



Ashbridges Bay Treatment Plant – Public Health Studies

Public Meeting
Wednesday, May 11, 2005
Toronto Fire Academy, Auditorium
895 Eastern Avenue
7:00 p.m. – 9:40 p.m.

Attendance: There were approximately 165 people in attendance at this meeting.

1.0 Welcome and Introductions

Deputy Mayor Bussin welcomed everyone to the meeting. She introduced Councillor Fletcher, MPP Marilyn Churley, and noted that a representative for MP Jack Layton was in attendance. She explained that the purpose of the meeting was to review the three public health studies:

- Biosolids Pellet Review Study: Human Health and Ecological Risk Assessment
- Ashbridges Bay Treatment Plant Air Emissions Study
- Health Status Study for the South Riverdale and Beaches Communities

Councillor Fletcher, member of the Board of Health, noted that these studies were completed as part of the Ashbridges Bay Treatment Plant Mediation Agreement. She stressed that the most important conclusion from these studies is that the Medical Officer of Health is recommending that the Province and the City take into consideration the cumulative effects of point source pollution.

MPP Marilyn Churley noted that she is working with the community to stop the Energy project for the Portlands. She acknowledged that the community does not want to put up with the burning of any substance. Alternatives need to be examined.

Janet Amos, facilitator, introduced herself and reviewed the protocol for the evening. She noted that her job is to ensure that everyone has an opportunity to be heard and to have their questions addressed.

2.0 Background

Lou Di Gironimo (Director Wastewater Treatment, Toronto Water) explained that the Ashbridges Bay Treatment Plant Environmental Assessment (EA) process began in 1989. There were several years of consultation with the public as the EA was prepared. When the EA was submitted to the Ministry of Environment, nine groups requested that either a hearing or a mediation process be used to address their issues of concern. The

City and representatives of these groups voluntarily began a mediation process that resulted in a Mediation Agreement being signed in 1999. Although the EA remains to be approved, the City is working towards fulfilling its commitments as outlined in the Mediation Agreement. One of these commitments was to arrange a meeting with the mediation participants and Toronto Public Health to determine the feasibility of undertaking health studies of the South Riverdale and Beaches communities. Toronto Public Health agreed to do three studies and the scope of each one was developed with the input of the mediation participants. The completion of the three health studies fulfills the City's obligations in the Mediation Agreement.

Dr. Monica Campbell (Manager, Environmental Protection Office, Toronto Public Health) noted that the Ashbridges Bay Treatment Plant is in the middle of the South Riverdale and Beaches Communities. She explained that in 2002 two Project Advisory Committees (PAC) were initiated for the studies. The PACs included stakeholders and community groups that had a wealth of information to offer. They assisted with the hiring of the study consultants in 2003, helped to scope the study parameters, and provided valuable feedback. In addition, there was a Project Team for each study. The Project Teams consisted of City staff, university experts and hired consultants. In November of 2004 the Biosolids Pellet Review Study was completed, and on May 9, 2005 the results of the other two studies were presented to the Board of Health. All studies were subjected to independent peer review.

3.0 Presentations

3.1 Biosolids Pellet Review Study: Human Health and Ecological Risk Assessment

Cecile Willert (Jacques Whitford) provided an overview of the contributing authors to the study, the characteristics of pellets, and the pelletization process. She reviewed the objectives of the study and the three environments for pellet use that were considered: as landfill cover; on parkland; and on residential property.

The study examined risks to young children, adult residents, and workers applying pellets on land. The chemical risks to human health were assessed through a quantitative risk assessment for metals and key organic chemicals present or potentially present in Toronto biosolids. A number of pathways were considered including ingestion (direct ingestion of pellets, ingestion of pellet-amended soil, eating of fruit and vegetables grown in home gardens), absorption through the skin, and dust and vapours that could be inhaled. The assessment of ecological risk was based on the potential for harmful effects on indicator species including pets, wildlife, plant and soil organisms.

