D R A F T

FACT SHEET FOR: CP26-014 **DATE: DRAFT**

NDWEE ID: 58049
121646

Name of Source: Chief Ethanol Fuels, Inc.
CC Hastings Capture Company, LLC

Source Classification: Minor New Source Review (NSR) source at time of issuance
Area Source of Hazardous Air Pollutants (HAPs)

Regulatory changes may supersede information in this document. If the source should add or change equipment or change processes such that a NESHAP or NSPS subpart becomes an applicable requirement, it is the source's obligation to comply with that subpart and applicable requirements whether or not they are identified in the associated permitting action or Title 129. Also note that the NESHAP and NSPS subparts are subject to change. Detailed information related to NESHAP and NSPS subparts can be found on the NDWEE Air Toxics Notebook and NDWEE NSPS Notebook located on the NDWEE website (http://dwee.nebraska.gov/). The NDWEE website can also be used to find other permit related and facility specific information that is not identified in this fact sheet.

DESCRIPTION OF THE SOURCE OR ACTIVITY:

Chief Ethanol Fuels, Inc. (Chief) (ID: 58049) is an anhydrous ethanol production facility near Hastings, Nebraska operating under Standard Industrial Classification (SIC) code 2869, Industrial Organic Chemicals, Not Elsewhere Classified, and under North American Industry Classification System (NAICS) code 325193, Ethyl Alcohol Manufacturing. The facility produces approximately 80 million gallons of denatured ethanol annually. The facility uses a dry-milling process to produce ethanol from corn, which is then denatured with gasoline for fuel use. The leftover solids (stillage) from this process are sold as WDGS or dried and sold as DDGS for use as animal feed.

CC Hastings Capture Company, LLC (CC Hastings) (ID:121646), is an adjacent carbon capture facility operating under SIC code 4619, Pipelines, Not Elsewhere Classified, and under NAICS code 486990, All Other Pipeline Transportation. Gas from the fermentation tanks, primarily comprised of CO_2, is controlled by the fermentation scrubber at Chief before being routed to CC Hastings. The facility further refines the gas stream through a suction scrubber to remove condensed liquids and a TEG contactor tower to remove water vapor and other unwanted gases. The CO_2 is then pumped into a pipeline for off-site transport.

PERMIT HISTORY:

Chief Ethanol Fuels, Inc. (58049)		
Date Issued	**Number**	**Status**
09/22/1983	N/A	Not Active, superseded by 04/10/1984 Permit
04/10/1984	N/A	Not Active, superseded by 12/05/1985 Permit
12/05/1985	N/A	Not Active, superseded by CP00-0062
02/01/1993	N/A	Not Active, superseded by CP94-0008
09/20/1994	CP94-0008	Not Active, superseded by CP00-0062
12/23/1997	#96-0024	No Permit Required (NPR) Determination incorporated into CP00-0062
02/19/1998	#98-0010	NPR Determination incorporated into CP00-0062
06/15/2004	CP00-0062	Not Active, superseded by CP07-0011
09/12/2006	CPM05-0006	Not Active, superseded by CP07-0011
05/16/2007	CP07-0019	NPR Determination
02/19/2008	CP07-0011	Not Active, superseded by CP08-036
04/04/2016	CP08-024	Not Active, superseded by CP16-024

Chief Ethanol Fuels, Inc. (58049)		
01/03/2017	CP16-024	Not Active, superseded by CP17-010
N/A	CP16-027	Incorporated into CP16-024
07/12/2017	CP17-010	Not Active, superseded by CP26-014
02/12/2018	CP08-036	Not Active, reissued under CP18-022 with added Condition XIII.(N)
05/09/2018	CP18-022	Not Active, superseded by CP20-012
08/18/2020	CP20-012	Partially Active, Condition XIII.(F) superseded by CP24-042; Conditions XIII.(A), XIII.(C), XIII.(D), XIII.(L)(4), and XIII.(L)(7) superseded by CP24-010; Conditions XIII.(G), XIII.(L)(11)(a), XIII.(L)(11)(b), and XIII.(L)(11)(f) superseded by CP25-014; Conditions XIII.(E), XIII.(I), XIII.(L)(6), and XIII.(L)(9) superseded by CP25-030, Conditions XIII.(L)(8), XIII.(L)(10), and XIII.(L)(11)(e) superseded by CP26-014
10/17/2024	CP24-042	Not Active, superseded by CP24-010
05/07/2025	CP24-010	Not Active, Condition III.(B) superseded by CP25-014, Conditions III.(C) and (D) are superseded by CP26-014
01/26/2026	CP25-014	Not Active, superseded by CP26-014
07/06/2026	CP25-030	Not Active, superseded by CP26-014
TBD	CP26-014	Active
CC Hastings Capture Company, LLC (121646)		
Date Issued	**Number**	**Status**
05/07/2025	CP24-010	Not Active, Condition III.(B) superseded by CP25-014, Conditions III.(C) and (D) are superseded by CP26-014
01/26/2026	CP25-014	Not Active, superseded by CP26-014
07/06/2026	CP25-030	Not Active, superseded by CP26-014
TBD	CP26-014	Active

PERMIT ACTION:

On April 17, 2026, the Department received a construction permit application (#26-014) from Chief for the construction of new distillation, dried distillers grains with solubles (DDGS) drying, DDGS cooling, ethanol storage, and ethanol loadout equipment in Hastings, Nebraska. This construction at the facility will expand the ethanol production from approximately 80,000,000 gallons of denature ethanol up to 115,000,000 gallons. Chief will also be decommissioning existing distillation, DDGS drying, and ethanol loadout equipment.

The following is an emission point summary of equipment that exists or will exist after this project at Chief and at CC Hastings:

Equipment/Process	Emission Point ID#	Facility ID #
Grain Receiving Baghouse	EP-1.1	58049
West Grain Receiving/Loadout Baghouse	EP-1.1W	58049
Grain Bin Fill Leg 1 Spot Filter	EP-1.2A	58049
Grain Bin Fill Leg 2 Spot Filter	EP-1.2B	58049
Grain Storage Bin 1 Vent Emissions	EP-2.1	58049
Grain Storage Bin 2 Vent Emissions	EP-2.2	58049
Grain Storage Bin 3 Vent Emissions	EP-2.3	58049
West Grain Storage Bin Vent Emissions	EP-2.1W	58049
Grain Bin Reclaim Leg Spot Filter	EP-3.1	58049

Equipment/Process	Emission Point ID#	Facility ID #
Bulk Weigher Vent Filter	EP-3.2	58049
Surge Bin 1 Vent Filter	EP-5.1	58049
Surge Bin 2 Vent Filter	EP-5.2	58049
Surge Bin 3 Vent Filter	EP-5.3	58049
Surge Bin 4 Vent Filter	EP-5.4	58049
Hammermill 1 Baghouse	EP-6.1	58049
Hammermill 2 Baghouse	EP-6.2	58049
Hammermill 3 Baghouse	EP-6.3	58049
Hammermill 4 Baghouse	EP-6.4	58049
Meal Conveyor Spot Filter	EP-7.1	58049
Fermentation Scrubber	EP-8-4	58049
Natural Gas Fired Boiler #1	EP-16	58049
Cooling Tower C	EP-19	58049
Equipment Leaks	EP-24	58049
200 Proof Ethanol Tank #3	EP-30 (T-6101)	58049
Emergency Fire Water Pump Engine	EP-31	58049
Wet Cake Storage (West Loadout Area)	EP-32-1	58049
Haul Roads	EP-4W and EP-32	58049
Gas Storage Tank	EP-37	58049
NG-Fired Emergency Engine	EP-38	58049
Natural Gas Fired Boiler #2	EP-39	58049
DDGS Dryer #1 with TO/HRSG	EP-102	58049
DDGS Dryer #2 with TO/HRSG	EP-103	58049
DDGS Dryer #1 Cooling Tube with Pneumatic Transfer System Filter	EP-104	58049
DDGS Dryer #2 Cooling Tube with Pneumatic Transfer System Filter	EP-105	58049
DDGS Flat Storage Building	EP-106	58049
DDGS Truck Loadout Building Uncaptured	EP-109	58049
DDGS Rail Loadout Building Uncaptured	EP-110	58049
DDGS Loadout Conveyors	EP-111.1	58049
DDGS Truck and Rail Loadout Building Filter	EP-111	58049
MVR Evaporator Chests	EP-112	58049
200 Proof Product Tank #4	EP-113 (T-2602)	58049
200 Proof Product Tank #5	EP-114 (T-2603)	58049
Day Tank #1	EP-115 (T-2604)	58049
Ethanol Vapor Recovery & Loadout Vapor Combustion Unit	EP-116	58049
Denaturant Tank	EP-117 (T-2605)	58049
Slurry Tank	EP-ST	58049
Whole Stillage Tanke with Dewatering Units	EP-WST	58049
CC Rodpacking	EP-CC-01 (EP-CC-FUG)	121646
CC Blowdowns	EP-CC-02 (EP-CC-FUG)	121646
CC Reboiler Still Vent	EP-CC-03	121646
CC Fugitive Emissions	EP-CC-04 (EP-CC-FUG)	121646

The following is a list of existing emission points that will be decommissioned as a part of this project:

Equipment/Process	Emission Point ID#	Facility ID #
Unit 1 Distillation Scrubber	EP-9	58049
Unit 2 Distillation Scrubber	EP-10	58049
A and B DDGS Transfer Baghouse	EP-11	58049
Dryer Scrubber	EP-13	58049
Flare with Vapor Recovery	EP-17	58049
Cooling Tower A	EP-18	58049
DDGS Loadout	EP-20	58049
Anhydrous Ethanol Tank	EP-25 (T-1501A)	58049
Anhydrous Ethanol Tank	EP-26 (T-1501B)	58049
Anhydrous Ethanol Tank	EP-27 (T-11501C)	58049
North WDGS Storage and Loadout	EP-32-2	58049

Fermentation and Distillation

This expansion project coincided with a past permitting action (CP24-010) for a new fermentation scrubber (C-1401A) such that the scrubber is estimated to be capable of handling all new emissions generated and vapor flow rate from the new distillation units and expansion from 80 million gallons to 115 million gallons of ethanol production. New grouped emissions limitations were placed on this emission point (EP-8-4), CC Hastings equipment (EP-CC-03 and EP-CC-FUG), and the new DDGS dryers and coolers (EP-102, EP-103, EP-104, and EP-105).

DDGS Drying

This project also consists of decommissioning the existing DDGS dryers (EU-13.1 and EU-13.3) and replace them with two Swiss-Combi ecoDry dryer units (EU-102.1 and EU-103.1) as part of the Expansion Project. The new dryer units are each equipped with an integrated cyclone for product recovery, as well as an exhaust gas recirculation and thermal oxidation system.

DDGS Cooling

The dried product will be pneumatically conveyed to a new DDGS flat storage building. The pneumatic conveyance system is expected to cool the DDGS without the need for addition rotary cooling. This pneumatic conveyance system will be equipped with filters that have been requested to be treated as process inherent.

For process equipment inherency determinations, the Department has historically referred to the 1995 EPA letter sent to Timothy J. Mohin of Intel Government Affairs (Mohin memo) regarding the "Criteria for Determining Whether Equipment is Air Pollution Control Equipment of Process Equipment"[1] regarding whether exhaust conditioners used in tool operations in the semiconductor industry can be considered process equipment. The Mohin memo states that three things must be considered to determine if control equipment is process inherent:

- Is the primary purpose of the equipment to control air pollution?
- Where the equipment is recovering product, how do the cost savings compare to the cost of the equipment?
- Would the equipment be installed if no air quality regulations are in place?

The Mohin memo went on to state that "*[i]f the answers to these questions suggest that the equipment should be considered as an inherent part of the process, then the effect of the equipment or practices can be taken*

[1] EPA, 1995. Criteria for Determining Whether Equipment is Air Pollution Control Equipment of Process Equipment. Timothy J. Mohin Memorandum dated November 27, 1995. U.S. Environmental Protection Agency. Research Triangle Park, NC.

into account in calculation potential emission regardless of whether or not enforceable limitations are in effect." And, *"[t]he above determination regarding the use of localized exhaust conditioners in the semiconductor industry is case-specific. This determination is not intended to set a precedent for localized pollution control equipment for other source types without a similar case-specific review."*

Further, the Mohin memo in its analysis of the criteria that the exhaust conditioners are small treatment systems that are local to the point-of-use process tool with primary purposes to increase uptime of the process tools, to minimize safety hazards, and to prevent impurities from entering other processes. Although not expanded on in the letter, cleanliness is one, if not the, primary concern in the semiconductor industry. The Mohin memo also provided specific direction that the response was not intended to set a precedent for other industries or other types and uses of air pollution control equipment.

Criterion 1 – Primary Purpose

Chief stated that the primary purpose of the DDGS Dryer Cooling Filters is not for air pollution control and instead designed with the purpose of product recovery. Recovery of valuable co-product and loss prevention and the prevention of DDGS pneumatic conveyance damage due to improper ventilation.

Criterion 2 – Cost Savings

Chief stated that to prevent loss of DDGS product and offer safety and sanitation benefits to the facility and plant personnel that it is in the best interest of Chief to properly operate and maintain the pneumatic transfer filter systems even in the absence of air quality control regulations.

Although Chief did not provide financial information to support the cost aspect of the criterion in the Mohin memo, the Department compared like-kind equipment from the same industry and determined that the fiscal benefits appear to outweigh estimated losses of maintaining equipment.

Criterion 3 – Necessity Outside of Air Quality Regulations

Chief stated that the pneumatic transfer filter systems would be installed even if no air quality regulations were in place. These pneumatic transfer filter systems are utilized regardless of applicable air quality regulations because they are a safe and efficient method to transport bulk materials. They are necessary to ensure the proper function of the systems and to prevent the product that is transferred from escaping the system with the released pneumatic transfer air.

The Department has historically evaluated like-kind operations from the same industry and were presented with information supporting safety standards for combustible particulates. It is the Department's understanding that the pneumatic transfer process are subject to National Fire Protection Association (NFPA) standards. Even if it was absent from being subject to air quality regulations, Chief must operate the process equipment in accordance with NFPA 654 – Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids and NFPA 652 – Standard on Fundamentals of Combustible Dust. While not formally adopted in Occupational Safety and Health Administration (OSHA) regulations, OSHA does not rely on both NFPA 654 and NFPA 652 as part of health and safety inspections under the combustible dust National Emphasis Program (NEP); a room with at least 5 percent of its surface area covered with 1/32nd or more of an inch of organic dust presents an explosion hazard, according to NFPA and OSHA dust training. The DDGS Dryer Cooling Filters proposed are expected to provide a measure of safety consistent with the standard that are required above.

The Department has concluded that the DDGS Dryer Cooling Filters fit the outlined criteria for process equipment. Although these filters are not required as control devises, Chief is expected to properly operate and maintain the units in accordance with Condition I.(H) and all other applicable requirements. Furthermore, the Department reserves the right to re-evaluate the determination if there are changes in the process, future permitting actions, etc.

<u>Grain and DDGS Handling</u>

The changes to the DDGS process outlined above, Chief is also replacing existing DDGS loadout with a new uncontrolled flat storage building (EP-106) and transfer conveyor (EP-111.1). DDGS Truck and Rail

Loadout will be controlled with a filter (EP-111). Chief requested that DDGS Truck and Rail Loadout be grouped with other existing equipment under a single PM emissions limitation. This limit was placed on EP-1.1, EP-6.1, EP-6.2, EP-6.3, EP-6.4, and EP-111.

In addition to the new and removed equipment, Chief requested to have a 140,000 ton per year grain receiving limitation placed on the West Grain Bin.

Cooling Tower

Chief is removing Cooling Tower A (EP-18) as a part of this project as cooling needs after this project will decrease. Cooling Tower C (EP-19) is expected to be able to accommodate all cooling needs. Further, Chief requested to reduce the existing total dissolved solids (TDS) concentration from 7,000 parts per million (ppm) to 2,500 ppm.

Natural Gas Boilers

While no physical changes are being made to either natural gas fired boiler (EP-16 and EP-39) Chief requested a combined heat input limitation be placed equivalent to 1,576,800 million British thermal units (MMBtu) per year.

TYPE AND QUANTITY OF AIR CONTAMINANT EMISSIONS ANTICIPATED:

The emissions for this project, including fugitive emissions, are shown in the potential-to-emit (PTE) table below:

Regulated Pollutant	Pre-Project PTE (ton/yr)	Post-Project PTE (ton/yr)	Project PTE (ton/yr)
Particulate Matter (PM)	105.91	87.27	-20.44
PM smaller than or equal to 10 microns (PM_{10})	54.57	67.40	12.37
PM smaller than or equal to 2.5 microns ($PM_{2.5}$)	25.37	26.95	1.49
Sulfur Dioxide (SO_2)	1.11	11.49	10.38
Oxides of Nitrogen (NO_x)	147.12	148.77	1.64
Carbon Monoxide (CO)	92.54	126.89	34.34
Volatile Organic Compounds (VOC)	172.96[1]	276.96	103.40
Hazardous Air Pollutants (HAPs)			
Highest Individual HAP: Acetaldehyde	9.47	9.32	-0.15
Highest Increase in Individual HAP: Acrolein	0.30	2.79	2.49
Total HAPs	18.07	22.68	4.47

[1] Previous PTE obtained from CP21-016, issued January 4, 2022.

SUPPLEMENTAL INFORMATION:

Title 129, Chapter 2 – Ambient Air Quality Standards

The change in potential emissions from this permitting action are below the threshold for which modeling is required as summarized below; therefore, the NDWEE is not requiring ambient air quality dispersion modeling to support this permitting action. The NDWEE generally follows these thresholds.

Pollutant	Project Potential Emissions Change (ton/yr)	Emission Change Threshold (ton/yr)
PM_{10}	12.37	15
$PM_{2.5}$	1.49	10
SO_2	10.38	40
NO_2	1.64	40
CO	34.34	100

Title 129, Chapter 4 - Prevention of Significant Deterioration (PSD)
Project Aggregation Analysis

The following table summarizes the recent permit applications that Chief and CC Hastings have submitted:

Permit App. #	Date App. Received	Project Description	Project PTE	Related Projects
#20-012[1]	Re-open for cause 4/8/2020	Establish federally enforceable group limitations on acetaldehyde.	None	Not related
No-Permit Required	1/21/2021	Installation of 152.5 MMBtu/hr natural gas fired boiler	PM: 4.98 ton/yr PM_{10}: 4.98 ton/yr $PM_{2.5}$: 4.98 ton/yr SO_2: 0.39 ton/yr NO_X: 24.18 ton/yr CO: 49.09 ton/yr VOC: 3.60 ton/yr	Related to NPR 8/19/2022
No-Permit Required	8/19/2022 (Received by NDWEE 10/8/2024)	Decommissioned 110 MMBtu/hr coal fired boiler	PM: -21.06 ton/yr PM_{10}: -24.84 ton/yr $PM_{2.5}$: -9.24 ton/yr SO_2: -308.23 ton/yr NO_X: -161.10 ton/yr CO: -146.60 ton/yr VOC: -1.48 ton/yr	Related to NPR 1/21/2021
CP24-042	8/15/2024	Revises permit language to prescribe fermentation tank vapors shall be controlled by fermentation scrubbers even when vapors are routed to carbon capture.	None	Not related
CP24-010	2/16/2024 Addendum 8/15/2024	Installation of a single fermentation scrubber, decommissioning existing fermentation scrubbers, and revised combined limits for VOC and HAP	PM: 3.77 ton/yr PM_{10}: -2.29 ton/yr $PM_{2.5}$: -2.29 ton/yr SO_2: -0.01 ton/yr NO_X: -3.72 ton/yr CO: -12.34 ton/yr VOC: 3.46 ton/yr	Related to CP26-014
CP25-014	7/2/2025	Installation of a new 925,000 gallon fermentation tank, decommissioning of two existing 77,251 gallon fermentation tanks	VOC: 0.21 ton/yr	Related to CP26-014
CP25-030	9/25/2025	Replacement of grain receiving and handling equipment, modification to haul roads	PM: 26.50 ton/yr PM_{10}: -5.76 ton/yr $PM_{2.5}$: 0.08 ton/yr VOC: 6.81 ton/yr	Related to CP26-014

Permit App. #	Date App. Received	Project Description	Project PTE	Related Projects
26-014	4/17/2026	Expansion new distillation, DDGS drying, ethanol and DDGS storage, and ethanol and DDGS loadout equipment	PM: -46.94 ton/yr PM_{10}: 18.13 ton/yr $PM_{2.5}$: 1.41 ton/yr SO_2: 10.38 ton/yr NO_X: 1.64 ton/yr CO: 34.34 ton/yr VOC: 157.79 ton/yr	Related to CP25-030, CP25-014, CP24-042, and CP24-010

The NDWEE analyzed the recent projects from Chief and CC Hastings to determine if the projects were related and could be considered parts of the same project. If the projects were determined to be related, the project PTE change from the related projects would have to be evaluated together to determine if they were considered a major modification for purposes of NSR.

The NDWEE determined that the Fermentation Scrubber (CP-24-014), Fermentation Tank Replacement (CP25-014), and Grain Receiving and Handling Replacement (CP25-030) projects were related to this expansion project. As such, NDWEE evaluated PTE contributions from all projects as if they were proposed at the same time for evaluations in the following section.

NSR Review Analysis

For the purpose of the NSR program, the total of the ethanol plant and carbon capture facilities are considered one aggregate NSR source. For further discussion on this applicability determination, please refer to previously issued fact sheets.

The facilities of Chief and CC Hastings (as a whole) do not belong to one of the listed source categories as prescribed in 40 CFR §52.21(b)(1)(iii).

Chief and CC Hastings's facility-wide emission rates are below the major NSR threshold of 250 ton/yr for all NSR regulated pollutants, and thus the facility is classified as a minor source.

Chief does contain a "nested source" that is a listed source category as prescribed in 40 CFR §52.21(b)(1)(iii), a fossil-fuel boiler (or combination thereof) totaling more than 250 million British thermal units per hour heat input. The "nested source" is a major stationary source under the NSR program because potential emissions (including fugitive emissions) are above the NSR major stationary threshold (100 tons per year per pollutant) for NO_x. Because the source is major with respect to NSR, modification at the "nested source" must be evaluated in accordance with 40 CFR §52.21(b)(2).

Significant Emissions Increase (Step 1) – Project Emissions Accounting

Process or Unit[1]	Pollutant Emissions (ton/yr)						
	PM	PM_{10}	$PM_{2.5}$	SO_x	NO_x	CO	VOC
EP-102 PTE/PAE	2.17	15.90	6.09	5.47	32.21	30.55	11.43
EP-103 PTE/PAE	2.17	15.90	6.09	5.47	32.21	30.55	11.43
2018-2019 BAE EP-16	6.67	6.67	1.67	0.53	82.89	24.78	4.83
2018-2019 BAE EP-39	0	0	0	0	0	0	0
Grouped Limit EP-16 and EP-39 PTE/PAE	1.47	5.87	5.87	0.46	78.84	52.23	4.25
Changes due to new units	4.34	31.80	12.18	10.93	64.41	61.10	22.86
Changes for PAE-BAE on EP-16 and EP-39	-5.20	-0.80	4.21	-0.06	-4.05	27.45	-0.58
Change in PTE, Project Emissions Accounting	-1.91	29.95	16.12	10.79	60.37	88.55	22.29
NSR Significance Thresholds	25	15	10	40	40	100	40
Above Threshold, Proceed to Step 2?	No	Yes	Yes	No	Yes	No	No

In the above table, the new DDGS Dryers with TO/HRSG (EP-102 and EP-103) was calculated using zero for the baseline actual emissions and the PTE is used for projected actual emissions. For the existing Natural

Gas Boilers (EP-16 and EP-39) baseline emissions were calculated by selecting a consecutive 24-month period for each pollutant gathered from emission inventory data over a 10-year period for non-electric utility steam generating units.

