Delegation to Regional Council – Wednesday, December 16, 2009
By Wendy Bracken

I was here last week at Joint Committee to speak to major and serious concerns I have with the Environmental Assessment (EA) which has been submitted. In my delegation (you should have a copy of it in your agendas today), I pointed out the tables and pages which document the following information from the EA.

It is documented in the EA that:

- **Many of the chemicals of potential concern (Volatile Organic Compounds (VOCs), HCl, HF, ammonia, etc.) were not monitored at the site**. Data for baseline conditions was obtained from stations far from the site or in some cases, no baseline concentrations were reported so cumulative effects (baseline + facility) could NOT be determined. I spoke to the specific case of HCl.

- While many in the public, including myself, had the impression that the air samplers would collect samples continuously over the year, that was not the case for many of the chemicals. For instance, in one whole year of monitoring, samples of dioxins/furans were collected for only a total of 12 days and metals were collected for only 60 days.

- **Some of the MOE criteria for Air Quality Monitoring in Ontario (MOE, 2008 were not met.**

    - **the height of the inlets of the hi-volume samplers for dioxins/furans and polyaromatic hydrocarbons(PAHs) were too low**

    - **the meteorological station was too close to the building**;

    - **the MOE criteria requires no trees within 20-m radius of the station, however there were two trees**, 13.8-m and 16.5-m, from the station

- **The York Durham emissions limits for <u>carbon monoxide</u> (CO), <u>dioxins and furans</u> and <u>organic matter</u> <u>do not meet the proposed revised A7 guideline</u>**. The EA acknowledges the proposed changes to the air standards but does not purport that they will be able to meet them should they come into force. How can this be?? **This Council committed to the best-of-the-best, yet this EA is based on a facility that cannot even meet the proposed revised A-7 Guideline!! Councillors, who is looking out for the residents of this Region??**

- **It is documented in the EA that the incinerator emissions will contribute significantly to the Regional Industrial Total.**

Even when compared against the high Regional **Industrial** totals, **the Facility contribution to the Regional Industrial total is very significant for many of the chemicals of potential concern such as cadmium, lead, mercury, dioxins/furans and nitrogen dioxides. The incinerator would be a major polluter.** Some of the figures for some of those chemicals in Table 4-5 are highlighted below:

Chemical of Potential Concern	Facility Contribution to Regional Indust.Total for 140,000 tpy Facility	Facility Contribution to Regional Indust.Total for 400,000 tpy Facility
Nitrogen Oxides	**3%**	**8%**
Total Particulate	2%	5%
Cadmium	**17%**	**37%**
Lead	**7%**	**17%**
Mercury	**15%**	**33%**
Benzo(ghi)perylene	24%	47%
Benzo(e)pyrene	6%	16%
Indeno(1,2,3-cd)pyrene	5%	14%
Dioxins and Furans (as Toxic Equivalents, TEQ)	**26%**	**50%**
Volatile Organic Compounds(VOC)	3%	7%

I believe these tables should have been brought to your attention so that you could have understood and put the Facility pollution into context.

Today, I am here to speak to major concerns I have with the Inhalation part of the Health Risk Assessment.

The results of the inhalation assessment document **high levels of PM2.5 (particulate matter less that 2.5 microns) and NO2 (nitrogen dioxide)** for a number of assessment scenarios.

Ambient air levels of both of those pollutants are already very high. Ozone levels are also documented as very high and in exceedance already of some air standard criteria.

Citizens repeatedly raised the concern that NO2 levels were already high in the Courtice air shed and it would not be prudent to add large quantities of NO2 **and other respiratory irritants** from an incinerator. The response of the Project Team in the EA was that any urban area in Ontario would have similar baseline results for nitrogen dioxide (NO2). In my submission I asked for proof of that statement. Very recently the Project Team sent me the following chart, which shows that the Courtice site actually has the HIGHEST NO2 ambient values of all the urban areas. Courtice is close to double what Sarnia shows, and worse than Windsor, Hamilton, and Toronto. Courtice is greater than double the Oshawa values. I suspect this could be due to the major polluter, St. Marys Cement which emits huge quantities of NO2. Courtice is the highest for NO2 and that is before adding an incinerator and/or the 407 link which is right next to the site and will also be a significant source of NO2. Councillors, we should NOT be adding more NO2 to the worst local air shed for NO2.

