

**DRAFT**

## Odour – Land Use Compatibility

Tony van der Vooren, Ph.D, P.Eng,  
QEP Amec Foster Wheeler  
Nigel Taylor M.Sc, EP  
Novus Environmental



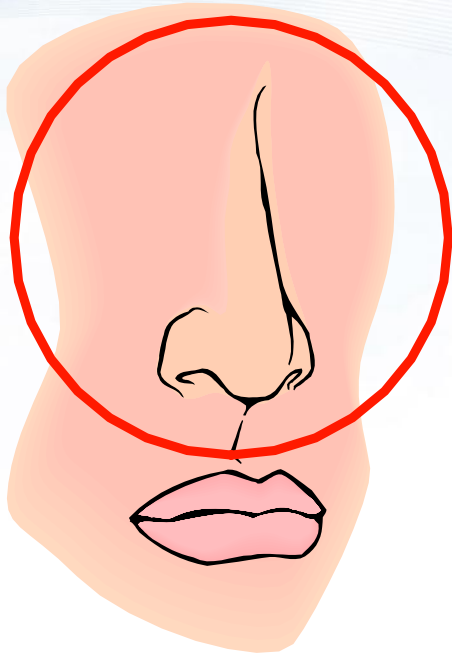
- Odour is regulated by Ontario Ministry of the Environment and Climate Change
- Odour is recognized as a contaminant under the EPA
- There are no specific standards for “odour”
- Managed by complaint (avoiding “adverse effect”)

- Guidance documents exist for analysis
- Agreement on methodologies for analysis
- Units of measure – odour units (OU)
- FIDOL is used with Intensity and Offensiveness being the main factors



- Historical threshold used by MOECC – 1 OU but not legislated and,
- this is not an easy to link to potential future complaints or adverse effects
- how do you predict the future complaints?



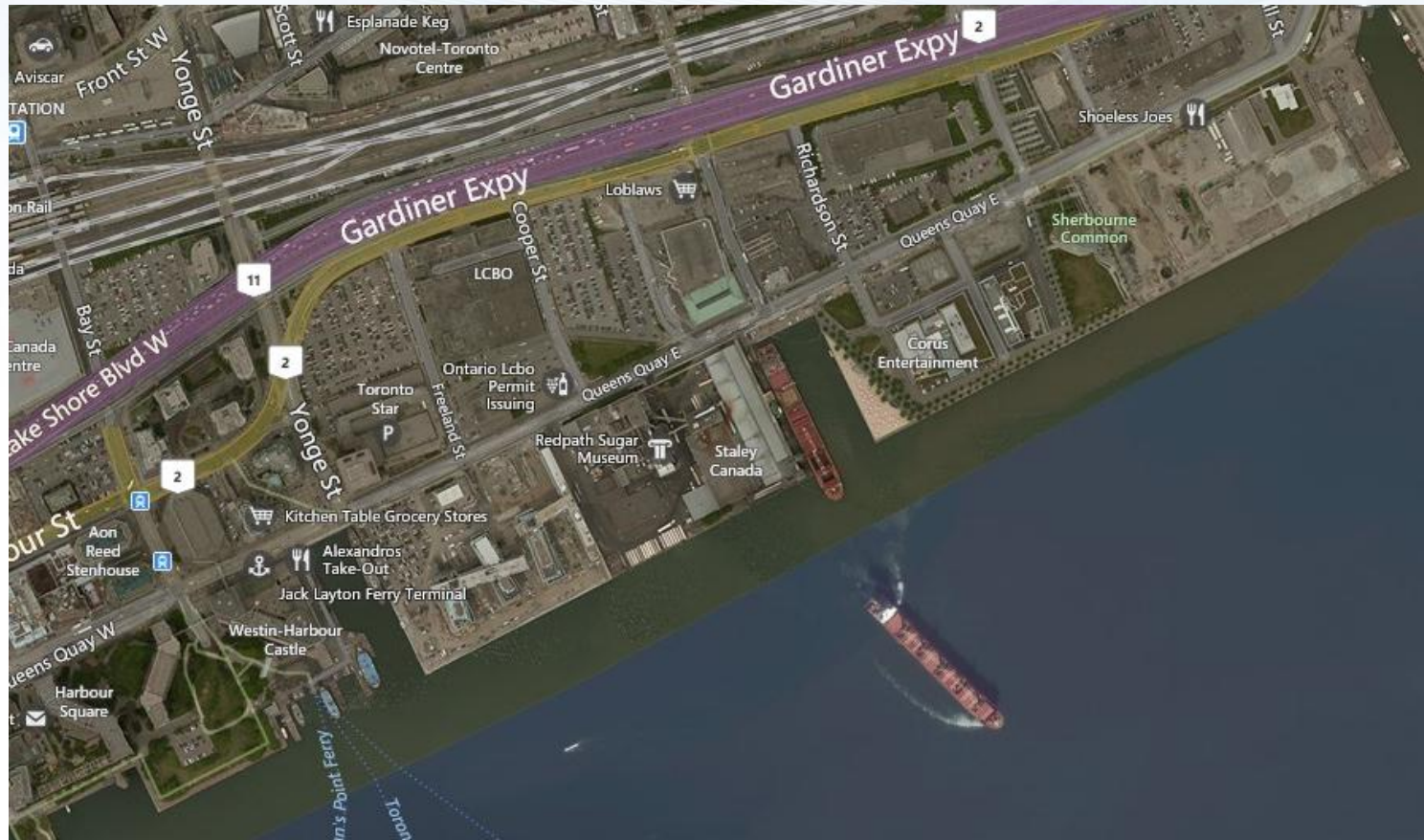


The Nose

- Doing better than current, non-complaint levels
- MOECC agreed with approach, but could not provide assurances for future.
- Risk resides with industry and future tenants