The selected 24-month period for every individual pollutant was the 2018-2019 calendar year averaging period and BAE assumes that PM is equal to PM_{10} due to lack of data. The projected actual emissions for the Natural Gas Boilers is equal to the potential to emit calculated using a combined heating input capacity limitation prescribed in Specific Condition III.(A)(3)(a). Note that baseline emissions cannot be greater than an existing emission limitation.

The above Project Emissions Accounting analysis determines that a significant emissions increase does occur. However, in order for a Major Modification to occur both a significant emissions increase and a net significant emissions increase must occur. Thus, a net emissions increase must be evaluated in accordance with 40 CFR §52.21(b)(2). While not considered a part of this project for step 1 of this analysis, Chief submitted verification on October 8, 2024 that an existing 110 MMBtu/hr coal-fired boiler (EP-15) was decommissioned in August of 2022.

Significant Net Emissions Increase (Step 2)

Process or Unit[1]	Pollutant Emissions (ton/yr)						
	PM	**PM_{10}**	**$PM_{2.5}$**	**SO_x**	**NO_x**	**CO**	**VOC**
EP-102 PTE/PAE	2.17	15.90	6.09	5.47	32.21	30.55	11.43
EP-103 PTE/PAE	2.17	15.90	6.09	5.47	32.21	30.55	11.43
2018-2019 BAE EP-16	6.67	6.67	1.67	0.53	82.89	24.78	4.83
2018-2019 BAE EP-39	0	0	0	0	0	0	0
Grouped Limit EP-16 and EP-39 PTE/PAE	1.47	5.87	5.87	0.46	78.84	52.23	4.25
2018-2019 BAE EP-15 (Coal Boiler)	17.29	17.29	6.49	237.10	105.20	25.00	1.06
Changes due to new units	4.34	31.80	12.18	10.93	64.41	61.10	22.86
Changes for PAE-BAE	-22.49	-18.09	-2.28	-237.16	-109.25	2.45	-1.64
Net Change in Emissions	-18.16	13.71	9.90	-226.23	-44.83	63.55	21.23
NSR Significance Thresholds	25	15	10	40	40	100	40
Significant Net emissions Increase?	No	No	No	No	No	No	No

In the above table, the actual to potential increase for the new DDGS Dryers with TO/HRSG (EP-102 and EP-103) was calculated using zero for the baseline actual emissions and the PTE is used for projected actual emissions. For the existing Natural Gas Boilers (EP-16 and EP-39) and the decommissioned Coal Boiler (EP-15) baseline emissions were calculated by selecting a consecutive 24-month period for each pollutant gathered from emission inventory data over a 10 year period for non-electric utility steam generating units.

The selected 24-month period for every individual pollutant was the 2018-2019 calendar year averaging period, excess emissions from malfunctions were removed from BAE, and BAE assumes that PM is equal to PM_{10} due to lack of data. The projected emissions for the Natural Gas Boilers is equal to the potential emissions calculated using a combined heating input capacity limitation prescribed in Specific Condition III.(A)(3)(a). Note that baseline emissions cannot be greater than an existing emission limitation.

Per NDWEE evaluation, the project does not alter the facility-wide source classification (i.e.: still minor with respect to NSR) nor they qualify as a major modification for the “nested source” (i.e.: no significant net emissions increase occurs).

Title 129, Chapter 12 – New Source Performance Standards (NSPS)

The subparts which are applicable to the facility are summarized below.

Subpart A – General Provisions: This subpart, adopted by reference in Title 129, Chapter 12, Section 001.01, applies to those units subject to another NSPS subpart. Chief is subject to Subpart A because it is subject to multiple NSPS Subparts.

Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units: This subpart, adopted by reference in Title 129, Chapter 12, Section 001.05, is applicable to each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 100 million British thermal units per hour (MMBtu/hr) or less, but greater than or equal to 10 MMBtu/hr.

The new DDGS Dryers with TO/HRSG (EU-103.1 and EU-103.1) meet the definition of a "Steam Generating Unit" as defined within this subpart and have a design heat input capacity of 75 MMBtu/hr.

Subpart VVb – Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023: This subpart, not yet adopted by reference in Title 129, applies to the VOC equipment leaks associated at a Synthetic Organic Chemical Manufacturing facility that was constructed, reconstructed, or modified after April 25, 2023. This new subpart includes all the requirements of 40 CFR Part 60, Subpart VV, as amended, along with new provisions. Differences between Subparts VVb and VV include, but are not limited to, lower leak definitions for pumps and valves, requiring monitoring of connectors, and additional recordkeeping requirements and quality assurance measures.

Chief must comply with all applicable NSPS subparts and requirements regardless of their inclusion in this permitting action or Title 129. These rules are subject to change. Additional and updated information on all NSPS is available on the NDWEE NSPS Notebook, which can be located by visiting the NDWEE website at https://dwee.nebraska.gov/, by first selecting "Menu" at the top of the page, then "Air", then "NSPS Program", and then "NSPS Notebook".

Title 129, Chapter 13 – National Emission Standards for Hazardous Air Pollutants (NESHAP)

For the purpose of HAP emissions, the total of the ethanol plant and carbon capture facilities are considered one aggregate HAP source. Chief and CC Hastings are an area source of HAPs because emissions of each individual HAP are less than 10 tons per year (tpy) and combined HAP is less than 25 tpy.

National Emission Standards for Hazardous Air Pollutants (NESHAP) (Section 002)

This permitting action does not subject Chief and CC Hastings to any NESHAP requirements.

Chief must comply with all applicable NESHAP requirements regardless of their inclusion in this permitting action or Title 129. These rules are subject to change. Information regarding NESHAP is available on the NDWEE Air Toxics Notebook, which can be located by visiting the NDWEE website https://dwee.nebraska.gov, by first selecting "Menu" at the top of the page, then "Air", then "Air Toxics Program", and then "Air Toxics Notebook".

Maximum Achievable Control Technology (MACT) (Section 004)

Chapter 13, Section 004.02 prescribes the following:

> *"004.02 For new, modified, or reconstructed sources of hazardous air pollutants. A permit as required under Section 001.03A8 of Chapter 3 will be issued for construction, reconstruction, or modification of a source with the potential to emit any hazardous air pollutant in an amount equal to or in excess of 2.5 tpy or more of any hazardous air pollutant or an aggregate of 10.0 tpy or more of any hazardous air pollutants only if best available control technology (BACT), as determined by the Director, is applied for each hazardous air pollutant and the source will comply with all other requirements of these regulations. In no event will application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under Chapters 12 or 13."*

This permitting action does not subject Chief and CC Hastings to any BACT requirements as specified in Section 004.02 of this chapter because as permitted the project's potential to emit for any single HAP and for total HAPs are below the respective 2.5 and 10 tpy thresholds as defined in this section.

Chief and CC Hastings are not subject to any MACT requirements specified in Section 004.03 of this chapter because the facilities are classified as an area source of HAPs.

Title 129, Chapter 15, Section 001 - Particulate Emissions; Limitations and Standards

Process Weight Rate (Section 001.01)

Title 129, Chapter 15, Section 001.01, limits PM (filterable) emissions to the amounts shown in Table 15-1 during any one hour. These process weight rate limits, which are based on throughput of the emission units, vary as throughputs change. Since the potential to emit for each emission point is less than the process weight rate limitations, these PM limitations were not included in Condition III of this permit.

Particulate Emissions from Combustion Sources (Section *001.02*)

All of the PM emission points subject to the Chapter 15, Section 001.02 limitations are in compliance with those limitations, as the PTE for each emission point is less than the limitations. Therefore, these PM limitations were not included in any Specific Condition of this permit.

Opacity Limitations from Emission Units (Section *001.04*)

Specific Condition I.(J) specifies that no person shall cause or allow emissions, from any source, which has an opacity equal to or greater than twenty percent (20%). Opacity must be determined using an EPA-approved method or recorded by a continuous opacity monitoring system which has been operated and maintained pursuant to 40 CFR Part 60 Appendix B except as provided for in Chapter 15, Sections 001.05 and 001.06 (Title 129, Chapter 15, Section 001.04). Therefore, while not specifically stated in Condition III., this requirement is still applicable to all emission units at the source.

REVISED SPECIFIC PERMIT CONDITIONS:

Below is a mark-up that identifies all of the revisions to the original conditions. Additions are **bolded and underlined**, deletions are in ~~strikethrough~~, and NDWEE comments are in *italics*.

Nebraska Administrative Code - Title 129 was amended on June 28, 2026. As part of this permitting action, the NDWEE is updating "I. Standard Conditions" and "II. General Construction Permit Conditions" to reflect updated Title 129 chapter citations. Additionally, as part of this permitting action, NDWEE is also updating all citations in the applicable Specific Conditions to reflect updated Title 129 chapter citations. Previously issued construction permits with active conditions are still subject to the Title 129 requirements as effective at the time of permit issuance.

The natural gas boiler condition in CP20-012 was revised from Condition XIII.(D) to Condition III.(A) and reads:

~~(D) The natural gas-fired boiler (emission unit 15-1) shall comply with the following conditions:~~

~~(1) Emission unit 15-1 shall combust only natural gas. (Chapter 19)~~

~~(2) The natural gas flow rate for the natural gas boiler shall be recorded on an hourly basis and the record shall be kept onsite. The average flow rate shall be calculated as the arithmetic mean of 24 consecutive hourly measurements. The heat value of the natural gas, as documented by the supplier on a monthly basis, shall be kept onsite. The monthly heating value of natural gas and the 24-hour average flow rate shall be used to determine the average hourly heat input of the natural gas boiler. Each exceedance of a heat input capacity of 250 million British thermal units per hour shall be reported to the NDEE within fifteen (15) calendar days. (Chapter 17)~~

~~(3) NO_x emissions shall not exceed 117.3 tons per any period of twelve (12) consecutive calendar months. (Chapter 19)~~

~~(4) NO_x emissions shall be controlled by low NO_x multistage combustion burners. (BACT limit from Construction Permit issued February 1, 1993)~~

~~(5) NO_x emissions shall not exceed 0.16 pounds per MMBtu for natural gas combustion. (BACT limit from Construction Permit issued February 1, 1993)~~

~~(6) For emission unit 15-1, the source shall comply with the applicable requirements of 40 CFR 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam~~

~~Generating Units and Subpart A – General Provisions (Chapter 18, Sections 001.01 and 001.22)~~

(A) Specific Conditions for the Boilers

(1) Permitted Emission Points: The source is permitted to construct the emission points identified in the following table at the capacities, shall be controlled by the control equipment, and using the fuel types as indicated:

Emission Point ID#	Required Control Equipment ID# and Description	Emission Unit ID# and Description	Maximum Capacity	Permitted Fuel Type
EP-16	Low NO_X multistage combustion burners	EU-16.1: Boiler 1	249 MMBtu/hr	Natural Gas
EP-39	Low NO_X burner	EU-39.1: Boiler 2	152.5 MMBtu/hr	Natural Gas

(2) Emission Limitations and Testing Requirements:

(a) Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits.

EP ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required
EP-16	NO_X	0.10 lb/MMBtu	30-day rolling average	Chapters 3, 4, and 12	No[1][2]
EP-39	NO_X	0.01 lb/MMBtu	30-day rolling average	Chapters 3 and 12	No[1]

[1] A Continuous Emission Monitor (CEM) or other approved alternative monitoring plan is required by NSPS Subpart Db for EP-16 and EP-39 and is utilized to demonstrate compliance with the NO_X limits and heat value limit in Condition III.(A)(3)(a).
[2] Boiler 1 (EU-16.1) has established BACT limitations of 0.16 lb/MMBtu and 117.3 ton/yr. Compliance with these BACT limitations is demonstrated through compliance with the more restrictive 0.10 lb/MMBtu emissions standard in NSPS Db.

(b) The source shall comply with applicable emission limitations and testing requirements of NSPS Subparts A and Db. (Chapter 12)

(3) Operational and Monitoring Requirements and Limitations:

(a) The total combined heat input from the boilers (EU-16 and EU-39) shall not exceed 1,576,800 MMBtu per any period of twelve (12) consecutive calendar months. At no time during the first eleven (11) months after the permit issuance shall the heat input combusted by the boilers exceed 1,576,800 MMBtu. (Chapters 2 and 3)

(i) To demonstrate compliance with the above heat input limit the source shall use the following calculation methodology:

1. The natural gas flow rate for each boiler shall be recorded on a monthly basis and the record shall be kept onsite.

2. The heat value of the natural gas, as documented by the supplier on a monthly basis, shall be kept onsite.

3. The monthly heating value of natural gas and the 24-hour average flow rate shall be used to determine the monthly heat input of each natural gas boiler.

(b) The source shall comply with applicable operational and monitoring requirements of NSPS Subparts A and Db. (Chapters 12)

(i) The source is subject to the operational and monitoring requirements of 40 CFR §60.46b and §60.47b.

(4) Applicable NSPS, NESHAP, and MACT Standards:

(a) The following NSPS standards apply to the Boilers (EU-16 and EU-39):

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Title 129, Chapter 12, Section 001.01 40 CFR §60.1
NSPS, Subpart Db	Standards of Performance for Industrial, Commercial, & Institutional Steam Generating Units	Title 129, Chapter 12, Section 001.04 40 CFR §60.40b

(5) Recordkeeping and Reporting Requirements:

The source is required to maintain the following records:

(a) Records of the calculations and total combined heat input, in MMBtu, from the boilers (EU-16 and EU-39) for each calendar month and each period of twelve (12) consecutive calendar months.

(b) Records documenting compliance with applicable notifications, recordkeeping, and reporting requirements of NSPS, Subparts A and Db.

(i) The source is subject to the reporting and recordkeeping requirements of 40 CFR §60.48b

This condition was revised to fit standard Department formatting. Additionally, NO_X emission standards for NSPS Db were more restrictive than the existing BACT limitations on Boiler 1 (EP-16). While this permit does not list these limitations within the table, the Department did not evaluate removing BACT limitations in this project, the table lists the most stringent applicable limitation for simplicity. Compliance with the NO_X BACT limitations are demonstrated via compliance with NSPS NO_X Db limitation.

Boiler 2 (EP-39) emission standard was set at the applicable NSPS Subpart Db NO_X limitation at the request of Chief. This boiler did not previously trigger the PTE requirements for a construction permit. This boiler was still subject to NSPS Db and compliance with this limitation is demonstrated through the monitoring prescribed in the federal rule.

The existing requirement for keeping track of Boiler 1 (EP-16) heat input was removed and replaced with the combined annual heat input limitation requested in the permit application.

Condition III.(B) of CP25-014 now reads:

III.(B) Specific Conditions for Fermentation Scrubber and Carbon Capture Operations

(1) Permitted Emission Points: The source is permitted to construct the emission points and associated emission units identified in the following table, and shall be controlled by the required control equipment as indicated:

Emission Point ID#	Required Control Equipment ID# and Description	Emission Unit ID# and Description
~~EP-8-1~~ ~~EP-8-2~~ ~~EP-8-3~~ EP-8-4~~[1]~~ **or** **EP-CC-03**	~~C-1401: Fermentation Scrubber #1~~ ~~C-21402: Fermentation Scrubber #2~~ ~~C-31402: Fermentation Scrubber #3~~ C-1404A: Fermentation Scrubber #4	EU-8.3: Fermentation Tank #2A, 78,762 gallons maximum capacity
		EU-8.4: Fermentation Tank #2B, 78,762 gallons maximum capacity
		EU-8.5: Fermentation Tank #3A, 159,679 gallons maximum capacity
		EU-8.6: Fermentation Tank #3B, 159,679 gallons maximum capacity

		EU-8.7: Fermentation Tank #4A, 159,679 gallons maximum capacity
		EU-8.8: Fermentation Tank #4B, 159,679 gallons maximum capacity
		EU-8.9: Fermentation Tank #5A, 272,000 gallons maximum capacity
		EU-8.10: Fermentation Tank #5B, 272,000 gallons maximum capacity
		EU-8.11: Fermentation Tank #5C, 925,000 gallons maximum capacity
		EU-8.12: Fermentation Tank #6, 705,000 gallons maximum capacity
		EU-8.13: Beer Well Tank #7, 705,000 gallons maximum capacity
		EU-8.14: Fermentation Tank #5D, 925,000 gallons maximum capacity
		EU-8.15: Beer Degas
		EU-8.16: Stripping Column
		EU-8.17: Beer Column #1
		EU-8.18: Beer Column #2
		EU-8.19: Dehydration Membranes
EP-CC-03[1]	N/A	EU-CC-03: TEG Reboiler Still Vent
EP-CC-FUG	N/A	EU-CC-01: CO_2 Compressor Rodpacking
		EU-CC-02: CO_2 Blowdown Vapors
		EU-CC-04: Equipment Leaks

[1] ~~Once C-1401, C-21402, C-31402 are decommissioned, the vapor stream from the emission units can be routed to the atmosphere via EP-8-4 and/or to EP-CC-03 for capture.~~

(2) Emission Limitations and Testing Requirements:

(a) Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition I.(M) and II.(G).

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
EP-8-4, EP-CC-03[2], and EP-CC-FUG[2]	**VOC**	**29.78 lb/hr[1]**	**Three 1-hour test runs or test method average**	**Chapter 3**	**Yes**
	Acetaldehyde	**2.07 lb/hr[1]**	**Three 1-hour test runs or test method average**	**Chapter 3**	**Yes**
	Acrolein	**0.63 lb/hr[1]**	**Three 1-hour test runs or test method average**	**Chapter 3**	**Yes**
	Formaldehyde	**0.27 lb/hr[1]**	**Three 1-hour test runs or test method average**	**Chapter 3**	**Yes**
	Methanol	**0.69 lb/hr[1]**	**Three 1-hour test runs or test method average**	**Chapter 3**	**Yes**
~~EP-8-1 EP-8-2 EP-8-3~~ EP-8-4 EP-CC-03**, and** EP-CC-FUG	VOC	8.30 lb/hr[1~~3~~]	Three 1-hour test runs or test method average	Chapter 3	No[2~~]~~
	Acetaldehyde	2.15 lb/hr[1~~3~~]	Three 1-hour test runs or test method average	Chapter 3	No[2~~]~~

~~[1] Combined emission limit with emission points EP-8-1, EP-8-2, EP-8-3, EP-8-4, EP-9, EP-10, EP-13, EP-CC-03, and EP-CC-FUG.~~

~~[2] Initial testing for EP-8-4 conducted July 30, 2025.~~

[1] Total combined emissions limitations on emission points EP-8-4, EP-102, EP-103, EP-104, EP-105, EP-CC-03, and EP-CC-FUG.

[2] Performance testing on EP-CC-03 and EP-CC-FUG is not required because emissions controlled by C-1404A are representative of emissions emitted out of EP-8-4 and combined emissions emitted out of EP-CC-03 and EP-CC-FUG.

[3] The existing combined emissions limitations on EP-8-4, EP-9, EP-10, EP-13, EP-CC-03, and EP-CC-FUG will not be in affect after units associated with EP-9, EP-10, and EP-13 are decommissioned.

(b) To demonstrate compliance with any combined limitation prescribed in Condition III.(B)(2)(a): (Chapters 3 and 15)

(i) Performance testing shall be conducted concurrently for EP-8-4, ~~EP-9, EP-10, and EP-13~~ **EP-102, EP-103, EP-104, and EP-105**.

(ii) Performance test port(s) for the exhaust from C-1404A shall be located prior to the connection to the carbon capture facility.

1. The test port(s) shall be representative of the entire flow of the gas from C-1404A.

(3) Operational and Monitoring Requirements and Limitations:

(a) Operation and maintenance of **the** scrubbers **(**~~C-1401, C-21402, C-31402, and~~ C-1404A**)** shall be in accordance with the following requirements unless otherwise stated in an active Operating Permit. (Chapter 3)

(i) C-1401~~, C-21402, and C-31402, or C-1404A,~~ shall be operated and control emissions at all times when any of the associated emission units are in operation.

1. The vapor stream from emission units EU-8.3~~, EU-8.4, EU-8.5, EU-8.6, EU-8.7, EU-8.8, EU-8.9, EU-8.10, EU-8.11, EU-8.12, EU-8.13, and EU-8.14 shall be controlled by C-1401, C-21402, and C-31402, or C-1404A,~~ **through EU-8.19** regardless of whether the vapor stream is released to ambient air or routed elsewhere.

(ii) ~~C-1401, C-21402, C-31402, and~~ C-1404A shall be equipped with devices that continuously monitor and record the following operating parameters:

1. Scrubbing liquid flow rate;
2. Recirculation liquid flow rate ~~for C-31402 and C-1404A~~;
3. Chemical addition flow rate, if utilized;
4. ~~Pressure readings from each of the pressure devices installed on fermentation tanks #5A, #5B, and #5C, and pressure readings from the common fermentation header piping leading to C-21402;~~
5. Scrubber pressure differential ~~for C-1404A~~;
6. Scrubbing liquid temperature; and
7. Recirculation liquid inlet temperature ~~for C-31402 and C-1404A~~.

(iii) ~~When~~ **If** chemical addition is utilized, the total monthly amount of chemical, in gallons, added to ~~C-1401, C-21402, C-31402, and~~ C-1404A shall be monitored and recorded.

(iv) **If chemical addition is utilized,** upon request by NDWEE personnel, chemical drawdown checks shall be performed to verify that the flow meter is working correctly.

(v) The following operating parameters of ~~C-1401, C-21402, C-31402, and~~ C-1404A shall be maintained as described below:

1. The scrubbing liquid temperature shall be maintained at or below the tested level(s) recorded during the most recent valid performance test under normal operating conditions.
2. The recirculation scrubbing liquid temperature ~~for C-31402~~ shall be maintained at or below the tested level(s) recorded during the most recent valid performance test under normal operating conditions.
3. The scrubbing liquid flow rate, recirculation flow rate ~~for C-31402~~, flow rate of chemical additions **(if utilized)**, and concentration of the chemical injected into the scrubber **(if utilized)** shall be maintained at or above the levels recorded during testing. **If chemical is added, the** chemical concentration, as documented by the supplier, shall be recorded upon use of the chemical.

(vi) Observations at least once each day during daylight hours of scrubber operation shall be conducted to determine whether there are leaks, noise, or other indications that corrective action is necessary. If corrective action is necessary, it shall occur immediately.

(vii) Flow meters for recording scrubbing liquid, recirculation liquid, and chemical addition flow rates shall be maintained and calibrated according to manufacturer's instructions.

