



TECHNICAL GUIDANCE DOCUMENT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Air Quality Related Permits and Issues related the Construction and Operation of an Ethanol Facility

Office of Air Quality, Permits Branch

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Air Quality Related Permits and Issues related the Construction and Operation of an Ethanol Facility.

The following is a summary of the issues that need to be addressed when considering the construction and operation of an ethanol production facility. The information provided may not address all the potential issues for a given facility, therefore it is important that the owner/operator of the facility contact IDEM to ensure all concerns are properly addressed.

Construction & Operating Permit Programs

New sources of air pollutant emissions are subject to New Source Review (“NSR”) requirements. NSR is a permitting program that regulates the construction of new stationary sources of air pollution such as factories, power plants, smelters and modifications to existing sources (e.g. replacing equipment or adding new equipment). These sources are required by the Clean Air Act to obtain an air pollution permit before beginning construction. NSR has three components: the prevention of significant deterioration (PSD) permitting program for major sources, the nonattainment area NSR or Emission Offset (EO) permitting program for major sources, and the NSR program for minor sources. In addition, Title 5 of the 1990 amendments to the Clean Air Act requires all major sources and some smaller sources of air pollution to obtain an operating permit. A Title 5 permit grants a source permission to operate. The permit includes all air pollution requirements that apply to the source, including emissions limits and monitoring, record keeping, and reporting requirements. It also requires that the source report its compliance with permit conditions to IDEM. IDEM has adopted a joint program for new sources that provides construction and operation under one permitting action. These sources would receive a Title 5 (also referred to as Part 70) permit or under Indiana’s regulations, they could obtain a Federally Enforceable State Operating Permit (FESOP) if they can limit emissions to below the major source thresholds for Title 5. A FESOP would include all the same items that would be included in a Title 5 permit, including the NSR requirements necessary for new sources and modifications.

Historically, ethanol plants that produce fuel grade ethanol were considered chemical production plants due to the associated SIC code, and as such were considered one of the twenty-eight (28) source categories under PSD [326 IAC 2-2]. Therefore, the construction of an ethanol plant that had the potential to emit (PTE) equal to or greater than 100 tons per year of NO_x, SO₂, PM, PM10, CO, and/or Volatile Organic Compounds (VOC) would have been subject to the requirements of PSD, because it was considered one of the twenty-eight (28) listed source categories. Other sources, not specifically listed in this list are considered minor under PSD if emissions are less than two hundred fifty (250) tons per year. Recent rulemaking by the EPA has resulted in a rule revision that will be effective on July 2, 2007 which specifically excludes ethanol production plants from the category of chemical production plants. Therefore, ethanol production plants would no longer be considered one of the twenty-eight listed categories because they produce ethanol, however, another category on this list is facilities with fossil-fuel fired boilers (or combination thereof) totaling more than two hundred fifty (250) million British thermal units per hour heat input. The majority of proposed and permitted ethanol plants have

boilers with a combined heat input that exceeds this amount. The EPA has recommended that IDEM consider the boilers at these plants as nested facilities. This means that while the source would not be one of the twenty-eight (28) listed sources, the boilers would be considered a listed category. Under this permitting process, the emissions from the entire plant would still have to be limited to less than two hundred fifty (250) tons per year to remain minor under PSD, but the emissions from the boilers would need to be limited to less than one hundred (100) tons per year, including any fugitive emissions from the boilers, or they would be subject to PSD. Given that the source would not be considered one of the twenty-eight listed source categories, fugitive emissions would not count toward the total potential emissions. The one hundred (100) tons allocated to the boilers, which would include fugitive emissions, would be part of the overall two hundred fifty (250) tons per year for the entire plant.

