



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

NOV 26 2019

OFFICE OF
AIR AND RADIATION

Mr. Brian Cahill
General Manager and CEO
Southwest Iowa Renewable Energy, LLC
10868 189th Street
Council Bluffs, Iowa 51503

Dear Mr. Cahill:

You petitioned the Agency on behalf of Southwest Iowa Renewable Energy, LLC (SIRE) to approve a pathway for the generation of renewable fuel (D-code 6) Renewable Identification Numbers (RINs) under the renewable fuel standard (RFS) program for the production of non-grandfathered ethanol. The ethanol is produced through a dry mill process at your production facility located in Council Bluffs, Iowa using corn starch as feedstock (the "SIRE Council Bluffs Process").

Through the petition process described under 40 CFR 80.1416, SIRE submitted data to the U.S. Environmental Protection Agency to perform a lifecycle greenhouse gas (GHG) emissions analysis of the fuel produced through the SIRE Council Bluffs Process. 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 "March 2010 RFS rule"). One difference between this analysis and the analyses completed for the March 2010 RFS rule was the evaluation of a more efficient fuel production process. Another difference is that SIRE uses steam imported from the neighboring MidAmerican coal-fired power plant. EPA previously evaluated a dry mill ethanol plant called Dakota Spirit that also imports steam from a nearby coal-fired power plant (the "2013 Dakota Spirit AgEnergy Determination").¹ Based on a notice and public comment process (77 FR 55834), EPA used the work potential approach to evaluate the lifecycle GHG emissions associated with the steam used by Dakota Spirit. We applied the same work potential methodology in our analysis of the SIRE Council Bluffs Process, the only difference being the evaluation of different process efficiencies.

The attached document "Southwest Iowa Renewable Energy, LLC Fuel Pathway Determination under the RFS Program" describes the data submitted by SIRE, the analysis conducted by the EPA, and our determination of the lifecycle greenhouse gas emissions associated with the fuel production pathway described in the SIRE petition.

Based on our assessment, fuel produced through the SIRE Council Bluffs Process qualifies under the Clean Air Act (CAA) for renewable fuel (D-code 6) RINs, assuming the fuel meets the conditions and associated regulatory provisions discussed in the attached document, and the other definitional criteria for renewable fuel (e.g., production from renewable biomass, used to reduce or replace petroleum-based transportation fuel, heating oil or jet fuel) specified in the CAA and EPA implementing regulations.

¹ <https://www.epa.gov/renewable-fuel-standard-program/dakota-spirit-agenergy-llc-approval>

This approval applies specifically to the SIRE Council Bluffs facility, and to the process, materials used, fuel produced, and process energy sources as outlined and described in the petition request submitted by SIRE.

The OTAQ Reg: Fuels Programs Registration and OTAQ EMTS: OTAQ EMTS Application will be modified to allow SIRE to register and generate RINs for the production of non-grandfathered ethanol from corn starch feedstock using a production process of "SIRE Council Bluffs Process."

Sincerely,

A handwritten signature in black ink, appearing to read "Sarah Dunham".

Sarah Dunham, Director
Office of Transportation and Air Quality

Enclosure

Southwest Iowa Renewable Energy, LLC Fuel Pathway Determination under the RFS Program
Office of Transportation and Air Quality

Summary: Southwest Iowa Renewable Energy, LLC (SIRE) submitted a pathway petition (the “SIRE petition”), dated April 22, 2019 to the Agency to approve their generation of renewable fuel (D-code 6) Renewable Identification Numbers (RINs) under the Renewable Fuel Standard (RFS) program for non-grandfathered ethanol produced at their production facility located in Council Bluffs, Iowa through a dry mill process that uses corn starch as the feedstock and relies on the use of steam imported from a neighboring coal-fired power plant (the “SIRE Council Bluffs Process”).

Although SIRE intends to document on an ongoing basis that the non-grandfathered ethanol it produces at its Council Bluffs, Iowa facility meets the appropriate greenhouse gas (GHG) emissions reduction requirements, EPA has performed a threshold lifecycle GHG emissions analysis based on the information in the SIRE petition to determine if it appears that ethanol produced at the facility may achieve the required GHG reductions, if certain conditions are met. This lifecycle analysis, the results of which are explained in this document, involved a straightforward application of the same methodology and modeling used for the final rule published on March 26, 2010 (75 FR 14670) (the “March 2010 RFS rule”), with two differences. The first difference between this analysis and the analyses completed for the March 2010 RFS rule was the evaluation of a more efficient fuel production process, in terms of the amount of feedstocks and amount/type of energy used to produce a certain quantity of ethanol. The second is that SIRE uses steam imported from the neighboring MidAmerican coal-fired power plant. EPA previously evaluated a dry mill ethanol plant called Dakota Spirit that also imports steam from a nearby coal-fired power plant.¹ Based on a notice and public comment process (77 FR 55834), EPA used the work potential approach to evaluate the lifecycle GHG emissions associated with the steam used by Dakota Spirit. We applied the same work potential methodology in our analysis of the SIRE Council Bluffs Process, the only difference being the evaluation of different process efficiencies. Based on the data provided in the SIRE petition, our analysis found that non-grandfathered corn starch ethanol produced through the SIRE Council Bluffs Process satisfies the minimum 20% lifecycle GHG reduction requirement of the Clean Air Act (CAA) if SIRE satisfies all of the conditions specified in this document.²

In this determination EPA is specifying certain conditions designed to ensure that RINs are only assigned to volumes of non-grandfathered ethanol produced through the SIRE Council Bluffs Process if the fuel satisfies the corresponding GHG reduction requirements. The EPA is specifying the condition that to generate renewable fuel (D-code 6) RINs for non-grandfathered corn starch ethanol produced through the SIRE Council Bluffs Process, SIRE must demonstrate that all ethanol produced during an averaging period (defined as the prior 365 days or the number of days since EPA activated

¹ <https://www.epa.gov/renewable-fuel-standard-program/dakota-spirit-agenergy-llc-approval>

² Per the RFS regulations at 40 CFR 80.1401, ethanol derived from corn starch does not qualify as advanced biofuel.

the D-code 6 pathway associated with the SIRE Council Bluffs Process, whichever is less)³ meets the 20% GHG reduction requirement. To make these demonstrations, SIRE must keep records on the feedstocks used and the lifecycle GHG emissions associated with all ethanol produced by SIRE Council Bluffs, based on the monitoring requirements, emissions factors and lifecycle analysis methodology and other requirements specified in this document.

