

STATE OF COLORADO

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
AIR POLLUTION CONTROL DIVISION
TELEPHONE: (303) 692-3150



CONSTRUCTION PERMIT

PERMIT NO: 04WE1423

FINAL APPROVAL

Modification #3

DATE ISSUED: NOV 22 2011

ISSUED TO: Front Range Energy, LLC

THE SOURCE TO WHICH THIS PERMIT APPLIES IS DESCRIBED AND LOCATED AS FOLLOWS:

Ethanol manufacturing and CO₂ recovery plant (owned by **Reliant Processing**) located ½ mile south of Eastman Parkway and ¼ mile west of Weld County Road 23, Windsor, Weld County, Colorado.

THE SPECIFIC EQUIPMENT OR ACTIVITY SUBJECT TO THIS PERMIT INCLUDES THE FOLLOWING:

All equipment and activities are listed in Attachment A of this facility-wide permit.

THIS PERMIT IS GRANTED SUBJECT TO ALL RULES AND REGULATIONS OF THE COLORADO AIR QUALITY CONTROL COMMISSION AND THE COLORADO AIR POLLUTION PREVENTION AND CONTROL ACT C.R.S. (25-7-101 et seq), TO THOSE GENERAL TERMS AND CONDITIONS INCLUDED IN THIS DOCUMENT AND THE FOLLOWING SPECIFIC TERMS AND CONDITIONS:

PC.1. *General Identifying Information*

PC.1.1 The AIRs identification number shall be marked on the subject equipment for ease of identification. (Reference: Regulation No. 3, Part B, Section III.E.) (State only enforceable)

PC.2. *Production and Emission Limitations*

PC.2.1 This source shall be limited to a maximum production rate as listed below and all other activities, operational rates and numbers of equipment as stated in the application. Monthly records of the actual production rate shall be maintained by the applicant and made available to the Division for inspection upon request. (Reference: Regulation No. 3, Part B, Section II.A.4.)

Production of ethanol shall not exceed 55,000,000 gallons per year. (AIRs Points 004 & 005)

Production of denatured ethanol shall not exceed 57,750,000 gallons per year, assuming produced ethanol is 95% of denatured ethanol. (AIRs Points 004 & 005)

Receiving of denaturant (gasoline) shall not exceed 2,887,500 gallons per year. (AIRs Points 002 & 009)

Production of wet distillers grains and solubles (WDGS) shall not exceed 560,640 tons per year. (AIRs Point 010)

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PC.2.2 Compliance with the yearly production and process rate limitations in PC 2.1 and PC 2.3 shall be determined on a rolling twelve (12) month total.

PC.2.3 This source shall be limited to a maximum raw material process rate or fuel use rate as listed below and all other activities, operational rates and numbers of equipment as stated in the application. Monthly records of the actual consumption rate shall be maintained by the applicant and made available to the Division for inspection upon request. (Reference: Regulation No. 3, Part B, Section II.A.4.)

Receiving of grain shall not exceed 576,800 tons per year. (AIRs Point 001)

Milling of grain shall not exceed 576,800 tons per year. (AIRs Point 001)

Loadout of denatured ethanol to truck and railcar shall not exceed 57,750,000 gallons per year. (AIRS Point 008) The railcar loadout shall be limited to dedicated railcars only.

Loadout of wet distiller's grains and solubles shall not exceed 560,640 tons per year. (AIRS Point 010)

Consumption of natural gas in the 143.4 MMBtu/hr, watertube boiler shall not exceed 1,256.18 MMScf per year. (AIRs Point 003)

PC.2.4 Emissions of air pollutants the emission sources described in Attachment A shall not exceed the following limitations (as calculated in the Division's preliminary analysis). Compliance with the annual limits shall be determined on a rolling (12) month total. By the end of each month a new twelve month total is calculated based on the previous twelve months' data. The permit holder shall calculate monthly emissions and keep a compliance record on site for Division review. (Reference: Regulation No. 3, Part B, Section II.A.4)

Particulate Matter:	18.69 tons per year.
PM ₁₀ (Particulate Matter<10 µm):	17.69 tons per year.
Nitrogen Oxides:	63.67 tons per year.
Volatile Organic Compounds:	65.25 tons per year.
Carbon Monoxide:	53.57 tons per year.
Individual Hazardous Air Pollutant (HAP):	8.0 tons per year.
Total of all HAPs:	20.0 tons per year.

PC.2.5 Compliance with the yearly emission limits shall be determined on a rolling twelve (12) month total. Compliance with the emission limits shall be determined using the emission factors stated in Attachment A.

PC.2.6 Emissions of fugitive particulate matter (PM) and fugitive particulate matter of less than ten microns (PM₁₀) from paved haul roads and other fugitive emission sources shall not exceed the following limits. These emission limits are based on the production rates listed above. The Division assumes that these levels are being met if the control measures stated in the approved control plan are followed and the stated process rates are not exceeded.

	<u>tons per year</u>
Fugitive Particulate Matter	18.48
Fugitive Particulate Matter less than 10 microns (PM-10)	9.67

PC.2.7 The particulate emission control measures listed on the attached page (as approved by the Division) shall be applied to the particulate emission producing sources as required by Regulation No. 1, Section III.D.1.b.

PC.2.8 The following conditions apply to: FACILITY BAGHOUSES (Reference: Regulation No. 3, Part B, Section II.A.4)

PC.2.8.1 PM and PM₁₀ emissions from all grain handling and milling operations shall be captured and controlled by the grain receiving baghouse (SV020), the reclaim baghouse (SV040) and the hammermill baghouses (SV030, SV031 and SV032).

PC.2.8.2 The operations of each baghouse shall be in accordance with the following requirements:

2.8.2.1 The baghouses shall be operated whenever the associated emission units are in operation.

2.8.2.2 The baghouses shall be properly installed, operated and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the dry dust collectors shall be kept on site and readily available to the Division upon request.

