



**HUMBER TREATMENT PLANT
NEIGHBOURHOOD LIAISON COMMITTEE
(HTPNLC)**

Meeting #01/04

Humber Treatment Plant – Administration Building
130 The Queensway, Etobicoke
Thursday, June 3, 2004
7:00 PM – 9:30 PM

SUMMARY NOTES

ATTENDANCE

Residents/Others

Garry Kapitan	- Co-Chair
Lisa Tkaczuk	- Co-Chair
David Boy	- Resident
Lynn Rands	- Resident
Mae Waters	- Resident
Paul Attard	- Resident
Anna Attard	- Resident
Claire Papierz	- Resident
Gary Hunt	- Resident
Victoria Bier	- Resident
James Lampard	- Resident
Doreen Down	- Resident
M. La Valle	- Resident
E. Wolfe	- Resident
A. Brusby	- Resident
J. Colwell	- Resident
Sidney Down	- Resident
Harold Down	- Resident
M. Puhm	- Resident
Maryna Semenova	- Resident
Dianne Doan	- Resident
K. Petryla	- Resident
John Hopkins	- ICMC
Jim Lord	- Humber Bay Shores Condominium Association
Ron Braun	- Ripley Areas Res. Corp

City of Toronto Staff

Samir Damian – Humber Treatment Plant
Voitek Kozakiewicz – Humber Treatment Plant
Carlito Gonzales – Technical Services
Lou Di Gironimo – Director Wastewater Services
Nancy Martins – Public Consultation & Community Outreach
David Nagler – Public Consultation & Community Outreach
David Simms – Wastewater Services
George Theodorlis – Technical Services

Consultants

Moe Zolghadr – ZORIX Environmental
Michael Rix – ZORIX Environmental

Note Taker – Carolyn Pettitt

Draft Agenda

1. Approval of the Agenda
2. Approval of February 13/03 Summary Notes
3. Action Items from February 13/03 Summary Notes
4. Overview of the Humber Treatment Plant Odour Study
5. Updates:
 - Return Activated Sludge/Waste Activated Sludge (RAS/WAS)
Co-generation Project
 - North Grit Vortex Chamber Project
 - Plant Water Treatment Project
 - Plant Digesters
 - Biosolids & Residuals Master Plan
6. New Business
7. Next Meeting Date/Adjournment

Documents provided at the meeting:

1. Draft Agenda for HTPNLC Meeting #1/04 – June 3, 2004
2. Summary Notes of HTPNLC Meeting #1/03 – February 13, 2003
3. Highland Treatment Plant Odour Assessment presentation slides from ZORIX Environmental
4. Responsible Choices April 2004 – Biosolids & Residuals Master Plan newsletter

HTPNLC Meeting

Garry Kapitan (Co-Chair) opened the meeting at 7:10 PM and welcomed those who turned out for the meeting. It was noted that **Nancy Martins** is replacing **Ann Marie Weselan** as the Public Consultation Coordinator as Ann Marie is now working for the Ministry of Environment.

1. APPROVAL OF THE AGENDA

The Agenda was adopted as distributed.

2. APPROVAL OF FEBRUARY 13 SUMMARY NOTES

The Summary Notes from HTPNLC Meeting #01/04 (February 13, 2003) were adopted as distributed.

3. ACTION ITEMS FROM FEBRUARY 13, 2003 SUMMARY NOTES

It was noted that the committee positions for the Biosolids and Residuals Master Plan have all been filled and the committee has been meeting for about a year now. This addressed the Action Item from the last meeting.

4. OVERVIEW OF THE HUMBER TREATMENT PLANT ODOUR STUDY

ZORIX Environmental consultants, **Moe Zolghadr** and **Michael Rix**, gave a presentation (see Attachment A) on the Humber Treatment Plant Odour Study.

ZORIX Environmental has been commissioned by the City of Toronto to pinpoint the sources of foul odour at the Humber Treatment Plant, and to provide sound strategies for their control in order to minimize potential adverse impact in the area in the shortest possible time frame that is technically feasible.