Overall the study found that there was negligible risk to human health from possible chemical pathways of exposure, and overall microbiological risk is very low. The ecological component of the study suggests that overall risks to pets and wildlife are negligible. Though there is some concern regarding the impact of chromium on robins, the risk is small and would likely diminish with time as chromium levels drop in sewage

sludge. To ensure the viability and safety of pellet use, there is a need to implement adequate monitoring of the pelletization process and testing of pellet quality, and to adopt precautionary measures regarding the use and storage of pellets to prevent pathogen re-growth.

3.2 Ashbridges Bay Treatment Plant Air Emissions Study

Dr. Anthony Ciccone (Golder Associates Ltd.) noted that this is the first time that the cumulative impacts of the ABTP emissions on air quality have been looked at in one single document. He reviewed the members of the study team and provided an overview of the four scenarios that were examined:

- Emissions when the incinerator was in full operation (pre 1996)
- Emissions during the partial operation of the incinerator (2000-2003)
- Emissions after incineration ceased (2003-2004)
- Emissions after incineration ceased and odour controls are installed (by 2010)

There are 186 different chemicals that may have been emitted by the ABTP. These chemicals were ranked in terms of toxicity, cancer effects, non-cancer effects, persistence and bioaccumulation. The study then focused on 17 chemicals of most concern, which included arsenic, benzene, cadmium and mercury. Computer models were used to analyze the emissions of the 17 chemicals. The models took into account emission inventories and meteorological data.

The dispersion patterns for hydrogen sulphide were shown. The highest predicted concentrations of emissions occur in July due to calm weather. There is a greater impact on the east due to wind patterns. In particular it was found that with the closing of the incinerators and the installation of odour control measures by 2010, the impact of ABTP emissions on local air quality is reduced. In the period when the incinerator was in operation, the predicted maximum levels of chemicals from the ABTP alone are lower than the maximum Toronto ambient levels. In both South Riverdale and the Beaches, the 15 chemicals known to be in ABTP emissions met Ontario Ambient Air Quality Criteria standards and most of these chemicals also met health criteria (except cadmium). By 2010, when odour controls have been implemented, all 15 chemicals will meet health-based criteria.

3.3 Health Status Study for the South Riverdale and Beaches Communities

Dr. Loren Vanderlinden explained that the main goal of the health status study was to answer the question: did the South Riverdale and Beaches communities experience greater rates of illnesses and deaths than other similar communities in Toronto? It gathered information on the health of residents living in the South Riverdale and Beaches communities and compare this to the health data of residents living in similar socio-economic (income, age, education of residents) communities in Toronto. The results of the study are based on data from various time periods: mortality from 1979 to 1990; cancer cases from 1985 to 1999; and hospital admissions from 1985-1998 representing a snapshot of health from 6 to 25 years ago when the incinerators were in full operation. The study focuses on death and hospital admission rates for respiratory

and circulatory illnesses, diseases that are known to be influenced by air pollution. The study could not determine whether other potential health influences, such as income levels, smoking rates and nutrition levels, are more or less important than environmental exposures.

The results of the study show that cancer rates in South Riverdale and the Beaches were no different than the comparison communities. It was not possible to compare rates for specific cancers, such as brain cancer and leukemia, because the numbers of cases were so small in all communities. The conclusions regarding cancer rates are therefore somewhat limited. Overall mortality rates were higher in South Riverdale and the Beaches, as compared to their respective comparison neighbourhoods. South Riverdale had higher rates of mortality from circulatory and respiratory disease than its comparison communities. The Beaches had higher rates of mortality and hospital admissions from circulatory and respiratory illnesses. Rates of death from circulatory disease have lowered in recent years in both communities. Asthma hospitalization rates in the Beaches were higher than in their comparison communities. Asthma hospitalization rates in South Riverdale were similar to the comparison communities, though it is important to note that only 1 in 10 asthma sufferers are ever hospitalized.