2.8.2.3 Each baghouse shall be equipped with an operational pressure differential indicator. The pressure differential indicator readings shall be recorded at least once each day that the associated baghouse is operating. The pressure indicator shall be properly installed, operated, calibrated, and maintained. The manufacturer's operation and maintenance manual, or its Division approved equivalent, detailing proper operation, inspection and maintenance of the pressure differential indicator shall be kept on site and readily available to the Division upon request.

2.8.2.4 Baghouse filter bags/cartridges are to be inspected and/or replaced according to the manufacturer's documentation or more frequently but at least annually as indicated by pressure differential indicator readings or other indication of bag failure. These inspections and replacements shall be recorded in a log.

2.8.2.5 Routine observations (at least once each day during daylight hours of baghouse operation) shall be conducted and recorded to determine whether there are visible emissions from the stack, leaks, noise, atypical pressure differential readings, or other indications, which may necessitate corrective action. Corrective action shall be taken immediately if necessary. These daily observations shall be recorded in a log.

- 2.8.2.6 Collected waste material from the baghouses shall be handled, transported, and stored in such a manner that PM/PM₁₀ emissions are not released.
- 2.8.2.7 The source shall maintain on-site an inventory of spare bags/cartridges of each type used facility-wide to ensure rapid replacement in the event of bag/cartridge failure.
- 2.8.2.8 The emissions from the grain receiving baghouse (SV020) shall not exceed the following emission limits (3-hour or EPA testing method 5D average).
 - 2.8.2.8.1 1.29 pounds per hour PM/PM-10.
- 2.8.2.9 The emissions from the hammermill baghouses (SV030, SV031 and SV032) shall not exceed the following emission limits (3-hour or EPA testing method 5D average) (each).
 - 2.8.2.9.1 0.62 pounds per hour PM/PM-10.
- 2.8.2.10 The emissions from the reclaim baghouse (SV0400) shall not exceed the following emission limits (3-hour or EPA testing method 5D average).
 - 2.8.2.10.1 1.16 pounds per hour PM/PM-10.

PC.3. Specific State or Federal Standards

PC.3.1 Visible emissions shall not exceed twenty percent (20%) opacity during normal operation of the source. During periods of startup, process modification, or adjustment of control equipment visible emissions shall not exceed 30% opacity for more than six minutes in any sixty consecutive minutes. EPA Method 9 shall be used to measure opacity. (Reference: Regulation No. 1, Section II.A.1. & 4.)

PC.3.2 This source is subject to the odor requirements of Regulation No. 2. (State only enforceable)

PC.3.3 AIRs Point 003 is subject to the New Source Performance Standards requirements of Regulation No. 6, Part A, Subpart Db (Federal NSPS 40 CFR Part 60, Subpart Db), Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, including but not limited to the following:

a. § 60.44b. (a) – Standard for Nitrogen Oxides.

- i. No owner or operator of an affected facility shall cause to be discharged into the atmosphere any gases that contain nitrogen oxides (expressed as NO₂) in excess of 0.20 pounds per million Btu heat input.
- ii. This standard applies at all times including periods of startup, shutdown, or malfunction.
- iii. Compliance with the standard shall be determined on a 30-day rolling average basis.

b. § 60.49b (40 CFR 60.48b(g)(2)) – The facility has an “Operation Monitoring Plan”, in the form of a Predictive Emissions Monitoring System (PEMs), that:

- (1) Continually monitors operating conditions, e.g., boiler temperature, boiler gas valve % open settings, air/fuel ratio, and boiler fuel gas flowrate (§ 60.49b(c)(1)).
- (2) Includes data used to identify the relationship between the operating conditions and NOx formation, i.e., higher temperatures, and valve settings that may create more NOx. (§ 60.49b(c)(2)). Please note that the PEMs does not include an explanation between NOx and CO formation. This has been approved by both the Division and the EPA.
- (3) Identifies how the proposed and approved operating conditions will be monitored, i.e., operators continually monitor temperature and valve setting (§ 60.49b(c)(3)).

c. § 60.49b. - Reporting and Recordkeeping Requirements.

- i. The owner or operator of each affected facility shall record and maintain records of the amounts of each fuel combusted during each day. §60.49b. (D).

PC.3.4 This source, particularly AIRS Point 012, the 190 HP Diesel-Fired Emergency Fire Pump Engine, is subject to the New Source Performance Standards requirements of Regulation No. 6, Part A, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE) including, but not limited to, the following:

- a. Emissions of Nitrogen Oxides and Non-Methane Hydrocarbons shall not exceed grams per horsepower hour or 0.034 lbs per horsepower hour for AIRS Point 012. This emission factor is from AP-42 Table 3.4.1, which is more stringent than NSPS IIII.
- b. Emissions of Carbon Monoxide shall not exceed grams per horsepower hour or 0.0067 lbs per horsepower hour for AIRS Point 012. This emission factor is from AP-42 Table 3.4.1, which is more stringent than NSPS IIII.
- c. Emissions of Particulate Matter shall not exceed grams per horsepower or 0.0022 grams per horsepower hour for AIRS Point 012. This emission factor is from AP-42, which is more stringent than NSPS IIII.
- d. All fuel used shall meet the following specifications:

- (1) Sulfur content shall not exceed 15 ppm.
- (2) Have a minimum cetane index of 40 or have a maximum aromatic compound content of 35% by volume.

Compliance shall be demonstrated by maintaining copies of the fuel specifications provided by the supplier on-site or in a readily accessible location and made available to the Division for inspection upon request.

- e. All engines and control devices must be installed, configured, operated, and maintained according to the specifications and instructions provided by the engine manufacturer.
- f. Diesel particulate filter (if used) must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

- g. This diesel-fired engine is deemed to be for emergency use only, therefore they are limited to 100 hours of operation each for maintenance checks and readiness testing. There is no time limit on the use of emergency stationary ICE in emergency situations. (40 CFR §60.4211(e)).

For PCs 3.3 and 3.4, the following requirements of Regulation No. 6, Part A, Subpart A, General Provisions, apply.

