

Permit #: 28.0501-61-04C

Effective Date: Draft



**SOUTH DAKOTA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
AIR QUALITY
CONSTRUCTION PERMIT**

**Steven M Pirner, Secretary
Department of Environment and Natural Resources**

Under the South Dakota Air Pollution Control Regulations

Pursuant to Chapter 34A-1-21 of the South Dakota Codified Laws and the Air Pollution Control Regulations of the State of South Dakota and in reliance on statements made by the owner designated below, a permit to construct and operate is hereby issued by the Secretary of the Department of Environment and Natural Resources. This permit authorizes such owner to construct and operate the permitted unit(s) at the location designated below and under the listed conditions.

A. Owner

1. Company Name and Mailing Address

Great Plains Ethanol, LLC d\b\ a POET Biorefining – Chancellor
27716 462nd Avenue
Chancellor, SD 57015

2. Actual Source Location if Different from Above

27716 462nd Avenue
Chancellor, SD 57015

3. Permit Contact

Christopher Peterson – Environmental Engineer
(605) 965-6762

4. Facility Contact

Rachel Kloos – Technical Manager
(605) 647-0040

5. Responsible Official

Dean Frederickson – General Manager
(605) 647-0040

B. Permit Revisions

Not Applicable

C. Description of Construction Activity

POET Biorefining is proposing to increase ethanol production, implement new scrubber operating scenarios, construct and operate a new grain receiving operation, and implement blending and load out of an E-85 ethanol product.

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1.0 Standard Conditions

1.1 Construction and operation of source

In accordance with Administrative Rules of South Dakota (ARSD) 74:36:20:15(9), the owner or operator shall construct and operate the units, controls, and processes as described in Table 1-1 in accordance with the statements, representations, and supporting data contained in the complete permit application received October 22, 2015 and additional information received November 30, 2015, unless modified by the conditions of this permit. Except as otherwise provided herein, the control equipment in Table 1-1 shall be operated at all times in accordance with the manufacturer's specification and in a manner that achieves compliance with the conditions of this permit. The application consists of the application forms, supporting data, and supplementary correspondence. If the owner or operator becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in an application, such information shall be promptly submitted.

Table 1-1 – Description of Permitted Units, Operations, and Processes

Unit	Description	Maximum Operating Rate	Control Device
#1	Enclosed truck and railcar grain handling system	840 tons per hour	Baghouse
	Elevator legs transport corn from receiving pits to eight grain storage bins		
	Elevator legs transport dried distiller grain and solubles (DDGS) from DDGS silo to bulk weigh and load out stations	220 tons per hour	
	DDGS load out into trucks and railcars in enclosed grain handling building		
#2	Elevator legs transport the grain from the storage bins to a scalper	140 tons per hour	Baghouse
	Corn scalper to clean corn		
	Elevator legs transports cleaned corn to surge bin		
#4	Fermentation process #1 consists of six fermenters. Liquid beer stored in a beer well	207 tons of corn mash, yeast and water per hour	Wet scrubber – Exhaust gases may be routed to Unit #6b or #6c
	Distillation process #1 distills the liquid beer and consists of the beer stripper, rectifier, side stripper, one set of three molecular sieves, and one	43,200 ¹ gallons of beer per hour	

Unit	Description	Maximum Operating Rate	Control Device
	set of evaporators		
#6	Dryer A equipped with a multi cyclone to collected product and fired with natural gas and landfill gas	23 tons dried distiller grain and solubles per hour and 60 million Btus per hour heat input	Unit #6b or #6c
	Dryer B equipped with a multi cyclone to collected product and fired with natural gas and landfill gas	23 tons dried distiller grain and solubles per hour and 34 million Btus per hour heat input	
	Dryer C equipped with a multi cyclone to collected product and fired with natural gas and landfill gas	23 tons dried distiller grain and solubles per hour and 60 million Btus per hour heat input	
	Dryer D equipped with a multi cyclone to collected product and fired with natural gas and landfill gas	23 tons dried distiller grain and solubles per hour and 60 million Btus per hour heat input	
	One set of four centrifuges and one set of five centrifuges	50 tons of whole stillage per hour per centrifuge	
	Fermentation and distillation process #1	See Unit #4	
	Fermentation and distillation process #2	See Unit #29	
#6b	Three chambered regenerative thermal oxidizer fired with natural gas, landfill gas, and off gases generated from the ethanol production process	14.5 million Btus per hour	Three chambered regenerative thermal oxidizer
#6c	Seven chambered regenerative thermal oxidizer fired with natural gas, landfill gas, and off gases generated from the ethanol production process	42 million Btus per hour	Seven chambered regenerative thermal oxidizer
#8	Ethanol truck load out	39,000 gallons per hour	Flare
	Ethanol rail car load out	150,000 gallon per hour	
	Flare fired with natural gas and off gases from the load out process	25 million Btus per hour	