~~(viii) The permittee shall not operate C-1404A while operating any of C-1401, C-21402, or C-31402 other than when commissioning C-1404A.~~

(4) Applicable NSPS, NESHAP, and MACT Requirements:

The NDWEE has not identified any NSPS, NESHAP, or MACT requirements that apply to the emission points or emission units listed in Condition III.(B)(1).

(5) Reporting and Recordkeeping Requirements:

The owner or operator shall maintain the following records:

(a) Records that document the continuously monitored operating parameter data for ~~C-1401, C-21402, C-31402, and~~ **the scrubber (**C-1404A**)**, including the date and time of the readings. The records shall include:

(i) Scrubbing liquid flow rate;

(ii) Recirculation liquid flow rate ~~for C-31402 and C-1404A~~;

(iii) Chemical addition flow rate, if utilized;

~~(iv) Pressure readings from each of the pressure devices installed on fermentation tanks #5A, #5B, and #5C, and pressure readings from the common fermentation header piping leading to C-21402;~~

(v) Scrubber pressure differential ~~for C-1404A~~;

(vi) Scrubbing liquid temperature readings; and

(vii) Recirculation liquid inlet temperature ~~for C-31402 and C-1404A~~.

(b) **If chemical addition is utilized,** monthly records that document the purchase date, concentration, amount, and type of chemical purchased for chemical injection associated with ~~C-1401, C-21402, C-31402, and~~ C-1404A.

(c) Records that document the operating parameters developed during the most recent valid performance test conducted at the facility.

(d) Records that document the date and time of routine observations with a description, including operating parameters, atypical parameters observed, and any corrective actions taken, for each day ~~C-1401, C-21402, C-31402, and~~ C-1404A is in operation.

~~(e) Records that document corrective action. Each corrective action shall be documented at time of occurrence, including the date, time, observations, and a description of the corrective action.~~

(~~f~~**e**) Records that document the date and time of routine maintenance**,** ~~and~~ preventive actions performed**, and corrective actions performed** ~~and~~ that include a description of the actions performed.

(~~g~~**f**) Records that document any yeast strains and/or enzyme changes, including the name or identifier of the strain/enzyme and the date the change occurred.

~~(h) Within fifteen (15) business days after C-1401, C-21402, and C-31402 are decommissioned, the source shall provide the NDWEE with written notice. This written notice must indicate the date the source has decommissioned the fermentation scrubbers~~

(g) Within fifteen (15) business days after any one of the Beer Degas units (EU-8-15), Stripping Column (EU-8-16), Beer Columns #1 and #2 (EU-8-17 and EU-8-18), or Dehydration Membranes (EU-8-19) are installed and commissioning begins, the permittee shall provide the NDWEE with written or electronic notice.

Fermentation scrubbers #1, #2, and #3 were decommissioned as noted in this application. The existing grouped emissions limits are still present until such time that Chief decommissions the remaining emission units in other specific conditions. The new grouped emissions limits for VOC and Acetaldehyde are set at values requested by Chief in the application. Acrolein lb/hr emission limit value was calculated and set at a T-BACT avoidance limit. Methanol and Formaldehyde lb/hr emission limit values were calculated by summing existing stack test data multiplied by 1.5, to account for the expansion from 80 million gallons to 115 million gallons of ethanol produced, and summing DDGS Dryer and Cooler manufacturer guarantee's by 1.2 to account for variability. Methanol and formaldehyde emission limits are not T-BACT avoidance limits. The scaling and variability factors are consistent with other executed permitting actions by the Department.

Commissioning is defined as any post-installation activities other than physically moving the emission unit into place. Written or electronic notice should be sent to the department with attention to the air compliance section or

electronically through dwee.ecmupload@nebraska.gov following the instruction available on our website, using the search bar to search for "ECM Upload" and selecting the Form 22-065 Instruction document.

Condition III.(C) reads:

III.(C) Specific Conditions for DDGS Dryer and Cooler

(1) Permitted Emission Points: The source is permitted to construct the emission points and associated emission units identified in the following table, and shall be controlled by the required control equipment as indicated:

Emission Point ID#	Required Control Equipment ID# and Description	Emission Unit Description	Permitted Fuel Type
EP-102	C-102.1: TO/HRSG	EU-102.1: Swiss-Combi ecoDry DDGS Dryer #1 with Cyclone, 75 MMBtu/hr	Natural Gas and Process Gas
		EU-112.1: Gas Heated Evaporator Chest #1 (shell side)	-
EP-103	C-103.1: TO/HRSG	EU-103.1: Swiss-Combi ecoDry DDGS Dryer #2 with Cyclone, 75 MMBtu/hr	Natural Gas and Process Gas
		EU-112.2: Gas Heated Evaporator Chest #2 (shell side)	-
EP-104	-	EU-104.1: DDGS Dryer #1 Cooling Tube with Pneumatic Transfer System Filter	-
EP-105	-	EU-105.1: DDGS Dryer #2 Cooling Tube with Pneumatic Transfer System Filter	-

(2) Emission Limitations and Testing Requirements:

(a) Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition I.(M) and II.(G).

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
EP-102 and EP-103	$PM_{2.5}$	2.78 lb/hr[1]	Three 1-hour test runs or test method average	Chapter 3	Yes
EP-102, EP-103, EP-104, and EP-105	VOC	29.78 lb/hr[2]	Three 1-hour test runs or test method average	Chapter 3	Yes
	Acetaldehyde	2.07 lb/hr[2]	Three 1-hour test runs or test method average	Chapter 3	Yes
	Acrolein	0.63 lb/hr[2]	Three 1-hour test runs or test method average	Chapter 3	Yes
	Formaldehyde	0.27 lb/hr[2]	Three 1-hour test runs or test method average	Chapter 3	Yes
	Methanol	0.69 lb/hr[2]	Three 1-hour test runs or test method average	Chapter 3	Yes

[1] Total combined $PM_{2.5}$ emissions limitation on emission points EP-102 and EP-103.

[2] Total combined emissions limitations on emission points EP-8-4, EP-102, EP-103, EP-104, EP-105, EP-CC-03, and EP-CC-FUG.

(b) To demonstrate compliance with any combined limitation prescribed in Condition III.(B)(2)(a): (Chapters 3 and 15)

(i) Performance testing shall be conducted concurrently for EP-8-4, EP-102, EP-103, EP-104, and EP-105.

(3) Operational and Monitoring Requirements and Limitations:

(a) Operation and maintenance of the TO/HRSG units (C-102.1 and C-103.1) shall be in accordance with the following requirements. (Chapter 3)

(i) The TO/HRSG units shall be equipped with a thermocouple or equivalent device capable of continuously monitoring and recording the temperature of the TO/HRSG. The thermocouple or equivalent device shall monitor temperature on a continuous basis, with the one-hour average temperature recorded once per hour. The thermocouple or equivalent device shall be properly installed, operated, and maintained in accordance with manufacturer recommendations. Manufacturer's documentation shall be kept on site and readily available to NDWEE representatives.

(ii) The one-hour average operating temperature of each of the TO/HRSG units shall be maintained at a minimum 1,400ºF. After completion of valid performance testing as prescribed in Condition III.(C)(2)(a), the one-hour average operating temperature of each thermal oxidizer unit shall be at or above the temperature recorded during the most recent valid performance test.

(iii) Routine observations (at least once each day of TO/HRSG operation) shall be conducted to determine whether there are visible emissions from the stack, leaks, noise, atypical operating parameters (e.g., temperature), or other indications that may necessitate corrective action. Corrective action shall be taken immediately, if necessary.

(4) Applicable NSPS, NESHAP, and MACT Requirements:

(a) The following NSPS standards apply to the Dryers (EU-102.1 and EU-103.1):

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Title 129, Chapter 12, Section 001.01 40 CFR §60.1
NSPS, Subpart Dc	Standards of Performance for Small Industrial, Commercial, & Institutional Steam Generating Units	Title 129, Chapter 12, Section 001.05 40 CFR §60.40c

(5) Reporting and Recordkeeping Requirements:

The owner or operator shall maintain the following records:

(a) Records documenting the temperature of the TO/HRSG units (C-102.1 and C103.1), including hourly temperature readings while the associated emission units are in operation

(b) Records that document the date and time of routine observations with a description, including operating parameters, atypical parameters observed, and any corrective actions taken.

(c) Records that document the date and time of routine maintenance, preventive actions performed, and correction actions performed that include a description of the actions performed.

(d) Within fifteen (15) business days after any one DDGS Dryer (EU-102.1 or EU-103.1) or any one DDGS Cooler (EU-104.1 or EU-105.1) is installed and commissioning begins, the permittee shall provide the NDWEE with written or electronic notice

This new condition consists of both DDGS drying and cooling. Note that the DDGS Dryers have integrated cyclones that were not independently evaluated as process inherent. The Department concluded based on analyses on similar processes in this industry that an evaluation was not required at this time to conclude these units were inherent control devices. The DDGS Cooling Tube with Pneumatic Transfer System Filters were evaluated above (please refer to "Permit Action" section) regarding their status as process equipment versus control devices.

A combined $PM_{2.5}$ emissions limitation was included in this project as NSR modification avoidance limitations for the existing Major Nested source of Fossil-fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input. A summary of the netting analyses is available on the Fact Sheet Attachment.

New grouped emissions limits for VOC and Acetaldehyde are set at values requested by Chief in the application. Acrolein lb/hr value was calculated and set at a T-BACT avoidance limit. Methanol and formaldehyde lb/hr emission limit value was calculated by summing existing stack test data multiplied by 1.5, to account for the expansion from 80 million gallons to 115 million gallons of ethanol produced, and summing DDGS dryer and Cooler manufacturer guarantee's by 1.2 to account for variability. Methanol and formaldehyde emission limits are not T-BACT avoidance limits. The scaling and variability factors are consistent with other executed permitting actions by the Department.

A 1-hour average operating temperature of 1,400°F was requested by Chief, a successful performance test at a lower temperature will change the minimum 1-hour average operating temperature.

Commissioning is defined as any post-installation activities other than physically moving the emission unit into place. Written or electronic notice should be sent to the department with attention to the air compliance section or electronically through dwee.ecmupload@nebraska.gov following the instruction available on our website, using the search bar to search for "ECM Upload" and selecting the Form 22-065 Instruction document.

The grain and DDGS condition in CP25-030 was revised from Condition III.(F) to Condition III.(D) and reads:

III.(~~F~~D)Specific Conditions for Grain and DDGS Receiving, Handling, and Storage

(1) Permitted Emission Points: The source is permitted to construct the emission points and associated emission units identified in the following table at the capacity listed and shall be controlled by the required control equipment as indicated:

Emission Point ID#	Control Equipment ID# and Description	Emission Unit Description	Maximum Capacity
EP-1.1	CE-1.1: Grain Receiving Baghouse	EU-1.11: Grain Receiving Pit 1	20,000 bu/hr
		EU-1.12: Grain Receiving Pit 2	30,000 bu/hr
		EU-1.13: Grain Receiving Pit 3	30,000 bu/hr
EP-1.2A	CE-1.2A: Grain Bin Fill Leg 1 Spot Filter	EU-1.21: Grain Receiving Conveyor A	10,000 bu/hr
		EU-1.22: Grain Receiving Conveyor B	10,000 bu/hr
		EU-1.23: Grain Receiving Conveyor 1	30,000 bu/hr
		EU-1.25: Grain Bin Fill Leg 1	30,000 bu/hr
		EU-1.27: Bin 01/02 Fill Conveyor 1	30,000 bu/hr
		EU-1.28: Bin 01/02 Fill Conveyor 2	30,000 bu/hr
		EU-1.29: Bin 03 Fill Conveyor	30,000 bu/hr
EP-1.2B	CE-1.2B: Grain Bin Fill Leg 2 Spot Filter	EU-1.24: Grain Receiving Conveyor 2	30,000 bu/hr
		EU-1.26: Grain Bin Fill Leg 2	30,000 bu/hr
		EU-1.27: Bin 01/02 Fill Conveyor 1	30,000 bu/hr

Emission Point ID#	Control Equipment ID# and Description	Emission Unit Description	Maximum Capacity
		EU-1.28: Bin 01/02 Fill Conveyor 2	30,000 bu/hr
		EU-1.29: Bin 03 Fill Conveyor	30,000 bu/hr
EP-2.1	-	EU-2.1: Grain Bin 1	854,096 bu
EP-2.2	-	EU-2.2: Grain Bin 2	854,096 bu
EP-2.3	-	EU-2.3: Grain Bin 3	854,096 bu
EP-3.1	CE-3.1: Grain Bin Reclaim Leg Spot Filter	EU-3.11: Bin 01/02 Reclaim Conveyor	10,000 bu/hr
		EU-3.12: Bin 03 Reclaim Conveyor	10,000 bu/hr
		EU-3.13: Reclaim Leg Feed Conveyor	20,000 bu/hr
		EU-3.14: Grain Reclaim Leg	20,000 bu/hr
EP-3.2	CE-3.2: Bulk Weigher Vent Filter	EU-3.21: Bulk Weigher	10,000 bu/hr
EP-5.1	CE-5.1: Surge Bin 1 Vent Filter	EU-5.0: Hammermill Feed Conveyor	20,000 bu/hr
		EU-5.1: Hammermill Surge Bin 1	12,000 bu
EP-5.2	CE-5.2: Surge Bin 2 Vent Filter	EU-5.0: Hammermill Feed Conveyor	20,000 bu/hr
		EU-5.2: Hammermill Surge Bin 2	12,000 bu
EP-5.3	CE-5.3: Surge Bin 3 Vent Filter	EU-5.0: Hammermill Feed Conveyor	20,000 bu/hr
		EU-5.3: Hammermill Surge Bin 3	12,000 bu
EP-5.4	CE-5.4: Surge Bin 4 Vent Filter	EU-5.0: Hammermill Feed Conveyor	20,000 bu/hr
		EU-5.4: Hammermill Surge Bin 4	12,000 bu
EP-6.1	CE-6.1: Hammermill 1 Baghouse	EU-6.11: Hammermill 1	30,000 bu/day
		EU-6.12: Ground Meal Conveyor 1	2,017 bu/hr
EP-6.2	CE-6.2: Hammermill 2 Baghouse	EU-6.21: Hammermill 2	30,000 bu/day
		EU-6.22: Ground Meal Conveyor 2	2,017 bu/hr
EP-6.3	CE-6.3: Hammermill 3 Baghouse	EU-6.31: Hammermill 3	30,000 bu/day
		EU-6.32: Ground Meal Conveyor 3	2,017 bu/hr
EP-6.4	CE-6.4: Hammermill 4 Baghouse	EU-6.41: Hammermill 4	30,000 bu/day
		EU-6.42: Ground Meal Conveyor 4	2,017 bu/hr
EP-7.1	CE-7.1: Meal Conveyor Spot Filter	EU-7.11: Ground Meal Reclaim Conveyor	12,000 bu/hr
		EU-7.12: Meal Screw to Mixer MB-1301	4,320 bu/hr
		EU-7.13: Meal Screw to Mixer MB-1302	4,320 bu/hr
EP-111	**CE-111.1: DDGS Truck and Rail Loadout Building Filter**	**EU-111.2: DDGS Truck Loadout**	**200 ton/hr**
		EU-111.3: DDGS Rail Loadout	**200 ton/hr**
EP-111.1	**-**	**EU-111.1: DDGS Loadout Conveying**	**200 ton/hr**
EP-11[1]	F-6201: A&B DDGS Transfer Baghouse	EU-11.1: A Dryer DDGS Transfer	100 ton/day
		EU-11.2: B Dryer DDGS Transfer	100 ton/day
EP-20[1]	-	EU-20.1: DDGS Loadout	50 ton/hr

[1] Emission units associated with EP-11 and EP-20 will be decommissioned as a result of this permit.

(2) Emission Limitations and Testing Requirements:

(a) Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition I.(M) and Condition II.(G).

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required
EP-1.1, EP-6.1, EP-6.2, EP-6.3, EP-6.4, and EP-111	**PM**	**3.18 lb/hr[1]**	**Three 1-hour test runs or test method average**	**Chapter 3**	**Yes**
EP-1.1, EP-6.1, EP-6.2, EP-6.3, EP-6.4, and EP-11	PM	5.44 lb/hr[1~~2~~]	Three 1-hour test runs or test method average	Chapter 3	~~Yes~~ **No**

[1] Combined emission limit for EP-1.1, EP-6.1, EP-6.2, EP-6.3, EP-6.4, and EP-11**1**.

[2] The existing combined emissions limitations on EP-1.1, EP-6.1, EP-6.2, EP-6.3, EP-6.4, and EP-11 will not be in effect after units associated with EP-11 are decommissioned.

(b) To demonstrate compliance with any combined limitations prescribed in Condition III.(~~F~~**D**)(2)(a): (Chapters 3 and 15)

(i) Initial performance testing shall be conducted concurrently for EP-1.1, EP-6.1, EP-6.2, EP-6.3, EP-6.4, and EP-11**1**.

(c) The emission limitations and testing requirements of 40 CFR Part 60 NSPS Subparts A and DD apply to emission units EU-1.11, EU-1.12, EU-1.13, EU-1.21, EU-1.22, EU-1.23, EU-1.24, EU-1.25, EU-1.26, EU-1.27, EU-1.28, EU-1.29, EU-3.11, EU-3.12, EU-3.13, EU-3.14, EU-3.21, and EU-5.0. (Chapter 12)

(3) Operational and Monitoring Requirements and Limitations:

(a) Emissions from the emission points identified in Condition III.(F)(1) shall be controlled by pollution control equipment as follows: EU-1.11, EU-1.12, and EU-1.13 shall be controlled by baghouse CE-1.1; EU-1.21, EU-1.22, EU-1.23, EU-1.25, EU-1.27, EU-1.28, and EU-1.29 shall be controlled by filter CE-1.2A; EU-1.24, EU-1.26, EU-1.27, EU-1.28, and EU-1.29 shall be controlled by filter CE-1.2B; EU-3.11, EU-3.12, EU-3.13, and EU-3.14 shall be controlled by filter CE-3.1; EU-3.21 shall be controlled by filter CE-3.2; EU-5.0 and EU-5.1 shall be controlled by filter CE-5.1; EU-5.0 and EU-5.2 shall be controlled by filter CE-5.2; EU-5.0 and EU-5.3 shall be controlled by filter CE-5.3; EU-5.0 and EU-5.4 shall be controlled by filter CE-5.4; EU-6.11 and EU-6.12 shall be controlled by baghouse CE-6.1; EU-6.21 and EU-6.22 shall be controlled by baghouse CE-6.2; EU-6.31 and EU-6.32 shall be controlled by baghouse CE-6.3; EU-6.41 and EU-6.42 shall be controlled by baghouse CE-6.4; EU-7.11, EU-7.12, and EU-7.13 shall be controlled by filter CE-7.1; EU-11.1 and EU-11.2 shall be controlled by baghouse F-6201**; EU-111.2 and EU-111.3 shall be controlled by filter CE-111.1**. (Chapter 3)

(b) The operations of each dry dust collector (baghouse or filter) identified in Condition III.(~~F~~**D**)(1) shall be in accordance with the following requirements: (Chapter 3)

(i) The dry dust collectors shall be operated whenever the associated emission units are in operation.

(ii) The dry dust collectors shall be properly installed, operated, and maintained.

(iii) Each dry dust collector shall be equipped with an operational pressure differential indicator.

(iv) The pressure indicator shall be properly installed, operated, calibrated, and maintained.

(v) Dry dust collector filter bags/cartridges are to be inspected and/or replaced according to the manufacturer's documentation or more frequently as indicated by pressure differential indicator readings.

(vi) Routine observations (at least once each day of dry dust collector operation) shall be conducted 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.

(vii) Collected waste material from the dry dust collectors shall be handled, transported, and stored in a manner that ensures compliance with Condition I.(L)(1).

(c) The operational and monitoring requirements of 40 CFR part 60 NSPS Subparts A and DD apply to emission units EU-1.11, EU-1.12, EU-1.13, EU-1.21, EU-1.22, EU-1.23, EU-1.24, EU-1.25, EU-1.26, EU-1.27, EU-1.28, EU-1.29, EU-3.11, EU-3.12, EU-3.13, EU-3.14, EU-3.21, and EU-5.0. (Chapter 12)

(d) Upon commissioning of any of the DDGS loadout and conveying units (EU-111.1, EU-111.2, or EU-111.3), emission units associated with EP-11 and EP-20 shall be decommissioned within sixty (60) days. (Chapter 3)

(4) Applicable NSPS, NESHAP, and MACT Requirements:

Applicable Standard	Title	Rule Citation
NSPS Subpart A	General Provisions	Title 129, Chapter 12, Sec. 001.01 40 CFR 60.1
NSPS Subpart DD	Standards of Performance for Grain Elevators	Title 129, Chapter 12, Sec. 001.36 40 CFR 60.300

(5) Reporting and Recordkeeping Requirements:

The owner or operator shall maintain the following records:

(a) Pressure differential indicator readings shall be recorded at least once each day that the associated dry dust collector is operating.

(b) Inspection and maintenance records for the dry dust collectors identified in Condition III.(~~F~~**D**)(1) to demonstrate compliance with Condition III.(~~F~~**D**)(3)(b) shall include the following:

(i) Records documenting when routine observations were performed with a description, including operating parameters (e.g., pressure differential readings) and any atypical observations.

(ii) Records documenting when routine maintenance and preventive actions were performed with a description of the maintenance and/or preventive action conducted.

(iii) Filter replacement records including filter position, type, and date of filter installation.

(iv) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made.

(c) The reporting and recordkeeping requirements of 40 CFR part 60 NSPS Subparts A and DD apply to emission units EU-1.11, EU-1.12, EU-1.13, EU-1.21, EU-1.22, EU-1.23, EU-1.24, EU-1.25, EU-1.26, EU-1.27, EU-1.28, EU-1.29, EU-3.11, EU-3.12, EU-3.13, EU-3.14, EU-3.21, and EU-5.0. ~~(Chapter 12)~~

(d) Within fifteen (15) business days after the DDGS loadout and conveying units (EU-111.1, EU-111.2, or EU-111.3) are commissioned, the source shall provide the NDWEE with written or electronic notice.

(e) Within fifteen (15) business days after EU-11.1, EU-11.2, and EU-20.1 are decommissioned, the source shall provide the NDWEE with written or electronic notice.

This condition was revised to add the new DDGS truck and rail loadout building and prescribed control device. The existing DDGS transfer emission point and grouped emission limit remain until the units are decommissioned. A decommissioning requirement was added with the assumption that upon commissioning of the new DDGS dryers and coolers, that this would be the point when the new handling and loadout equipment would also be commissioned and all existing equipment can be decommissioned. Chief requested a new grouped limit along with altering all existing controlled equipment emission factors down to guaranteed values of 0.005 gr/dscf, this grain loading standard was calculated for the new grouped emissions limit.

Commissioning is defined as any post-installation activities other than physically moving the emission unit into place. Written or electronic notice should be sent to the department with attention to the air compliance section or electronically through dwee.ecmupload@nebraska.gov following the instruction available on our website, using the search bar to search for "ECM Upload" and selecting the Form 22-065 Instruction document.

