

Section (8) Dispersion Modeling Protocol

Installation Name & Address:

Click here to enter text.

Date:

Click here to enter text.

Prepared by:

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Submitted to:

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Air Pollution Control Program
Permit Section
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Installation Description

1. Installation & Project Description

Information regarding the location and operating status of the facility being modeled should be provided. The installation and project description should include a detailed discussion of the project and how it could impact the existing installation, if applicable. Please attach a map of the facility and the surrounding area in Appendix A.

2. Installation Locational Data

Include detailed information on the geographic coordinate system that will be used in the air quality analysis including the Universe Transverse Mercator Zone and geodetic reference system, i.e. reference datum.

Class II Analysis

1. Model Selection & Pollutants Under Review

The air quality models and methodologies that will be used to demonstrate compliance with the air quality standards for each pollutant under review should be provided. Please note each pollutant that is explicitly being modeled.

2. Modeled Emission Rates & Limits

Detailed information on the calculation of the modeled emission rates, including any limits that are proposed for use in the air quality analysis, should be provided. It is important to note that any limits that are noted within the air quality analysis will become a special condition within the construction permit.

3. Source Characterization & Facility Layout

Provide the methodology that will be used to characterize emission releases within the ambient air quality impact analysis based upon source type, i.e. point, volume or area. Please provide a facility layout that includes each emission point and structure that will be located within the property boundary of the new source or modification in Appendix B (if known). Also, within Appendix C, please include the procedures that will be used in the calculation of each release parameter, i.e. volume source release height, initial lateral and vertical dimension calculations.

4. Receptor Grid & Terrain Elevations

Please describe the receptor grid that will be used to calculate the ambient air quality impacts within the region surrounding the facility. In addition, the extraction techniques used to determine terrain elevations should be described in detail. Appendix D should

contain an overview that includes a visual depiction of the property boundary with fenced areas highlighted.

5. Meteorological Data & Surface Characteristics

The Department's Air Pollution Control Program will provide a five year, model ready, National Weather Service data set that includes an evaluation of the surface characteristics surrounding the facility site for use in the air quality analysis. It should be noted that the department retains the right to require on-site meteorological data collection if it is determined that the facility is located within an area that is comprised of complex terrain, or is unduly influenced by nearby obstacles. If on-site data is required, written notification will be provided.

6. Background Concentrations & Interactive Source Inventories

The department's Air Pollution Control Program will provide background values and interactive source inventories for incorporation into the National Ambient Air Quality and increment standard compliance determinations.

7. Pre-construction Air Quality Monitoring

Any pollutant that exceeds the Significant Monitoring Concentrations contained within 40 CFR 52.21 must conduct an ambient air quality monitoring study for a period of one year prior to the issuance of the construction permit. If the preliminary model results indicate that preconstruction monitoring may be triggered, a summary of each pollutant and its maximum impact area(s) should be provided in Section 7.

Class I Analysis

1. Initial Screening Test

The FLAG Phase I report requires all facilities within 100-kilometers of a Class I area to contact the Federal Land Manager (FLM) and develop a modeling protocol that details the modeling methodologies that will be used to determine compliance with the Air Quality Related Values. In addition, any large source located at a distance greater than 100-kilometers must notify the FLM to determine if an air quality analysis will be a required component of the permit application. An initial screening test that compares the total annual emissions to the distance from the Class I area should be conducted and provided to the FLM and permit granting authority.

2. Model Selection & Pollutants Under Review

The air quality models and methodologies that will be used to demonstrate compliance with the air quality standards for each pollutant under review should be provided. Please note each pollutant that is explicitly being modeled.

3. Modeled Emission Rates & Limits

Detailed information on the calculation of the modeled emission rates, including any limits that are proposed for use in the air quality analysis, should be provided. It is important to note that any limits that are noted within the air quality analysis will become a special condition within the construction permit.

4. Source Characterization & Facility Layout

Provide the methodology that will be used to characterize emission releases within the ambient air quality impact analysis based upon source type, i.e. point, volume or area. The facility location in comparison to the Class I area should be included in Appendix E.

5. Compliance with the Increment and National Ambient Air Quality Standards

Provide the methodology that will be used to demonstrate compliance with the increment and National Ambient Air Quality Standards within each Class I area boundary that requires review.

6. Visibility Assessment

In the 2010 revision to the FLAG Phase I report, the FLMs describe two differing approaches for evaluating visibility impacts within Class I areas based upon the distance of the facility from the area in question. Facilities located within 50-kilometers are considered to have near-field impacts where the plume(s) is compared to a viewing background. Facilities located at a distance in excess of 50-kilometers will undergo a distant/multi-source modeling analysis that includes an evaluation of the effects that multiple plumes and plume aggregation will have on the appearance of a scene. Depending on the Class I areas under review, both a near field and a distant/multi-source study may be required. A description of the type of analysis and any critical assumptions that will be used in the visibility assessment should be provided.

7. Nitrogen and Sulfur Deposition

If a Class I assessment is required, the permit applicant is required to calculate the total amount of sulfur and nitrogen deposition that will occur due to the construction of the new source or modification. A description of the type of analysis and any critical assumptions that will be used should be provided.

8. Receptor Grid & Terrain Elevations

The FLMs maintain a database of receptors for each Class I area located in the United States. The grids developed by the FLM should be used in the Class I area assessment with a visual description provided in Appendix F.

9. Meteorological Data & Surface Characteristics

The department's Air Pollution Control Program will provide meteorological data inputs that can be used to develop meteorological data for use in the VISCREEN or CALPUFF models.

10. Interactive Source Inventories for Cumulative Impact Assessments

The department's Air Pollution Control Program will provide background values and interactive source inventories for incorporation into the Class I area Air Quality Related Values assessment.

Additional Impact Analyses

1. Growth

Please describe the methods that will be used to determine the amount of growth associated with the construction and operation of the new source or modification.

2. Soils and Vegetation Analysis

Please describe the modeling methodology that will be used to determine if an adverse impact on local soils and vegetation will occur. The seven step process that is described within the Environmental Protection Agency guidance document entitled "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals" should provide the basis for this assessment.

3. Class II Visibility Impairment

The methods that will be used to determine if adverse visibility impacts will occur within the region surrounding the new source or modification should be described. Upon request, the department's Air Pollution Control Program will provide a list of scenic vistas, airports and other sensitive areas that require evaluation.

Appendices

Appendix A-Map of Facility & Surrounding Area

Appendix B-Facility Layout

Appendix C-Source Characterizations & Release Parameter Assignments (Optional)

Appendix D-Property Boundary & Receptor Grid Overview

Appendix E-Proposed Facility and Class I Area Locations

Appendix F-Class I Area Receptor Grid Overview