

FACT SHEET FOR: CP25-020**DATE: DRAFT****NDWEE ID:** 73356**Name of Source:** Husker Ag, LLC**Source Classification:** Minor New Source Review (NSR) Source with Nested Major Source
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:

Husker Ag, LLC (Husker Ag) is an anhydrous ethanol production facility that operates under Standard Industrial Classification (SIC) code 2869 for Industrial Organic Chemicals and North American Industrial Classification System (NAICS) code 325193 for Ethyl Alcohol Manufacturing. Husker Ag is located in Plainview, Pierce County, Nebraska. Along with ethanol, Husker Ag also produces co-products like dried distiller's grain with solubles (DDGS), wet distiller's grain with solubles (WDGS), and corn oil. Husker Ag is a single source of air emissions but has two facilities, East Plant and West Plant, that are independent from each other.

PERMIT HISTORY:

Date Issued	Number	Status
01/16/2002	CP01-0024	Not active; Superseded by CPM03-0001
06/13/2005	CPM03-0001	Not active; Superseded by CP06-0035
04/09/2007	CP06-0035	Not active; Superseded by CP16-007
10/04/2007	CP07-0031	Not active; Superseded by CP12-002
05/08/2008	CP08-018B	Not active; Superseded by CP12-002
02/24/2012	CP12-002	Not active; Superseded by CP16-007
10/21/2013	CP13-033	Not active; Superseded by CP16-007
11/17/2016	CP16-032	Not active; Superseded by CP16-007
12/14/2016	CP16-036	Not active; Superseded by CP16-007
01/11/2017	CP16-044	Not active; Superseded by CP16-007
05/03/2017	CP16-007	Not active; Superseded by CP17-017
10/02/2017	CP17-017	Not active; Superseded by CP18-052
04/17/2018	CP17-042	Not active; Superseded by CP18-052
05/28/2019	CP18-052	Not active; Superseded by CP19-030
10/15/2019	CP19-030	Not active; Superseded by CP20-026
12/14/2020	CP20-026	Active; Condition III.(B) superseded by CP23-012; Condition IV.(A) superseded by CP25-020
07/12/2023	CP23-012	Active; Condition I. superseded by CP24-044
04/14/2025	CP24-044	Not active; Superseded by CP25-020
tbd	CP25-020	Active

PERMIT ACTION:

On August 11, 2025, the NDWEE received a construction permit application (#25-020) from Husker Ag for a significant permit revision (SPR) to permit CP24-044 for the installation of a natural gas-fired duct burner (E-9401E) and the revision of a combined hourly acetaldehyde limit on the thermal oxidizers/heat recovery steam generators (TO/HRSGs) (E-9401 and E-9401B) and dried distillers grains with solubles (DDGS) cooler (S-7501).

The duct burner will operate in conjunction with the combustion turbine generator (E-9401D), using the exhaust gas from the CTG along with natural gas combustion to generate steam for the facility. The duct burner is not equipped with an air blower for combustion, and thus will not be able to operate independently of the CTG.

Husker Ag proposed in CP25-020 to implement a facility-wide limit of 245 MMBtu/hr of heat input for all boiler units, including the TO/HRSGs, boiler (E-9401C), and duct burner. This limit was intended to keep Husker Ag's boilers below the combined 250 MMBtu/hr heat input threshold at which the boilers would be classified as a listed source category as prescribed in 40 CFR §52.21(b)(1)(iii). After meeting with NDWEE on October 6, 2025, Husker Ag submitted an addendum to CP25-020 on October 15, 2025. This addendum removed the requested facility-wide heat input limit for the boilers.

On August 20, 2026, Husker Ag submitted a second addendum to CP25-020. Husker Ag proposed lowering the NO_x emission limitation for the CTG from 11.9 lb/hr to 9.5 lb/hr. This proposal was based on initial performance testing of the CTG performed February 19, 2026, which demonstrated an average emission rate across three runs of 2.99 lb/hr of NO_x and a highest individual run of 3.08 lb/hr. This revision was intended to reduce the net change in NO_x for CP25-020 to below the 40 tpy threshold for NO_x at which the NDWEE requires air dispersion modeling. While evaluating the proposed revision, the NDWEE found that the CTG was already subject to a lower emission standard by being subject to NSPS Subpart KKKKa. As such, the NDWEE applied the applicable NSPS Subpart KKKKa standard when calculating the CTG's contribution to the combined NO_x emission limit for emission point E-9401D.

CP25-020 also requested that the combined limit for acetaldehyde for the TO/HRSGs and DDGS cooler be decreased from 0.56 lb/hr to 0.54 lb/hr. This change decreases Husker Ag's facility-wide acetaldehyde emissions from 9.96 tpy to 9.87 tpy.

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 ^[1] (tpy)	Post-Project PTE (tpy)	Project PTE (tpy)
Particulate Matter (PM)	117.48	121.97	4.49
PM smaller than or equal to 10 microns (PM ₁₀)	105.37	109.85	4.48
PM smaller than or equal to 2.5 microns (PM _{2.5})	91.65	96.13	4.48
Sulfur Dioxide (SO ₂)	75.69	76.04	0.35
Oxides of Nitrogen (NO _x)	165.41	198.70	33.29
Carbon Monoxide (CO)	143.60	193.13	49.53
Volatile Organic Compounds (VOC)	233.97	237.21	3.24
Hazardous Air Pollutants (HAPs)			
Highest Individual HAP: Acetaldehyde	9.96	9.87	-0.09
Total HAPs	16.08	17.11	1.03

^[1] Pre-Project PTE obtained from CP24-044.