- a. At all times, including periods of start-up, shutdown, and malfunction, the facility and control equipment shall, to the extent practicable, be maintained and operated in a manner consistent with good air pollution control practices for minimizing emissions. Determination of whether or not acceptable operating and maintenance procedures are being used will be based on information available to the Division, which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. (Reference: Regulation 6, Part A. General Provisions from 40CFR60.11)
- b. No article, machine, equipment or process shall be used to conceal an emission, which would otherwise constitute a violation of an applicable standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with opacity standard or with a standard, which is based on the concentration of a pollutant in the gases discharged to the atmosphere. (§ 60.12)
- c. Written notification of construction and initial startup dates shall be submitted to the Division as required under § 60.7.
- d. Records of startups, shutdowns, and malfunctions shall be maintained, as required under § 60.7.

A copy of the complete applicable subpart(s) may found at:
<http://www.gpoaccess.gov/cfr/retrieve.html>

PC.3.5 All tanks listed under AIRs Point 002 are subject to the New Source Performance Standards requirements of Regulation No. 6, Part A, Subpart Kb, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984, including, but not limited to, the following:

- a. Standards §60.112b.
 - i. Each vessel shall be equipped with a fixed roof in combination with an internal floating roof meeting the requirements of §60.112b. (a). (1)
- b. Testing and procedures §60.113b
 - i. Visual inspections as specified in §60.113b. (a). (1) through (5)
- c. Reporting and Recordkeeping requirements per §60.115b
- d. Monitoring of Operations §60.116b
 - i. Maintain records of the Volatile Organic Liquid (VOL) stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period.

A copy of the complete applicable subpart(s) may found at:
<http://www.gpoaccess.gov/cfr/retrieve.html>

PC.3.6 This source, specifically AIRS Point 007, is subject to the New Source Performance Standards requirements of Regulation No. 6, Part A, Subpart VV, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry including, but not limited to, the following:

- a. Standards: §60.482-1 through §60.482-10
 - i. The applicant shall perform **monthly** monitoring for equipment leaks using USEPA Method 21 as described in §60.485.
- b. Recordkeeping requirements. §60.486
- c. Reporting requirements. §60.487

A copy of the complete applicable subpart(s) may found at:
<http://www.gpoaccess.gov/cfr/retrieve.html>

PC.3.7 In order to demonstrate compliance with the VOC emission control reductions using LDAR for AIRs Point 007, the applicant shall perform **monthly** monitoring for equipment leaks using USEPA Method 21 as described in §60.485. The applicant may not use any monitoring schedule less frequent than **monthly**.

PC.3.8 Regulation No. 6, Part B, Section III, Standards of Performance for New Manufacturing Processes applies to AIRs Points 001, 003, 004, 005, and 010.

PC.3.9 Regulation No. 6, Part B, Section II, Standards of Performance for New Fuel Burning Equipment applies to AIRs Points 003.

PC.3.10 Regulation No. 6, Part B, Section VII, Standards of Performance for Incinerators, applies to flares under AIRs Points 009. Note: only the opacity standard applies per PS Memo 99-02.

PC.3.11 The provisions of Regulation No. 7, Section VI.B.2 apply to the Denaturant Tank and Denatured Ethanol #1 & #2 Tanks, including, but not limited to, the following:

- a. The tank is maintained such that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials; and
- b. All openings, except stub drains, are equipped with covers, lids, or seals such that:
 - i. The cover, lid, or seal is in the closed position at all times except when in actual use;
 - ii. Automatic bleeder vents are closed at all times except when the roof is floated off or landed on the roof leg supports;
 - iii. and Rim vents, if provided, are set to open when the roof is being floated off the roof leg supports or at the manufacturer's recommended setting.
- c. Perform a routine inspection through the tank roof hatches at least once every six months;
 - i. During the routine inspection, the operator shall measure for detectable vapor loss inside the hatch. Detectable vapor loss means a VOC concentration exceeding 10,000 ppm, using a portable hydrocarbon analyzer.

- d. Perform a complete inspection of the cover and seal whenever the tank is out of service, whenever the routine inspection required in Condition No. PC.3.11 above reveals detectable vapor loss, and at least once every ten years, and shall notify the Division in writing before such an inspection.
- e. Ensure during inspections that there are no visible holes, tears, or other openings in the seal or any seal fabric or materials; that the cover is floating uniformly on or above the liquid surface; that there are no visible defects in the surface of the cover or liquid accumulated on the cover; and that the seal is uniformly in place around the circumference of the cover between the cover and the tank wall. If these items are not met, the owner or operator shall repair the items or empty and remove the storage vessel from service within 45 days. If a failure that is detected during inspections required in this paragraph cannot be repaired within 45 days and if the vessel cannot be emptied within 45 days, a 30-day extension may be requested from the Division in writing. Such a request must document that alternative storage capacity is unavailable and specify a schedule of actions the owner or operator will take that will assure that the items will be repaired or the vessel will be emptied as soon as possible;
- f. Maintain records for at least two years of the results of all inspections.
- g. Above ground storage tanks used for the storage of petroleum liquid shall have all external surfaces coated with a material, which has a reflectivity for solar radiation of 0.7 or more. Methods A or B of ASTM E424 shall be used to determine reflectivity. Alternatively, any untinted white paint may be used which is specified by the manufacturer for such use.

This provision shall not apply to written symbols or logograms applied to the external surface of the container for purposes of identification provided such symbols do not cover more than 20% of the exposed top and side surface area of the container or more than 18.6 square meters (200 square feet), whichever is less.

PC.3.12 The owner or operator shall design, construct, operate and maintain the flare (AIRS Point 009) according to the requirements set out in 40 CFR §60.18, which include, but are not limited to:

- PC.3.12.1 The flare shall be designed for and operated with no visible emissions as determined by the methods specified in 40 CFR §60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.
- PC.3.12.2 When emissions are vented to this flare, a flame present at all times, as determined by the methods specified in 40 CFR §60.18(f).
- PC.3.12.3 An owner/operator has the choice of adhering to either the heat content specifications in §60.18 (c)(3)(ii), and the maximum tip velocity specifications in §60.18 (c)(4), or adhering to the requirements in §60.18 (c)(3)(i).
- PC.3.12.4 The flare used for the truck loadout shall be steam-assisted, air-assisted, or non-assisted, as specified in §60.18(c)(6).
- PC.3.12.5 This flare shall be monitored to ensure it is operated and maintained in conformance with the design, as specified in §60.18(d).
- PC.3.12.6 This flare shall be operated at all times when emissions are vented to this flare.