Condition III.(A) of CP17-010 was renamed Condition III.(E) and now reads:

III.(~~A~~E) Specific Conditions for West Grain Receiving, Handling, Storage, and Loadout

(1) Permitted Emission Points: The source is permitted to construct the emission points and associated emission units with associated control devices as identified in the following table:

Emission Point ID#	Control Equipment	Emission Unit ID# and Description
EP-1.1W	CE-1W: Receiving/Loadout Baghouse	EU-1.1W: West Grain Receiving Pit
		EU-1.2W: West Grain Receiving Conveyor
		EU-1.3W: West Grain Receiving Elevator
		EU-1.4W: West Bin Loading Conveyor
		EU-1.5W: West Bin Loadout Conveyor
		EU-1.6W: West Loadout Elevator
		EU-1.7W: West Loadout Conveyor
		EU-1.8W: West Loadout Bin
		EU-1.9W: West Loadout Bin Unloading Conveyor
		EU-1.10W: West Grain Loadout
EP-2.1W	None	EU-2.1W: West Grain Bin

(2) Emission Limitations and Testing Requirements:

The emissions limitations of Title 129, Chapter ~~20~~**15**, Sections 001 and 004 apply to the emission points listed in Condition III.(~~A~~**E**)(1). (Chapter ~~20~~**15**)

(3) Operational and Monitoring Requirements and Limitations

(a) Emissions from the emission units in Condition III.(~~A~~**E**)(1) shall be controlled as described in Condition III.(A)(1). (Chapter ~~17~~**3**)

(b) Loadout and receiving (EU-1.1W and EU-1.10W) shall occur in an enclosure with at least two sides. Grain handling (EU-1.2W through EU-1.7W and EU-1.9W) shall use enclosed conveyors and elevators. (Chapter ~~17~~**3**)

(c) The source shall not receive more than a total of 140,000 tons of grain through EU-1.1W per any period of twelve (12) consecutive calendar months. At no time during the first eleven (11) calendar months after permit issuance shall the source receive a total of more than 140,000 tons of grain through EU-1.1W. (Chapter 3)

(~~c~~**d**) Operation and maintenance of the baghouse (CE-1W) shall be in accordance with the following requirements: (Chapter ~~17~~**3**)

(i) The baghouse shall be operated and be controlling emissions at all times when the associated emission units are in operation.

(ii) The baghouse shall be equipped with an operational pressure differential indicator. Pressure differential readings shall be recorded at least once each day that the baghouse is operating.

(iii) Baghouse filter bags are to be inspected and/or replaced as often as necessary to ensure proper operation or more frequently as indicated by pressure differential indicator readings or other indication of bag failure.

(iv) Routine observations at least once each day during daylight hours of baghouse operation shall be conducted to determine if there are visible emissions from the stack, leaks, noise, or other indications that corrective action is needed. If corrective action is necessary, it shall occur immediately.

(4) Applicable NSPS, NESHAP, and MACT Requirements:

The ~~NDEQ~~**NDWEE** has not identified any NSPS, NESHAP, or MACT requirements that apply to the emission points or emission units listed in Condition III.(~~A~~**E**)(1).

(5) Reporting and Recordkeeping Requirements:

(a) The permittee shall maintain records document the weight of grain received, in tons, through EU-1.1W for each calendar month and each period of twelve consecutive calendar months.

(b) The permittee shall maintain records documenting the date, time, and pressure differential reading for each day the baghouse is in operation.

(c) The permittee shall maintain filter replacement records including the date the filter replacement occurred and the type of filter installed.

(d) The permittee shall maintain records documenting the date, time, observations and inspections, and corrective actions taken for each day the associated baghouse is in operation.

As a part of this application Chief requested a grain limitation of 140,000 tons per year (5,000,000 Buschels per year) be placed on the West Grain Bins.

Condition XIII.(J) and (L)(10) were revised to Condition III.(F) and reads:

~~(J) The Cooling Tower C shall comply with the following requirements:~~

~~(1) The Cooling Tower C shall be properly operated and maintained. Manufacturer's specifications, if available, shall be kept on site and readily available to Department representatives.~~

~~(2) The drift loss shall be limited to 0.00175, which shall be calculated as the weighted average of the drift losses for all cooling tower cells. Verification of drift loss shall be by manufacturer's guarantee. Manufacturer's drift loss guarantee shall be kept on site and readily available to Department representatives, upon request.~~

~~(3) The total dissolved solids concentration (TDS) in the cooling water in Cooling Tower C shall not exceed 7,000 ppm for any single sampling event. A TDS sample shall be collected and tested at a minimum of once per calendar month.~~

~~(L) Records shall be maintained on site for a minimum period of five (5) years. These records shall be clear and readily accessible to Department representatives and shall include the following:~~

~~(10) To demonstrate compliance with Condition XIII.(J)(3), the permittee shall maintain records of the total dissolved solids concentration in the Cooling Tower C water. These records shall be compiled monthly by the 15th day of each month for the previous month.~~

III.(F) Specific Conditions for Cooling Towers

(1) Permitted Emission Points: The source is permitted to construct the emission points and associated emission units identified in the following table with the number of cooling tower cells and at the circulation rate listed:

Emission Point ID#	Required Control Equipment ID# and Description	Emission Unit ID# and Description	Number of Cooling Tower Cells	Maximum Circulation Rate (gal/hr)
EP-19	-	EU-19.1: C Cooling Tower	8	1,980,000

(2) Emission Limitations and Testing Requirements:

(a) The emissions limitations of Chapter 15, Section 001.01 applies to EP-19. (Chapter 15)

(b) Testing shall be conducted to ensure compliance with the TDS limitation established and is discussed below. (Chapter 15)

(3) Operational and Monitoring Requirements and Limitations:

(a) The drift loss shall be limited to 0.00175, which shall be calculated as the weighted average of the drift losses for all cooling tower cells. Verification of drift loss shall be by manufacturer's guarantee. Manufacturer's drift loss guarantee shall be kept on site and readily available to Department representatives, upon request. (Chapter 3)

(b) The total dissolved solids concentration (TDS) in the cooling water in Cooling Tower C (EU-19.1) shall not exceed 2,500 ppm for any single sampling event. A TDS sample shall be collected and tested at a minimum of once per calendar month. (Chapter 3)

(4) Applicable NSPS, NESHAP, and MACT Requirements:

The NDWEE has not identified any NSPS, NESHAP, or MACT requirements that apply to the emission points or emission units listed in Condition III.(F)(1).

(5) Reporting and Recordkeeping Requirements:

The permittee shall maintain records of the total dissolved solids concentration in the Cooling Tower C (EU-19.1) water. These records shall be compiled monthly by the 15th day of each month for the previous month.

The cooling tower condition was revised into standards Department format. The TDS Concentration limit was revised from 7,000 ppm to 2,500 ppm as requested by Chief in the application. Chief provided 12 months' worth of data to show that Cooling Tower C can meet the TDS concentration of 2,500 ppm. . Cooling tower A will be removed as a part of the project as cooling needs at Chief are expected to decrease. Cooling Tower A did not have an active construction permit condition.

Condition III.(E) of CP25-014 was revised to Condition III.(G) and reads:

~~(E)~~III.(G) Specific Conditions for Equipment Leaks (EP-24)

(1) Permitted Emission Points:

~~(a) All affected equipment used in the ethanol production processes, including but not limited to the following: each valve, pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, flange, or other connector in VOC service and any device or system required by NSPS, Subpart VV.~~

Each valve, pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, flange, or other connector in VOC service and any device or system required by 40 CFR 60, Subparts VV or VVb located throughout the plant.

(2) Emission Limitations and Testing Requirements:

(a) ~~Emission limitations and testing requirements as established by NSPS, Subpart VV.~~ **Refer to 40 CFR Part 60 NSPS Subparts A, VV, and VVb for emission limitations and testing requirements that apply to equipment leaks (EP-24). (Chapter 12)**

(3) Operational and Monitoring Requirements and Limitations:

(a) ~~Operational and Monitoring Requirements and Limitations as established by NSPS, Subpart VV.~~ **Refer to 40 CFR 60, Subparts A, VV, VVa, and VVb for operational and monitoring requirements and limitations that apply to equipment leaks (EP-24). (Chapter 12)**

(i) Emissions shall be controlled by the Leak Detection and Repair Program as defined in 40 CFR 60.482-1 through 60.482-10 **or 60.482-1b through 60.482-10b** as required.

(4) Applicable NSPS, NESHAP, and MACT Requirements:

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Chapter 12, Sec. 001.01 40 CFR 60.1
NSPS, Subpart VV	Subpart VV—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and on or Before November 7, 2006	Chapter 12, Sec. 001.50 40 CFR 60.480
NSPS Subpart VVb	**Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After April 25, 2023**	**40 CFR 60.480b**

(5) Reporting and Recordkeeping Requirements:

The owner or operator shall maintain the following records:

(a) Reporting and recordkeeping required by NSPS, Subparts A**,** ~~and~~ VV**, and VVb**.

This condition now lists both NSPS VVb as potentially applicable performance standards to Chief. This application did not identify anticipated component counts that may be applicable to one standard versus another. Their inclusion in the permit is not intended to identify what components, if any, are applicable to any specific standard. Chief must comply with applicable standards regardless if they are specified in a permit or not.

Condition XIII.(H) and (L)(8) from CP20-012 was revised as Condition III.(H) and now reads:

~~(H) The requirements from Title 129, Nebraska Air Quality Regulations, Chapter 18, Section 001.62 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 Subpart Kb, apply to storage tank T-26101 (40 CFR 60.110b)~~

~~(1) The storage tank T-26101 shall be equipped with a fixed roof in combination with an internal floating roof meeting the specifications in 40 CFR 60.112b(a)(1).~~

~~(2) After installing the control equipment required in 40 CFR 60.112b(a)(1) on storage tank T-26101, the owner or operator shall comply with the inspection and operating requirements in 40 CFR 60.113b(a).~~

~~(L) Records shall be maintained on-site for a minimum period of five (5) years. These records shall be clear and readily accessible to Department representatives and shall include the following:~~

~~(8) To demonstrate compliance with Condition XIII.(H), the owner or operator shall report and keep records as described in 40 CFR 60.115b Reporting and Recordkeeping Requirements. Records~~

~~of the dimension of the storage vessel and analysis of its storage capacity shall be maintained onsite for the life of the source as required in 40 CFR 60.116b. All other reports and records shall be maintained for at least 2 years.~~

III.(H) Specific Conditions for Storage Tanks

(1) The source is permitted to construct the storage and process tanks identified in the following table at the capacities and for the storage of the products listed:

Emission Point ID#	Emission Unit ID#	Required Control Equipment Description	Emission Unit Description	Maximum Capacity
EP-30	EU-30 (T-2601)	-	200 Proof Storage Tank #3	907,200 gal
EP-37	EU-37.1	-	Gas Storage Tank	300 gal
EP-113	EU-113 (T-2602)	-	200 Proof Storage Tank #4	1,000,000 gal
EP-114	EU-114 (T-2603)	-	200 Proof Storage Tank #5	1,000,000 gal
EP-115	EU-115 (T-2604)	-	Day Tank #1	250,000 gal
EP-116	EU-28.1 (T-6101)	C-116: Vapor Collection System with Loadout Flare[1]	Day Tank #2, 200 Proof Storage Tank #1	250,000 gal
	EU-29.1 (T-6102)		Reprocess Tank, 200 Proof Storage Tank #2	250,000 gal
EP-117	EU-117 (T-2605)	-	Denaturant Tank	55,000 gal

[1] Specific conditions for the Vapor Collection System with Loadout Flare (C-116) can be found in Condition III.(I).

(2) Emission Limitations and Testing Requirements:

The source shall comply with all applicable emission limitations and testing requirements listed in 40 CFR Part 60 NSPS Subparts A, Kb, and Kc and 40 CFR Part 63 NESHAP Subparts A and CCCCCC that apply the units listed in Condition III.(H) above. (Chapter 12)

(3) Operational and Monitoring Requirements and Limitations:

The source shall comply with all applicable operational and monitoring requirements listed in 40 CFR Part 60 NSPS Subparts A, Kb, and Kc and 40 CFR Part 63 NESHAP Subparts A and CCCCCC that apply the units listed in Condition III.(H) above. (Chapter 12)

(4) Applicable NSPS, NESHAP, and MACT Requirements:

(a) The following NSPS Subparts apply to EU-30:

Applicable Standard	Title	Rule Citation
NSPS Subpart A	General Provisions	Chapter 12, Sec. 001.01 40 CFR 60.1
NSPS Subpart Kb	Standards of Performance for Volatile Organic Liquid (VOL) Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 1984, and On or Before October 4, 2023	Chapter 12, Sec. 001.19 40 CFR 60.110b

(b) The following NSPS Subparts apply to EU-113, EU-114, EU-115, and EU-117:

Applicable Standard	Title	Rule Citation
NSPS Subpart A	General Provisions	Chapter 12, Sec. 001.01 40 CFR 60.1

Applicable Standard	Title	Rule Citation
NSPS Subpart Kc	Standards of Performance for Volatile Organic Liquid (VOL) Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023	40 CFR 60.110c

(c) The following NESHAP Subparts apply to EU-37.1:

Applicable Standard	Title	Rule Citation
NESHAP Subpart A	General Provisions	Chapter 13, Sec. 002.01 40 CFR 63.1
NESHAP Subpart CCCCCC	Gasoline Dispensing Facilities	Chapter 13, Sec. 002.95 40 CFR 63.11110

(5) Reporting and Recordkeeping Requirements:

The source shall comply with all applicable reporting and recordkeeping requirements listed in 40 CFR Part 60 NSPS Subparts A, Kb, and Kc and 40 CFR Part 63 NESHAP Subparts A and CCCCCC that apply the units listed in Condition III.(H) above.

This condition was revised to fit standard Department formatting. Additionally new storage tanks and their applicable standards and prescribed control devices were included.

Condition XIII.(K) and (L)(11)(e) from CP20-012 was revised as Condition III.(I) and reads:

~~(K) The ethanol loadout to truck and rail car tanks shall comply with the following requirements:~~

~~(1) A vapor collection and control system shall be in operation at all times the loading facility is in operation.~~

~~(2) The vapor collection and control system shall be properly designed, installed, operated, and maintained. Manufacturer's specifications shall be kept on site and readily available to the Department representatives.~~

~~(3) If a flare is used, the flare shall be operated with a flame present at all times the loading facility is in operation. A thermocouple or equivalent device capable of continuously monitoring the flame temperature shall be installed, and thermocouple readings shall be recorded once per hour. The thermocouple shall be equipped with an alarm to indicate the absence of a flame, and calibrated in accordance with the manufacturer's instructions.~~

~~(L) Records shall be maintained on site for a minimum period of five (5) years. These records shall be clear and readily accessible to Department representatives and shall include the following:~~

~~(11) To demonstrate compliance with Condition XIII.(G) and (K), the permittee shall maintain the following records:~~

~~(e) Following the installation of the flare, the permittee shall maintain records of all temperature measurements required by Condition XIII.(K)(3).~~

III.(I) Specific Conditions for Ethanol Loadout

(1) Permitted Emission Points: The source is permitted to construct the emission points and associated emission units identified in the following table at the capacity and using the fuel types listed:

Emission Point ID#	Required Control Equipment ID# and Description	Emission Unit Description	Permitted Fuel Type
EP-116	C-116: Ethanol Vapor Recovery and Loadout Vapor Combustion Unit	EU-116.1: Ethanol Loadout Vapor Combustion Unit	Process Gas and Natural Gas
		EU-116.1: Truck Loading Skid	-
		EU-116.1: Rail Loading Skid #1	-
		EU-116.1: Rail Loading Skid #2	-
		EU-28.1[1]: Day Tank #2	-
		EU-29.1[1]: Reprocess Tank	-
EP-17[2]	SP-61301: Flare with Vapor Recovery	EU-17.1: Truck and Rail Loadout	Process Gas and Natural Gas
		EU-28.1[1][2]: Day Tank #2	-
		EU-29.1[1][2]: Reprocess Tank	-
		T-6103: Denaturant Tank[2]	-

[1] Specific Conditions for the Day Tank #2 and Reprocess Tank (EU-28.1 and EU-29.1) can be found in Specific Condition III.(H).
[2] The existing Truck and Rail Loadout and Denaturant Tank (T-6103) will be decommissioned as a part of this project.

(2) Emission Limitations and Testing Requirements:

At this time the NDWEE has not identified any emission limitations or testing requirements that apply to the emission points or emission units listed in Condition III.(I)(1).

(3) Operational and Monitoring Requirements and Limitations:

(a) Upon commissioning of any of the Ethanol Recovery and Loadout Vapor Combustion unit (EU-116.1), the existing Flare and Vapor Recovery unit (EP-17) shall be decommissioned within sixty (60) days. (Chapter 3)

(b) The flare with vapor recovery unit (SP-61301) shall be in operation at all times the associated emission units are in operation, until the ethanol vapor recovery and loadout vapor combustion unit (C-116) is commissioned. (Chapter 3)

(i) The flare with vapor recovery unit shall be properly designed, installed, operated and maintained.

(ii) When emissions are routed through the flare, a flame shall be present at the vapor combustion unit. The facility must install an appropriate safety device or flame monitoring system to ensure that operations cannot occur without the presence of a flame. The safety device or flame monitoring system shall be properly installed, operated, calibrated and maintained.

(iii) Routine observations, at least once each day of operation, shall be conducted to determine whether there are visible emissions from the stack, leaks, noise, atypical operating parameters, or other indications that may necessitate corrective action. Corrective action shall be taken immediately, if necessary.

(c) When the ethanol vapor recovery and loadout vapor combustion unit (C-116) is commissioned, the unit shall be in operation at all times the associated emission units are in operation. (Chapter 3)

(i) The ethanol vapor recovery and loadout vapor combustion unit shall be properly designed, installed, operated and maintained.

(ii) When emissions are routed through the vapor combustion unit, a flame shall be present at the vapor combustion unit. The facility must install an appropriate

safety device or flame monitoring system to ensure that operations cannot occur without the presence of a flame. The safety device or flame monitoring system shall be properly installed, operated, calibrated and maintained.

(iii) Routine observations, at least once each day of operation, shall be conducted to determine whether there are visible emissions from the stack, leaks, noise, atypical operating parameters, or other indications that may necessitate corrective action. Corrective action shall be taken immediately, if necessary.

(4) Applicable NSPS, NESHAP, and MACT Requirements:

At this time the NDWEE has not identified any NSPS, NESHAP, or MACT requirements that apply to the emission points or emission units listed in Condition III.(I)(1).

(5) Reporting and Recordkeeping Requirements:

The permittee shall maintain the following:

(a) Manufacturer's documentation for the safety device or flame monitoring system shall be kept on site and readily available to Department representatives.

(b) Operation and maintenance records for the ethanol vapor recovery and loadout vapor combustion unit (C-116) and safety device or flame monitoring system to demonstrate compliance with Condition III.(G)(3)(b), shall include the following:

(i) Records documenting when routine maintenance and preventive actions were conducted with a description of the maintenance and/or preventive action conducted.

(ii) Records documenting equipment failures, malfunctions, or other variations, including time of occurrence, remedial action taken, and when corrections were made.

(c) Within fifteen (15) business days after the ethanol vapor recovery and loadout vapor combustion unit (C-116) is commissioned, the source shall provide the NDWEE with written or electronic notice.

(d) Within fifteen (15) business days after flare with vapor recovery unit (SP-61301) is decommissioned, the source shall provide the NDWEE with written or electronic notice.

This condition was revised to fit standard Department formatting. Additionally, commissioning and decommissioning conditions were prescribed on existing permitted equipment.

Condition III.(G) of CP 25-030 was revised to Condition III.(J) and reads:

III.(~~G~~J)Specific Conditions for Haul Roads (EP-4W, EP-32)

(1) Permitted Emission Points:

(a) All on-site haul roads with production-related truck traffic shall be paved. The paved haul roads shall comply with the following conditions. (Chapters 3 and 15)

(2) Emission Limitations and Testing Requirements:

(a) Haul roads are subject to the requirements of Title 129, Chapter 15, Section 003. (Chapter 15)

(3) Operational and Monitoring Requirements and Limitations:

(a) The owner or operator shall develop, maintain, and implement a Best Management Practices (BMP) plan to control emissions from haul roads to comply with Conditions I.(L). BMPs include, but are not limited to: paved roads; covering haul road trucks; regular sweeping of paved roads; a posted plant speed limit of 5 miles per hour; and paving or treating parking areas, driveways, and shoulders. The effectiveness of the BMP to minimize emissions from haul roads will be demonstrated by compliance with Condition I.(L). (Chapters 3 and 15)

(b) 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 control shall be taken upon observation of visible fugitive emissions leaving plant property or more frequently in accordance with the BMP plan. Documentation of all corrective actions and daily surveys shall be maintained in a log that shall accompany the BMP plan. (Chapter 3 and 15)

(4) Applicable NSPS, NESHAP, and MACT Requirements:

At this time, the ~~Department~~ **NDWEE** has not identified any NSPS, NESHAP, or MACT requirements that apply to the haul roads.

(5) Reporting and Recordkeeping Requirements:

The owner or operator shall maintain the following records:

(a) Records documenting the use of fugitive dust control measures on haul roads.

(b) Records of visible emission surveys taken daily during operation and a description of corrective action taken, if needed.

This condition was not significantly revised; however, new haul roads will exist that are required to be paved so this condition was included.

Condition III.(C) of CP24-010 was revised to Condition III.(K) and now reads:

III.(~~C~~K) Specific Conditions for Distillation Scrubber Operations

(1) Permitted Emission Points: The source is permitted to construct the emission points and associated emission units identified in the following table, and shall be controlled by the required control equipment as indicated:

Emission Point ID#	Control Equipment ID# and Description	Emission Unit Description
EP-9[1]	S-1501: Unit 1 Distillation Scrubber	EU-9.1: Unit 1 Beer Column
		EU-9.2: Unit 1 Rectifying Column
		EU-9.3: Unit 1 Molecular Sieve
EP-10[1]	C-11533: Unit 2 Distillation Scrubber	EU-10.1: Unit 2 Beer Column
		EU-10.2: Unit 2 Rectifying Column
		EU-10.3: Unit 2 Stripper Column
		EU-10.4: Unit 2 Molecular Sieve
		EU-10.5: Unit 3 Alcohol Column
		EU-10.6: Unit 3 Molecular Sieve

[1] Emission units and control devices associated with EP-9 and EP-10 are to be decommissioned with this project.

(2) Emission Limitations and Testing Requirements:

(a) Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition I.(M) and II.(G).

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
EP-9 EP-10	VOC	8.30 lb/hr[1][2]	Three 1-hour test runs or test method average	Chapter 3	~~Yes~~ **No**[2]
	Acetaldehyde	2.15 lb/hr[1][2]	Three 1-hour test runs or test method average	Chapter 3	~~Yes~~ **No**[2]

[1] Combined emission limit with emission points ~~EP-8-1, EP-8-2, EP-8-3,~~ EP-8-4, EP-9, EP-10, EP-13, EP-CC-03, and EP-CC-FUG.
~~[2] Performance testing is required due to the installation of a new fermentation scrubber (C-1404A).~~
[2] The existing combined emissions limitations on EP-8-4, EP-9, EP-10, EP-13, EP-CC-03, and EP-CC-FUG will not be in affect after units associated with EP-9, EP-10, and EP-13 are decommissioned.

