

**AIR EMISSION PERMIT NO. 14300014- 003  
IS ISSUED TO**

Heartland Corn Products  
East State Hwy 19  
Winthrop, Sibley County, Minnesota 55396

The emission units, control equipment and emission stacks at the stationary source authorized in this permit are as described in the following permit application(s):

<b>Permit Type</b>	<b>Application Date</b>
Total Facility Operating Permit	02/23/1995
Major Amendment	04/26/1999
Major Amendment	03/23/2000

This permit authorizes the permittee to modify and operate the stationary source at the address listed above unless otherwise noted in Table A. The permittee must comply with all the conditions of the permit. Any changes or modifications to the stationary source must be performed in compliance with Minn. R. 7007.1150 to 7007.1500. Terms used in the permit as defined in the state air pollution control rules unless the term is explicitly defined in the permit.

**Permit Type:** Major Amendment to a State, Synthetic Min Part 70 Permit

**Issue Date:** September 11, 2000

**Expiration:** Permit does not expire  
Title I Conditions do not expire.

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Rodney E. Massey, P.E.  
District Director

for Karen A. Studders  
Commissioner  
Minnesota Pollution Control Agency

JLR:kkk

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## **NOTICE TO THE PERMITTEE:**

Your stationary source may be subject to the requirements of the Minnesota Pollution Control Agency's (MPCA) solid waste, hazardous waste, and water quality programs. If you wish to obtain information on these programs, including information on obtaining any required permits, please contact the MPCA general information number at:

Metro Area	(651) 296-6300
Outside Metro Area	1-800-657-3864
TTY	(651) 282-5332

The rules governing these programs are contained in Minn. R. chs. 7000-7105. Written questions may be sent to: Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, Minnesota 55155-4194.

Questions about this air emission permit or about air quality requirements can also be directed to the telephone numbers and address listed above.

## **PERMIT SHIELD:**

Subject to the limitations in Minn. R. 7007.1800, compliance with the conditions of this permit shall be deemed compliance with the specific provision of the applicable requirement identified in the permit as the basis of each condition. Certain requirements, which have been determined not to apply, are listed in Table A of this permit.

## **FACILITY DESCRIPTION:**

This facility is an ethanol producing plant. This permit amendment allows for an expansion at the plant and specifically makes the following changes:

- Increases the production limit of undenatured 200 proof ethanol from 19 mmgal/yr. To 35 mmgal/yr.
- Increases the PM/PM10 limit for SV001 from 1.20 to 1.50 lb/hour
- Increases the PM/PM10 limit for SV002 from 0.51 to 1.20 lb/hour
- Increases the VOC limit for SV003 from 5.13 to 6.9 lb/hour
- Increases the PM/PM10 limit for new SV011 (old SV004) from 7.75 to 15 lb/hour
- Decreases the VOC limit for new SV011 (old SV004) from 7.85 to 7.6 lb/hour
- Increases the VOC limit for SV005 from 0.71 to 0.80 lb/hour
- Increases the PM/PM10 limit for SV009 from 0.42 to 1.8 lb/hour.
- Adds the use of a second boiler (EU034)O; 62.8 mmBtu per hour, subject to Subp. Dc
- Adds a second DDGS dryer (EU036); 42 mmBtu per hour

- Adds a new stack to replace SV004 to vent both dryers (EU015 and EU035); five foot diameter and 150 feet in height
- Removes old equipment; Rectifier (EU010), side stripper (EU011), and molecular sieve (EU012)
- Adds new equipment; Beer stripper (EU036), rectifier (EU037), molecular sieve (EU038)
- Allows modification of EU009 from a beer well to a side stripper
- Allows modification of EU025 from a beer well to fermenter #5
- Adds one more fermenter (EU039) and adds a new beer well (EU040); 500,000 gallons each
- Adds new control equipment, a baghouse (CE006) for the new and existing hammermill
- Adds two new corn bins (EU042 & EU043); 68,000 bushels each
- Adds a new denatured ethanol storage tank (TK006); 500,000 gallons, 48 foot diameter, 40 foot straight side
- Adds a new DDGS storage building (EU044)
- Adds a bio-digester flare (EU045)
- Adds a second hammermill (EU046)
- Allows the replacement of corn elevator (EU002 with a larger one (EU047), 15,000 bu/hour capacity
- Allows the replacement of scalper (EU003) with a larger on (EU048); 15,000 bu/hour capacity

Prior to issuance of this major permit amendment, the facility was an existing synthetic minor source for new source review and Part 70 purposes. With the issuance of this permit, the plant becomes a major source for new source review purposes because the potential particulate emissions exceed 100 tons per year. Since all other criteria pollutant potentials are below 100 tons per year, the source remains minor for Part 70 purposes.

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Table A contains limits and other requirements with which your facility must comply. The limits are located in the first column of the table (What To do). The limits can be emission limits or operational limits. This column also contains the actions that you must take and the records you must keep to show that you are complying with the limits. The second column of Table A (Why to do it) lists the regulatory basis for these limits. Appendices included as conditions of your permit are listed in Table A under total facility requirements.**

