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Jurisdictional Review for the Ontario Ministry of the Environment's Combined Analysis of Monitored and Modelled Results Methodology

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Acknowledgements

- CAMM Review Steering Committee including representatives from:
 - Ontario MOE; and
 - the Canadian Manufacturers and Exporters (CME)
- ENVIRON personnel in U.S., Australia and European offices





Background

- CMM required for facilities in Ontario applying for site-specific standards under Ontario Regulation 419/05 – Air Pollution – Local Air Quality, or that have otherwise been triggered under Section 12 (refinement)
- Various stakeholders had expressed concerns about the CMM method as applied prior to 2010
- In response to these concerns, the MOE agreed to address these concerns by reviewing the methodology
- CMM Steering Committee set up to oversee this process of review (2010-2012)
 - Technical Working Group
 - Statistical Review Sub-team
 - Jurisdictional Review



Objective of Jurisdictional Review

- Gather and analyze information from other jurisdictions with respect to methods to regulate, assess and refine emission estimates for Fugitive Sources
- Assess the techniques used in the jurisdictions relative to the MOE's current methodology
- Make recommendations to the MOE based on the assessment of the reviewed information





Approach for Jurisdictional Review

- Considered a range of jurisdictions/programs
- Identified jurisdictions which regulate fugitive emissions
- Identified jurisdictions which use dispersion modelling
- Summarized each Jurisdictional approach
 - Identified regulations/guidelines
 - Provided overview of each program



Jurisdictions Considered

- United States of America
- Australia
- The European Union





Analysis - Structure

- The analysis was structured to address three questions on:
 - How are fugitive sources regulated in these jurisdictions?
 - How is air dispersion modelling used by regulators in these jurisdictions?
 - What the regulator relies on to ensure and/or improve the accuracy of fugitive emission estimates?



Detailed Analysis - Programs

- State Implementation Plans (U.S.)
- New Source Review – PSD & NAA (U.S.)
- National Emission Standards for Hazardous Air Pollutants (NESHAP)/MACT (U.S.)
- Commonwealth of Australia
- Australian States
- European Union Directives/BREFS
- UK - Local Air Quality Management





Assessment of Approaches and Criteria

- Approaches
 - CAMM
 - NSR/PSD Permitting
 - NESHAP/MACT
- Assessment Criteria
 - Accuracy
 - Advantages
 - Disadvantages
 - Complexity
 - Cost



Key Findings – CAMM Program

- There is no regulatory method or program in other jurisdictions identified in this study which can be used to directly provide additional guidance for the current CAMM methodology as listed in Appendix E of the ESDM Guide





Key Findings – Measurement of Fugitive Emissions

- Techniques to refine and/or measure emission rates from industrial fugitive sources that are not within the framework of available emission factors exist
- Applied for emission factor development or exceptional regulatory circumstances
- Regulatory provisions for their general use to increase the accuracy of dispersion modelling assessments were not found during the jurisdictional review



Key Findings – Technical Standards for Fugitive Sources

- Fugitive emissions are broadly regulated by technical/ emission standards and work practices
 - NESHAP/ MACT regulations (U.S.)
 - LAER/ BACT/ RACT determinations (U.S.)
 - BREF documents (Europe)
- Typically developed through consultation with stakeholder/industry groups or consultation/ negotiations with a specific industrial facility
- May include risk assessment of the industry





Key Findings – Technical Standards for Fugitive Sources

- Sector and/or source specific standards focused on sources of regulated pollutants (i.e. criteria pollutants and/or HAPs)
- No general requirement for quantification of mass emission rates
- Often based on specifying work practices or limits on surrogate parameters



Key Findings – Technical Standards for Fugitive Sources

- In airsheds in the US which do not meet NAAQS for one or more criteria pollutants (i.e. non-attainment areas or NAA), focus is on:
 - emission reductions at the source by requiring new/modified sources to achieve LAER technical/emission standards; and
 - emission offsets that provide for the legislated reductions of non-attainment criteria pollutant emissions





Key Findings – Emission Estimates of Fugitive Sources

- Generally developed using readily available emissions data such as AP-42 for input for regulatory dispersion modelling
- Refinement typically within the framework of the emission factors, through site-specific surrogate data (i.e. PLD, silt loading, Method 21)
- Regulators have imposed a defined methodology for estimating/measuring fugitive emissions on a facility under exceptional circumstances such as enforcement actions



Key Findings – Regulatory Dispersion Modelling of Fugitive Sources

- Regulations were found that require dispersion modelling of fugitive sources from industrial facilities
- Regulations reviewed do not define/specify a methodology for the refinement, of estimates of fugitive air emissions from industrial processes, for the purpose of air permitting or air quality modelling
- NSR/NAA permitting does not have a requirement for dispersion modelling





Concluding Remarks

- Question 1: Which, if any, of the methods reviewed should be considered for potential applicability in Ontario?
- Question 2: Which, if any, of the methods should be considered as a source of potential improvements to the MOE's current CAMM methodology?



Thank you!