(b) To demonstrate compliance with any combined limitation prescribed in Condition III.(~~B~~**K**)(2)(a): (Chapters 3 and 15)

(i) Performance testing shall be conducted concurrently for EP-8-4, EP-9, EP-10, and EP-13.

(3) Operational and Monitoring Requirements and Limitations:

(a) Operation and maintenance of scrubbers S-1501 and C-11533 shall be in accordance with the following requirements unless otherwise stated in an active Operating Permit. (Chapter 3)

(i) S-1501 and C-11533 shall be operated and control emissions at all times when any of the associated emission units are in operation.

(ii) S-1501 and C-11533 shall be equipped with devices that continuously monitor and record the following operating parameters in the manner described below; except as noted:

1. Scrubbing liquid flow rate;

2. Chemical addition flow rate, if utilized;

3. Scrubber inlet pressure; and

4. Scrubbing liquid temperature shall be continuously monitored and recorded once per day.

(iii) When chemical addition is utilized, the total monthly amount of chemical, in gallons, added to S-1501 and C-11533 shall be monitored and recorded.

(iv) Upon request by ND**W**EE personnel, chemical drawdown checks shall be performed to verify that the flow meter is working correctly.

(v) The following operating parameters of S-1501 and C-11533 shall be maintained as described below:

1. Scrubber liquid shall be comprised of only well water to ensure consistent liquid temperature. In the event that the owner or operator uses an alternate scrubber liquid source, or scrubber liquid recirculation, compliance testing may be required to determine an appropriate scrubber liquid temperature and/or percent recirculation limit.

2. The scrubbing liquid flow rate, flow rate of chemical additions, and concentration of the chemical injected into the scrubber shall be maintained at or above the levels recorded during testing. Chemical concentration, as documented by the supplier, shall be recorded upon use of the chemical.

(vi) Observations at least once each day during daylight hours of scrubber operation shall be conducted to determine whether there are leaks, noise, or other indications that corrective action is necessary. If corrective action is necessary, it shall occur immediately.

(vii) Flow meters for recording scrubbing liquid and chemical addition flow rates shall be maintained and calibrated according to manufacturer's instructions.

(b) Upon commissioning of any of the Beer Degas (EU-8-15), Stripping Column (EU-8-16), Beer Columns #1 and #2 (EU-8-17 and EU-8-18), or Dehydration Membranes (EU-8-

19), emission units associated with EP-9 and EP-10 shall be decommissioned within sixty (60) days. (Chapter 3)

(4) Applicable NSPS, NESHAP, and MACT Requirements:

The ND**W**EE has not identified any NSPS, NESHAP, or MACT requirements that apply to the emission points or emission units listed in Condition III.(C)(1).

(5) Reporting and Recordkeeping Requirements:

The owner or operator shall maintain the following records:

(a) Records that document the continuously monitored operating parameter data for S-1501 and C-11533, including the date and time of the readings, except as noted. The records shall include:

(i) Scrubbing liquid flow rate;

(ii) Chemical addition flow rate;

(iii) Scrubber inlet pressure readings; and

(iv) Daily scrubbing liquid temperature readings.

(b) Monthly records that document the purchase date, concentration, amount, and type of chemical purchased for chemical injection associated with S-1501 and C-11533.

(c) Records that document the operating parameters developed during the most recent valid performance test conducted at the facility.

(d) Records that document the date and time of routine observations with a description, including operating parameters, atypical parameters observed, and any corrective actions taken, for each day S-1501 and C-11533 are in operation.

(e) Records that document corrective action. Each corrective action shall be documented at time of occurrence, including the date, time, observations, and a description of the corrective action.

(f) Records that document the date and time of routine maintenance and preventive actions performed and that include a description of the actions performed.

(g) Within fifteen (15) business days after all emissions units listed in Condition III.(K)(1) are decommissioned, the source shall provide the NDWEE with written or electronic notice.

This condition now includes decommissioning requirements for when the existing distillation equipment is not needed post-commissioning of new equipment.

Condition III.(D) of CP24-010 was revised to Condition III.(L) and now reads:

III.(~~D~~L) Specific Conditions for DDGS Dryer and Scrubber Operations

(1) Permitted Emission Points: The source is permitted to construct the emission points and associated emission units identified in the following table, and shall be controlled by the required control equipment as indicated:

Emission Point ID#	Control Equipment ID# and Description	Emission Unit Description
EP-13[1]	C-11801: Dryer Scrubber	EU-13.1: A Dryer, Rotary Steam Disk, 100 ton/day (est.)
		EU-13.3: B Dryer, Rotary Steam Disk, 100 ton/day (est.)

[1] Emission units associated with EP-3 are to be decommissioned with this project.

(2) Emission Limitations and Testing Requirements:

(a) Pollutant emission rates from each emission point identified in the table below shall not exceed the permitted limits. Performance testing, if required, shall be conducted in accordance with Condition I.(M) and II.(G).

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
EP-13	VOC	8.30 lb/hr[1]	Three 1-hour test runs or test method average	Chapter 3	~~Yes~~[2] **No**
	Acetaldehyde	2.15 lb/hr[1]	Three 1-hour test runs or test method average	Chapter 3	~~Yes~~[2] **No**

[1] Combined emission limit with emission points ~~EP-8-1, EP-8-2, EP-8-3,~~ EP-8-4, EP-9, EP-10, EP-13, EP-CC-03, and EP-CC-FUG.
~~[2] Performance testing is required due to the installation of a new fermentation scrubber (C-1404A).~~
[2] The existing combined emissions limitations on EP-8-4, EP-9, EP-10, EP-13, EP-CC-03, and EP-CC-FUG will not be in affect after units associated with EP-9, EP-10, and EP-13 are decommissioned.

(b) To demonstrate compliance with any combined limitation prescribed in Condition III.(~~B~~**L**)(2)(a): (Chapters 3 and 15)

(i) Performance testing shall be conducted concurrently for EP-8-4, EP-9, EP-10, and EP-13.

(3) Operational and Monitoring Requirements and Limitations:

(a) Operation and maintenance of scrubber C-11801 shall be in accordance with the following requirements unless otherwise stated in an active Operating Permit. (Chapter 3)

(i) C-11801 shall be operated and control emissions at all times when any of the associated emission units are in operation.

(ii) C-11801 shall be equipped with devices that continuously monitor and record the following operating parameters, except as noted::

1. Scrubbing liquid flow rate;
2. Recirculation liquid flow rate;
3. Chemical addition flow rate, if utilized;
4. Scrubber inlet pressure; and
5. Recirculation liquid inlet temperature.

(iii) When chemical addition is utilized, the total monthly amount of chemical, in gallons, added to C-11801 shall be monitored and recorded.

(iv) Upon request by ND**W**EE personnel, chemical drawdown checks shall be performed to verify that the flow meter is working correctly.

(v) The following operating parameters of C-11801 shall be maintained as described below:

1. The recirculation liquid temperature shall be maintained at or below the tested level(s) recorded during the most recent valid performance test under normal operating conditions.
2. The scrubbing liquid flow rate, recirculation liquid flow rate, flow rate of chemical additions, and concentration of the chemical injected into the scrubber shall be maintained at or above the levels recorded during testing. Chemical concentration, as documented by the supplier, shall be recorded upon use of the chemical.

(vi) Observations at least once each day during daylight hours of scrubber operation shall be conducted to determine whether there are leaks, noise, or other indications that

corrective action is necessary. If corrective action is necessary, it shall occur immediately.

(vii) Flow meters for recording scrubbing liquid, recirculation liquid, and chemical addition flow rates shall be maintained and calibrated according to manufacturer's instructions.

(b) Upon commissioning of any of the DDGS Dryer TO/HSRG units (EU-102 and EU-103) or Dryer Cooler units (EU-104 and EU-105), emission units associated with EP-13 shall be decommissioned within sixty (60) days. (Chapter 3)

(4) Applicable NSPS, NESHAP, and MACT Requirements:

The ND**W**EE has not identified any NSPS, NESHAP, or MACT requirements that apply to the emission points or emission units listed in Condition III.(~~D~~**L**)(1).

(5) Reporting and Recordkeeping Requirements:

The owner or operator shall maintain the following records:

(a) Records that document the continuously monitored operating parameter data for C-11801, including the date and time of the readings. The records shall include:

(i) Scrubbing liquid flow rate;

(ii) Recirculation liquid flow rate;

(ii) Chemical addition flow rate;

(iii) Scrubber inlet pressure readings; and

(iv) Recirculation liquid inlet temperature readings.

(b) Monthly records that document the purchase date, concentration, amount, and type of chemical purchased for chemical injection associated with C-11801.

(c) Records that document the operating parameters developed during the most recent valid performance test conducted at the facility.

(d) Records that document the date and time of routine observations with a description, including operating parameters, atypical parameters observed, and any corrective actions taken, for each day C-11801 is in operation.

(e) Records that document corrective action. Each corrective action shall be documented at time of occurrence, including the date, time, observations, and a description of the corrective action.

(f) Records that document the date and time of routine maintenance and preventive actions performed and that include a description of the actions performed.

(g) Within fifteen (15) business days after all emissions units listed in Condition III.(L)(1) are decommissioned, the source shall provide the NDWEE with written or electronic notice.

This condition now includes decommissioning requirements for when the existing DDGS drying equipment is not needed post-commissioning of new equipment.

Fact Sheet Attachment

Criteria PTE Summary

Emission Point	Description	Pollutant						
		PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	VOC
		ton/yr						
EP-1.1W	West Grain Receiving/Loadout Baghouse	4.56	1.33	0.06	-	-	-	-
EP-1.1[2]	Grain Receiving Baghouse	3.18	2.07	0.10	-	-	-	-
EP-1.2A	Grain Bin Fill Leg 1 Spot Filter	0.12	0.03	1.17E-03	-	-	-	-
EP-1.2B	Grain Bin Fill Leg 2 Spot Filter	0.12	0.03	1.17E-03	-	-	-	-
EP-2.1W	West Grain Bin	1.75	0.44	0.08	-	-	-	-
EP-2.1	Grain Bin 01	13.64	3.44	0.60	-	-	-	-
EP-2.2	Grain Bin 02				-	-	-	-
EP-2.3	Grain Bin 03				-	-	-	-
EP-3.1	Grain Bin Reclaim Leg Spot Filter	0.08	0.02	7.98E-04	-	-	-	-
EP-3.2	Bulk Weigher Vent Filter	0.08	0.02	7.98E-04	-	-	-	-
EP-4W	West Haul Roads	3.59	0.72	0.18	-	-	-	-
EP-5.1	Surge Bin 1 Vent Filter	0.08	0.02	7.98E-04	-	-	-	-
EP-5.2	Surge Bin 2 Vent Filter	0.08	0.02	7.98E-04	-	-	-	-
EP-5.3	Surge Bin 3 Vent Filter	0.08	0.02	7.98E-04	-	-	-	-
EP-5.4	Surge Bin 4 Vent Filter	0.08	0.02	7.98E-04	-	-	-	-
EP-6.1[2]	Hammermill 1 Baghouse	[2]	[2]	[2]	-	-	-	-
EP-6.2[2]	Hammermill 2 Baghouse	[2]	[2]	[2]	-	-	-	-
EP-6.3[2]	Hammermill 3 Baghouse	[2]	[2]	[2]	-	-	-	-
EP-6.4[2]	Hammermill 4 Baghouse	[2]	[2]	[2]	-	-	-	-
EP-7.1	Meal Conveyor Spot Filter	0.05	0.03	0.02	-	-	-	-
EP-8-4[3]	Fermentation Scrubber	-	-	-	-	-	-	130.44
EP-16[4]	Natural Gas Boiler #1	1.47	5.87	5.87	0.46	78.84	52.23	4.25
EP-19	Cooling Tower C	3.16	2.22	1.33	-	-	-	-
EP-24	Equipment Leaks	-	-	-	-	-	-	107.20
EP-30	200 Proof Storage Tank #3	-	-	-	-	-	-	0.18
EP-31	Emergency Fire Water Pump Engine	0.10	0.10	0.10	0.09	1.36	0.29	0.11
EP-32	Haul Roads	36.96	7.39	1.81	-	-	-	-
EP-32-1[5]	West WDGS Storage and Loadout	-	-	-	-	-	-	3.82
EP-37	Gas Storage Tank	-	-	-	-	-	-	0.19
EP-38	Emergency Generator	0.03	0.07	0.07	1.98E-03	3.73	12.91	0.10
EP-39[4]	Natural Gas Boiler #2	[4]	[4]	[4]	[4]	[4]	[4]	[4]
EP-102[3]	DDGS Dryer #1 with TO/HRSG	2.17	15.90	12.18	5.47	32.21	30.55	[3]
EP-103[3]	DDGS Dryer #2 with TO/HRSG	2.17	15.90		5.47	32.21	30.55	[3]
EP-104[3]	DDGS Cooler #1	5.52	5.52	2.21	-	-	-	[3]
EP-105[3]	DDGS Cooler #2	5.52	5.52	2.21	-	-	-	[3]
EP-106	DDGS Flat Storage Building	0.29	0.06	2.03E-03	-	-	-	-
EP-109	DDGS Truck Loadout Building Uncaptured	0.29	0.06	2.03E-03	-	-	-	-
EP-110	DDGS Rail Loadout Building Uncaptured				-	-	-	-
EP-111[2]	DDGS Truck and Rail Loadout Building Filter	[2]	[2]	[2]	-	-	-	-
EP-111.1	DDGS Loadout Conveyors	0.29	0.06	2.03E-03	-	-	-	-
EP-112	MVR Evaporation System	-	-	-	-	-	-	0.46
EP-113	200 Proof Storage Tank #4	-	-	-	-	-	-	0.13
EP-114	200 Proof Storage Tank #5	-	-	-	-	-	-	0.13
EP-115	Day Tank #1	-	-	-	-	-	-	0.24
EP-116	Ethanol Vapor Recovery & Loadout Vapor Combustion Unit + Reprocess Tank	8.16E-03	0.03	0.03	2.58E-03	0.43	0.36	6.68
EP-117	Denaturant Tank	-	-	-	-	-	-	0.45
EP-ST	Slurry Tank	-	-	-	-	-	-	9.47
EP-WST	Whole Stillage Tank with Dewatering Units	-	-	-	-	-	-	2.51
EP-PTV	Process Tank Vents	-	-	-	-	-	-	13.46
EP-CC-01[3]	Compressor Rodpacking (EP-CC-FUG)	-	-	-	-	-	-	[3]
EP-CC-02[3]	Compressor Blowdown (EP-CC-FUG)	-	-	-	-	-	-	[3]
EP-CC-03[3]	Reboiler Still Vent	-	-	-	-	-	-	[3]
EP-CC-04[3]	Carbon Capture Equipment Leaks (EP-CC-FUG)	-	-	-	-	-	-	[3]
	Total PTE without fugitives:	44.92	58.83	24.87	11.49	148.77	126.89	168.79
	Total PTE with fugitives:	85.47	66.94	26.86	11.49	148.77	126.89	275.99
	Previous PTE with fugitives[1]:	105.91	54.57	25.37	1.11	147.12	92.54	172.96
	Change in PTE:	-20.44	12.37	1.49	10.38	1.64	34.34	103.02

[1] Previous PTE obtained from CP24-010 with corrections to equipment leak connector control effectiveness which is not considered a part of this project.

[2] EP-1.1, EP-6.1, EP-6.2, EP-6.3, EP-6.4, and EP-111 are a part of a combined PM emission limitation, the worst case emissions are shown on EP-1.1.

[3] There is a grouped emission limitations on VOC, Acetaldehyde, Acrolein, and Methanol which includes the fermentation scrubber (EP-8-4), DDGS dryer #1 (EP-102), DDGS dryer #2 (EP-103), DDGS cooler #1 (EP-104), DDGS cooler #2 (EP-105), Compressor Rodpacking (EP-CC-01), Compressor Blowdown (EP-CC-02), TEG reboiler still vent (EP-CC-03), and Carbon Capture Equipment Leaks (EP-CC-04), the worst case emissions are shown on EP-8-4.

[4] A combined annual natural gas heating input limitation on the natural gas fired boilers (EP-16 and EP-39), the worst case emissions are shown on EP-16.

[5] Worst case emissions occur through fully drying the distillers grains, therefore WDGS emissions are not totaled in the PTE Totals.

Fact Sheet Attachment

HAP PTE Summary

Pollutant	EP-8-4	EP-102	EP-103	EP-104	EP-105	EP-16/ EP-39	EP-24	EP-31	EP-32-1[1]	EP-38	EP-112	TANKS	EP-116	EP-CC-01	EP-CC-02	EP-CC-03	EP-CC-04	Total HAP
	ton/yr																	
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-	9E-05	-	-	-	-	-	-	-	8.53E-05
1,1,2-Trichloroethane	-	-	-	-	-	-	-	-	-	5E-05	-	-	-	-	-	-	-	5.16E-05
1,1-Dicholorethane	-	-	-	-	-	-	-	-	-	4E-05	-	-	-	-	-	-	-	3.81E-05
1,2-Dichloroethane	-	-	-	-	-	-	-	-	-	4E-05	-	-	-	-	-	-	-	3.81E-05
1,2-Dichloropropane	-	-	-	-	-	-	-	-	-	4E-05	-	-	-	-	-	-	-	4.38E-05
1,3-Butadiene	-	-	-	-	-	-	-	1E-05	-	2E-03	-	-	-	-	-	-	-	2.25E-03
1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	4E-05	-	-	-	-	-	-	-	4.28E-05
2-Methylnaphthalene	-	8E-06	8E-06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.55E-05
3-Methylcholanthrene	-	6E-07	6E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16E-06
7,12-Dimethylbenz(a)anthracene	-	5E-06	5E-06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.03E-05
Acenaphthene	-	6E-07	6E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16E-06
Acenaphthylene	-	6E-07	6E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16E-06
Anthracene	-	8E-07	8E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.55E-06
Acetaldehyde[2]	9.07					-	0.02	2E-04	0.05	9E-03	-	0.22	1E-03	[2]				9.32
Acrolein[2]	2.76					-	0.02	3E-05	8E-03	9E-03	-	2E-04	-	[2]				2.79
Benz(a)anthracene	-	6E-07	6E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16E-06
Benzene	-	7E-04	7E-04	-	-	2E-03	-	3E-04	-	5E-03	-	9E-03	0.18	-	-	-	-	0.20
Benzo(a)pyrene	-	4E-07	4E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.73E-07
Benzo(b)fluoranthene	-	6E-07	6E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16E-06
Benzo(g,h,i)perylene	-	4E-07	4E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.73E-07
Benzo(k)fluoranthene	-	6E-07	6E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16E-06
Chrysene	-	6E-07	6E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16E-06
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	6E-05	-	-	-	-	-	-	-	5.97E-05
Chlorobenzene	-	-	-	-	-	-	-	-	-	4E-05	-	-	-	-	-	-	-	4.35E-05
Chloroform	-	-	-	-	-	-	-	-	-	5E-05	-	-	-	-	-	-	-	4.62E-05
Cumene	-	-	-	-	-	-	-	-	-	-	-	2E-05	0.09	-	-	-	-	0.09
Dibenzo(a,h)anthracene	-	4E-07	4E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.73E-07
Dichlorobenzene	-	4E-04	4E-04	-	-	9E-04	-	-	-	-	-	-	5E-06	-	-	-	-	1.71E-03
Ethylbenzene	-	-	-	-	-	-	-	-	-	8E-05	-	1E-05	0.11	-	-	-	-	0.11
Ethylene Dibromide	-	-	-	-	-	-	-	-	-	7E-05	-	-	-	-	-	-	-	7.18E-05
Fluoranthene	-	1E-06	1E-06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.93E-06
Fluorene	-	9E-07	9E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.80E-06
Formaldehyde[2]	1.18					0.06	0.01	4E-04	0.10	7E-02	-	-	3E-04	[2]				1.32
n-Hexane	-	0.58	0.58	-	-	1.39	-	-	-	-	-	0.24	0.71	-	-	-	-	3.50
Indeno(1,2,3-cd)pyrene	-	6E-07	6E-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.16E-06
Methanol[2]	3.02					-	0.02	-	0.02	1E-02	0.29	2E-04	1E-03	[2]				3.35
Methylene Chloride	-	-	-	-	-	-	-	-	-	1E-04	-	-	-	-	-	-	-	1.39E-04
Naphthalene	-	2E-04	2E-04	-	-	5E-04	-	3E-05	-	3E-04	-	-	3E-06	-	-	-	-	1.22E-03
Phenanthrene		5E-06	5E-06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.10E-05
Polycyclic Organic Matter	-	-	-	-	-	7E-05	-	3E-05	-	5E-04	-	-	4E-07	-	-	-	-	5.70E-04
Pyrene		2E-06	2E-06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.22E-06
Styrene	-	-	-	-	-	-	-	-	-	4E-05	-	2E-03	0.04	-	-	-	-	0.04
Toluene	-	1E-03	1E-03	-	-	3E-03	-	1E-04	-	2E-03	-	1E-03	0.99	-	-	-	-	1.00
Vinyl Chloride	-	-	-	-	-	-	-	-	-	2E-05	-	-	-	-	-	-	-	2.42E-05
Xylenes	-	-	-	-	-	-	-	9E-05	-	7E-04	-	1E-04	0.81	-	-	-	-	0.81
Arsenic Compounds	-	6E-05	6E-05	-	-	2E-04	-	-	-	-	-	-	9E-07	-	-	-	-	2.84E-04
Beryllium Compounds	-	4E-06	4E-06	-	-	9E-06	-	-	-	-	-	-	5E-08	-	-	-	-	1.71E-05
Cadmium Compounds	-	4E-04	4E-04	-	-	9E-04	-	-	-	-	-	-	5E-06	-	-	-	-	1.56E-03
Chromium Compounds	-	5E-04	5E-04	-	-	1E-03	-	-	-	-	-	-	6E-06	-	-	-	-	1.99E-03
Cobalt Compounds	-	3E-05	3E-05	-	-	6E-05	-	-	-	-	-	-	4E-07	-	-	-	-	1.19E-04
Lead Compounds	-	2E-04	2E-04	-	-	4E-04	-	-	-	-	-	-	2E-06	-	-	-	-	7.11E-04
Manganese Compounds	-	1E-04	1E-04	-	-	3E-04	-	-	-	-	-	-	2E-06	-	-	-	-	5.40E-04
Mercury Compounds	-	8E-05	8E-05	-	-	2E-04	-	-	-	-	-	-	1E-06	-	-	-	-	3.70E-04
Nickel Compounds	-	7E-04	7E-04	-	-	2E-03	-	-	-	-	-	-	9E-06	-	-	-	-	2.98E-03
Selenium Compounds	-	8E-06	8E-06	-	-	-	-	-	-	-	-	-	1E-07	-	-	-	-	1.56E-05
																	Total HAPs:	22.55
																	Previous HAPs PTE[3]:	18.07
																	Change in HAPs PTE:	4.47
																	Largest Single HAP (Acetaldehyde):	9.32
																	Largest Change in Single HAP (Acrolein)[3]:	2.49

[1] Worst case emissions occur through fully drying the distillers grains, therefore WDGS emissions are not totaled in the PTE Totals summary.