**Subject Item:****Total Facility**

<b>What to do</b>	<b>Why to do it</b>
Production: less than or equal to 35000000 gallons/year using 12-month Rolling Sum of fuel ethanol (pure ethanol, prior to addition of denaturant).	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 & Minn. R. 7007.0200
Record keeping: By the 15th day of every month, record the gallons of ethanol produced during the previous month, and the gallons of ethanol produced during the previous 12 months (12-month rolling sum).	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 & Minn. R. 7007.0200
Air Pollution Control Equipment: Operate all pollution control equipment whenever the corresponding process equipment and emission units are operated, unless otherwise noted in Table A.	Minn. R. 7007.0800, subp. 2; Minn. R. 7007.0800, subp. 16(J)
Operation and Maintenance Plan: Retain at the stationary source an operation and maintenance plan for all air pollution control equipment. The plan shall specify the minimum values for pressure drop and water flow rate for CE 003 and CE 005, and the minimum and maximum values for pressure drop for CE 004 and EU 031.	Minn. R. 7007.0800, subp. 14 and Minn. R. 7007.0800, subp. 16(J)
Shutdowns: Notify the Commissioner at least 24 hours in advance of a planned shutdown, or as soon as possible after an unplanned shutdown of any process or control equipment, if the shutdown would cause an increase in the emission of any regulated air pollutant. At the time of notification, notify the Commissioner of the cause of the shutdown and the estimated duration. Notify the Commissioner again when the shutdown is over.	Minn. R. 7019.1000, subp. 3
Breakdowns: Notify the Commissioner with 24 hours after a breakdown of more than one hour duration of any process or control equipment if the breakdown causes an increase in the emission of any regulated air pollutant. At the time of notification or as soon thereafter as possible, the permittee shall also notify the Commissioner of the cause of the breakdown and the estimated duration. Notify the Commissioner again when the breakdown is over.	Minn. R. 7019.1000, subp. 2
Monitoring Equipment: Install or make needed repairs to monitoring equipment within 60 days of issuance of the permit if monitoring equipment is not installed and operational on the date the permit is issued.	Minn. R. 7007.0800, subp. 4(D)
Monitoring Equipment Calibration: Annually calibrate all required monitoring equipment (any requirements applying to continuous emission monitors are listed separately in this permit).	Minn. R. 7007.0800, subp. 4(D)
Operation of Monitoring Equipment: Unless otherwise noted in Tables A, B, and/or C, monitoring a process or control equipment connected to that process is not necessary during periods when the process is shutdown, or during checks of the monitoring systems, such as calibration checks and zero and span adjustments. If monitoring records are required, they should reflect any such periods of process shutdown or checks of the monitoring system.	Minn. R. 7007.0800, subp. 4(D)
Circumvention: Do not install or use a device or means that conceals or dilutes emissions, which would otherwise violate a federal or state air pollution control rule, without reducing the total amount of pollutant emitted.	Minn. R. 7011.0020
Oral Notification of Deviations Endangering Human Health or the Environment: As soon as possible after discovery, notify orally or by facsimile the Commissioner or the state duty officer, of any deviation from permit conditions which could endanger human health or the environment.	Minn. R. 7019.1000, subp. 1
Written Notification of Deviations Endangering Human Health or the Environment: within two (2) working days after discovery, notify the Commissioner in writing of any deviation from permit conditions which could endanger human health or the environment. Include the following information in this written description: cause of the deviation; exact dates of the period of the deviation; if the deviation has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the deviation.	Minn. R. 7019.1000, subp. 1
Application for Permit Amendment: If a permit amendment is needed, submit an application in accordance with the requirements of Minn. R. 7007.1150 through Minn. R. 7007.1500. Submittal dates vary, depending on the type of amendment needed.	Minn. R. 7007.1150 through Minn. R. 7007.1500
Emission Fees: due 60 days after receipt of an MPCA bill.	Minn. R. 7002.0005 through Minn. R. 7002.0095
Fugitive Emissions: Do not cause or permit the handling, use, transporting, or storage of any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Comply with all other requirements listed in Minn. R. 7011.0150.	Minn. R. 7011.0150

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

Inspections: Upon presentation of credentials and other documents as may be required by law, allow the Agency, or its representative, to enter the Permittee's premises to have access to and copy any records required by this permit, to inspect at reasonable times (which include any time the source is operating) any facilities, equipment, practices or operations, and to sample or monitor any substances or parameters at any location.	Minn. R. 7007.0800, subp. 9(A)
Record keeping: Maintain records describing any insignificant modifications (as required by Minn. R. 7007.1250, subp. 3) or changes contravening permit terms (as required by Minn. R. 7007.1350 subp. 2), including records of the emissions resulting from those changes.	Minn. R. 7007.0800, subp. 5(B)
Record keeping: Retain all records at the stationary source for a period of five (5) years from the date of monitoring, sample, measurement, or report. Records which must be retained at this location include all calibration and maintenance records, all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. Records must conform to the requirements listed in Minn. R. 7007.0800, subp. 5(A).	Minn. R. 7007.0800, subp. 5(C)
Extension Requests: The Permittee may apply for an Administrative Amendment to extend a deadline in a permit by no more than 120 days, provided the proposed deadline extension meets the requirements of Minn. R. 7007.1400, subp. 1(H).	Minn. R. 7007.1400, subp. 1(H)
Limits set as a result of a performance test (conducted before or after permit issuance) apply until superseded as specified by Minn. R. 7017.2025 following formal review of a subsequent performance test on the same unit.	Minn. R. 7017.2025
<p>General Performance Test (PT) Requirements:</p> <p>Performance Tests are due as outlined in Tables A and B of the permit. See Table B for additional testing requirements.</p> <p>PT Notifications (written): due 30 days before each Performance Test</p> <p>PT Plan: due 30 days before each Performance Test</p> <p>PT Pre-test Meeting: due 7 days before each Performance Test</p> <p>PT Report: due 45 days after each Performance Test</p> <p>PT Report - Microfiche: due 105 days after each Performance Test</p>	Minn. R. 7017.2030, subp. 1-4, and Minn. R. 7017.2035, subp. 1 and 2

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item:** GP 001 Tanks subject to NSPS subp. Kb**Associated Items:** TK 001 Ethanol & Water

TK 002 Ethanol

TK 003 Unleaded Gas

TK 004 Ethanol &amp; Unleaded Gas

TK 005 Ethanol &amp; Unleaded Gas

What to do	Why to do it
Record keeping: Maintain records showing the dimensions of each tank and an analysis showing each tank's capacity.	40 CFR Section 60.116b(b); Minn. R. 7011.1520(C)

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item:** GP 002 Denatured Ethanol Tanks**Associated Items:** TK 004 Ethanol & Unleaded Gas

