December 2, 2010

Re: Method 2A Application – Excluding Confidential Business Information

California Air Resources Board
Stationary Source Division
Criteria Pollutants Branch - 6th Floor
1001 I Street
P.O. BOX 2815
Sacramento, CA 95812

To: The Executive Officer

Herewith, please find our application support document for a fuel lifecycle GHG emissions pathway for KAAPA Ethanol, L.L.C. located in Minden, Nebraska, using the Method 2A application process described in "Establishing New Fuel Pathways under the California Low Carbon Fuel Standard Procedures and Guidelines for Regulated Parties" report by ARB (California Air Resources Board) issued on March 25, 2010.

This application support document accompanies the Method 2A and 2B Application Form we have concurrently completed for this new pathway application. A separate version of this application support document suitable for public disclosure because it will be without any confidential business information will also be submitted once CARB has accepted our new pathway application.

We are using the Method 2A application process because our new pathway is a sub-pathway pathway of the existing Corn Ethanol Midwest, Dry Mill, Wet DGS, NG LCFS Lookup Table pathway. At our facility, we produce ethanol from corn. Our facility uses only natural gas for its process energy and electricity from the local grid, and achieves a significantly lower energy use, and hence greenhouse gas emissions, from the existing pathway through the use of a modern ICM process design and our efficient feedstock and energy management of the facility.

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The CARB LCFS regulations stipulate that only sub-pathways with a lower carbon intensity value than main pathway can use the Method 2A application. Our pathway is a sub-pathway of the Corn Ethanol, Midwest, Dry Mill, Dry DGS, NG Pathway because, and except for lower energy use and GHG emissions, our pathway is identical to the Corn Ethanol (Midwest; Dry Mill; Wet DGS, NG) Pathway described in the Detailed California-Modified GREET Pathway for Corn Ethanol Well-to-Wheel (WTW) lifecycle analysis.[1]

We have used the CA-GREET Model 1.8b to calculate the lifecycle greenhouse gas emissions of KAAPA's new sub-pathway. Based on the input changes to the model described in the attachments, the carbon intensity value of this new pathway is **78.56** gCO2e/MJ. This CI intensity value and our production volumes more than meet the "5-10" substantiality rule and the other requirements of a new pathway.

The following attachments to this application support document provide the details and documentation of our application for a new pathway under Method 2A. Portions of the following information that we consider Confidential Business Information have been clearly marked as such on each page. Pages in the attachment with Confidential Business Information have been clearly marked as such, *but are not included in this non-confidential version of the application. In this version of the application, the points where elements of Confidential Business Information have been removed from the text or accompanying tables are indicated so as to inform the public that the complete application to the ARB contained additional information to support this application, but that such information is considered by us to be Confidential Business Information.*

[1] Detailed California-Modified GREET Pathway for Corn Ethanol Well-to-Wheel (WTW) lifecycle analysis, Version 2.1, published February 27, 2009.

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We request your approval and would be glad to answer any questions you may have about our application. Following please find the names and contact information of the persons who are available to answer any questions about our application. Please note that Houston BioFuels Consultants LLC are assisting us with the application and may be contacted if you have questions or comments about our application

Affiliation:	KAAPA Ethanol, L.L.C.	Houston BioFuels Consultants LLC
Name:	Charles Woodside	
	or Shana Dahlgren	Mr. Logan Caldwell, Consultant
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	Minden, NE 68959	Kingwood, TX 77345

Shana Dahlgren
Chief Financial Officer

Attachments

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Attachments

Section Number and Summary of Contents

I. WTW Diagram of Company Sub-Pathway of the Corn Ethanol (Midwest; Dry Mill; Wet DGS, NG) Pathway

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I. WTW Diagram of COMPANY Sub-Pathway of the Midwest Corn Ethanol Pathway

Figure 1: WTW Components of the COMPANY Pathway are Identical to the Corn Ethanol (Midwest; Dry Mill; Wet DGS, NG) Pathway[2]

