An Entech-REM Incinerator in Beautiful Port Hope - Stan R. Blecher

"There are three kinds of lies: LIES, DAMNED LIES AND STATISTICS". This quotation, attributed to Benjamin Disraeli, was coined as a protest against the propagation of misinformation. Use of the word statistics here refers to false use of statistics to support false claims.

The company Entech-REM, which wishes to build an incinerator in beautiful Port Hope, has promoted its case by publishing misinformation. The following list of statements made by the company and its support group comprises their **Top Twenty** items of misinformation, and, since statistics when used correctly provide the truth, not, lies, I provide below the true facts with statistics that refute the company's statements. The statements are taken from material put out by and for the company at various times and places, including: **a.** flyers published by the company; **b.** their Environmental Screening Report (ESR); **c.** material presented at their open houses; **d.** statements in their web-sites; **e.** statements made by company officials to the press; **f.** statements published by their supporting agencies, including the Municipality's Reviewer, a company called Hardy Stevenson and Associates (HS); and **g.** statements made to citizens in responses to letters written to the company.

List of Top Twenty Items of Misinformation:

1. The plant that the company wishes to build in Port Hope would not be an incinerator - incineration is a dirty word to Entech-REM. What Entech-REM proposes to build is a pyrolysis-gasification plant.

2. The plant would solve Port Hope's garbage disposal problems.

3. It would prevent the alternative, which is landfill. It requires no landfill. It would offset the negative environmental impact of landfills. It would offset emissions of harmful greenhouse gases such as Carbon Dioxide that come from landfills.

4. The process results in complete degradation - produces virtually no fly ash.

5. With respect to nanoparticles (minute ash particles), the jury is still out; potential health effects are the same as other particulate matter.

6. Whereas other systems have residual toxic waste, this system produces a clean, non-toxic, inert waste which is saleable as a commodity in secondary markets; it can be used for paving or in concrete.

7. Waste is converted to the energy rich synthetic natural gas, "clean" Syngas, which comprises mainly water vapour, and which gets combusted. Syngas has properties similar to methane.

8. The proposed Entech-REM plant would create 35 or more jobs.

9. It would provide Energy - 15 megawatts every 24 hours, which will be sold to the grid.

10. This would be GREEN Energy.

11. Emissions are within Government of Ontario limits.

12. Eighteen emissions would be released; of these only 4 are potentially cancer-producing, and they are at concentrations so low that they are "protective of a cancer risk level".

13. The plant would have no negative impact on tourism - on the contrary it would attract tourists, to see this modern marvel of technology.

14. The company has a strong track record, with more than 160 installations in Australia, Europe, and the Far East - first and foremost in Hong Kong.

15. The incinerator to be constructed in Port Hope is tested technology .

16. It is state of the art technology.

17. The process entails recyclable material recovery.

18. Household and curbside recycling has proved limiting, difficult, expensive, and still results in medium to low recovery, with a significant proportion of the materials still ending up in landfills.

19. The Entech-Rem technology is "The most sustainable waste solution".

20. The Entech-Rem process would provide "Diversion from composting"; Composting has the potential for infectious disease and harmful pathogens to be bred and transferred.

All of the above statements are cited from the sources mentioned - I have not invented any - and every one of these statements is misinformation.

Corrections of the company's misinformation - THE TRUTH

1. The plant that the company wishes to build in Port Hope would not be an incinerator - incineration is a dirty word to Entech-REM.

With this statement the company evidently attempts to mislead the public into believing that their process is less dirty than other kinds of incineration. The international classification of incinerators (EUROPEAN PARLIAMENT, (2000); Council on Incineration of Waste, Art 3.4 Directive [2000/76/EC]) includes this kind of plant as a type of incinerator. Furthermore, English dictionaries as well as scientific dictionaries define incineration as the production of ash by burning. This kind of plant produces ash by burning. It is an incinerator.

What Entech-REM proposes to build is a pyrolysis-gasification plant.