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 the request submitted by SIRE.
- *Section II. Available Information:* This section contains background information on SIRE and describes the information that SIRE 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 non-grandfathered corn starch ethanol produced through the SIRE Council Bluffs Process and identifies how the analysis conducted differs from the analysis done for the March 2010 RFS rule. This section also describes how we have applied the lifecycle results to determine the appropriate D-code for non-grandfathered ethanol produced through the SIRE Council Bluffs Process.
- *Section IV. Conditions and Associated Regulatory Provisions:* This section describes the conditions and associated regulatory provisions that must be satisfied to generate RINs for non-grandfathered ethanol produced through the SIRE Council Bluffs Process.
- *Section V. Public Participation:* This section describes our administrative process to consider the SIRE petition and explains how this petition analysis is an extension of the analysis done as part of the March 2010 RFS rule.
- *Section VI. Conclusion:* This section summarizes our conclusions regarding the SIRE petition, including the D-code SIRE may use in generating RINs for non-grandfathered ethanol produced through the SIRE Council Bluffs Process.

I. Required Information and Criteria for Petition Requests

A. Background and Purpose of Petition Process

As a result of changes to the RFS program in Clean Air Act section 211(o), as amended by the Energy Independence and Security Act of 2007 (EISA), EPA adopted new regulations, published at 40 CFR Part 80 Subpart M. The RFS regulations specify the types of renewable fuels eligible to

³ The full definition of the “averaging time period” is specified in section IV of this document.

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.⁴

Pursuant to 40 CFR 80.1426(f)(1):

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 40 CFR 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 party may petition for EPA to evaluate a new fuel pathway in accordance with 40 CFR 80.1416. In addition, producers of facilities identified in 40 CFR 80.1403(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 40 CFR 80.1426(f)(6) for a specified baseline volume of fuel (“grandfathered fuel”⁵) assuming all other requirements are satisfied.

The petition process under 40 CFR 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. The SIRE petition, submitted under 40 CFR 80.1416, involved a fuel production technology similar to the previously evaluated Dakota Spirit process that EPA previously evaluated and approved pursuant to this provision. – Similar to Dakota Spirit, SIRE uses imported steam from a nearby coal-fired power plant. EPA reviewed the details associated with the SIRE Council Bluffs facility in order to make the facility-specific determination contained in this document.

B. Information to be Provided in Petitions

As specified in 40 CFR 80.1416(b)(1), petitions are to 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:

⁴ See EPA’s website for information about the RFS regulations and associated rulemakings:

<http://www2.epa.gov/renewable-fuel-standard-program/statutes-and-regulations-under-renewable-fuel-standard-program>

⁵ “Grandfathered fuel” refers to a baseline volume of renewable fuel produced from facilities that commenced construction before December 19, 2007 and which completed construction within 36 months without an 18 month hiatus in construction and is thereby exempt from the minimum 20% GHG reduction requirement that applies to general renewable fuel. A baseline volume of ethanol from facilities that commenced construction after December 19, 2007, but prior to December 31, 2009, qualifies for the same exemption if construction is completed within 36 months without an 18 months hiatus in construction and the facility is fired with natural gas, biomass, or any combination thereof.

- The information specified under 40 CFR 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 additional information pursuant to 40 CFR 80.1416(b)(2). This information was not required for the SIRE petition because their proposed pathway uses a feedstock, corn starch, that EPA has previously evaluated.

II. Available Information

A. Background on the Petitioner

SIRE submitted a petition requesting approval for their generation of RINs for non-grandfathered ethanol produced by a dry mill process from corn starch feedstock at their Council Bluffs, Iowa facility. A petition is required because the pathway associated with the SIRE Council Bluffs Process is not included in Table 1 to 40 CFR 80.1426, and has not otherwise been approved by EPA. Table 1 (relevant portions of which are reproduced below) includes pathways for ethanol from corn starch, but provides only three options for fuel producers using a dry mill process and natural gas, biomass or biogas for process energy: (1) use two advanced technologies from Table 2 to 40 CFR 80.1426, (2) dry no more than 50% of the distillers grains with solubles (DGS) that they produce, or (3) dry no more than 65% of the DGS they produce and use one of the advanced technologies listed in Table 2 to 40 CFR 80.1426. The SIRE Council Bluffs Process does not match any of the pathways in Table 1 to 40 CFR 80.1426 because it uses steam from a coal-fired power plant for process energy.

Table 1: Relevant Existing Fuel Pathways from 40 CFR 80.1426

Row	Fuel Type	Feedstock	Production Process Requirements	D-Code
A	Ethanol	Corn Starch	All of the following: Dry mill process, using natural gas, biomass, or biogas for process energy and at least two advanced technologies from Table 2 to this section	6 (Renewable Fuel)
B	Ethanol	Corn Starch	All of the following: Dry mill process, using natural gas, biomass, or biogas for process energy and at least one of the advanced technologies from Table 2 to this section plus drying no more than 65% of the distillers grains with solubles it markets annually	6 (Renewable Fuel)
C	Ethanol	Corn Starch	All of the following: Dry mill process, using natural gas, biomass, or biogas for process energy and drying no more than 50% of the distillers grains with solubles it markets annually	6 (Renewable Fuel)

B. Information Submitted by Southwest Iowa Renewable Energy, LLC

SIRE provided all of the required information in the petition, including all of the data needed for EPA to perform a threshold determination of the potential for ethanol produced through the SIRE Council Bluffs Process to satisfy the 20% lifecycle GHG reduction requirement applicable to non-grandfathered renewable fuel if all conditions in this document are satisfied. SIRE included information on their process yield (bushels of feedstock per gallons of fuel) and the energy used. In addition, SIRE certified that their requested fuel pathway involves the use of corn starch feedstock, a dry mill process, ethanol fuel, distillers grain co-products, and the types of process energy that EPA previously modeled for the March 2010 RFS rule, other than the use of steam from a coal-fired power plant. SIRE also submitted data on the MidAmerican coal-fired power plant from which SIRE imports steam, and the data necessary to calculate an emissions factor using the work potential approach for steam exported from MidAmerican to SIRE.