TK 005 Ethanol &amp; Unleaded Gas

What to do	Why to do it
<b>A. POLLUTION CONTROL REQUIREMENTS</b>	hdr
Each storage vessel in GP 002 shall be equipped with a fixed roof in combination with an internal floating roof meeting the specifications of paragraph (a)(1) of this section.	40 CFR Section 60.112b(a); Minn. R. 7011.1520(C)
Each internal floating roof shall be equipped with the following closure devices between the wall of the storage vessel and the edge of the internal floating roof: (B) Two seals mounted one above the other so that each forms a continuous closure that completely covers the space between the wall of the storage vessel and the edge of the internal floating roof. The lower seal may be vapor-mounted, but both must be continuous.	40 CFR Section 60.112b(a)(1)(ii)(B); Minn. R. 7011.1520(C)
<b>B. MONITORING REQUIREMENTS</b>	hdr
Visually inspect the internal floating roof, the primary seal, and the secondary seal, prior to filling the storage vessel with Volatile Organic Liquid (VOL). If there are holes, tears, or other openings in the primary seal, the secondary seal, or the seal fabric, or defects in the internal floating roof, or both, the owner or operator shall repair the items before filling the storage vessel.	40 CFR Section 60.113b(a)(1); Minn. R. 7011.1520(C)
Visually inspect the internal floating roof, the primary seal, and the secondary seal through manholes and roof hatches on the fixed roof at least once every twelve (12) months after initial fill as required by this paragraph.	40 CFR Section 60.113b(a)(3)(ii); Minn. R. 7011.1520(C)
Visually inspect the internal floating roof, the primary seal, the secondary seal, gaskets, slotted membranes, and sleeve seals (if any) each time each storage vessel is emptied and degassed as required by this paragraph. In no event shall inspections conducted in accordance with this provision occur at intervals greater than five (5) years.	40 CFR Section 60.113b(a)(3)(i); Minn. R. 7011.1520(C)
<b>C. RECORDKEEPING REQUIREMENTS</b>	hdr
Keep a record of each inspection performed as required by 40 CFR Section 60.113b(a)(1), (a)(2), (a)(3), and (a)(4). Each record shall identify the storage vessel on which the inspection was performed and shall contain the date the vessel was inspected and the observed condition of each component of the control equipment (seals, internal floating roof, and fittings).	40 CFR Section 60.115b(a)(2); Minn. R. 7011.1520(C)
<b>D. REPORTING REQUIREMENTS</b>	hdr
After each inspection required by 40 CFR Section 60.113b(a)(3) that finds holes or tears in the seal or seal fabric, or defects in the internal floating roof, or other control equipment defects listed in 40 CFR Section 60.113b(a)(3)(ii), a report shall be furnished to the Administrator within 30 days of the inspection. The report shall identify the storage vessel and the reason it did not meet the specifications of 40 CFR Section 60.112b(a)(1) or 40 CFR Section 60.113b(a)(3)(ii) and list each repair made.	40 CFR Section 60.115b(a)(4); Minn. R. 7011.1520(C)
Notification: If an inspection is required (under 40 CFR Section 60.113b(a)(1) or 40 CFR Section 60.113b(a)(3)(i)), notify the Administrator in writing at least 30 days prior to the filling or refilling of each storage vessel, to afford the Administrator the opportunity to have an observer present. If the inspection is not planned and the owner or operator could not have known about the inspection 30 days in advance of refilling the tank, the owner or operator shall notify the Administrator at least 7 days prior to refilling the storage vessel. Notification shall be made by telephone immediately followed by written documentation demonstrating why the inspection was unplanned. Alternatively, this notification including the written documentation may be made in writing and sent by express mail so that it is received by the Administrator at least 7 days prior to refilling.	40 CFR Section 60.115b(a)(5); Minn. R. 7011.1520(C)



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item:** GP 003 Baghouse Monitoring Requirements**Associated Items:** CE 001 Fabric Filter - Low Temperature, i.e., T<180 Degrees F

CE 002 Fabric Filter - Low Temperature, i.e., T&lt;180 Degrees F

SV 001 Grain Handling (CE 001)

SV 002 Hammermill (CE 002)

What to do	Why to do it
Operation and Maintenance of Fabric Filter: The Permittee shall operate and maintain the fabric filter according to the control equipment manufacturer's specifications.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14
Visible Emissions/Pressure Drop Monitoring and Recordkeeping: Once each day of operation of any GP 003 fabric filter, the Permittee shall check the outlet of each operating fabric filter during daylight hours for any visible emissions. If inclement weather prohibits a visible emission check, once each day the Permittee shall observe and record the pressure drop across each operating fabric filter. Record the time and date of the observation, and whether or not any visible emissions were observed or the pressure drop.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14
Corrective Action: If visible emissions are observed, and/or if the pressure drop is outside the permitted range specified in this subject item, the Permittee shall follow the Operation and Maintenance Plan for the fabric filter and take corrective actions as soon as possible to eliminate the visible emissions and/or return the pressure drop to within the permitted range. The Permittee shall keep a record of the type and date of all corrective actions taken.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14
Inspect quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural components, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Inspect monthly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item: GP 004 Scrubber Monitoring Requirements****Associated Items:** CE 003 Packed-Gas Adsorption Column

CE 005 Packed-Gas Adsorption Column

SV 003 Fermentation (CE 003)

SV 005 Distillation (CE 005)

What to do	Why to do it
Record the pressure drop and water flow rate of each scrubber once each day of operation.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Corrective Action: If the applicable pressure drop is not within the permitted range specified under SV 003 and/or SV 005, and/or the applicable water flow rate is not equal to or greater than the minimum values specified under SV 003 and/or SV 005, the Permittee shall take corrective action as soon as possible to achieve the required operating values. The Permittee shall keep a record of the type and date of all corrective actions taken.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14
Inspect quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural components, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Inspect monthly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Calibrate the gauges annually, or as often as required by manufacturing specifications and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item:** GP 005 Cyclone Monitoring Requirements**Associated Items:** CE 004 Multiple Cyclone w/o Fly Ash Reinjection - Most Multiclones

SV 004 DDGS Dryer (CE 004)

SV 009 DDGS Cooling Cyclone (EU 031)

What to do	Why to do it
Record the pressure drop at each cyclone once each day of operation.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Corrective Action: If the applicable pressure drop is not within the permitted range specified under SV 004 and/or SV 009, the Permittee shall take corrective action as soon as possible to achieve the required operating values. The Permittee shall keep a record of the type and date of all corrective actions taken.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14
Inspect quarterly, or as required by manufacturing specifications, all components that are not subject to wear or plugging, including structural components, housing, ducts, and hoods. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Inspect monthly, or as required by manufacturing specifications, all components that are subject to wear or plugging. Maintain a written record of the inspection and any action resulting from the inspection.	Minn. R. 7007.0800, subp. 2 and subp. 14
Calibrate the pressure drop gauge annually, or as often as required by manufacturer's specifications and maintain a written record of the calibration and any action resulting from the calibration.	Minn. R. 7007.0800, subp. 2 and subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item: GP 006 NOx Emissions From Fuel Combustion****Associated Items:** EU 015 DDGS Dryer