This statement appears to be designed to confuse the public: pyrolysis is seen to be a less polluting form of incineration. But there is no such thing as pyrolysis-gasification: pyrolysis and gasification are two different processes. Pyrolysis occurs without oxygen; gasification uses oxygen. This plant would be a gasification plant with no pyrolysis. Furthermore, gasification occurs at lower temperature than other forms of incineration and is for this reason an even greater hazard, as some poisons can be destroyed at higher temperature.

2. The plant would solve Port Hope's garbage disposal problems.

The plant would not deal with Port Hope's garbage at all. It would handle garbage from an area within 100 km of Port Hope, i.e. including Toronto and most of Central and Eastern Southern Ontario, and entail the traffic of a constant stream of garbage trucks all day. Port Hope's garbage is managed by the County, which has not indicated any interest in using such an incinerator.

3. It would prevent the alternative, which is landfill. It requires no landfill. It would offset the negative environmental impact of landfills. It would offset emissions of harmful greenhouse gases such as Carbon Dioxide that come from landfills.

Here the company evidently attempts, first, to convince the public that the only alternative to incineration is to assign unsorted garbage to unprotected landfill, and second, by implication, that opponents of incineration are recommending this. But the alternative to incineration and unsorted landfill in this day and age is the 3 Rs - reduce, re-use and re-cycle, which is being very successfully practised in towns near us. The only landfill now recommended is totally sealed landfill, in which composting of residual waste takes place and no poisons escape to pollute ground water. And even this residual gets less and less as diversion gets more and more effective and heads for the 100% mark (see point 18 below).

The company's claim that their system requires no landfill is false. Their proposal would entail using landfill for their residual bottom ash, which would be far more toxic than standard, old-fashioned unsorted landfill (see point 6, below).

Far from "offsetting emissions of Carbon Dioxide", their gasification process produces CO_2 in large quantities and there are no regulations to limit this.

4. The process results in complete degradation - produces virtually no fly ash.

This implies to the public that garbage being incinerated would be reduced to virtually no residual waste. This suggests that the company's process can defy the fundamental law of nature, known as the law of conservation of mass, which states that material can not be destroyed, only changed to something else. In fact a very dangerous fly ash, containing numerous cancer-producing chemicals and minute fragments of ash called nanoparticles, is released by the Entech process. Nanoparticles are about a millionth the size of a pinhead, and because of their minute size can get into the blood and from there to organs such as the brain, heart, liver and so on.

5. With respect to nanoparticles (minute ash particles), the jury is still out; potential health effects are the same as other particulate matter.

Nanoparticles in the brain and other organs cause damage to the tissues, and they carry the incinerator's cancer-producing poisons in to these organs. A study has shown that there is no technology available that can prevent the nanoparticles produced by Entech plants from escaping in to the environment.

The statement that "the jury is still out" is taken directly from the massive misinformation campaign that the tobacco industry has used for 70 years to deny that tobacco causes cancer. The jury is not still out - research has shown conclusively that nanoparticles entering the heart and brain can cause debilitating and lethal diseases. Furthermore, the effects are **not** the same as other particulate matter - only the minute incinerator nanoparticles can actually enter the internal organs.

6. Whereas other systems have residual toxic waste, this system produces a clean, non-toxic, inert waste which is saleable as a commodity in secondary markets; it can be used for paving or in concrete.

The company provides no documentation for this statement. An internet search for further information on this topic produced, amongst others, a report from the town of Newcastle, UK , from which I quote here:

Incinerator ash, particularly fly ash, is highly hazardous and must be treated with care, like any other hazardous waste. In an attempt to minimize the dangers of incineration, however, incinerator manufacturers and operators routinely downplay the hazardous nature of the ash. Some even go so far as to bill it as an "inert" material that can be reused for construction or road-building. As a result, in Newcastle, England, ash from the Byker municipal waste incinerator was regularly spread on pathways, parks and school playing fields. Because of citizen concerns tests were done, which revealed "**dioxin concentrations as high as 9,500 compared to "target values" of under 5** nanograms I-TEQ/kg. **These dioxin levels were amongst the highest ever recorded.** Heavy metal contamination was similarly stratospheric" the report continues, "including **mercury at 2,406 percent, cadmium at 785 percent and lead at 136 percent above background levels**".