Unit	Description	Maximum Operating Rate	Control Device
#9	DDGS fluid bed cooler #1	23 tons of DDGS per hour	Baghouse
#10	DDGS silo #1	46 tons per hour	Baghouse
#11	DDGS silo bypass receiver #1	46 tons per hour	Baghouse
#12	Elevator leg transports corn from surge bin to hammer mill #1 and ground corn to fermentation process	22 tons of grain per hour	Baghouse
#13	Elevator leg transports corn from surge bin to hammer mill #2 and ground corn to fermentation process	22 tons of grain per hour	Baghouse
#14	Elevator leg transports corn from surge bin to hammer mill #3 and ground corn to fermentation process	22 tons of grain per hour	Baghouse
#15	Elevator leg transports corn from surge bin to hammer mill #4 and ground corn to fermentation process	22 tons of grain per hour	Baghouse
#16	Diesel generator #1 fired with distillate oil	1,000 kilowatts	Not applicable
#18	Tank #1 – Above ground storage tank equipped with an internal floating roof	192,500 gallons	Not applicable
#19	Tank #2 – Above ground storage tank equipped with an internal floating roof	60,000 gallons	Not applicable
#20	Tank #3 – Above ground storage tank equipped with an internal floating roof	2,000,000 gallons	Not applicable
#21	Tank #4 – Above ground storage tank equipped with an internal floating roof	2,000,000 gallons	Not applicable
#22	Tank #6 – Above ground storage tank equipped with an internal floating roof	192,500 gallons	Not applicable
#23	Corn surge bin loading	140 tons per hour	Baghouse
#24	Elevator leg transports corn from surge bin to hammer mill #5	22 tons of grain per hour	Baghouse
#25	Elevator leg transports corn from surge bin to hammer mill #6	22 tons of grain per hour	Baghouse
#26	Elevator leg transports corn from surge bin to hammer mill #7	22 tons of grain per hour	Baghouse

Unit	Description	Maximum Operating Rate	Control Device
#27	Elevator leg transports corn from surge bin to hammer mill #8	22 tons of grain per hour	Baghouse
#28	Flour conveyor and receiver	88 tons per hour	Baghouse
#29	Fermentation process #2 consists of four fermenters and the liquid beer is stored in a beer well.	207 tons of corn mash, yeast and water per hour	Wet scrubber – Exhaust gases may be routed to Unit #6b or #6c
	Distillation process #2 distills the liquid beer and consists of the beer stripper, rectifier, side stripper, one set of three molecular sieves, and one set of evaporators	43,200 ² gallons of beer per hour	
#30	DDGS fluid bed cooler #2	23 tons per hour	Baghouse
#31	DDGS silo #2	46 tons per hour	Baghouse
#32	DDGS silo bypass receiver #2	46 tons per hour	Baghouse
#33	Boiler #1 – 2006 Erie Power/Keystone boiler fired with natural gas	100 million Btus per hour heat input	Not applicable
#34	Boiler #2 – 2006 Erie Power/Keystone boiler fired with natural gas	100 million Btus per hour heat input	Not applicable
#35	Boiler #3 – 2006 Erie Power/Keystone boiler fired with natural gas	100 million Btus per hour heat input	Not applicable
#36	Boiler #4 – 2007 Factory Sales boiler fired with natural gas, wood waste, syrup, landfill gas, corn cobs, agriculture waste products, native grasses, cellulose ethanol waste, anaerobic digester biosolids, waste corn, dried distillers grain and solubles, wet cake, and used toner	178 million Btus per hour heat input	Electrostatic precipitator
#37	Diesel generator #2 fired with distillate oil	2,000 kilowatts	Not applicable
#38	Trona storage bin	33 tons per hour	Baghouse
#39	Solid fuel receiving and storage building, conveyors, screener and metal separator	250 tons per hour	Baghouse
#41	Ash storage and load out.	1 ton per hour	Baghouse
#42	Dried distillers grain bypass to boiler #4	46 tons per hour	Baghouse

Unit	Description	Maximum Operating Rate	Control Device
#43	Hammermill #9	22 tons per hour	Baghouse
#44	Enclosed truck grain handling system	700 tons per hour	Baghouse
	Elevator legs transport corn from receiving pits to one of eight grain storage bins, also associated with Unit #1		

¹ - Following the issuance of this permit the 35,730 gallons of beer per hour maximum operating rate on Unit #4 currently in the Title V air quality operating permit #28.0501-61 no longer applies.

² - Following the issuance of this permit the 40,500 gallons of beer per hour maximum operating rate on Unit #29 currently in the air quality construction permit #28.0501-61-03C no longer applies.

1.2 Duty to comply

In accordance with ARSD 74:36:20:15(12)(a) and (c), the owner or operator shall construct and operate in compliance with the conditions of this permit. An owner or operator who knowingly makes a false statement in any record or report or who falsifies, tampers with, or renders inaccurate, any monitoring device or method is in violation of this permit. A violation of any condition in this permit is grounds for enforcement, reopening this permit, permit termination, or denial of an application to operate. The owner or operator, in an enforcement action, cannot use the defense that it would have been necessary to cease or reduce the permitted activity to maintain compliance. The owner or operator shall provide any information requested by the Secretary to determine compliance or whether cause exists for reopening or terminating this permit.

1.3 Property rights or exclusive privileges

In accordance with ARSD 74:36:20:15(12)(b), the issuance of this permit, adoption of design criteria, and approval of plans and specifications does not convey any property rights of any sort, any exclusive privileges, any authorization to damage, injure or use any private property, any authority to invade personal rights, any authority to violate federal, state or local laws or regulations, or any taking, condemnation or use of eminent domain against any property owned by third parties. The State does not warrant the owner's or operator's compliance with this permit, design criteria, approved plans and specifications, and operation under this permit, will not cause damage, injury or use of private property, an invasion of personal rights, or violation of federal, state or local laws or regulations. The owner or operator is solely and severally liable for all damage, injury or use of private property, invasion of personal rights, infringement of federal, state or local laws and regulations, or taking or condemnation of property owned by third parties, which may result from actions taken under the permit.

1.4 Penalty for violating a permit condition

In accordance with South Dakota Codified Laws (SDCL) 34A-1-39 and 34A-1-47, a violation of a permit condition may subject the owner or operator to civil or criminal prosecution, a state

penalty of not more than \$10,000 per day per violation, injunctive action, administrative permit action, and other remedies as provided by law.

1.5 Inspection and entry

In accordance with SDCL 34A-1-41, the owner or operator shall allow the Secretary to:

1. Enter the premises where a regulated activity is located or where pertinent records are stored;
2. Have access to and copy any records that are required under this permit;
3. Inspect the construction and operations regulated under this permit; and/or
4. Sample or monitor any substances or parameters for the purpose of assuring compliance.