EU 018 Boiler

EU 034 Boiler

What to do	Why to do it
Nitrogen Oxides: less than or equal to 94 tons/year using 12-month Rolling Sum	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Recordkeeping: By the 15th of each month, calculate and record the GP 006 NOx emissions for the previous month, and the GP 006 NOx emissions from the previous 12 months (12-month rolling sum).  To calculate the monthly NOx emissions, use the recordkeeping requirements under Option A (described below) and Equation 1 (as described in the Appendix).  The Permittee shall not use Option B (as described below) and Equation 2 (as described in the Appendix) to calculate NOx emissions until after completion of all performance testing requirements (described below), and the Permittee has received written confirmation of the test results from the agency.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Fuel Burned: Natural gas and propane only.	Minn. Stat. Section 116.07, subd. 4a; Minn. R. 7007.0800, subp. 2
OPTION A - FUEL USAGE RECORDKEEPING REQUIREMENTS IF USING UNCONTROLLED AP-42 NOx EMISSION FACTORS FOR ALL GP 006 EMISSION UNITS	hdr
Recordkeeping - Fuel Usage: Once each day, record the following: a. cubic feet of natural gas combusted during the previous day; b. gallons of propane combusted during the previous day.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Recordkeeping - Fuel Usage: By the 15th of each month, calculate and record the following: a. cubic feet of natural gas combusted during the previous month; b. gallons of propane combusted during the previous month.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
OPTION B - FUEL USAGE RECORDKEEPING REQUIREMENTS IF USING TEST-BASED NOx EMISSION FACTORS FOR ONE OR MORE GP 006 EMISSION UNITS	hdr
Recordkeeping - Fuel Usage: Once each day, record the following: a. cubic feet of natural gas combusted by the existing boiler (EU 018) during the previous day; b. cubic feet of natural gas combusted by the the new boiler (EU 034) during the previous day; c. cubic feet of natural gas combusted by the dryer (EU 015) during the previous day; d. gallons of propane combusted by the existing boiler (EU 018) during the previous day; e. gallons of propane combusted by the new boiler (EU 034) during the previous day; f. gallons of propane combusted by the dryer (EU 015) during the previous day; g. cubic feet of natural gas combusted by dryer #2 (EU035) during the previous day; h. gallons of propane combusted by dryer #2 (EU035) during the previous day.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Recordkeeping - Fuel Usage: By the 15th day of each month, calculate and record the following: a. cubic feet of natural gas combusted by the existing boiler (EU 018) during the previous month; b. cubic feet of natural gas combusted by the the new boiler (EU 034) during the previous month; c. cubic feet of natural gas combusted by the dryer (EU 015) during the previous month; d. gallons of propane combusted by the existing boiler (EU 018) during the previous month; e. gallons of propane combusted by the new boiler (EU 034) during the previous month; f. gallons of propane combusted by the dryer (EU 015) during the previous month; g. cubic feet of natural gas combusted by dryer #2 (EU035) during the previous month; h. gallons of propane combusted by the dryer (EU035) during the previous month.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
TESTING REQUIREMENTS (APPLICABLE IF USING OPTION B - FUEL USAGE RECORDKEEPING REQUIREMENTS)	hdr

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

Performance Test: due 30 days after Notification of intent to conduct a performance test to establish an emission factor for NOx when combusting natural gas or propane for GP 006.  For additional applicable performance test requirements, see "General Performance Test Requirements" in Table A, Subject Item "Total Facility".	Minn. R. 7017.2020, subp. 1 and Minn. R. 7017.2030, subp. 4
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**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item: SV 001 Grain Handling (CE 001)**

**Associated Items:** EU 001 Corn Dump Pit/Auger  
EU 002 Corn Elevator  
EU 003 Scalper  
EU 004 Corn Bin  
EU 005 Corn Bin  
EU 006 Corn Bin  
EU 007 Corn Bin  
EU 016 DDGS Dump Pit/Auger  
EU 020 DDGS Elevator/Truck Loadout  
GP 003 Baghouse Monitoring Requirements

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 1.5 lbs/hour	Minn. R. 4410, Emissions assumed in environmental assessment worksheet
Particulate Matter < 10 micron: less than or equal to 1.5 lbs/hour	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Opacity: less than or equal to 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)
B. POLLUTION CONTROL REQUIREMENTS	hdr
Total Particulate Matter: greater than or equal to 94 percent collection efficiency	Minn. R. 7007.0800, subp. 2, also meets the requirements of Minn. R. 7011.1005, Subp. 3(E)
Particulate Matter < 10 micron: greater than or equal to 78 percent collection efficiency	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Pressure Drop: greater than or equal to 1 inches of water column and less than or equal to 6 inches of water column for CE 001. See GP 003 for additional CE 001 requirements.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item:** SV 002 Hammermill (CE 002)**Associated Items:** EU 008 Hammermill/Belt Scale

GP 003 Baghouse Monitoring Requirements

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 0.6 lbs/hour	Minn. R. 4410, Emissions estimates used in environmental assessment worksheet
Particulate Matter < 10 micron: less than or equal to 1.2 lbs/hour	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 & Minn. R. 7007.0200
Opacity: less than or equal to 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)
B. POLLUTION CONTROL REQUIREMENTS	hdr
Total Particulate Matter: greater than or equal to 99 percent collection efficiency	Minn. R. 7007.0800, subp. 2, also meets the requirements set by Minn. R. 7011.1005, Subp. 3(E)
Particulate Matter < 10 micron: greater than or equal to 98 percent collection efficiency	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 8 inches of water column for CE 002. See GP 003 for additional CE 006 requirements.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7007.0800, subp. 14

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item:** SV 003 Fermentation (CE 003)**Associated Items:** EU 022 Fermenter

EU 023 Fermenter

EU 024 Fermenter

EU 025 Beer Well

EU 033 Fermenter

GP 004 Scrubber Monitoring Requirements

What to do	Why to do it
A. EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Volatile Organic Compounds: less than or equal to 6.9 lbs/hour	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
B. POLLUTION CONTROL REQUIREMENTS	hdr
Volatile Organic Compounds: greater than or equal to 98 percent collection efficiency	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 10 inches of water column for CE 003.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Water flow rate: greater than or equal to 22 gallons/minute for CE 003. See GP 004 for additional CE 003 requirements.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
C. TESTING REQUIREMENTS	hdr
Performance Test: due before end of each 60 months starting 01/08/1999 to measure SV 003 volatile organic compounds. The first test is due January 8, 1999, then every 60 months thereafter.	Title I Condition: Emissions testing to avoid major source classification under; 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1 and Minn. R. 7017.2030, subp. 4
For additional applicable performance test requirements, see "General Performance Test Requirements" in Table A, Subject Item "Total Facility".	



