Report

ORTECH Environmental
a division of ORTECH Consulting Inc.

# Review of Waterfront Toronto Application for an Air Certificate of Approval for a Waste Disposal Site

A Report to:

Lake Ontario Waterkeeper
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Attention:

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# 1. INTRODUCTION

Lake Ontario Waterkeeper retained ORTECH Environmental to provide an opinion based on a brief review of documents submitted in an application for an air approval submitted to the Ontario Ministry of the Environment Approvals Branch.

The application is for a Soil Management Facility (the Facility) to be located at 294 to 348 Unwin Avenue in Toronto and will be owned and operated by the Toronto Waterfront Revitalization Corp., operating as Waterfront Toronto. The application 'pertains to receiving and stockpiling activities only'. Separate applications are to be submitted for remediation activities 'when sufficient information is available'. The application includes an Emission Summary and Dispersion Modelling (ESDM) Report which addresses the proposed operations, anticipated air emissions, the dilution of these emissions to off-property locations and the potential impact of these emissions.

# 2. DISCUSSION

The air approvals regime in Ontario for a new application for air approval includes a requirement to provide an ESDM Report that meets Sections 10(1)1. and 11(1)1. of Ontario Regulation 419/05, Air – Pollution – Local Air Quality:

> *A scenario that, for the relevant averaging period, assumes operating conditions for the facility that would result in the highest concentration of the contaminant at a point of impingement that the facility is capable of.*
>
> *and*
>
> *The emission rate that, for the relevant averaging period, is at least as high as the maximum emission rate that the source of contaminant is reasonably capable of for the relevant contaminant.*

MOE Guideline A-10, the Procedure for Preparing an Emission Summary and Dispersion Modelling Report, March 2009, Version 3 provides guidance in meeting Sections 10(1)1. and 11(1)1.in terms of identifying contaminants, identifying operation conditions developing an emission inventory and undertaking dispersion modeling and assessing the results.

The content of the ESDM Report for the Facility meets the specified requirements, but may not represent the scenario described in Sections 10(1)1. and 11(1)1., as outlined below.

The 89 contaminants selected for the emission inventory have been drawn from a table in an August 2009 West Don Lands report and a table on MOE soil, groundwater and sediment standards. However, the rationale for the selection of these specific contaminants, as opposed to other air contaminants, is not clear. Since the MOE has developed standards, guidelines and Jurisdictional Standards Levels (JSLs) for more than 1600 contaminants, and there are many other chemicals in use without MOE standards, guidelines and JSLs, this may not be a trivial issue.

Section 3.1 notes that the emission inventory is based on the 'highest levels measured in known imported soil in the DWA' [DWA = Designated Waterfront Area] while only the majority of soils are anticipated to originate within the DWA. More importantly, the bulk of the emission calculations appear to be based on maximum "Daily Average" concentrations rather than the "Peak" concentrations measured (see Table A4 in the ESDM Report). Since the peak concentrations are expected to be significantly larger than the daily average concentrations, it is not clear that using the daily average numbers meets the intent of Section 11(1)1..

As noted in the ESDM Report, the facility may not be obliged to quantify the fugitive dust emissions from roadways and storage piles. In addition, the ESDM Report includes reference to the use of stabilizing agents and a tire wash facility and notes their use "on as as-needed basis". However, there is no detail provided on what criterion will be used to identify when these amelioration methods are needed or what alternatives are proposed when temperatures are well below freezing. These issues could be addressed by developing a Best Management Plan for fugitive emissions as outlined in Technical Bulletin included in the Procedure and would reinforce the validity of the non-volatile compound, or particulate, emission rates included in Appendix E of the ESDM Report.

The calculations of the emissions of volatile materials are reasonably based on a partitioning equation from a September 2008 MOE document. However, as described in Appendix E of the ESDM Report, a number of parameters are based on typical (as opposed to maximum) values for 'soil to be received at site' that may not reflect the intent of Section 11(1)1..