1.6 Severability

In accordance with ARSD 74:36:20:15(11), any portion of this permit that is void or challenged shall not affect the validity of the remaining permit requirements.

1.7 Credible evidence

In accordance with ARSD 74:36:13:07, credible evidence may be used for the purpose of establishing whether the owner or operator has violated or is on violation of this permit. Credible evidence is as follows:

1. Information from the use of the following methods is presumptively credible evidence of whether a violation has occurred at the source:
 - a. A monitoring method approved for the source pursuant to 40 CFR § 70.6(a)(3) and incorporated in this permit; or
 - b. Compliance methods specified in an applicable plan;
2. The following testing, monitoring, or information gathering methods are presumptively credible testing, monitoring, or information-gathering methods:
 - a. Any monitoring or testing methods approved in this permit, including those in 40 CFR Parts 51, 60, 61, and 75; or
 - b. Other testing, monitoring, or information-gathering methods that produce information comparable to that produced by any method in section (1) or (2)(a).

2.0 Construction and Operating Permit Deadlines

2.1 Commence construction

In accordance with ARSD 74:36:20:21, this permit becomes invalid if the owner or operator has not commenced construction within 18 months of the effective date of this permit; discontinued construction for a period of 18 months or more; or construction is not completed within 10 years of the effective date of this permit.

2.2 Submit operating permit application

In accordance with ARSD 74:36:20:20, the owner or operator shall submit a complete permit application for an operating permit pursuant to ARSD 74:36:05. A complete permit application for a Title V air quality operating permit shall be submitted within 12 months after the initial startup of the activities covered under this construction permit. For the purpose of this permit condition, initial startup means any of the following activities:

1. The first time the undenatured ethanol production rate increases above the current permitted rate under Title V operating permit #28.0501-61-04C of 120 million gallons per year;
2. The first time the emissions from both fermentation operations are controlled by a single wet scrubber;
3. The first time grain is received by Unit #44; or
4. The first time the facility loads out an E-85 ethanol product.

3.0 Permit Revisions

3.1 Administrative permit amendment

In accordance with ARSD 74:36:20:16 and 74:36:20:17, the Secretary shall determine whether an administrative permit amendment is applicable to a proposed revision within 15 days from receiving a request for a permit revision. The Secretary shall issue an administrative permit amendment without the procedural requirements applicable to obtaining this construction permit. As provided in ASRD 74:36:01:03, the Secretary considers a proposed revision an administrative permit amendment if the proposed revision accomplishes one of the following:

1. Corrects typographical errors;
2. Changes the name, address, or phone number of any person identified in this permit or provides a similar minor administrative change at the source;
3. Requires more frequent monitoring or reporting by the source;
4. The ownership or operational control of a source changes and the Secretary determines that no other change in this permit is necessary. However, the new owner must submit a certification of applicant form and a written statement specifying the date for transfer of operating permit responsibility, coverage, and liability; or
5. Any other change that the Secretary determines to be similar to those requirements in this condition.

3.2 Reopening permit

In accordance with ARSD 74:36:20:18 and 74:36:20:19, the Secretary may reopen this permit for further review if the Secretary determines the permit contains a material mistake in

establishing the emissions standard or limits or other requirements of the construction permit or the Secretary determines the construction permit must be revised to ensure compliance with the applicable requirements of ARSD 74:36 and the federal Clean Air Act. The Secretary shall notify the owner or operator 30 days prior to reopening a construction permit or in a shorter time period in an emergency. The reopening of this construction permit shall follow the same procedural requirements to issue a construction permit and shall affect only those parts of the permit for which cause to reopen exist.

4.0 Recordkeeping and Reporting

4.1 Recordkeeping and reporting

In accordance with ARSD 74:36:20:15(10), the owner or operator shall maintain all monitoring data, records, reports, and pertinent information specified by this permit for five years from the date of sample, measurement, report, or application. The records shall be maintained on site for the first two years and may be maintained off site for the last three years. All records must be made available to the Secretary for inspection. All notifications and reports shall be submitted to the following address:

South Dakota Department of Environment and Natural Resources
PMB 2020, Air Quality Program
523 E. Capitol, Joe Foss Building
Pierre, SD 57501-3181

4.2 Construction date notification

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.7(a)(1), the owner or operator shall notify the Secretary of the date construction commenced on the grain receiving operation (Unit #44). The notification shall be postmarked no later than 30 days after such date.

4.3 Initial startup notification

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.7(a)(3), the owner or operator shall notify the Secretary of the actual date of initial startup of the activities covered under this construction permit. The notification shall be postmarked no later than 15 days after such date. For the purpose of this permit condition, initial startup means any of the following activities:

1. The first time the undenatured ethanol production rate increases above the current permitted rate under Title V operating permit #28.0501-61-04C of 120 million gallons per year;
2. The first time the emissions from both fermentation operations are controlled by a single wet scrubber;
3. The first time grain is received by Unit #44; or

4. The first time the facility loads out an E-85 ethanol product.

4.4 Monthly records

In accordance with ARSD 74:36:20:15(10), the owner or operator shall calculate and record the following amounts each month:

1. The amount of total suspended particulate in diameter, in tons, emitted into the ambient air from the permitted units and the fugitive emissions from Units #1 and #44 during the month. A 12-month rolling total shall be calculated every month using that month's value and the previous 11 months' values. The amount of total suspended particulate emitted to the ambient air from permitted units and fugitive sources shall be calculated using the most recent performance test. If a performance test is not available, the amount of total suspended particulate emitted to the ambient air from a permitted units and fugitive sources shall be based on the formulas, emission factors, and methods described in the statement of basis
2. The amount of particulate matter less than or equal to 10 microns in diameter, in tons, emitted into the ambient air from the permitted units and the fugitive emissions from Units #1 and #44 during the month. A 12-month rolling total shall be calculated every month using that month's value and the previous 11 months' values. The amount of particulate matter less than or equal to 10 microns in diameter emitted to the ambient air from permitted units and fugitive sources shall be calculated using the most recent performance test. If a performance test is not available, the amount of particulate matter less than or equal to 10 microns in diameter emitted to the ambient air from a permitted units and fugitive sources shall be based on the formulas, emission factors, and methods described in the statement of basis;
3. The amount of particulate matter less than or equal to 2.5 microns in diameter (PM2.5), in tons, emitted into the ambient air from the permitted units and the fugitive emissions from Units #1 and #44 during the month. A 12-month rolling total shall be calculated every month using that month's value and the previous 11 months' values. The amount of particulate matter less than or equal to 2.5 microns in diameter emitted to the ambient air from permitted units and fugitive sources shall be calculated using the most recent performance test. If a performance test is not available, the amount of particulate matter less than or equal to 2.5 microns in diameter emitted to the ambient air from a permitted units and fugitive sources shall be based on the formulas, emission factors, and methods described in the statement of basis;
4. The amount of sulfur dioxide, in tons, emitted into the ambient air from the permitted units during the month. A 12-month rolling total shall be calculated every month using that month's value and the previous 11 months' values. The amount of sulfur dioxide emitted to the ambient air from permitted units shall be calculated using the most recent performance test. If a performance test is not available, the amount of sulfur dioxide emitted to the ambient air from a permitted unit shall be based on the formulas, emission factors, and methods described in the statement of basis;

5. The amount of nitrogen oxides, in tons, emitted into the ambient air from the permitted units during the month. A 12-month rolling total shall be calculated every month using that month's value and the previous 11 months' values. The amount of nitrogen oxide emitted to the ambient air from permitted units shall be calculated using the continuous emission monitoring system(s) or the most recent performance test. If a continuous emission monitoring system or performance test is not available, the amount of nitrogen oxide emitted to the ambient air from a permitted unit shall be based on the formulas, emission factors, and methods described in the statement of basis;
6. The amount of carbon monoxide, in tons, emitted into the ambient air from the permitted units during the month. A 12-month rolling total shall be calculated every month using that month's value and the previous 11 months' values. The amount of carbon monoxide emitted to the ambient air from permitted units shall be calculated using the continuous emission monitoring system(s) or the most recent performance test. If a continuous emission monitoring system or performance test is not available, the amount of carbon monoxide emitted to the ambient air from a permitted unit shall be based on the formulas, emission factors, and methods described in the statement of basis;
7. The amount of volatile organic compounds, in tons, emitted into the ambient air from the permitted units and fugitive operations during the month. A 12-month rolling total shall be calculated every month using that month's value and the previous 11 months' values. The volatile organic compound emissions shall be based on the following:
 - a. The amount of volatile organic compounds emitted to the ambient air from permitted units shall be calculated using the most recent performance test. If a performance test is not available, the amount of volatile organic compounds emitted to the ambient air from a permitted unit shall be based on the formulas, emission factors, and methods described in the statement of basis; and
 - b. The fugitive emissions from leaking equipment such as valves, pumps, compressors, etc., shall be calculated by using the emission factors from Protocol for Equipment Leak Emissions Estimates, EPA-453/R-95-017 or another method approved by the Secretary. The amount of time a piece of equipment is considered leaking shall be the time between detecting the leak and the date the leak was fixed;
8. The amount of hazardous air pollutant, in tons, emitted into the ambient air from the permitted units and fugitive operations during the month. A 12-month rolling total shall be calculated every month using that month's value and the previous 11 months' values. The amount of hazardous air pollutants emitted to the ambient air from permitted units and fugitive operations shall be calculated using formulas, emission factors, and methods described in the statement of basis;
9. The number of gallons of undenatured ethanol produced during the month and during the 12-month rolling period for that month;
10. The number of gallons of undernatured ethanol used to produce E-85 at the facility during the month and 12-month rolling period for that month;
11. The amount of grain received through Unit #1 and #44 in tons, during the month and the 12-month rolling period for that month;

12. The amount of grain processed through Unit #12, #13, #14, #15, #24, #25, #26, #27, and #43 in tons, during the month and during the 12-month rolling total for that month; and
13. The amount of hours the emissions from Units #4 and/or #29, were not routed to the regenerative thermal oxidizers during the month and during the 12-month rolling period for that month;

4.5 Quarterly reporting

In accordance with ARSD 74:36:20:15(10), the owner or operator shall submit the following information with the quarterly report currently required under Title V operating permit #28.0501-61:

1. The quantity of total suspended particulate emitted, in tons, in each month and the 12-month rolling total for each month in the reporting period and supporting documentation;
2. The quantity of particulate matter less than 10 microns in diameter emitted, in tons, in each month and the 12-month rolling total for each month in the reporting period and supporting documentation;
3. The quantity of particulate matter less than 2.5 microns in diameter emitted, in tons, in each month and the 12-month rolling total for each month in the reporting period and supporting documentation;
4. The quantity of sulfur dioxide emitted, in tons, in each month and the 12-month rolling total for each month in the reporting period and supporting documentation;
5. The quantity of nitrogen oxides emitted, in tons, in each month and the 12-month rolling total for each month in the reporting period and supporting documentation;
6. The quantity of carbon monoxide emitted, in tons, in each month and the 12-month rolling total for each month in the reporting period and supporting documentation;
7. The quantity of volatile organic compounds emitted, in tons, in each month and the 12-month rolling total for each month in the reporting period and supporting documentation;
8. The quantity of hazardous air pollutants emitted, in tons, in each month and the 12-month rolling total for each month in the reporting period and supporting documentation;
9. The number of gallons of undenatured ethanol produced, in each month and the 12 month rolling total for each month in the reporting period and supporting documentation;
10. The number of gallons of undernatured ethanol used to produce E-85 at the facility, in each month and the 12 month rolling total for each month in the reporting period and supporting documentation;
11. The amount of grain processed through Unit #1 and #44 in tons, in each month and the 12 month rolling total for each month in the reporting period and supporting documentation;
12. The amount of grain processed through Unit #12, #13, #14, #15, #24, #25, #26, #27, and #43 in tons, in each month and the 12 month rolling total for each month in the reporting period and supporting documentation; and
13. The amount of hours the emissions from Units #4 and/or #29 were not routed to the regenerative thermal oxidizers, in each month and the 12 month rolling total for each month in the reporting period and supporting documentation;

