as ESR Appendix L) is simply a broad summary of the economic and social character of the municipality of Port Hope, followed by the completely unfounded conclusion that "The socio-economic existing conditions for the SSA, LSA and the Port Hope area reveal that the

proposed Facility fits well with the aspirations of the Municipality's economic development vision and goals" (see ESR Appendix L, pg. 9).

The *HS July Review* pointed out the weakness of ENTECH-REM's Appendix L very clearly:

> This memorandum is also **just a general community profile – it offers no insight** into the effects of the project on community character, aesthetics, property value, recreation and tourism, etc. Moreover, there has been no primary research to provide an analysis of the project on the socio economic environment. The summary states that the socio economic conditions of Port Hope fit well with the facility, but **there was no analysis conducted to support this conclusion**. (*HS July Review*, pg. 34 – emphasis added)

5.1.2 - No Substantive Data Collection/Analysis Provided

It appears that in the ESR, ENTECH-REM is attempting to make the case that although it "screened out" checklist criterion 6.1, given community feedback it ended up treating criterion 6.1, for all intents and purposes, as if it had not been screened out.

This is simply not the case. Again, as *the Guide* notes,

> For each of the potential environmental effects identified in the screening criteria checklist by a "Yes" response to the questions, the proponent shall conduct necessary data collection, studies and analysis to understand the basis, extent, duration, inter-relationships and magnitude of the potential effects.

As per the above review and HS study quote, **ENTECH-REM did no such analysis**. **Nor did ENTECH-REM conduct any research into potential negative environmental effects, or suggest possible mitigation measures in its Net Effects summary (ESR, pg. 84-94).**

ENTECH-REM has, however noted in its ESR that:

> ENTECH-REM is prepared to implement a **Property Value Protection Plan** (PVPP, Plan) which would see qualified property owners offered a protection against reduction in value of their properties by reason of the operation of the Facility. (ESR, pg. 80)

First, such a statement from ENTECH-REM seems to indicate that indeed they recognize that they have incorrectly screened out criterion 6.1, 'community character'. Second, this vaguely defined mitigation measure proposed is completely unacceptable when there has been none of the necessary background data collection and analysis to fully understand the potential negative effects of the facility on community character. As *the Guide* makes clear, in order to identify potential mitigating measures, the proponent needs to conduct

research and analysis in order to identify the possible negative effects that need to be mitigated. ENTECH-REM has done no such thing.

5.1.3 – Unaddressed Risks Facility Poses to Community Character

In reality, Port Hope is a community which is heavily dependent on agriculture and tourism, both of which face very real threats as a direct result of this proposed facility (for more information see sections 5.2 and 6.2 of this document).

In addition, as previously noted, there have already been cases of property sales falling through as a direct result of the proposed facility (see MWR Appendix F).

5.2 – Recreation/Cottaging/Tourism

5.2.1 – Unfair Altering of the Screening Criteria Checklist

ENTECH-REM's **original completed screening criteria checklist**, shared with the public at the first Open House (see ESR, Appendix N, pg. 78) contains the following information:

6.4: Might the project…Cause negative effects on recreation, cottaging or tourism?

ENTECH-REM Response: NO

Additional information: Area is already zoned Heavy Industrial, minimal tourism in 2km area.

However, **in the ESR version of the completed screening criteria checklist (See ESR pg. 34), the screening criteria checklist 'additional information' has changed**. It now reads:

6.4. Might the project…cause negative effects on recreation, cottaging or tourism?

ENTECH-REM Response: NO

Additional Information: Area is already zoned "General Employment – EMP1 (H1). Tourism exists in Port Hope but is limited within 1km of the Site.

Note the change from a statement concerning a 2km radius, to only a 1km radius. Such a post-facto change of the completed screening criteria list is disingenuous, and we believe directly violates the spirit of the MOE's checklist.

Our understanding of the MOE Guidelines is that the proponent is supposed to interpret the Criterion of the Screening Checklist broadly, and not so narrowly circumscribe it that it "screens out" all possible activity that might threaten the proponent's approval process.

Note that the above highlighted change would seem to indicate that ENTECH-REM itself has acknowledged that there in fact is more than minimal tourism within a 2km area. In fact, as we demonstrate below, there is also significant tourism within the 1km area.

5.2.2 –Unsatisfactory Efforts to Address this "Screened Out" Criterion

Despite "screening out" the 6.4 tourism criterion, in the ESR, ENTECH-REM makes a belated attempt to consider these factors. Per page 79 of the ESR, REM states:

> As mentioned above, the Project Team received additional feedback from interested stakeholders with respect to other Socio-economic criteria that were "screened-out" as part of the initial screening checklist. Given these concerns and the desire to address and communicate in an open and transparent fashion, the proponent has included an analysis of other key socio-economic criteria.

In fact, ENTECH-REM provides no such *analysis.* The portion of the ESR which addresses recreation and tourism (pg. 80-82 of ESR, as well as ESR Appendix L) is simply a broad summary of all recreation and tourism within the municipality of Port Hope, followed by the completely unfounded conclusion that "The socio-economic existing conditions for the SSA, LSA and the Port Hope area reveal that the proposed Facility fits well with the aspirations of the Municipality's economic development vision and goals" (see ESR Appendix L, pg. 9).

The *HS July Review* pointed out the weakness of ENTECH-REM's Appendix L very clearly:

> This memorandum is also **just a general community profile – it offers no insight** into the effects of the project on community character, aesthetics, property value, recreation and tourism, etc. Moreover, there has been no primary research to provide an analysis of the project on the socio economic environment. The summary states that the socio economic conditions of Port Hope fit well with the facility, but **there was no analysis conducted to support this conclusion**. (*HS July Review*, pg. 34 – emphasis added)

5.2.3 - No Substantive Data Collection/Analysis Provided

It appears that in the ESR, ENTECH-REM is making the case that although it "screened out" tourism from the checklist, given community feedback it ended up treating tourism, for all intents and purposes, as if it had not been screened out.

Again, **this is simply not the case**. ENTECH-REM did none of the analysis which *the Guide* requires for "screened in" criteria. Nor did ENTECH-REM propose any recreation/tourism centred mitigation measures, again, because they had wrongly screened out the criterion.

Note that on April 17, 2013 local resident Harvey Wilson wrote to ENTECH-REM expressing precisely these concerns (MWR Appendix K). In his letter, after outlining the significant tourism present within 2km of the proposed plant, he stated:

> My concern is that if REM does not realize that there is in fact an enviromentally [sic] sensitive wetland as well as significant tourism and recreation present within 2km of the proposed plant, then REM may not be considering the potential negative effects the proposed plant could have on these activities. **It is my understanding that this is precisely the situation that the MOE is trying to avoid by asking proponents to honestly complete the Screening Criteria Checklist.**
>
> I trust that given this information, ENTECH-REM will change its response on the Screening Criteria Checklist to "Yes" to acknowledge there is, in fact, active recreation, cottage and tourism within 2km of the proposed plant. As a corollary, I trust REM will conduct site specific studies on the possible impact of the plant as it relates to the wetland and local recreation, cottage and tourism.
>
> I look forward to reviewing this information in the future (MWR Appendix K).

No one from ENTECH-REM ever responded to Mr. Wilson's correspondence. Nor is a summary or copy of this letter included in the ESR's Appendix N of Consultation documents, where it must be as per *the Guide*. Nor did ENTECH-REM ever conduct any such site specific studies on the possible impact on local recreation and tourism.