SUPPLEMENTAL INFORMATION:

Title 129, Chapter 2 – Ambient Air Quality Standards (AAQS)

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/year)	Emission Change Threshold (ton/year)
CO	49.53	100
NO ₂	33.29	40
SO ₂	0.35	40
PM ₁₀	4.48	15
PM _{2.5}	4.48	10

Title 129, Chapter 4 – Prevention of Significant Decay (PSD)

Project Aggregation Analysis

The following table summarizes the recent permit applications that Husker Ag have submitted:

Permit App. #	Date App. Received	Project Description	Project PTE	Related Projects
CP23-012	3/27/2023	Revision to fermentation scrubber language to ensure pollutant control regardless of where the fluid stream was routed	None	Not related
CP24-044	9/3/2024	Installation of a 13.7 MW combustion turbine generator	PM: 5.96 tpy PM ₁₀ : 5.96 tpy PM _{2.5} : 5.96 tpy SO _x : 2.02 tpy NO _x : 52.17 tpy CO: 37.75 tpy VOC: 21.10 tpy	Not related
CP25-020	9/11/2025	Installation of 137.3 MMBtu/hr duct burner and revision of a combined acetaldehyde limit	PM: 4.49 tpy PM ₁₀ : 4.48 tpy PM _{2.5} : 4.48 tpy SO _x : 0.35 tpy NO _x : 33.29 tpy CO: 49.53 tpy VOC: 3.24 tpy	Not related

The NDWEE analyzed the recent projects from Husker Ag to determine if the projects were related and should 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 none of the analyzed projects were related to CP25-020. As such, CP25-020 will be analyzed as a singular project.

NSR Analysis

Husker Ag does not belong to one of the 28 listed source categories in 40 CFR §52.21(b)(1)(i)(a). As such, Husker Ag is not a major stationary source under the NSR program because potential emissions (excluding

fugitive emissions) are below the NSR major stationary source thresholds (250 tpy per pollutant) for all pollutants.

With the addition of the duct burner in CP25-020, the boilers at Husker Ag constitute a “nested source” belonging to a listed source category as prescribed in 40 CFR §52.21(b)(1)(iii), a “*fossil-fuel boilers totaling more than 250 MMBtu/hr total heat input*”. The emission units that are considered boilers for the purpose of the NSR program include the boiler (E-9401C), DDGS dryers (D-7102 and D-7103), TO/HRSGs (E-9401 and E-9401B), combustion turbine generator (E-9401D), and duct burner (E-9401E). Since potential emissions (including fugitive emissions) for this project are below the major stationary source threshold for the listed source category (100 tpy per pollutant) for all pollutants, the nested source is not subject to further NSR review as part of this permitting action.

Following completion of CP25-020, the potential emissions of NO_x and CO from the nested source will be above the 100 tpy per pollutant major stationary source threshold for a listed source category. As such, the nested source will be a major stationary source for NO_x and CO, and future modifications to the nested source will need to be evaluated in accordance with 40 CFR §52.21(b)(2).

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

The NDWEE has identified the following NSPS as applicable to Husker Ag:

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. Husker Ag is subject to Subpart A because it is subject to Subpart KKKKa.

Subpart KKKKa – Standards of Performance for Stationary Combustion Turbines: This subpart, not yet adopted by reference into Title 129, applies to owners or operators of stationary combustion turbines that have a heat input at peak load equal to or greater than 10 MMBtu per hour, based on the higher heating value of the fuel fired, and commences construction, modification, or reconstruction after December 13, 2024. Combustion Turbines that are regulated under this subpart are exempt from subpart GG.

The combustion turbine installed in CP24-044 (E-9401D) is subject to Subpart KKKKa as a combustion turbine constructed after December 13, 2024. The steam generation duct burner (E-9401E) is also subject to Subpart KKKKa, as an “associated HRSG and duct burner(s) that are associated with a combustion turbine subject to this subpart”.

The following NSPS Subparts have been identified as potentially applicable to Husker Ag:

Subpart KKKK – Standards of Performance for Stationary Combustion Turbines: This subpart, adopted by reference in Title 129, Chapter 12, Section 001.82, applies to owners or operators of stationary combustion turbines that have a heat input at peak load equal to or greater than 10 MMBtu per hour, based on the higher heating value of the fuel fired, and commences construction, modification, or reconstruction after February 18, 1980. Combustion Turbines that are regulated under this subpart are exempt from subpart GG.

CP24-044, issued April 14, 2025, permitted the original construction of the combustion turbine. At the time of issuance, CP24-044 prescribed that the combustion turbine was subject to NSPS Subpart KKKK. On January 15, 2026, NSPS Subpart KKKKa was adopted. Subpart KKKKa is applicable to stationary combustion turbines that commence construction after December 13, 2024, and prescribes that a stationary combustion turbine subject to Subpart KKKKa is not subject to Subpart KKKK. Therefore, the combustion turbine (E-9401D) and duct burner (E-9401E) are not subject to Subpart KKKK, as they commenced construction after December 13, 2024.

Husker Ag is already subject to NSPS subparts in previous permitting actions. For a full description of Husker Ag’s NSPS applicability, please see the fact sheet discussions accompanying previously issued construction permits. Husker Ag must comply with all applicable NSPS 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 <http://dwee.nebraska.gov/>, by first selecting “Menu” at the top of the page, then the “Air” dropdown menu tab, then the “NSPS Program” dropdown menu tab, and then “NSPS Notebook”.