One of the key input parameters to any dispersion model is the selection of the source parameters. The source that was selected for the ESDM Report is a volume source that appears to represent the maximum volume of an on-site stockpile: 40 m by 40 m by 20 m high, near the centre of one area of the site. However, the maximum off-property impact from depositing soils on the site is much more likely

to be on the initiation of a new pile when the materials are being deposited at or near ground level. In addition, the off-property dispersion will be calculated as being the maximum when the stockpile is being made near a property line. A note on Figure 3 of Appendix B states that the Nearest Proposed Stockpile to Adjacent Property Line is 37 m but a separate note on the same figure seems to suggest that the distance from the edge of the stockpile to the property line is 37 – 20 = 13 metres.

If the dispersion modelling is based on a source near ground level about 13 metres from a property line, the calculated concentrations will be much higher than those contained in the Source Summary Table in the ESDM Report. As a consequence, the modelling would not appear to meet the requirement of 10(1)1.. At the least, this is likely to increase the number of contaminants that will require 'procedural limits' to ensure that maximum POI concentrations are met.

Section 3.1 states that the closest sensitive receptors are more than 1 km away. This appears to be true for residential receptors for odour, as defined by the "Permanent potential 24 hour sensitivity" receptor category in the April 2008 Methodology for Modelling Assessments of contaminants with 10-minute Average Standards and Guidelines under OReg 419/05. However, it does not address the "Permanent daily hours but with definite periods of Shutdown/Closure" receptor category which specifically includes bicycle paths. The nearest bicycle path to the facility is within 300 metres.

## 3. SUMMARY

The application and the ESDM Report follow the content requirements of OReg 419/05 Sections 10(1)1. and 11(1)1. but may not represent the so called 'maximum emission scenario' described in these subsections. The implication of this is that additional documentation and commitments may be required to ensure that all air requirements are met.

ORTECH Environmental
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**PAUL COMPLIN, P. Eng., M.A.Sc.**

Principal, Compliance and Permitting

## EDUCATION

B.A.Sc., Chemical Engineering, University of Toronto
M.A.Sc., Chemical Engineering, University of Toronto

## AREAS OF EXPERTISE

Over 30 years of experience in Air Quality Assessment, Permitting, Source Assessment, Air Pollution Control, Incineration and Combustion Processes, Pollution Prevention, Policy and Regulation Development, Abatement Reviews and Programs.

## EXPERIENCE

- Responsible for administration, business development, proposals, studies, project management and project coordination.
- Manages technology reviews, air, noise and wastewater approval submissions and emissions testing for mining, pulp and paper, cogeneration plants, utilities, institutions and diverse manufacturing facilities including steel processing, gas production and transmission, health products, auto parts manufacturing and surface coating operations.
- Leads the air approvals, National Pollutant Release Inventory (NPRI), Toxics Reduction Act and GHG practices at ORTECH.
- Prepares and provides technical reports, expert advice and peer reviews on zoning issues and provides testimony at land use hearings.
- Lead the technical team that negotiated the first province-wide Comprehensive Air Certificate of Approval for a major utility.
- Submits over 20 applications for air permits, including Emission Summary and Dispersion Modelling Reports and Acoustic Assessment Reports, per year and leads negotiations with the Ontario Ministry of the Environment on compliance issues.
- Participated in emission testing, comprehensive source inventory and dispersion study of odorous compounds from a major furniture manufacturer, a major municipal sewage treatment facility and a major auto manufacturing complex.
- Lead an assessment of a major fossil fuel fired plant including comparison of alternate dispersion models, modelling/monitoring comparisons and risk factors related to unit loads, variability of sulphur content and meteorological parameters.