5.2.4 – Key Missing Information on Existing Condition of Recreation/Tourism

There is, in fact, significant tourism near ENTECH-REM's proposed facility location, **including within 1km of the site (i.e. the LSA).** Examples are listed below.

5.2.4.1 - *Lakeshore Road*

Lakeshore road is part of Ontario's official Waterfront Trail. A map of the Waterfront trail is attached as MWR Appendix N, see pg. 10. The purpose of the Waterfront Trail is expressly for recreation and tourism. As the Waterfront Trail organization notes: "The Waterfront Trail has been an instrumental part of Lake Ontario's regeneration. Along it you will find a 900 km celebration of nature and culture - where peaceful countryside, small towns and big cities are linked in bringing Lake Ontario to this province's residents and visitors, alike" (see: http://www.waterfronttrail.org/).

In their ESR, ENTECH-REM states that: "Lakeshore Road, **just south of the LSA**, is designated as part of the Waterfront Trail and other local roads in the area are used for cycling, hiking and from time to time horseback riding" (ESR, pg. 80 – emphasis added).

In fact, according to ENTECH-REM's own map of the LSA the Lakeshore Road falls within the LSA (see figure 2 of ESR; or MWR Appendix M)

Thus ENTECH-REM's ESR is simply factually wrong when it states that "there are no formal recreational facilities in the LSA (e.g. neighbourhood parks, walking trails, arenas or other recreational facilities).

5.2.4.2 - *Cycling routes*

The Municipality of Port Hope's Tourism website lists cycling as one of Port Hope's main outdoor attractions (see: http://www.porthopetourism.ca/Cycling_-115140.html). The town's website specifically notes: "[one] very scenic ride is along the Waterfront Trail down the Lakeshore Road west of Port Hope to the village of Port Britain Village." A significant portion of the aforementioned route is within 2 km of the proposed plant and is a favourite of cycling clubs for rallies to raise funds for charitable purposes.

The Glorious Ganaraska trail is a cycling route described by Northumberland Tourism as, "a 30km relatively level route that will guide you through farm fields, along the banks of the Ganaraksa River and past heritage buildings." A map of the Glorious Ganaraska trail is attached as MWR Appendix O. Note that the proposed REM facility would be well within 1 kilometre of portions of this trail. **It is also critical to note that, the official "Glorious Ganaraska" trail also runs along a portion of Bests road which, under the proposed facility, would now carry 45-50 large trucks, many filled with garbage, on a daily basis.** Further, note that cyclists and REM's garbage trucks would share a busy intersection of #456 Wesleyville, **with cyclists having to turn left in front of large trucks in order to access Bests Rd. and follow the Glorious Ganaraska trail.**

Beyond vague references to the fact that sometimes people cycle in Port Hope, ENTECH-REM's ESR does not address specific cycling routes in the direct vicinity of the proposed facility (indeed, within the LSA), or the potential impacts.

Again, in the case of the Glorious Ganaraska trail, ENTECH-REM's ESR wrongly states "there are no formal recreational facilities in the LSA (e.g. neighbourhood parks, walking trails, arenas or other recreational facilities).

5.2.4.3 - *Friends of Wesleyville Village*

Entech-REM has also chosen to ignore a sign which is located at the corner of Lakeshore Rd and Wesleyville Rd., (less than one 1 km South of the proposed site), pointing west to "Friends of Wesleyville". A project is underway by a group of local people to restore Wesleyville's original United Church (1860) and school (closed in 1968), which is less than 3 km from the proposed facility. This site has potential to recreate the original village of Wesleyville and to develop into a popular tourist destination. The group states in a November 2013 letter to Port Hope Council that:

> The siting of a facility **on Wesleyville Road** to burn waste to produce electricity would have an extremely negative effect on the efforts of the Friends of Wesleyville Village to attract supporters, students and the general public to participate in **Wesleyville Village** revitalization efforts. Raising funds to accomplish our goals for this Municipality of Port Hope heritage cultural landscape at Wesleyville would become much more difficult if the Wesleyville name were to be associated with a constant stream of garbage trucks, let alone other negative perceptions that would be associated with the entire area of this Ward in Port Hope. Such a facility with its visible stream of waste truck traffic and negative image is Contradictory to the Vision and Objectives of the Friends of Wesleyville Village.

A copy of this letter can be found in MWR Appendix X.

5.2.4.4 - *Birding*

Many residents and tourists alike come to the area to go bird watching. The Willow Beach Field Naturalists, a local charitable organization committed to the preservation of our natural heritage, leads a number of public bird-watching events every year on property that is within 2km of the proposed plant.

The Willow Beach Field Naturalists have also expressed serious concerns regarding the proposed ENTECH-REM facility. A letter to this effect can be found in MWR Appendix X.

Woodlands within 3km of the proposed facility are also a favourite site for Trent University students studying the ecology of this nature system.

5.2.4.5 - *Wetlands:*

As noted in ENTECH-REM's own Appendix G, there are 3 environmentally sensitive wetlands within a 1.5 kilometre radius of the proposed facility, which are home to all manner of waterfowl, including nesting swans and osprey. It also holds a portion of the migration path for thousands of monarch butterflies. This wildlife frequently attracts visitors.

5.2.4.6 - *Other Recreational Activities:*

There are several residents within a 2km radius who ride horses recreationally, as well as provide horse-riding lessons for local youth. A significant amount of recreational hunting and fishing also occurs on property within 2km of the proposed plant.

5.2.5 – Hundreds of Messages of Concern from the Community

The Municipality of Port Hope has received hundreds of messages from Port Hope residents and visitors alike which explicitly note concerns that the facility will affect the town's significant tourism industry. These messages can be found in MWR Appendix Y.

Ultimately whether or not the facility affects tourism will be determined not by a consultant paid by ENTECH-REM, but rather by the individual decisions of people considering visiting our town. Hundreds of people have now formally expressed their concern that this project will hurt tourism to Port Hope.

5.3 – Unaddressed Risks Facility Poses

Again, because 'screening criteria checklist' criterion 6.4 was unjustifiably "screened out" by the proponent, the proponent clearly did not collect any substantive data about recreation and tourism near the proposed facility, and thus also failed to conduct any analysis as to how the proposed facility's operations could negatively impact upon those activities, or how such negative impact could possibly be mitigated.

6.0 – Unsatisfactorily Addressed Criteria the Proponent "Screened in"

Per section 4.0, while many possible environmental affects were "screened out", it is also critical to note that many of the potentially negative environmental affects which ENTECH-REM responded with a "yes" response and thus "screened in" for further study, were not dealt with in a satisfactory manner as per the *Guide*.

Again, the MOE Guideline states:

> "For each of the potential environmental effects identified in the screening criteria checklist by a "Yes" response to the questions, the proponent shall conduct necessary data collection, studies and analysis to understand the basis, extent, duration, inter-relationships and magnitude of the potential effects."

Clearly this means for each criterion the proponent would need to know relevant existing conditions, what potential risk the facility could pose, and an analysis of the most effective mitigation measures.

As has been demonstrated in sections 2.0 and 3.0 of this document, ENTECH-REM failed to properly address the Screening Checklist Criteria concerning the proposed facility's effects on air quality, or on human health.

Unfortunately, ENTECH-REM also fails to adequately address a number of additional "screened in" criteria.