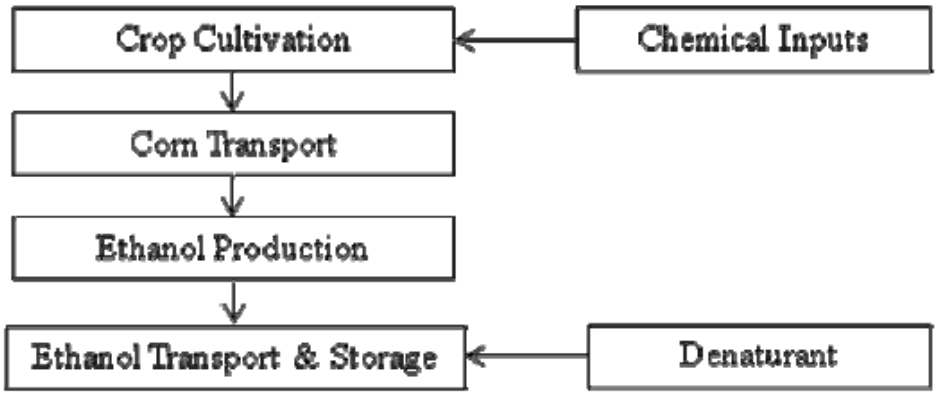


Figure 1. WTT Components for Ethanol Transported to California

[2] Detailed California-Modified GREET Pathway for Corn Ethanol Well-to-Wheel (WTW) lifecycle analysis, Page 4, Version 2.1, published February 27, 2009.

II. KAAPA Plant Information - Confidential Business Information

1. EPA Facility ID Number - 1000 0018 4267
2. Plant Location -8450 KAAPA Lane, Minden, NE 68959
3. History – Started production as 40 million gallon/year plant in November 2003. Have operated without interruption since. Expanded in 2006 to 60 million gallons by adding additional fermentation tanks and upsizing some equipment.
4. Capacity Notes – We believe that through some improvements and capital expenditures we can produce up to 66,000,000 without any decrease in our efficiency. In fact, we think we can bring energy use per gallon down as we add equipment which makes our use of steam more efficiently.
5. Technology – ICM Design
6. Feedstock Type – To this point we have used only corn. We have the ability to run milo/grain sorghum. We are considering incorporating milo pending the EPA decision as to the qualification of it as an advanced biofuel.
7. Product – KAAPA listed ethanol as the only renewable fuel that it is capable of producing without significant modification. The Engineer conducted a site tour during the site visit and performed a thorough review of P&IDs and production records to verify that ethanol is indeed the only renewable fuel the facility is capable of producing.
8. Co-Products – As discussed in the Process Description, the KAAPA facility has the potential to produce two co-products, wet distillers grains solubles (WDGS) and corn syrup. Currently the corn syrup is blended back in with the wet cake to produce the WDGS; however, the facility has the ability to pull the syrup off as a separate co-product if desired.
9. Process fuel – We use 100% natural gas to generate steam from 3 package boilers. We are not required to have a thermal oxidizer because we don't have dryer emissions.
10. Power supply – We purchase electricity from Southern Power who is a retailer of power that is provided by Nebraska Public Power District.
11. KAAPA air permits. – The latest version of the KAAPA plant air permits issued by the state of Nebraska accompany this document as separate documents/files because of their

size. The air permits include information about all of the equipment in the plant that generates emissions from the combustion of fuel.

12. Process Flow Description - The facility currently receives grain and processes that grain into ethanol. The grain is received and stored in silos and metered out to hammer mills which grind the grain to meal. The meal is conveyed into slurry blenders where cook water and enzymes are added, creating a mixture called mash. The enzyme breaks down the starch in the flour and decreases the viscosity of the mash. The mash is then discharged into the slurry tank where steam is injected and is held at constant temperature and pH for the gelatinization of the starch in the mash. The mash is pumped from the slurry tanks, through a hydroheater and into the cook tube. The hydroheater increases the temperature of the mash for sterilization and shearing of the starch molecules. The mash passes through the cook tube and enters the flash vessel to cool the temperature. As the mash leaves the flash vessel, additional enzyme is added. The mash is then pumped into liquefaction tanks where the starch continues to break down into a complex sugar.