The study showed that there were health status differences between South Riverdale and the Beaches and their respective comparison communities. These differences likely reflect a blend of environmental exposure and socio-economic differences between the study communities and their comparisons, although this study can not determine actual causes. None of the matches between communities was exact in terms of demographic characteristics so this could be a factor in terms of the health differences that were found. In the case of South Riverdale, it is also possible that lead emitted from the Canada Metals plant may have contributed to circulatory disease or death rates. Typically lower income communities have a greater exposure to pollution.

3.4 Toronto Public Health Recommendations

Dr. Monica Campbell provided an overview of the Toronto Public Health recommendations that stemmed from the three health studies. She noted that while no study can answer all questions, a lot has been learned.

Biosolids and Pellet Review Study

The Medical Officer of Health found no concern to public health or the environment if pellets are used for agriculture or horticulture. The use of pellets on lawns is not a concern from a public health or ecological perspective, but use on lawns with bare patches should be avoided until pathogen safety has been confirmed. Precautionary measures should be taken to ensure pellet quality and the City should exercise due diligence to make sure the pelletizer is working properly. Beneficial use of pellets should focus on horticulture, silviculture and land reclamation, or supply material for industry, at first. The Sewer-Use By-law is the City's first line of defence in ensuring high quality biosolids and pellets so it needs to be maintained and strengthened. The Province needs to conduct a health assessment study to determine the impacts of land application of Toronto's biosolids in cake form.

Ashbridges Bay Treatment Plant Air Emissions Study

Emissions have decreased overall since the incinerator has shut down. Emissions will continue to decline as odour controls are implemented. It is recommended that Toronto Water do some confirmatory monitoring for polyaromatic hydrocarbons (PAHs) and for sulphur compounds, and to continue to monitor chemicals coming into and released from the ABTP to better understand potential emissions. The emissions inventory of the ABTP should also be periodically updated as changes are made to plant operations. The City's Technical Services Division is requested to examine the air quality impact of emissions from all sources in South Riverdale and the Beaches.

Health Status Study

Mortality in South Riverdale and the Beaches is declining. Health status differences between South Riverdale and the Beaches and their respective comparison communities is likely due to a blend of socio-economic and environmental factors. This study could not determine the relative importance of each of these factors. The Medical Officer of Health feels that further study of the communities in relation to ABTP is not useful. More information can not be obtained unless we have individual health data and data on individual exposures, which is not possible. It is recommended that the Ontario Minister of Environment consider cumulative impacts from new emission sources that add to existing ambient pollution levels before issuing a Certificate of Approval for new or expanded industrial facilities, particularly in communities with an elevated burden of health risks.

The Board of Health will again be discussing the results of the three health studies at its next meeting on July 11th.

4.0 Question and Answer Period

<i>Biosolids Pellet Review Study</i>	<i>Response</i>
Is Toronto Public Health aware that people can purchase Milorganite™ pellets from Canadian Tire for home garden use?	<p>Dr. Monica Campbell replied that she is aware the product can be purchased. She explained that the purpose of the Biosolids Pellet Review Study was to look at the particular quality of biosolids pellets that Toronto produces in order to assess the human health and ecological risks associated with long-term use of biosolids pellets in the City.</p> <p>Lou Di Gironimo noted that Milorganite™ is a pellet product produced in Milwaukee. Toronto built the pelletizer to achieve a similar product.</p>
Have you studied the effect of pellets on earthworms?	<p>Cecile Willert replied that effects on earthworms were considered as part of the evaluation of the impacts of biosolids on soil organisms.</p>
What are the impacts of pharmaceuticals?	<p>Cecile Willert explained that pharmaceuticals were examined in a qualitative way because there is a lack of information about the impacts of pharmaceuticals on water quality and biosolids.</p>
Impacts to robins and other birds are a concern.	<p>Concern noted.</p>
Which pathogens are not destroyed by pelletization and what methods of disposal are European countries using?	<p>Cecile Willert replied that pelletization does not destroy prions which cause diseases such as “mad cow” disease. However, the risk to human health in Toronto was found to be low. As a precautionary measure, discharges of blood need to be dealt with by the Sewer Use By-law.</p> <p>Lou Di Gironimo noted that as part of the Biosolids and Residuals Master Plan process the City looked at what other jurisdictions are doing. Some are applying cake, some are making pellets, and others are incinerating. There are some countries that have limited land supply or have banned land application of biosolids, so they rely on 100% incineration.</p>
For a decade the City has had a chance to get beneficial use going. Why isn't it happening?	<p>Deputy Mayor Bussin replied that the City does have a beneficial use program in place. A company called Terratec applies the City's sludge to land during the growing season. The City's pelletizer was in the commissioning phase when a fire occurred. It is to be rebuilt and will pelletize 38,000 of the 50,000 tonnes of biosolids that the City produces annually. The Biosolids Pellet Review Study demonstrates the value of pellets as a beneficial use.</p>