C. Information Available Through Existing Modeling

For the pathway addressed in their petition, SIRE would use a feedstock (corn starch) that has already been analyzed as part of the March 2010 RFS rule, as noted in Table 1. As a result, no new feedstock modeling was required to evaluate the SIRE petition. Similarly, no new emissions impact modeling of using ethanol as a transportation fuel was required as that was already done as part of the March 2010 RFS rule. This petition only requires EPA to evaluate a modified fuel production process for an existing fuel type.

The same analytical approach that was used to evaluate the lifecycle GHG emissions of the existing corn starch ethanol pathways noted above was used to analyze the pathway described in the SIRE petition. The preamble to the March 2010 RFS rule describes the modeling approach used to estimate lifecycle GHG emissions from corn starch ethanol. 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 corn starch analysis to reflect the process described in the SIRE petition, the only change required was replacing the production process data with the SIRE Council Bluffs Process data. This resulted in the following changes to the modeling (described in more detail in the following sections):

- Amount of corn used in the fuel production process was modified to reflect the SIRE Council Bluffs process yield in terms of bushels of feedstock input per gallons of ethanol produced; and
- Amount of energy used by the fuel production process was changed to reflect data provided in the SIRE Council Bluffs energy balance.

In addition, the modeling was adjusted to account for steam imported by SIRE Council Bluffs from the MidAmerican coal-fired power plant. This part of the modeling was based on the work potential approach discussed in a September 2012 Federal Register Notice titled “Notice of Opportunity To Comment on a Methodology for Allocating Greenhouse Gas Emissions to a Combined Heat and Power Configuration Under the Renewable Fuels Program, and the Application of this Methodology to a Proposed Plant by Dakota Spirit AgEnergy in Spiritwood, ND.” After addressing public comments, EPA applied this work potential methodology in the 2013 Dakota Spirit AgEnergy Determination. The same work potential method was applied to evaluate the steam used in the SIRE Council Bluffs Process, the only difference being the evaluation of different process efficiencies. In both cases the steam was supplied from coal-fired power plants with combined-heat and power systems.

This was a straightforward analysis based on existing modeling done for the March 2010 RFS rule and the 2013 Dakota Spirit AgEnergy Determination and substituting the SIRE Council Bluffs process data, which only altered the amounts of certain inputs and outputs of the fuel production process.

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 fuel 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 fuel's 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 for the pathway described in the SIRE petition is consistent with the CAA's applicable requirements, including the definition of lifecycle GHG emissions and threshold evaluation requirements. It was based on information provided in the petition, including mass and energy balance data for the pathways associated with the SIRE Council Bluffs Process.

The lifecycle GHG emissions of fuel produced using the pathway associated with the SIRE Council Bluffs Process were determined as follows:

Feedstock production and transport (upstream emissions) – SIRE uses corn starch as feedstock for the production of ethanol. As previously noted, corn starch is a feedstock already listed in Table 1 to 40 CFR 80.1426 of the RFS regulations. Since corn starch has already been evaluated by EPA, no new feedstock production modeling was required. SIRE has certified through its petition submissions that it uses a dry mill production process that is consistent with the definition of "dry mill process" specified in section I.C. of this decision document. Therefore, the SIRE Council Bluffs Process is the same type of dry mill process as that modeled for the March 2010 RFS rule, and the

existing agricultural sector modeling analyses for corn as feedstock remains valid for use in estimating the lifecycle impact of renewable fuel produced using the SIRE Council Bluffs Process.

The Forest and Agricultural Sector Optimization Model (FASOM) and Food and Agricultural Policy Research Institute (FAPRI) models were used to analyze the GHG impacts of the feedstock production portion of the ethanol lifecycle. The same FASOM and FAPRI results representing the emissions from an increase in corn production that were generated as part of the March 2010 RFS rule analysis of the corn ethanol pathways were used in our analysis of the corn ethanol production process described in the SIRE petition.

In the corn ethanol analysis for the March 2010 RFS rule, we projected approximately 960 million bushels of corn (assuming 56 pounds per bushel at 15.5 percent moisture) used to produce 2.6 billion additional gallons of ethanol compared to a baseline scenario (based on a yield of 2.71 gallons per bushel), and we calculated GHG emissions from feedstock production for that amount of corn. The FASOM and FAPRI agricultural sector GHG results were divided by the total energy value of fuel produced to get emissions per mmBtu of ethanol.⁶ For the modeled scenario we estimated lifecycle GHG emissions of 9.73 kgCO₂e per bushel of corn used to make ethanol. This includes the upstream emissions associated with producing the corn feedstock and transporting it to the ethanol production facility, and also includes significant direct and indirect emissions (such as emissions from land use change). Therefore, to estimate the lifecycle GHG emissions from the corn feedstock used to make ethanol in the SIRE Council Bluffs Process, the bushels of corn used as feedstock provided in the SIRE petition were multiplied by the emissions factor of 9.73 kgCO₂e per bushel. In the same manner as described in section IV.D. of this document, these emissions were then normalized by the mmBtu of ethanol produced from the same amount of bushels of corn.

Fuel production (process emissions) – The fuel production method used by SIRE Council Bluffs involves the production of ethanol from corn starch in a dry mill process. However, the process described in the SIRE petition is more efficient in terms of energy use than the average dry mill ethanol production technologies analyzed for the March 2010 RFS rule.

To analyze the GHG impacts of the fuel production process used by SIRE Council Bluffs, EPA utilized the same approach that was used to determine the impacts of processes in the corn starch ethanol pathways analyzed in the March 2010 RFS rule, taking into account differences in the types and amounts of process energy used in the SIRE Council Bluffs Process. The analysis in this case also differed from the March 2010 analysis in that here EPA applied the same work potential method used in the 2013 Dakota Spirit AgEnergy Determination to evaluate the GHG impacts of using steam imported from the neighboring MidAmerican coal-fired power plant.

⁶ For the purposes of this determination document, Btus are expressed on a lower heating value (LHV) basis, gallons of ethanol are expressed on an undenatured (neat) basis, and bushels of corn are expressed in terms of 15.5% moisture content unless otherwise specified.

