



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII  
901 NORTH 5TH STREET  
KANSAS CITY, KANSAS 66101

APR 1 2011

John Mitchell, Director  
Kansas Department of Health and Environment  
1000 SW Jackson, Suite 310  
Topeka, KS 66612-1366

RE: Abengoa Bioenergy Biomass of Kansas, LLC Prevention of Significant Deterioration and Section 112(g) permitting comments

Dear Mr. Mitchell:

On March 2, 2011, the United States Environmental Protection Agency (EPA) Region 7 received notification of the Kansas Department of Health and Environment's (KDHE) intent to issue a Prevention of Significant Deterioration (PSD) construction permit and section 112(g) maximum achievable control technology (MACT) determination for Abengoa Bioenergy Biomass of Kansas, LLC (ABBK) to install a biomass to ethanol manufacturing and biomass to power cogeneration facility near Hugoton, Kansas. We have completed our review of the draft permit and have the following comments. 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.

### Comment 1.

Page 19., Section E., Item 9., Paragraphs a. and b. The draft permit limits nitrogen oxides (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>) emissions for the four bubbling fluidized bed (BFB) boilers on a 30-day rolling average. On Page 33., Section F., Items 2. and 3., the draft permit states "action levels" for the 1-hour NO<sub>x</sub> and SO<sub>2</sub> emissions. To ensure the 1-hour NO<sub>x</sub> and SO<sub>2</sub> National Ambient Air Quality Standards (NAAQS) are protected, the permit needs to contain enforceable NO<sub>x</sub> and SO<sub>2</sub> short term emission limits (not just action levels) for the steam generating units to support the modeling demonstration for the proposed units. Because the 30-day rolling limits do not limit the short term emissions, a short term limit should be established in the permit.

### Comment 2.

We note that ABBK has revised the scope and design of this project several times since they submitted a preliminary application for a permit in July 2008. If ABBK makes additional design changes in the future that lead to changes in emissions, impacts on air quality, or control technologies, we believe such changes would necessitate additional action by KDHE to conduct a comprehensive analysis of the changes, and the public should have an opportunity to provide comment on any such changes.

Comment 3.

Page 14., Section E. The draft permit needs to clearly state that the source must comply with requirements in the permit. For example, Page 14, Items 1. through 8. of this section of the draft permit seem to be re-stating regulatory requirements. The draft permit currently states, "The exceedance of any emission limitation established by or referenced in this permit may constitute a violation of the permit . . . ." We suggest that the permit state that all requirements and conditions included in or referenced in the permit must be met, and the exceedance of any emission limitations established by or referenced in the permit are violations of the permit and ABBK may be subject to an enforcement action.

Comment 4.

The draft permit, the draft permit summary sheet, and the application states that best available control technology (BACT) satisfies the MACT "best controlled" requirement for new sources. Section 112(g) of the Clean Air Act defines the floor for new source MACT as follows:

The maximum degree of reduction that is deemed achievable for new sources in a category or subcategory shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source, as defined by the Administrator.

40 CFR 63.43(d)(1) states that the owner or operator's case-by-case MACT determination and the subsequent review shall not be less stringent than the emission control which is achieved in practice by the best controlled similar source. The applicable legal criteria for determining BACT and MACT are not the same. Making a BACT determination alone does not satisfy the MACT requirement. Furthermore, a BACT determination may lead to a BACT limit that is less stringent than the emission control achieved in practice by the best controlled similar source. BACT and MACT have different floors. The BACT floor is the applicable new source performance standard (NSPS), which could be a level far less stringent than a level based on the best controlled similar source.

We recommend that the permit reflect the requirements in EPA's Industrial, Commercial, and Institutional Boilers and Process Heaters MACT ("Boiler MACT") which EPA promulgated on March 21, 2011. 76 FR 15608 This standard will apply to ABBK's boilers and should be included in the permit.

Comment 5.

The PM<sub>10</sub> and PM<sub>2.5</sub> BACT limits do not include condensable emissions. The permit should include both filterable and condensable particulate matter in the BACT limits. The permit should include appropriate test methods to measure both components.

Comment 6.

Page 30., Section E., Item 22., Paragraph c. The draft permit requires ABBK to use the "top performing control technology to control green house gas (GHG) emissions." This

requirement is too vague to be enforceable. The permit needs to specify the emission factors ABBK is to use to demonstrate compliance with the BACT limit.