**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item: SV 005 Distillation (CE 005)**

**Associated Items:** EU 009 Beer Stripper  
 EU 010 Rectifier  
 EU 011 Side Stripper  
 EU 012 Molecular Sieve  
 EU 014 Evaporator  
 EU 026 Liquefaction Tank 1  
 EU 027 Liquefaction Tank 2  
 EU 028 Slurry Tank  
 EU 029 Yeast Tank  
 EU 030 190 Proof Rundown Tank  
 GP 004 Scrubber Monitoring Requirements

What to do	Why to do it
A. EMISSION LIMITS	hdr
Opacity: less than or equal to 20 percent opacity	Minn. R. 7011.0715, subp. 1(B)
Volatile Organic Compounds: less than or equal to 0.8 lbs/hour	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
B. POLLUTION CONTROL REQUIREMENTS	hdr
Volatile Organic Compounds: greater than or equal to 98 percent collection efficiency	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 & Minn. R. 7007.0200
Pressure Drop: greater than or equal to 2 inches of water column and less than or equal to 10 inches of water column for CE 005.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Water flow rate: greater than or equal to 2.9 gallons/minute for CE 005. See GP 004 for additional CE 005 requirements.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
C. TESTING REQUIREMENTS	hdr
Performance Test: due before end of each 60 months starting 01/08/1999 to measure SV 005 volatile organic compounds. The first test is due January 8, 1999, then every 60 months thereafter.  For additional applicable performance test requirements, see "General Performance Test Requirements" in Table A, Subject Item "Total Facility".	Title I Condition: Emissions testing to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1 and Minn. R. 7017.2030, subp. 4

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item:** SV 009 DDGS Cooling Cyclone (EU 031)**Associated Items:** EU 031 DDGS Cooling Cyclone

GP 005 Cyclone Monitoring Requirements

What to do	Why to do it
A. EMISSION LIMITS	hdr
Total Particulate Matter: less than or equal to 1.8 lbs/hour	Minn. R. 4410, Emission rates assumed in environmental assessment worksheet
Particulate Matter < 10 micron: less than or equal to 1.8 lbs/hour	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 & Minn. R. 7007.0200
Opacity: less than or equal to 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)
B. EU 031 OPERATING REQUIREMENTS	hdr
Pressure Drop: greater than or equal to 4 inches of water column and less than or equal to 8 inches of water column for EU 031, and collection efficiency of greater than 80%. See GP 005 for additional EU 031 requirements.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200, Minn. R. 7011.1005 Subp. 3(E)
C. TESTING REQUIREMENTS	hdr
Performance Test: due before end of each 36 months starting 01/08/1999 to measure SV 009 PM emissions. The first test is due January 8, 1999, then every 36 months thereafter.  For additional applicable performance test requirements, see "General Performance Test Requirements" in Table A, Subject Item "Total Facility".	Minn. R. 7017.2020, subp. 1 and Minn. R. 7017.2030, subp. 4
Performance Test: due before end of each year starting 01/08/1999 measure SV 009 PM10 emissions. The first test is due January 8, 1999, then every 12 months thereafter.  For additional applicable performance test requirements, see "General Performance Test Requirements" in Table A, Subject Item "Total Facility".	Title I Condition: Emissions testing to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1 and Minn. R. 7017.2030, subp. 4

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

What to do	Why to do it
<b>A. EMISSION LIMITS</b>	hdr
Total Particulate Matter: less than or equal to 15 lbs/hour	Minn. R. 4410, Emission rates assumed in environmental worksheet
Particulate Matter < 10 micron: less than or equal to 15 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Opacity: less than or equal to 10 percent opacity	Minn. R. 7011.1005, subp. 3(D)
Volatile Organic Compounds: less than or equal to 7.6 lbs/hour	Title I Condition: To avoid major source classification under 40 CFR Section 52.21; to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
<b>B. POLLUTION CONTROL REQUIREMENTS</b>	hdr
Total Particulate Matter: greater than or equal to 80 percent collection efficiency	Minn. R. 7011.1005, Subp. 3(E)
Particulate Matter < 10 micron: greater than or equal to 80 percent collection efficiency	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
Pressure Drop: greater than or equal to 4 inches of water column and less than or equal to 8 inches of water column for CE 004. See GP 005 for additional CE 004 requirements.	Title I Condition: to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200
<b>C. TESTING REQUIREMENTS</b>	hdr
Performance Test: due before end of each 36 months starting 05/01/2001 to measure VOC, PM, and PM10 emissions from the dryers. The first test is due May 01, 2001, then every 36 months thereafter.	Title I Condition: Emissions testing to avoid major source classification under 40 CFR Section 70.2 and Minn. R. 7007.0200; Minn. R. 7017.2020, subp. 1 and Minn. R. 7017.2030, subp. 4
For additional applicable performance test requirements, see "General Performance Test Requirements" in Table A, Subject Item "Total Facility".	

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item:** EU 018 Boiler**Associated Items:** GP 006 NOx Emissions From Fuel Combustion

SV 006 Boiler

What to do	Why to do it
Recordkeeping: Record and maintain records of the amounts of each fuel combusted on a monthly basis for the previous calendar month. These records may consist of fuel meter readings or fuel bills/purchase receipts.	40 CFR Section 60.13(i) to comply with 40 CFR Section 60.48c(g) and (i); Minn. R. 7011.0570

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item:** EU 034 Boiler**Associated Items:** GP 006 NOx Emissions From Fuel Combustion

SV 010 Boiler

What to do	Why to do it
Recordkeeping: Record and maintain records of the amounts of each fuel combusted on a monthly basis for the previous calendar month. These records may consist of fuel meter readings or fuel bills/purchase receipts.	40 CFR Section 60.13(i) and February 20, 1992, EPA memorandum to meet requirements of 40 CFR Section 60.48c(g) and (i); Minn. R. 7011.0570
Fuel Burned: Limited to natural gas and propane only.	Minn. Stat. 116.07, subp. 4a and Minn. R. 7007.0800, subp. 2

TABLE A: LIMITS AND OTHER REQUIREMENTS

09/11/00

Facility Name: Heartland Corn Products  
Permit Number: 14300014 - 003

Subject Item: FS 001 Facility Truck Traffic Fugitive Emissions

What to do	Why to do it
Fugitive Emissions: Do not cause or permit the transporting any material in a manner which may allow avoidable amounts of particulate matter to become airborne. Do not cause or permit a road or a driveway to be constructed, used, repaired, or demolished without applying all such reasonable measures as may be required to prevent particulate matter from becoming airborne.	Minn. R. 7011.0150

