

DISPERSION MODELING PROTOCOL

Fluoropolymers Plant – APFO Emissions

DuPont Washington Works

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DuPont Washington Works Air Quality Modeling Protocol

The following sections describe the dispersion modeling methodology to be employed in order to assess the ambient air concentrations of APFO (Ammonium Perfluorooctanoate) resulting from emissions from the DuPont Washington Works facility.

1. Emission Source and Site Information

The following information will be assembled in order to conduct the air quality modeling:

1. Stack locations
2. Stack base elevations
3. Stack heights
4. Stack diameters
5. Stack gas exit temperatures
6. Stack gas flow rate or exit velocities
7. Pollutant emission rates
8. Building locations, dimensions and heights
9. Site boundary location

2. Model Selection and Options

We propose the use of the Industrial Source Complex Short Term 3 Model (ISCST3) to estimate pollutant concentrations. All modeling will be done in accordance with the procedures in EPA's Guideline on Air Quality Models (Appendix W to Part 51).

3. Receptor Selection

Two cartesian receptor grids will be used, a grid with 100-meter spacing extending out 5 km from the property line, and a grid with 500-meter spacing extending out 10 km from the property line. In addition, discrete receptors with 100-meter spacing will be placed on the plant property line.

4. Meteorological Data

On-site surface weather information was recorded for a full year in 1996. This data, along with upper air data from Wilmington, Ohio, will be used in the modeling. The data were processed for modeling using the EPA RAMMET meteorological preprocessor by Trinity Consultants. In all model runs, the calm processor option will be used.

5. Modeling Procedures

Dispersion modeling will be performed using the Industrial Source Complex 3 Model (ISCST3). All model options will be set to the U.S. EPA regulatory default version of ISC3. The model will be

run in the rural mode since the land area in the immediate vicinity of Washington Works is more than 50% rural. The model will also be run using the elevated terrain option. All terrain elevations will be imported from DEM files provided by the USGS.

All emission sources will be evaluated for downwash effects from surrounding buildings. Trinity Consultants BPIP model will be used to provide wind direction specific building parameters. All buildings that could potentially impact the emission sources will be included. On multiple tiered buildings, each tier will be entered as a separate building.

Modeling will be performed to obtain the annual average concentration of pollutant at all receptors outside the plant boundary.

6. Report

We will prepare a report to be submitted to the West Virginia DEP upon completion of the modeling analysis. This report will describe the procedures, results and conclusions of the study as described above. The report will include a wind rose of the meteorological data used and concentration isopleths of the final predicted modeling results. Copies of all model input and output files will also be included.