6.1 - Greenhouse Gasses

ENTECH-REM's completed screening criteria checklist contains the following information:

3.2: Might the project…cause negative effects from the emission of greenhouse gases (e.g. carbon dioxide, carbon monoxide, methane)?

ENTECH-REM Response: YES

Additional Information: The plant will emit carbon dioxide and carbon monoxide (not a greenhouse gas) and will produce methane. However, as any methane produced will mostly be combusted before emission it is anticipated that the net impact to the Ontario carbon footprint will be insignificant.

ENTECH-REM Proposed Mitigation Measure: The design of the facility, including a Continuous Emissions Monitoring System, coupled with Best Available Technology for Abatement systems, will ensure emissions levels are well below MOE Guideline A-7 (ESR pg. 88)

ENTECH-REM Assessed Net Effects: Emissions present, but well below MOE's Guideline A-7 (ESR pg. 88)

6.1.1 – Unsatisfactory Mitigation Measures / Net Effects Assessment

As *HS July Review* noted in its review of ENTECH-REM's draft ESR:

> There are no CO_2 emission rates enforced by the MOE or Environment Canada. The Report also states that this facility will reduce Ontario's carbon footprint. No further explanation or quantification of this claim is made. Supply more information on CO_2 emissions and how the facility reduces Ontario's carbon footprint (*HS Technical Memo,* Appendix B, pg. Ix, comment 143 – **emphasis added**).

Despite this comment on the draft, ENTECH-REM did not make satisfactory changes in their final ESR, as noted in the *HS Technical Memo: "*Still outstanding, original comment remains" (*HS Technical Memo,* Appendix B, pg. Ix, comment 143).

Thus the mitigation measure ENTECH-REM proposes (ensure emission levels are well below MOE Guideline A-7) are in fact completely irrelevant to the potential negative environmental effect, **as there are no emission rates enforced by the MOE or Environment Canada**.

The proponent's claim that "the net impact to the Ontario carbon footprint will be insignificant" is truly astonishing. There is simply not a shred of evidence that this is the case.

As a result ENTECH-REM's conclusion regarding net effects is necessarily also unsatisfactory.

6.2 - Agriculture

ENTECH-REM's completed screening criteria checklist contains the following information:

5.5: Might the project…cause negative effects on existing agricultural production?

ENTECH-REM Response: YES

Additional Information: Emission reviews are required to confirm minimal to no impacts

ENTECH-REM proposed mitigation measure: The design of the facility, including a Continuous Emissions Monitoring System, coupled with Best Available Technology for Abatement systems, will ensure emissions levels are well below MOE Guideine A-7 (ESR pg. 92)

ENTECH-REM Assessment of Net Effects: No net effects (ESR pg. 92).

6.2.1 – Seriously Flawed Description of Existing Agricultural Conditions

The ESR assessment of existing agricultural conditions within the LSA is sorely lacking.

A thorough investigation of ESR Appendix K "Technical Memorandum – Agriculture" reveals it to be a bare-bones document, in large part simply a list of things which a consultant observed in the LSA during a one day visit to the site on November 5, 2012. Section 4.0 notes that:

> Although the observations were not conducted during the growing season, the predominant agricultural land use appears to be for soybean and grain corn "cash crops". The balance of the agricultural land was used as pasture or hay production. No vineyards, orchards, green houses or "specialty crops" were observed.

No details are provided as to how the consultant came to such conclusions given the observations were, admittedly, <u>not conducted during the growing season.</u>

In a similar vein, the "Livestock Assessment" of Appendix K (section 5.0 of that document) contains a chart indicating how many domesticated animals the consultant observed within the LSA on one day, November 5 2012. Such data collection simply cannot be taken seriously.

In fact, the HS report on ENTECH-REM's draft ESR flagged this issue as a problem:

> The Agricultural Assessment is based on field visits and observations. A more rigorous analysis could have been included by conducting a survey to ask property owners about their specific agricultural operations (e.g. type of crops, number, and type of livestock, etc.) as well as other details surrounding operations. In addition, the survey could have had provisions to ask respondents about the potential effects of the facility on their operations. **Moreover, this is just an agricultural profile – there is no analysis of**

project effects on the agricultural environment. This is a gap in the ESR. (Hardy Stevension Report, pg. 33 – emphasis added)

6.2.2 - Key Missing Information About Existing Agricultural Conditions

6.2.2.1 – Analysis of Robert Sculthorpe

Robert Sculthorpe agreed to provide MWR with report after reviewing the Agricultural portion of the ESR. Mr. Sculthorpe is a Professional Agrologist, a Professional Engineer, and has 14 years experience owning and operating a farm within 3 km of the proposed facility. Mr. Sculthorpe's full review, as well as qualifications, can be found as MWR Appendix G. An excerpt is provided below:

> In my review of ESR Appendix K of the ENTECH REM submission the following errors and omissions were noted:
>
> i) One beef farm within the 1 Km radius was totally overlooked. On November 8, 2013 this farm had 23 cattle on pasture.
> ii) A second beef farm which has 150 head of cattle was recorded only as hay and pastureland. The cattle were obviously not actively pasturing the land on the fields within the 1 km study area on the one day the consultant conducted the survey. The consultant obviously did not speak with the farmer to gain information about the nature and magnitude of the farm operation.
> iii) One farm barn associated with a farm house was missed in the survey.
> iv) 8 field access from roads were missed or ignored in the survey report
>
> In summary the report collects data on four different categories and of those four, two are inaccurate due to missed observations (MWR Appendix G).

6.2.2.2 – Refusal to Acknowledge Known Agricultural Conditions

In fact ENTECH-REM did have access to some hard figures regarding local agriculture, however they did not make any reference to them in the agriculture portion of their ESR. On July 8th, 2013, ENTECH-REM was copied on a letter from South 50 farms to the Premier of Ontario (see MWR Appendix J). **In that letter, South 50 farms noted that they have over 150 head of natural grass-fed beef cattle, and that their farm land is less than 1km from the site of the proposed ENTECH-REM facility, thus placing it within the Local Study Area (LSA). They expressed strong opposition to the proposal, on the basis of evidence that indicates dioxins can rapidly bioaccumulate in beef cattle.**

An overarching problem with the Agricultural assessment is that it limits itself to the SSA and the LSA (within 1km of the facility); **while the MOE's Screening Criteria Checklist provides for no such limitation.** If there are reasons to believe that ENTECH-REM's proposed facility might negatively impact agriculture beyond the LSA, ENTECH-REM has a responsibility to study this issue and to propose mitigating measures.

On this note, Daniel Thomey runs a maple syrup farm several kilometres downwind of the proposed ENTECH-REM facility, and had previously expressed serious concerns that the facility's emissions could affect his maple trees, and his farm. Yet there is no mention of his farm in the agricultural portion of ENTECH-REM's ESR. Daniel Thomey has subsequently come out strongly against the proposed ENTECH-REM facility (see MWR Appendix L).

6.2.3 - Problematic Assessment of Risk to Existing Agricultural Conditions

Again, per the MOE's Guide:

> For each of the potential environmental effects identified in the screening criteria checklist by a "Yes" response to the questions, the proponent shall conduct necessary data collection, studies and analysis to understand the basis, extent, duration, inter-relationships and magnitude of the potential effects.