Comment 7.

The permit should define the terms startup, shutdown, and malfunction within the context of each emission limitation.

Comment 8.

In addition to defining startup, shutdown, and malfunction (SSM), the permit should specify for all BACT limits an alternative BACT limit that applies during SSM. BACT emission limits apply at all times and may not be waived during periods of SSM. If KDHE determines on the record that the primary BACT limits may not be achieved during periods of SSM, it may establish alternative BACT limitations for these periods (which may include work practice standards if certain criteria in the regulations are satisfied). As a rationale for the SSM permit conditions, the permitting record should contain an analysis of whether compliance with normal BACT limits is feasible during SSM. To establish a work practice standard as BACT, KDHE should identify technical or economic constraints on the application of a measurement methodology that would make the imposition of an emissions standard infeasible during SSM and provide a rationale why the control methodologies and work practices were selected. 40 C.F.R. §52.21(b)(12), incorporated by reference in K.A.R. 28-19-350.

Comment 9.

Page 21., Section E., Item 9., Paragraph i. The draft permit requires the owner or operator to calculate the concentration of pollutants in the new biomass blend. The permit should specify the method of performing this calculation.

Comment 10.

Page 31., Section E., Item 22., Paragraph f. The draft permit requires ABBK to use the top performing control technology to control GHG emissions. This requirement is vague and unenforceable. The permit should specify the emission factor used to determine compliance with the BACT limit.

Comment 11.

Page 33., Table 4. For the Biogas Flare and Firewater Pump engine, the proposed BACT emission limits units should be stated as carbon dioxide equivalent (CO<sub>2</sub>e) during any twelve (12) consecutive month period as it is stated in Section E., Item 22., Paragraph f. and g. on page 31. Please correct the BACT limit citations by replacing CO<sub>2</sub>e/yr during any twelve (12) consecutive month period with CO<sub>2</sub>e during any twelve (12) consecutive month period.

Comment 12.

Page 32., Section E., Item 22., Paragraph g. at iv. The permit should specify the emission factor or calculation method used for determining emissions for this requirement.

Comment 13.

Page 29., Section E., Item 22., Paragraph b. Please clarify whether all the GHGs emitted by the biomass-fired boilers are included in the CO<sub>2</sub>e amounts. In addition, please correct typographical error: “CO<sub>2</sub> emissions shall be ~~made~~ monitored with a CO<sub>2</sub> CEMS.”

Comment 14.

Page 23., Section E., Item 11. The draft permit contains two limits for the BACT limit for each pollutant. Please clarify in the permit whether the facility has to meet both limits or just one of the two limits.

Comment 15.

Page 33., Section F., Item 4. The permit should specify how the pressure drop and water level range for the wet scrubber are set by the performance test in this condition.

Comment 16.

In several places in the draft permit, KDHE sets CO<sub>2</sub>e limits but uses carbon dioxide (CO<sub>2</sub>) continuous emissions monitoring system (CEMS) to demonstrate compliance with these limits. CO<sub>2</sub> CEMS do not monitor some of the GHG pollutants that contribute to the total CO<sub>2</sub>e. The permit needs to specify how to determine the quantity of other GHG pollutants to add to the CO<sub>2</sub> to get the total CO<sub>2</sub>e or, alternatively, provide a methodology or analysis for using CO<sub>2</sub> emissions as a basis for determining the CO<sub>2</sub>e emissions.

Comment 17.

Page 31., Section E., Item 22., Paragraph e. at ii. For clarity and enforceability, KDHE should consider specifying in the permit how much water ABBK can use per amount of ethanol produced.

Comment 18.

Page 45., Section L., Item 3. The draft permit requires mercury 12-month rolling averages to be submitted. We believe you intended these to be 12-month rolling totals of the emissions.

Comment 19.

The application’s BACT analysis describes why Schiller Station's nitrogen oxides (NO<sub>x</sub>) control and BACT limit is cost-effective in New Hampshire. The permit record should adequately demonstrate why a NO<sub>x</sub> BACT limit similar to Schiller Station is not cost-effective in Kansas.

Comment 20.