The company's bottom ash would not be saleable and would, despite the company's claims to the contrary (see point 3 above), end up in landfill along with waste from other non-recycling communities, but with the difference that it would probably be far more toxic than any previous known landfill. A company representative at one of Entech-REM's "open houses" admitted that if no buyer for the bottom ash residual were found it would go to landfill.

7. Waste is converted to the energy rich synthetic natural gas, "clean" Syngas, which comprises mainly water vapour, and which gets combusted. Syngas has properties similar to methane.

There are at least 5 items of misinformation here. Syngas, which is produced in gasification, is not energy rich - its energy potential is a third to a half that of natural gas. There is no such thing as a "synthetic natural" gas - if its synthetic then it is not natural. Syngas does not comprise mainly water-vapour - this misinformation appears to be designed to hide the fact that Syngas is a highly dangerous mix of poisons, as explained in the following. Syngas contains very little water vapour; if in fact it comprised "mainly water vapour" it could not "get combusted" (incinerated), which the Syngas does. The properties of Syngas are NOT similar to those of methane: aside from being energy poor, also unlike methane it contains carbon monoxide, which is lethal; hydrogen, which is highly explosive; and numerous other deadly poisons. **In their own ESR, Appendix D, the company admits that their syngas would contain "polyaromatic hydrocarbons (PAHs), nitro-PAHs, dioxins, volatile organic compounds (VOCs), etc." as its "principle organic pollutants"**. [PAHs include **benzopyrene**, found in tobacco smoke and the first chemical carcinogen (cancer causing agent) to be identified]. When combusted the Syngas would release the entire slew of cancer-producing poisons that incinerators produce - see point 12 below. The Syngas that this incinerator would produce would be anything but "clean".

8. The proposed Entech-REM plant would create 35 or more jobs.

First, the company provides no basis for this estimate, not does it have any such basis, as they have no plants comparable to that proposed here (see point 14 below). Irrespective of this, the claim of creating jobs ignores the probable massive **loss** of jobs that would occur in the agricultural sector if this source of environmental pollution were allowed in to Port Hope. **The proposed site of the plant is in prime farm land, where organic farming, grass-fed cattle ranching and other sensitive forms of agriculture are practised. Many of the area farmers have clearly indicated that they would not be able to continue their activities if an incinerator were to be allowed in the area**. The County's apple industry and the wine industry of Prince Edward County could be affected. Air-borne toxins do not stop at incinerator fences - they have been shown to travel thousands of kilometres.

9. It would provide Energy - 15 megawatts every 24 hours, which will be sold to the grid.

Careful scrutiny of the company's figures, by engineers and other experts we have consulted, suggest that the company's claims are invalid. Based on their stated intake of feedstock and predicted combustion conditions it appears that they simply would not be able to produce the energy they claim would be produced from their stated activity.

Quite aside from that, the Ontario Power Authority has informed us that the company Entech-REM is not eligible for the Feed in Tariff (FIT) programme that is used by other companies to contract selling their power to the grid.

10. This would be GREEN Energy.

This is another apparent attempt by the company to mislead the public. Green energy means the harnessing of energy with minimal pollution. Entech-REM's process would produce the major greenhouse gas, carbon dioxide (CO_2), in large and uncontrolled amounts - there are no regulations controlling CO_2. The process would also produce emissions of possibly up to 250 different poisonous and cancer-producing substances - see point 12 below. This is not "minimal pollution" - Entech-Rem's process would be anything but green.

