**Section 106.202 Petition Requirements**

a) Heated Effluent Demonstration. The petition must include the following information but may include additional information that the petitioner believes will be relevant to the proceeding:

1) General Plant Description:

A) Generating capacity;

B) Type of fuel used;

C) Operating characteristics of the condenser cooling system;

D) History of the load factor of the plant for the time during which the plant has operated, but for no more than the last 5 years;

E) Projected load factors for the life of the plant;

F) Estimated date of retirement for each unit at the plant and any plans for additional units at the plant;

G) History of plant shutdowns; and

H) Planned, emergency, and projected shutdowns with frequency and duration.

2) Description of Method for Heat Dissipation:

A) Type of system used (such as once-through, mechanical, and draft cooling towers) in narrative form; and

B) Summary information on temperature of discharge to receiving waters in narrative form.

3) Plume Studies:

A) Actual plume studies in the last 5 years correlated with plant operation and meteorological conditions;

B) Theoretical plume studies for all four seasons for typical and worst case conditions. Worst case conditions must be identified as worst conditions of plant load factors, precipitation, ambient water temperature, and air temperature; the studies must consider the frequency of occurrence and their joint probabilities of occurrence; and

C) Theoretical plume studies that identify isotherms at 3° Fahrenheit (1.7° Centigrade) intervals down to ambient temperature indicating three-dimensional effects.

4) A demonstration, which may take any of the forms described in subsection (b)(2), that discharges from the source of heated effluent have not caused and cannot be reasonably expected to cause significant ecological damage to the receiving waters, including:

A) Biological studies in the last 5 years on receiving waters, including species studied, location of studies, and conclusions reached, including conclusions as to both the lethal and sublethal effects of the thermal discharge;

B) The impact on other animal life (such as waterfowl and amphibians) in the area as a result of the thermal discharge; and

C) Secondary Considerations

i) Possible and known impact on recreation from thermal discharges; and

ii) Management practices employed or planned in order to limit the effect of any environmental harm established under this subsection (a)(4).

5) A citation to any prior proceedings, in which the petitioner was a party, brought under 35 Ill. Adm. Code 302.211(f) or (j)(3).

b) Artificial Cooling Lake Demonstration. The petition must include the following information but may include additional information that the petitioner believes will be relevant to the proceeding:

1) A demonstration that the artificial cooling lake receiving the heated effluent will be environmentally acceptable and within the intent of the Act, including:

A) Provision of conditions capable of supporting shellfish, fish and wildlife, and recreational uses consistent with good management practices; and

B) Control of the thermal component of the discharger's effluent by a technologically feasible and economically reasonable method.

2) The demonstration required under subsection (b)(1) may take the form of any of the following:

A) A final environmental impact statement;

B) Pertinent provisions of environmental assessments used to prepare the final environmental impact statement; or

C) A showing under Section 316(a) of the Clean Water Act (33 USC 1326).

3) A citation to any prior proceedings, in which the petitioner was a party, brought under 35 Ill. Adm. Code 302.211(f) or (j)(3).

c) Sulfur Dioxide Demonstration. The petition must include the following information:

1) An explicit statement of the site-specific emission limitation (in pounds of sulfur dioxide per million British thermal units (btu) actual heat input and total pounds of sulfur dioxide per hour) that is proposed for the facility.

2) Emission Sources Description:

A) The diameter, height, exit gas temperature, and exit gas velocity for all stacks or vents through which sulfur dioxide is emitted into the atmosphere;

B) A description of the fuels used including type, ultimate analysis, sulfur content, and heat content;

C) A description of the type of fuel combustion equipment including method of firing and size (in million btu per hour capacity);

D) A topographic map of terrain within 30 miles of the emission source or sources;

E) A specific description of the location of the emission sources, including a plot plan; and

F) A specific description of the operating conditions that produce maximum sulfur dioxide emissions.

3) A summary of any and all ambient air quality data collected by the owner or operator of the source or sources since January 1, 1973. The summary must include annual averages; maximum and second-highest one-hour, 3-hour, and 24-hour averages for each month; and the number of times the 3-hour and 24-hour sulfur dioxide standards were exceeded during each month.

4) A summary of any and all meteorological data collected by the owner or operator of the source or sources since January 1, 1973, if the data are used in the development of the site-specific emission standard.

5) A complete description of and justification for all dispersion models and plume rise equations that are used to develop the site-specific emission limitation, including all model equations.