SIRE submitted average annual mass and energy balance data for operations at SIRE Council Bluffs, including all of the process energy used from the point of delivery of the feedstock through feedstock processing, and fuel and co-product production, to the point of final storage of the end product fuel and co-products at the fuel production facility. This includes the energy used to produce all of the ethanol (regardless of regulatory characterization as grandfathered, non-grandfathered, or fuel for which no RINs are generated) produced by SIRE Council Bluffs. SIRE also submitted the requisite data regarding steam from the MidAmerican power plant to apply the work potential approach described in the 2013 Dakota Spirit AgEnergy Determination. Using the work potential approach and the data provided by SIRE, we calculated an emissions factor of 49,564 gCO₂e per mmBtu of steam from MidAmerican used in the SIRE Council Bluffs Process.⁷ In order to use the emissions factors and calculation spreadsheets already developed by EPA, which do not include data entry fields for steam use, we calculated that each mmBtu of steam from MidAmerican used by SIRE has equivalent GHG emissions as 0.0226 tons of coal.

The lifecycle GHG emissions factors used for process energy were the same emissions factors used in the modeling for the March 2010 RFS rule:

- Natural gas = 6.86×10^{-5} kgCO₂e/Btu
- Coal = 1.12×10^{-4} kgCO₂e/Btu
- Biogas CH₄ = 3.64×10^{-7} kgCO₂e/Btu
- U.S. average grid electricity = 0.750 kgCO₂e/kWh
- Crop residue biomass used onsite for process energy upstream emissions = 5.40×10^{-3} kgCO₂e per dry pound (based on the corn stover lifecycle analysis for the March 2010 RFS rule)

Fuel distribution and use (downstream emissions) – The fuel type, ethanol, and hence the fuel distribution and use for ethanol, was already considered as part of the March 2010 RFS rule. Therefore, we applied the existing fuel distribution and use lifecycle GHG impacts for corn starch ethanol to our analysis of the SIRE petition. The emissions factor for ethanol distribution and use, otherwise known as downstream emissions, is 2.1 kgCO₂e per mmBtu of ethanol.

Lifecycle GHG emissions – SIRE Council Bluffs’s fuel LCA emissions were then compared to the baseline lifecycle GHG emissions, using the same value for baseline gasoline as in the March 2010 RFS rule analysis. Based on the data submitted by SIRE, our analysis indicates that ethanol produced using the SIRE Council Bluffs Process would result in at least a 20 percent GHG emissions reduction compared to the baseline lifecycle GHG emissions.

⁷ The work potential approach is explained in most detail in an August 31, 2012 memo to the docket titled “Regarding the Application of the Work Allocation Methodology to the Dakota Spirit Ag Energy Proposed Ethanol Plant” that accompanied the September 2012 Federal Register Notice: <https://www.epa.gov/renewable-fuel-standard-program/dakota-spirit-agenergy-llc-approval>.

Table 2 below breaks down by stage the lifecycle GHG emissions for corn starch ethanol produced using the SIRE Council Bluffs Process, compared to such emissions for a corn starch ethanol process technology analyzed as part of the March 2010 RFS rule that does not use any of the advanced technologies specified in the RFS regulations and dries all of its co-product DGS, and the 2005 gasoline baseline. This table demonstrates the contribution of each stage in the fuel pathway and its relative significance in terms of GHG emissions.

In the table, upstream emissions include the lifecycle GHG emissions associated with producing the corn feedstock and transporting it to the fuel production facility. Process emissions include the lifecycle GHG emissions associated with the fuel production process. Downstream emissions include the lifecycle GHG emissions associated with distributing and using the finished fuel. Table 2 provides EPA’s mean estimate of GHG emissions for each of these stages of the lifecycle.

Table 2: Lifecycle GHG Emissions for Corn Ethanol Produced through the SIRE Council Bluffs Process (kgCO₂e/mmBtu)⁸

	Corn Starch Ethanol, Natural Gas Fired Dry Mill, 100% Dry DGS, No Advanced Technologies	Corn Starch Ethanol Produced Through the SIRE Council Bluffs Process	Baseline Lifecycle GHG Emissions for Gasoline
Upstream Emissions	47.6	46.7	*
Process Emissions	32.4	25.5	19.2
Downstream Emissions	2.1	2.1	79.0
Lifecycle Emissions	81.7	74.4	98.2
Percent Reduction	16.8%	24.3%	--

* Emissions included in Process Emissions stage.

B. Application of the Criteria for Petition Approval

Based on the information provided in the SIRE petition, and the requirements specified in section IV limiting RIN generation for non-grandfathered fuel to ethanol for which ongoing monitoring and assessment provide documentation of compliance with appropriate lifecycle greenhouse gas reduction requirements, EPA is approving this petition request. Specifically, we have determined that ethanol produced pursuant to the SIRE Council Bluffs Process using corn starch feedstock satisfies the minimum 20% greenhouse gas reduction threshold required in the CAA for non-grandfathered renewable fuel if the ethanol is produced in accordance with the fuel yield and energy

⁸ Net emissions may not be the sum of the rows due to rounding.

use information specified in the SIRE petition. As detailed in section IV, EPA is specifying certain conditions that must be satisfied for ethanol produced through the approved pathway to be eligible for RIN generation. Where all the conditions are satisfied, EPA is authorizing the generation of renewable fuel (D-code 6) RINs for non-grandfathered ethanol produced through the SIRE Council Bluffs Process from corn starch, provided that the fuel meets the other criteria for renewable fuel specified in the CAA and EPA implementing regulations.

IV. Conditions and Associated Regulatory Provisions

The authority for SIRE to generate RINs for non-grandfathered ethanol produced pursuant to the SIRE Council Bluffs Process is expressly conditioned on SIRE satisfying all of the following conditions as detailed in this section, in addition to other applicable requirements for renewable fuel producers set forth in the RFS regulations. These conditions are enforceable under the CAA. They are established pursuant to the informal adjudication reflected in this decision document, and also pursuant to regulations cited below and 40 CFR 80.1416(b)(1)(vii), 80.1450(i), and 80.1451(b)(1)(ii)(W). In addition or in the alternative to bringing an enforcement action under the CAA, EPA may revoke this pathway approval if it determines that SIRE has failed to comply with any of the conditions specified herein.⁹

SIRE may also generate RINs under 40 CFR 80.1426(f)(6) for fuel that qualifies for the “grandfathering” exemption under 40 CFR 80.1403. This document does not impact the ability of SIRE to generate RINs for volumes of fuel pursuant to 40 CFR 80.1426(f)(6) or the approved pathways in Table 1 to 40 CFR 80.1426, if all applicable conditions are satisfied.