About ZORIX Environmental

ZORIX Environmental focuses on solving odour nuisance issues in the municipal and industrial sectors. The two Principals of the company are Moe Zolghadr and Michael Rix. The company was founded in 1997 and is based in Mississauga. The company operates its own in-house olfactometry lab and has a proven track record of helping clients and communities to mitigate odour impacts. Past clients include: Region of Peel, Region of Halton, Dofasco, and Alcatel. Moe Zolghadr has over 25 years of experience in this field. He looks at issues from the perspective of the community, and specializes in the development of abatement strategies, as well as the design of odour capture and control systems. Michael Rix has over 24 years of relevant experience. His area of expertise is designing and conducting odour assessment programs. He specializes in sampling, evaluation, modeling, impact assessments, and community odour surveys. The services of ZORIX Environmental include: odour impact assessment (diagnosis), development of odour capture and control strategies (prescription), and management and implementation of odour controls (treatment).

Odour Assessment Study

The assessment of the sources of odours at the Humber Treatment Plant will begin with the collection of samples from different locations that emit foul air at the plant using specialized sampling techniques. It is important to ensure that the samples are collected properly at the start. For example, flux chambers are used to collect odours from the surface of exposed liquids that emit odours into the air such as settling tanks. The odour "concentration" of the samples are then quantified in the olfactometry lab by a panel of 8 pre-screened people drawn from the general public. Off-property impacts are determined using computer modelling techniques. The model prediction of impacts are always based on peak levels and worst case scenarios. An ambient assessment of odours is not a "chemical" analysis of the odours, rather it is a sensory assessment using a technique called Community Odour Survey (COS). To conduct a community odour survey 5 panelists, normal people drawn from the general public, are spread out in an arc downwind of the plant. The panelists then make observations about their sense of odour character and intensity in the air they breathe as they walk toward the plant.

The scope of work for the Humber Treatment Plant Odour Assessment Study entails properly investigating and quantifying the odour problem at the plant, and making sound recommendations to mitigate the odour nuisance problem.

Outlined Project Tasks

1. Start-up
2. HTP Emission Sampling and Analysis
3. Dispersion Modelling for Odour
4. Community Odour Surveys
5. Impact Assessments
6. Recommendations for Impact Mitigation
7. Reporting
8. Meetings/Presentations

Progress to Date

The Odour Assessment Study started three weeks ago and the site review is in progress. There are a number of start-up steps that have to be done before sampling can commence. The odourous air flow diagrams representing the current status and the fate of foul air streams are being devised in order to provide a road map for odour impact mitigation recommendations that will follow. An odour-sampling plan has been submitted and is being reviewed by the City. The intent is to begin sampling in June and continue it through the summer months when it is hot and the odours are at their worst.

Questions/Comments arising during the presentation by ZORIX Environmental:

Question/Comment	Response
At certain times of the day the plant seems to smell more. What time of day will the sampling be done?	Moe Zolghadr replied that the sampling will be done in the daytime. He explained that there will

	<p>be 3 separate rounds of sampling and that several years of meteorological data will be used to estimate the odour impact.</p>
<p>Will the sampling be done at the plant and in the community close by?</p>	<p>Moe Zolghadr replied that yes there will be source sampling done everywhere in the plant and community odour surveys will be conducted in the neighbouring community.</p>
<p>What will the boundary be for the community odour survey?</p>	<p>Michael Rix replied that the panel will start at a 2km radius from the plant and work toward it. The idea is to start where it we don't expect many odour detections and then move toward the plant where we would expect to find odours. One problem is access because panelists can not stand in the middle of the QEW. The panelists move toward the plant in 400 to 500 metre increments. Four community odour assessments will be done. If there are a lot of odours at the 2km radius then we will move farther away for the next round. We'll go as far as we need to go. We are trying to find the mere detection level (well below the impact level).</p>
<p>The odour is occurring at the Sobey's. If the odour is stopped there it will be fine everywhere else.</p>	<p>Moe Zolghadr explained that it is important to minimize the potential impact of the odours not only at the Sobey's location but elsewhere in the community as well.</p>
<p>In the 1970's it was not odourous at the plant. The Oshawa Group used to have picnics right at the plant. The odour is getting worse as time goes on.</p>	<p>Moe Zolghadr replied that over the past few decades population in the area has grown and therefore the plant's capacity has had to increase to serve the needs of the residents. At the same time any buffer zone between the plant and homes or businesses has shrunk. Moe said that it is critical that the "medicine" to mitigate the odour impact is the right strength so that we don't over treat the problem and waste money or under treat the problem so that it is not really solved.</p>
<p>What sort of prescriptions have you recommended for other clients? Will the odours be masked?</p>	<p>Moe Zolghadr replied that ZORIX does not believe that masking odours is a real solution, however in some situations this could be a short-term quick remedy. We want to eliminate the odours at the source by capturing and containing the odours so the foul smell doesn't have a chance to get out. The captured odour emissions would then be routed to an odour control system, for example an environmentally friendly biological system that uses micro-organisms to convert odour into carbon dioxide and water vapour. In a biofilter system odour compounds become food for the organisms. This biofilter technology has been used elsewhere and will be used at Ashbridges Bay Treatment Plant. It is the most benign and environmentally friendly system. It works well and is very applicable to sewage treatment plant operations.</p>
<p>Is the biofilter technology new?</p>	<p>Moe Zolghadr replied that early versions of biofilters have been used in Europe for the past 50 years but the bio-technology as a whole has improved much in the recent times.</p>

