UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 17 2012

OFFICE OF
AIR AND RADIATION

Mr. Gary Louis
Executive Vice President, Seaboard Foods LLC.
9000 W. 67th Street, Suite 200
Shawnee Mission, Kansas 66202

Dear Mr. Louis:

You petitioned the Environmental Protection Agency on behalf of High Plains Bioenergy, LLC (HPB) to approve their generation of biomass-based diesel RINs (D-code 4) under the renewable fuel standard (RFS) program for the production of biodiesel fuel using a glycerolysis production process element combined with the traditional transesterification process, free fatty acids (FFA) as feedstock, and natural gas and electricity for process energy.

Through the petition process described under 40 CFR 80.1416, HPB submitted data to the EPA to perform a lifecycle greenhouse gas emissions analysis of the HPB biodiesel pathway. This analysis involved a straightforward application of the same methodology and much of the same modeling used for the RFS2 final rule published on March 26, 2010. The EPA performed its assessment based on the modeling done for biodiesel produced from biogenic waste oils, fats, and greases ("waste grease biodiesel") performed as part of the 2010 RFS2 rule since FFAs are typically discarded or used only for low grade products, and thus are appropriately treated as waste feedstocks. The attached document "High Plains Bioenergy Request for Fuel Pathway Determination under the RFS2" describes the data submitted by the EPA, the analysis conducted by HPB, and our determination of the lifecycle greenhouse gas emissions associated with the fuel production pathway described in HPB's petition.

Based on our assessment, fuel produced using the HPB biodiesel pathway qualifies under the Clean Air Act (CAA) for Biomass-Based Diesel (D-code 4) RINs, assuming that the fuel meets the other definitional criteria for renewable fuel (e.g., produced from renewable biomass, and used to reduce or replace petroleum-based transportation fuel, heating oil or jet fuel) specified in the CAA and EPA implementing regulations. This approved pathway does not apply to fuels that have been co-processed with petroleum.

This approval applies specifically to High Plains Bioenergy, LLC, and to the process, materials used, fuel produced, and process energy sources as outlined and described in the petition request submitted by HPB. The EPA will extend a similar approval to other petitioners utilizing the same fuel pathway as HPB upon verification that the pathway is indeed the same, assuming all other requirements are met.

The OTAQ Reg: Fuels Programs Registration and OTAQEMTS: OTAQ EMTS Application will be modified to allow HPB to register and generate RINs for the production of biodiesel from FFAs using a production process of "HPB Process."

If you have additional questions about this or related issues, please contact Venu Ghanta of my staff at 202-564-1374.

Sincerely,

Margo Tsirigotis Oge, Director
Office of Transportation and Air Quality

High Plains Bioenergy Request for Fuel Pathway Determination under the RFS2
Office of Transportation and Air Quality
February 9, 2012

Summary: High Plains Bioenergy, LLC ("HPB") petitioned the Agency to approve their generation of biomass-based diesel RINs (D-code 4) under the renewable fuel standard ("RFS") program for the production of biodiesel fuel using a glycerolysis production process element combined with the traditional transesterification process, free fatty acids ("FFAs") as feedstock, and natural gas and electricity for process energy (the proposed "HPB biodiesel pathway").

Through the petition process described under 40 CFR 80.1416, HPB submitted data to EPA to perform a lifecycle greenhouse gas emissions analysis of the HPB biodiesel pathway. This analysis involved a straightforward application of the same methodology and much of the same modeling used for the final rule published on March 26, 2010 (75 FR 14670)(the 2010 RFS2 rule"). The difference between this analysis and the analyses completed for the 2010 RFS2 rule is the evaluation of a modified fuel production process. HPB utilizes a unique biofuel production process that is unlike those used in pathways modeled and the use of FFAs as a sole feedstock for the 2010 RFS2 rule because their process first converts FFAs into fats through glycerolysis which are then processed through the more traditional transesterification process to produce biodiesel. During the traditional transesterification process already modeled for pathways included in the RFS program regulations, FFAs are either separated and removed from the biofuel product and co-products or, as discussed in a recent direct final rule (77 Fed. Reg. 721-724, January 5, 2012) the FFAs are subjected to an acid catalysis pretreatment phase that converts them to esters directly.