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

Husker Ag is an area source of HAPs because emissions of each individual HAP are less than 10 tpy and combined HAP emissions are less than 25 tpy.

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

This permitting action does not subject Husker Ag to any NESHAP requirements.

Husker Ag 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 at <http://dwee.nebraska.gov/>, by first selecting “Menu” at the top of the page, the “Air” dropdown menu tab, then the “Air Toxics Program” dropdown menu tab, 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

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 DISCUSSION:

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

Nebraska Administrative Code - Title 129 was amended on June 28, 2026. As part of this permitting action, NDWEE is 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.

Condition III.(L) now reads:

III.(L) Specific Conditions for Combustion Turbine Generator with Duct Burner

- (1) Permitted Emission Point: The source is permitted to construct the emission point and associated emission units identified in the following table at the capacity and the fuel type listed:

Emission Point ID#	Emission Unit ID# and Description	Emission Unit Capacity (MW) (MMBtu/hr)	Permitted Fuel Type
E-9401D	~~CTG~~ <u>E-9401D</u> : Combustion Turbine Generator ^[1]	~~13.7~~ <u>136</u>	Natural Gas
<u>E-9401E</u>	<u>E-9401D: Combustion Turbine Generator</u> ^[1]	<u>136</u>	<u>Natural Gas</u>
	<u>E-9401E: Steam Generation Duct Burner</u>	<u>137.3</u>	<u>Natural Gas</u>

^[1] Emissions from emission unit E-9401D can be routed to emission point E-9401D or to emission point E-9401E.

CP25-020 does not make any physical or operational changes to E-9401D. Changes in the above table were made to better identify the emission unit and change the units the capacity was displayed in.

- (2) Emission Limitations and Testing Requirements:

- (a) Pollutant emission rates from the emission point identified in the table below shall not exceed the permitted limit. Initial and subsequent performance testing, if required, shall be conducted in accordance with Conditions I.(M) and II.(G).

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required?
E-9401D <u>E-9401E</u>	NO _x	~~11.90~~ <u>19.50</u> lb/hr	Three 1-hour runs or test method average	Chapters <u>3, 12</u>	Yes
	CO	~~8.20~~ <u>19.51</u> lb/hr		Chapter 3	Yes
	VOC	~~4.72~~ <u>5.46</u> lb/hr		Chapter 3	Yes

- (b) To demonstrate compliance with the limitations prescribed in Condition III.(L)(2)(a): (Chapters 3 and 15)

(i) Initial performance testing shall be conducted while all associated emission units identified in Condition III.(L)(1) are in operation.

(ii) Initial performance testing shall be conducted while all emissions from the emission units identified in Condition III.(L)(1) are emitted through emission point E-9401E.

- ~~(b)(c)~~ The source shall comply with all applicable emissions limitations and testing requirements specified in 40 CFR Part 60 Subparts A and KKKKa for the ~~combustion turbine~~ emission units identified in Condition III.(L)(1). (Chapter 12)

- (3) Operational and Monitoring Requirements and Limitations:

- (a) The combustion turbine generator (CTG) shall be limited to no more than 24 startup events per any period of twelve (12) consecutive calendar months. A startup event is defined as a series of steps after the turbine has been shut down that transitions the turbine from its standstill state to its stable idle operating state with continuous fuel supply. (Chapter 3)
- (b) The combustion turbine generator (CTG) shall be limited to no more than 24 shutdown events per any period of twelve (12) consecutive calendar months. A shutdown event is

defined as a sequence of steps that leads to complete fuel cut off, causing the turbine to slow down and stop completely. (Chapter 3)

- (c) The source shall maintain operator logs recording startup and shut down events. (Chapter 3)
 - (d) Observations of the ~~CTG~~ **emission units identified in Condition III.(L)(1)** shall be conducted at least once each day during operation to determine whether there are visible emissions from the stack, leaks, noise, or other indications that may necessitate corrective action. If corrective action is required, it shall occur immediately. (Chapter 3)
 - (e) The source shall comply with all the applicable operational and monitoring requirements and limitations specified in 40 CFR Part 60, Subparts A, and KKKK**a** for the ~~combustion turbine~~ **emission units** identified in Condition III.(L)(1). (Chapter 12)
- (4) Applicable NSPS, NESHAP, and MACT Requirements:

The following standards apply to all emission points identified in Condition III.(L)(1):

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Title 129, Chapter 12, Sec. <u>001.01</u> 40 CFR 60.1
NSPS, Subpart KKKK a	Stationary Combustion Turbines	~~Title 129, Chapter 12, Sec. 001.82~~ 40 CFR 60.4300 a

- (5) Reporting and Recordkeeping Requirements:

The owner or operator shall maintain the following records:

- (a) The date and time of each start-up for each period of twelve (12) consecutive calendar months.
- (b) The date and time of each shut down for each period of twelve (12) consecutive calendar months.
- (c) Records documenting the date, time, observations, and corrective actions taken for each day the ~~combustion turbine generator (CTG)~~ **emission units identified in Condition III.(L)(1)** are in operation.
- (d) Reporting and recordkeeping requirements specified in 40 CFR Part 60 Subparts A, and KKKK**a** for the emission ~~point~~ **units** identified in Condition III.(L)(1).