<p>How much is it going to cost to implement the odour study recommendations at the Ashbridges Bay Treatment Plant?</p>	<p>Moe Zolghadr replied that over \$100 million would be required to address all the odour study recommendations in the next 10 years. The Ashbridges Bay Treatment Plant is the largest sewage treatment plant in Canada. It will take time and meticulous planning to put the odour control systems in place while the plant is still operating.</p>
<p>How much sewage does the Humber plant treat?</p>	<p>Moe Zolghadr replied that the Humber treats around half a million litres per day, about half of the volumes treated by Ashbridges Bay. The Humber treatment plant is currently operating below its design capacity.</p>
<p>Did you learn anything from the Ashbridges Bay Treatment Plant odour study that could be applied here?</p>	<p>Moe Zolghadr replied that yes things were learned from the Ashbridges Bay odour study that could be applied to the Humber. We have learned a great deal and we are applying this knowledge. This is why we can complete the odour study at the Humber in 7 months instead of the 2-year timeframe that was used at Ashbridges Bay. It is important that sampling is done during the summer when the odours are the worst due to the heat and humidity.</p>
<p>Aren't the compounds causing the odours at the Humber Treatment Plant the same as those causing the odours at the Ashbridges Bay Treatment Plant?</p>	<p>Michael Rix replied that the plants vary in design and the digestion and other processes that are used. We need to study the Humber so we know how much odour is coming from each of the different odour sources at this specific plant. This way the odour controls can be designed appropriately. As Moe Zolghadr explained "you can't remove all stains with one type of stain remover" just because it may work for one".</p>
<p>What is the City's budget for implementing odour control mechanisms at the Humber Treatment Plant?</p>	<p>Moe Zolghadr explained that there is no budget yet because we don't know exactly where, or how bad, the odours are at the plant. Once we quantify the amount of emissions and predict the potential for odour impact off-property we will be able to recommend sound remedial options. It is unlikely that implementation of the odour controls at Humber would cost \$100 million.</p>
<p>How many wastewater treatment plants have you studied?</p>	<p>Moe Zolghadr replied that ZORIX Environmental has completed 10 –12 odour assessment and control projects for wastewater treatment plants.</p>
<p>Are there statistics on what type of designs and processes cause the odours? Is there a database of world experience from other companies that study odour?</p>	<p>Moe Zolghadr replied that while there is a lot of odour study experience odour controls need to be designed for specific situations/plants. He explained that the type of odour controls that are recommended in part depends on the design of the plant and what types of effluent come into it. "You can't say that because a certain prescription worked for Fred it will work for you".</p>
<p>It sounds like the odours are just going to be contained. Can't the odours be prevented in the first place?</p>	<p>Moe Zolghadr replied that impacts can be prevented or minimized but foul odours are inherent when dealing with sewer systems. It is possible to design effective odour control features into a new plant, however, the problem is that you</p>