As outlined in the preamble to the 2010 RFS2 rule, the HPB biodiesel pathway is the type of new pathway that EPA envisioned would be evaluated by comparing the applicant's fuel pathway to pathway(s) that have already been analyzed. EPA performed its assessment based on the modeling done for biodiesel produced from biogenic waste oils, fats, and greases ("waste grease biodiesel") performed as part of the 2010 RFS2 rule since FFAs are typically discarded or used only for low grade products, and thus are appropriately treated as waste feedstocks. Their use as a biofuel feedstock would not be expected to have any incremental land use impact. The HPB biodiesel process converts FFAs into fats, using the glycerin produced during the transesterification process. The fat produced in the HPB process is pure enough to bypass some of the processes normally involved in the pretreatment of traditional fats prior to transesterification. While EPA acknowledges that energy savings are possible by bypassing certain pretreatment processes, specific energy savings estimates are not available at this time. Therefore, the results shown in this petition response conservatively estimate the emissions from energy inputs to the HPB process. As previously mentioned, the HPB biodiesel process also uses glycerin otherwise produced via the transesterification process. In the biodiesel pathways analyzed for the 2010 RFS2 rule, glycerin was assumed to replace residual oil on an energy equivalent basis and thus a co-product credit was applied for the production of glycerin. However, since the HPB process uses the glycerin within its system boundaries, a co-product credit cannot be given to their process. Overall, the combined impacts result in the HPB biodiesel pathway having

higher GHG impacts than the waste grease biodiesel pathways analyzed in the 2010 RFS2 rule. Based on the data submitted and the existing waste grease modeling for the RFS2 biodiesel pathways, EPA conducted a lifecycle assessment and determined that the HPB biodiesel pathway meets the 50% lifecycle GHG threshold requirement defined in EISA for biomass-based diesel and advanced biofuels. For the HPB biodiesel pathway, the result is a 78% reduction in GHG emissions compared to the diesel fuel baseline. Based on our assessment, the fuel produced through the HPB biodiesel pathway qualifies for generating RINs for Biomass-Based Diesel (D-code 4).

This document is organized as follows:

- *Section I. Required Information and Criteria for Petition Requests*: This section contains information on the background and purpose of the petition process, the criteria EPA uses to evaluate the petitions and the information that is required to be provided under the petition process as outlined in 40 CFR § 80.1416. This section is not specific to HPB's request and applies to all petitions submitted pursuant to 40 CFR § 80.1416.
- *Section II. Available Information*: This section contains background information on HPB and describes the information that HPB provided and how it complies with the petition requirements outlined in Section I.
- *Section III. Analysis and Discussion*: This section describes the lifecycle analysis done for the HPB biodiesel pathway and identifies how it differs from the analysis done for the waste grease biodiesel pathway analyzed as part of the 2010 RFS2 rule. This section also describes how we have applied the lifecycle results to determine the appropriate D-Code for the HPB biodiesel pathway.
- *Section IV. Public Participation*: This section describes how this petition is an extension of the analysis done as part of the 2010 RFS2 rulemaking.
- *Section V. Conclusion*: This section summarizes our conclusions regarding HPB's petition, including the D-code HPB may use in generating RINs for fuel produced using the HPB biodiesel pathway.

I. Required Information and Criteria for Petition Requests

A. Background and Purpose of Petition Process

As a result of changes to the Renewable Fuel Standard program in Clean Air Act ("CAA") Section 211(o) required by the Energy Independence and Security Act of 2007 ("EISA"), EPA adopted new regulations, published at 40 CFR § 80.1400 et. seq. that specify the types of renewable fuels eligible to participate in the RFS program and the procedures by which renewable fuel producers and importers may generate Renewable Identification Numbers ("RINs") for the qualifying renewable fuels they produce through approved fuel pathways. See 75 FR 14670 (March 26, 2010); 75 FR 26026

(May 10, 2010); 75 FR 37733 (June 30, 2010); 75 FR 59622 (September 28, 2010); 75 FR 76790 (December 9, 2010); and 75 FR 79964 (December 21, 2010).