Condition IV.(A) now reads:

IV. Facility-Wide Specific Conditions

- (A) Multiple Affected Emission Points

- (1) Total emissions from the TO/HRSGs (E-9401 and E-9401B) and the DDGS Cooler (S-7501) combined shall not exceed the following limitation: ~~(Title 129, Chapter 17)~~

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required? (Yes/No)
E-9401, E-9401B, and S-7501 combined	Acetaldehyde	~~0.56~~ 0.54 lb/hr (combined)	3-hour or test method average	Chapter ~~17~~ 3	~~No~~ ^(H) Yes

^(H) These units have been tested previously. Refer to the Operating Permit for the current testing requirements.

- (2) Testing Requirements:

- (a) When performance testing is conducted for any of the emission units subject to the emissions limitations of Condition IV.(A)(1) or to demonstrate compliance with this limit, testing shall be conducted concurrently for all emission units subject to that limit. ~~(Title 129, Chapters 17 3 and 34 15)~~

- (i) Upon receipt of a formal written request, the ~~NDEE~~ NDWEE may approve the permittee to test a reduced number of emission points or a single emission point.

No other terms or conditions of construction permit CP22-003 are being revised as part of this permitting action.

Fact Sheet Attachment

Facility-wide PTE Summary (tpy)

Process	EP ID#	PM	PM ₁₀	PM _{2.5}	NO _x	SO _x	CO	VOC	Acetaldehyde ^[1]	Acrolein	Formaldehyde	Methanol	Hexane	Total HAPs
Unloading Baghouse #1	FX-1112	2.46	2.31	1.54	-	-	-	-	-	-	-	-	-	-
Unloading Baghouse #2	FX-1112B	2.65	2.48	1.65	-	-	-	-	-	-	-	-	-	-
Hammermilling Baghouse #1	FX-1310	1.32	1.24	0.82	-	-	-	-	-	-	-	-	-	-
Hammermilling Baghouse #2	FX-1310B	1.32	1.24	0.82	-	-	-	-	-	-	-	-	-	-
Hammermilling Baghouse #3	FX-1310C	0.84	0.79	0.53	-	-	-	-	-	-	-	-	-	-
Hammermilling Baghouse #4	FX-1310D	0.84	0.79	0.53	-	-	-	-	-	-	-	-	-	-
Hammermilling Baghouse #5	FX-1310E	2.14	2.01	1.34	-	-	-	-	-	-	-	-	-	-
Uncaptured PM from Baghouses	-	5.10	3.06	0.71	-	-	-	-	-	-	-	-	-	-
Fermentation Scrubber #1	S-40	-	-	-	-	-	-	42.00	7.35	0.39	-	-	-	7.74
Fermentation Scrubber #2	S-40B	-	-	-	-	-	-	67.01			-	-	-	
TO/HRSG #1	E-9401	32.85	32.85	32.85	59.22	28.29	33.49	18.48	2.37	0.67	0.96	0.46	2.00	5.77
TO/HRSG #2	E-9401B	32.85	32.85	32.85	42.51	45.16	35.65	29.48						
DDGS Cooling	S-7501	4.13	3.87	2.58	-	-	-	9.72						
Industrial Boiler	E-9401C	0.34	1.37	1.37	5.52	0.18	6.81	1.47	-	-	1.35E-02	-	0.32	0.34
DDGS Baghouse ^[2]	FX-7508	1.41	1.32	0.88	-	-	-	-	-	-	-	-	-	-
Ethanol Loading	S-50	3.30E-03	3.30E-03	3.30E-03	5.52	3.00E-04	29.86	25.04	2.33E-04	-	-	2.33E-04	0.19	0.30
Cooling Tower #1	S-80	11.10	11.10	6.66	-	-	-	-	-	-	-	-	-	-
Cooling Tower #2	S-80B													
Haul Roads ^[3]	-	12.14	2.11	0.52	-	-	-	-	-	-	-	-	-	-
Emergency Fire Pump	EP-110	0.03	3.30E-02	3.30E-02	0.47	3.08E-02	4.37E-02	1.06E-02	2.65E-06	8.27E-07	8.28E-06	-	-	1.65E-04
Wet Cake Storage	-	-	-	-	-	-	-	3.43	4.58E-02	6.89E-03	9.16E-02	1.83E-02	-	0.16
Equipment Leaks ^[3]	-	-	-	-	-	-	-	9.88	8.56E-02	2.43E-03	9.13E-05	9.97E-03	0.15	0.27
Storage Tanks	-	-	-	-	-	-	-	6.34	9.91E-04	-	-	9.91E-04	0.11	0.13
Combustion Turbine Generator	E-9401D,	5.96	5.96	5.96	26.51	2.02	37.75	21.09	0.02	0.00	0.42	-	-	0.06
Duct Burner	E-9401E	4.48	4.48	4.48	58.96	0.35	49.52	3.24	-	-	0.04	-	1.06	1.11
Pre-Project PTE^[4]		117.48	105.37	91.65	165.41	75.69	143.60	233.97	9.96	1.41	1.51	0.56	2.78	16.08
Pre-Project PTE (not including fugitives)^{[4][5]}		105.34	103.26	91.13	165.41	75.69	143.60	224.09	9.87	1.41	1.51	0.55	2.63	15.75
Post-Project PTE		121.97	109.85	96.13	198.70	76.04	193.13	237.21	9.87	1.41	1.56	0.56	3.84	17.11
Post-Project PTE (not including fugitives)^[5]		109.82	107.74	95.61	198.70	76.04	193.13	227.33	9.79	1.41	1.56	0.55	3.69	16.84
Change in PTE		4.49	4.48	4.48	33.29	0.35	49.53	3.24	-0.09	0.00	0.05	0.00	1.06	1.03
Change in PTE (not including fugitives)^[5]		4.48	4.48	4.48	33.29	0.35	49.53	3.24	-0.08	0.00	0.05	0.00	1.06	1.09

^[1] CP25-020 includes a group Acetaldehyde limit of a combined 2.37 ton/year on the two TO/HRSGs (E-9401 and E-9401B), and the DDGS Cooler (S-7501). CP18-052 includes a combined 7.35 ton/year limitation on the two Fermentation Scrubbers (S-40 and S-40B).