	<p>can never really prevent the odours because the context of the plant's operations is continually changing. As the population of the City increases the volume of flows to the plant also increase. People are also living closer to the plant and encroaching upon it.</p>
<p>Is it possible to control the odour given the population projections?</p>	<p>Voitek Kozakiewicz replied that the City does try to control odours during rehabilitation and plant expansion projects, but it is not possible to control odours 100%. Projects initiated in the last seven years included installation of individual odour control systems.</p>
<p>How many people does the Humber Treatment Plant service?</p>	<p>Voitek Kozakiewicz replied that the plant services 650,000 people.</p>
<p>What happens to flows north of Steeles Avenue?</p>	<p>Lou Di Gironimo replied that York Region pumps flows north of Steeles Ave. to the City of Pickering.</p>
<p>In Montreal there is a cover over the sewage treatment plant which traps the odours.</p>	<p>Moe Zolghadr replied that this option is technically feasible but it is likely too costly and potentially unnecessary.</p>
<p>How can members of the public get involved in the study?</p>	<p>Moe Zolghadr replied that updates on the study will be provided at NLC meetings. He also mentioned that members of the public are welcome to tour and observe ZORIX's olfactometry lab where "odour panels" are held.</p>
<p>Did the plant management ask for this study and why is it being done by consultants?</p>	<p>Voitek Kozakiewicz replied that City staff have some experience with odour control but it does not compare to the 25 years of experience and expertise that can be offered by the ZORIX consultants who also have their own lab. The City hires consultants when projects are beyond our capabilities. The number of odour complaints received triggered the odour study. The equipment of the plant is 25 years old and needs to be replaced. It just makes sense to put in place odour controls measures at the same time. Odour studies will also be done for the Highland Creek treatment plant.</p>
<p>When you do outdoor testing can you distinguish between the smell of the plant versus the smell of the lake or the smell of the river?</p>	<p>Michael Rix replied that the plant odours are characterized and panelists are trained on these odours so they can recognize specific odours and where they come from at the plant. Lou Di Gironimo added that the odours at the plant vary and have unique characteristics. Once you know the different smells you can tell where the odours are coming from and what part of the process it is.</p>
<p>Why wouldn't we use the knowledge that staff have about the odours at the plant?</p>	<p>Lou Di Gironimo replied that while staff can tell us where the smelliest part of the plant is, we don't know what volume of air is there so we don't know how much we need to spend to fix the problem.</p>
<p>How do you know how much odour control is needed?</p>	<p>Moe Zolghadr replied that the odour control must be sufficient enough to minimize odours to a negligible level at the plant and also reduce the duration of odour problem impacts. This is done by employing techniques such as computer dispersion modeling to predict impact levels based on real</p>

	measured data and many years of experience gained in similar situations.
Is the City committed to having the odour study completed and implementing the recommendations?	Lou Di Gironimo replied that the City is committed to the study and implementation of the recommendations. However, he urged residents to call the plant at 416-392-3280 when they detect odours so that there is a database of information. Please report the time of day and where you were when you detected the odour, as well as what it smelled like. An after hours phone number can also be called if residents detect odours after 4 PM.
Is there likely to be a 10- year implementation plan?	Lou Di Gironimo replied that the timeframe for implementation of the odour control mechanisms depends on what the problems are. The problems at the Humber may not be as complex as those at Ashbridges Bay. No matter what the timeframe the goal will be to address the major problems first.
How hazardous are the odours?	Moe Zolghadr replied that the foul odours associated with a municipal wastewater treatment plant are generally only a nuisance, they are not toxic.
Will the odour control “prescription” cause toxicity?	Moe Zolghadr replied that the odour control measures that will be recommended are environmentally friendly solutions. Even when chemical scrubbers are used to neutralize chemical compounds in fouled air there is no environmental risk. Carlito Gonzales added that there are MOE regulations that govern what happens at the plant so that the environment and public health are protected.
How will the odour be controlled at the plant?	Moe Zolghadr replied that the odours will be captured and contained. Odourous air streams will then be conveyed to an odour control center for treatment and neutralization. The whole idea is to prevent it from getting into the air and cause an adverse impact in the community.
Are developers asked to fund infrastructure in the community?	Lou Di Gironimo replied that the development charge is currently under review. The City collects some money but probably not enough. There is a Development Charges Act that the City has to follow.
Do development charges vary?	Lou Di Gironimo replied that municipalities have to follow the Development Charges Act very closely. The City can not charge for zoning changes and it can only charge for hard infrastructure. Boards of Education can also charge developers money to pay for new schools.
How does the City determine where the money from the development charges goes? Does any go to sewage treatment plants?	Lou Di Gironimo replied that the water rate alone funds treatment plants and filtration plants. It is a user pay system. The water rate went up 6% this year to pay for capital infrastructure costs.
Is there a cycle in the odours? It seems as though the odours start Friday and then get progressively worse into Saturday afternoon. On Labour Day last year the smell was very bad.	Lou Di Gironimo commented that the odour over the long weekend in September was due to the power outage last August. Once there is an upset in process it can take weeks to get the balance