    The liquefied mash is then pumped into fermentation tanks along with yeast slurry. A second enzyme is added in the fermenter to break the complex sugars down to glucose. The yeast slurry is used to inoculate the fermenter and begin the fermentation process. The fermentation process created alcohol and carbon dioxide. Fermentation continues until all of the glucose has been broken down. At this point the mash is called beer. The carbon dioxide (CO2) is vented out of the fermenters into a scrubber which removes alcohol and hydrocarbon compounds before the CO2 is vented to the atmosphere. The beer is then transferred from the fermenter to the beer well and is then sent to distillation to separate the alcohol from the corn solids and refine the alcohol. The distillation system consists of three columns, the beer column, the rectifier column and the side stripper.

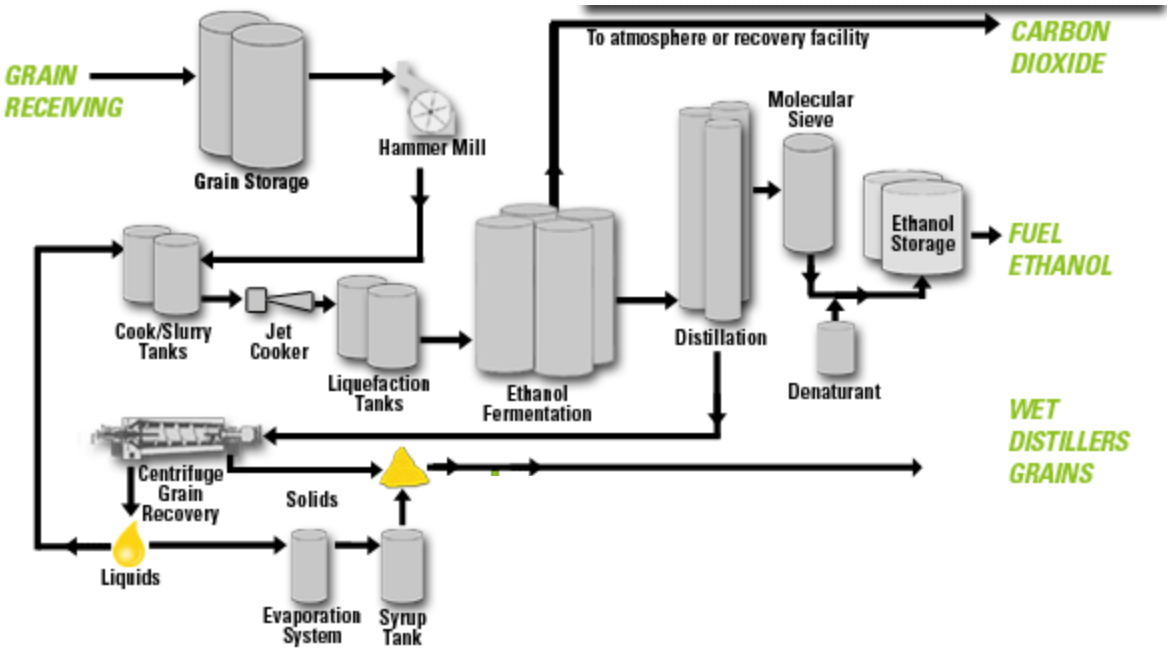
    The alcohol rich beer from fermentation is pumped into the beer column where the alcohol is stripped from the beer. The stripped beer, now called whole stillage, is pumped from the bottom of the beer column to the whole stillage tank. The low proof alcohol

leaves the top of the beer column in vapor form and enters the bottom of the rectifier column. The rectifier column continues to boil the mixture and separate water from the alcohol to bring it up to 190 proof vapors which exit the top of the rectifier column. The 190 proof vapors are condensed and sent to the 190 proof reflux tank. A portion of the 190 proof liquid is sent back to the top of the rectifier and the remaining material is pumped to the 190 proof storage tank. The 190 proof liquid is then sent to molecular sieves to be vaporized and remove the remaining water, producing 200 proof alcohol. Natural gasoline is added to the 200 proof alcohol as a denaturant prior to shipment to make the alcohol unfit for human consumption.