Modeling of the paved haul roads was based upon 268 trucks per day during the hours of 6:00 a.m. and 6:00 p.m. to meet the PM/PM<sub>10</sub>/PM<sub>2.5</sub> limits. Likewise, the PM<sub>2.5</sub> factor used by ABBK for the modeling analysis (0.006 lb/VMT) was based upon the Utah DEQ 2008 memo. That memo assumed efficiencies that were based upon management practices, controls, and other

factors. To ensure operations are consistent with the modeling, the permit should state a daily limit on the number of truck trips/vehicle miles traveled (VMT) and limit the hours to only allow truck traffic between 6:00 a.m. and 6:00 p.m. to support the PM<sub>2.5</sub> and PM<sub>10</sub> emission factors used to determine the limits stated in the permit. Additionally, updated AP-42 equations were issued in January 2011, and EPA replicated the modeling using the new equation and calculated an emission factor of 0.0112 lbs/VMT, which does not include brake and tire wear and should be added back into the number. Also, management practices such as sweeping, watering and limiting speeds were not assumed in the new emission factors.

Should KDHE choose to not include permit language limiting trips and the hours that are allowed, additional justification/demonstration should be included in the permitting record as to why trips could not exceed the modeled values. Additionally, Table B-1 of Attachment B to the Permit Summary Sheet, contains a typographical error. The section of the table for EP-01000, Paved Haul Roads, lists “2689 Trucks per Day.” It should list 268 trucks.

Comment 21.

With respect to modeling of the haul roads and ambient air, the September 2010 (and earlier) modeling protocol(s) indicated that the haul roads would be modeled as area sources. The last modeling effort (Feb 2011) modeled the haul roads as volume sources. (The latest EPA proposed recommendation is to model haul roads as volume sources.) If the volume source cannot model all ambient air locations because of the volume's exclusion zone, the source(s) should be modeled as an area source(s). The modeling indicates that the receptor at the main gate (288120.14 E, 4118021.21 N) is in the ambient air and in the exclusion zone of source HRV01 located at 288130.0E 4117667.5 N. Source HRV01 should be changed to an area source and the receptors near the main gate remodeled with all sources. The volume sources leading from the main gate to the scale area are exceptionally wide (70 m, 230 ft), becoming 42 m (138 ft) at the scales. Since the modeling assumes that this area is valid, the area should be constructed as it was modeled, i.e. paved.

Figure 3-1 in the modeling protocol indicates that part of the property boundary is labeled as fence with most of it is labeled as property line. The entire area should be fenced in order to justify excluding this area from “ambient air” in the modeling. If the area is not fenced and access by the general public restricted, then receptors should be placed on the facility. The figure also shows that a gate leading to the employees’ parking lot is uncontrolled. This gate should be controlled. Otherwise this area, i.e., the road, the easements, the parking lot, and a sub station, should be considered ambient air. The figure also indicates an electric sub station near the employee's parking lot. This area should be considered ambient air unless the gate is controlled and ABBK owns and operates it. Attached is a portion of Fig 3-1 that illustrates our concerns at the gate and roads at the northern edge of the facility.

Comment 22.

There is no discussion in the permit record of fluoride emissions. It is not clear if the project increases fluoride emissions by significant amounts.

Comment 23.

Page 14., Section E., Item 7. The citation is incorrect. It should be 40 CFR 63.6590(c).

Comment 24.

Page 19., Section E., Item 9. We recommend the first two sentences of Item 9 be removed. The permit discusses the requirements of 40 CFR Part 60, Subpart Da on page 37, and those NSPS requirements should not be subsumed into the BACT emission limitations in the permit because the NSPS limits have differing values and averaging times. Also, this item refers to Conditions 8a, 8b, and 8d, but it should refer to Conditions 9a, 9b, and 9d.

Comment 25.

Page 21., Section E., Item 9., Paragraph f. The last sentence references Section E., Item 18. The reference should be to Item 20, on page 27.

Comment 26.

Page 26., Section E., Item 16., Paragraph d. We recommend clarifying this paragraph to read: "The BACT emissions of SO<sub>2</sub> for the diesel firewater pump engine is a work place diesel fuel standard that meets 0.0015% sulfur by weight."

Again, we appreciate the opportunity to provide comments on this draft permit. Please feel free to contact me at (913) 551-7487 if you have any questions.

Sincerely,



For

Becky Weber, Director  
Air and Waste Management Division

Attachment