^[2] All uncaptured baghouse emissions are assumed to be emitted through FX-1112, except for DDGS Storage and Loadout, which is emitted through FX-7508

^[3] Haul Roads and Equipment Leaks are considered fugitive sources of emissions.

^[4] Pre-project PTE obtained from CP24-044, issued April 14, 2025.

^[5] HAP emission calculations do not allow for the removal of fugitive contributions when determining applicability.

Fact Sheet Attachment

Greenhouse Gas PTE Summary

Process	EP ID#	CO ₂	CH ₄	N ₂ O	Total GHGs (mass basis)	Total GHGs (CO ₂ e)
Fermentation Scrubber #1	S-40	334,836	-	-	334,836	334,836
Fermentation Scrubber #2	S-40B					
TO/HRSG #1	E-9401	39,964.33	0.75	0.08	39,965.15	40,003.49
TO/HRSG #2	E-9401B	50,723.95	0.96	0.10	50,725.00	50,773.66
Industrial Boiler	E-9401C	9.56	0.00	0.00	9.56	9.57
DDGS Cooling	S-7501	-	-	-	-	-
DDGS Baghouse	FX-7508	-	-	-	-	-
Ethanol Loading	S-50	12,197	2.13E-01	2.23E-02	12,197.27	12,208.43
Cooling Tower #1	S-80	-	-	-	-	-
Cooling Tower #2	S-80B					
Haul Roads	-	-	-	-	-	-
Emergency Fire Pump	EP-110	17.22	0.001	0.0001	17.22	17.27
Wet Cake Storage	-	-	-	-	0.00	-
Equipment Leaks ^[3]	-	-	-	-	0.00	-
Storage Tanks	-	-	-	-	0.00	-
Combustion Turbine Generator	E-9401D	16,987.24	261.33	0.16	17,248.73	22,525.44
Duct Burner	E-9401E	70,347.07	1.33	0.13	70,348.53	70,419.33
Total PTE (tpy)					525,347.64	530,793.36

Fact Sheet Attachment

S-7501: DDGS Cooling

Rate of cooling cyclone ^[1]: 67,922 lb/hr DDGS cooled

Throughput of DDGS ^[1]: 319,483 ton/yr

Operating Hours: 8,760 hr/yr

^[1] Husker Ag has notified the NDWEE that only the East plant can produce DDGS. The West plant dryer operates at lower temperatures so only MWDGS is produced, therefore no cooling occurs. The throughputs into the cooler have been adjusted accordingly for pre-project and post-project scenarios. See email communication from 12/1/2017.

PTE

Pollutant	PTE^[1] (lb/hr)	PTE^[1] (ton/yr)
VOC ^[3]	2.22	9.72
Individual HAPs		
Acetaldehyde ^[2]	0.18	0.79
Acrolein	0.078	0.34
Formaldehyde	0.005	0.02
Methanol	0.015	0.07
Total HAP		1.22

^[1] Based on February 2014 performance test results. PM emissions are included in Grain Handling calculations.

^[2] Acetaldehyde emissions are part of a group lb/hr limit in CP25-020.

^[3] VOC emission rates are based on production-rate emission factor from CP06-0035 with updated DDGS production

Fact Sheet Attachment

E-9401 and E-9401B: Thermal Oxidizers/Heat Recovery Steam Generators

DDGS Production ^[1] :	319,483 tpy	
DDGS Dried (East) 39% ^[1] :	123,103 tpy	
DDGS Dried (West) 61% ^[1] :	196,379 tpy	
DDGS Dryer (West) Firing Capacity ^[1] :	42,000,000 BTU/hr	
DDGS Dryer (East) Firing Capacity ^[1] :	40,000,000 BTU/hr	
Firing Capacity ^[1] :		
E-9401:	78,000,000 BTU/hr	
E-9401B:	99,000,000 BTU/hr	
DDGS Dryer/E-9401:	120,000,000 BTU/hr	(combined)
DDGS Dryer/E-9401B:	139,000,000 BTU/hr	(combined)
Total Firing Capacity:	259,000,000 BTU/hr	(2 Dryers and 2 TO/HRSGs)
Max Fuel Burning Capacity:	0.254 MMscf/hr	
Heating Value	1,020 BTU/scf	

^[1] Provided by source in application.