This section details the registration, compliance monitoring, lifecycle GHG computation, recordkeeping, reporting, attest engagement and other requirements that apply to the non-grandfathered ethanol pathway associated with the SIRE Council Bluffs Process and it is organized as follows:

- *Sub-section A*: definitions
- *Sub-section B*: registration requirements
- *Sub-section C*: compliance monitoring
- *Sub-section D*: lifecycle GHG conditions and associated computational requirements
- *Sub-section E*: recordkeeping requirements
- *Sub-section F*: reporting requirements
- *Sub-section G*: additional requirements

As described in the following sections, one condition for SIRE to generate RINs for non-grandfathered ethanol produced through the SIRE Council Bluffs Process during a specified averaging

⁹ As with all pathway determinations, this approval does not convey any property rights of any sort, or any exclusive privilege.

period (typically 365 days) is documentation by SIRE that RINs are only generated if, on average, all ethanol produced at the facility (including non-grandfathered volume, grandfathered volume and ethanol for which RINs are not generated) during the specified averaging period satisfies the 20% lifecycle GHG reduction requirement. The 365-day (or shorter in certain circumstances) rolling average is calculated based on the daily data monitored and collected by SIRE and the formula specified in section IV.D.

A. Definitions

For the purposes of this petition approval, the following terms are defined as follows:

- a. *365-day rolling average lifecycle GHG emissions* means the average lifecycle GHG emissions for the corn starch ethanol produced by SIRE Council Bluffs during the averaging time period, calculated as specified in section IV.D. based on the daily data collected and recorded by SIRE through continuous monitoring.¹⁰
- b. *Averaging time period* means the 365 calendar days prior to the day that SIRE wishes to generate RINs for fuel produced during the averaging period through the SIRE Council Bluffs Process, or the number of days prior to the day that SIRE wishes to generate RINs since EPA activated the pathway,¹¹ whichever is less. To clarify, SIRE may not generate RINs for non-grandfathered ethanol produced through the SIRE Council Bluffs Process on the same day that such ethanol is produced.
- c. *Continuous monitoring* means the collection and use of measurement data and other information to record the data inputs required to calculate the 365-day rolling average lifecycle GHG emissions, in accordance with the compliance monitoring plan described in section IV.C.
- d. *Energy used for feedstock, fuel and co-product operations* means energy used in all buildings or other areas that are used in any part for the storage and/or processing of feedstock, the production and/or storage of fuel intermediates, the production and/or storage of finished fuel or co-products, and the handling of feedstocks, fuel, co-products and wastes. It includes any energy used offsite for these purposes, including for example energy used offsite to dry the co-product distiller's grains produced by SIRE Council Bluffs before it is sold to the ultimate consumer. To be clear, the energy associated with the steam

¹⁰ The EPA has provided spreadsheets on its website to help ethanol producers understand the correct calculation of 365-day rolling average lifecycle GHG emissions.

¹¹ A fuel pathway is activated under the RFS program when EPA accepts the registration application for the pathway, allowing it to be used in EMTS for RIN generation. When EPA accepts a registration application, an email is automatically sent from otaqfuels@epa.gov to the responsible corporate officer (RCO) of the company that submitted the registration application. The subject line of such an email includes the name of the company and the company request (CR) number corresponding with the registration application submission, and the body of the email says the company request "has been activated."

imported from MidAmerican and used in the SIRE Council Bluffs Process is considered part of the energy used for feedstock, fuel and co-product operations.

- e. *Period of missing data* includes each day for which SIRE does not have valid data collected through continuous monitoring for any of the daily data inputs required to calculate the 365-day rolling average lifecycle GHG emissions, as specified section IV.D.

B. Registration

SIRE Council Bluffs must comply with all registration provisions in 40 CFR Part 80, Subpart M that apply to renewable fuel producers in order to register for the production of non-grandfathered ethanol through the SIRE Council Bluffs Process. SIRE's registration application must be accepted by EPA before the facility is eligible to generate RINs for non-grandfathered ethanol produced through the SIRE Council Bluffs Process. The description of the SIRE Council Bluffs production process that is required for registration pursuant to 40 CFR 80.1450(b)(1)(ii) shall contain the following:¹²

- a. A Compliance Monitoring Plan including technical specifications detailing how SIRE will accurately and reliably measure and record all of the daily data required in section IV.D. and calculate and record the 365-day rolling average lifecycle GHG emissions.
- b. A process flow diagram showing all of the following:
 - 1. The supply and continuous monitoring of all energy used for feedstock, fuel and co-product operations.
 - 2. The continuous monitoring of bushels of corn used in fuel production processes for all of the ethanol produced by SIRE Council Bluffs, including non-grandfathered ethanol for which RINs are generated, ethanol for which RINs are not generated and ethanol that is exempt from the 20% GHG reduction requirement per 40 CFR 80.1403.
 - 3. The continuous monitoring of volume and temperature¹³ for all of the ethanol produced by SIRE Council Bluffs, including non-grandfathered ethanol for which RINs are generated, ethanol for which RINs are not generated and ethanol for which RINs are generated that is exempt from the 20% GHG reduction requirement per 40 CFR 80.1403.

¹² All of the registration materials required by 80.1450(b)(1), including those specifically described in this document, must be reviewed and verified pursuant to the independent third party engineering review required in 80.1450(b)(2).

¹³ Temperature readings must take place at the same time the volume is measured.