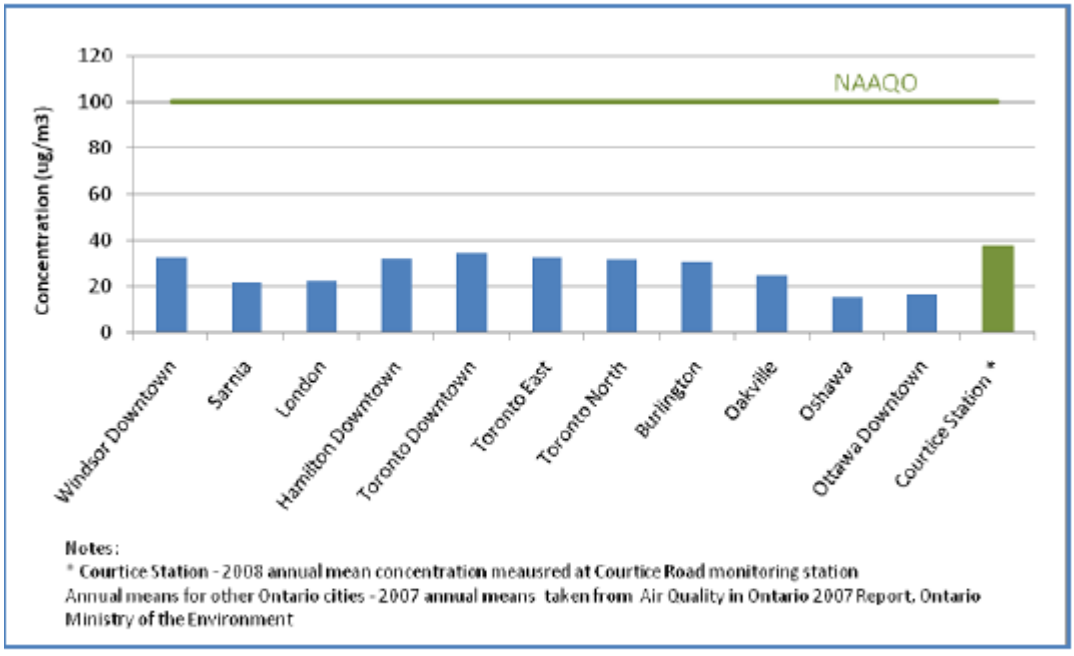

Figure 1-1 Comparison of NO2 levels in Southwestern Ontario (Figure A-2-4 of Appendix A, Air Quality Assessment Technical Study Report - July 31st, 2009)

It is important to understand how the Inhalation part of the risk assessment works. The various models estimate the predicted ground level air concentration for various pollutants and that concentration is compared against the Toxicity Reference Value (TRV) concentration for that pollutant. TRVs are defined as doses of chemicals that receptors can be exposed to without the development of unacceptable health effects. If the predicted concentration exceeds the Toxicity Reference Value, i.e. the Concentration Ratio (CR) of those two values is greater than 1, a potential risk is identified - the potential for adverse health effects may exist. **The selection of the most appropriate and up-to-date TRV is therefore critical to the characterization/assessment of risk.** (page 163)

When it came to the pollutants NO2 and PM2.5, the Project Team chose to use Ambient Air Quality Criteria and air standards in place of TRVs when they assessed risk for NO2 and PM2.5.
The values below are taken from Section 7.6 on page 139 of the Air Quality Assessment Report.

CAC	Duration	Value	Critical Effect	Reference	Source
NO2	1-hour	400	Respiratory irritation	Benchmark	MOE AAQC, 2008b
NO2	24-hour	200	Respiratory irritation	Benchmark	MOE AAQC, 2008b
NO2	Annual Average	60	Health-based	Benchmark	Health Canada, 2006
PM2.5	24-hour	30	Health-based	Benchmark	CCME, 2006b

The choice of the Project Team to use air guidelines instead of TRVs in the report has been strongly criticized by peer reviewers. This is a VERY SIGNIFICANT concern since NO2 and PM2.5 levels are high and **there are many cases where using the benchmarks chosen by the risk assessment team do not show potential risk, however evaluations against other benchmarks such as the World Health Organization (WHO) benchmarks do identify potential health risks.**

In Attachment 14 of Municipality of Clarington Report PSD-071-09, **Clarington peer reviewers** of SENES state the following in their Comment 50:

> ***"Not all of the values presented in the table as TRVs are actually TRVs. For example, the reliance on air guidelines as sources of TRVs may not be appropriate. Air guidelines may not be based on health effects and thus concentration ratios obtained using these values would not be considered valid. The values used to assess health risks in the HHRA must all be actual TRVs."***

Did you know that the Ministry of the Environment (MOE) released a peer review report the day ***after*** you voted to endorse the incinerator? In Comment 17 of that **MOE Peer Review,** which is contained in Appendix P-4 of the SSHHERA, the peer reviewer(s) state:

> ***"SDB does not recommend the automatic use of air standards of AAQC to screen or characterize inhalation risks (Table 7-2). By definition, HQ are based on comparison of estimated exposure with TRVs (RfCs, REL,etc). AAQC or air standards are not necessarily TRVs and on an individual basis may not be health protective – for example, new science may have emerged since they were set. Appropriate TRVs should be used."***
>
> (note: SDB above stands for Standards Development Branch of the MOE)

The disposition of the Jacques Whitford Health Study Team in response to the above comment (which is also included in Appendix P-4) states in part: "The study team believes that using these health benchmarks does not compromise the integrity of the HHERA results." You should also note that, in response to comments made by the public in their submissions regarding the concerns identified by the Clarington peer reviewers, the Project Team responded, in reference to the Clarington peer review comments, that, in their opinion, "all of the comments submitted have been addressed". Councillors, we have the Clarington peer review documents which clearly show that **the Clarington peer reviewers did NOT accept the disposition of the Project Team** on many elements of the EA and were not satisfied with the responses of the Project Team in a number of key and fundamental areas.

I firmly believe the use of the air standards/criteria to assess risk may seriously compromise the integrity of the HHERA results because 1) the standards chosen by the study team are not stringent enough and 2) the use of these standards/benchmarks strongly affects the conclusions reported on one of the major public health concerns - air quality and inhalation risks. The study team's choice of AAQC and air standard benchmarks resulted in written conclusions which gave readers of the report the impression that there were no problems, however, there are a number of cases where, if the more stringent benchmarks such as the WHO benchmarks are used, the exposure estimates do exceed the exposure limits and potential adverse health risks are identified. **These are two completely different conclusions so the choice of appropriate TRVs was absolutely fundamental to what the health study concluded and what was presented as study results to decision makers (Regional committees and Regional Councils), to the public and to MOE.** *How old are the AAQC and air standards chosen by the Project Team? What studies were they based on and when were they done?* I firmly believe the high PM2.5 concentrations and NO2 concentrations in some scenarios for some of the averaging periods were not highlighted in presentations or in Executive Summaries to the public and to the political decision makers.

There is a particular and special concern raised by the Clarington reviewers regarding PM2.5 and the Project Team's selection of air criteria to assess that particulate risk. The Clarington peer reviewers (SENES) also stated in Comment 53:

"The values for particulate matter PM10 and PM2.5 do not reflect the current science on particulate matter. The National Ambient Air Quality Objective for Particulate Matter has reference values for health based values of 15 µg/m^3 for 24-h PM2.5 and 25 µg/m^3 for 24-h PM10. In addition the California Air Resources Board (2008) provides a summary for the latest research on PM2.5. It should be noted that in some cases scientists think there is no threshold that is safe for exposure to PM2.5 and others think ranges from 3 µg/m^3 to 7 µg/m^3 are protective of health for PM2.5. The discussion in Appendix H is inadequate as it does not reflect the latest literature on particulate matter."

<u>The Clarington reviewers did not accept the disposition of the study team.</u>

You should know that **the value reported for 24-h PM2.5 measured at Courtice Station and stated in the EA submitted on July 31st was 28.6 µg/m^3** . The peer reviewer points out much lower standards such as 15 µg/m^3 are being used for 24-h PM2.5, and adds that even much lower values may be appropriate.

At this point, I wish to make you aware of some very conflicting and troubling communication and documentation I have received recently from the Project Team. After the Amended EA was released on November 27th, I wrote and asked for copies of the amended documents and for a list of any amendments to the health studies which were appendices to the EA. On December 1st, 2009, I received a response from the Project Team that none of the appendices had been amended. On December 3rd, 2009, however, I received another email stating that there indeed were amendments to the appendices which included the health documents. When I read through those amendments I was stunned to discover on the last page of the amendments, a statement that **the 24-h, 98th percentile measurement for PM2.5 had been changed from 28.6 µg/m^3 to 20.6 µg/m^3** . Remember that ambient PM2.5 is a very signficant and sensitive pollutant in this EA – to find that it had suddenly changed was extremely concerning. The explanation was unsatisfactory and brief. It stated**: "Please note that the values in this table have been updated to reflect a typo in the 98th percentile value** (previously listed as 28.6 and to also reflect additional QA of the data based on reviewer comments." Furthermore, just yesterday afternoon, December 15th, I received another email from the Project Team. At first, I thought it was identical to the one sent to me on December 3rd and I wondered why it was resent, but when I got to the last paragraph of the attached amendments, I again was stunned to find that **the 24-h, 98th percentile PM2.5 had been changed back to 28.6 µg/m^3, the sentence about the typo had been removed, and I could not see any explanation nor was the change pointed out in my email**. There is something very seriously wrong with key values changing back and forth almost 5 months after the Final EA was submitted. **Councillors, what is going on here???? This is completely UNACCEPTABLE and must be investigated.**