Pursuant to § 80.1426(f) (1) of the regulations:

Applicable pathways. D codes shall be used in RINs generated by producers or importers of renewable fuel according to the pathways listed in Table 1 to this section, subparagraph 6 of this section, or as approved by the Administrator.

Table 1 to § 80.1426 lists the three critical components of a fuel pathway: (1) fuel type, (2) feedstock, and (3) production process. Each specific combination of the three components, or fuel pathway, is assigned a D code. EPA may also independently approve additional fuel pathways not currently listed in Table 1 for participation in the RFS program, or a third party may petition for EPA to evaluate a new fuel pathway in accordance with § 80.1416. In addition, producers of facilities identified in 40 CFR § 1403(c) and (d) that are exempt from the 20% GHG emissions reduction requirement of the Act may generate RINs with a D code of 6 pursuant to § 80.1426(f)(6) for a specified baseline volume of fuel.

The petition process under § 80.1416 allows parties to request that EPA evaluate a new fuel pathway's lifecycle GHG reduction and provide a determination of the D code for which the new pathway may be eligible. EPA will extend a similar approval to other petitioners utilizing the same fuel pathway as HPB upon verification that the pathway is indeed the same, assuming all other requirements are met.

B. Required Information in Petitions

As specified in 40 CFR 80.1416(b)(1), petitions must include all of the following information, and should also include as appropriate supporting documents such as independent studies, engineering estimates, industry survey data, and reports or other documents supporting any claims:

- The information specified under § 80.76 (Registration of refiners, importers or oxygenate blenders).
- A technical justification that includes a description of the renewable fuel, feedstock(s), and production process. The justification must include process modeling flow charts.
- A mass balance for the pathway, including feedstocks, fuels produced, co-products, and waste materials production.
- Information on co-products, including their expected use and market value.
- An energy balance for the pathway, including a list of any energy and process heat inputs and outputs used in the pathway, including such sources produced off site or by another entity.

- Any other relevant information, including information pertaining to energy saving technologies or other process improvements.
- Other additional information as requested by the Administrator to complete the lifecycle greenhouse gas assessment of the new fuel pathway.

In addition to the requirements stated above, parties who use a feedstock not previously evaluated by EPA must also include the following, and should also include as appropriate supporting information such as state, county, or regional crop data, commodity reports, independent studies, industry or farm survey data, and reports or other documents supporting any claims:

- Type of feedstock and description of how it meets the definition of renewable biomass.
- Market value of the feedstock.
- List of other uses for the feedstock.
- List of chemical inputs needed to produce the renewable biomass source of the feedstock and prepare the renewable biomass for processing into feedstock.
- Energy needed to obtain the feedstock and deliver it to the facility. If applicable, identify energy needed to plant and harvest the source of the feedstock and modify the source to create the feedstock.
- Current and projected yields of the feedstock that will be used to produce the fuels.
- Other additional information as requested by the Administrator to complete the lifecycle greenhouse gas assessment of the new fuel pathway.

II. Available Information

A. Background on HPB

HPB submitted a petition requesting authorization to generate D code 4 RINs for fuel produced through the HPB biodiesel pathway. A petition is required because the HPB biodiesel process is not included as an approved process under the Biomass-Based Diesel categories in Table 1 to § 80.1426. Table 1 includes biodiesel and renewable diesel from certain feedstocks for production processes only using transesterification or hydrotreating. Through a direct final rule published on January 5, 2012, EPA seeks to clarify the regulations to include esterification as part of the approved processes for these pathways. HPB's process differs from those EPA has modeled previously in that their process first converts FFAs into fats which are then processed through the more traditional transesterification process to produce biodiesel fuel that meets the ASTM D6751 specifications. Thus, HPB does not use a traditional transesterification process alone nor does it use esterification. FFAs are not chemically

considered an oil, fat or grease, and therefore do not qualify as "biogenic waste oils/fats/greases" under Table 1 to § 80.1426.