PC.4. *Operating & Maintenance Plan*

- PC.4.1 The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame, as specified as 40 CFR §60.18 (f)(2).
- PC.4.2 The applicant shall follow the most current operating and maintenance plan and record keeping format approved by the Division in order to demonstrate compliance on an ongoing basis with the requirements of PC 2.5 listed above. (Reference: Regulation No. 3, Part B, Section III.G.7.)
- PC.5. Source compliance tests shall be conducted to measure the emission rate(s) for the pollutants listed below in order to show compliance with Condition PC.2.4

Source compliance tests for the fermentation and process scrubbers shall be performed one (1) time after a period of no greater than six (6) months after the facility has reached 53,000,000 gallons of ethanol per year production calculated using a rolling quarterly average

For the Fermentation (CO₂) Scrubber under AIRS Point 004:

Volatile Organic Compounds using EPA's *Midwest Scaling Protocol for the Measurement of "VOC Mass Emissions"* which involves two EPA test methods: USEPA Method 18 (to quantify emissions of acetaldehyde, acetic acid, acrolein, ethanol, formaldehyde, formic acid, lactic acid, 2-Furaldehyde and methanol) and USEPA Method 25A.

Acetaldehyde emissions using USEPA Method 18.

For the Process Scrubber under AIRS Point 005:

Volatile Organic Compounds using EPA's *Midwest Scaling Protocol for the Measurement of "VOC Mass Emissions"* which involves two EPA test methods: USEPA Method 18 (to quantify emissions of acetaldehyde, acetic acid, acrolein, ethanol, formaldehyde, formic acid, lactic acid, 2-Furaldehyde and methanol) and USEPA Method 25A.

Acetaldehyde emissions using USEPA Method 18.

For the Truck Loadout Flare under AIRS Point 009:

The observation period for visible emissions is 2 hours and shall be used according to Method 22, as specified in 40 CFR §60.18(f).

PC.6. *Other Specific Conditions*

- PC.6.1 A Revised Air Pollutant Emission Notice (APEN) shall be filed: (Reference: Regulation No. 3, Part A, Section II.C.)
- a. Annually whenever a significant increase in emissions occurs as follows:
- For any criteria pollutant:**
- For sources emitting **less than 100 tons per year**, a change in actual emissions of five tons per year or more, above the level reported on the last APEN submitted; or

For any non-criteria reportable pollutant:

If the emissions increase by 50% or five (5) tons per year, whichever is less, above the level reported on the last APEN submitted to the Division.

- b. Whenever there is a change in the owner or operator of any facility, process, or activity; or
- c. Whenever new control equipment is installed, or whenever a different type of control equipment replaces an existing type of control equipment; or
- d. Whenever a permit limitation must be modified; or
- e. No later than 30 days before the existing APEN expires.

PC.6.2 All previous versions of this permit are canceled upon issuance of this permit.

PC.6.3 Stack heights shall not be less than the following heights above ground level:

Emission Point	Minimum Stack Height (ft)
AIRS Point 001 (grain receiving baghouse) (SV020)	60
AIRS Point 001 (hammermill baghouse #1) (SV030)	60
AIRS Point 001 (hammermill baghouse #2) (SV031)	60
AIRS Point 001 (hammermill baghouse #3) (SV032)	60
AIRS Point 001 (reclaim baghouse)	60
AIRS Point 003 (boiler stack) (SV010)	45
AIRS Point 009 (ethanol loading rack truck flare) (SV050)	20
AIRS Point 011 Cooling tower (each cell) (FS003)	28

PC.6.4 These sources shall sufficiently restrict public access to the facility at the ambient air boundary relied upon in the modeling analysis for the NAAQS compliance demonstration. This facility shall be completely enclosed by a fence line and posted with no trespassing signs that preclude public access to this site as described in the PM₁₀, NO_x, and CO modeling analyses for this facility. This requirement is imposed as a result of the modeled ambient air impacts that result from the facility operations. Reference: Regulation No. 3, Part B, Section III.B.5)

PC.6.5 These facilities shall be open for receiving of grain and denaturant (gasoline) between the hours of 7:00 AM to 5:00 PM (Mountain Time). This schedule is required in order to maintain compliance with the National Ambient Air Quality Standards (NAAQS). The permit holder shall record the hours that the facility's gate is open in order to demonstrate compliance with this condition.

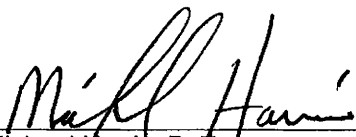
PC.6.6 **Reliant Processing** may collect up to 100% of the fermentation (CO₂) scrubber (AIRs point 004) exhaust stream for CO₂ recovery. No greater than 10% of the emissions, OR:

- 3.1 tons per year of volatile organic compounds
- 1380 lbs/year of acetaldehyde

resulting from this exhaust stream shall be discharged to the atmosphere. **Reliant and Front Range Energy shall keep monthly records of scrubber exhaust stream collection to be made available to the Division upon request.** (Reference: Reg. No. 3, Part B, III. E)

Front Range Energy, LLC
Permit No. 04WE1423
Final Approval – mod #3

Colorado Department of Public Health and Environment
Air Pollution Control Division



Michael Harris, P. E.
Permit Engineer



R. K Hancock III, P.E.
Construction Permit Unit Supervisor

Permit History:

Initial Approval – issued - June 19, 2007

Final Approval – issued – May 22, 2008

Final Approval – mod #1 – November 5, 2010 – add 1 hammermill and baghouse to equipment list, correct AIRs ID numbers, update general conditions. No increase in throughput or change to emission limits.

Final approval – mod #2 – December 10, 2010, addition of plant equipment id information and removal of IA conditions. No increase in throughput or emissions limits.