<i>ABTP Air Emissions Study</i>	<i>Response</i>
<p>It is a huge mistake is to think that solutions depend on new technologies such as a fluidized bed incinerator. Canada has inappropriate monitoring requirements and measuring instruments for dioxins. In Canada dioxins are monitored for an 18 hour period, while other countries monitor for 2 weeks. The limits for dioxins in Canada are also too high – they are almost twice as high as those set out by the United Nations. Why was fluoride not measured? Has the City ever measured fluoride, and if so why did it stop? Fluoride causes respiratory, asthma and other problems. It is more toxic than hydrogen sulfide.</p>	<p>Patrick Newland, the director of Water Treatment, noted that Medical Officer of Health makes a recommendation to Council regarding the use of fluoride in drinking water. There are pros and cons to adding fluoride.</p> <p>Dr. Monica Campbell replied that the use of fluoride and levels in drinking water have been declining over time in Toronto.</p> <p>Dr. Anthony Ciccone added that fluoride did not come up in the study as a priority chemical. It was not part of the literature that was reviewed. He noted that there are measurement stations around the City, though not in South Riverdale. Dioxins and furans were well below the health benchmarks.</p>
<p>It is encouraging to see the reduction in air emissions by 2010. There should be continuous improvement in air quality.</p>	<p>Comment noted.</p>
<p>Why does the plant smell, and why do we have to wait for 5 years for odour control measures to be put in place?</p>	<p>Lou Di Gironimo explained that with warm temperatures there is an odour plume that builds and hovers over the plant. Biofilters will be used to capture the air and clean it. The City has hired a consultant to design the odour treatment facilities. Unfortunately it will take time to design, contract out and build some of the facilities.</p> <p>MPP Marilyn Churley noted that Can Roof also causes some of the odour that people are smelling. She has been asking the MOE to police them and there have been several complaints lodged by residents in the area.</p>
<p>Can hydrogen sulfides be reduced to 0, and how would this be done?</p>	<p>Lou Di Gironimo replied that the level could be brought down to zero but it would be costly and would not be the most economical treatment solution at the plant.</p>

<i>Incineration</i>	<i>Response</i>
<p>How many large communities have incinerators within 10 km of their downtown? Why is the City pushing for an incinerator when the community doesn't want it?</p>	<p>Lou Di Gironimo replied that as part of the Biosolids and Residuals Master Plan the City did look at other incineration facilities outside of Toronto, including the Lakeview Treatment Plant, and Duffins Creek Treatment Plant in Durham. In the Master plan we have outlined various options and strategies. We need to diversify and maximize facilities already in place. The reality is that there are limitations to land application and the pelletizer is not in operation. We have been shipping biosolids to landfill in Michigan but this is not a reliable solution.</p>
<p>I don't have faith in pollution modeling. A lot of systems are not linear as the models assume. Incineration is not a good option. What ever goes in the incinerator will come out as air emissions or ash. The City needs to look at other options such as the Adams Mine. Michigan does not want our garbage we need to deal with our own waste.</p>	<p>Comments noted.</p>
<p>Are there incinerators that reduce all the waste to ash?</p>	<p>Lou Di Gironimo explained that the purpose of incinerators is to reduce the mass of the biosolids. A fluidized bed incinerator reduces the mass of biosolids to 10% ash, which is then landfilled.</p>
<p>A member of the Toronto Environmental Alliance noted that she had downloaded the emissions from a fluidized bed incinerator used in Pickering. Some of the emissions include cadmium, benzene and arsenic. How is the City going to take the health studies into consideration as part of the Master Plan work?</p>	<p>Lou Di Gironimo replied that the City is active in other ongoing research. This information along with the results from the three health studies will be incorporated into the final Biosolids and Residuals Master Plan document.</p>
<p>A European Commission report stated that incineration is the most extensively used, but least favourable, biosolids management option in Europe. We need Toronto Public Health to assure us that what the Works Department is doing is appropriate. The two groups need to work together more.</p>	<p>Comment noted.</p>