B. Information Available Through Existing Modeling

A fuel pathway under the RFS2 regulations is defined by three components: (1) fuel type, (2) feedstock, and (3) production process. For the HPB biodiesel pathway addressed in HPB's petition, HPB would produce biodiesel, a fuel that has already been analyzed as part of the 2010 RFS2rule. (See Table 1.) HPB would also use FFAs, which are typically separated from oil/fat feedstocks prior to biodiesel production and which are typically either discarded or used for other low-value purposes. FFAs are low-value feedstocks with no expected land use impacts, and therefore are appropriately treated as wastes, similar to the biogenic waste oils/fats/greases feedstock, analyzed under the 2010 RFS2 rule. As a result, no new feedstock modeling was required as modeling for biogenic waste oils/fats/greases was already done as part of the 2010 RFS2 rule. Similarly, no new emissions impact modeling of using biodiesel as a transportation fuel was required as that was already done as part of the 2010 RFS2 rule. This petition only requires EPA to evaluate a modified fuel production process.

Table 1: Excerpts of Existing Fuel Pathways from 40 CFR 80.1426

Fuel Type	Feedstock	Production Process Requirements[1]	D-Code
Biodiesel, and renewable diesel	Soy bean oil; Oil from annual covercrops; Algal oil; Biogenic waste oils/fats/greases; Non-food grade corn oil	One of the following: Trans-Esterification Hydrotreating *Excluding processes that co-process renewable biomass and petroleum*	4 (Biomass-Based Diesel)

The same analytical approach that was used to evaluate the lifecycle GHG emissions of the pathway noted above was used to analyze the HPB biodiesel pathway. The only difference is that the fuel production process step was adjusted to reflect the HPB process. Included below is a description of the modeling approach used, highlighting the changes that were made from the analysis used in the 2010 RFS2 rule to analyze the HPB petition request.

[1] In a proposed rule published on January 5, 2012, EPA included a reference to direct esterification as part of the production process for this biodiesel pathway in Table 1 to 40 CFR 80.1426.

The preamble to the RFS2 final rule describes the modeling approach used to estimate lifecycle GHG emissions of the waste grease biodiesel pathway. The preamble describes the models and data used as well as the input and output streams from those models to calculate the emissions for each of the lifecycle stages. To modify the waste grease biodiesel analysis to reflect the HPB fuel pathway, the only change required was replacing the biodiesel production process data with the HPB process data. This resulted in the following changes to the modeling (described in more detail in the following sections):

- Amount of energy used by the fuel production process and associated emissions from fuel production and use changed to reflect HPB's data provided in their energy balance
- Amount and type of materials used in the fuel production process and associated emission factors for production of those materials changed to reflect HPB's data provided in their mass balance
- Use of glycerin produced in the fuel production process to reflect the HPB process; no provision for co-product credit.

This was a straightforward analysis based on existing modeling done for the 2010 RFS2 rule and substituting HPB's proprietary process data, which only altered the amounts of inputs and outputs. The analyses completed for this petition utilizes the same fundamental modeling approach as was used in the 2010 RFS2 rule analyses.

C. Information Submitted by HPB

HPB has supplied all the required information on their production process that EPA needs to analyze the lifecycle GHG emissions associated with the HPB biodiesel pathway. Information submitted includes a technical justification that has a description of the fuel, feedstocks used, and their proprietary production process with modeling flow charts, a detailed mass and energy balance of the process with information on co-products as applicable, and other additional information as needed to complete the lifecycle greenhouse gas assessment.

III. Analysis and Discussion

A. Lifecycle Analysis

Determining a fuel pathway's compliance with the lifecycle GHG reduction thresholds specified in the CAA for different types of renewable fuel requires a comprehensive evaluation of the renewable fuel, as compared to the gasoline or diesel that it replaces, on the basis of its lifecycle GHG emissions. As mandated by the CAA, the GHG emissions assessments must evaluate the aggregate quantity of GHG emissions (including direct emissions and significant indirect emissions such as significant emissions from land use changes) related to the full lifecycle, including all stages of fuel and feedstock production, distribution, and use by the ultimate consumer.