The whole stillage is pumped out of the bottom of the beer column into the whole stillage tank. From the whole stillage tank, the stillage is then pumped to the centrifuges. The centrifuges separate the solids from the liquid, producing two streams. The solid stream is called wet cake and the liquid stream is called thin stillage. The wet cake is conveyed to the “wet pad” and the thin stillage is pumped back into the evaporator to make syrup. The water vapor from the evaporation process is condensed, treated and reused as process water. The resulting syrup contains between 30 and 40% solids and can be sold as animal feed or fed back into the wet cake as it is conveyed to the wet pad. The wet cake is mixed with syrup to produce a 68% moisture product called wet distillers grains with solubles (WDGS).

13. Process Block Flow Diagram

The following process block flow diagram is a generic diagram copied from the web-site of our process licensor, ICM Inc. The KAAPA Minden, Nebraska plant does not have facilities to dry wet distillers grains. Consequently, KAAPA only produces a wet distillers grains co-product.



14. Energy and Material Balance - **Confidential Business Information**

The energy and material balance for the design case used for the design of the KAAPA plant is shown in the diagram on the following page. This energy and material diagram contains **Confidential Business Information and is not included in this non-confidential version of the application.**

III. Table of CA-GREET Model Inputs for COMPANY Pathway

Table 1: CA-GREET Model Inputs for the COMPANY Pathway

CA-GREET Model Sheet Name	Cell number	Default Pathway Value	KAAPA Pathway Value	Units	Description	Comments
Fuel_Prod_TS	L277	36,000	Confidential Business Information	btu/gal	Corn Ethanol Plant Energy Use, Dry Mill	With modern plant and partially dried co-product, lower energy use
Fuel_Prod_TS	H277	2.72	Confidential Business Information	gal/bu	Ethanol yield of Corn Ethanol Plant, Dry Mill	With modern plant, optimized yield
Inputs	C247	10.19%	Confidential Business Information	%	Share of process energy for Electricity	With modern plant and partially dried co-product, lower power use
Inputs	C254	32,330	Confidential Business Information	btu/gal	Process fuel	Shown here for reference only. This cell is calculated based on cell L277 in Fuel_Prod_TS and Inputs C247
Inputs	C258	1.08	Confidential Business Information	kwh/gal	Electricity used for ethanol production	Shown here for reference only. This cell is calculated based on cell L277 in Fuel_Prod_TS and Inputs C247

IV. Basis for the Input Values

The input values presented in this application are based on the total natural gas and power consumed by KAAPA from November 1, 2009 through October 31, 2010, (the "Production Period"). Since the input values are in terms of per gallon of anhydrous ethanol, the total of each utility value has been divided by the total gallons of anhydrous ethanol produced during the Production Period.

Table 2: Calculation of the Input Values

Table 2 is considered Confidential Business Information and is not included in this non-confidential version of the application.

V. CA-GREET Model Output and Analysis of Results

The KAAPA pathway carbon intensity value is a sub-pathway of the Midwest, Dry-Mill, 100% WDGS Co-product, 100% natural gas fuel ethanol plant pathway. The carbon intensity value of the base pathway is 90.1 gCO2e/MJ. The carbon intensity value of the KAAPA ethanol plant ethanol is **78.56** gCO2e/MJ.

Table 3: CI of Existing Midwest Dry Mill, 100% WDGS, 100% Natural Gas Fuel Pathway

CARB Lookup Table Reference Pathway: Midwest Dry Mill Ethanol Plant, 100% WDGS, NG Fuel Pathway							
		CA-GREET Model Output					
	IPPC factors	Corn	Ethanol	Calculations to convert Output to g/CO2e/MJ			
	gCO2e/g	*Btu or Grams per mmbtu of Fuel Throughput*				gCO2e/mmbtu	**gCO2e/MJ**
		US Avg Corn	100% DDGS	Corn w/loss	Total corn + EtOH		
Total energy		187,247	1,330,569	187,434	1,518,003		
VOC		16.8	54.446	17	71		
CO		151.3	26.943	151	178		
CH4	25	17.4	56.801	17	74	1,855.5	1.76
N2O	298	41.7	0.350	42	42	12,556.3	11.90
CO2	1	15,064	33,114	15,079	48,193	48,192.6	45.68
Sub-total lifecycle CI before denaturant and lt. vehicle combustion						62,604.3	59.34
Denaturant and lt. vehicle combustion effects factor							0.80
Total Lifecycle CI before ILUC with denaturant and lt. vehicle combustion effects included							60.14
Indirect Land Use Change Factor (ILUC)							30
Total CI of Pathway including Indirect Land Use Change							90.14
Note: The calculated result of this pathway prior to making the input changes for the KAAPA ethanol plant is 59.34 gCO2e/MJ. This matches the Corn Ethanol WTW Analysis result of 59.3 gCO2e/MJ (Table C. GHG Emissions Summary for the Various Corn Ethanol Scenarios, page 6) before the denaturant and light vehicle combustion factor of 0.8 gCO2e/MJ is added.							