4.6 Certification statement

In accordance with ARSD 74:36:20:15(10), all documents required by this permit, including application forms, reports, and compliance certification, must be certified by a responsible official or a duly authorized representative. The certification shall include the following statement:

“I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document and all attachments are true, accurate, and complete.”

A responsible official for a corporation is a responsible corporate officer and for a partnership or sole proprietorship is a general partner or the proprietor, respectively. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the Secretary; and
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

The duly authorized representative must be designated prior to or together with any reports or information to be signed by a duly authorized representative. The responsible official shall notify the Secretary if an authorization is no longer accurate.

4.7 Reporting permit violations

In accordance with ARSD 74:36:20:15(10), the owner or operator shall report all permit violations. A permit violation should be reported as soon as possible, but no later than the first business day following the day the violation was discovered. The permit violation may be reported by telephone to the South Dakota Department of Environment and Natural Resources at (605) 773-3151 or by FAX at (605) 773-5286.

A written report shall be submitted within five days of discovering the permit violation. Upon prior approval from the Secretary, the submittal deadline for the written report may be extended up to 30 days. The written report shall contain:

1. A description of the permit violation and its cause(s);
2. The duration of the permit violation, including exact dates and times; and
3. The steps taken or planned to reduce, eliminate, and prevent reoccurrence of the permit violation.

5.0 Control of Regulated Air Pollutants

5.1 Visibility limit

In accordance with ARSD 74:36:12:01, the owner or operator may not discharge into the ambient air an air contaminant of a density equal to or greater than that designated as 20 percent opacity from any permitted unit, operation, or process listed in Table 1-1, unless otherwise specified in this permit. This provision does not apply when the presence of uncombined water is the only reason for failure to meet the requirement.

5.2 Visibility exceedances

In accordance with ARSD 74:36:12:02, an exceedance of the opacity limit in permit condition 5.1 is not considered a violation during brief periods of soot blowing, start-up, shutdown, or malfunctions. A malfunction is described as any sudden and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. A failure caused entirely or in part by poor maintenance, careless operation, preventable equipment breakdown, or any other cause within the control of the owner or operator of the source is not a malfunction and is considered a violation.

5.3 Circumvention not allowed

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.12, the owner or operator may not install, use a device, or use a means that conceals or dilutes an air emission that would otherwise violate this permit. This includes operating a unit or control device that emits air pollutants from an opening other than the designed stack, vent, or equivalent opening.

5.4 Minimizing emissions

In accordance with ARSD 74:36:08:03, as referenced to 40 CFR § 63.6(e)(1)(i), the owner or operator shall at all times, including periods of startup, shutdown, and malfunction, operate and maintain any permitted unit, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. During a period of startup, shutdown, or malfunction, this general duty to minimize emissions requires the owner or operator to reduce emissions from the permitted unit to the greatest extent which is consistent with safety and good air pollution control practices. The general duty to minimize emissions during a period of startup, shutdown, or malfunction does not require the owner or operator to achieve emission levels that would be required by the applicable standard at other times if this is not consistent with safety and good air pollution control practices, nor does it require the owner or operator to make any further efforts to reduce emissions if levels required by the applicable standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Secretary which may include, but is not limited to, monitoring results, review of operation and maintenance procedures (including a startup, shutdown, and malfunction plan, if required), review of operation and maintenance records, and inspection of the operation.

6.0 PSD AND Case-by-Case MACT Exemption

6.1 Plant wide total suspended particulate limits

In accordance with ARSD 74:36:05:16.01(8), the owner or operator shall not emit into the ambient air greater than or equal to 238 tons of total suspended particulate matter per 12-month rolling period. The short term limits in Table 6-1 are established to ensure the long term limit of 238 tons per 12-month rolling period is not exceeded.

Table 6-1 Total Suspended Particulate Short Term Limits

Unit	Description	Short Term Limit
#1	Grain receiving	1.0 pounds per hour
#2	Grain cleaning	0.1 pounds per hour
#6b/#6c	Regenerative thermal oxidizers	15.0 pounds per hour
#9	Fluid bed cooler #1	1.0 pounds per hour
#10	DDGS silo #1	0.4 pounds per hour
#11	DDGS silo #1 bypass	0.2 pounds per hour
#12	Hammer mill #1	0.4 pounds per hour
#13	Hammer mill #2	0.4 pounds per hour
#14	Hammer mill #3	0.4 pounds per hour
#15	Hammer mill #4	0.4 pounds per hour
#16	Generator #1	0.9 pounds per hour
#23	Surge bin	0.2 pounds per hour
#24	Hammer mill #5	0.4 pounds per hour
#25	Hammer mill #6	0.4 pounds per hour
#26	Hammer mill #7	0.4 pounds per hour
#27	Hammer mill #8	0.4 pounds per hour
#28	Flour conveyor	0.2 pounds per hour
#30	Fluid bed cooler #2	1.0 pounds per hour
#31	DDGS silo #2	0.4 pounds per hour
#32	DDGS silo #2 bypass	0.2 pounds per hour
#33	Boiler #1	0.8 pounds per hour
#34	Boiler #2	0.8 pounds per hour
#35	Boiler #3	0.8 pounds per hour
#36	Boilers #4	5.4 pounds per hour
#37	Generator #2	0.4 grams per horsepower-hour
#38	Trona storage bin	0.1 pounds per hour
#39	Solid fuel receiving and storage	1.1 pounds per hour
#41	Ash storage building	0.1 pounds per hour
#42	Dried distillers grain bypass	0.4 pounds per hour

Unit	Description	Short Term Limit
#43	Hammer mill #9	0.4 pounds per hour
#44	Grain receiving	1.0 pounds per hour

The total suspended particulate emission limits are based on a three-hour rolling average, which is the arithmetic average of three contiguous one-hour periods.