In fact, what we see in ESR Appendix K is after a woefully inadequate cataloguing of agriculture within the LSA, the consultant then proceeds**, completely absent any intervening analysis,** to conclude that:

> Since land use in the area surrounding the Site is predominantly crop production, there is also small expectation for a waste-to-energy facility having impact on agriculture surrounding of the Site, provided that disruptions or nuisances caused by traffic, litter and noise are minimized through environmental and engineering controls at the waste-to-energy facility.
>
> The livestock operations noted in the area are not located immediately adjacent to the Site, nor are they located along the DAR. As above, there is a small expectation of the waste-to-energy facility having an impact on the livestock operations in the area surrounding the Site, provided the previous noted disruptions are minimized through environmental and engineering controls at the waste-to-energy facility (ESR Appendix K).

To reiterate, this Appendix is simply a statement of (poorly researched) facts about agriculture within the LSA, directly followed by a completely unfounded conclusion/recommendation that the proposed facility will not have an impact on agriculture or livestock surrounding the site, "…provided that disruptions or nuisances caused by traffic, litter and noise are minimized through environmental and engineering controls at the waste-to-energy facility."

Of the many deeply concerning issues with this research and conclusion, perhaps the most troubling **is the fact that the threat which actual community farmers had expressed concern about – namely emissions from the facility harming their agriculture and livestock – are not in any way addressed.**

Note that ENTECH-REM themselves, in their completed screening criteria checklist, in response to criterion 5.5 note that the facility may cause negative effects on existing agricultural production, and that: "Emissions reviews are required to confirm minimal to no impact." Yet despite this, the agricultural portion of ENTECH-REM's ESR contains no reference to the possible effects of emissions vis-à-vis agriculture.

6.2.4 - Unaddressed Potential Risks to Existing Agricultural Conditions

Please see 3.1.6 of this document, as well as page 18 of Dr. Blecher's report (MWR appendix C), both of which clearly lay out threat this proposed facility has to lead to the accumulation of carcinogens on the food chain, travelling from ENTECH-REM's facility, to crops, livestock and to human consumption.

Further research indicates that **Health Canada identifies the largest source of hazardous dioxins in Canada as from the emissions produced in the burning of municipal solid waste** (Health Canada 2005). The Ministry of the Environment recognizes these same dioxins as having "immediate and long-term harmful effects on the environment, and which constitute a danger in Canada to human health. These substances are therefore considered "toxic" as defined under Sections 11(a) and 11(c) of the *Canadian Environmental Protection Act"* (CEPA). As the Canadian Environmental Production Act notes, once released into the atmosphere, these toxic dioxins are scientifically proven to "bioaccumulate readily in the food chain" and "some Canadian fisheries have been closed as a result of dioxin and furan contamination". As a direct result of this toxic bioaccumulation, the University of Michigan completed a study that concluded, "Animals and crops should not be raised for human consumption in areas contaminated with dioxins" (EHP 2010).

Scientific data clearly indicates agricultural products can be contaminated by dioxins. According to the Canadian Environmental Protection Act, these dioxins are "capable of causing birth defects and cancer, and adversely affecting reproduction and the immune system, following repeated exposures."

6.2.5 – Unsatisfactory Mitigation Measures:

After its unsatisfactory review of existing agriculture within the LSA, followed by its dismissal of any risks to local agriculture of livestock without directly considering the effect of emissions, REM's proposed mitigation measure is:

> The design of the facility, including a Continuous Emissions Monitoring System, coupled with Best Available Technology for Abatement systems, will

> ensure emissions levels are well below MOE Guideline A-7 (ESR "Net Effects Summary" table, pg. 92).

Again, as noted in section 2.0 of this document, ENTECH-REM has not provided enough information about their emission calculations, or the source of the information they are using to make those calculations, to satisfy either HS (the municipal peer reviewer), or Dr. Blecher, or Dr. Howard in their independent analysis of the ESR.

Furthermore, there is no evidence whatsoever to suggest that REM has collected any data or conducted any analysis as to what the effects of its facility's toxic emissions would be on agriculture. They simply repeat their unproved statements about future emission levels in general.

6.2.6. – Unrealistic Assessment of Net Effects

Despite poor information about existing agricultural conditions, a complete lack of analysis as to how the facility's emissions might affect local agriculture, and an unsatisfactory mitigation measure, ENTECH-REM simply concludes that regarding agriculture, the facility poses "no net effects" (ESR pg. 92).

Note that *the Guide* states that:

> Where the proponent indicates that no environmental effects are anticipated it is recommended that they still provide additional information in the Environmental Screening Report to explain or support the "no effects" conclusion (pg. 29).

ENTECH-REM has not followed this recommendation.

6.2.7– Opposition by the Northumberland Federation of Agriculture

It is worth noting that the Northumberland Federation of Agriculture (NFA) has also expressed its serious concern with the proposed facility, and supports MWR's elevation request. The NFA continues to have serious concerns about a number of dimensions of the ENTECH-REM proposal, including, *inter alia*, the unproven technology ENTECH-REM proposes to use, the dangerous nanoparticles which will be produced, and the "stigma" which may come to be associated with farm products from Port Hope and Northumberland. Please see NFA's letter to Port Hope Municipal council on these issues, in MWR Appendix X.

6.3 – Natural Environment

ENTECH-REM's completed screening criteria checklist contains the following information:

4.1: Might the project…cause negative effects on rare (vulnerable), threatened or endangered species of flora or fauna on their habitat?

ENTECH-REM's Response: YES

Additional Information: Assessment required for impact on local species and establishment of setbacks

ENTECH-REM's Proposed Mitigation Measure: Avoidance of rare, threatened or endangered species during construction (ESR pg. 91)

ENTECH-REM's Assessment of Net Effects: No net effects (ESR pg. 91)

4.2 Might the project….cause negative effects on protected natural areas such as ANSIs, ESAs or other significant natural areas?

ENTECH-REM's response: YES

Additional Information: Assessment required to identify if such local areas exist within the study area

ENTECH-REM's Proposed Mitigation Measure: A 10m buffer beyond the drip line for the woodland and a 15m buffer beyond the wetland boundary (of non-provincially significant wetlands) are standard setbacks for development (ESR pg. 91)

ENTECH-REM's Assessment of Net Effects: No net effects (ESR pg. 91)

4.4 Might the project…cause negative effects on wildlife habitat, populations, corridors or movement?

ENTECH-REM's Response: YES

Additional Information: Assessment required to identify local wildlife habitats and populations

ENTECH-REM's proposed Mitigation Measure: Avoidance of wildlife populations during construction

ENTECH-REM's Assessment of Net Effects: No net effects (ESR pg. 91)

4.6: Might the project…cause negative effects on locally important or valued ecosystems or vegetation?

ENTECH-REM's Response: YES

Additional Information: Assessment required to identify if such local areas exist within the study area
ENTECH-REM's Proposed Mitigation Measure: Avoidance of locally important/valued ecosystems during construction (ESR pg. 92).

ENTECH-REM's Assessment of Net Effects: No net effects (ESR pg. 92)

6.3.1 – Problematic Description of Existing Conditions / Key missing Information

6.3.1.1 – *Inadequacies as Identified by Field Biologist Roger Frost*

ENTECH-REM addressed each of these criteria through the study conducted in its ESR Appendix G, "Natural Environment Constraints Analysis Report".

Field biologist Mr. Roger Frost of *ekrf Nature Services* reviewed Appendix G and agreed to provide MWR with a summary report. This report provided in full in MWR Appendix H, as are Mr. Frost's credentials.