4. Information for each of the continuous monitoring systems (e.g., scales, fuel flow meters and electricity meters) shown in the process flow diagram including the name of the manufacturer, the manufacture date and all relevant serial numbers.
- c. A certification signed by a Responsible Corporate Officer containing the following statement: “I hereby certify that: (1) I have reviewed and understand the process flow diagram submitted with this application for registration as required pursuant to section IV.B.b of the petition approval document for the pathway associated with the SIRE Council Bluffs Process; (2) To the best of my knowledge the process flow diagram is accurate and complete; (3) All monitoring devices specified in the process flow diagram will be calibrated and maintained according to the manufacturer specifications or more frequently (if the manufacturer does not provide calibration or maintenance records then the company must meet standards for similar monitoring devices); and (4) All of the monitoring devices included in the process flow diagram monitor all of the information specified in sections IV.B.b.1, 2 and 3 of the petition approval document for the pathway associated with the SIRE Council Bluffs Process.”
 - d. If SIRE wishes to exclude any amount of energy used at SIRE Council Bluffs when calculating the 365-day rolling average lifecycle GHG emissions, the description of the facility’s production process must include all of the following:
 1. An explanation of why such energy should not be included.
 2. A plan showing how the energy that will not be included in the calculation of the 365-day rolling average lifecycle GHG emissions will be kept completely segregated, separately metered and recorded.¹⁴
 - e. If SIRE wishes to take credit for exported electricity in calculating GHG_P pursuant to section IV.D, SIRE must include a certification signed by a Responsible Corporate Officer stating that any exported electricity would be the result of combined heat and power technology as defined in the RFS regulations at 40 CFR 80.1401.

C. Compliance Monitoring

¹⁴ There are only two valid reasons for excluding any amount of energy used by SIRE Council Bluffs when calculating the 365-day rolling average lifecycle GHG emissions. The first is that the energy is used in a stand-alone and separately-metered building that is used solely for administrative purposes. The second is that the energy is used in a stand-alone and separately-metered tower grain dryer to dry the corn kernel feedstock prior to grinding. The lifecycle GHG emissions from energy used at such a tower grain dryer may be excluded because they have been taken into account as part of the feedstock production stage of the EPA’s lifecycle assessment of corn starch ethanol as modeled for the March 2010 RFS rule.

SIRE must implement the Compliance Monitoring Plan, and must use data obtained and recorded in accordance with this plan to calculate the 365-day rolling average lifecycle GHG emissions.

D. Corn Ethanol Lifecycle GHG Emissions

SIRE may not generate RINs for non-grandfathered corn ethanol produced pursuant to the SIRE Council Bluffs Process unless it can demonstrate through records produced in accordance with 40 CFR 80.1454(b)(3) that are available as of the date of RIN generation and maintained by SIRE for a minimum of five years from the date of RIN generation that all of the ethanol produced during the averaging period at the SIRE Council Bluffs facility (including non-grandfathered volume, grandfathered volume and ethanol for which RINs are not generated) meets all of the following requirements:

- a. The ethanol was produced by a dry mill process, using only corn starch as feedstock, during the averaging time period.
- b. The 365-day rolling average lifecycle GHG emissions are calculated using the following formula, and do not exceed 78.56 kgCO₂e/mmBtu of ethanol:¹⁵

$$LC_{GHG_e} = GHG_{U_c} + GHG_P + GHG_D$$

Where:

LC_{GHG_e} = Lifecycle GHG emissions, in kgCO₂e/mmBtu, of the volume of all corn starch ethanol produced at the facility during the averaging time period.

GHG_{U_c} = Upstream GHG emissions, in kgCO₂e/mmBtu, related to the production and transport of the volume of feedstock used to produce all corn starch ethanol produced at the facility during the averaging time period, calculated per section IV.D.c.

GHG_P = Process GHG emissions, in kgCO₂e/mmBtu, related to the processes used for conversion of corn starch into ethanol during the averaging period, including energy used for feedstock, fuel and co-product operations; calculated per section IV.D.d.

GHG_D = Downstream GHG emissions, in kgCO₂e/mmBtu, related to the distribution and use of all ethanol produced during the averaging period, calculated per section IV.D.e.

- c. For the purposes of the formula in section IV.D.b, GHG_{U_c} is calculated according to the following formula:

¹⁵ The statutory petroleum gasoline baseline estimated for the March 2010 RFS final rule was 98.2 kgCO₂e/mmBtu. Fuel meeting the twenty percent lifecycle GHG reduction threshold produces 78.56 kgCO₂e/mmBtu or less.

$$\text{GHG}_{\text{Uc}} = 9.73 * B_C / (V_S * 0.076)$$

Where:

9.73 = Upstream emissions factor for corn, in kgCO_{2e} per bushel, based on the lifecycle GHG modeling done by EPA for the March 2010 RFS rule.

B_C = Bushels of corn used by SIRE Council Bluffs as feedstock to produce ethanol during the averaging time period in terms of a standard bushel at 15.5% moisture.

For the purposes of this paragraph, B_C, shall be calculated according to the following formula:

$$B_C = B_{C_m} * \left(\frac{1 - m_c}{1 - 0.155} \right)$$

B_{C_m} = Bushels of corn used by SIRE Council Bluffs as feedstock to produce ethanol during the averaging time period based on measurements recorded by SIRE Council Bluffs.

m_c = Average moisture content of corn, in mass percent, for the corn delivered to SIRE Council Bluffs for use as feedstock to produce ethanol during the averaging time period. The moisture content tests performed by SIRE shall sample corn that, based on good engineering judgment, is representative of each delivery of corn feedstock to SIRE Council Bluffs. SIRE shall test the moisture content of the corn delivered in each and every truck load, train load, or other delivery of corn to SIRE Council Bluffs, and for any given delivery must measure the corn moisture content no less frequently than once for every 10,000 bushels. For moisture content, SIRE shall use a DICKEY-john GAC 2500UGMA or Perten AM 5200-A moisture meter, as certified by the National Type Evaluation Program, and follow the device's operating instructions, or use alternative test methods as specified by SIRE in their Compliance Monitoring Plan accepted by EPA. SIRE shall calculate the average moisture content as a weighted average, by summing the products of the mass and corresponding moisture content of each corn delivery, and then dividing by the total mass of corn feedstock delivered to SIRE Council Bluffs during the averaging time period.

0.155 = Moisture content of a standard bushel of corn at 56 pounds per bushel.

V_S = Standardized volume of all ethanol produced at the SIRE Council Bluffs facility during the averaging time period, in gallons of undenatured ethanol. In determining the standardized volume, the actual volumes of ethanol shall be adjusted to a standard temperature of 60 degrees Fahrenheit using the following formula:

$$V_S = V_A * \left(1 - \left(0.00114 * \left(\left[\{T + 459.67\} * \frac{5}{9} \right] - \left[\{60 + 459.67\} * \frac{5}{9} \right] \right) \right) \right)$$

Where:

V_A = Actual volume of undenatured ethanol, in gallons.

T = Actual temperature of ethanol, in degrees Fahrenheit, measured at the same time that V_A is measured.