11. Emissions are within Government of Ontario limits.

This statement gives the impression that the company's emissions would be harmless, first because of compliance to so-called government "limits", and second because such "limits" ensure safety. The company's statement is false on both counts, and three times so on the first, as follows. First, the government **provides no limits, it provides only guidelines**; second, some of the figures that the company cites as so-called "limits" are **falsely cited** - the government's guidelines are more stringent than the company states; and third, the emissions that the company claim their plant would have are **fictitious**, as they have no way of knowing what the emissions would be. They have no track record from which to assess this (see points 14 and 15 below). Guesses such as these that the company makes are called "modelling", and incinerator companies' "models" notoriously predict amounts that are much lower than are actually produced.

As for government standards ensuring safety: To start with, for several of the most important emissions that the plant would produce **there are not even government guidelines**. These include carbon dioxide and nanoparticles, the former because there is no "carbon tax" and therefore no carbon limit in Canada, and the second because scientific knowledge of the nanoparticle hazard is so recent that no governments anywhere have yet enacted laws, in part also because there is as yet no technology to control nanoparticles.

Aside from this, irrespective of governments guidelines the scientific facts are that **there is no safe level of any cancer-causing substance** - even minute doses can cause cancer - and that **bioaccumulation** occurs. The latter is the phenomenon of accumulation, day by day, of minute amounts of incinerator emissions in plants. Through use of crops as human food and as feed for livestock and poultry, this results in accumulation of cancer-poisons in our vegetables as well as our milk, eggs and meat. The claim that

emissions would be "within government limits" distracts attention from these facts and is therefore misinformation.

12. Eighteen emissions would be released; of these only 4 are potentially cancer-producing, and they are at concentrations so low that they are "protective of a cancer risk level".

What follows should be understood on the basis of the fact that in our region of Ontario there is already, as we speak, a level of air pollution that far exceeds government of Ontario standards and GREATLY exceeds international standards. Details on this are given in an Addendum starting on page 8 below.

The Human Health Risk Evaluation of the Environmental Screening Report **provides a list of** (only) **18 chemical emissions, and states that only 4 of these are carcinogens** (cancer producing substances)**.** In fact such an incinerator would probably produce about 250 emissions, and most of these would probably be carcinogens. Furthermore, of the 18 listed, in fact not just 4 but **16 of the 18 are carcinogens.** So here **the Company Entech-REM made a blatantly misleading statement: the Company first understated the number of toxic emissions that would be released, enumerating about 7% of those that probably would be emitted; next, it admitted to only less than a quarter of those 7% being carcinogens, whereas in fact about 90% are**; third, it claimed that the four chemicals it identified as carcinogens would be in such low concentrations that they would be **"protective of cancer risk level"**, a **bizarre twist of phraseology**. The truth is that **there is no safe level of carcinogen;** but more than this**, it is a grotesque distortion to suggest that any level of a carcinogen can actually PROTECT against cancer**. This statement indicates disrespect of citizens, in assuming that anyone would be so naive as to believe such a distortion. And as a further concealment of the truth, no mention is made of bioaccumulation.

13. The plant would have no negative impact on tourism - on the contrary it would attract tourists, to see this modern marvel of technology.

The company appears to wish to camouflage quite how disturbing it is that there would be up to 50 garbage trucks a day going back and forth along the 401 and Wesleyville road, by actually stating that there would be **ONLY** 50 trucks per day on weekdays, **ONLY** 10 on Saturdays, and **NONE ON SUNDAYS OR PUBLIC HOLIDAYS**. With garbage trucks cluttering up the road, with flies, maggots and rats potentially escaping from them, and with a monstrosity of a garbage incinerator to be seen in between the trucks, it is difficult to see in this scene the potential charm that might attract hordes of tourists.

14. The company has a strong track record, with more than 160 installations in Australia, Europe, and the Far East - first and foremost in Hong Kong.

The company has no track record in building or managing plants of this type; the statements on this subject are totally misleading. Here are the facts about the company's track record:

The name "Entech-REM" is a composite of two companies, REM (Renewable Energy Management), and Entech, a small company with home base in Australia. Entech owns the rights to the gasification technology that REM wishes to use and which REM has obtained for this purpose. But neither Entech nor REM has ever **constructed** or **run** a gasification plant - the Entech technology has previously been licensed or purchased for use by other companies.

