



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

APR 11 2012

REPLY TO THE ATTENTION OF:

Edwin C. Bakowski, P.E.
Bureau of Air
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

Dear Mr. Bakowski:

The U.S. Environmental Protection Agency has reviewed the draft construction permit (Application No. 09050009) prepared by the Illinois Environmental Protection Agency for the Garden Prairie Energy Facility, to be located at 3465 Garden Prairie Road, Garden Prairie, Illinois. EPA has the following comments on the draft permit:

1. Condition 7(a) of the draft permit requires initial performance testing for criteria pollutants and non- Carbon Dioxide (CO₂) Greenhouse Gases (GHG) emissions but it does not require testing for CO₂ emissions, the primary contributor to GHGs from this project; nor does it require subsequent annual or periodic testing for any pollutant.
 - a. Please revise Condition 7(a) to add a requirement to test for CO₂ emissions, or explain in the permit record why testing for CO₂ emissions is not necessary for this project.
 - b. For purposes of demonstrating compliance with the 1-hour Nitrogen Dioxide (NO₂) National Ambient Air Quality Standard (NAAQS), consider adding an enforceable permit condition requiring the source to either incorporate Nitrogen Oxides (NO_x) Continuous Emissions Monitoring Systems (CEMS) on the gas engines, or conduct annual or periodic performance testing that requires measurement of NO_x, Nitric Oxide (NO) and NO₂ emissions. NO and NO₂ data can be collected at the same time that NO_x data is collected, so no additional cost is anticipated. The NO and NO₂ data would be useful for future modeling of this source to demonstrate compliance with the 1-hour NO₂ NAAQS.
 - c. Please clarify in the permit record why CO₂ CEMS have not been proposed to monitor CO₂ emissions from the natural gas-fired engines. If CO₂ CEMS are infeasible for this project, please explain in the permit record why CO₂ CEMS were rejected and why the proposed GHG monitoring methods are adequate for assuring continuous compliance with the GHG emission limits.

2. Because CO₂ is the predominant GHG for the proposed source, and the proposed facility-wide GHG limit of 99,639 tons per year (tpy), as Carbon Dioxide Equivalents (CO₂e), is barely below the GHG major source threshold of 100,000 tpy as CO₂e:
 - a. We recommend that the technical support document (Project Summary) and/or the permit specify the emission factors or calculation methods used for calculating CO₂e emissions, and the calculation methods to be used for verifying compliance with the emission limits.
 - b. Please specify, in the permit or the support document, how emissions of non-CO₂ GHGs will be calculated, either by providing the specific emission factors for non-CO₂ GHGs in the permit, or by referring to where the emission factors are located (e.g., refer to fuel factors found at EPA's GHGs Reporting Rule).
 - c. Please clarify whether or not the proposed peaking plant will have circuit breakers, which are potential sources of Sulfur Hexafluoride (SF₆). If so, please verify that SF₆ emissions have been counted in the overall estimate of potential GHG emissions from the source.

In addition to the above comments, we have enclosed specific comments for your consideration.

We provide these comments to help ensure that the project meets all federal requirements, that the permit provides all necessary information so that it is readily accessible to the public, and that the record provides adequate support for the permit decision. We look forward to working with you to address all of our comments. If you have any questions, please feel free to contact me at (312) 353-4761 or David Ogulei, of my staff, at (312) 353-0987.

Sincerely,



Genevieve Damico
Chief
Air Permits Section

**ADDITIONAL COMMENTS ON GARDEN PRAIRIE'S DRAFT CONSTRUCTION
PERMIT NO. 09050009**

1. The draft permit does not appear to contain emission limits that reflect the performance of the Selective Catalytic Reduction (SCR) and oxidation catalyst systems. Such limits are typically expressed as concentration-based limits, such as pounds per million British thermal units (lb/mmBtu) or parts per million (ppm).
 - a. In the event that there are compelling reasons why concentration-based numerical emission limits are inappropriate or infeasible for this project, we suggest that you provide an explanation in the permit's support document.
 - b. Also, please consider adding a limit on the allowable ammonia slip from the SCR for purposes of limiting Particulate Matter (PM_{2.5}) formation from the excess ammonia.
2. As written, the permit appears to inappropriately exempt compliance with short-term emission limits during malfunctions and breakdowns. Table 2, Note 1, states, "These limits apply at all times except ... during malfunction and/or breakdown as addressed by Condition 5(d)." Condition 5(d) prescribes actions to be taken if the SCR system malfunctions. We recommend the permit clarify that the exceedance of any applicable emission limit is a violation of the permit.
3. Please clarify how emissions during start-up of the proposed gas engines will be calculated. Table 2 of the draft permit contains emission limits that apply "during the first hour of operation of an engine, including the period of startup"; however, neither the draft permit nor the support document explains how compliance with these emission limits will be demonstrated.
4. Condition 6(a)(ii) limits Sulfur Dioxide (SO₂) and Sulfuric Acid Mist (H₂SO₄) emissions from the proposed engines to 0.6 tpy of each pollutant. Please clarify how SO₂ and H₂SO₄ emissions will be calculated to demonstrate compliance with the SO₂ and H₂SO₄ emission limits. Also, consider adding recordkeeping requirements under Condition 9(c)(ii) for tracking SO₂ and H₂SO₄ emissions from the facility.
5. Condition 6(b) requires compliance with the hourly limits for NO_x on a 1-hour average basis. Given that the compliance test required under Condition 7 reports a 3-hour average of Nitrogen Oxides (NO_x) emissions, please clarify how the required compliance demonstration on a 1-hour average basis will be performed. For example, will the results from each performance test run be used to verify compliance with the NO_x hourly limits?
6. Please clarify whether or not the PM/PM₁₀ and PM_{2.5} emission limits in Attachment B apply to Condensable Particulate Matter (CPM) emitted by the source.
 - a. If CPM is included in the PM/PM₁₀ and PM_{2.5} emission limits, please verify that the proposed test methods will generate both filterable and CPM information.

- b. If CPM was not counted when establishing the PM/PM₁₀ and PM_{2.5} emission limits, please explain in the support document why an accounting of CPM emissions was not conducted.
7. Condition 7(a) requires all performance tests for NOx, Carbon Monoxide, and Volatile Organic Material to be conducted according to 40 C.F.R. § 60.4212 (test procedures for stationary compression ignition internal combustion engines subject to 40 C.F.R. Part 60, Subpart III). Given that the proposed natural gas-fired engines will be subject to 40 C.F.R. Part 60, Subpart JJJJ, please clarify why the draft permit does not require these performance tests to be conducted according to 40 C.F.R. § 60.4244, which applies to spark ignition engines.
8. Condition 5(d) references short term emission limits in Condition 1.6. We could not locate Condition 1.6 in the version of the draft permit we reviewed. Please check this reference.