0.00114 = Coefficient to standardize volumes of undenatured ethanol.

60 = Standard temperature, in degrees Fahrenheit, for volumes of ethanol.

459.67 and 5/9 = Conversion factors for Fahrenheit to Kelvin

0.076 = Energy content of ethanol, in mmBtu/gallon (lower heating value).

- d. For the purposes of the formula in section IV.D.b, GHG_p is calculated according to the following formula:

$$GHG_p = \frac{\sum_{p=1}^3 (PE_p * LHV_{PE,p} * EF_{PE,p}) + BIO * EF_{bio} + ELEC * EF_{elec}}{V_S * 0.076}$$

Where:

p = Type of fuel used.

PE_p = a measure of the amount of fuel p used as energy used for feedstock, fuel and co-product operations, as follows:

PE_{p1} = Standard cubic feet (scf) of natural gas used in feedstock, fuel and co-product operations, as measured by SIRE by continuous monitoring.

PE_{p2} = scf of biogas CH_4 from landfills, waste treatment plants and/or waste digesters used as energy used for feedstock, fuel and co-product operations, as measured by SIRE by continuous monitoring.¹⁶

PE_{p3} = Tons of coal, used as energy used for feedstock, fuel and co-product operations, as measured by SIRE by continuous monitoring. For every mmBtu of steam imported from MidAmerican as measured by SIRE by continuous monitoring, SIRE shall

¹⁶ This shall only represent the methane in the biogas used. If the amount of methane present in the biogas is not metered directly, SIRE shall determine the amount of methane present in the biogas used by SIRE Council Bluffs, using the monitoring protocols and test procedures specified in the Compliance Monitoring Plan submitted by SIRE as part of their registration materials for the SIRE Council Bluffs Process.

consider that equivalent to 0.0226 tons of coal for purposes of the formula specified above for GHG_p .

BIO = Dry pounds (0% moisture) of biomass used as energy used for feedstock, fuel and co-product operations, as measured by SIRE by continuous monitoring.

ELEC = kWh of Grid electricity used as energy used for feedstock, fuel and co-product operations, as measured by SIRE by continuous monitoring.

$LHV_{PE,p}$ = Lower Heating Value factor for fuel type p, as follows:

$LHV_{PE,p1}$ = 983 Btu per scf of natural gas.

$LHV_{PE,p2}$ = 983 Btu per scf of biogas CH_4 .

$LHV_{PE,p3}$ = 19,546,300 Btu per ton of coal.

$EF_{PE,p}$ = Lifecycle GHG emissions factor for fuel type p, (based on lower heating value) as follows:

$EF_{PE,p1}$ = $6.86 * 10^{-5}$ kgCO_{2e} per Btu of natural gas.

$EF_{PE,p2}$ = $3.64 * 10^{-7}$ kgCO_{2e} per Btu of biogas CH_4 .

$EF_{PE,p3}$ = $1.12 * 10^{-4}$ kgCO_{2e} per Btu of coal.

EF_{bio} = $5.40 * 10^{-3}$ kgCO_{2e} per dry lbs of crop residue biomass.

EF_{elec} = 0.750 kgCO_{2e} per kWh of grid electricity, based on the United States grid average.

- e. For the purposes of the formula in section IV.D.b, GHG_D is calculated to be 2.1 kgCO_{2e} per mmBtu of ethanol.
- f. For the purposes of section IV.D., for all ethanol produced by SIRE during a day where SIRE has missing data on any of the factors described in this section, SIRE shall assess the fuel produced on all such days as having lifecycle GHG emissions of 98.2 kgCO_{2e} per mmBtu,¹⁷ and use this value in their calculation of the 365-day rolling average lifecycle GHG emissions.

E. Recordkeeping

¹⁷ The value of 98.2 kgCO_{2e}/mmBtu was selected because it is the value for baseline lifecycle GHG emissions from gasoline, as evaluated by EPA for the March 2010 RFS rule. We recognize this is a conservative approach for substituting missing data, and we believe a conservative approach is necessary to eliminate any incentive for parties to fail to collect and document accurate data.

In addition to the specific recordkeeping requirements stated at 40 CFR 80.1454(b)(3)(i)-(xii), the following records related to the generation and assignment of RINs must be produced and maintained pursuant to 40 CFR 80.1454(b)(3) when SIRE generates RINs for non-grandfathered ethanol produced through the SIRE Council Bluffs Process.

- a. Records documenting the data required to calculate lifecycle GHG emissions per the requirements specified in section IV.D., and which are collected in accordance with the compliance monitoring plan described in section IV.B.a. This includes comprehensive and reliable information with respect to the amount of feedstock and energy used and the amount of fuel produced, such as meter readings and energy bills that span the entire averaging time period for each instance that RINs are generated for non-grandfathered ethanol produced through the SIRE Council Bluffs Process.
- b. Records presenting accurate calculations verifying compliance with the applicable lifecycle GHG reduction threshold on a 365-day rolling average basis in accordance with section IV.D. that are prepared on each day that RINs are generated for non-grandfathered ethanol produced through the SIRE Council Bluffs Process. The information must include identifiable unique references to all documents and metering data used in the calculations.¹⁸

F. Reporting

As part of the quarterly RIN generation reports required under 40 CFR 80.1451(b), SIRE shall follow all of the instructions in data form RFS2500 (EPA Form 5900-374) to submit the required information that was prepared during the relevant quarter.¹⁹ SIRE shall submit reports in accordance with the form RFS2500 for each and every quarter that it has an activated pathway for ethanol produced through the SIRE Council Bluffs Process.

G. Additional Conditions

The authority for SIRE to generate RINs for non-grandfathered ethanol produced pursuant to the SIRE Council Bluffs Process is expressly conditioned on SIRE satisfying all of the following additional conditions:

- a. For any biogas energy used for feedstock, fuel and co-product operations, SIRE must satisfy the requirements specified at 40 CFR 80.1426(f)(12) of the RFS regulations.

¹⁸ The EPA has provided spreadsheets on its website to help ethanol producers understand the correct calculation of 365-day rolling average lifecycle GHG emissions. These spreadsheets can also be used for recordkeeping.

¹⁹ Since the information prepared pursuant to section IV.E. must be included in the SIRE quarterly RIN generation reports to EPA, it follows that this information is subject to attest engagement requirements pursuant to 80.1464(b).