	<p>back. There are daily fluctuations in flow rates with water usage. There are low flow at night so odour builds up in sewers and then gets pushed up when the flow increases. Moe Zolghadr added that weather conditions can affect odour. In calm, hot, humid weather the odours will linger. There is also a lake effect around Humber. The City has no control over when the odours will occur. The odour study will recommend a control system that can react to flow fluctuations and work well in all weather conditions.</p>
When do you get the most odour complaints?	<p>Voitek Kozakiewicz replied that the complaints are more related to weather than time of day. Summer is worse.</p>
What time frame is being used in the modeling – ten years of meteorological data?	<p>Moe Zolghadr replied that the computer dispersion modeling is a prediction of potential impact. Five years of meteorological data is used to predict the impact of the current plant. Lou Di Gironimo added that every time there is expansion at the plant we design in proper air filtration equipment. We are trying to catch up with the past. Public expectations have increased and residential densities are higher.</p>
Are there plans to expand the plant north and expropriate homes?	<p>Carlito Gonzales replied that there is sufficient capacity at the plant for another 10-15 years. Lou Di Gironimo replied that facility projections with new population figures are being completed and there will be a report later this year. There is a portion of the plant's service area that has combined sewers. When this is dealt with there will be more capacity at the plant.</p>
What are the plans for sewer separation?	<p>Lou Di Gironimo replied that this is a billion dollar project that is being looked at as a City wide initiative through the Wet Weather Flow Master Plan.</p>

5. UPDATES

Voitek Kozakiewicz reported that the following capital projects are in progress:

- North grit vortex chambers project
 - Currently grit is removed from the tanks using a clam shell crane. During this operation the tank covers are opened and grit deposit in tanks disturbed causing odours to be released. This will not occur once the upgrade is in place. Grit conveyors will be used and the odours will be sealed as there will be no need to open the tank covers for grit removal.
 - The technology review has been completed, and the facility inventory and detailed design work is in progress.
- Rehabilitation of the first 6 digesters
 - This is a multimillion project with a 5 year construction timeline
 - Detailed design and specifications have been completed, and the tendering documents are being prepared.

- Just one component contributing to odour control improvements is a selection of new heat exchangers. These modern exchangers will have a different design so they will be less prone to break down and will not have to be opened in order to be cleaned.
- Return activated sludge/waste activated sludge
 - The system will allow to maintain an optimal sludge balance in the biological process. When there is a build up of solids you get odours. The upgrade will help reduce the odours that are created by excess solids build-up.
- Plant water treatment project
 - construction of the water treatment facility that uses sand filters and chlorination for disinfection has been completed.
 - commissioning of the water treatment facility is in progress.
 - includes upgrades to the plant water distribution system
 - the treated plant water will be used also as “cheap” air conditioning medium by circulating through the cooling coils of the HVAC system in the basements and tunnels.
- Co-generation project
 - The project is in a commissioning stage. The digesters produce gas. In the past this gas was used to power engines that pumped air in the aeration tanks. These engines were old and repair works were difficult due to discontinued parts supplies. New engines were installed and will be used to generate electricity. Natural gas could also be used to substitute the digester gas at times when it is cheaper to generate electricity using blended gas rather than buying power from the hydro grid. Co-generation is not an incinerator.