In examining the full lifecycle GHG impacts of renewable fuels for the RFS program, EPA considers the following:

- Feedstock production – based on agricultural sector models that include direct and indirect impacts of feedstock production.
- Fuel production – including process energy requirements, impacts of any raw materials used in the process, and benefits from co-products produced.
- Fuel and feedstock distribution – including impacts of transporting feedstock from production to use, and transport of the final fuel to the consumer.
- Use of the fuel – including combustion emissions from use of the fuel in a vehicle.

EPA's evaluation of the lifecycle GHG emissions of the HPB biodiesel pathway under this petition request is consistent with the CAA's applicable requirements, including the definition of lifecycle GHG emissions and threshold evaluation requirements. It was based on information regarding HPB's production process that was submitted under a claim of Confidential Business Information (CBI) by HPB on September 24, 2010. Clarifications on the data submitted were provided by phone and email. The information provided included the mass and energy balances necessary for EPA to evaluate the lifecycle GHG emissions of the HPB biodiesel pathway.

The lifecycle GHG emissions of fuel produced pursuant to the HPB biodiesel pathway were determined as follows:

Feedstock production – The HPB pathway uses FFAs as feedstocks for the production of biodiesel. FFAs are typically separated from oil/fat feedstocks prior to biodiesel production and either discarded or used for other low-value purposes. FFAs are low-value feedstocks with no expected land use impacts, and therefore are appropriately treated as wastes. Although FFAs are not chemically considered an oil, fat or grease, and therefore do not qualify as a "biogenic waste oils/fats/greases" under Table 1 to § 80.1426, it is reasonable to model the feedstock emissions of FFAs in the same way that we already modeled the emissions from biogenic waste oils/fats/greases in the waste grease biodiesel pathway.

Fuel production – HPB's fuel production method involves an additional processing step prior to the traditional transesterification process already analyzed for the 2010 RFS2 rule. The amount of energy and raw materials used are different than production methods that were previously analyzed. One difference is that HPB's biodiesel process results in slightly higher energy consumed as natural gas and electricity than the transesterification process modeled under the 2010 RFS2 rule. Another difference is that HPB's biodiesel process uses a catalyst[2] in the conversion of the FFA to a fat for

[2] The catalyst used in the glycerolysis process is different from those used in both the direct esterification and the transesterification processes.

further conversion into biodiesel. There is no change to the chemicals used in the transesterification step, and the chemicals used in that process (e.g., sodium hydroxide, HCl, and sodium methoxide) were assumed to be the same as for the waste grease biodiesel pathway analyzed for the 2010 RFS2 rule. In addition, there is no longer a glycerin co-product credit assumed for using glycerin as an energy source. Instead, glycerin produced via the transesterification process is subsequently used in the HPB process to convert the FFAs into fats. To analyze the GHG impacts of HPB's biodiesel pathway, EPA utilized the same approach that was used to determine the impacts of processes in the waste grease biodiesel pathway analyzed in the 2010 RFS2 rule, taking into account the differences noted above.

- The GHG emissions for the fuel production component of the HPB biodiesel pathway were based on an assessment of the following:Type and amount of energy used and associated emissions per mmBtu of fuel produced
- Type and amount of raw materials used and associated emissions per mmBtu of fuel produced
- Use of any co-products produced

The amount and type of energy used was taken from information submitted to EPA on HPB's mass balance and energy balance. HPB submitted energy data on natural gas (in Btus) and electricity (in kWhs) inputs, as well as gallons of fuel produced. HPB based their natural gas use in the energy balance on the heat required for process steam. The electrical energy use was based on electricity used in the process. As was done for the waste grease biodiesel pathway for the 2010 RFS2 rule, natural gas was also included for additional processing requirements (e.g., purification, water removal) for the FFAs prior to their use at the plant. While additional processing requirements may not be necessary for the HPB process, we have included them in this analysis as a conservative estimate.