[2] There is a grouped emissions limitations on Acetaldehyde, Acrolein, Formaldehyde, and Methanol on EP-8-4, EP-CC-03, EP-CC-FUG (EP-CC-01, EP-CC-02, and EP-CC-04), EP-102, EP-103, EP-104, and EP-105.

[3] Previous PTE and change in largest single HAP obtained from CP24-010.

Fact Sheet Attachment

GHG PTE Summary

Pollutant	EP-8-4	EP-102	EP-103	EP-16/ EP-39[1]	EP-31	EP-38	EP-116	Total GHG	Previous PTE[2]	Change in PTE
	ton/yr									
CO_2	352,850	38,647	38,647	127,578	49.94	376.24	515.29	558,663	445,685	112,978
N_2O	-	0.74	0.74	2.40	2.03E-03	0.78	9.88E-03	4.67	4.69	-0.02
CH_4	-	0.71	0.71	0.24	4.05E-04	7.42E-04	9.45E-03	1.67	3.75	-2.08
Total (as Mass)	352,850	38,649	38,649	127,580	49.94	377.02	515.31	558,670	445,694	112,976
Total (as CO_2e)[3]	352,850	38,856	38,856	127,709	50.10	398.16	518.07	559,236	446,810	112,426

[1] A combined annual natural gas heating input limitation on the natural gas fired boilers (EP-16 and EP-39).

[2] Previous PTE obtained from CP24-010.

[3] ton CO_2e/yr = [(ton/yr CO_2)*1] + [(ton/yr CH_4)*28] + [(ton/yr N_2O)*265]; CO_2 equivalents are found in 40 CFR Part 98 Subpart A Table A-1 *Global Warming Potentials* published on April 25, 2024 (Title 129, Chapter 1). The CO_2e for CO_2 = 1, for CH_4 = 28, and for N_2O = 265.

Fact Sheet Attachment

NSR Evaluation Summary

Nested Fossil-fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input

Pre-Project

Emission Point		Emission Rate						
Emission Point ID# and Description	Heat Input (MMBtu/hr)	PM	PM_{10}	$PM_{2.5}$	SO_x	NO_x	CO	VOC
		ton/yr						
EP-16: Natural Gas Boiler #1	249	2.03	8.13	8.13	0.64	109.06	28.36	5.88
EP-39: Natural Gas Boiler #2	152.5	1.24	4.98	4.98	0.39	39.41	49.09	3.60
Total:	401.5	3.28	13.10	13.10	1.03	148.47	77.45	9.48
Existing Major Nested Source?	Yes	No	No	No	No	Yes	No	No

Post-Project

Emission Point		Emission Rate						
Emission Point ID# and Description	Heat Input (MMBtu/hr)	PM	PM_{10}	$PM_{2.5}$	SO_x	NO_x	CO	VOC
		ton/yr						
EP-16: Natural Gas Boiler #1[1]	249	1.47	5.87	5.87	0.46	78.84	52.23	4.25
EP-39: Natural Gas Boiler #2[1]	153							
EP-102: DDGS Dryer with TO/HRSG #1	75	2.17	15.90	6.09	5.47	32.21	30.55	11.43
EP-103: DDGS Dryer with TO/HRSG #2	75	2.17	15.90	6.09	5.47	32.21	30.55	11.43
Total PTE:	552	5.81	37.67	18.05	11.40	143.25	113.33	27.11
Major Nested Source?	Yes	No	No	No	No	Yes	Yes	No

[1] Emissions for the Natural Gas Boilers (EP-16 and EP-39) are limited by an annual heating input capacity of 1,576,800 MMBtu/yr, this does not affect the hourly heat input.

Fact Sheet Attachment

NSR Evaluation Summary

Significant Emissions Increase (Step 1) - Project Emissions Accounting

Process or Unit[1]	Pollutant Emissions (ton/yr)						
	PM	**PM_{10}**	**$PM_{2.5}$**	**SO_x**	**NO_x**	**CO**	**VOC**
EP-102 PTE/PAE	2.17	15.90	6.09	5.47	32.21	30.55	11.43
EP-103 PTE/PAE	2.17	15.90	6.09	5.47	32.21	30.55	11.43
2018-2019 BAE EP-16	6.67	6.67	1.67	0.53	82.89	24.78	4.83
2018-2019 BAE EP-39	0	0	0	0	0	0	0
Grouped Limit EP-16 and EP-39 PTE/PAE	1.47	5.87	5.87	0.46	78.84	52.23	4.25
Changes due to new units	4.34	31.80	12.18	10.93	64.41	61.10	22.86
Changes for PAE-BAE on EP-16 and EP-39	-5.20	-0.80	4.21	-0.06	-4.05	27.45	-0.58
Change in PTE, Project Emissions Accounting	-0.86	31.00	16.39	10.87	60.37	88.55	22.29
NSR Significance Thresholds	25	15	10	40	40	100	40
Above Threshold, Proceed to Step 2?	No	Yes	Yes	No	Yes	No	No

[1] Project Emissions Accounting (Step 1) is conducted according to 40 CFR §52.21 (a)(2)(iv)(b). The actual to potential increase for the new DDGS Dryers with TO/HRSG (EP-102 and EP-103) was calculated using zero for the baseline actual emissions and the PTE is used for projected actual emissions. For the existing Natural Gas Boilers (EP-16 and EP-39) baseline emissions were calculated by selecting a consecutive 24-month period for each pollutant gathered from emission inventory data over a 10 year period for non-electric utility steam generating units. The selected 24-month period for every individual pollutant was the 2018-2019 calendar year averaging period and BAE assumes that $PM=PM_{10}$ due to lack of data. The projected actual emissions for the Natural Gas Boilers is equal to the potential to emit calculated using a combined heating input capacity limitation prescribed in Specific Condition III.(A)(3)(a). Note that baseline emissions cannot be greater than an existing emission limitation.

Significant Net Emissions Increase (Step 2)

Process or Unit[1]	Pollutant Emissions (ton/yr)						
	PM	**PM_{10}**	**$PM_{2.5}$**	**SO_x**	**NO_x**	**CO**	**VOC**
EP-102 PTE/PAE	2.17	15.90	6.09	5.47	32.21	30.55	11.43
EP-103 PTE/PAE	2.17	15.90	6.09	5.47	32.21	30.55	11.43
2018-2019 BAE EP-16	6.67	6.67	1.67	0.53	82.89	24.78	4.83
2018-2019 BAE EP-39	0	0	0	0	0	0	0
Grouped Limit EP-16 and EP-39 PTE/PAE	1.47	5.87	5.87	0.46	78.84	52.23	4.25
2018-2019 BAE EP-15 (Coal Boiler)	17.29	17.29	6.49	237.10	105.20	25.00	1.06
Changes due to new units	4.34	31.80	12.18	10.93	64.41	61.10	22.86
Changes for PAE-BAE	-22.49	-18.09	-2.28	-237.16	-109.25	2.45	-1.64
Net Change in Emissions	-18.16	13.71	9.90	-226.23	-44.83	63.55	21.23
NSR Significance Thresholds	25	15	10	40	40	100	40
Significant Net emissions Increase?	No	No	No	No	No	No	No

[1] Significant Net Emission Increase (Step 2) is conducted according to 40 CFR §52.21 (a)(2)(iv)(b). The actual to potential increase for the new DDGS Dryers with TO/HRSG (EP-102 and EP-103) was calculated using zero for the baseline actual emissions and the PTE is used for projected actual emissions. For the existing Natural Gas Boilers (EP-16 and EP-39) and the decommissioned Coal Boiler (EP-15) baseline emissions were calculated by selecting a consecutive 24-month period for each pollutant gathered from emission inventory data over a 10 year period for non-electric utility steam generating units. The selected 24-month period for every individual pollutant was the 2018-2019 calendar year averaging period, excess emissions from malfunctions were removed from BAE, and BAE assumes that $PM=PM_{10}$ due to lack of data. The projected emissions for the Natural Gas Boilers is equal to the potential emissions calculated using a combined heating input capacity limitation prescribed in Specific Condition III.(A)(3)(a). Note that baseline emissions cannot be greater than an existing emission limitation.

Fact Sheet Attachment

Group Limitations - VOC, Acetaldehyde, Acrolein, and Methanol: EP-8-4, EP-CC-01, EP-CC-02, EP-CC-03, EP-CC-04, EP-102, EP-103, EP-104, and EP-105

Total Group Limitation		
Pollutant	**(lb/hr)**	**(ton/yr)**
VOC[1]	29.78	130.44
Acetaldehyde[1]	2.07	9.07
Acrolein[2]	0.63	2.76
Formaldehyde[3]	0.27	1.18
Methanol[3]	0.69	3.02

[1] Chief requested a grouped lb/hr rates for VOC and Acetaldehyde for this permitting action.

[2] Acrolein was included in this grouped limitation with Toxics-BACT avoidance limits.

[3] Methanol and Formaldehyde lb/hr emission limit values were calculated by summing existing stack test data multiplied by 1.5, to account for the expansion from 80 million gallons to 115 million gallons of ethanol produced, and summing DDGS Dryer and Cooler manufacturer guarantee's by 1.2 to account for variability. These are not Toxics-BACT avoidance limits.

Fact Sheet Attachment

Grain Handling - Baghouses

EP-1.1W, EP-1.1, EP-1.2A, EP-1.2B, EP-3.1, EP-3.2, EP-5.1, EP-5.2, EP-5.3, EP-5.4, EP-6.1, EP-6.2, EP-6.3, EP-6.4, EP-7.1, and EP-111

Process Description		Baghouse Specifications		PM		PM_{10}		$PM_{2.5}$	
		dscf/min[1]	gr/dscf[1]	lb/hr	ton/yr	lb/hr[2]	ton/yr[2]	lb/hr[2]	ton/yr[2]
EP-1.1W	West Grain Receiving/Loadout Baghouse	22,050	0.005	0.95	4.14	0.27	1.20	0.01	0.04
EP-1.1[3]	Grain Receiving Baghouse	33,000	0.005	1.41	6.19	0.41	1.80	0.01	0.06
EP-1.2A	Grain Bin Fill Leg 1 Spot Filter	625	0.005	0.03	0.12	0.01	0.03	2.68E-04	1.17E-03
EP-1.2B	Grain Bin Fill Leg 2 Spot Filter	625	0.005	0.03	0.12	0.01	0.03	2.68E-04	1.17E-03
EP-3.1	Grain Bin Reclaim Leg Spot Filter	425	0.005	0.02	0.08	5.28E-03	0.02	1.82E-04	7.98E-04
EP-3.2	Bulk Weigher Vent Filter	425	0.005	0.02	0.08	5.28E-03	0.02	1.82E-04	7.98E-04
EP-5.1	Surge Bin 1 Vent Filter	425	0.005	0.02	0.08	5.28E-03	0.02	1.82E-04	7.98E-04
EP-5.2	Surge Bin 2 Vent Filter	425	0.005	0.02	0.08	5.28E-03	0.02	1.82E-04	7.98E-04
EP-5.3	Surge Bin 3 Vent Filter	425	0.005	0.02	0.08	5.28E-03	0.02	1.82E-04	7.98E-04
EP-5.4	Surge Bin 4 Vent Filter	425	0.005	0.02	0.08	5.28E-03	0.02	1.82E-04	7.98E-04
EP-6.1[3]	Hammermill 1 Baghouse	5,600	0.005	0.24	1.05	0.13	0.57	0.10	0.42
EP-6.2[3]	Hammermill 2 Baghouse	5,600	0.005	0.24	1.05	0.13	0.57	0.10	0.42
EP-6.3[3]	Hammermill 3 Baghouse	5,600	0.005	0.24	1.05	0.13	0.57	0.10	0.42
EP-6.4[3]	Hammermill 4 Baghouse	5,600	0.005	0.24	1.05	0.13	0.57	0.10	0.42
EP-7.1	Meal Conveyor Spot Filter	250	0.005	0.01	0.05	5.79E-03	0.03	4.29E-03	0.02
EP-111[3]	DDGS Truck and Rail Loadout Building Filter	18,732	0.005	0.80	3.52	0.43	1.90	0.32	1.41
			Total:	**4.30**	**18.81**	**1.69**	**7.40**	**0.73**	**3.22**

[1] Emissions calculated using baghouse/filter manufacturer specifications.

[2] For EP-6.1, EP-6.2, EP-6.3, and EP-6.4 PM_{10} emissions are assumed to be 54% of PM emissions and $PM_{2.5}$ emissions are assumed to be 40% of PM emissions per South Coast Air Quality Management District *Final Methodology to Calculate PM 2.5 and PM 2.5 Significance Thresholds* Appendix A for Grain Milling, Drying. For remaining emission points, PM_{10} emissions are assumed to be 29% of PM emissions and $PM_{2.5}$ emissions are assumed to be 1% of PM emissions per South Coast Air Quality Management District *Final Methodology to Calculate PM2.5 and PM2.5 Significance Thresholds* Appendix A for Grain Elevators.

[3] EP-1.1, EP-6.1, EP-6.2, EP-6.3, EP-6.4, and EP-111 are a part of a combined PM emission limitation.

Fact Sheet Attachment

Grain Handling - Uncontrolled
EP-2.1W, EP-2.1, EP-2.2, and EP-2.3

Process Description		Annual Capacity[1]		Emission Factors[2]			Emission Rate					
				PM	PM_{10}	$PM_{2.5}$	PM		PM_{10}		$PM_{2.5}$	
		lb/hr	ton/yr	lb/ton	lb/ton	lb/ton	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
EP-2.1W	West Grain Storage Bin Vent	1,120,000	140,000	0.025	6.30E-03	1.10E-03	14.00	1.75	3.53	0.44	0.62	0.08
EP-2.1	Grain Bin 01	1,680,000	1,091,525	0.025	6.30E-03	1.10E-03	21.00	13.64	5.29	3.44	0.92	0.60
EP-2.2	Grain Bin 02	1,680,000					21.00		5.29		0.92	
EP-2.3	Grain Bin 03	1,680,000					21.00		5.29		0.92	
						Total:		**15.39**		**3.88**		**0.68**

[1] EP-2.1, EP-2.2, and EP-2.3 annual capacities are based on throughputs for 115,000,000 gallon denatured ethanol production, 56 lb/bushel corn, and 2.95 gal ethanol/bushel corn. EP-2.1W is limited to 140,000 ton/yr of grain receiving.

[2] Emission Factors are from AP-42 Tables 9.9.1-1 and 9.9.1-2 (05/03).

Grain Handling - Uncaptured: EP-1.1, EP-1.1W, EP-106, EP-109, EP-110, and EP-111.1

Process Description		Annual Capacity[1]		Emission Factors[2]			Emission Rate[3]					
				PM	PM_{10}	$PM_{2.5}$	PM		PM_{10}		$PM_{2.5}$	
		lb/hr	ton/yr	lb/ton	lb/ton	lb/ton	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
EP-1.1	Grain Receiving (Uncaptured)	1,680,000	1,091,525	0.035	7.80E-03	1.30E-03	1.47	0.96	0.33	0.21	0.05	0.04
EP-1.1W	West Grain Reciving (Uncaptured)[4]	1,120,000	140,000	0.035	7.80E-03	1.30E-03	0.98	0.12	0.22	0.03	0.04	4.55E-03
EP-1.1W	West Grain Loading (Uncaptured)[4]	280,000	140,000	0.086	2.90E-02	4.90E-03	0.60	0.30	0.20	0.10	0.03	0.02
EP-106	DDGS Flat Storage Building Uncaptured	80,000	350,847	3.30E-03	8.00E-04	3.30E-05	0.07	0.29	0.01	0.06	4.62E-04	2.03E-03
EP-109	DDGS Truck Loadout Building Uncaptured[2]	400,000	350,847	3.30E-03	8.00E-04	3.30E-05	0.33	0.29	0.07	0.06	2.31E-03	2.03E-03
EP-110	DDGS Rail Loadout Building Uncaptured[2]	400,000					0.33		0.07		2.31E-03	
EP-111.1	DDGS Loadout Conveyors	400,000	350,847	3.30E-03	8.00E-04	3.30E-05	0.33	0.29	0.07	0.06	2.31E-03	2.03E-03
						Total:		**2.25**		**0.53**		**0.06**

[1] EP-1.1 annual capacity is based on throughputs for 115,000,000 gallon denatured ethanol production, 56 lb/bushel corn, and 2.95 gal ethanol/bushel corn. EP-1.1W is limited to 140,000 ton/yr of grain receiving.

[2] Emission Factors are from AP-42 Chapter 9.9.1 (05/03).

[3] Emission Rates for EP-1.1 and EP1.1W assumes 95% capture due to 2-sided enclosure with baghouse, emission rates for EP-106, EP-109, EP-110 and EP-111.1 assume 50%, 45%, and 35% capture for $PM/PM_{10}/PM_{2.5}$ respectively due to partially enclosed building.

[4] Grain throughput/emissions are calculated twice for EP-1.1W to account for grain receiving at EP-1.1W as well as grain loading from EP-1.1W to EP-1.1.

Fact Sheet Attachment

Fermentation: EP-8-4

EP-8-4: Fermentation Scrubber #4			
	Emission Rate[2]		
Pollutant	lb/hr	ton/yr	Emission Rate Source
VOC[1]	12.45	54.53	Previous Permit Limit
HAPS			
Acetaldehyde[1]	0.65	2.85	2025 Stack Test
Acrolein[1]	0.092	0.40	2025 Stack Test
Formaldehyde[1]	6.45E-03	0.03	2025 Stack Test
Methanol[1]	0.063	0.28	2025 Stack Test

[1] The fermentation scrubber is a part of combined emission limitations on VOC, Acetaldehyde, Acrolein, Formaldehyde, and Methanol. This group includes the fementation scrubber (EP-8-4), the TEG reboiler still vent (EP-CC-03), DDGS dryer #1 (EP-102), DDGS dryer #2 (EP-103), DDGS cooler #1 (EP-104), and DDGS cooler #2 (EP-105).

[2] Stack testing emission rates and previous permit limits are summed values from the fermenation scrubber and distillation scrubbers with a 50% increase to account for a increase in production (from 80 MMgal/yr to 115 MMgal/yr).

Denatured Ethanol Production:	115,000,000 gallons/year
Anhydrous Ethanol Production:	112,194,000 gallons/year

EP-8-4: Fermentation Scrubber #4			
Pollutant	Emission Factor lb CO_2/gal of ethanol produced[1]	Emission Rate	
		lb/hr	ton/yr
CO_2	6.29	80,559	352,850

[1] CO_2 emissions have been estimated using an emission factor of 6.29 pounds of CO_2 emitted per gallon of ethanol produced. Emission factor from RTI International's December 14, 2010, draft "Greenhouse Gas Emissions Estimation Methodologies for Biogenic Emissions from Selected Source Categories: Solid Waste Disposal, Wastewater Treatment, Ethanol Fermentation" found on EPA's TTN website on 6/7/11.

Fact Sheet Attachment

DDGS Dryers #1 & #2 : EP-102 & EP-103

Operational Data		
Hours of Steady-State Operation:	8,760	hr/yr (each)
Maximum Ethanol Production:	115,000,000	gal/year
Maximum Corn Throughput[1]:	38,983,051	bu/year
	1,091,525	ton/yr
Maximum DDGS Produced[2]:	350,847	ton/yr (total)

[1] Maximum corn throughput is based on 115,000,000 gal/year ethanol production and 2.95 gal/bu ethanol yield from corn.

[2] Maximum DDGS production is based on DDGS yield of 18 lbs/bushel of corn.

Dryer Specifications[1]		
Dryer #1 Rating:	75.00	MMBtu/hr
	0.074	MMscf/hr
Dryer #2 Rating:	75.00	MMBtu/hr
	0.074	MMscf/hr
Natural Gas Heating Value[2]:	1,020	MMBtu/MMscf
Fired Heater Gas Flow:	73,529	scf/hr (each)
Hourly Rate of Dryers:	20.0	ton/hr (each)
Exhaust Volumetric Airflow	23,119	dscfm (each)

[1] Provided by the source in the application.