Summary of questions and comments arising during the report on updates:

What is in the 9 tanks at the north end of the plant?	Voitek Kozakiewicz replied that these tanks are the final secondary settling tanks. The sludge sinks to the bottom of the tanks and is then removed. There are 21 final effluent tanks on the plant property. Moe Zolghadr explained that the final effluent tanks are not nearly as odorous as the primary settling tanks, which are currently not covered. It is the primary tanks that are one of the main sources of odour at the plant.
Could the primary tanks be covered?	Voitek Kozakiewicz replied that this might be one of the recommendations that comes out of the odour study.
How can the plant not be over capacity?	Voitek Kozakiewicz explained that the rate of flows to the plant varies. Flows peak at certain times of the day.
The secondary tanks smell too. Why not just cover up the tanks to control the odour?	Voitek Kozakiewicz replied that perhaps there is an easier or cheaper way to control the odour and it will be defined by the Odour Study project. Moe Zolghadr added that not all odours are the same emanating from different tanks.
What happens to the sludge?	Voitek Kozakiewicz replied that the sludge is thickened and then digested for 15 days to remove any pathogens. Gas from the digestion process is used for heating. The sludge then goes to the Ashbridges Bay Treatment Plant.
What is the clanking noise?	Voitek Kozakiewicz replied that the noise may be some equipment, but most likely it is from the

	condominium construction.
Are the upgrades going to be done before the odour study is completed?	Voitek Kozakiewicz replied that yes the upgrades can not wait.
How has the staff reduction affected plant operations? There was a problem with a tank on a Friday and it was not addressed over the weekend until Monday.	Voitek Kozakiewicz replied that there was a staff reduction of two operators per shift due to new philosophy of operation and implementation of new work practices. It was also possible due to increased automation at the plant. Over four and a half million dollars was spent in the automation project that at the moment enables operators to monitor and remotely control 80% of the plant's processes by computer. When the automation implementation is finished, the operators will have remote monitoring and control access of almost entire plant process. Less physical labour is therefore needed to do inspections and communicate between buildings. The staff reductions have had no net impact on the operation of the plant. Operators now do some maintenance tasks. Job training and upgrades have been provided to staff. The plant is a class 4 facility, which means that all operators have the MOE license, passed the MOE exams and are trained a minimum of 40 hours per year to ensure they have up to date knowledge. If a tank goes down we need up to 5 operators to clean it and they are called in to work overtime. It takes 2 days to clean a tank just so that it can be repaired. Lou Di Gironimo added that when there are breakdowns there is usually a delay because we have to wait to get equipment and parts.
What portion of the plant is out of commission at any one time?	Voitek Kozakiewicz replied that the plant has a Rated capacity of 470,000. The Firm capacity is the minimum equipment needed, but the plant has extra capacity and equipment beyond this.
Is the plant currently compliant with MOE guidelines?	Voitek Kozakiewicz replied that the plant is compliant. Data is reported to the MOE every month. All breakdowns have to be communicated to the MOE. The MOE conducts regular inspections to observe the plant performance but also sends inspectors to the plant unannounced for spot-checking.
Will the plant accept more sewage in the future?	Voitek Kozakiewicz explained that the service area of the plant is still growing in terms of population numbers. However, it is predicted that the implementation of water efficient toilets and taps will help prevent an increase in overall flows to the plant. While the number of people in the service area will increase, the flows per person will hopefully decline.

Update on Biosolids and Residuals Master Plan

Lou Di Gironimo explained that the sludge from the Humber digesters is shipped to the Ashbridges Bay Treatment Plant to be dewatered. When possible the biosolids are then applied to agricultural land. A pelletizer was built to turn the biosolids into fertilizer, however there was a fire at the facility and it is no

longer operating. Currently all biosolids are being trucked to a landfill in Michigan. The Biosolids and Residuals Master Plan is developing strategies to manage all of the biosolids from the City's sewage treatment plants, as well as all of the residuals from the City's water filtration plants. There is a Public Advisory Committee that has been established and public meetings have been held as part of the planning process. A number of management options were identified and then evaluated to produce a short list of options. These short-listed options will now be combined into possible management strategies for each plant. A public meeting to present the strategies for the Humber Treatment Plant will be held at the Swansea Community Centre in July.

6. NEW BUSINESS

- none -

7. NEXT MEETING

The next NLC meeting will be held when there is something to report on the progress of the odour study.

8. ADJOURNMENT

The meeting adjourned at 9:25 p.m.