Table 4: KAAPA Ethanol Plant CI Calculation based on the CA-GREET Model Output

KAAPA Plant Sub-Pathway of the Midwest Dry Mill Ethanol Plant, 100% WDGS, NG Fuel Pathway							
		CA-GREET Model Output					
	IPPC factors	Corn	Ethanol	Calculations to convert Output to g/CO2e/MJ			
	gCO2e/g	*Btu or Grams per mmbtu of Fuel Throughput*				gCO2e/mmbtu	**gCO2e/MJ**
		US Average Corn	100%WDGS	Corn w/ loss	Total Corn + EtOH		
Total energy		186,739	1,162,995	186,926	1,349,921		
CO		150.866	18.402	151	169		
CH4	25	17.353	37.404	17	55	1,369.4	1.30
N2O	298	41.630	0.224	42	42	12,485.0	11.83
CO2	1	15,023	21,497	15,038	36,535	36,535.1	34.63
Sub-total lifecycle CI before denaturant and lt. vehicle combustion						50,389.5	47.76
Denaturant and lt. vehicle combustion effects factor							0.80
Total Lifecycle CI before ILUC with denaturant and lt. vehicle combustion effects included							48.56
Indirect Land Use Change Factor (ILUC)							30
Total CI of Pathway including Indirect Land Use Change							78.56

VI. Production Range of COMPANY Pathway

The new pathway should be applicable to the COMPANY facilities for at least 67% to 110% of Nameplate Capacity (60 million gallons per year).

The following letter by the KAAPA ethanol plant manager provides authentication and explanation for the production capacity range. **This letter is considered Confidential Business Information and is not included in this non-confidential version of the application.**

VII. Sustainability of COMPANY Pathway

The COMPANY facility was designed and constructed using well-established modern designs and equipment and is managed by professional staff well-qualified to assure that over time the energy efficiency of and emissions from the facility do not deteriorate. Any deterioration would result in a less profitable business. Thus the sustainability of the plant is well aligned with the business objectives of the owners.

VIII. Impact on Land Use

There is negligible difference between the land use of this sub-pathway and that of the Corn Ethanol (Midwest; Dry Mill; Wet DGS, NG) Pathway described in the Detailed California-Modified GREET Pathway for Corn Ethanol Well-to-Wheel (WTW) lifecycle analysis.[3].

[3] Detailed California-Modified GREET Pathway for Corn Ethanol Well-to-Wheel (WTW) lifecycle analysis, Version 2.1, published February 27, 2009.

X. Documents supporting Annual Quantities of Ethanol, Corn, Natural Gas and Power

Table 5: Summary of Inputs and Outputs during "Production Period"

Table 5 is considered Confidential Business Information and is not included in this non-confidential version of the application.

Documents (including invoices for natural gas and electricity) authenticating the amounts shown in the table above are included on the following pages. **The pages showing the utility bills are not included in this non-confidential version of the application.**

December 1, 2010

California Air Resources Board
Stationary Source Division
Criteria Pollutants Branch - 6th Floor
1001 I Street
P.O. BOX 2815
Sacramento, CA 95812

The production data submitted with this New Pathway Application for the Production Period of November 2009 through October 2010 has been determined each month after the completion of our inventory, WDGS moisture analysis determination by an independent laboratory and the corn ground (consumed as feedstock) is determined each month after the completion of our inventory. The production data submitted with this New Pathway Application is the same data that is used in the preparation of our monthly financial statements, which are subject to audit by our independent auditor McGladrey & Pullen.

Sincerely,

Shana Dahlgren

Shana Dahlgren
Chief Financial Officer