Fact Sheet Attachment

E-9401 and E-9401B: Thermal Oxidizers/Heat Recovery Steam Generators

PTE

DDGS Dryer with TO/HRSG E-9401

Pollutant	Emission Factor	Emission Factor Units	Emission Factor Source	PTE (lb/hr)	PTE (tpy)
PM	-	-	CP18-052 limit	7.50	32.85
PM ₁₀	-	-	CP18-052 limit	7.50	32.85
PM _{2.5}	-	-	CP18-052 limit	7.50	32.85
SO _x ^[1]	0.46	lb/ton/hour DDGS	CP06-0035	6.46	28.29
NO _x ^[2]	-	-	2003 Stack Test	13.52	59.22
CO ^[3]	84.00	lb/MMscf	AP-42	7.65	33.49
VOC ^[1]	0.30	lb/ton/hour DDGS	CP06-0035	4.22	18.48
Acetaldehyde ^[4]	-	-	CP25-020 limit	0.18	0.79
Acrolein ^[2]	-	-	2015 Stack Test	0.06	0.28
Formaldehyde ^[2]	-	-	2015 Stack Test	0.18	0.80
Methanol ^[2]	-	-	2015 Stack Test	0.03	0.12
Total HAP	-	-	-	0.45	1.99
Greenhouse Gases^{[5],[6]}					
CO ₂	53.06	kg/MMBtu	40 CFR 98	9,124.28	39,964
CH ₄	0.001	kg/MMBtu	40 CFR 98	0.17	0.75
N ₂ O	0.0001	kg/MMBtu	40 CFR 98	0.02	0.08
Total GHGs (mass basis)				9,124.46	39,965.15
Total GHGs (tons CO₂e/yr)^[7]					40,005.37

^[1] CP18-052 Limit based on emission factor from CP06-0035 and updated for consistency with current production.

^[2] HAP PTE is estimated from the February 18, 2015 HAP performance testing. The NO_x value from the August 2003 stack test was used to estimate PTE after the removal of the 0.1 lb/MMBtu NO_x limit in CP17-042.

^[3] The emission factor is from AP-42 (7/1998), Tables 1.4-1, 1.4-2, 1.4-3 and 1.4-4 for uncontrolled units smaller than 100 MMBTU/hr.

^[4] As limited by CP18-052. Limit is a group 0.56 lb/hr Acetaldehyde limit with E-9401, E-9401B, and S-7501.

^[5] All emission factors for Greenhouse Gases (GHG) are default values from 40 CFR 98 Subpart C Tables C-1 and C-2. This PTE summary follows the methodologies prescribed in 40 CFR Part 98.

^[6] GHG (lb/hr) = [Emission Factor (kg/MMBtu)] x (Potential Heat Input Capacity (MMBtu/hr)]/(907.18 kg/ton)*(2000 lb/ton)

^[7] ton CO₂e/yr = [(ton/yr CO₂)*1] or [(ton/yr CH₄)*28] or [(ton/yr N₂O)*265]; CO₂ 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 CO₂e for CO₂ =1, for CH₄ =28, and for N₂O = 265.

Fact Sheet Attachment

E-9401 and E-9401B: Thermal Oxidizers/Heat Recovery Steam Generators

PTE

DDGS Dryer with TO/HRSG E-9401B

Pollutant	Emission Factor ^[2]	Emission Factor Units	Emission Factor Source	PTE (lb/hr)	PTE (ton/yr)
PM	-	-	CP18-052 limit	7.50	32.85
PM ₁₀	-	-	CP18-052 limit	7.50	32.85
PM _{2.5}	-	-	CP18-052 limit	7.50	32.85
SO _x ^[1]	0.46	lb/ton/hour DDGS	CP06-0035	10.31	45.16
NO _x ^[2]	100.00	lb/MMscf	AP-42	9.71	42.51
CO ^[3]	-	-	2008 Stack Test	8.14	35.65
VOC ^[2]	0.30	lb/ton/hour DDGS	CP06-0035	6.73	29.48
Acetaldehyde ^[4]	-	-	CP25-020 limit	0.18	0.79
Acrolein ^[3]	-	-	2008 Stack Test	0.09	0.39
Formaldehyde ^[3]	-	-	2008 Stack Test	0.02	0.08
Methanol ^[3]	-	-	2008 Stack Test	0.08	0.34
Total HAP	-	-	-	0.37	1.60
Greenhouse Gases^{[5],[6]}					
CO ₂	53.06	kg/MMBtu	40 CFR 98	11,580.81	50,724
CH ₄	0.001	kg/MMBtu	40 CFR 98	0.22	0.956
N ₂ O	0.0001	kg/MMBtu	40 CFR 98	0.02	0.096
Total GHGs (mass basis)				11,581.05	50,725.00
Total GHGs (tons CO₂e/yr)^[7]					50,776.05

^[1] CP18-052 Limit based on emission factor from CP06-0035 and updated for consistency with current production

^[2] The emission factor is from AP-42 (7/1998), Tables 1.4-1, 1.4-2, 1.4-3 and 1.4-4 for uncontrolled units smaller than 100 MMBTU/hr.

^[3] PTE is estimated from the April 2008 performance test. The CO value was used to estimate PTE after the removal of the 19.86 lb/hr CO limit in CP18-052

^[4] As limited by CP18-052. Limit is a group 0.56 lb/hr Acetaldehyde limit with E-9401, E-9401B, and S-7501.

^[5] All emission factors for Greenhouse Gases (GHG) are default values from 40 CFR 98 Subpart C Tables C-1 and C-2. This PTE summary follows the methodologies prescribed in 40 CFR Part 98.

^[6] GHG (lb/hr) = [Emission Factor (kg/MMBtu)] x (Potential Heat Input Capacity (MMBtu/hr))/(907.18 kg/ton)*(2000 lb/ton)

^[7] ton CO₂e/yr = [(ton/yr CO₂)*1]or[(ton/yr CH₄)*28] or [(ton/yr N₂O)*265]; CO₂ 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 CO₂e for CO₂ =1, for CH₄ =21, and for N₂O = 310.