- Co-developer of the Ontario Air Practitioners group of professionals that has bonded together to formally discuss issues related to air and noise compliance in Ontario with the Ontario Ministry of the Environment.
- Conducted peer reviews of gas generation and air impact of environmental assessments for proposed new landfill facilities.
- Assessed the energy implications of Canadian waste management and waste diversion programs.
- Participated in compliance audits for a pulp and paper mill, a major transportation agency, surface coating operations, and other manufacturing facilities.
- Leads the production and annual updating of templates to calculate NPRI/Reg. GHG emissions from natural gas and liquid fuel combustion.
- Lead a technical assessment of electrical energy use in emerging environmental issues and technologies.
- Managed intensive boiler and incinerator field studies and assessments, including a quarter-million dollar short-term high-intensity process and combustion field study and data analysis at a 400 TPD energy from waste plant.
- Coordinated the Best Available Technology project for Ontario Hydro industrial wastewater under the Ontario Municipal and Industrial Strategy for Abatement (MISA) Program.
- Developed and reviewed the environmental aspects of remediation, cogeneration and mining feasibility studies.
- Investigated air pollution and waste aspects for the environmental impact assessment of a major metropolitan airport expansion.
- Developed municipal, woodwaste and biomedical waste incineration systems.
- Supervised air quality, stack testing and continuous emission monitoring field test teams.
- Responsible for pollution and process studies, policy and regulation development for the Ontario Ministry of the Environment, including continuous emission monitoring and source sampling.
- Developed solutions for difficult approval and abatement situations and economic reviews of complex abatement programs.
- Lead in the revision of incinerator design, process control, monitoring and operating criteria for the Ontario Ministry of the Environment.
- Seconded to the Ontario Ministry of the Environment Waste Management Branch to supervise handling and disposal programs for biomedical waste, PCBs, low level radioactive waste and sewage sludge.
- Supervised technical reviews related to the development and monitoring of the Ontario Countdown Acid Rain ($SO_2$) Regulations.
- Provided testimony at public hearings for uranium mining and energy from waste facilities.
- Developed control requirements for the proposed Ontario Clean Air Program.
- Led the National Incinerator Testing and Evaluation Program (NITEP) site selection and initial field study project.

- Participated in the original environmental assessment and subsequent updates for a 1200 TPD municipal energy from waste facility.
- Instructed at the Ontario Ministry of the Environment and other air training sessions on air pollution equipment and ventilation concepts.
- Supervision of the design of complete air pollution control systems for new market steel mills.
- Responsible for the upgrading of several off-shore air pollution control systems.
- Participated in the redesign of an evaporative chamber with proprietary air atomizing nozzles.
- Developed an air environmental management plan for a major Middle East petrochemical and industrial complex based on existing air quality, proposed industrial mix and target air quality criteria.
- Involved in the environmental assessment of uranium mines, fossil fuel and nuclear generating stations.
- Prepared an energy conservation study for a major municipality.
- Responsible for reviewing and analyzing applications for Certificates of Approval (air pollution permits) for power plants, incinerators, metallurgical operations and odour sources.
- Participated in equipment start-up and process modification projects at a heavy water plant.
- Participated in maintenance and monitoring of oil well production facilities.
- Undertook field measurements of current flows through metallic underground utilities.

## PROFESSIONAL AFFILIATIONS

- Association of Professional Engineers of Ontario
- Ontario Society for Professional Engineers
- Air and Waste Management Association (Director and Past Chairman, Ontario Section)

## PRESENTATIONS AND PUBLICATIONS

"Challenges and Uncertainties in Regulatory Modelling – from a Meteorological Perspective", Complin, Paul; Lyng, Robert, OPG et al, Air & Waste Management Association Annual Conference, June 16-19, 2009.

"The Latest Developments in Air Modelling" sessions Co-chair, Air & Waste Management Association Specialty Conference, January 19-21, 2009.

"Development of a Risk-Level Based Operational Regime for Demonstrating Compliance at the Ontario Power Generation Nanticoke GS", Lyng, Robert, OPG; Complin, Paul; et al., International Conference on Air Quality VI, September 24-27, 2007

"Environmental Nuisances: Noise, Odour and Fugitive Dust", sessions Co-chair, Air & Waste Management Association Specialty Conference, May 9-10, 2005.

"Update on 2004 Proposals on Implementing Ontario's Air Standards and Regulation 346 Revisions" Co-Chair of three Ontario MOE/AWMA-OS Stakeholder Meetings, April/May 2005.

"Understanding Environmental Noise" Chair of two Ontario MOE/AWMA-OS Technical Seminars, November/December 2004.

"Overview of Regulatory Compliance Models", Complin, P., and Snihura, A. Presented at Air & Waste Management Association Specialty Conference Air Quality Modelling: New Methods for a New Reality, May 2004.