Initial approval – mod #3 – this issuance replace 'corn' with 'grain' to allow other grains to be part of the fermentation cycle. No change to overall grain throughput or to emission limits.

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Notes to Permit Holder:

- 1) The production or raw material processing limits and emission limits contained in this permit are based on the production/processing rates requested in the permit application. These limits may be revised upon request of the permittee providing there is no exceedence of any specific emission control regulation or any ambient air quality standard. A revised air pollution emission notice (APEN) and application form must be submitted with a request for a permit revision.
- 2) This source is subject to the Common Provisions Regulation Part II, Subpart E, Upset Conditions and Breakdowns. The permittee shall notify the Division of any upset condition which causes a violation of any emission limit or limits stated in this permit as soon as possible, but no later than two (2) hours after the start of the next working day, followed by written notice to the Division explaining the cause of the occurrence and that proper action has been or is being taken to correct the conditions causing said violation and to prevent such excess emission in the future.
- 3) This source is classified as a: Synthetic minor source for Prevention of Significant Deterioration (PSD) applicability
 Synthetic minor source for Operating permit applicability
 Synthetic minor source for Maximum Achievable Control Technology (MACT) standard applicability
 At a: Synthetic Minor Facility
- 4) In accordance with C.R.S. 25-7-114.1, the Air Pollutant Emission Notices (APENs) associated with this permit are valid for a term of five years. The five-year term for the APENs received with this permit application expire as shown in the table below. A revised APEN shall be submitted no later than 30 days before the five-year term expires.

AIRS ID	Description	APEN Expiration Date	APEN Renewal Date
001	Grain receiving handling and storage	August 2, 2016	July 2, 2016
002	Process Storage tanks	December 8, 2011	November 8, 2011
003	Boiler	December 8, 2011	November 8, 2011
004	Fermenters / distillation	December 7, 2012	November 7, 2012
005	Process Vents	December 7, 2012	November 7, 2012
006	Vehicle fugitive dust	December 8, 2011	November 8, 2011
007	Equipment fugitive leaks (VOC)	December 8, 2011	November 8, 2011
009	Loading rack	December 7, 2012	November 7, 2012
011	Cooling Tower	November 28, 2011	October 28, 2011
012	Emergency Fire pump	December 7, 2012	November 7, 2012

- 5) The following emissions of non-criteria reportable air pollutants are established based upon the material consumptions as indicated in Permit Condition 2.1. This information is listed to inform the operator of the Division's analysis of the specific compounds. This information is listed on the Division's emission inventory system.

SUBSTANCE	BIN	C.A.S.#	EMISSIONS [LB/YR]
Acetaldehyde	A	75-07-0	14,426
Acrolein	A	107-02-8	231
Benzene	A	71-43-2	99
Formaldehyde	A	50-00-0	325
Hexane	C	110-54-3	4,181

GENERAL TERMS AND CONDITIONS: (IMPORTANT! READ ITEMS 5, 6, 7 AND 8)

1. This permit is issued in reliance upon the accuracy and completeness of information supplied by the applicant and is conditioned upon conduct of the activity, or construction, installation and operation of the source, in accordance with this information and with representations made by the applicant or applicant's agents. It is valid only for the equipment and operations or activity specifically identified on the permit.
2. Unless specifically stated otherwise, the general and specific conditions contained in this permit have been determined by the APCD to be necessary to assure compliance with the provisions of Section 25-7-114.5(7)(a), C.R.S.
3. Each and every condition of this permit is a material part hereof and is not severable. Any challenge to or appeal of, a condition hereof shall constitute a rejection of the entire permit and upon such occurrence, this permit shall be deemed denied *ab initio*. This permit may be revoked at any time prior to final approval by the Air Pollution Control Division (APCD) on grounds set forth in the Colorado Air Quality Control Act and regulations of the Air Quality Control Commission (AQCC), including failure to meet any express term or condition of the permit. If the Division denies a permit, conditions imposed upon a permit are contested by the applicant, or the Division revokes a permit, the applicant or owner or operator of a source may request a hearing before the AQCC for review of the Division's action.
4. This permit and any required attachments must be retained and made available for inspection upon request at the location set forth herein. With respect to a portable source that is moved to a new location, a copy of the Relocation Notice (required by law to be submitted to the APCD whenever a portable source is relocated) should be attached to this permit. The permit may be reissued to a new owner by the APCD as provided in AQCC Regulation No. 3, Part B, Section II.B. upon a request for transfer of ownership and the submittal of a revised APEN and the required fee.
5. Issuance (initial approval) of an emission permit does not provide "final" authority for this activity or operation of this source. Final approval of the permit must be secured from the APCD in writing in accordance with the provisions of 25-7-114.5(12)(a) C.R.S. and AQCC Regulation No. 3, Part B, Section III.G. Final approval cannot be granted until the operation or activity commences and has been verified by the APCD as conforming in all respects with the conditions of the permit. If the APCD so determines, it will provide written documentation of such final approval, which does constitute "final" authority to operate. ***Compliance with the permit conditions must be demonstrated within 180 days after commencement of operation.***
6. **THIS PERMIT AUTOMATICALLY EXPIRES IF** you (1) do not commence construction or operation within 18 months after either the date of issuance of this permit or the date on which such construction or activity was scheduled to commence as set forth in the permit, whichever is later; (2) discontinue construction for a period of 18 months or more; or (3) do not complete construction within a reasonable time of the estimated completion date. Extensions of the expiration date may be granted by the APCD upon a showing of good cause by the permittee prior to the expiration date.
7. **YOU MUST notify the APCD no later than fifteen days after commencement of the permitted operation or activity by submitting a Notice of Startup (NOS) form to the APCD.** The Notice of Startup (NOS) form may be downloaded online at www.cdphe.state.co.us/ap/downloadforms.html. Failure to do so is a violation of AQCC Regulation No. 3, Part B, Section III.G.1., and can result in the revocation of the permit. ***You must demonstrate compliance with the permit conditions within 180 days after commencement of operation as stated in condition 5.***
8. Section 25-7-114.7(2)(a), C.R.S. requires that all sources required to file an Air Pollution Emission Notice (APEN) must pay an annual fee to cover the costs of inspections and administration. If a source or activity is to be discontinued, the owner must notify the Division in writing requesting a cancellation of the permit. Upon notification, annual fee billing will terminate.
9. Violation of the terms of a permit or of the provisions of the Colorado Air Pollution Prevention and control Act or the regulations of the AQCC may result in administrative, civil or criminal enforcement actions under Sections 25-7-115 (enforcement), -121 (injunctions), -122 (civil penalties), -122.1 (criminal penalties), C.R.S.