The following is an extract of Mr. Frost's report, which detail the inadequacy of ENTECH-REM's research into the existing natural environment conditions:

> - This site was visited only once by one biologist, on December 7, 2009. On this day, he did all of the Ecological Land Classification and mapping of vegetation communities. At this date, he certainly could not find rare herbaceous plants, herpetiles, insects or breeding birds. The report mentions breeding bird surveys to be done in 2010, but does not report on their findings, or even if they were performed.
>
> - The report mentions three rare bird species that occur on or near the site. These are White-eyed Vireo, Henslow's Sparrow and Yellow Rail. These species only occur in Ontario from Late April until early October. How could a biologist even hope to find them [on one day in December]?
>
> - Additionally, there are 6 bird Species at Risk that breed on or near the site. These are Wood Thrush, Eastern Wood Pewee, Bobolink, Eastern Meadowlark, Barn Swallow and Red-headed Woodpecker. Other Species at Risk probably also migrate through the site. The report mentions none of these species. Again, how can a single visit by a biologist in December be adequate to locate these species?
>
> - The report mentions a rare sedge found in the area, but gives no indication as the whether or not any surveys were performed to locate this or any other rare plant species. Certainly, none would be found on the December visit.

- **The natural heritage surveys of the site are completely inadequate. There is no way than any biologist could survey the site on one winter day and find all of the significant natural heritage features, much less any rare species. At the very least, these natural heritage surveys should be completed and made public before this proposal goes any further (MWR Appendix H, emphasis added).**

6.3.1.2 - *Inadequacies as Identified by the Willow Beach Field Naturalists Club*

The Willow Beach Field Naturalists Club (WBFN) is a not-for-profit charitable organization, based in Port Hope and Cobourg, dedicated to the enjoyment, protection and enhancement of the natural heritage of Northumberland County. The Club works through advocacy, education, volunteer assistance and donations to preserve flora, fauna and associated habitat. The WBFN formally supports MWR's elevation request. Please see their letter of concern contained in MWR Appendix X. The following is an excerpt from that letter which details some of their concerns:

> In our almost 60 years as a naturalist club, we have conducted many bird studies in our area…We are quite familiar with the area near the proposed ENTECH-REM Plant; the Willow Beach Marsh (for which our club was named in 1953) is about 1.5 km from the proposed site, while Candlewick Woods, where we still do bird studies, is less than 3km away; both are downwind.
>
> [In ESR Appendix G]…the biological survey of the site is revealed to have taken place, done by one person on a single winter day – December 7, 2009. Site photos published elsewhere in the report show significant snow cover 5 days later, on Dec 14, 2009. This is completely inadequate; there would obviously be no rare herbaceous plants, herptiles, insects or breeding birds to be seen at that time of year!...
>
> …We also note the differences between the flora reported by the archaeologist during his winter visit a month later – "natural vegetation includes sugar maple, beech and basswood" and that of the viologist, who reports other tree species, but no basswood. If they can't get a large tree right, how can we have confidence in their ability to spot an endangered bird? And, does that level of accuracy permeate other technical areas of the screening report?w (WBFN Letter, see MWR Appendix X).

6.3.1.3 – *Presence of Red-headed Woodpeckers*

As per the above excerpt, Mr. Frost notes that Red-headed Woodpeckers are a species at risk that breed on or near the site, and yet is not mentioned in ENTECH-REM's analysis whatsoever.

This conclusion is confirmed by Barbara Frei (Ph.D. Dept. of Natural Resource Sciences McGill University) in MWR Appendix I.

Barbara Frei conducted her PHD thesis on Red-headed Woodpeckers, and did a portion of her field research in the area surrounding the proposed facility. She confirms that:

> There were two breeding pairs of Red-headed Woodpeckers, a federally threatened species, in your woodlot [less than 3 km from the proposed facility] as well as another breeding pair further down Lakeshore road in Candlewick Woods. **So I can state that the area overall appears to be an important breeding area for the species** (Barbara Frei, see MWR appendix I - **emphasis added**).

6.3.2 – Unaddressed Potential Risks to the Natural Environment

ENTECH-REM does not consider the effect of the proposed facility's emissions on any of the aforementioned natural environment conditions. This is particularly shocking. Even if ENTECH-REM's emissions are kept within MOE Guideline A-7 levels (which has not been satisfactorily proven); MOE Guideline A-7 states:

> This guideline will set out minimum expected requirements that the Director may apply when exercising his or her discretion while considering applications on a case-by-case basis (pg. 7).

With a number of wetlands, ANSI's and at risk species present within 2 kilometres of the proposed facility, one would expect under the spirit of *the Guide* for REM to at least consider how its emissions could potentially affect these environmentally important features. In fact, REM does no such analysis.

6.3.3 – Unsatisfactory Mitigation Measures

As noted above, ENTECH-REM's proposed mitigation measures for sections 4.1 to 4.6 are essentially limited to avoiding harming various elements of the natural environment during construction.

Mr. Frost's report flags one fundamental problem with such mitigation measures:

> - The report's mitigation recommendations, when it comes to Species at Risk, states that habitat for such species will be avoided during the development of the site. **If no effort was expended in locating Species at Risk, then how is it possible to know which ones occur on the site and what habitats they are using? (emphasis added)** (MWR Appendix H).

Note as well that having ignored the potential impact of emissions on the host of natural environment criteria, ENTECH-REM proposes no emissions based mitigation measures.

6.3.4 – Unrealistic Assessment of Net Effects

Again, following an incomplete assessment of facts, ignoring elements of potential risk, and proposing unsatisfactory mitigation measures, ENTECH-REM concludes that there will be "no net effects" for any of the natural environment criteria. Once again, they provide no explanation, as recommended by *the Guide.*

6.4 - Local Planning

Mr. Chris Wallace, an accredited architect, reviewed ENTECH-REM's ESR with a focus on the Land Planning portion of the ESR. He provided MWR with a report. His report, as well as his credentials can be found in MWR Appendix R.

The information below is largely excerpted from his report, and is relevant to MOE Screening Criteria 2.3, 2.4, 6.1, 6.4 and 7.2.

6.4.1 – Problematic Description of Existing Land Planning Conditions

ENTECH-REM has made application to the Municipality of Port Hope for Official Plan Amendment (OPA) and for Zoning By-law Amendment. The applications are on file in the municipal offices. As of October 7 2013, ENTECH-REM had not made application for Site Plan Approval.

ENTECH-REM's application for Environmental Screening Approval addresses the question of regulatory approval on numerous occasions in the ESR and appendices. These references are consistently incomplete, erroneous and arguably deliberately misleading.

OFFICIAL PLAN REFERENCES

ENTECH-REM's ESR documents make six different references to their municipal regulatory applications. In all six references, there was not one single mention of the fact that an OPA application was required and had indeed been submitted. **In fact the documents categorically state on two occasions that "the proposed development conforms to the Official Plan". This is simply not true.**

ZONING BY-LAW REFERENCES

ENTECH-REM has correctly acknowledged in all six references to municipal approvals that an application has been made to amend the Zoning By-law. The problem is that they've applied to make the change to the wrong By-law category.

ENTECH-REM's initial communications, and indeed the Municipality's initial communications referred to this project as a power generation facility, with ancillary waste management and recycling. The rezoning application was to change from EMP-1 (general

employment) to EMP-G (power generation). There was considerably public and political opposition to this designation, on the grounds that this was first and foremost a waste management facility. Current tipping charges for waste, and current purchase prices for power, make it quite clear that the prospective income from waste disposal is approximately ten times the prospective income from power sales. Further, ENTECH-REM has no agreement in place and no guarantee that there is any market for the power generated.