**TABLE A: LIMITS AND OTHER REQUIREMENTS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

**Subject Item: FS 002 Grain and DDGS Fugitive Emissions**

<b>What to do</b>	<b>Why to do it</b>
Opacity: less than or equal to 5 percent opacity for fugitive emissions from grain unloading, grain or DDGS handling activities, or DDGS railcar loading.	Minn. R. 7011.1005, subp. 3(A)
Opacity: less than or equal to 10 percent opacity for fugitive emissions from DDGS truck loading.	Minn. R. 7011.1005, subp. 3(B)
Clean up commodities spilled on the driveway and other facility property as required to minimize fugitive emissions to a level consistent with RACT (Reasonably Available Control Technology).	Minn. R. 7011.1005, subp. 1(A)

## TABLE B: SUBMITTALS

09/11/00

Facility Name: Heartland Corn Products  
Permit Number: 14300014 - 003

Table B lists most of the submittals required by this permit. Please note that some submittal requirements may appear in Table A or, if applicable, within a compliance schedule located in Table C. Table B is divided into two sections in order to separately list one-time only and recurrent submittal requirements.

Each submittal must be postmarked or received by the date specified in the applicable Table. Those submittals required by parts 7007.0100 to 7007.1850 must be certified by a responsible official, defined in Minn. R. 7007.0100, subp. 21. Other submittals shall be certified as appropriate if certification is required by an applicable rule or permit condition.

Send any application for a permit or permit amendment to:

Permit Technical Advisor  
Permit Section  
Air Quality Division  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194

Also, where required by an applicable rule or permit condition, send to the Permit Technical Advisor notices of:

- accumulated insignificant activities,
- installation of control equipment,
- replacement of an emissions unit, and
- changes that contravene a permit term.

Unless another person is identified in the applicable Table, send all other submittals to:

Supervisor  
Compliance Determination Unit  
Air Quality Division  
Minnesota Pollution Control Agency  
520 Lafayette Road North  
St. Paul, Minnesota 55155-4194

Send submittals that are required to be submitted to the U.S. EPA regional office to:

Mr. George Czerniak  
Air and Radiation Branch  
EPA Region V  
77 West Jackson Boulevard  
Chicago, Illinois 60604

Send submittals that are required by the Acid Rain Program to:

U.S. Environmental Protection Agency  
Clean Air Markets Division  
1200 Pennsylvania Avenue NW (6204N)  
Washington, D.C. 20460



**TABLE B: ONE TIME SUBMITTALS OR NOTIFICATIONS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

What to send	When to send	Portion of Facility Affected
Notification of the Actual Date of Initial Startup	due 15 days after Initial Startup	EU034
Notification of the Anticipated Date of Initial Startup	due 30 days before Anticipated Date of Initial Startup	EU034
Notification	due 30 days before Performance Test that will be used to establish an emission factor for NOx when combusting natural gas or propane for GP 006.	GP006
Testing Frequency Plan	due 60 days after Performance Test for NOx emissions. The plan shall specify a testing frequency using the test data and MPCA guidance. Future performance tests based on year (12-month), 36-month, and 60-month intervals, or as applicable, shall be required on written approval of MPCA per Minn. R. 7017.2020, subp. 1.	GP006

**TABLE B: RECURRENT SUBMITTALS**

09/11/00

Facility Name: Heartland Corn Products

Permit Number: 14300014 - 003

What to send	When to send	Portion of Facility Affected
Semiannual Deviations Report	due 30 days after end of each calendar half-year following Permit Issuance . The first semiannual report submitted by the Permittee shall cover the calendar half-year in which the permit is issued. The first report of each calendar year covers January 1 - June 30. The second report of each calendar year covers July 1 - December 31.	Total Facility
Compliance Certification	due 30 days after end of each calendar year following Permit Issuance (for the previous calendar year). To be submitted on a form approved by the Commissioner. The report covers all deviations experienced during the calendar year.	Total Facility
Emissions Inventory Report	due 91 days after end of each calendar year following Permit Issuance (April 1). To be submitted on a form approved by the Commissioner.	Total Facility

## APPENDIX

**Facility Name: Heartland Corn Products**

**Permit Number: 14300014-003**

### Calculation of NO<sub>x</sub> Emissions

**Step 1: Calculate NO<sub>x</sub> emissions for the previous month, using the following equation (Use Option A or Option B):**

<i>Option A: If using uncontrolled AP-42 NO<sub>x</sub> emission factors for all emission units</i>
---

**Equation 1:**  $(A \times EF_{NG}) + (B \times EF_P) = N$

Where:

A = The quantity of natural gas combusted during the previous month, in million cubic feet

B = The quantity of propane combusted during the previous month, in gallons

EF<sub>NG</sub>= The most current AP-42 emission factor for uncontrolled nitrogen oxide emissions from the combustion of natural gas, in tons of NO<sub>x</sub> per million cubic feet of natural gas. At the time of permit issuance, the most current AP-42 emission factor is 0.05 tons of NO<sub>x</sub> per million cubic feet of natural gas, but may change over the life of this permit.

EF<sub>P</sub>= The most current AP-42 emission factor for uncontrolled nitrogen oxide emissions from the combustion of propane, in tons of NO<sub>x</sub> per gallon of propane. At the time of permit issuance, the most current AP-42 emission factor is  $9.5 \times 10^{-6}$  tons of NO<sub>x</sub> per gallon of propane, but may change over the life of this permit.