PARTICULATE EMISSIONS CONTROL PLAN

THE FOLLOWING PARTICULATE EMISSIONS CONTROL MEASURES SHALL BE USED FOR COMPLIANCE PURPOSES ON THE ACTIVITIES COVERED BY THIS PERMIT, AS REQUIRED BY THE AIR QUALITY CONTROL COMMISSION REGULATION NO.1, SECTION III.D.1.b. THIS SOURCE IS SUBJECT TO THE FOLLOWING EMISSION GUIDELINES:

- a. **Haul Roads** - No off-property transport of visible emissions shall apply to on-site haul roads, the nuisance guidelines shall apply to off-site haul roads.
- b. **Haul Trucks** - There shall be no transport of visible emissions from haul trucks when operating on the property of the owner or operator. There shall be no off-vehicle transport of visible emissions from the material in the haul trucks when operating on the property of the owner or operator.
- c. For each day of operation, the owner or operator shall conduct a survey of the plant property and haul roads to determine if visible fugitive emissions are being generated and leaving plant property. Implementation of fugitive dust controls shall be taken upon observation of visible fugitive emissions leaving plant property. Documentation of all fugitive dust control measures implemented and daily surveys shall be maintained in a log.
- d. Haul road vehicle miles traveled must be recorded on a daily basis. An example log shall be submitted to the Division prior to final approval of this permit. This log should be made available to the Division upon request. (Reference: Reg. No. 3, Part B, III. E.)

Control Measures

1. Paved vehicle haul roads shall be swept promptly, or on a weekly basis, to remove any accumulated dirt or mud from the roadway.
2. The haul road silt loading shall not exceed 0.6 g/m^2 .
3. Compliance with the silt loading limitation in Control Measure 2 shall be demonstrated by a silt-loading performance test conducted at least once per calendar quarter. The silt-loading test shall be conducted in accordance with EPA Testing (AP-42 Appendices C-1 and C-2, attached to the permit for reference).
4. A speed limit shall be posted on the property and enforced to require truck traffic be reduced to 15 miles per hour at all times.

ATTACHMENT A:
DETAILS OF EQUIPMENT / ACTIVITIES COVERED UNDER THIS FACILITY-WIDE PERMIT

AIRS ID #	Description includes: Equipment/Activity, Make, Model Number, Serial Number, Controls
001	<p>Emission Point Description: Grain receiving, scalping, storage, handling, and milling; and trash grain loadout.</p> <p>Controlled Emission Factor Summary:</p> <p>Point Source Particulate Matter: 0.0462 pounds per ton of grain received, and/or stored. Point Source Particulate Matter < 10 µm: 0.0437 pounds per ton of grain received, and/or stored. Fugitive Particulate Matter: 0.017 pounds per ton of grain received, and/or stored. Fugitive Particulate Matter < 10 µm: 0.008 pounds per ton of grain received, and/or stored.</p> <p>Controls:</p> <p>One (1) baghouse (MAC Make, Model # 120MCF255W, Serial # 84460-004-1) for control of pit operations (grain receiving).</p> <p>Three (3) baghouses #1 – MAC Make, Model #96AVS64-STY2, Serial number 84460-001-1 #2 – MAC Make, Model #96AVS64-STY2, Serial number 84460-001-2 #3 – MAC Make, Model #96AVS64-STY2, Serial number - unavailable for control of process operations (internal handling, storage, scalping, and dry milling of the grain – called hammermill baghouses).</p> <p>One (1) baghouse KICE Make, Model # VS36-8, Serial number 260997-1-1 for control of emissions from the two reclaim legs that take grain from the storage bins to the surge bin.</p> <p>Specific Requirements/Regulations: Regulation No. 6, Part B, Section III, Standards of Performance for New Manufacturing Processes</p>

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AIRS ID #	Description includes: Equipment/Activity, Make, Model Number, Serial Number, Controls
002	<p>Emission Point Description: Five (5) VOL storage tanks:</p> <p>One (1) 100,000 gallon capacity internal floating roof tank identified as the 190 Proof Tank (Winbco Make, Model # TF8401, Serial # 05572). This tank provides storage of off-specification ethanol. VOC emissions are vented to the atmosphere. This tank shall either be equipped with a continuous seal as required in 40 C.F.R. Part 60.112b. (a). (1). (ii).</p> <p>One (1) 100,000 gallon capacity internal floating roof tank identified as the 200 Proof Tank (Winbco Make, Model #TF8403, Serial # 05573). This tank provides temporary storage of the daily production of ethanol. VOC emissions are vented to the atmosphere. This tank shall either be equipped with a continuous seal as required in 40 C.F.R. Part 60.112b. (a). (1).(ii).</p> <p>Two (2) 500,000-gallon capacity internal floating roof tanks identified as the Denatured Ethanol #1 & #2 Tanks (Winbco Make, Model #TF8422 and TF8423, Serial # 05568A and 05568B). These tanks provide storage of a 95% ethanol / 5% gasoline mixture (denatured ethanol). VOC emissions are vented to the atmosphere. These tanks shall either be equipped with a continuous seal as required in 40 C.F.R. Part 60.112b.(a).(1).(ii).</p> <p>One (1) 100,000-gallon capacity internal floating roof tank identified as the Denaturant Tank (Winbco Make, Model #TF8414, Serial # 05574). This tank provides storage of gasoline (RVP 10). VOC emissions are vented to the atmosphere. This tank shall either be equipped with a continuous seal as required in 40 C.F.R. Part 60.112b.(a).(1).(ii).</p> <p>One (1) 1,460 gallon capacity vertical fixed roof tank identified as the Corrosion Inhibitor Tank (Winbco Make, Model # TS8411, Serial # 127860). This tank provides storage of Xylene(-m). VOC emissions are vented to the atmosphere.</p> <p>Controlled Emission Factor Summary:</p> <p>VOC: 75.6 pounds per million gallons of ethanol produced per year.</p> <p>Specific Requirements/Regulations: All tanks listed above, except the Corrosion Inhibitor Tank, are subject to Regulation No. 6, Part A, Subpart Kb The Denaturant Tank and Denatured Ethanol #1 & #2 Tanks are subject to the provisions of Regulation No. 7, Section VI.B.2.</p>