It is quite clear from ENTECH-REM's own ESR application, that they have now accepted this position. Their application is for a "Waste Management, Recycling and Power Generation Facility". In spite of this, their application is to re-zone the property from EMP-1 to EMP-G for power generation, with ancillary waste management uses.

Changing the land to EMP-G, when the immediately adjacent land is already zoned EMP-G, appears to be a minor extension of an existing use, a minor tweaking of the wording of the by-law. The reality is quite different. Zoning designation notwithstanding, in reality this site is surrounded by prime agricultural land, not generating facilities. The proposed use, bringing hundreds of thousands of tons of garbage to this prime agricultural area, and spewing immeasurable toxic emissions over this area, is a major, radical and highly damage change; it is not a minor tweaking, by any means.

We must also address the actual repercussions of the different designations. The most obvious difference is the requirement for street-front set-backs. In EMP-G zones, like the majority of employment zones, the required set-back is 15 meters (about 50 ft.). EMP-W zones, on the other hand, have a set-back requirement of 100 meters (about 330 ft.) This is the largest setback imposed anywhere in the municipality, and the authors of the zoning by-law in their wisdom considered this to be an appropriate minimum for such a highly noxious use. If this setback is imposed, and if the railways request a significant set-back as well for safety reasons, the actual buildable footprint of the Wesleyville site may simply be too small to accommodate the proposed facility.

SITE PLAN APPROVAL REFERENCES

As mentioned above, the ENTECH-REM ESR application states at least three times that REM has applied for Site Plan Approval. In fact, they have not done so. This is a serious misrepresentation.

Our concern in this regard is that many of the technical studies that will determine the feasibility and suitability of ENTECH-REM's application are not addressed in the O.P. and Zoning application; they are deferred until later, when they will be addressed during the Site Plan Approval process. These include many critical issues, such as the physical constrains imposed on the development, suitable supply of water, planning for fire fighting and emergency services, real impact of heavy truck traffic on local roads, determining how (or if) ENTECH-REM will transfer its generated power to the grid, etc. Many of these issues are superficially addressed in the Appendices to the ESR, with implications that the required further studies are under way. By stating repeatedly that Site Plan Approval has

already been applied for, ENTECH-REM is reinforcing the impression that these further studies are being dealt with when this is simply not true.

GENERAL COMMENTS

The impression has been given that the regulatory changes being sought are a minor extension of lands already designated, in both the zoning by-law and the O.P., for similar if not quite identical purposes. But the validity of that zoning and Official Plan designation is highly questionable.

6.4.2 - Concerns re: Water Usage

There are also a number of concerns regarding the well water located on the site of the proposed facility, as well as the possible effect on water levels in the surrounding area. Please see **MWR Appendix Q** for a full exploration of these concerns.

7.0 - Concluding Assessment of Advantages and Disadvantages to the Environment

The Guide states the following regarding assessing environmental advantages and disadvantages:

> In the Environmental Screening Process, the definition of "environment" includes air, land and water as well as natural, cultural, social and economic components. This broad definition of "environment" is to be used by proponents in identifying and evaluating both the advantages and disadvantages of their project.
>
> Advantages are any positive environmental effects of the project. Examples of an advantage include the creation of jobs or the use of a renewable energy source. At this stage, disadvantages are net effects. **Where disadvantages may be offset by advantages of the project, this offset is to be evaluated. In determining any remaining net effects, proponents should note that meeting regulatory requirements does not necessarily mean that there is no net effect.** Although meeting such requirements will achieve some mitigation of potential negative environmental effects, there may be remaining negative effects that must be acknowledged…. (The Guide, pg. 35-36 – **emphasis added**).
>
> …If, based on the assessment of the overall advantages and disadvantages of the project, the proponent determines that the project's advantages outweigh disadvantages, the proponent then prepares an Environmental Screening

> Report to document the results of the Environmental Screening Process (The Guide, pg. 47).

7.1 - Disingenuous Assessment of Environmental Advantages and Disadvantages

In section 8.0 of ENTECH-REM's ESR - the "Assessment of Advantages and Disadvantages to the Environment" - after listing a number of supposed advantages of the facility, ENTECH-REM concludes with the following statement:

> In summary, the proposed Facility, with specific mitigation and impact management programs in place, will have low and acceptable negative net effects on all environmental components and the Facility construction and operation will have a positive economic impact in the community.
>
> With the implementation of a design that is consistent with MOE regulations, no negative net effects are anticipated and the Facility will have an overall net benefit, or advantage, to the environment.

Thus in ENTECH-REM's "assessment" of advantages vs. disadvantages, in its ultimate weighing of these factors, **ENTECH-REM is apparently unable to find even one potential disadvantage the Facility will have on the environment** ('environment' defined, per the MOE guide citation above, as "air, land and water as well as natural, cultural, social and economic components").

This conclusion is completely unbelievable, for all of the reasons listed in this elevation request, and is further proof that the proponent in this case was not engaging with the Environmental Screening Process in good faith.

8.0 - Additional Inconsistencies in Proponent's Model

Throughout the Environmental Screening Process it has been very challenging for interested persons to get a full sense of ENTECH-REM's proposed operational model, as all of the key numbers concerning both annual waste input and feedstock have changed repeatedly.

That said, using the current figures that REM has put forward in the ESR, including figures concerning waste stream, feedstock, power generation, and recycling material, when analyzed **ENTECH-REM's figures simply do not add up.**

An excel spreadsheet detailing these figures, as well as their sources can be found as MWR Appendix S. Conclusions from this analysis can be found as MWR Appendix T.

9.0 - CONSULTATION

As will be clearly demonstrated below, ENTECH-REM's consultation during the Environmental Screening Process has been completely inadequate, and repeatedly violated both the spirit and the letter of *the Guide*.

9.1 – Chronicling Formal Communication between MWR and REM

Records of all of the following correspondence between MWR and REM can be found as MWR Appendix V.

9.1.1 - MWR's January 11 2013 letter

On January 11 2013, MWR wrote to ENTECH-REM expressing concerns regarding its proposed facility, but also sharing serious concerns with ENTECH-REM's public consultation process. We noted that basic information about the project had constantly changed between ENTECH-REM's first open house (January 2010) and its second open house (held in October 2012). We also noted that Port Hope residents who had attended ENTECH-REM's second open house at received "…different, and at times contradictory, information from different ENTECH-REM representatives…" and provided several examples of subjects where this had occurred. We ended the letter by attaching a list of outstanding questions about the facility, and formally informing ENTECH-REM that MWR would like to be considered an "interested party" to this proposal, and requesting that we receive a copy of the draft ESR.

On January 28, 2013, MOE Director Ms. Agatha Garcia-Wright, who we had copied in our January 11 2013 letter to ENTECH-REM, responded to our letter. She acknowledged receiving the letter, and stated: "By copy of this letter, the concerns that you have raised in your letter are being forwarded to the Municipality of Port Hope and to ENTECH-REM Canada Inc. ***for their response and incorporation into the environmental screening process***" (***emphasis added***).

Despite this explicit direction from the MOE, **MWR never received a response to this letter from ENTECH-REM.** Many of our questions, posed in this letter of January 2013, remain outstanding to this day.