6.2 Plant wide particulate limits (PM10)

In accordance with ARSD 74:36:05:16.01(8), through a combination of emissions from the units covered under this permit, construction permit #28.0502-61-3C and Title V operating permit #28.0502-61, the owner or operator shall not emit into the ambient air greater than or equal to 238 tons of particulate matter less than or equal to 10 microns in diameter (PM10) per 12-month rolling period. The short term limits in Table 6-2 are established to ensure the long term limit of 238 tons per 12-month rolling period is not exceeded.

Table 6-2 PM10 Short Term Limits

Unit	Description	Short Term Limit
#6b/#6c	Regenerative thermal oxidizers	15.0 Pounds per Hour
#44	Grain receiving	1.0 pounds per hour

The particulate matter less than or equal to 10 microns in diameter emission limits are based on a three-hour rolling average, which is the arithmetic average of three contiguous one-hour periods.

Following the issuance of this permit the 12.0 pounds per hour limit on Unit #6b and #6c currently in the Title V operating permit #28.0501-61 no longer applies.

6.3 Plant wide particulate limits (PM2.5)

In accordance with ARSD 74:36:05:16.01(8), through a combination of emissions from the units covered under this permit, construction permit #28.0502-61-3C and Title V operating permit #28.0502-61, the owner or operator shall not emit into the ambient air greater than or equal to 238 tons of particulate matter less than or equal to 2.5 microns in diameter (PM2.5) per 12-month rolling period. The short term limits in Table 6-3 are established to ensure the long term limit of 238 tons per 12-month rolling period is not exceeded.

Table 6-3 PM2.5 Short Term Limits

Unit	Description	Short Term Limit
#6b/#6c	Regenerative thermal oxidizers	15.0 Pounds per Hour
#44	Grain receiving	1.0 pounds per hour

The particulate matter less than or equal to 2.5 microns in diameter emission limits are based on a three-hour rolling average, which is the arithmetic average of three contiguous one-hour periods.

Following the issuance of this permit the 12.0 pounds per hour limit on Unit #6b and #6c currently in the Title V operating permit #28.0501-61 no longer apply.

6.4 Plant wide volatile organic compound limit

In accordance with ARSD 74:36:20:15(9), through a combination of emissions from the units covered under this permit, and Title V operating permit #28.0501-61, the owner or operator shall not emit into the ambient air greater than or equal to 238 tons of volatile organic compounds per 12-month rolling period. The short term limits in Table 6-1 are established to ensure the long-term limit of 238 tons per 12-month rolling period is not exceeded.

Table 6-1 Volatile Organic Compound Short Term Limit

Unit	Description	Short Term Limit
#4	Wet Scrubber #1	21.3 Pounds per Hour
#29	Wet Scrubber #2	21.3 Pounds per hour

The volatile organic compound emission limits are based on a three-hour rolling average, which is the arithmetic average of three contiguous one-hour periods.

Following the issuance of this permit the 10.0 and 20.0 pounds per hour limits on Unit 4 and #29 currently in the Title V operating permit #28.0501-61 no longer applies.

6.5 Plant wide hazardous air pollutant limits

In accordance with ARSD 74:36:20:15(9), the owner or operator shall not emit greater than or equal to 9.5 tons of a single hazardous air pollutant or 23.8 tons of a combination of hazardous air pollutants from permitted units and fugitive sources per 12-month rolling period.

6.6 Plant wide undenatured ethanol production limit

In accordance with ARSD 74:36:20:15(9), the owner or operator shall not produce more than 128 million gallons of undenatured ethanol per 12-month rolling period.

Following the issuance of this permit the 120 million gallons of undenatured ethanol per year limit currently in construction permit #28.0501-61-03C and Title V operating permit #28.0501-61 no longer applies.

6.7 Operational limit on grain receiving

In accordance with ARSD 74:36:20:15(9), the owner or operator shall not receive more than 1,442,322 tons of grain through Unit#1 and Unit #44 combined per 12-month rolling period.

6.8 Operational limit on grain processed through hammer mills

In accordance with ARSD 74:36:20:15(9), the owner or operator shall not mill more than 1,342,322 tons of grain through Units Unit #12, #13, #14, #15, #24, #25, #26, #27, and #43 per 12-month rolling period.

Following the issuance of this permit the 1,226,400 tons of grain per year currently in construction permit #28.0501-61-03C and Title V operating permit #28.0501-61 no longer applies.

6.9 Operational limit on ethanol used for E-85 production

In accordance with ARSD 74:36:20:15(9), the owner or operator shall not use more than 12.8 million gallons of undenatured ethanol for E-85 fuel production per 12-month rolling period.

6.10 E-85 compositional requirement

In accordance with ARSD 74:36:20:15(9), the owner or operator shall not produce E-85 unless it is at a minimum 70 percent ethanol by volume.

