



# **MONITORING AND REGULATION OF ODOURS**

## **John Willms**

*Specialist in Environmental Law Certified by  
the Law Society of Upper Canada*

**Willms & Shier Environmental Lawyers LLP**

**[www.willmsshier.com](http://www.willmsshier.com)**

**AWMA Ontario Section – Odour Workshop  
October 23, 012**

# Roadmap

---

- **What is Odour**
- **Compliance Determination – Standards and Measurement**
  - Regulations
  - Guidelines
- **Future of Odour Regime**

# What is Odour?

---

- **what is odour?**
  - not a substance (odorant)
  - a sensory perception
  - measures are INTENSITY and HEDONIC TONE
- **odorant**
  - substance that causes odour
  - odorants may be pure or more frequently a variable mixture
  - measure is CONCENTRATION
- **FIDOL**

# Standards – O. Reg. 419/05

---

- **Schedule 3 – standards for odorants in their pure chemical form**
  - total reduced sulphur (TRS)
  - hydrogen Sulphide (H<sub>2</sub>S)
  - mercaptans
- **convert 1 hour average from AERMOD to 10 min average**
- **s. 17 of O. Reg. 419/05**
- **$(t_0 \div t_1)^{.28} = (60 \div 10)^{.28} = 1.65$**

# Standards – 1 Odour Unit

---

- **50% of the 'trained noses' on a qualified Odour Panel can smell (detect) something**
- **non-dimensional – the dilution ratio**
- **sometimes reported as  $\text{OU}/\text{m}^3$**

# MOE Guidance – One Odour Unit

---

- ***Sample Application Package for a Certificate of Approval (Air & Noise) for a Composting Facility, Ontario MOE, 2010 [ACME]***
- Step 1: An air dispersion model, constructed as prescribed by O.Reg. 419/05, using a tiered receptor grid, is modelled for a 1-hour averaging period at ground level. All modelled results are then converted to a 10-minute averaging period. The removal of meteorological anomalies is allowed **to determine the maximum compliance odour value. After this is done, if the odour-based guideline of 1 odour unit (OU) is not exceeded at any modelled point, no further modelling is required. If the odour-based guideline is exceeded, further modelling is required**

# MOE Guidance

---

- ***July 2012 Guideline for the Production of Compost in Ontario***
  - “Odour concentrations that are greater than one Odour Unit at a sensitive receptor, based on a 10 minute average concentration, have the potential to cause an adverse effect and can result in public complaints”

# Measurement of Odours

---

- **in the lab – olfactometry – odour panels**
  - lack of standardization and protocols
  - labs differ significantly in outcomes
- **in the field – Nasal Ranger**
- **in the field – community odour surveys**



# Odour Units for Compliance

---

## ***West Coast Reduction v. GVRD, BC Environmental Appeal Board 2010***

- **“Based on the evidence presented, the Panel finds that the use of odour units in this context is not reasonable and appropriate. The notion that odour units can be used as an indicator of an environmental “smell” is simply too flawed to be used as a method of determining compliance, and is therefore not suitable for determining whether the environment is adequately protected.”**

# Odour Modelling for Compliance

---

- **predicts intensity of an odour at POI using AERMOD**
- **a complex and inexact science**
- **large discrepancies between modelled and measured results**
- **models considered to perform well if variance is within a “factor of two”**

# O. Reg. 419 Enforcement

---

- **where 10 minute average**
- **rule differs from other Schedule 3 contaminants**
- **prohibits discharging contaminants exceeding the standards at a POI “where human activities regularly occur at a time when those activities regularly occur”**

# Environmental Compliance Approvals

---

- **facility specific conditions of approval**
- **1 OU/10 min average at sensitive receptor as defined in the ECA**
- **measure using source testing**
- **model using AERMOD**
- **eliminate outliers (0.5%)**
- **report in ESDM**

# More Conditions of Approval

---

- **odour management and mitigation plans**
- **complaints procedure**
  - report to District Office
  - investigate
  - remediate
  - report to complainant

# MOE Orders

---

- **investigate options for reducing to 1 OU/m<sup>3</sup>**
- **select preferred option (generally BACT)**
- **submit to District Office for approval**
- **implement**
- **time limits/deadlines**
- **failure to comply leads to prosecution including directors/officers**

# Where from Here?

---

- **MOE's 2006 Draft Discussion Paper *Proposed Approach for the Implementation of Odour-Based Standards and Guidelines***
- **contained discussion of FIDOL and its importance to determination of adverse effects**
- **some of us commented**
- **it's now 2012??**



# Contact Information

---

**John Willms**

**Phone: 416-862-4821**

**[jwillms@willmsshier.com](mailto:jwillms@willmsshier.com)**

**Willms & Shier Environmental Lawyers LLP**

**[www.willmsshier.com](http://www.willmsshier.com)**