"The Elusive Mercury: Canada Wide Standards Expected to Drastically Curb Emissions", Complin, Paul, Hazardous Materials Management Magazine, April/May 2002.

"Cleaner Canadian Vehicles: New Federal On-Road and Engine Emission Regulations", Complin, Paul, Hazardous Materials Management Magazine, November/December 2002.

"Changes in Ontario Air Environmental Programs", Complin, Paul, Hazardous Materials Management Magazine, April/May 2002.

"Changes in Air Emission Regulations", Complin, P., Presented at Educational Program Innovation Centre seminar Complying with Air Emission Requirements, February 2003 and Meeting the New Air Emission Requirements, June 2001.

"Expediting Air Certificates: What Works?", Complin, P., Roeper, U. Presented at The Canadian Institute Conference on Environmental Law and Regulation in Ontario, October 2001.

"Odour Emission Sources and Assessment for Toronto's Main Sewage Treatment Plant", Complin, P.G., Ciccone, A.D., Burrowes, P.A. and Ting E.S. Presented at Odours: Indoor and Environmental Air, AWMA Specialty Conference, held in Bloomington, Minnesota, September 1995.

"Odour Assessment Study for Toronto's Main Sewage Treatment Plant", Complin, P.G., Ciccone, AD., Burrowes, P.A. and Ting, E.S. Presented at the Air and Waste Management Association 88th Meeting and Exhibition, held in San Antonio, Texas, June 1995.

"Emission Assessment at a Large Canadian Wastewater Treatment Facility - What are the Impacts?", Complin, P.G., Burrowes, P.A., Ting, E.S. and Ciccone, A.D.. Presented at the Air and Waste Management Association 88th Meeting and Exhibition, held in San Antonio, Texas, June 1995.

"Air Pollution Control Overview", Complin, Paul, Presented at Instituto Para Proteccion Ambiental de Nuev de Leon in Monterrey, Mexico, November 1993.

"Control of Toxic Emissions from Combustion and Incineration", Complin, P.G. Presented at the Air & Waste Management Association (Ontario Section) Annual Conference, held in Toronto, April 1990.

"Biomedical Waste Incineration", Complin, P.G. Presented at the Ontario Ministry of the Environment 36th Ontario Waste Management Conference, held in Toronto, June 1989.

"The Ontario Industrial Waste Incineration Program and Canadian Federal Initiatives", Complin, P.G. Presented at the Second Annual Symposium on Incineration of Industrial Wastes, held in San Diego, March 1988.

"Typical Air Emissions: Quantities and Qualities", Complin, P.G. Presented at the Design and Operation of Municipal Solid Waste Incineration Facilities Workshop, held at the University of Guelph, February 1988.

"The Alternative to Arc Furnace Control: A Three Year Update", Complin, P.G., and Walli, R.A. Presented at the Air Pollution Control Association International Annual Conference, held in Atlanta, June 1983.

"Optimization of Hot Gas Cooling for Environmental Control", Complin, P.G., and Walli , R.A. Presented at the Canadian Institute of Metallurgists Conference, held in Hamilton, September 1981.

"A Case History of Fugitive Emissions in the Mining Industry", Complin, P.G., and Piersol, P. Presented at the APCA/PCAO Annual Conference, held in Toronto, April 1979.

"Uranium Mill Tailings Area Fugitive Emissions", Complin, P.G., and Piersol, P. Presented at the Third U.S. EPA Symposium on Fugitive Emissions: Measurement and Control, held in San Francisco, October 1978.

"The Potential for Air Pollution from Clay Brick Manufacture", Complin, P.G., and Piersol, P. Presented at the Canadian Ceramics Conference, held in Toronto, February 1978.

"Simplified Particulate Source Testing Method Saves Time and Cost", Complin, P.G., and Piersol, P. Modern Power and Engineering, March 1977.

"Stack Testing - The Ultimate Proof?", Complin, P.G., and Piersol, P. Chemistry in Canada, 28(1): January 1976.

"The Fundamentals of Air Pollution Control", Complin, P.G. Presented at the PCAO Technical Seminar, held in Toronto, March 1974.