ATTACHMENT A:

AIRS ID #	Description includes: Equipment/Activity, Make, Model Number, Serial Number, Controls																		
003	<p>Emission Point Description: One (1) watertube boiler, (Victory Energy Make, Model # O-WTB, Serial # 382), rated at 143.4 MMBtu/hr heat input and fired only on natural gas.</p> <p>Emission Factor Summary:</p> <table> <tr> <td colspan="2"><i>Natural Gas Combustion:</i></td> </tr> <tr> <td>Particulate Matter:</td> <td>7.6 pounds per MMScf</td> </tr> <tr> <td>Particulate Matter < 10 µm (PM₁₀):</td> <td>7.6 pounds per MMScf</td> </tr> <tr> <td>Sulfur Dioxide:</td> <td>0.6 pounds per MMScf</td> </tr> <tr> <td>Nitrogen Oxides:</td> <td>100.0 pounds per MMScf</td> </tr> <tr> <td>Volatile Organic Compounds:</td> <td>5.5 pounds per MMScf</td> </tr> <tr> <td>Carbon Monoxide:</td> <td>84.0 pounds per MMScf</td> </tr> <tr> <td>Hexane</td> <td>1.800 pounds per MMScf</td> </tr> <tr> <td>Formaldehyde</td> <td>0.075 pounds per MMScf</td> </tr> </table> <p>Specific Requirements/Regulations: Standard for Particulate Matter of Regulation No. 6, Part B, II.C., Standards of Performance for New Fuel-Burning Equipment.</p> <p>40 C.F.R. Part 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.</p>	<i>Natural Gas Combustion:</i>		Particulate Matter:	7.6 pounds per MMScf	Particulate Matter < 10 µm (PM ₁₀):	7.6 pounds per MMScf	Sulfur Dioxide:	0.6 pounds per MMScf	Nitrogen Oxides:	100.0 pounds per MMScf	Volatile Organic Compounds:	5.5 pounds per MMScf	Carbon Monoxide:	84.0 pounds per MMScf	Hexane	1.800 pounds per MMScf	Formaldehyde	0.075 pounds per MMScf
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AIRS ID #	Description includes: Equipment/Activity, Make, Model Number, Serial Number, Controls												
004	<p>Emission Point Description: <i>Ethanol production:</i> Fermentation process consisting of fermentation and beer well tanks.</p> <p><i>Collection:</i> The CO₂ recovery plant, owned by Reliant Processing, may collect up to 100% of the fermentation (CO₂) scrubber (AIRs point 004) (Winbco Make, Model # TW3801, Serial # 05586) exhaust stream for CO₂ recovery. No greater than 10% of the emissions, OR: -3.1 tons per year of volatile organic compounds -1380 lbs/year of acetaldehyde resulting from this exhaust stream shall be discharged to the atmosphere. Reliant and Front Range Energy shall keep monthly records of scrubber exhaust stream collection to be made available to the Division upon request. (Reference: Reg. No. 3, Part B, III. E)</p> <p>Controlled Emission Factor Summary:</p> <table border="0"> <tr> <td>Particulate Matter:</td> <td>10.51 pounds per million gallons of ethanol produced</td> </tr> <tr> <td>PM₁₀:</td> <td>5.55 pounds per million gallons of ethanol produced</td> </tr> <tr> <td>Volatile Organic Compounds:</td> <td>1,088.2 pounds per million gallons of ethanol produced</td> </tr> <tr> <td>Acetaldehyde:</td> <td>177.98 pounds per million gallons of ethanol produced</td> </tr> <tr> <td>Acrolein:</td> <td>2.54 pounds per million gallons of ethanol produced</td> </tr> <tr> <td>Formaldehyde:</td> <td>0.51 pounds per million gallons of ethanol produced</td> </tr> </table> <p>Controls: One (1) single pass, packed-bed scrubber that is 4.5' in diameter with 24' of packing material and known as the CO₂ Scrubber. This unit controls VOC emissions produced from the fermentation process.</p> <p>Specific Requirements/Regulations: Regulation No. 6, Part B, Section III, Standards of Performance for New Manufacturing Processes.</p>	Particulate Matter:	10.51 pounds per million gallons of ethanol produced	PM ₁₀ :	5.55 pounds per million gallons of ethanol produced	Volatile Organic Compounds:	1,088.2 pounds per million gallons of ethanol produced	Acetaldehyde:	177.98 pounds per million gallons of ethanol produced	Acrolein:	2.54 pounds per million gallons of ethanol produced	Formaldehyde:	0.51 pounds per million gallons of ethanol produced
Particulate Matter:	10.51 pounds per million gallons of ethanol produced												
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Acetaldehyde:	177.98 pounds per million gallons of ethanol produced												
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AIRS ID #	Description includes: Equipment/Activity, Make, Model Number, Serial Number, Controls
005	<p>Emission Point Description: Process vent header system: process vents associated with mash preparation, cooking and conversion, distillation, dehydration and evaporation, and stillage separation.</p> <p>Controlled Emission Factor Summary: Particulate Matter: 10.51 pounds per million gallons of ethanol produced PM₁₀: 5.55 pounds per million gallons of ethanol produced Volatile Organic Compounds: 140.6 pounds per million gallons of ethanol produced Acetaldehyde: 55.22 pounds per million gallons of ethanol produced Acrolein: 0.25 pounds per million gallons of ethanol produced Formaldehyde: 0.25 pounds per million gallons of ethanol produced</p> <p>Controls: One (1) single pass, packed-bed scrubber that is 2.0' in diameter with 20' of packing material and known as the Process Scrubber (Winbco Make, Model # TW3811, Serial # 05595). This unit controls VOC emissions from the process vent header system.</p> <p>Specific Requirements/Regulations: Regulation No. 6, Part B, Section III, Standards of Performance for New Manufacturing Processes.</p>
006/010	<p>Emission Point Description: In plant paved roads and wet distiller's grain hauling by front-end loader.</p> <p>Controlled Emission Factor Summary: Fugitive PM: 0.462 lbs per vehicle mile traveled Fugitive PM₁₀: 0.090 lbs per vehicle mile traveled VOCs: 0.135 lbs per vehicle mile traveled Acetaldehyde: 0.0001 lbs per vehicle mile traveled Acrolein: 0.0009 lbs per vehicle mile traveled Formaldehyde: 0.0054 lbs per vehicle mile traveled Methanol: 0.0011 lbs per vehicle mile traveled</p> <p>These emission factors are based on silt loading factor of 0.6 grams per square meter, a mean vehicle weight of 27.5 tons, and a VMT of 34,408 miles per year.</p> <p>The fugitive particulate emissions are addressed in PC.2.7 and are not included in the emission limitations in PC.2.5. The VOC and HAP emissions are addressed in PC.2.5.</p>