6.11 Unit #4 operational scenarios.

In accordance with ARSD 74:36:20:15(9), the owner or operator shall operate fermentation and distillation system associated with Unit #4 under one of the following scenarios:

1. Scenario 1A - The emissions from Unit #4 are routed to its independent wet scrubber, the emissions from the wet scrubber are routed to a system of two regenerative thermal oxidizers, and then the emissions from the thermal oxidizers are routed to the ambient air;
2. Scenarios 1B - The emissions from Unit #4 are routed to its independent wet scrubber and then the emissions from the wet scrubber are routed to the ambient air. Scenario 1B and 2D (i.e. Unit #29 scenario in permit condition 6.11) are limited to a combined 500 hours per 12-month rolling period;
3. Scenario 1C - The emissions from Unit #4 are routed to the wet scrubber associated with Unit #29, the emissions from Unit #29's wet scrubber are routed to a system of two regenerative thermal oxidizers, and then the emissions from the thermal oxidizers are routed to the ambient air; or
4. Scenario 1D - The emissions from Unit #4 are routed to the wet scrubber associated with Unit #29 and then the emissions from Unit #29's wet scrubber are routed to the ambient air. Scenarios 1D and 2B (i.e. Unit #29 scenario in permit condition 6.11) are limited to a combined 500 hours per 12-month rolling period.

Following the issuance of this permit the limit associated with permit conditions 7.7 and 8.12 in construction permit #28.0501-61-03C and Title V operating permit #28.0501-61, respectively, no longer applies. However any hours accumulated under those limits should be included in the 12-month rolling totals.

6.12 Unit #29 operational scenarios.

In accordance with ARSD 74:36:20:15(9), the owner or operator shall operate fermentation and distillation system associated with Unit #29 under one of the following scenarios:

1. Scenario 2A - The emissions from Unit #29 are routed to its independent wet scrubber, the emissions from the wet scrubber are routed to a system of two regenerative thermal oxidizers, and then the emissions from the thermal oxidizers are routed to the ambient air;
2. Scenarios 2B - The emissions from Unit #29 are routed to its independent wet scrubber and then the emissions from the wet scrubber are routed to the ambient air. Scenario 2B and 1D (i.e. Unit #4 scenario in permit condition 6.11) are limited to a combined 500 hours per 12-month rolling period;
3. Scenario 2C - The emissions from Unit #29 are routed to the wet scrubber associated with Unit #4, the emissions from Unit #4's wet scrubber are routed to a system of two regenerative thermal oxidizers, and then the emissions from the thermal oxidizers are routed to the ambient air; or
4. Scenario 2D - The emissions from Unit #29 are routed to the wet scrubber associated with Unit #4 and then the emissions from Unit #4's wet scrubber are routed to the ambient air. Scenarios 2D and 1B (i.e. Unit #4 scenario in permit condition 6.11) are limited to a combined 500 hours per 12-month rolling period.

Following the issuance of this permit the limit associated with permit conditions 7.7 and 8.12 in construction permit #28.0501-61-03C and Title V operating permit #28.0501-61, respectively, no longer applies. However any hours accumulated under those limits should be included in the 12-month rolling totals.

6.13 Prevention of significant deterioration review exemption

The owner or operator is exempt from a prevention of significant deterioration review for particulate matter less than or equal to 10 microns in diameter, particulate matter less than or equal to 2.5 microns in diameter, nitrogen oxide, volatile organic compounds, and carbon monoxide. Any relaxation in a permit condition that increases applicable emissions equal to or greater than 238 tons per 12-month rolling period may require a full prevention of significant deterioration review as though construction had not commenced on the source.

6.14 Case-by-Case exemption

The owner or operator is exempt from a Case-by-Case determination for hazardous air pollutants. Any relaxation in a permit condition that increases the hazardous air pollutant emissions equal to or greater than 9.5 tons per 12-month rolling period for a single hazardous air pollutant or 23.8 tons per 12-month rolling period for any combination of hazardous air pollutants may require a Case-by-Case MACT determination as though construction had not commenced on the source.

7.0 Performance Tests

7.1 Performance test may be required

In accordance with ARSD 74:36:11:02, the Secretary may request a performance test. A performance test shall be conducted while operating the unit at or greater than 90 percent of its maximum design capacity, unless otherwise specified by the Secretary. A performance test that is conducted while operating at less than 90 percent of its maximum design capacity will result in the operation being limited to the percent achieved during the performance test. The Secretary has the discretion to extend the deadline for completion of the performance test required by the Secretary if circumstances reasonably warrant but will not extend the deadline past a federally required performance test deadline.

7.2 Test methods and procedures

In accordance with ARSD 74:36:11:01, the owner or operator shall conduct the performance test in accordance with 40 CFR Part 60, Appendix A, 40 CFR Part 63, Appendix A, and 40 CFR Part 51, Appendix M. The Secretary may approve an alternative method if a performance test specified in 40 CFR Part 60, Appendix A, 40 CFR Part 63, Appendix A, and 40 CFR Part 51, Appendix M is not applicable or required.

7.3 Representative performance test

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.8(c), performance tests shall be conducted under such conditions as the Secretary shall specify to the owner or operator based on the representative performance of the unit being tested. The owner or operator shall make available to the Secretary such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in this permit.

7.4 Submittal of test plan

In accordance with ARSD 74:36:11:01, the owner or operator shall submit the proposed testing procedures to the Secretary at least 30 days prior to any performance test. The Secretary will notify the owner or operator if the proposed test procedures are approved or denied. If the proposed test procedures are denied, the Secretary will provide written notification that outlines what needs to be completed for approval.

7.5 Notification of test

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.8(d), the owner or operator shall notify the Secretary at least 30 days prior to the start of a performance test to afford the Secretary the opportunity to have an observer present. If there is a delay in conducting the

scheduled performance test, the owner or operator shall notify the Secretary as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the Secretary by mutual agreement.