The statement that the company has plants in Australia and Europe could give the impression that there are numerous plants in each of these sites. In fact, although Entech is an Australian company there are no plants in Australia. With respect to "Europe", this could conjure up a picture of numerous plants in for example France, Belgium, Germany, Holland, Scandinavia and so on, but in fact they have no plants in Western Europe. Their claim of plants in Europe refers to **one** country, in the under-developed former Soviet-dominated sector of Europe, namely Poland. **There are no Entech plants anywhere in the Western World - none in North America, Australia or Western Europe**.

The plant that Entech-REM took the deputy mayor of Port Hope and two Municipality of Port Hope staff members to Europe to inspect, is in the little town of Kuznica, Poland. The plant processes 3.5 tons/day of

medical waste, a less difficult feedstock to handle than the municipal waste that they state they want to process here, and they plan to accept not 3.5 but 500 tons/day in Port Hope. Their claim to have a track record that qualifies them for building a mega-plant in Port hope is false.

To highlight their "track record" in the Far East, the company understandably highlights a plant in Hong Kong as the showpiece, up front on page 1 of Appendix P of their Environmental Screening Report (ESR). Hong Kong is after all the biggest and most industrially advanced megalopolis in the Far East; a well established plant there would certainly establish the Entech technology track record at least for that part of the world. The only problem here is that despite repeated mention of their Hong Kong plant in their promotional material, including, as mentioned, its highlight position in their ESR, the company does not have a functioning plant in Hong Kong.

REM's web-site refers to a **"Los Angeles County Conversion Technology Evaluation Report in which ENTECH's low temperature gasification technology was selected as one of only three thermal conversion technologies that could operate within the County's stringent Environmental regulations"**. This Los Angeles project has been mentioned in its promotional material during the company's marketing campaign in Port Hope. However, an inquiry by a citizen of Port Hope on the status of the REM Waste-to-Energy plant pilot in Huntington Beach, Los Angeles, garnered a response from a Los Angeles County official indicating that "the project did not progress beyond early development activities and remains on hold indefinitely". **Thus also in this case the company claimed the existence of a plant that does not exist**.

The REM web-site also presented (17 November, 2013) access to a link "Site Map", which gave a further link entitled: "REM-FAQ's Where are projects in operation?". Opening this link gave the following response: "**Error 404 - Page Not Found**".

The company has repeatedly referred to the large number of plant *installations* that have been made over a long period. The number claimed has varied from 120 to 150 to more than 160 - perhaps a first clue to a problem. However, when recently asked by a municipal councillor to provide information on all *actively functional* Entech plants world-wide, a representative of Entech-REM in reply advised the councillor to see "Appendix P - ENTECH Facility Experience and Approvals Documents of the ESR, **which shows 46 Entech installations"**. NB one is here told what the Appendix ***shows***, not what actually functionally exists. But the Appendix also ***shows*** the plant in Hong Kong, upfront, as the main showpiece, though we know that it does not exist.

So, first, if there ever were 160 installations, the present status of misinformation is that less than a third of them are still claimed *as installations*, **but we have no answer as to how many are claimed to be *functional***. Second, since we know that the showpiece plant of the Appendix does not exist as a functional plant, it leaves still unanswered the question of **how many of the other 45 plants that are shown are in fact active.** Third, it **leaves us knowing of the existence of only one Entech plant**. The mini plant in Kuznica, Poland, that processes 3.5 tons of waste per day, is the only one for which there are published data - the data that inform us of the nanoparticles and the slew of carcinogens that the Entech process spews out to the environment. As far as we know the Kuznica plant was functional last year, when the deputy mayor visited it. As for our quest for full documentation of all of the 160 Entech plants, that's one down and 159 to go.

15. The incinerator to be constructed in Port Hope is tested technology .

No plant similar to the one the company wishes to construct in Port Hope has ever been built anywhere in the world. Port Hope and therewith Ontario, Canada and North America would be total guinea-pigs in a grotesque experiment.