It is also important to note that in direct violation of the *Guide* - which states that the ESR must include both a summary of public comments as well as copies of all public comments – **ENTECH-REM does not include a copy of, nor any reference to, MWR's January 28, 2013 letter anywhere in its ESR, including ESR Appendix N "Consultation Documents".** This, despite the fact ENTECH-REM had received a copy of the letter both from MWR, as well as the MOE.

9.1.2 - MWR's Letter of Friday, June 14, 2013

MWR wrote to ENTECH-REM again on June 14, 2013 to express its disappointment that REM had ignored MWR's January 2013 letter, and also to express frustration with the very

limited notice provided for ENTECH-REM's third open house. Residents were given **only two weeks notice** about the third open house, which was to be held on June 27, while many residents were on vacation.

In the letter, MWR also requested: "…that REM immediately provide the public with access to all those studies and documents to be presented at the third open house. In order for the public to be able to meaningfully engage with the proponent during the hours of the open house, interested persons must be able to access, in advance, copies of those studies and documents which are to be discussed and presented. We again draw your attention to the provincial Guide to the Environmental Assessment Requirements for Waste Management Projects, which states: "The purpose of consultation in the Environmental Screening Process is to allow the proponent to identify and consider concerns and issues and to provide interested persons with an opportunity to receive information about and make ***meaningful input*** into the project review and development."

ENTECH-REM responded to this letter on June 21, 2013. ENTECH-REM refused to provide the public with any of the reports or studies completed to date, claiming that "…Release of this information at this point would be premature. The purpose of the 3rd Public Information Open House is to provide the information in these draft reports to and invite questions & comments from the public regarding the project, the results of the Environmental Screening and next steps in the Approval Process."

Again, it is also important to note that in violation of the Guide - **ENTECH-REM does not include a copy of, nor any reference to, MWR's June 14, 2013 letter or ENTECH-REM's June 27 response, anywhere in its ESR, including ESR Appendix N "Consultation Documents".**

9.1.3 - MWR's Letter of July 11, 2013

MWR wrote to ENTECH-REM once again on July 11 2013 expressing its concern that at the third open house, ENTECH-REM had informed the public that they would not be able to see ENTECH-REM's ESR, or its component studies and reports, until after the report had been finalized and a notice of completion had been issued.

MWR noted that in fact, according to the *Guide to Environmental Assessment Requirements for Waste Management Projects*, "Proponents are strongly encouraged to invite key government agencies (including the appropriate Regional Coordinator) ***and interested persons***, including Aboriginal communities to comment ***on a draft*** of the Environmental Screening Report ***prior to finalizing it***" (pg. 40). MWR's letter reminded ENTECH-REM that MWR had formally requested to be considered an "interested party" for the purpose of this proposal.

ENTECH-REM responded on July 18, 2013 informing MWR that we would not be permitted to view a draft of the ESR, or its component reports or studies, until a notice of completion had been issued.

MWR's July 11th letter, and ENTECH-REM's July 13 response, are the only times that MWR's communication is recorded in REM's ESR Appendix N "Consultation documents".

9.2 - Overarching Concerns with REM's Consultation Process:

9.2.1 - Constantly Changing information

Basic information about the project has constantly changed. The most obvious example of this is surrounding the issue of what tonnage of waste the plant will be processing. At REM's first open house (January 2010), the company's display boards stated that the proposed plant would have 3 phases, each phase processing 180,000 tonnes of waste per year, for a cumulative total of 540,000 tonnes per year. At REM's second open house (October 2012), REM's display board stated that in "Phase 1" the facility would process 200,000 tonnes of waste annually, and had no reference to any future phases. At REM's third open house (June 27) REM's display board stated that the facility would process 165,000 tonnes of waste annually. Similarly alarming; REM's display boards during the first open house stated that the plant would employ 70-100 full time workers, while at the second open house, REM's display board had that number dropping by more than half, to 35 full time jobs. When basic factual information about the proposed project swings so dramatically between public consultations, this serves as a significant obstacle to the public being able to participate meaningfully in the process.

9.2.2 - Contradictory information

During both the second and third open-houses, residents received different, and at times contradictory, information from different ENTECH-REM representatives. On several occasions, citizens received two or three different answers from different REM representatives to the same questions. These were questions on important issues such as expected plant water usage/sources, as well as quantity, location, and type of waste supply.

In January 2013 when MWR raised this very serious issue with ENTECH-REM - of different answers from different ENTECH-REM representatives during the same Open House – and asked them for a clear answer on outstanding questions, ENTECH-REM did not reply to MWR's letter.

Receiving different answers to the same questions has proven a significant barrier to real public engagement on this issue.

9.2.3 - Refusal to Provide Interested Parties with Draft ESR

Despite the fact that MWR had formally asked to be considered to be an "interested person" for the purposes of the project, and despite the fact that *the Guide* states "Proponents are strongly encouraged to invite key government agencies (including the appropriate Regional Coordinator) ***and interested persons***, including Aboriginal communities to comment ***on a draft*** of the Environmental Screening Report ***prior to finalizing it***"

(**emphasis added**), ENTECH-REM repeatedly refused to provide MWR or any members of the public with a draft ESR, or any of its component studies or reports.

9.2.4 – Lack of Substantive Information Prior to Notice of Completion

Since ENTECH-REM initially proposed this project, they time and again emphasized the importance of the 3rd open house as the critical stage at which residents would have access to ENTECH-REM's detailed studies and reports concerning the project.

As previously noted, no such studies and reports were available at the 3rd open house. ENTECH-REM refused to make them available to the public either before, during, or after the open house.

In the aftermath of the Open House, in August 2013 a resident wrote to ENTECH-REM with a list of questions that remained outstanding following the 3rd Open House (MWR Appendix Z) Doug Starr of ENTECH-REM wrote back (also MWR Appendix Z) stating:

> Please note that our Environmental Consultants are in the process of completing our Environmental Screening Report (ESR) as per the Ministry of the Environment's, Environmental Screening Process for Waste Management Projects, Ontario Regulation 101/07. It is our understanding that the ESR will be completed by the end of August/early September and at that time a Notice of Completion will be posted and the ESR will be made available online for review. Your questions will best be answered by referring to the appropriate sections and information within the ESR as soon as the report is completed.

We as MWR see this series of events as violating both the letter and spirit of the *Guide*.

Per *the Guide*, the proponent is supposed to engage in consultation with interested persons. Per pg. 13 of said document: "The purpose of consultation in the environmental screening process is to allow the proponent to identify and consider concerns and issues and to provide interested persons with an opportunity to receive information about and make meaningful input into the project review and development." Per pg. 14 of said document, "The proponent's public consultation program should...address interested persons concerns and issues raised during the [consultation] process."

Prior to the 3rd Open-House, ENTECH-REM's standard response to specific questions of concern was to tell residents to attend the 3rd Open House where detailed studies and reports would be presented. In reality, no such detailed information was presented at the 3rd Open House. When concerned residents followed up, expressing dismay that their original questions had not been answered at the 3rd Open House, they were now told by ENTECH-REM that the finalized ESR – post Notice of Completion – would contain answers.

It is our understanding that this is completely backwards to how the MOE ESR process is supposed to work: residents need answers to their questions in order to provide ENTECH-REM with input to be taken into account in the draft ESR document, yet residents were told by REM that they would only receive answers once the ESR has been finalized and published, thereby defeating the entire purpose.