Fact Sheet Attachment

E-9401 and E-9401B: Thermal Oxidizers/Heat Recovery Steam Generators

PTE

Combined HAP Emissions from Natural Gas Combustion

Hazardous Air Pollutants	Emission Factor	Emission Factor Units	Emission Factor Source ^[1]	PTE ^[2] (lb/hr)	PTE (ton/yr)
Benzene	2.10E-03	lb/MMscf	AP-42	5.33E-04	2.34E-03
Dichlorobenzene	1.20E-03	lb/MMscf	AP-42	3.05E-04	1.33E-03
Formaldehyde	7.50E-02	lb/MMscf	AP-42	1.90E-02	8.34E-02
Hexane	1.80	lb/MMscf	AP-42	0.46	2.00
Naphthalene	6.10E-04	lb/MMscf	AP-42	1.55E-04	6.78E-04
Polycyclic Organic Matter	8.82E-05	lb/MMscf	AP-42	2.24E-05	9.81E-05
Toluene	3.40E-03	lb/MMscf	AP-42	8.63E-04	3.78E-03
Arsenic Compounds	2.00E-04	lb/MMscf	AP-42	5.08E-05	2.22E-04
Beryllium Compounds	1.20E-05	lb/MMscf	AP-42	3.05E-06	1.33E-05
Cadmium Compounds	1.10E-03	lb/MMscf	AP-42	2.79E-04	1.22E-03
Chromium Compounds	1.40E-03	lb/MMscf	AP-42	3.55E-04	1.56E-03
Cobalt Compounds	8.40E-05	lb/MMscf	AP-42	2.13E-05	9.34E-05
Lead Compounds	5.00E-04	lb/MMscf	AP-42	1.27E-04	5.56E-04
Manganese Compounds	3.80E-04	lb/MMscf	AP-42	9.65E-05	4.23E-04
Mercury Compounds	2.60E-04	lb/MMscf	AP-42	6.60E-05	2.89E-04
Nickel Compounds	2.10E-03	lb/MMscf	AP-42	5.33E-04	2.34E-03
Selenium Compounds	2.40E-05	lb/MMscf	AP-42	6.09E-06	2.67E-05
Total HAPs				0.48	2.10

^[1] The emission factor is from AP-42 Tables 1.4-1, 1.4-2, and 1.4-3 (07/98)

^[2] HAP emissions have been updated utilizing the current maximum fuel burning capacities of E-9401 and E-9401B

Fact Sheet Attachment

CTG: E-9401D

Type of Fuel: Natural Gas
Annual Operating hours (hr/yr): 8760
CTG Rating (MMBtu/hr): 136
CTG Rating (MW): 13.7

Pollutant	PTE			
	(lb/hr) ^[1]	Startup (lb/yr) ^[2]	Shutdown (lb/yr) ^[2]	Total (ton/yr)
NO _x ^[3]	6.04	48	48	26.51
SO _x	0.46	-	-	2.02
CO	8.20	1680	1992	37.75
PM, PM _{2.5} , PM ₁₀	1.36	-	-	5.96
VOC	4.72	384	456	21.09
UHC ^[4]	59.00	1920	2280	260.52

^[1] Manufacturer provided values. Worst case emission factors for 40, 50, 75 and 100 percent loads. Model Titan 130-20501S Axial GGSC 60Hz Standard turbine

^[2] Facility is taking a limit of 24 startup and shutdown events per year. Startup and shutdown emission factors provided by manufacturer.

^[3] NO_x emission factor based on NSPS Subpart KKKKa standard of 0.20 kg/MWh.

^[4] Unburn hydrocarbons (UHC) are expected to be composed entirely of CH₄, and is added to facility wide CH₄ PTE summary

Pollutant	Emission Factor ^[1]	PTE	
	(lb/MMBtu)	(lb/hr)	(ton/yr)
Acetaldehyde	4.00E-05	5.44E-03	0.02
Acrolein	6.00E-06	8.16E-04	3.57E-03
Formaldehyde	7.10E-04	0.10	0.42
Benzene	1.20E-05	1.63E-03	7.15E-03
Naphthalene	1.30E-06	1.77E-04	7.74E-04
Polycyclic Organic Matter (POM)	2.20E-06	2.99E-04	1.31E-03
Ethylbenzene	3.20E-05	4.35E-03	1.91E-02
Toluene	1.30E-04	1.77E-02	0.08
Xylenes	6.40E-05	8.70E-03	0.04
Total HAPS			0.06

^[1] HAPs emission factors from AP-42 table 3.1 - 3

Greenhouse Gases	(kg/MMBtu) ^[1]	(lb/hr)	(ton/yr)
CO ₂	62.87	3,878.36	16,987.24
CH ₄	3.00E-03	0.19	0.81
N ₂ O	6.00E-04	0.04	0.16
Total GHGs (mass basis)		3,878.40	16,987.40
Total GHGs (tons CO ₂ e/yr) ^[2]		3,893.35	17,052.89

^[1] All emission factors for Greenhouse Gases (GHG) are default values from 40 CFR 98 Tables C-1 and C-2.

^[2] ton CO₂e/yr = [(ton/yr CO₂)*1]or[(ton/yr CH₄)*28] or [(ton/yr N₂O)*265]; CO2 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 CO₂e for CO₂ =1, for CH₄ =28, and for N₂O = 265.