6) A description of and justification for the use of all data that were inputs to the dispersion and plume rise formula used to establish the site-specific emission standard. The description and justification must cover, as a minimum, the following input data:

A) Stack diameters, stack heights, exit gas temperatures, and exit gas velocities for all stacks and vents emitting sulfur dioxide at the subject facility as well as for any other sources of sulfur dioxide that were modeled;

B) All sulfur dioxide emission sources that were modeled; and

C) All meteorological data.

7) Calculated maximum ground-level concentrations using the following method, or such other method (or modification of the hereinafter stated method) that the petitioner proves to the satisfaction of the Board to be acceptable.

A) Selection of simulation model:

i) Gaussian models that allow the input of hourly meteorological data must be used which are appropriate for the specific location and type of source or sources in question.

ii) Dispersion models presented in "Guidelines on Air Quality Models" (EPA-450/2-78-027), or those deemed by the Board to be equivalent to these models must be used for detailed air quality studies.

B) Selection of meteorological data and stack parameters:

i) The most recent 5 years of hour-by-hour meteorological data reasonably available, including wind speed, wind direction, atmospheric stability, mixing height and surface temperature must be used, unless the petitioner demonstrates that one of the 5 years causes substantially higher concentrations than the other four, in which case detailed analyses conducted for only that "worst case" year would be acceptable. Notwithstanding the previous sentence, one year of on-site data may be used in lieu of the 5-year data requirement;

ii) Data must be from the nearest, representative, quality controlled meteorological collecting site; and

iii) Stack parameters (including emission rate, stack height, stack diameter, exit velocity, and exit temperature) must reflect the maximum operating rate for comparison with the 24-hour and 3-hour sulfur dioxide standards.

C) Receptors:

i) Receptors must be located so as to ensure that the source's maximum impact is detected; and

ii) The determination of the receptor grid must be fully documented in the modeling study;

D) Special conditions:

i) All special conditions that may affect the dispersion of the effluent plume, including local terrain effects and aerodynamic downwash, must be considered in the modeling study;

ii) If terrain is a factor in the vicinity of the source, a model capable of handling variable-height receptors must be used; and

iii) If the computed height of the effluent plume is less than 2.5 times the height of nearby buildings or local obstructions, aerodynamic downwash must be studied and considered as a possible factor in the dispersion of that effluent.

E) Determination of violation: The determination of whether an applicable air quality increment or standard is being violated must be based on the second-highest predicted concentration over the receptor grid for short-term averaging times and on the highest predicted concentration for annual averaging times. However, if only one year of meteorological data is used in the short-term analysis, then the highest predicted concentration may be compared to the applicable standard to determine whether a violation has occurred.

F) Other sources: Effects of other sources of sulfur dioxide must be taken into account in the modeling study. Methods by which other sources of sulfur dioxide may be accounted are as follows:

i) An acceptable method is to estimate the "background" from monitoring data which has been subjected to adequate quality control where available. When monitored data is used, the background must be estimated using monitoring days with meteorological conditions similar to those identified as "worst case" for the source in question; or

ii) If monitoring data is not available, then all sources of sulfur dioxide having a significant impact in the area of the source's impact area must be used in the simulation model. These sources of sulfur dioxide must also be modeled at their maximum allowable emission rate for any studies addressing 24-hour or 3-hour averaging times.

8) Estimates of the frequency, characteristics, probable time of occurrence, and duration of the meteorological conditions associated with the maximum ground-level concentration of sulfur dioxide to which the facility under study contributes. A description of the techniques used in arriving at the above estimates must be included.

9) Background concentrations that were determined for all meteorological conditions required to be examined under subsection (c)(7) and for any other meteorological conditions considered in the development of the alternative standard.

10) A description of the method that was used to determine background sulfur dioxide concentrations in the vicinity of the subject facility for each of the meteorological conditions required to be examined under subsection (c)(7) and for any additional meteorological conditions considered in developing the alternative standard.

11) An evaluation and calibration of the dispersion model if air quality monitoring data were available to perform the evaluation and calibration.

12) A statement that the procedural requirements of 40 CFR 51.4 (1977) are met. At least 30 days prior to the date of the hearing, the petitioner must:

A) Give notice to the public, by prominent advertisement in the Air Quality Control Region affected, announcing the date, time, and place of the hearing;

B) Make available a copy of the petition for public inspection in at least one location in the Air Quality Control Region in which the source is located;

C) Notify the Administrator of USEPA (through the Region V Office);

D) Notify each local air pollution control agency located within the affected Air Quality Control Region; and

E) Notify, in the case of an interstate Air Quality Control Region, any air pollution control agencies of other states included, in whole or in part, in the Region.

(Source: Amended at 41 Ill. Reg. 10104, effective July 5, 2017)