The emissions from the use of natural gas was calculated by multiplying the amount of natural gas used by emission factors for natural gas production and combustion, based on the same method and factors used in the 2010 RFS2 rule. The emission factors are from GREET and were based on the assumed carbon content of natural gas. The emissions from producing electricity in the U.S. were also taken from GREET and represent average U.S. grid electricity production emissions.

Individual process input and output mass and energy flows within the production plant were not needed for this analysis; rather, as was done for the 2010 RFS2 rulemaking analysis, total input and output mass and energy flows from the entire plant were used. Energy data were based on HPB's winter energy consumption estimates, which are considered conservative since energy consumption is typically higher during the winter months.

Emissions from other material used in the HPB biodiesel process were based on multiplying the amount of material used by emission factors for material production and use. The amount of materials used for the transesterification process was based on values from the 2010 RFS2 rule. HPB also uses a

small amount of catalyst in the conversion of FFAs to fats. An analysis was done on potential GHG impacts of producing the catalyst needed for this process. Based on the amount of catalyst used, as provided by HPB, and assuming a conservative estimate of GHG emissions for producing the catalyst (using sodium methoxide as a surrogate) the emissions were less than 1% of total emissions and were therefore assumed to be negligible. The emission factors for other materials used in the HPB biodiesel pathway were based on the emission factors already developed as part of the 2010 RFS2rule (as an input to modeling for the waste grease biodiesel pathway).

HPB's process uses slightly more energy than the previously-examined waste grease biodiesel process, which results in an increased value for GHG emissions associated with the process. This may be due to the specific energy estimates provided, which were based on winter data from HPB; however, average energy use over the year would tend to be lower. We assumed similar amounts of materials used in the HPB biodiesel process compared to the waste grease biodiesel process. The major difference in the HPB process is the use of the co-product glycerin for conversion of FFAs into fats instead of as a replacement for residual oil as was assumed under the waste grease biodiesel pathway. Overall, based on these differences, the HPB biodiesel pathway results in higher fuel production GHG emission impacts compared to the waste grease biodiesel pathway as shown in Table 2.

Table 2: Comparison of Fuel Production Emissions for HPB Biodiesel and RFS2 Waste Grease Biodiesel

Lifecycle Stage	RFS2 Waste Grease Biodiesel (g CO_2-eq./mmBtu)	HPB Biodiesel (g CO_2-eq./mmBtu)
On-Site Emissions	10,558	10,868
Upstream (natural gas and electricity production)	4,684	6,450
Glycerin Co-Product Credit	-5,645	0
Total Fuel Production Emissions:	**9,598**	**17,318**

Fuel and feedstock distribution – We used the same feedstock distribution emissions considered for the waste grease biodiesel pathway under the 2010 RFS2 rule for HPB's FFA feedstock. The fuel type, biodiesel, and hence the fuel distribution for biodiesel, was already considered as part of the 2010 RFS2 rule. Therefore, the existing feedstock and fuel distribution lifecycle GHG impacts for waste grease and biodiesel were applied to our analysis of the HPB biodiesel pathway

Use of the fuel – HPB's biodiesel pathway produces a fuel that was analyzed as part of the 2010 RFS2 rule. Thus, the fuel combustion emissions calculated as part of the 2010 RFS2 rule for biodiesel were applied to our analysis of the HPB biodiesel pathway.

HPB's fuel was then compared to baseline petroleum diesel, using the same value for baseline diesel as in the 2010 RFS2 rule analysis. The analysis indicates that the HPB biodiesel pathway would result in a GHG emissions reduction of 78% compared to the diesel fuel it would replace, as shown in Table 3.

B. Application of the Criteria for Petition Approval

HPB's petition request involved a fuel pathway with a modified production process, using similar feedstocks and producing a fuel product already considered as part of the RFS2 final rule. HPB provided all the necessary information that was required for this type of petition request.

Based on the data submitted and information already available through analyses conducted for the 2010 RFS2 rule, EPA conducted a lifecycle assessment and determined that the HPB biodiesel pathway would meet the 50% lifecycle GHG threshold requirement specified in the CAA for biomass-based diesel.