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AIRS ID #	Description includes: Equipment/Activity, Make, Model Number, Serial Number, Controls
007	<p>Emission Point Description: VOC equipment leaks from process equipment</p> <p>Controlled Emission Factor Summary: Fugitive VOC: 0.1864 lb per 1,000 gallons of ethanol produced Acetaldehyde: 0.0289 lb per 1,000 gallons of ethanol produced Methanol: 0.0028 lb per 1,000 gallons of ethanol produced</p> <p>These emission factors are based on the following count of equipment: 310 valves in light liquid service, 24 pumps in light liquid service, 23 valves in gas/vapor service, 229 flanges/connectors, and 80 open-ended lines.</p> <p>Controls: Leak detection and repair: monthly monitoring for equipment leaks.</p> <p>Specific Requirements/Regulations: 40 C.F.R. Part 60, Subpart VV, Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry.</p>

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DETAILS OF EQUIPMENT / ACTIVITIES COVERED UNDER THIS FACILITY-WIDE PERMIT

AIRS ID #	Description includes: Equipment/Activity, Make, Model Number, Serial Number, Controls
009	<p>Emission Point Description: Denatured ethanol loadout by railcar or truck; truck emissions are controlled by flare.</p> <p>Controlled Emission Factor Summary:</p> <p><i>Truck loading:</i> Volatile Organic Compounds: 0.1792 lb per 1,000 gallons of denatured ethanol loaded by truck</p> <p><i>Railcar loading:</i> Volatile Organic Compounds: 0.4462 lb per 1,000 gallons of denatured ethanol loaded by rail</p> <p><i>Flare:</i> Oxides of Nitrogen: 0.0216 lb per 1,000 gallons of denatured ethanol loaded by truck VOCs: 0.0110 lb per 1,000 gallons of denatured ethanol loaded by truck Carbon Monoxide: 0.0527 lb per 1,000 gallons of denatured ethanol loaded by truck</p> <p>Controls: Flare for control of truck loadout emissions (John ZINK Make, Model # ZCT-1-4-20-x-1/4, Serial # VC-9044039)</p> <p>Specific Requirements/Regulations: Regulation No. 6, Part B, Section IV, Standards of Performance for Incinerators. Note: per PS Memo 99-02, only the opacity standard applies.</p>

011	<p>Emission Point Description: Cooling tower consisting of three (3) cooling cells.</p> <p>Controlled Emission Factor Equation: Emission Rate = Circulation Rate * Drift Rate * TDS Concentration</p> <p>The annual emissions from this point were based on a circulation rate of 21,000 gallons per minute, a TDS concentration of 2,500 ppm (actually tested at 2,210 ppm), and a drift rate of 0.005% (Manufacturer's guarantee – made available to the Division upon request).</p> <p>Emissions of PM = Emissions of PM₁₀</p> <p>Emission Factor Summary: Fugitive PM: 0.0010 lbs per 1000 gallons of water circulated Fugitive PM₁₀: 0.0010 lbs per 1000 gallons of water circulated VOCs: 0.00001 lbs per 1000 gallons of water circulated</p> <p>Controls: Cooling tower water monitoring and records. Minimization of hydrocarbon leaks into cooling water system and monitoring of cooling water for hydrocarbons.</p>
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012	<p>Emission Point Description:</p> <p>One (1) diesel-fired engine for the emergency firewater pump, (John Deere Make, Model # 6125HF070, Serial # RG6125H052597), rated at 190 horsepower (HP).</p> <p>Emission Factor Summary:</p> <p>Diesel Combustion:</p> <p>Particulate Matter: 0.0022 pounds per hp-hr</p> <p>Particulate Matter < 10 µm (PM10): 0.0022 pounds per hp-hr</p> <p>Sulfur Dioxide: 0.00201 pounds per hp-hr</p> <p>Nitrogen Oxides (and Non-Methane Hydrocarbons)*: 0.031 pounds per hp-hr</p> <p>Volatile Organic Compounds: 0.0025 pounds per hp-hr</p> <p>Carbon Monoxide: 0.0067 pounds per hp-hr</p> <p>* = NSPS IIII Emission Factor; the rest are AP-42 factors, which are more stringent than the NSPS emission factors.</p> <p>Specific Requirements:</p> <p>The diesel-fired engine is deemed to be for emergency use only, therefore it is limited to 100 hours of operation for maintenance checks and readiness testing. There is no time limit on the use of emergency stationary ICE in emergency situations. (40 CFR §60.4211(e)).</p> <p>40 C.F.R. Part 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE).</p>
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