*Issues for all sides of land use planning dispute*

- Chose a 'bench-mark' existing receptor



- Started with Nasal Ranger Assessment with simple AERMOD modelling
- Effective in providing understanding of a potential compatibility issue; sufficient when land use was commercial;
- Insufficient detail for MOECC when assessing sensitive uses (due to complexity, elevations, worst-case)

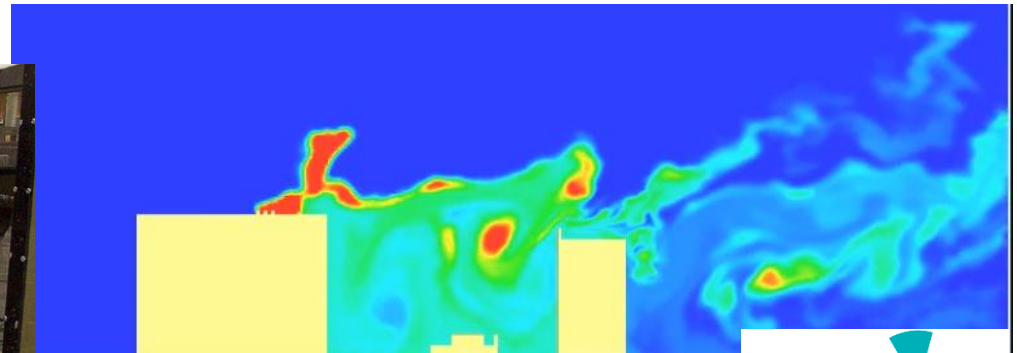


- Not enough detail for determining an effective mitigation strategy
- Full odour assessment was completed



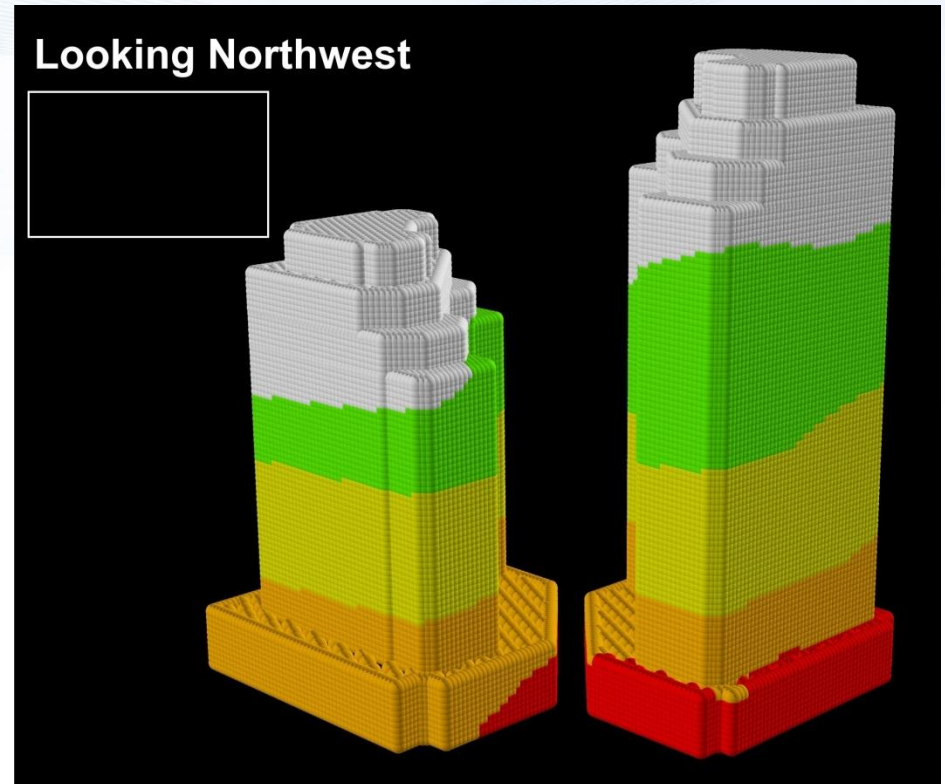


- Conventional modelling using AERMOD for compliance
- Some research using Wind Tunnel and Computational Fluid Dynamics as 'checks' and determining wake effects
- Helped determined ranking of areas to make improvements



Two areas agreed to by parties in this case:

1. Threshold related mitigation (at-source)
2. Risk reduction mitigation to reduce potential for future complaints (at-receptor)



- Developed based on comparison to existing levels
- At Source
  - elimination of a number of key point sources
  - Many sources fugitive or no feasible control
- At receptor impact mitigation
  - Site design to use buffer commercial space
  - Ensure odour free indoor space (air filtration/filters)
  - At highest impact locations, sealed units (no open balconies)



- At receptor “avoidance” mitigation
  - Design to minimize exposure
  - Small balconies
  - Self closing doors
  - Barriers

- Challenges of dealing with modelled numbers as a surrogate for predicting future annoyance or acceptance
- Lack of future regulatory certainty for Redpath and residents
- Ensuring mitigation and “avoidance” design are implemented and maintained