- b. All of the biomass used onsite as process energy used for feedstock, fuel and co-product operations must be one or any combination of the types of biomass that is a crop residue, as defined at 40 CFR 80.1401 in the RFS regulations.²⁰

SIRE may not generate RINs for non-grandfathered ethanol produced through the SIRE Council Bluffs Process if SIRE fails to comply with any of the conditions in this section IV. However, this does not prevent SIRE from generating RINs for fuel produced pursuant to any of the pathways specified in Table 1 to 40 CFR 80.1426, or pursuant to 40 CFR 80.1426(f)(6), to the extent that SIRE is authorized to do so under applicable regulations.

If SIRE chooses to generate grandfathered RINs pursuant to 40 CFR 80.1426(f)(6), and generate RINs for non-grandfathered ethanol produced pursuant to the SIRE Council Bluffs Process during any calendar year, SIRE may only generate RINs for non-grandfathered ethanol after it generates RINs for all of its grandfathered baseline volume. In other words, SIRE must first produce and generate RINs for its grandfathered volume before generating RINs under the pathway being approved in this document.²¹

EPA may modify the conditions specified above, as it deems necessary and appropriate to ensure that non-grandfathered fuel produced pursuant to the SIRE Council Bluffs Process achieves the required lifecycle GHG reductions, including to make the conditions align with any future changes to the RFS regulations. If EPA makes any changes to the conditions noted in this document for non-grandfathered fuel produced pursuant to the SIRE Council Bluffs Process, the Agency will explain such changes in a public determination letter, similar to this one, and specify in that letter the effective date for any such changes.

V. Public Participation

As part of the March 2010 RFS rule, we took public comment on our lifecycle assessment of the corn starch ethanol pathways listed in Table 1 to 40 CFR 80.1426, including all models used and all modeling inputs and evaluative approaches. In the March 2010 RFS rule, we also acknowledged

²⁰ See the July 2014 RFS rule (79 FR 42128) for more details on what EPA considers to be residue.

²¹ There are several reasons for the inclusion of this condition. There are data reliability benefits associated with requiring the generation of grandfathered RINs first. Since SIRE will be required to start tracking energy use once this pathway is activated in EMTS, they will have a more robust set of data that contributes to their 365-day rolling average, compared to having just one data point on the first day of approval. In addition, this condition will help to reduce the Agency's administrative burden related to enforcement and compliance. If SIRE were able to switch back and forth between generating grandfathered and non-grandfathered RINs, auditing their records would require EPA to do a more complex review of historical data. Furthermore, alternating between the grandfathered and non-grandfathered RIN generation creates more opportunities for errors in the calculations required to meet the GHG emission reduction threshold, and also provides more opportunities for errors when generating RINs in EMTS. EPA has approved pathway petitions in the past with conditions allowing parties to switch back and forth between the production of grandfathered and non-grandfathered volume during a calendar year. However, for the reasons described above, we have decided not to grant additional petitions allowing such an approach.

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 notice and public comment if we can do so as a reasonably straightforward extension of prior analyses, whereas notice and public comment would be conducted to respond to petitions requiring significant new analysis and/or modeling. *See* 75 FR 14797 (March 26, 2010).

In responding to the petition submitted by SIRE, we have relied on the corn starch ethanol modeling that we conducted for the March 2010 RFS rule, and have simply adjusted the analysis to account for the specific production process used by SIRE Council Bluffs. We relied on the same agricultural sector modeling (FASOM and FAPRI results) that was conducted and commented on as part of the March 2010 RFS rule to represent feedstock production. This also includes use of the same emission factors and types of emission sources that were used in the March 2010 RFS rule analysis. Thus, the fundamental analyses relied on for this decision have already been made available for public comment as part of the March 2010 RFS rule. Our approach today is also consistent with our description of the petition process in the preamble to the March 2010 RFS rule. Our evaluation in response to the petition is a logical extension of analyses already conducted for the March 2010 RFS rule.

In addition, the analysis conducted for this determination also relied upon the evaluation of steam imported from a nearby coal-fired power plant, which EPA solicited public comment on in the September 2012 Federal Register Notice. In that notice, EPA invited comments on a methodology for evaluating the GHG emissions associated with steam provided by a coal-fired power plant with a combined heat and power configuration to an ethanol plant (77 FR 55834). After considering public comments EPA determined that the work potential approach was the most appropriate methodology for this evaluation, and EPA used that methodology to evaluate the lifecycle GHG emissions associated with the steam used by an ethanol plant in North Dakota operated by Dakota Spirit. SIRE Council Bluff's use of steam from the MidAmerican coal-fired power plant fits the description of the type of steam use that EPA sought comment on in the September 2012 notice. Thus, our approach today is consistent with the analysis conducted for the 2013 Dakota Spirit AgEnergy Determination and is the product of the notice-and-comment process conducted for the purpose of informing such analyses.

VI. Conclusion

This document specifies conditions designed to ensure that D-code 6 RINs are generated for non-grandfathered ethanol produced pursuant to the SIRE Council Bluffs Process only if the ethanol satisfies the 20% lifecycle GHG reduction requirements specified in the CAA for renewable fuel. The

fuel must also meet other applicable requirements specified in the CAA and EPA implementing regulations to qualify for RIN generation, including being produced from renewable biomass and for use as transportation fuel, heating oil or jet fuel.

This approval applies specifically to the SIRE Council Bluffs facility and to the process, materials used, fuel and co-products produced, and process energy sources as outlined and described in the SIRE petition. This approval is effective as of signature date. RINs may only be generated for non-grandfathered ethanol produced pursuant to the SIRE Council Bluffs Process that is produced after the date of activation of SIRE's registration for this pathway.

The OTAQ Reg: Fuels Programs Registration and OTAQ EMTS: OTAQ EMTS Application will be modified to allow SIRE to register and generate RINs for the production of non-grandfathered ethanol from corn starch feedstock using a production process of "SIRE Council Bluffs Process." This document has no impact on the ability of SIRE to use the OTAQ Reg: Fuels Programs Registration and OTAQ EMTS: OTAQ EMTS Application to register and generate RINs for the facility's baseline volume of grandfathered ethanol fuel or to register and generate RINs for ethanol produced using any of the pathways specified in Table 1 to 40 CFR 80.1426.