ODOUR Dispersion Modelling Course Outline

November 25, 2019

Instructor: Jenny Barclay

Monday, November 25: Morning

8.30 am – 12:30 am: INTRODUCTION TO ODOUR MODELLING, COMPLEX FLOWS, METEOROLOGY

1 Introduction to Odour Modelling
- 1.1 Why Conduct Air Modelling
- 1.2 Regulatory Models for Odour
- 1.3 Latest Regulatory Status of Odour Models

2 Introduction to CALPUFF and AERMOD Modelling Systems'
- 2.1 Puff vs. Plume Models for Odour
- 2.2 Steady State vs. Non Steady State Conditions
- 2.3 Differences Between Regulatory Modelling for Gases vs. Regulatory Modelling for Odour
- 2.4 Complex Flows
  - 2.4.1 Terrain
  - 2.4.2 Coastal Regions / Land-Water Boundaries
  - 2.4.3 Overwater Transport
  - 2.4.4 In homogenous Dispersion Conditions
  - 2.4.5 Stagnation, Flow Reversals, Recirculation
  - 2.4.6 Problems with AERMOD for Modelling Odour

3 Introduction to Meteorology and Meteorological Modelling
- 3.1 When to Use Prognostic Models (WRF, MM5, TAPM)
- 3.2 Observations
- 3.3 3D Diagnostic Meteorological Model (CALMET)
- 3.4 2D Meteorological Data (AERMET)
- 3.5 Light winds, CALMS, Stagnant Conditions

Monday, November 25: Afternoon

1.30 pm – 5:00 pm : MEASUREMENTS, UNITS, EMISSIONS, SOURCE TYPES, FUGITIVE SOURCES

4 Model Switches Introduction
- 4.1 Building downwash
- 4.2 Stack tip effects
- 4.3 Dispersion coefficients

5 Odour Measurements for Modelling

- 5.1 Odour Units and Odour Concentration
- 5.2 Olfactometry Measurement
- 5.3 Odour Intensity
- 5.4 Hedonic Tone and Offensiveness
- 5.5 FIDOL, The Community, Managing Complaints

6 Odour Industries
- 6.1 Emissions
  - 6.1.1 Piggeries,
  - 6.1.2 Broiler and Egg Layer Farms
  - 6.1.3 Pulp and Paper Mill
  - 6.1.4 Waste Water Treatment Plants
  - 6.1.5 Composting and Fertilizer
  - 6.1.6 Industrial centers
- 6.2 Source Types – Points, Areas and Volume
  - 6.2.1 How to Identify Source Types for Modelling
- 6.3 Fugitive Sources
- 6.4 Variable Emission Files

7 Interpretation of Modelled Odour Results
- 7.1 Odour Inputs and Odour Output
- 7.2 Intensity of Odour and Logarithmic Relationship
- 7.3 Adjustments for sub hourly guidelines
- 7.4 Percentiles
- 7.5 Peak to Mean Ratios

Terms:

Course Fee: 220 € / 7 UF

Registration before: 24 November 2019

Location: *TSG Environmental* offices, Europa 2066 Providencia, Santiago.

Register here.