Fact Sheet Attachment

Duct Burner

Emission Point: E-9401E

Total Heat Input Capacity:	137.30	MMBtu/hr
Heat Content of Natural Gas:	1,020	MMBtu/MMscf
Conversion using 1,020 Btu/scf:	0.13	MMscf/hr
Annual Hours of Operation:	8,760	hr
Potential Natural Gas Throughput:	1,179.16	MMscf/yr

Pollutant	Emission Factor ^[1] (lb/MMscf)	Emission Factor units	PTE (lb/hr)	PTE (ton/yr)
PM	7.60	lb/MMscf	1.02	4.48
PM ₁₀	7.60	lb/MMscf	1.02	4.48
PM _{2.5}	7.60	lb/MMscf	1.02	4.48
NO _x	100.00	lb/MMscf	13.46	58.96
SO ₂	0.60	lb/MMscf	0.08	0.35
CO	84.00	lb/MMscf	11.31	49.52
VOC	5.50	lb/MMscf	0.74	3.24
Individual Hazardous Air Pollutants (HAP)^[1]				
Benzene	2.10E-03	lb/MMscf	2.83E-04	1.24E-03
Dichlorobenzene	1.20E-03	lb/MMscf	1.62E-04	7.07E-04
Formaldehyde	7.50E-02	lb/MMscf	1.01E-02	4.42E-02
Hexane	1.80	lb/MMscf	0.24	1.06
Lead Compounds	5.00E-04	lb/MMscf	6.73E-05	2.95E-04
Naphthalene	6.10E-04	lb/MMscf	8.21E-05	3.60E-04
Toluene	3.40E-03	lb/MMscf	4.58E-04	2.00E-03
Arsenic Compounds	2.00E-04	lb/MMscf	2.69E-05	1.18E-04
Beryllium Compounds	1.20E-05	lb/MMscf	1.62E-06	7.07E-06
Cadmium Compounds	1.10E-03	lb/MMscf	1.48E-04	6.49E-04
Chromium Compounds	1.40E-03	lb/MMscf	1.88E-04	8.25E-04
Cobalt Compounds	8.40E-05	lb/MMscf	1.13E-05	4.95E-05
Manganese Compounds	3.80E-04	lb/MMscf	5.12E-05	2.24E-04
Mercury Compounds	2.60E-04	lb/MMscf	3.50E-05	1.53E-04
Nickel Compounds	2.10E-03	lb/MMscf	2.83E-04	1.24E-03
Selenium Compounds	2.40E-05	lb/MMscf	3.23E-06	1.41E-05
Total HAPs	-	-	0.25	1.11
GHGs^[2]				
CO ₂	53.06	kg/MMBtu	16,061	70,347
CH ₄	1.00E-03	kg/MMBtu	0.30	1.33
N ₂ O ^[3]	1.00E-04	kg/MMBtu	3.03E-02	0.13
GHGs (mass basis)	-	-	16,061	70,349
CO ₂ e ^[4]	-	-	16,077	70,419

^[1] Emission Factors are from AP-42 Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4 (7/98) unless otherwise specified.

^[2] 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.

^[3] GHG (lb/hr) = [Emission Factor (kg/MMBtu)] x (Potential Heat Input Capacity (MMBtu/hr)) / (907.185 kg/ton) * (2000 lb/ton)

^[4] ton CO₂e/yr = [(ton/yr CO₂)*1] + [(ton/yr CH₄)*28] + [(ton/yr N₂O)*265]; CO₂ 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 CO₂e for CO₂ = 1, for CH₄ = 28, and for N₂O = 265.

Fact Sheet Attachment

Chapter 15 calculations

Chapter 15, Section 001

For process weight rates up to 60,000 lb/hr:

$$E = 4.10 \times p^{0.67}$$

For process weights in excess of 60,000 lb/hr:

$$E = 55.0 \times p^{0.11} - 40$$

where E = rate of emissions in lbs/hr and p = process weight rate in ton/hr

EP ID	Process	Process Weights		Emission Rate per unit (lb/hr)	PM Emission Rate (lb/hr)
FX-1112	Grain Receiving and Handling Baghouse	115.00	ton/hr	52.69	0.56
FX-1112B					0.60
FX-1310					0.30
FX-1310B					0.30
FX-1310C					0.19
FX-1310D					0.19
FX-1310E					0.49
S-7501	DDGS Cooling, Storage, and Loadout	34.90	ton/hr	41.30	0.94
FX-7508					0.32

Chapter 15, Sec 002

Total Heat Input (MMBtu/hr)	Maximum Allowable Emissions of PM (lb/MMBtu)
10 or less	0.60
Between 10 and 10,000	$1.026/T^{0.233}$
10,000 or more	0.12

Emission Point ID#	Heat Input (MMBtu/hr)	PM Emission Rate (lb/hr)	PM Emission Rate (lb/MMBtu)	Ch 15 Maximum Allowable PM Emissions (lb/MMBtu)
E-9401 (TO/HRSG)	120	7.50	0.06	0.34
E-9401B (TO/HRSG)	139	7.50	0.05	0.32
E-9401C (Boiler)	42	0.08	1.86E-03	0.43
E-9401D (CTG)	136	1.36	0.01	0.33
E-9401E (Duct Burner)	137.3	1.02	0.01	0.33
S-50 (Loadout Flare)	18.4	7.45E-04	4.05E-05	0.52
EP-110 (Fire Pump)	2.1	0.66	0.31	0.60