N = NO<sub>x</sub> emissions, in tons, for the previous month

<i>Option B: If using test-based NO<sub>x</sub> emission factors for one or more emission units</i>
---

**Equation 2:**

$$(A \times EF_{NG1}) + (B \times EF_{NG2}) + (C \times EF_{NG3}) + (D \times EF_{P1}) + (E \times EF_{P2}) + (F \times EF_{P3}) + (G \times EF_{NG4}) + (H \times EF_{P4}) = N$$

Where:

A = The quantity of natural gas combusted in the existing boiler (EU 018) during the previous month, in million cubic feet

B = The quantity of natural gas combusted in the new boiler (EU 034) during the previous month, in million cubic feet

C = The quantity of natural gas combusted in the dryer (EU 015) during the previous month, in million cubic feet

D = The quantity of propane combusted in the existing boiler (EU 018) during the previous month, in gallons

- E = The quantity of propane combusted in the new boiler (EU 034) during the previous month, in gallons
- F = The quantity of propane combusted in the dryer (EU 015) during the previous month, in gallons
- G = The quantity of natural gas combusted in DDGS dryer #2 (EU035) during the previous month, in million cubic feet
- H = The quantity of propane combusted in DDGS dryer #2 (EU035) during the previous month, in gallons
- $EF_{NG1}$  = The appropriate emission factor for nitrogen oxide emissions from the combustion of natural gas in the existing boiler (EU 018), in tons of  $NO_x$  per million cubic feet of natural gas. The appropriate emission factor is either
1. A site-specific emission factor obtained from an MPCA approved stack test, or
  2. The most current AP-42 emission factor for uncontrolled  $NO_x$  emissions from combustion of natural gas. At the time of permit issuance, the most current AP-42 emission factor is 0.05 tons of  $NO_x$  per million cubic feet of natural gas, but may change over the life of this permit.
- $EF_{NG2}$  = The appropriate emission factor for nitrogen oxide emissions from the combustion of natural gas in the new boiler (EU 034), in tons of  $NO_x$  per million cubic feet of natural gas. The appropriate emission factor is either
1. A site-specific emission factor obtained from an MPCA approved stack test, or
  2. The most current AP-42 emission factor for uncontrolled  $NO_x$  emissions from combustion of natural gas. At the time of permit issuance, the most current AP-42 emission factor is 0.05 tons of  $NO_x$  per million cubic feet of natural gas, but may change over the life of this permit.
- $EF_{NG3}$  = The appropriate emission factor for nitrogen oxide emissions from the combustion of natural gas in the dryer (EU 015), in tons of  $NO_x$  per million cubic feet of natural gas. The appropriate emission factor is either
1. A site-specific emission factor obtained from an MPCA approved stack test, or
  2. The most current AP-42 emission factor for uncontrolled  $NO_x$  emissions from combustion of natural gas. At the time of permit issuance, the most current AP-42 emission factor is 0.05 tons of  $NO_x$  per million cubic feet of natural gas, but may change over the life of this permit.
- $EF_{NG4}$  = The appropriate emission factor for nitrogen oxide emissions from the combustion of natural gas in DDGS Dryer #2 (EU 035), in tons of  $NO_x$  per million cubic feet of natural gas. The appropriate emission factor is either
3. A site-specific emission factor obtained from an MPCA approved stack test, or
  4. The most current AP-42 emission factor for uncontrolled  $NO_x$  emissions from combustion of natural gas. At the time of permit issuance, the most current AP-42 emission factor is 0.05 tons of  $NO_x$  per million cubic feet of natural gas, but may change over the life of this permit.
- $EF_{P1}$  = The appropriate emission factor for nitrogen oxide emissions from the combustion of propane in the existing boiler (EU 018), in tons of  $NO_x$  per gallon of propane. The appropriate emission factor is either
1. A site-specific emission factor obtained from an MPCA approved stack test, or

2. The most current AP-42 emission factor for uncontrolled NO<sub>x</sub> emissions from combustion of propane. At the time of permit issuance, the most current AP-42 emission factor is 9.5 x 10<sup>-6</sup> tons of NO<sub>x</sub> per gallon of propane, but may change over the life of this permit.

EF<sub>P2</sub>= The appropriate emission factor for nitrogen oxide emissions from the combustion of propane in the new boiler (EU 034), in tons of NO<sub>x</sub> per gallon of propane. The appropriate emission factor is either

1. A site-specific emission factor obtained from an MPCA approved stack test, or
2. The most current AP-42 emission factor for uncontrolled NO<sub>x</sub> emissions from combustion of propane. At the time of permit issuance, the most current AP-42 emission factor is 9.5 x 10<sup>-6</sup> tons of NO<sub>x</sub> per gallon of propane, but may change over the life of this permit.

EF<sub>P3</sub>= The appropriate emission factor for nitrogen oxide emissions from the combustion of propane in the dryer (EU 015), in tons of NO<sub>x</sub> per gallon of propane. The appropriate emission factor is either

1. A site-specific emission factor obtained from an MPCA approved stack test, or
2. The most current AP-42 emission factor for uncontrolled NO<sub>x</sub> emissions from combustion of propane. At the time of permit issuance, the most current AP-42 emission factor is 9.5 x 10<sup>-6</sup> tons of NO<sub>x</sub> per gallon of propane, but may change over the life of this permit.

EF<sub>P4</sub>= The appropriate emission factor for nitrogen oxide emissions from the combustion of propane in DDGS dryer #2 (EU 035), in tons of NO<sub>x</sub> per gallon of propane. The appropriate emission factor is either

3. A site-specific emission factor obtained from an MPCA approved stack test, or
4. The most current AP-42 emission factor for uncontrolled NO<sub>x</sub> emissions from combustion of propane. At the time of permit issuance, the most current AP-42 emission factor is 9.5 x 10<sup>-6</sup> tons of NO<sub>x</sub> per gallon of propane, but may change over the life of this permit.

N = NO<sub>x</sub> emissions, in tons, for the previous month

**Step 2: Calculate annual NO<sub>x</sub> emissions, using a 12-month rolling sum (use this whether you used Option A or Option B above).**

Each month, add together the NO<sub>x</sub> emissions from the previous 12 months.

**TECHNICAL SUPPORT DOCUMENT**  
**For**  
**DRAFT AIR EMISSION PERMIT NO. 14300014-003**

This technical support document is for all the interested parties of the draft permit. The purpose of this document is to set forth the legal and factual basis for the draft permit conditions, including references to the applicable statutory or regulatory provisions.

**1. General Information**

1.1. Applicant and Stationary Source Location:

Owner/Operator Address	Facility Address (SIC Code: 2869)
Heartland Corn Products E State Hwy 19 Winthrop, MN 55396	Heartland Corn Products E State Hwy 19 Winthrop, MN 55396

1.2. Description Of The Facility

The facility produces fuel grade ethanol and distillers dried grains with solubles (DDGS). Emission sources include receiving, storing, handling, and cleaning corn; steam production (boiler); drying, storage, handling, and shipping of DDGS; fermentation and distillation; storage of ethanol of varying purities at various points in the process; storage of gasoline (denaturant); and shipping of denatured ethanol. Primary pollutants include particulate matter, volatile organic compounds, and nitrogen oxides.