16. It is state of the art technology.

State of the art technology in waste management is diversion and the three Rs - reduce, re-use and recycle. There are centres in Canada (e.g. Markham, Halifax and many more) and elsewhere in the world (e.g. California) where 80 to 90% of waste is already being managed this way, and the goal of 100% is targeted

within a few years. Incineration of all kinds is obsolete technology, but within incineration the category of gasification is not just obsolete, but archaic - it was superseded years ago by pyrolysis and plasma arc, both of which are now also obsolete. There are no commercially functioning municipal waste gasification plants anywhere in North America - those that previously existed have all been closed down.

17. The process entails recyclable material recovery.

This is Entech-REM-speak, apparently intended to pacify and mislead what the company perceives as tree-huggers on the issue of re-cycling. Translated into English it means that the company has stated that it will sort out for recycling some of the waste that it does not think can be used in incineration. But ***Recyclable material*** **is precisely what the Entech technology** ***absolutely requires in order to function*****, so this material** ***would not be recycled***. They have not stated what will happen with the material that is sorted out. The company has presented no strategy or plans for recycling. The published floor-plan for the plant shows no recycling facility, and the list of "Facility Main Components" given in the company's "Information Package" does not include a recycling facility. Furthermore, calculations show that in order to meet its predictions for energy production very little could even be diverted to recycling elsewhere. The company has no expertise or previous experience in recycling. The plant as planned would do nothing else than incinerate.

18. Household and curbside recycling has proved limiting, difficult, expensive, and still results in medium to low recovery, with a significant proportion of the materials still ending up in landfills.

Here the company seems to be appealing to the less admirable habits of laziness that some people may have in respect of sorting waste, to re-enforce the opinion that its easier to just make the problem go away by burning it. But in communities such as Markham, Halifax and many others, curbside recycling has proved neither limiting nor difficult and **nothing** ends up in old-fashioned unsealed landfill - the only landfill is in closed containers with no leakage to ground-water. Diversion and recycling rates are in the 80 to 90 percent range in many communities, and the 100% target is considered to be within reach in a few years time, for example in California.

19. The Entech-Rem technology is "The most sustainable waste solution".

The technology that Entech-Rem proposes to bring to Port Hope is "gasification". The following quotations are cited from Wikipedia:

"Since 2003 numerous proposals for waste treatment facilities hoping to use... gasification technologies failed to receive final approval to operate when the claims of project proponents did not withstand public and governmental scrutiny of key claims." "One facility which operated from 2009-2011 in Ottawa had 29 "emissions incidents" and 13 "spills" over those three years. It was also only able to operate roughly 25% of the time". "Several waste gasification processes have been proposed, but few have yet been built and tested, and only a handful have been implemented on trial basis. Widespread public opposition shelved plans for a gasification plant in Attleboro, Massachusetts".

A US Environmental Protection Agency Report as recent as 2012 states that there are **no commercially active gasification plants accepting Municipal Solid Waste anywhere in North America - those that did exist have failed and been closed down**. This is not a "sustainable solution".

20. The Entech-Rem process would provide "Diversion from composting"; Composting has the potential for infectious disease and harmful pathogens to be bred and transferred.

Enlightened environmental practice constitutes diversion *to*, not *from*, composting and recycling: far from breeding and transferring infection and harmful pathogens, composting *prevents* the spread of infectious disease and *destroys* harmful pathogens. This somewhat bizarre distortion of what composting does appears to be designed to distract attention from the fact that the company's proposal to truck in 40 mega-loads of infested garbage per day would carry with it the potential for flies, maggots, and rats to escape in to our community as the trucks would come in along Wesleyville road, pull in to the plant, and unload.

Composting provides the only truly clean and sustainable way of disposing of organic wastes while at the same time creating the potential for revitalising the soil for agricultural use.