7.6 Performance test report

In accordance with ARSD 74:36:20:15(10), the owner or operator shall submit a performance test report to the Secretary within 60 days after completing the performance test or by a date designated by the Secretary. The performance test report shall contain the following information:

1. Description of the process and the air pollution control system being tested;
2. Sampling location description(s);
3. A description of sampling and analytical procedures and any modifications to standard procedures;
4. Test results expressed in units consistent with the applicable emission limit;
5. Quality assurance procedures and results;
6. Records of unit's operating conditions during the test (e.g., operating rate, fuel type);
7. Raw data sheets for field sampling and field and laboratory analyses;
8. Documentation of calculations;
9. All data recorded and used to establish parameters for compliance monitoring; and
10. Any other information required by the test method.

7.7 Performance test methods for volatile organic compounds

In accordance with ARSD 74:36:07:01, the owner or operator shall conduct any performance tests required to determine volatile organic compound mass emission rates in accordance with 40 CFR Part 51, Appendix M; Method 207 and 40 CFR Part 60, Appendix A; Method 18. 2,3-Butanediol will be sampled through the chromatography column approximately 2.5 times faster than the maximum allowable sampling rate for the other volatile organic compounds in the sampling program (e.g. acetaldehyde, acrolein, and ethyl acetate) or analyzed in accordance with some other method approved in advance by EPA. This requirement applies only if the Method 207 results indicate that 2,3-Butanediol should be sampled as part of the Method 18 testing. When summing analytes per Method 18, non-detect data will be included in the total volatile organic compound mass as one half of the compound method detection limit; except that, if all three performance test runs result in a non-detect measurement and the method detection limit is less than or equal to 1.0 part per million by volume on a dry basis, then all such non-detect data will be treated as zero mass.

7.8 Performance test to verify compliance

In accordance with ARSD 74:36:11:02, the owner or operator shall conduct a performance test on the following units under the specified operating conditions and air pollutants:

1. Unit #1: Particulate matter in accordance with permit condition 8.3;
2. Unit #4 using scenario 1B: Volatile organic compounds and hazardous air pollutants;
3. Unit #4 using scenario 2D: (i.e. one scrubber controls the emissions from both fermentation operations and the emissions are not routed to the regenerative thermal oxidizer system) volatile organic compounds and hazardous air pollutants;
4. Unit #6 using scenarios 1A and 2A: Particulate matter, volatile organic compounds, hazardous air pollutants, and carbon monoxide;
5. Unit #6 using scenarios 1A and 2C: (i.e. one scrubber (Unit #4) controls the emissions from both fermentation operations and the emissions are routed to the regenerative thermal oxidizer system) particulate matter, volatile organic compounds, hazardous air pollutants, and carbon monoxide;
6. Unit #6 using scenarios 1C and 2A: (i.e. one scrubber (Unit #29) controls the emissions from both fermentation operations and the emissions are routed to the regenerative thermal oxidizer system) particulate matter, volatile organic compounds, hazardous air pollutants, and carbon monoxide
7. Unit #29 using scenario 2B: Volatile organic compounds and hazardous air pollutants;
8. Unit #29 using scenario 1D: (i.e. one scrubber controls the emissions from both fermentation operations and the emissions are not routed to the regenerative thermal oxidizer system) volatile organic compounds and hazardous air pollutants; and
9. Unit #44: Particulate matter in accordance with permit condition 8.3.

During the testing on Units #4, #6, and #29, the water flow rate, chemical additives, and / or temperature, as applicable, shall be monitored and recorded.

8.0 Grain Elevator NSPS Requirements

8.1 Particulate limit for grain elevator operations

In accordance with 74:36:07:17, as referenced to 40 CFR § 60.302(b)(1), the owner or operator shall not cause to be discharged into the ambient air from Unit #44 the emissions of total suspended particulate matter in excess of 0.01 grains per dry standard cubic foot.

8.2 Visibility limit for grain elevator operations

In accordance with ARSD 74:36:07:17, as referenced to 40 CFR §§ 60.11(c) and 60.302(b)(2), the owner or operator may not discharge into the ambient air an air contaminant of a density greater than that designated as 0 percent opacity from Unit #44. The opacity limit shall apply at all times except during periods of startup, shutdown, and malfunctions.

8.3 Test methods and procedures for particulate limit

In accordance with ARSD 74:36:07:17, as referenced to 40 CFR § 60.303(b)(1) and (2) and (c), the owner or operator shall determine compliance with permit condition 10.1 as follows:

1. 40 CFR Part 60, Appendix A, Method 5 shall be used to determine the particulate matter concentration and volumetric flow rate of the effluent gas. The sampling time and sampling volume for each run shall be at least 60 minutes and 1.70 dry standard cubic meters (60 dry standard cubic feet), respectively. The probe and filter holder shall be operated without heaters;
2. 40 CFR Part 60, Appendix A, Method 2 shall be used to determine the ventilation volumetric flow rate; and
3. The owner or operator may use 40 CFR Part 60, Appendix A, Method 17 instead of Method 5.

8.4 Test methods and procedures for visibility limit

In accordance with ARSD 74:36:07:17, as referenced to 40 CFR § 60.303(b)(3), the owner or operator shall determine compliance with permit condition 10.2 using 40 CFR Part 60, Appendix A, Method 9. The minimum total time of observations for the opacity performance test shall be 3 hours (30 6-minute averages).

9.0 Recommendation

A review of this facility indicates it can construct and operate in compliance with South Dakota's Air Pollution Control rules and the federal Clean Air Act. The Secretary, therefore, recommends the Board of Minerals and Environment issue this air quality construction permit with conditions to ensure compliance with SDCL 34A-1 and the federal Clean Air Act. Any questions pertaining to the Secretary's recommendation should be directed to Kyrik Rombough, Engineering Manager, at (605)773-3151.