9.3 - Incomplete Correspondence Records in the Final ESR

Appendix N of the ESR is missing key correspondence

9.3.1 - Missing Public Correspondence

As noted above, on multiple occasions ENTECH-REM has violated *the Guide*'s instructions by failing to include copies of key pieces of public correspondence.

ENTECH-REM did not include MWR correspondence of January 11 2013, or June 14 2013 in ESR Appendix N (See MWR Appendix V). ENTECH-REM also did not include resident Harvey Wilson's letter of April 17 2013, which specifically challenged ENTECH-REM's screening criteria checklist (see MWR Appendix K).

ENTECH-REM also neglects to include a November 2009 press release they distributed in which they themselves acknowledge that they have a "steep hill to climb" in order to meet Ontario environmental standards (see MWR Appendix U).

9.3.2 - Selectively Incomplete Public Correspondence:

ENTECH-REM has also violated the guide by, at least in several instances, misrepresenting residents' correspondence in ESR Appendix N. On at least two occasions, an initial e-mail from a resident, and ENTECH-REM's original response to that e-mail, are included in ESR Appendix N, *while the appendix does not contain further correspondence where the same resident wrote back to ENTECH-REM stating that ENTECH-REM's response was unsatisfactory and requesting additional information, which ENTECH-REM subsequently refused to provide.* Two specific examples of this selective inclusion of community correspondence are provided in MWR Appendix W. Note that in other cases, ENTECH-REM has documented lengthy exchanges between company officials and residents. This selective inclusion of community comments is very troubling.

There may well be other instances of missing or incomplete documentation in ESR Appendix N, which is supposed to contain all correspondence. MWR is not privy to all information sent to ENTECH-REM. We question if given this track-record, the MOE can be confident that ENTECH-REM is providing it with a full and accurate picture of public correspondence.

9.4 – Commitment of MWR Throughout the ESR Process

For over a year, MWR has been carefully tracking this project and repeatedly tried to engage the proponent with our concerns. ENTECH-REM has repeatedly ignored the concerns of our organization.

We would have welcomed the opportunity to provide ENTECH-REM with our detailed comments on their proposal earlier, so that they could have worked to incorporate them in their final ESR. This is the way the process is envisioned by the MOE, in *the Guide*. Unfortunately, despite repeated requests for ENTECH-REM to share a draft version of their ESR, or even some of the component studies and reports, ENTECH-REM refused to do so.

Thus the finalized ESR was the first opportunity MWR had to review the vast majority of the information put forward. It would be truly hypocritical for ENTECH-REM to accuse us of only now raising certain concerns after the publication of the ESR, given that the public only received most of this information after the publication of the ESR (particularly the subject specific studies of the appendices, and the limited independent emissions data) MWR was only able to raise some of these more specific concerns after finally gaining acces to the information with notice of completion and the publication of the final ESR.

10.0 - Formal Elevation Request Information

10.1 - Information that must be included in an elevation request, per *the Guide.*

Name of Project:

Waste Management, Recycling and Power Generation facility at 1516 Wesleyville Road, in the Municipality of Port Hope, Northumberland County, Ontario.

Name of Proponent:

ENTECH-REM Canada Inc.

Basis of Request:

Please see body of this elevation request. ENTECH-REM's completion of the Environmental Screening Process is unacceptable for all of the aforementioned reasons. They have "screened out" a large number of criteria despite ample evidence they merited being "screened in". Of those criteria which were "screened in", the proponent has repeatedly failed to accurately describe existing environmental conditions, has failed to conduct sufficient analysis to determine the risk the facility could pose, and as a result has necessarily put forward inadequate mitigation measures. Furthermore, the proponent's consultation process violates both the spirit and letter of *the Guide.*

That the project be elevated to an individual environmental assessment:

MWR formally requests that this project be elevated to an individual environmental assessment.

Nature of specific environmental concerns that remain unresolved:

Please see body of this elevation request. Environmental concerns remain for each of the screening criteria checklist criteria that were inappropriately "screened out" by REM, as well as those that were "screened in" but not sufficiently addressed, as listed.

The benefits of requiring the proponent to undertake an individual environmental assessment:

Please see the body of this elevation request. The information ENTECH-REM has provided in its ESR is both insufficient, and in many instances, simply inaccurate. As this elevation request has sought to demonstrate, ENTECH-REM has not simply neglected to provide certain information, or failed to sufficiently detail certain mitigation measures, but *rather the proponent has repeatedly and systematically failed to perform its duties as outlined in the Guide*. Furthermore, this elevation request has repeatedly shown instances of ENTECH-REM not acting in good faith during this process.

An individual environmental assessment would ensure that this proposed project receives the high level of scrutiny it deserves. This extra scrutiny is necessary, both because the technology to be used in the proposed facility does not have any relevant track record, and because the proponent has a clear track record of providing inadequate and inaccurate information.

Further, the MOE notes that individual environmental assessments are intended for "…large-scale, complex projects that have the potential for significant environmental effects and require a ministry approval." We believe that in this elevation request we have made the case that this is the situation at hand.

Information about any efforts to discuss/resolve these concerns/environmental effects with the proponent:

Please see body of this elevation request, with specific reference to section 9.0. MWR has repeatedly attempted to address these concerns with the proponent for over a year.

Details of any correspondence between the person and the proponent:

Please see body of the report, specifically section 9.0.

Any other matters considered relevant by the requesting person:

Please see body of this elevation request.

11.0 - Conclusion

The Environmental Screening process is a proponent driven, self-assessment process.

ENTECH-REM's self-assessment is that there is no possibility that the proposed facility could affect such environmental factors as wetlands, waste diversion targets, significant agricultural lands, community character, local businesses, recreation and tourism, or community infrastructure. Thus each of these criteria were "screened out" of the ESR and not examined. This elevation request has demonstrated this assessment by REM to be completely false.

ENTECH-REM's self-assessment is that of those environmental criteria "screened in" that could possibly be affected by the facility – such as air quality due to emissions, human health, agriculture, and the natural environment - with limited mitigation measures in place, there will be no net effects. ENTECH-REM frequently reached this conclusion by conducting rushed and sloppy analysis of existing environmental conditions, followed by the bare assertion that there would be no net effects. ENTECH-REM conducted very little intervening analysis to understand the extent and inter-relationships of potential effects, as required by *the Guide*. In those rare instances where such analysis was actually attempted, for such criteria as emissions and health, ENTECH-REM's analysis has been identified as fundamentally inadequate or worse by every third party to have reviewed it (HS, Dr. Blecher, Dr. Howard).

During its self-assessment process, REM's representatives have given contradictory information to individuals during the same open house, and subsequently ignored requests from residents for written clarification. In response to growing local opposition to the project, ENTECH-REM's response has not been to seek to share information to address concerns, but rather to hide key studies from the public until the last moment possible.

Finally, at the very end of the Environmental Screening Process, at the critical portion of the ESR where the proponent provides a self-assessment of if the advantages of the proposal outweigh the disadvantages, ENTECH-REM's self-assessment is that there are no possible disadvantages of the facility to the environment.

We are requesting this elevation request because it is clear that ENTECH-REM can no longer be trusted with a self-assessment process. Given the chronic inaccuracies and misrepresentations contained in ENTECH-REM's ESR, we believe it is abundantly clear that the proponent is either incapable or unwilling to assess its own project with any degree of accuracy.