Protocol Checklist

The purpose of the protocol is for the applicant to present the proposed modeling approach to the Air Dispersion Modeling Team (ADMT). If the project is a Prevention of Significant Deterioration (PSD) review, the applicant must submit a protocol to both the TCEQ and EPA Region 6. The ADMT will provide comments on the protocol to the applicant. The protocol should include the items below, as appropriate.

Project Identification Information

- Provide the following information to clearly identify the analysis:
  - Applicant
  - Facility
  - Permit Application Number
  - Regulated Entity Number
  - Nearest City and County
  - Applicant's Modeler

Project Overview

- Include a brief discussion of the plant process(es), and types and locations of emissions under consideration.

Type of Permit Review

- Indicate the type of permit review required by the permit reviewer.

Constituents Evaluated

- List all constituents that will be evaluated. Be sure to provide all relevant information for each constituent evaluated (standard/ESL, CAS number, etc.).

Plot Plan

- Depending on the scope of the project, several plot plans may be needed to present all requested information.
- Provide a plot plan that includes:

- A clearly marked scale.
- All property lines. For PSD, include fence lines.
- A true-north arrow.
- UTM coordinates along the vertical and horizontal borders. Please do not use plant or other coordinates.
- Include the datum of your coordinates.
- Reference UTM coordinates and locations of all emission points including fugitive sources modeled.
- Labels/IDs and coordinates for emission points on the plot plan should correlate with the information contained in the protocol.
- Buildings and structures on-property or off-property which could cause downwash. Include length, width, and height.

Area Map

- For Minor NSR Analyses,
  - Include a copy of the area map submitted with the permit application. The map should cover the area within a 1.9-mile (3-kilometer) radius of the facility if used for the Auer land-use analysis.
  - The area map should include all property lines. For sites with a single property line designation (SPLD), include all property lines associated with the SPLD. Also include a copy of the SPLD petition with the protocol.
  - Add UTMs to the horizontal and vertical dimensions of the map section, as well as the date and title of the map. Include the datum of your coordinates.
  - Annotate schools within 3,000 feet of the sources nearest to the property line.
  - For Health Effects Review, annotate the nearest non-industrial receptor of any type. Include any additional non-industrial receptors requested by the Toxicology Division.

- For PSD Analyses,
  - Include a copy of the area map submitted with the permit application. The map should cover the area within a 1.9-mile (3-kilometer) radius of the facility if used for the Auer land-use analysis.
  - The area map should include all fence lines.
  - Add UTMs to the horizontal and vertical dimensions of the map section, as well as the date and title of the map. Include the datum of your coordinates.
  - Include maps that show the location of:

- PSD Class I areas within 10 kilometers (6.2 miles) or 100 kilometers (62 miles).
- Urban areas, non-attainment areas, and topographic features within 50 kilometers (31 miles) or the distance to which the source has a significant impact, whichever is less.
- Any on-site or local meteorological stations, both surface and upper air.
- State/local/on-site ambient air monitoring sites used for background concentrations.

Air Quality Monitoring Data

- For Minor NSR NAAQS and PSD Analyses,
  - Discuss how ambient background concentrations were obtained.
  - Include a summary of observations for each constituent and averaging time, if available.
  - For Health Effects Review, identify monitored data that will be used to supplement or substitute for modeling. Demonstrate that the data represent near worst-case operational and meteorological conditions.

Modeling Emissions Inventory

- On-Property Sources to be Permitted,
  - Include a copy of the Table 1(a) that was submitted with the permit application and subsequently approved by the permit reviewer. Ensure additional entries are provided on the Table 1(a) if stack parameters for any averaging period or load level could be different.
  - Identify special source types or characterizations such as covered stacks, horizontal exhausts, fugitive sources, area sources, open pit sources, volume sources, roads, stockpiles, and flares.
  - Include all assumptions and calculations used to determine as appropriate the size, sides, rotation angles, heights of release, initial dispersion coefficients, effective stack diameter, gross heat release and weighted (by volume) average molecular weight of the mixture being burned.
  - Specify particulate emissions as a function of particle size; mass fraction for each particle size category; and particle density for each particle size category, as applicable.

- Other On-Property and Off-Property Sources,

- Include a discussion of how site-wide emissions and off-property sources will be addressed in the AQA, as applicable.

Stack Parameter Justification

- Include the basis for using the listed stack parameters (flow rates, temperatures, stack heights, velocities). This should include the calculations used to determine the parameters.
- If the production or load levels could be less than 100 percent, demonstrate how the modeled emission rates and stack parameters will be obtained to produce the worst-case impacts (in certain cases lower production levels may result in higher predicted impacts).
- Include at least 25 percent, 50 percent, 75 percent and 100 percent production or load levels analyses, if the source could be operated at these reduced levels.

Scaling Factors

- Discuss how emission scalars will be developed and used in the modeling demonstration. In addition, identify those scalars that should be included in an enforceable permit provision, such as restricted hours of operation.

Models Proposed and Modeling Techniques

- Include a detailed discussion of the models that will be used, model version numbers, and the model entry data options such as the regulatory default option and the period option.
- Discuss any specialized modeling techniques such as screening, collocating sources, and ratioing.
- Include assumptions and sample calculations.

Selection of Dispersion Option

- Base the selection of urban or rural dispersion coefficients on the Auer land-use analysis.
- Include a detailed discussion and sufficient technical justification to support the selection of the dispersion option.

Building Wake Effects (Downwash)

- Discuss how downwash structures will be determined and include applicable information required to use the EPA's BPIP-PRIME.
- Provide a table of structure heights that will be used in the downwash analysis.

Receptor Grid

- Discuss how the receptor grids will be determined for each type of analysis.
- Include the datum of your coordinates.
- Discuss if terrain will be applicable. If so, discuss how terrain for individual receptors will be determined.

Meteorological Data

- Indicate the surface station, surface station anemometer height, surface station profile base elevation, upper-air station, and period of record, as applicable.
- Discuss how meteorological data will be determined or replaced.
- In addition, submit all the supplementary data that will be used to develop the specific input meteorological parameters required by the meteorological pre-processor programs.

Modeling Results

- Discuss how the modeling results will be presented and compared to all applicable de minimis values, standards, or guidelines.
- For Health Effects Review, discuss how impacts at non-industrial receptors will be addressed. Describe how predicted exceedances of the ESL will be addressed.
- For Additional Impacts Analysis (for PSD Analyses), discuss how the additional impacts analysis for growth, visibility, and soils and vegetation will be addressed.
- For Class I Area Impacts Analysis (for PSD Analyses), discuss how the Class I area impacts analysis will be addressed.