[2] Heating value from AP-42, Chapter 1.4, Table 1.4-1, Footnote "a"

Fact Sheet Attachment

DDGS Dryers #1 & #2 : EP-102 & EP-103

Steady-State Dryer Combustion and Process Emissions						
Pollutant	**Emission Factor[1]**	**Units of EF**	**Single Dryer Emission Rate**		**Combined Dryer Emission Rate**	
			lb/hr	**ton/yr**	**lb/hr**	**ton/yr**
PM[2]	2.50E-03	gr/dscf	0.50	2.17	0.99	4.34
PM_{10}[3]	3.63	lb/hr	3.63	15.90	7.26	31.80
$PM_{2.5}$[3]	1.39	lb/hr	1.39	6.09	2.78	12.18
SO_2	1.25	lb/hr	1.25	5.47	2.50	10.93
NO_X	100	lb/MMscf	7.35	32.21	14.71	64.41
CO	0.093	lb/MMBtu	6.98	30.55	13.95	61.10
VOC[4]	0.035	lb/MMBtu	2.61	11.43	5.22	22.86
CO_2	120,000	lb/MMscf	8,824	38,647	17,647	77,294
CH_4	2.30	lb/MMscf	0.17	0.74	0.34	1.48
N_2O	2.20	lb/MMscf	0.16	0.71	0.32	1.42
CO_2e[5]	-	-	8,871	38,856	17,742	77,711
Hazardous Air Pollutants						
Acetaldehyde[4]	0.238	lb/hr	0.24	1.04	0.48	2.08
Acrolein	0.302	lb/hr	0.30	1.32	0.60	2.65
Formaldehyde	0.065	lb/hr	0.06	0.28	0.13	0.57
Methanol	0.1382	lb/hr	0.14	0.61	0.28	1.21
2-Methylnaphthalene	2.40E-05	lb/MMscf	1.76E-06	7.7294E-06	3.53E-06	1.55E-05
3-Methylcholanthrene	1.80E-06	lb/MMscf	1.32E-07	5.7971E-07	2.65E-07	1.16E-06
7,12-Dimethylbenz(a)anthracene	1.60E-05	lb/MMscf	1.18E-06	5.1529E-06	2.35E-06	1.03E-05
Acenaphthene	1.80E-06	lb/MMscf	1.32E-07	5.7971E-07	2.65E-07	1.16E-06
Acenaphthylene	1.80E-06	lb/MMscf	1.32E-07	5.7971E-07	2.65E-07	1.16E-06
Anthracene	2.40E-06	lb/MMscf	1.76E-07	7.7294E-07	3.53E-07	1.55E-06
Benz(a)anthracene	1.80E-06	lb/MMscf	1.32E-07	5.7971E-07	2.65E-07	1.16E-06
Benzene	2.10E-03	lb/MMscf	1.54E-04	6.7632E-04	3.09E-04	1.35E-03
Benzo(a)pyrene	1.20E-06	lb/MMscf	8.82E-08	3.8647E-07	1.76E-07	7.73E-07
Benzo(b)fluoranthene	1.80E-06	lb/MMscf	1.32E-07	5.7971E-07	2.65E-07	1.16E-06
Benzo(g,h,i)perylene	1.20E-06	lb/MMscf	8.82E-08	3.8647E-07	1.76E-07	7.73E-07
Benzo(k)fluoranthene	1.80E-06	lb/MMscf	1.32E-07	5.7971E-07	2.65E-07	1.16E-06
Chrysene	1.80E-06	lb/MMscf	1.32E-07	5.7971E-07	2.65E-07	1.16E-06
Dibenzo(a,h)anthracene	1.20E-06	lb/MMscf	8.82E-08	3.8647E-07	1.76E-07	7.73E-07
Dichlorobenzene	1.20E-03	lb/MMscf	8.82E-05	3.8647E-04	1.76E-04	7.73E-04
Fluoranthene	3.00E-06	lb/MMscf	2.21E-07	9.6618E-07	4.41E-07	1.93E-06
Fluorene	2.80E-06	lb/MMscf	2.06E-07	9.0176E-07	4.12E-07	1.80E-06
Hexane	1.80	lb/MMscf	0.13	0.58	0.26	1.16
Indeno(1,2,3-cd)pyrene	1.80E-06	lb/MMscf	1.32E-07	5.7971E-07	2.65E-07	1.16E-06
Lead	5.00E-04	lb/MMscf	3.68E-05	1.6103E-04	7.35E-05	3.22E-04
Naphthalene	6.10E-04	lb/MMscf	4.49E-05	1.9646E-04	8.97E-05	3.93E-04
Phenanthrene	1.70E-05	lb/MMscf	1.25E-06	5.4750E-06	2.50E-06	1.10E-05
Pyrene	5.00E-06	lb/MMscf	3.68E-07	1.6103E-06	7.35E-07	3.22E-06
Toluene	3.40E-03	lb/MMscf	2.50E-04	1.0950E-03	5.00E-04	2.19E-03
Arsenic	2.00E-04	lb/MMscf	1.47E-05	6.4412E-05	2.94E-05	1.29E-04
Beryllium	1.20E-05	lb/MMscf	8.82E-07	3.8647E-06	1.76E-06	7.73E-06
Cadmium	1.10E-03	lb/MMscf	8.09E-05	3.5426E-04	1.62E-04	7.09E-04
Chromium	1.40E-03	lb/MMscf	1.03E-04	4.5088E-04	2.06E-04	9.02E-04
Cobalt	8.40E-05	lb/MMscf	6.18E-06	2.7053E-05	1.24E-05	5.41E-05
Manganese	3.80E-04	lb/MMscf	2.79E-05	1.2238E-04	5.59E-05	2.45E-04
Mercury	2.60E-04	lb/MMscf	1.91E-05	8.3735E-05	3.82E-05	1.67E-04
Nickel	2.10E-03	lb/MMscf	1.54E-04	6.7632E-04	3.09E-04	1.35E-03
Selenium	2.40E-05	lb/MMscf	1.76E-06	7.7294E-06	3.53E-06	1.55E-05

[1] Emission factors for VOC, SOx, Acetaldehyde, Acrolein, Formaldehyde, and Methanol are from engineering design company based on use of Swiss-Combi ecoDry integrated TO, a safety factor of 1.2 was applied. CO emission factor is an emissions guarantee from the dryer manufactuer with no safety factor. NO_X and remaining HAP emission factors are from AP-42, Chapter 1.4.

[2] PM emission factor is from dryer manufacturer. The emission factor is only representative of front end, Method 5 filterable PM.

[3] Emission factors are representative of filterable PM plus additional margin for condensable as requested by Chief. $PM_{2.5}$ was set at an NSR avoidance limit.

[4] $PM_{2.5}$, VOC, acetaldehyde, acrolein, and methanol emissions from EP-102 and EP-103 are restricted by a combined emission limitation in the permit.

[5] CO_2 equivalents are from 40 CFR Part 98 Subpart A Table A-1 Global Warming Potentials published on April 25, 2024. The CO_2e for CO_2 = 1, for CH_4 = 28, and for N_2O = 265.

Fact Sheet Attachment

EP-104 and EP-105: DDGS Cooling Filter #1 & #2

EP-104 and EP-105: $PM/PM_{10}/PM_{2.5}$ Emissions								
Process Description	**Baghouse Specifications**		**PM**		**PM_{10}[1]**		**$PM_{2.5}$[1]**	
	dscf/min[1]	**gr/dscf[1]**	**lb/hr**	**ton/yr**	**lb/hr**	**ton/yr**	**lb/hr**	**ton/yr**
EP-104: DDGS Cooling Filter #1	29,426	0.005	1.26	5.52	1.26	5.52	0.50	2.21
EP-105: DDGS Cooling Filter #2	29,426	0.005	1.26	5.52	1.26	5.52	0.50	2.21

[1] Emissions are calculated using filter specifications (vent airflow and grain loading) from design engineering company. PM_{10} is assumed equal to PM. $PM_{2.5}$ is assumed to be 40% of PM per South Coast Air Quality Management District CEIDARS document for Grain Milling/Drying.

EP-104 and EP-105: HAP Emissions (each)		
Pollutant	**lb/hr[1]**	**ton/yr**
VOC[2]	1.37	6.00
Acetaldehyde[2]	0.24	1.06
Acrolein[2]	0.06	0.27
Formaldehyde[2]	0.07	0.29
Methanol[2]	0.18	0.77

[1] VOC and HAP emission factors from engineering design company. Acetaldehyde Acrolein, Formaldehyde, and Methanol multiplied by a safety factor of 1.2.

[2] Steady-state Acetaldehyde, Acrolein, Formaldehyde, Methanol, and VOC emissions from EP-104 and EP-105 are restricted by a combined emission limitation in the permit.

Fact Sheet Attachment

Emission Point: EP-16

Total Heat Input Capacity:	249	MMBtu/hr
Heat Content of Natural Gas:	1,020	MMBtu/MMscf
Conversion using 1,020 Btu/scf:	0.24	MMscf/hr
Annual Hours of Operation:	8,760	hr/yr
Combined Limited Annual Heat Input:	1,576,800	MMBtu/yr

Pollutant	Emission Factor[1] (lb/MMscf)	Emission Factor units	PTE (lb/hr)	PTE (ton/yr)
PM	1.90	lb/MMscf	0.46	1.47
PM_{10}	7.60	lb/MMscf	1.86	5.87
$PM_{2.5}$	7.60	lb/MMscf	1.86	5.87
NO_x[2]	0.10	lb/MMBtu	24.90	78.84
SO_2	0.60	lb/MMscf	0.15	0.46
CO[2]	0.026	lb/MMBtu	6.47	20.50
VOC	5.50	lb/MMscf	1.34	4.25
Individual Hazardous Air Pollutants (HAP)[1]				
Benzene	2.10E-03	lb/MMscf	5.13E-04	1.62E-03
Dichlorobenzene	1.20E-03	lb/MMscf	2.93E-04	9.28E-04
Formaldehyde	7.50E-02	lb/MMscf	1.83E-02	5.80E-02
Hexane	1.80	lb/MMscf	0.44	1.39
Lead Compounds	5.00E-04	lb/MMscf	1.22E-04	3.86E-04
Naphthalene	6.10E-04	lb/MMscf	1.49E-04	4.71E-04
Toluene	3.40E-03	lb/MMscf	8.30E-04	2.63E-03
Arsenic Compounds	2.00E-04	lb/MMscf	4.88E-05	1.55E-04
Beryllium Compounds	1.20E-05	lb/MMscf	2.93E-06	9.28E-06
Cadmium Compounds	1.10E-03	lb/MMscf	2.69E-04	8.50E-04
Chromium Compounds	1.40E-03	lb/MMscf	3.42E-04	1.08E-03
Cobalt Compounds	8.40E-05	lb/MMscf	2.05E-05	6.49E-05
Manganese Compounds	3.80E-04	lb/MMscf	9.28E-05	2.94E-04
Mercury Compounds	2.60E-04	lb/MMscf	6.35E-05	2.01E-04
Nickel Compounds	2.10E-03	lb/MMscf	5.13E-04	1.62E-03
Selenium Compounds	2.40E-05	lb/MMscf	5.86E-06	1.86E-05
Polycyclic Organic Matter	8.82E-05	lb/MMscf	2.15E-05	6.82E-05
Total HAPs	-	-	0.46	1.46
GHGs[3]				
CO_2	53.06	kg/MMBtu	29,127	127,578
CH_4	1.00E-03	kg/MMBtu	0.55	2.40
N_2O[4]	1.00E-04	kg/MMBtu	5.49E-02	0.24
GHGs (mass basis)	-	-	29,128	127,580
CO_2e[5]	-	-	29,157	127,709

[1] Emission Factors are from AP-42 Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4 (4/26) unless otherwise specified.

[2] Emission factor for NO_X obtained from NSPS Subpart Db, emission factor for CO is from 2006 test data.

[3] Emission factors for Greenhouse Gases (GHG) are default values from 40 CFR 98 Tables C-1 and C-2. This PTE summary follows the methodologies prescribed in 40 CFR Part 98.

[4] GHG (lb/hr) = [Emission Factor (kg/MMBtu)] x (Potential Heat Input Capacity (MMBtu/hr)] / (907.185 kg/ton) * (2000 lb/ton)

[5] ton CO_2e/yr = [(ton/yr CO_2)*1] + [(ton/yr CH_4)*28] + [(ton/yr N_2O)*265]; CO_2 equivalents are found in 40 CFR Part 98 Subpart A Table A-1 *Global Warming Potentials* published on April 25, 2024 (Title 129, Chapter 1). The CO_2e for CO_2 = 1, for CH_4 = 28, and for N_2O = 265.

Fact Sheet Attachment

Emission Point: EP-39

Total Heat Input Capacity:	152.5	MMBtu/hr
Heat Content of Natural Gas:	1,020	MMBtu/MMscf
Conversion using 1,020 Btu/scf:	0.15	MMscf/hr
Annual Hours of Operation:	8,760	hr/yr
Potential Annual Heat Input:	1,335,900	MMBtu/yr

Pollutant	Emission Factor[1] (lb/MMscf)	Emission Factor units	PTE (lb/hr)	PTE (ton/yr)
PM	1.90	lb/MMscf	0.28	1.24
PM_{10}	7.60	lb/MMscf	1.14	4.98
$PM_{2.5}$	7.60	lb/MMscf	1.14	4.98
NO_x[2]	0.059	lb/MMBtu	9.00	39.41
SO_2	0.60	lb/MMscf	0.09	0.39
CO[2]	0.0735	lb/MMBtu	11.21	49.09
VOC	5.50	lb/MMscf	0.82	3.60
Individual Hazardous Air Pollutants (HAP)[1]				
Benzene	2.10E-03	lb/MMscf	3.14E-04	1.38E-03
Dichlorobenzene	1.20E-03	lb/MMscf	1.79E-04	7.86E-04
Formaldehyde	7.50E-02	lb/MMscf	1.12E-02	0.05
Hexane	1.80	lb/MMscf	2.69E-01	1.18
Lead Compounds	5.00E-04	lb/MMscf	7.48E-05	3.27E-04
Naphthalene	6.10E-04	lb/MMscf	9.12E-05	3.99E-04
Toluene	3.40E-03	lb/MMscf	5.08E-04	2.23E-03
Arsenic Compounds	2.00E-04	lb/MMscf	2.99E-05	1.31E-04
Beryllium Compounds	1.20E-05	lb/MMscf	1.79E-06	7.86E-06
Cadmium Compounds	1.10E-03	lb/MMscf	1.64E-04	7.20E-04
Chromium Compounds	1.40E-03	lb/MMscf	2.09E-04	9.17E-04
Cobalt Compounds	8.40E-05	lb/MMscf	1.26E-05	5.50E-05
Manganese Compounds	3.80E-04	lb/MMscf	5.68E-05	2.49E-04
Mercury Compounds	2.60E-04	lb/MMscf	3.89E-05	1.70E-04
Nickel Compounds	2.10E-03	lb/MMscf	3.14E-04	1.38E-03
Selenium Compounds	2.40E-05	lb/MMscf	3.59E-06	1.57E-05
Polycyclic Organic Matter	8.82E-05	lb/MMscf	1.32E-05	5.78E-05
Total HAPs	-	-	0.28	1.24
GHGs[3]				
CO_2	53.06	kg/MMBtu	17,839	78,135
CH_4	1.00E-03	kg/MMBtu	0.34	1.47
N_2O[4]	1.00E-04	kg/MMBtu	3.36E-02	0.15
GHGs (mass basis)	-	-	17,839	78,137
CO_2e[5]	-	-	17,857	78,215

[1] Emission Factors are from AP-42 Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4 (4/26) unless otherwise specified.

[2] Emission factor for NO_X and CO obtained from boiler design specifications.

[3] Emission factors for Greenhouse Gases (GHG) are default values from 40 CFR 98 Tables C-1 and C-2. This PTE summary follows the methodologies prescribed in 40 CFR Part 98.

[4] GHG (lb/hr) = [Emission Factor (kg/MMBtu)] x (Potential Heat Input Capacity (MMBtu/hr)] / (907.185 kg/ton) * (2000 lb/ton)

[5] ton CO_2e/yr = [(ton/yr CO_2)*1] + [(ton/yr CH_4)*28] + [(ton/yr N_2O)*265]; CO_2 equivalents are found in 40 CFR Part 98 Subpart A Table A-1 *Global Warming Potentials* published on April 25, 2024 (Title 129, Chapter 1). The CO_2e for CO_2 = 1, for CH_4 = 28, and for N_2O = 265.

Fact Sheet Attachment

Emission Point: EP-16 and EP-39

	Natural Gas Boiler #1: EP-16		Natural Gas Boiler #2: EP-39	
Heat Input Capacity:	249	MMBtu/hr	152.5	MMBtu/hr
	0.24	MMscf/hr	0.15	MMscf/hr
Annual Heat Input:[1]	240,900	MMBtu/yr	1,335,900	MMBtu/yr
	236.18	MMscf/yr	1,309.71	MMscf/yr
Heat Content:	1,020	MMBtu/MMscf	1,020	MMBtu/MMscf

[1] A combined annual heat input limitation of 1,576,800 MMBtu/yr was requested in the application. This sheet assumes that EP-39 is used at maximum heat input capacity of 1,335,900 MMBtu/yr, with the remaining annual heat input provided by EP-16.

Pollutant	Emission Factor[1] (lb/MMscf)	Emission Factor units	Limited EP-16 (ton/yr)	Combined PTE (ton/yr)
PM	1.90	lb/MMscf	0.22	1.47
PM_{10}	7.60	lb/MMscf	0.90	5.87
$PM_{2.5}$	7.60	lb/MMscf	0.90	5.87
NO_x[2]	0.10	lb/MMBtu	12.05	51.45
SO_2	0.60	lb/MMscf	0.07	0.46
CO[2]	0.026	lb/MMBtu	3.13	52.23
VOC	5.50	lb/MMscf	0.65	4.25
Individual Hazardous Air Pollutants (HAP)[1]				
Benzene	2.10E-03	lb/MMscf	2.48E-04	1.62E-03
Dichlorobenzene	1.20E-03	lb/MMscf	1.42E-04	9.28E-04
Formaldehyde	7.50E-02	lb/MMscf	8.86E-03	5.80E-02
Hexane	1.80	lb/MMscf	0.21	1.39
Lead Compounds	5.00E-04	lb/MMscf	5.90E-05	3.86E-04
Naphthalene	6.10E-04	lb/MMscf	7.20E-05	4.71E-04
Toluene	3.40E-03	lb/MMscf	4.02E-04	2.63E-03
Arsenic Compounds	2.00E-04	lb/MMscf	2.36E-05	1.55E-04
Beryllium Compounds	1.20E-05	lb/MMscf	1.42E-06	9.28E-06
Cadmium Compounds	1.10E-03	lb/MMscf	1.30E-04	8.50E-04
Chromium Compounds	1.40E-03	lb/MMscf	1.65E-04	1.08E-03
Cobalt Compounds	8.40E-05	lb/MMscf	9.92E-06	6.49E-05
Manganese Compounds	3.80E-04	lb/MMscf	4.49E-05	2.94E-04
Mercury Compounds	2.60E-04	lb/MMscf	3.07E-05	2.01E-04
Nickel Compounds	2.10E-03	lb/MMscf	2.48E-04	1.62E-03
Selenium Compounds	2.40E-05	lb/MMscf	2.83E-06	1.86E-05
Polycyclic Organic Matter	8.82E-05	lb/MMscf	1.04E-05	6.82E-05
Total HAPs	-	-	0.22	1.46
GHGs[3]				
CO_2	53.06	kg/MMBtu	14,090	92,225
CH_4	1.00E-03	kg/MMBtu	0.27	1.74
N_2O[4]	1.00E-04	kg/MMBtu	2.66E-02	0.17
GHGs (mass basis)	-	-	14,090	92,227
CO_2e[5]	-	-	14,104	92,320

[1] Emission Factors are from AP-42 Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4 (4/26) unless otherwise specified.

[2] Emission factor for NO_X obtained from NSPS Subpart Db, emission factor for CO is from 2006 test data.

[3] Emission factors for Greenhouse Gases (GHG) are default values from 40 CFR 98 Tables C-1 and C-2. This PTE summary follows the methodologies prescribed in 40 CFR Part 98.

[4] GHG (lb/hr) = [Emission Factor (kg/MMBtu)] x (Potential Heat Input Capacity (MMBtu/hr)] / (907.185 kg/ton) * (2000 lb/ton)

[5] ton CO_2e/yr = [(ton/yr CO_2)*1] + [(ton/yr CH_4)*28] + [(ton/yr N_2O)*265]; CO_2 equivalents are found in 40 CFR Part 98 Subpart A Table A-1 *Global Warming Potentials* published on April 25, 2024 (Title 129, Chapter 1). The CO_2e for CO_2 = 1, for CH_4 = 28, and for N_2O = 265.

Fact Sheet Attachment

Emission Point: EP-16 and EP-39

The following table reflects the maximum PTE between EP-16 combusting the entirety of the combined annual heat input limit and EP-39 combusting the maximum heat input the unit is capable of and EP-16 combusting the remaining amount of limited annual heat input.

Pollutant	Maximum PTE ton/yr
PM	1.47
PM_{10}	5.87
$PM_{2.5}$	5.87
NO_x	78.84
SO_2	0.46
CO	52.23
VOC	4.25
HAP	
Benzene	1.62E-03
Dichlorobenzene	9.28E-04
Formaldehyde	0.06
Hexane	1.39
Lead Compounds	3.86E-04
Naphthalene	4.71E-04
Toluene	2.63E-03
Arsenic Compounds	1.55E-04
Beryllium Compounds	9.28E-06
Cadmium Compounds	8.50E-04
Chromium Compounds	1.08E-03
Cobalt Compounds	6.49E-05
Manganese Compounds	2.94E-04
Mercury Compounds	2.01E-04
Nickel Compounds	1.62E-03
Selenium Compounds	1.86E-05
Polycyclic Organic Matter	6.82E-05
Total HAPs	1.46
CO_2	127,578
CH_4	2.40
N_2O	0.24
GHGs (mass basis)	127,580
CO_2e	127,709

Fact Sheet Attachment

Cooling Tower C: EP-19

Operational Data		
Circulation rate:	1,980,000	gal/hr
Drift loss percent:	0.00175	%
Water density:	8.34	lb/gal
Actual Operating Hours	8760	hr/yr

TDS concentration: 2,500 ppm single sample event
2,500 ppm average annual rate

PM/PM_{10} emission factor = $\left(\frac{ppmTDS}{1{,}000{,}000 lbswater}\right)\left(\frac{8.34 lbs}{gal} water\right)\left(\frac{1{,}000 gal}{1 Mgal}\right)\left(\frac{0.00175}{100} driftloss\right)$

0.000364875 lbs/Mgal single sample event (highest hourly rate)
0.000364875 lbs/Mgal average annual rate

Pollutant	Hourly PTE (lb/hr)	Annual PTE (ton/yr)
PM	0.72	3.16
PM_{10}[1]	0.51	2.22
$PM_{2.5}$[1]	0.30	1.33

[1] PM_{10} is 70% of PM and $PM_{2.5}$ is 42% of PM based CEIDARS.

Fact Sheet Attachment

MVR Evaporation System: EP-112

EP-112: MVR Evaporation System		
Pollutant	**(lb/hr)[1]**	**(ton/yr)**
VOC	0.10	0.46
Hazardous Air Pollutants		
Acetaldehyde	-	-
Acrolein	-	-
Formaldehyde	-	-
Methanol	0.07	0.29
Total HAP	**0.07**	**0.29**

[1] Emission factors from engineering design company multiplied by a safety factor of 1.2.

Fact Sheet Attachment

Storage Tanks: EP-30, EP-37, EP-113, EP-114, EP-115, EP-116, EP-117

Storage Tanks

EP ID#	Tank ID	Product Stored	Throughput	Units	Control Efficiency	Ethanol[2] (lb/yr)	Gasoline[2] (lb/yr)	VOC (ton/yr)
EP-30	EU-30 (T-26101)	200 Proof Storage Tank #3	37,398,000	gal	0%	353.00	0	0.18
EP-37	EU-37.1	Gas Storage Tank	3,000	gal	0%	0	381.27	0.19
EP-113	EU-113 (T-2602)	200 Proof Storage Tank #4	37,398,000	gal	0%	255.56	0	0.13
EP-114	EU-114 (T-2603)	200 Proof Storage Tank #5	37,398,000	gal	0%	255.56	0	0.13
EP-115	EU-115 (T-2604)	Day Tank #1	56,097,000	gal	0%	471.60	0	0.24
EP-116	EU-28.1 (T-6101)	Day Tank #2, 200 Proof Storage Tank #1	56,097,000	gal	95%	489.63	0	0.24
	EU-29.1 (T-6102)[3]	Reprocess Tank, 200 Proof Storage Tank #2	12,000,000	gal	95%	286.56	0	0.14
EP-117	EU-117 (T-2605)	Denaturant Tank	2,806,000	gal	0%	0	908.30	0.45
					Total	**2,111.91**	**1,289.57**	**1.70**

[1] EU-28.1 and EU-29.1 are controlled by CE-116: Vapor Collection System with Loadout Flare.

[2] Emission rates from Tanks 5.3.

[3] Tank EU-29.1 is used to store overflow or off-spec denatured ethanol. Maximum throughput was provided by the source in the application.