<i>Incineration</i>	<i>Response</i>
<p>What would it take for the City to revise the Master Plan to reflect that pelletization, or other beneficial use alternatives, have more potential than originally thought? What would it take to remove incineration as a contingency from the number one ranked option?</p>	<p>Lou Di Gironimo replied that the Master Plan recommends looking at other options, including beneficial use and emerging technologies. Incineration will only be considered as a contingency if other options are not viable or sustainable. Sludge is created every day, we have to have a way of dealing with it.</p> <p>Deputy Mayor Bussin noted that there are other options. There are businesses that are interested in taking the sludge with out it even being pelletized first. It could also be used for mine covering.</p>
<p>Why is using existing facilities part of the City's list of priorities?</p>	<p>Lou Di Gironimo explained that he meant existing beneficial use facilities. If incineration is used as a contingency then a new one would be built and there would be a full individual EA. The existing incinerator equipment would not be used.</p>

<i>Health Status Study</i>	<i>Response</i>
<p>Why were asthma hospitalizations of men looked at and not women and children?</p>	<p>Dr. Loren Vanderlinden replied that asthma hospitalization figures for the whole population were used because there would not be enough data if we looked at just children. Men and women were included.</p>
<p>Why are the comparative communities used in the study not named?</p>	<p>Dr. Monica Campbell replied that it is standard practice to not name the comparative communities. You can see the characteristics of the other communities in the full study document.</p>
<p>There should have been a household census done to see what kinds of health problems residents have experienced. Why wasn't a questionnaire sent out? Perhaps people went to other hospitals in the City. There seems to be money to hire consultants, but not to do a survey.</p>	<p>Dr. Monica Campbell explained that surveys are one type of study approach, however, typically the response rate is a problem. A door-to-door study is expensive. One was done in the Junction Triangle community about fifteen years ago – it cost around \$400,000 and came up with inconclusive results. We chose to use administrative records because the outcomes are documented, and one is able to trace patients using postal codes. This way we could obtain data on health for residents at the time they lived in the area.</p>

<i>Other</i>	<i>Response</i>
The studies have only just been released. Why is this meeting being held so soon? There is a lack of review time.	Dr. Monica Campbell replied that the purpose of the public meeting was simply to present the information. The studies will be discussed again at the next Board of Health meeting on July 11 th .
What are the Councillors doing to replace the jobs that have been lost from the plants that have been shut down in the Portlands?	MPP Marilyn Churley noted that the plants were shut down because children were literally being poisoned with lead and were experiencing learning difficulties. The film industry has created jobs in the area.
Will there be a full EA of the Portlands Energy project?	Dr. Monica Campbell replied that the Medical Officer of Health had asked for a full EA to be done.
The public system needs to keep control of what is done, don't privatize any operations, or commercialize anything.	Lou Di Gironimo replied that the water systems will remain in public hands. The City and the province are not looking at privatization.

5.0 Next Steps

Janet Amos thanked everyone for attending the meeting and members of the public to submit a comment sheet to the City if they had further questions or concerns.

The meeting ended at 9:40 p.m.