HPB's biodiesel pathway results in a 78% reduction in GHG emissions compared to the diesel fuel baseline. These results justify authorizing the generation of biomass-based diesel RINs for fuel produced by the HPB biodiesel pathway, assuming that the fuel meets the other definitional criteria for renewable fuel (e.g., produced from renewable biomass, and used to reduce or replace petroleum-based transportation fuel, heating oil or jet fuel registration) specified in the CAA and EPA implementing regulations.

Table 3 below breaks down by stage the lifecycle GHG emissions for the HPB biodiesel pathway, the waste grease biodiesel fuel pathway analyzed as part of the 2010 RFS2 rule, and the 2005 diesel baseline. This table demonstrates the contribution of each stage in the fuel pathway and its relative significance in terms of GHG emissions.

Table 3: Lifecycle GHG Emissions for HPB Biodiesel Pathway, 2022 (kg CO2-eq./mmBtu)

Fuel Type	Waste Grease Biodiesel	HPB Biodiesel	- 2005 Diesel Baseline
Net Domestic Agriculture (w/o land use change)	0	0	
Net International Agriculture (w/o land use change)	0	0	
Domestic Land Use Change	0	0	
International Land Use Change, Mean *(Low/High)*	0	0	
Fuel Production	10	17	18
Fuel and Feedstock Transport	3	3	*
Tailpipe Emissions	1	1	79
Total Emissions, Mean *(Low/High)*	**14**	**21**	**97**

*Emissions included in fuel production stage.

IV. Public Participation

The definition of biomass-based diesel in CAA 211(o)(1) specifies that the term means renewable fuel that has " lifecycle greenhouse gas emissions, as determined by the Administrator, after notice and opportunity for comment, that are at least 50 percent less than the baseline lifecycle greenhouse gas emissions..." As part of the 2010 RFS2 rulemaking, we took public comment on our lifecycle assessment of the waste grease biodiesel pathway, including all models used and all modeling inputs and evaluative approaches. We also acknowledged that it was unlikely that our final regulations would address all possible qualifying fuel production pathways, and we took comment on allowing the generation of RINs using a temporary D code in certain circumstances while EPA was evaluating such new pathways and updating its regulations. After considering comments, we finalized the current petition process, where we allow for EPA approval of certain petitions without going through additional rulemaking if we can do so as a reasonably straightforward extension of previous assessments, whereas rulemaking would be conducted to respond to petitions requiring new modeling. See 58 FR 14797 (March 26, 2010).

In responding to this petition, we have largely relied on the same waste grease biodiesel modeling that we conducted for the 2010 RFS2 rule, and have simply adjusted the analysis to account for HPB's unique production process. This includes use of the same emission factors and types of emission sources that were used in the 2010 RFS2 rule analysis. Thus, the fundamental analyses relied on for this decision have been made available for public comment as part of the 2010 RFS2 rulemaking, consistent with the reference to notice and comment in the statutory definitions of

"biomass-based diesel" and "advanced biofuel." Our approach today is also consistent with our description of the petition process in the preamble to the 2010 RFS2 rule, as our work in responding to the petition was a logical extension of analyses already conducted.

V. Conclusion

Based on our assessment, fuel produced using the HPB biodiesel pathway qualifies under the CAA for Biomass-Based Diesel (D-code 4) RINs, assuming that the fuel meets the other definitional criteria for renewable fuel (e.g., produced from renewable biomass, and used to reduce or replace petroleum-based transportation fuel, heating oil or jet fuel) specified in the CAA and EPA implementing regulations. This approved pathway does not apply to fuels that have been co-processed with petroleum.

This approval applies specifically to High Plains Bioenergy, LLC, and to the process, materials used, fuel produced, and process energy sources as outlined and described in the petition request submitted by HPB. EPA will extend a similar approval to other petitioners utilizing the same fuel pathway as HPB upon verification that the pathway is indeed the same, assuming all other requirements are met.

The OTAQ Reg: Fuels Programs Registration and OTAQEMTS: OTAQ EMTS Application will be modified to allow HPB to register and generate RINs for the production of biodiesel from FFAs using a production process of "HPB Process."