Another recent rulemaking by IDEM established a new VOC rule for ethanol production plants. This rule states that ethanol production plants constructed or modified in Indiana after April 1, 2007 are subject to 326 IAC 8-5-6 (Fuel Grade Ethanol Production at Dry Mills) if the plant uses dry milling and no wet milling, and has combined potential VOC emissions of 22.7 megagrams (25 tons) or more per year from the following processes; fermentation, distillation, and dehydration; DDGS dryer or dryers; and, Ethanol load-out operations. The owner or operator of a plant subject to the requirements of 326 IAC 8-5-6, is required to control VOC emissions by installing one of the following control devices; a thermal oxidizer with an overall control efficiency not less than 98% or resulting in a VOC concentration of not more than 10 ppm, a wet scrubber with an overall control efficiency not less than 98% or resulting in a VOC concentration of not more than 20 ppm, or an enclosed flare with an overall control efficiency of not less than 98%.

Ethanol production plants to date are generally issued an air pollution permit under the Federally Enforceable State Operating Program (FESOP) [326 IAC 2-8]. The air pollution permit may also be issued under the Part 70 permit Program [326 IAC 2-7]. The issued permit will fulfill the requirements of NSR and authorize operation.

Federally Enforceable State Operating Permit (FESOP) [326 IAC 2-8]

This type of permit is issued to a source that would be required to obtain a Part 70 permit, but has chosen to limit the PTE to below 100 tons per year of NOx, SO2, PM10, CO, and VOC, and less than 10 tons per year of any single HAP and less than 25 tons per year of any combination of HAPs.

Indiana regulations require that the NSR/FESOP be issued within 120 days from receipt of the application. The time for issuance does not begin until a complete application has been received and the accountability clock may be stopped during the process when additional information is required.

FESOPs are required to be public noticed for 30 days. During this period, the public has the opportunity to submit comments to IDEM and to request a public meeting or public hearing. If a public meeting or public hearing is requested, IDEM will schedule the meeting or hearing. IDEM will draft a document that summarizes received comments and IDEM's response. After the 30 day public notice period is fulfilled and any received comments have been addressed and incorporated into the permit as necessary, the FESOP is ready for issuance. FESOPs are issued for a period of five (5) years.

The application fee for a FESOP is \$5,556. Additional fees will be assessed when, New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAP) incorporations are required.

Title 5 Permit Program [326 IAC 2-7]

A Part 70 permit, also referred to as a Title V permit, is issued to sources that have a potential to emit (PTE) greater than or equal to 100 tons per year of NO_x, SO₂, PM10, CO, and/or Volatile Organic Compounds (VOC), or sources that have a PTE to emit greater than or equal to ten (10) tons per year of any single Hazardous Air Pollutant (HAP) or twenty-five tons per year of any combination of HAPs.

Indiana regulations require that a NSR/Part 70 permit be issued with 120 days from receipt of the application if the source will be minor under Prevention of Significant Deterioration (PSD) [326 IAC 2-2] or within 270 days from receipt of the application if the source will be major under PSD [326 IAC 2-2] (see PSD applicability below). The time to issuance does not begin until a complete application has been received and the accountability clock may be stopped during the process when additional information is required.

Part 70 permits are required to be public noticed for 30 days. During this period, the public has the opportunity to submit comments to IDEM and to request a public meeting or public hearing. If a public meeting or public hearing is requested, IDEM will schedule the meeting or hearing. IDEM will draft a document that summarizes received comments and IDEM's response. After the 30 day public notice period is fulfilled and any received comments have been addressed and incorporated into the permit as necessary, the Part 70 permit is forwarded to U.S. EPA for review. The U.S. EPA has 45 days to review and comment on the proposed Part 70 permit. Any comments received by the U.S. EPA will be addressed and incorporated into the permit as necessary. The Part 70 permit is now ready for issuance. The Part 70 permit is issued for a period of five (5) years.

The application fee for a Part 70 permit is \$5556 for a source that is minor under PSD and \$9525 for sources that are major under PSD. Additional fees will be assessed when Best Available Control Technology (BACT), New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAP) incorporations are required.

For more guidance and forms visit the following websites:

- IDEM Air Permits - <https://www.in.gov/idem/airpermit/>
- IDEM Forms - <https://www.in.gov/idem/forms/>