In Summary:

The citizens of Port Hope have been subjected to a flow of misinformation provided by the incinerator company Entech-REM, by way of flyers, press statements and other media, including on-line publication of a so-called Environmental Screening Report (ESR). As a result, the public remains inadequately informed on the true nature of the threat the incinerator proposal poses to the community. Procedures ordained by the Province's Ministry of the Environment and the Municipal Council for scrutiny of the company's application unfortunately work to exacerbate this situation.

Only by showing a united opposition to the Entech-REM proposal, and the offensive way in which the public has been misled, will the people of Port Hope and neighbouring Municipalities be able to influence the Government of Ontario to prevent this potential environmental disaster from befalling Port Hope, Northumberland County and areas beyond.

References

For references to the scientific articles that document my statements please go to www.phr4mwr.ca and follow links to my Letter to the Minister of the Environment; my Review of the Environmental Screening Report, Human Health Risk Evaluation; my Response to Hardy Stevenson's replies to my questions; and other documents archived at the web site.

For references to the scientific articles that document Entech-REM's statements - please don't waste your time searching; there are none.

ADDENDUM: BACKGROUND POLLUTION LEVEL IN NORTHUMBERLAND COUNTY

The level of air pollution in Northumberland County is at this time already egregiously high. With respect to so-called fine particulate matter ($PM_{2.5}$), background concentrations in the area are in the order of 20 $\mu g/m^3$ due to various sources including vehicle exhaust, wood burning stoves, and other sources.

This concentration is **33% above the Canadian Environmental Protection Agency Guidelines level** for $PM_{2.5,}$ which is 15 $\mu g/m^3$. **These "background concentrations in the area" do not even take into account the new Clarington incinerator nor the additional pollution now being produced by St. Mary's Cement plant in Bowmanville.**

The Canadian Federal Government accepts that even at the reference level of 15 $\mu g/m^3$ "**there would be some level of health effects associated with the standard" - a strikingly important admission -** , and that "**newer standards should come into effect over a staggered time frame**". The **National Environment Protection Council of Australia** recently expressed the same view. Even the HS Review adds: **"This example demonstrates the reason why a comparison to air quality criteria is not an appropriate representation of the potential for adverse health effects from a facility".**

The California Environmental Protection Agency Air Resource Board gives a reference value for $PM_{2.5}$ of 7 $\mu g/m^3$. **Thus the level of fine particulate pollution in our area is not only 33% above the existing so-called local standard, it is also nearly three times the California Standard. Federal Government policy is said to be that "newer standards should come into effect".**

All of the above is only about fine particulate matter and does not even consider ultrafine or nanoparticles. On the issue of ultrafine or nanoparticle Particulate Matter, i.e. the particles that are a millionth the size of a pinhead: a published study of specifically the Entech technology reports that it produces nanoparticles, that there is no known technology that can filter them out of the emissions, there is no government regulation of nanoparticles. The medical scientific literature indicates that nanoparticles uniquely get in to the brain, heart and all other human organs, carry the deadly cancer-producing poisons with them and can produce cancer and other lethal effects.

A brief word about The Lesser Evil Principle

I want to be clear on what we are saying: although the major cause of air pollution by nanoparticles and such poisons as dioxins is incinerators, we know that there are also other causes, including for example gasoline driven automobiles. We are not arguing that there should be an immediate ban on gasoline driven automobiles. We would like to see a move toward non-contaminating automobiles, but until such time as a viable alternative exists we recognise that gasoline automobiles are a lesser evil than total cessation of all automobile transportation would be. The key here is that AT THIS TIME THERE IS NO VIABLE ALTERNATIVE.

But with respect to incinerators, there is a viable and a highly desirable alternative, namely the three Rs of waste management: Reduction, Re-use and Recycling, which is at over 80% level at several sites in Canada including Markham, Ontario, and closing in on 100% in for example California. Where such an alternative exists it is realistic and correct to aim for zero emission of cancer producing and other deadly poisons, by simply disallowing incinerators when 3 Rs could be used. In this case the 3 Rs are the lesser evil and the incinerator is the greater. As mentioned above, both Canadian and Australian government agencies and others are moving toward recognition that "newer standards should come into effect".

SRB