PTE	Gasoline Fraction	Ethanol Fraction	Denaturant	Emissions (ton/yr)
Individual HAP				
Acetaldehyde	-	2.00E-04	-	2.11E-04
Benzene	0.03	-	0.01	9.31E-03
Cumene	1.00E-04	-	-	1.91E-05
Ethyl Benzene	5.00E-05	-	-	9.53E-06
Hexanes	0.05	-	0.50	0.24
Methanol	-	2.00E-04	-	2.11E-04
Styrene	0.0088	-	-	1.68E-03
Toluene	5.00E-03	-	-	9.53E-04
Xylenes	5.00E-04	-	-	9.53E-05
			Total Combined HAP	**0.25**

Fact Sheet Attachment

Process Tanks: EP-ST, EP-WST, and EP-PTV

Anhydrous Ethanol Produced: 112,194,000 gal/yr

Emission Factors from Process Vents (lb/gallons of anhydrous ethanol produced)[1]

Uncontrolled Vents	VOC	Acetaldehyde	Acrolein	Methanol
Slurry Tank	1.69E-04	1.39E-06	-	3.27E-07
Liquefaction Tank	1.69E-04	1.39E-06	-	3.27E-07
Whole Stillage Tank	4.48E-05	3.84E-07	1.71E-09	8.29E-08
Thin Stillage Tank	1.68E-05	1.49E-07	-	3.22E-08
Syrup Tank	1.22E-05	2.58E-07	1.71E-09	3.71E-08
Cook Water Tank	4.22E-05	3.49E-07	-	8.09E-08

[1] Emission Factors taken from NDWEE average process vent stack test data. Emission factors for a liquifaction tank were used as a conservative estimate due to a lack of data for a slurry tank.

PTE (ton/yr)

Uncontrolled Vents	VOC	Acetaldehyde	Acrolein	Methanol
Slurry Tank	9.47	0.08	-	0.02
Liquefaction Tank	9.47	0.08	-	0.02
Whole Stillage Tank	2.51	0.02	9.58E-05	4.65E-03
Thin Stillage Tank	0.94	8.37E-03	-	1.81E-03
Syrup Tank	0.68	1.45E-02	9.58E-05	2.08E-03
Cook Water Tank	2.37	0.02	-	4.54E-03

Fact Sheet Attachment

Liquid Loadout: EP-116

Anhydrous Ethanol Loading Rate:	112.19	MMgal/yr
Denaturant Loading Rate:	2.81	MMgal/yr
Denatured Ethanol Loading Rate:	115.00	MMgal/yr

	Truck loadout	Rail loadout
Capture efficiency:	97.0%	97.0%
Control efficiency:	98.0%	98.0%
Overall control efficiency:	95.1%	95.1%

Material Physical Data	Gasoline (RVP-13)	Ethanol	Denaturant (Natural Gasoline)
Molecular weight (M, lbs/lbs-mole)	62	46	62
Temperature (T, deg R)[1]	521.37	521.37	521.37
Vapor pressure (P, psia)	9.9	1.22	9.9
Liquid molecular weight (ML)	92	46	92
Density (D, lb/gal)	5.6	6.6	5.6
Liquid Mole Fraction (X)[2]	N/A	0.99	0.01

[1] Temperatures from TANKS 5.3, average ambient temperature for Grand Island, NE.

[2] Liquid Mole Fraction (X) was calculated as follows, where V = loading rate:

$$X = \frac{\left(\frac{D * V}{ML}\right)}{\left(\frac{D_{ethanol} * V_{ethanol}}{ML_{ethanol}}\right) + \left(\frac{D_{denaturant} * V_{denaturant}}{ML_{denaturant}}\right)}$$

Fact Sheet Attachment

Liquid Loadout: EP-116

Hazardous Air Pollutant Weight Fractions

Individual HAPs	Weight Fraction of VOC Emissions		
	Gasoline	Ethanol	Denaturant
Acetaldehyde	0	2.00E-04	0
Benzene	0.0435	0	1.00E-02
Cumene	0.0225	0	0
Ethyl benzene	0.0275	0	0
Hexanes	0.1425	0	0.50
Methanol	0	2.00E-04	0
Styrene	8.80E-03	0	0
Toluene	0.2375	0	0
Xylene	0.1950	0	0
Total HAP	0.68	4.00E-04	0.51

Saturation Factors[1][2][3] (AP-42, Table 5.2-1)

$S_{\text{normal dedicated, submerged loading}}$	0.6	Saturation factor
$S_{\text{clean cargo, submerged loading}}$	0.5	Saturation factor
$S_{\text{clean cargo, splash loading}}$	1.45	Saturation factor

[1] Truck loadout is assumed to be non-dedicated trucks, which previous load was unleaded gasoline.

[2] The gasoline vapors are assumed to be displaced by the ethanol, for worst-case assumption.

[3] Rail loadout is assumed to be splash loading of clean cargo tanks.

Fact Sheet Attachment

Liquid Loadout: EP-116

VOC Emissions

Denatured Ethanol Emission Factor Calculations

	Truck Loadout Uncontrolled Emission Factor[1] (lb VOC/Mgal)	Railcar Loadout Uncontrolled Emission Factor[1] (lb VOC/Mgal)	Truck Loadout Controlled Emission Factor[1] (lb VOC/Mgal)	Railcar Loadout Controlled Emission Factor[1] (lb VOC/Mgal)
$EF_{gasoline}$	1.467	N/A	0.0725	N/A
$EF_{ethanol}$	0.662	1.921	0.0327	0.0949
$EF_{denaturant}$	0.077	0.223	0.0038	0.0110
EF_{VOC}	2.206	2.144	0.1090	0.1059

[1] VOC emission factor equation from AP-42, Section 5.2.2 - Loading Losses (1/1995)

EF = 12.46*S*P*M/T*(1-eff/100)*X = lbs/Mgal per component

$EF_{gasoline}$ emission factors assumes S = S_{normal} - $S_{clean\ cargo}$ and do not use the Liquid Mole Fraction (X) in the equations. This represents gasoline vapors present in the truck prior to the loading of denatured ethanol.

Total VOC Emission Calculations from Denatured Ethanol Loadout

Loadout Type/Material	(A) Denatured Ethanol Loaded Out (Mgal/yr)	(B) VOC Emission Factor (lb VOC/Mgal)	(C)=(A)x(B)/2000 Total VOC Emissions (ton/yr)
100% Loadout by Truck	115,000	0.109	6.27
100% Loadout By Rail	115,000	0.106	6.09

Fact Sheet Attachment

Liquid Loadout: EP-116

Controlled Hazardous Air Pollutant Emissions assuming 100% Truck Loadout

Hazardous Air Pollutant	Truck Loadout (ton/yr)			Maximum Controlled HAP Emissions (ton/yr)
	Gasoline	Ethanol	Denaturant	
Acetaldehyde	0	3.76E-04	0	3.76E-04
Benzene	0.18	0	2.19E-03	0.18
Cumene	0.09	0	0	0.09
Ethyl benzene	0.11	0	0	0.11
Hexanes	0.59	0	0.11	0.70
Methanol	0	3.76E-04	0	3.76E-04
Styrene	0.04	0	0	0.04
Toluene	0.99	0	0	0.99
Xylene	0.81	0	0	0.81
			Total HAPs	**2.12**

Controlled Hazardous Air Pollutant Emissions assuming 100% Rail Loadout

Hazardous Air Pollutant	Rail Loadout (ton/yr)		Maximum Controlled HAP Emissions (ton/yr)
	Ethanol	Denaturant	
Acetaldehyde	1.09E-03	0	1.09E-03
Benzene	0	6.34E-03	6.34E-03
Cumene	0	0	0
Ethyl benzene	0	0	0
Hexanes	0	0.32	0.32
Methanol	1.09E-03	0	1.09E-03
Styrene	0	0	0
Toluene	0	0	0
Xylene	0	0	0
		Total HAPs	**0.33**

Fact Sheet Attachment

Liquid Loadout: EP-116
Maximum Emissions from Denatured Ethanol Loadout

Pollutant	Ethanol Loadout Emissions (ton/yr)
VOC	6.27
Individual HAPs	
Acetaldehyde	1.09E-03
Benzene	0.18
Cumene	0.09
Ethyl benzene	0.11
Hexanes	0.70
Methanol	1.09E-03
Styrene	0.04
Toluene	0.99
Xylene	0.81
Total HAPs	**2.12**

Fact Sheet Attachment

Liquid Loadout Flare: EP-116 - Flaring Emissions

Design rate of flare:	18	MMBtu/hr
Operating hours:	8,760	hr/yr
Denatured Ethanol Loaded	115.00	MMgal/yr

Flaring Emission Summary			
Pollutant	**Emission Factor[1] (lb/MMBtu)**	**Hourly Emissions (lb/hr)**	**Annual Emissions (ton/yr)**
NO_x	0.068	1.22	5.36
CO	0.310	5.58	24.44
VOC[2]	-	-	-

[1] AP-42 Table 13.5-1 (12/16).

[2] VOC emissions calculated in the liquid loadout sheet.

Natural Gas Combustion

Design rate of pilot for flare:	9.80E-04	MMscf/hr	(1 MMBtu/hr)
Operating hours:	8,760	hr/yr	

Pilot Emission Summary			
Pollutant	**Emission Factor[1] (lb/MMscf)**	**Hourly Emissions (lb/hr)**	**Annual PTE (ton/yr)**
PM	1.9	1.86E-03	8.16E-03
PM_{10}	7.6	7.45E-03	0.03
$PM_{2.5}$	7.6	7.45E-03	0.03
SO_2	0.6	5.88E-04	2.58E-03
NO_x	100	0.10	0.43
CO	84	0.08	0.36
VOC	5.5	5.39E-03	0.02
CO_2	120,000	117.65	515.29
CH4	2.3	2.25E-03	9.88E-03
N_2O	2.2	2.16E-03	9.45E-03
CO_2e	-	1.18E+02	5.18E+02
Individual HAPs			
Benzene	2.10E-03	2.06E-06	9.02E-06
Dichlorobenzene	1.20E-03	1.18E-06	5.15E-06
Formaldehyde	7.50E-02	7.35E-05	3.22E-04
n-Hexane	1.80	1.76E-03	7.73E-03
Lead Compounds	5.00E-04	4.90E-07	2.15E-06
Naphthalene	6.10E-04	5.98E-07	2.62E-06
Polycyclic Organic Matter	8.82E-05	8.65E-08	3.79E-07
Toluene	3.40E-03	3.33E-06	1.46E-05
Arsenic Compounds	2.00E-04	1.96E-07	8.59E-07
Beryllium Compounds	1.20E-05	1.18E-08	5.15E-08
Cadmium Compounds	1.10E-03	1.08E-06	4.72E-06
Chromium Compounds	1.40E-03	1.37E-06	6.01E-06
Cobalt Compounds	8.40E-05	8.24E-08	3.61E-07
Manganese Compounds	3.80E-04	3.73E-07	1.63E-06
Mercury Compounds	2.60E-04	2.55E-07	1.12E-06
Nickel Compounds	2.10E-03	2.06E-06	9.02E-06
Selenium Compounds	2.40E-05	2.35E-08	1.03E-07
Total HAPs	**-**	**1.85E-03**	**8.11E-03**

[1] Natural gas combustion AP-42 emission factors came from AP-42, Section 1.4 (7/1998).

Fact Sheet Attachment

Liquid Loadout Flare: EP-116 - Flaring Emissions

Total Emission Summary		
Pollutant	**Hourly Emissions (lb/hr)**	**Annual PTE (ton/yr)**
PM	1.86E-03	8.16E-03
PM_{10}	7.45E-03	3.26E-02
$PM_{2.5}$	7.45E-03	3.26E-02
SO_2	5.88E-04	2.58E-03
NO_x	1.32	5.79
CO	5.66	24.80
VOC	0.01	0.02
CO_2	117.65	515.29
CH4	2.25E-03	9.88E-03
N_2O	2.16E-03	9.45E-03
CO_2e	118.36	518.43
Individual HAPs		
Benzene	2.06E-06	9.02E-06
Dichlorobenzene	1.18E-06	5.15E-06
Formaldehyde	7.35E-05	3.22E-04
n-Hexane	1.76E-03	7.73E-03
Lead Compounds	4.90E-07	2.15E-06
Naphthalene	5.98E-07	2.62E-06
Polycyclic Organic Matter	8.65E-08	3.79E-07
Toluene	3.33E-06	1.46E-05
Arsenic Compounds	1.96E-07	8.59E-07
Beryllium Compounds	1.18E-08	5.15E-08
Cadmium Compounds	1.08E-06	4.72E-06
Chromium Compounds	1.37E-06	6.01E-06
Cobalt Compounds	8.24E-08	3.61E-07
Manganese Compounds	3.73E-07	1.63E-06
Mercury Compounds	2.55E-07	1.12E-06
Nickel Compounds	2.06E-06	9.02E-06
Selenium Compounds	2.35E-08	1.03E-07
Total HAPs	**1.85E-03**	**8.11E-03**

Fact Sheet Attachment

WDGS: EP-32-1

Annual Corn Throughput:	1,091,525	ton/yr
Annual Buschel Throughput:	38,983,051	bu/yr
	47.26	lbs WDGS/bu corn
WDGS Produced:	921,169	ton/yr
	105.16	ton/hr

WDGS				
Pollutant	**DENCO Emission Factor**	**Units**	**Emissions (lb/hr)**	**Emissions (ton/yr)**
VOC	8.30E-03	lb/ton	0.87	3.82
Individual HAPs				
Acetaldehyde	1.11E-04	lb/ton	0.01	0.05
Acrolein	1.67E-05	lb/ton	1.76E-03	7.69E-03
Formaldehyde	2.22E-04	lb/ton	0.02	0.10
Methanol	4.44E-05	lb/ton	4.67E-03	0.02
		Total HAPs	**0.04**	**0.18**

Fact Sheet Attachment

Haul Roads: EP-4W and EP-32

Paved roads {AP-42 Chapter 13.2.1 (1/11)}

Equation (2): $$E = k \times (sL)^{0.91} \times (W)^{1.02} \times \left(1 - \frac{P}{4 \times 365}\right)$$

	k
PM	0.011
PM_{10}	0.0022
$PM_{2.5}$	0.00054

Unpaved roads {AP-42 Chapter 13.2.2 (11/06)}

Equation (1a): (Modified) $$E = k \times \left(\frac{sC}{12}\right)^{a} \times \left(\frac{W}{3}\right)^{b} \times \left(\frac{365 - P}{365}\right) \times \left(\frac{S}{30}\right)^{d} \times (1 - CE)$$

	k	*a*	*b*	*d*
PM	4.9	0.7	0.45	0.3
PM_{10}	1.5	0.9	0.45	0.5
$PM_{2.5}$	0.15	0.9	0.45	0.5

Haul Road / Traffic Parameters

Activity / Road Description	Road Type / Silt Value		Roundtrip Length (feet)		Truck Weight (ton)			Ave. Speed (mph)	Unrestricted Maximum Throughput (units/yr)	Ave. Truck Capacity (units/truck)		Annual VMT
			empty	full	empty	full	Ave.					
WDGS Loadout	p	3.00	3,400	1,600	19	47	28.0	15	921,169	28	ton	31,154
DDGS Loadout	p	3.00	1,700	2,900	17	45	34.7	15	350,847	28	ton	10,917
Syrup[1]	p	3.00	2,000	2,800	17	42	31.6	15	35,208	25	ton	1,280
Corn Oil	p	3.00	2,000	2,800	17	42	31.6	15	16,992	25	ton	618
Ethanol Loadout	p	3.00	2,350	2,250	14	40	26.7	15	115,000,000	7,600	gal	13,183
Denaturant Delivery	p	3.00	2,950	2,100	14	42	25.6	15	2,806,000	9,900	gal	271
West Grain Receiving	p	3.00	1,850	1,650	14	44	28.1	15	140,000	30	ton	3,093
West Grain Bin Loadout	p	3.00	1,900	3,300	14	44	33.0	15	140,000	30	ton	4,596
East Grain Receiving	p	3.00	600	2,800	14	44	38.7	15	951,525	30	ton	20,424

[1] Syrup maximum throughput provided by the source in the application.

[2] Oil maximum throughput determined by assuming yield of 1 lb of corn oil per bushel of corn.

Emission Calculations

	Emission Factors (lb/VMT)			Potential Emissions (ton/yr)		
	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
WDGS Loadout	0.84	0.17	0.04	13.06	2.61	0.64
DDGS Loadout	1.04	0.21	0.05	5.70	1.14	0.28
Syrup[1]	0.95	0.19	0.05	0.61	0.12	0.03
Corn Oil	0.95	0.19	0.05	0.29	0.06	0.01
Ethanol Loadout	0.80	0.16	0.04	5.28	1.06	0.26
Denaturant Delivery	0.77	0.15	0.04	0.10	2.08E-02	5.11E-03
West Grain Receiving	0.84	0.17	0.04	1.31	0.26	0.06
West Grain Bin Loadout	0.99	0.20	0.05	2.28	0.46	0.11
East Grain Receiving	1.17	0.23	0.06	11.93	2.39	0.59
Total Annual Emissions:				**40.55**	**8.11**	**1.99**

Description of Constants/Variables

E: haul road emissions (lb/VMT)

k, d: dimensionless constants from Draft AP-42 Chapter 13.IV (paved)

k, a, b, c, d: dimensionless constants from AP-42 Tables 13.2.1-1 & 13.2.2-2 (unpaved)

sL: silt loading (g/m^2) of paved road surface

sC: silt content (%) of unpaved road surface

W: average vehicle weight (tons)

P: days/yr with at least 0.01" of precipitation
P = 90 default = 90

S: mean vehicle speed on road (mph)
default = 30, minimum =15

CE: unpaved road, dust control efficiency
CE = 0 % default = 0%

VMT: vehicle miles traveled

Fact Sheet Attachment

Equipment Leaks: EP-24

Volatile Organic Carbon Leaks

Process Stream	Equipment Component Source	Product	Component Count	Emission Factor (kg/comp.-hr)[1]	Emission Factor (lb/comp.-hr)	Control Effectiveness[2]	TOC Weight[3] (%)	VOC Emissions (tpy)
Fermentation	Valves	Heavy Liquid	718	0.00023	0.0005	84%	13.00%	0.0332
	Pumps	Heavy Liquid	29	0.00862	0.0190	69%	13.00%	0.0973
	Pressure-Relief Valves	Gas/Vapor	16	0.104	0.2293	87%	13.00%	0.2715
	Sampling Connections	All	30	0.015	0.0331	69%	13.00%	0.1751
	Flanges (connectors)	All	2,397	0.00183	0.0040	0%	13.00%	5.5064
Distillation	Valves	Gas/Vapor	199	0.00597	0.0132	87%	81.70%	1.2184
	Valves	Light Liquid	1,106	0.00403	0.0089	84%	81.70%	5.6261
	Pumps	Light Liquid	30	0.0199	0.0439	69%	81.70%	1.4600
	Pressure-Relief Valves	Gas/Vapor	45	0.104	0.2293	87%	81.70%	4.7998
	Sampling Connections	All	25	0.015	0.0331	69%	81.70%	0.9171
	Flanges (connectors)	All	4,215	0.00183	0.0040	0%	81.70%	60.8525
Tank Farm	Valves	Gas/Vapor	1	0.00597	0.0132	87%	100.00%	0.0075
	Valves	Light Liquid	407	0.00403	0.0089	84%	100.00%	2.5341
	Pumps	Light Liquid	10	0.0199	0.0439	69%	100.00%	0.5957
	Pressure-Relief Valves	Gas/Vapor	3	0.104	0.2293	87%	100.00%	0.3917
	Sampling Connections	All	4	0.015	0.0331	69%	100.00%	0.1796
	Flanges (connectors)	All	1,275	0.00183	0.0040	0%	100.00%	22.5304
Total								**107.1965**

[1]Emission factors are the SOCMI emission factors from Protocol for Equipment Leak Emission Estimates, EPA-453/R-95-017, Table 2-1.

[2]Control Effectiveness are from Protocol for Equipment Leak Emission Estimates, EPA-453/R-95-017, Table 5-2. Control efficiency values are based on monitoring frequency (monthly, quarterly).

[3]TOC is considered to be worst case for each process stream identified.

HAP Emission Calculation		
HAP	**Fraction**	**Emissions ton/yr**
Acetaldehyde	0.0002	2.14E-02
Acrolein	0.0002	2.14E-02
Formaldehyde	0.0001	1.07E-02
Methanol	0.0002	2.14E-02
Total		**0.08**

Fact Sheet Attachment

Chapter 15 Emissions Limitations Section 001.01 - Process Weight Rate

Process Weight Rate	Allowable PM Emission Rate (lb/hr)
60,000 lb/hr or less	$E = 4.1p^{0.67}$
Greater than 60,000 lb/hr	$E = 55.0p^{0.11} - 40$

Where E = Rate of Emission in lb/hr

Where p = Process weight rate in tons/hr

Emission Point ID	Process Description and Emission Unit ID	Throughput	Emission Rate	Ch. 15 Limit[1]
		ton/hr	lb/hr	lb/hr
EP-1.1W	West Grain Receiving/Loadout Baghouse	560	1.93	70.32
EP-1.1	Grain Receiving Baghouse	840	2.88	75.35
EP-1.2A	Grain Bin Fill Leg 1 Spot Filter	840	0.03	75.35
EP-1.2B	Grain Bin Fill Leg 2 Spot Filter	840	0.03	75.35
EP-2.1W	West Grain Storage Bin Vent	560	14.00	70.32
EP-2.1	Grain Bin 01	840	21.00	75.35
EP-2.2	Grain Bin 02	840	21.00	75.35
EP-2.3	Grain Bin 03	840	21.00	75.35
EP-3.1	Grain Bin Reclaim Leg Spot Filter	560	0.02	70.32
EP-3.2	Bulk Weigher Vent Filter	280	0.02	62.22
EP-5.1	Surge Bin 1 Vent Filter	560	0.02	70.32
EP-5.2	Surge Bin 2 Vent Filter	560	0.02	70.32
EP-5.3	Surge Bin 3 Vent Filter	560	0.02	70.32
EP-5.4	Surge Bin 4 Vent Filter	560	0.02	70.32
EP-6.1	Hammermill 1 Baghouse	840	0.24	75.35
EP-6.2	Hammermill 2 Baghouse	840	0.24	75.35
EP-6.3	Hammermill 3 Baghouse	840	0.24	75.35
EP-6.4	Hammermill 4 Baghouse	840	0.24	75.35
EP-7.1	Meal Conveyor Spot Filter	336	0.01	64.29
EP-106	DDGS Flat Storage Building Uncaptured	40	0.07	42.53
EP-109	DDGS Truck Loadout Building Uncaptured	200	0.33	58.51
EP-110	DDGS Rail Loadout Building Uncaptured	200	0.33	58.51
EP-111	DDGS Truck and Rail Loadout Building Filter	200	0.80	58.51
EP-111.1	DDGS Loadout Conveyors	200	0.33	58.51

Fact Sheet Attachment

Chapter 15 Emissions Limitations, Section 001.02 - Combustion Heat Rate

Title 129, Chapter 15, Section 001.02

Total Heat Input (MMBtu/hr)	Maximum Allowable Emissions of PM (lb/MMBtu)
10 or less	0.6
Between 10 and 10,000	$1.026/I^{0.233}$ Where I = total heat input in MMBtu/hr.
10,000 or more	0.12

Chapter 15 Section 001.02 calculations

Emission Point	Emission Unit Description	Rated Combustion Capacity	Allowable PM Per Chapter 15	Emission Rate
		MMBtu/hr	lb/MMBtu	lb/MMBtu
EP-16	Natural Gas Boiler #1	249	0.28	1.86E-03
EP-31	Emergency Fire Water Pump Engine	1.23	0.60	0.31
EP-37	NG-Fired Emergency Engine	0.77	0.60	9.50E-03
EP-39	Natural Gas Boiler #2	152.5	0.32	1.86E-03