The existing facility is permitted as a synthetic minor for both Part 70 and new source review purposes. With this permit, the facility will become classified as major under new source review, and remain a synthetic minor under Part 70.

1.3 Description of the Activities Allowed By This Permit Action

This permit allows for the addition of equipment needed to increase potential production from 19 million gallons per year to 35 million gallons per year. Specific changes to the permit are listed on the cover pages to the permit.

Prior to issuance of this major permit amendment, the facility was an existing synthetic minor source for new source review and Part 70 purposes. With the issuance of this permit, the plant becomes a major source under new source review because the potential particulate emissions exceed 100 tons per year. Since all other criteria pollutant potentials are below 100 tons per year, the source remains minor under Part 70.

1.4. Facility Emissions:

Permit Action Number:  
Date: 1/15/2004

Table 2. Total Facility Potential to Emit Summary:

EU #	SV#	Emission Unit Description	PM tpy	PM10 tpy	SO2 tpy	NOx tpy	CO tpy	VO C tpy	Pb tpy	Singl e HAP tpy	All HAP s tpy
	001	Grain and DDGS handling	6.57	6.57							
	002	Hammermills	5.26	5.26							
	003	Fermenters						30.2			
	005	Distillation						3.5			
GP6		Boilers	3.98	3.98	0.55	Cap	2.91	64.3	-	-	-
031	009	Cyclone Cooler	7.88	7.88							
	011	*DDGS Dryers	65.7	65.7		Cap		33.3	-	-	-
044	012	DDGS Storage bld.	0.07	0.03							
045	013	Flare	0	0	0.01	0.09	0.01	0.49	-	-	-
FS1		Truck Traffic	29.6	7.83							
FS2 FS3		Fugitive Grain and DDGS handling	3.34	0.8							
FS4		Ethanol Loading Rack						7.59			
FS5	007	Equipment Leaks						10.1			
TK1		190 proof Ethanol tnk						0.67			
TK2		200 proof Ethanol tnk						1.59			
TKs		Denaturant tanks						4.15			

	PM tpy	PM10 tpy	SO2 tpy	NOx tpy	CO tpy	VO C tpy	Pb tpy	Singl e HAP tpy	All HAP s tpy
Total Facility Limited Potential Emissions*	122	98.1	0.37	94.1	64.3	89.1	-	0.42	0.42

\*Combustion emissions for the dryers are given under group six. Emissions shown in this row for the dryer are for the particulate generated from the drying process only.

Table 3. Source Classification following Permit Action

Classification (put x in appropriate box)	Major/Affected Source	*Synthetic Minor	*Minor
PSD (list pollutant)	PM	PM10, Nox VOC	CO, SO2,
NAAR (list pollutant)			

Permit Action Number:

Date: 1/15/2004

Part 70 Permit Program (list pollutant)		PM10, Nox VOC	CO, SO2
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\* Refers to potential emissions that are less than those specified as major by 40 CFR 52.21, 40 CFR pt. 51 Appendix S, and 40 CFR pt. 70.

## 2. Regulatory and/or Statutory Basis

*Federal New Source Review:* The source is one of the listed 28 source categories given in 40 CFR 52.21 and with this permit issuance, potential emissions will exceed 100 tons per year for particulate matter. The facility is, therefore, considered major for new source review purposes after the issuance of this permit. Prior to the modification, the facility was a synthetic minor. The increase of this project alone does not increase emissions by more than 100 tons per year, and so is not subject to preconstruction review requirements under 40 CFR 52.21.

The permit contains stack emission limits, production limits, and fuel use limits that prevent emissions of criteria pollutants other than PM from exceeding 100 tons per year.

*Part 70 Permitting Program:* Since potential emissions from all criteria pollutants other than PM are less than 100 tons per year, and hazardous air pollutant emissions are less than threshold levels, the source is not required to obtain a Part 70 permit. The permit issued is a state permit.

*Federal New Source Performance Standards:* Two of the units that Heartland is installing are subject to federal standards of performance for new sources, codified at 40 CFR Part 60. The tank, TK006 is subject to 40 CFR 60, Subp. Kb. The new boiler, (EU034), is subject to 40 CFR 60, Subp. Dc. Notification requirements have been included in the permit for the boiler. The tank is of a size and the material stored is of a vapor pressure such that the unit is exempt from the requirements of 40 CFR 60, Subp. A. Therefore, the notification requirements for installation and startup typically required for a unit subject to federal new source performance standards are not included in the permit for this unit.

*Environmental Review:* An environmental assessment worksheet is required by Minn. R. 4410.4300, Mandatory EAW Categories, subp. 5. B. which specifies that construction or expansion of a facility for the production of alcohol fuels which would have or would increase its capacity by 5,000,000 or more gallons per year of alcohol produced must complete an EAW. Heartland has submitted that worksheet to the MPCA, and it is under review.

*Minnesota Performance Standards:* The grain and DDGS handling equipment, the hammermills, the distillation equipment, the cooling cyclone, and the dryers are subject to Minn. R. 7011.0715, Standards of Performance for Industrial Process Equipment. The facility in total is subject to Minn. R. 7011.0150 the specifies that fugitive particulate emissions must be minimized.

*NESHAPs:* This is not a major source of hazardous air pollutants, and is not a listed source category under 40 CFR Part 63.

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112(g): The potential emissions from the source in total, both prior to and after the modification, are less than the thresholds for a major source as defined by 40 CFR Part 63.

### Regulatory Overview of Units Affected by the Modification

Table 4. Regulatory Overview

*EU, GRP, or SV #	Applicable Regulations	**Comments
SV001, SV002, SV011, SV012, SV009	Minn. R. 7011.1005 40 CFR 52.21 40 CFR Part 70	Minn. R. 7011.0715, Standards of Performance for Industrial Process Equipment Emission limits for PM10 to restrict potential emissions to less than major source levels Emission limits for PM10 to restrict potential emissions to less than major source levels
GP 001, Tanks	40 CFR 60, Subp. Kb	Standards of Performance for Volatile Organic Liquid Storage Vessels for Which Construction, Reconstruction, or Modification Commenced after July 23, 1984
GP006 Boilers and Dryers	40 CFR 52.21 40 CFR Part 70	Emission limits for Nox to restrict potential emissions to less than major source levels
SV003, Fermentation	40 CFR 52.21 40 CFR Part 70	Emission limits set for VOC to restrict potential emissions to less than major source levels
SV005, Distillation	40 CFR 52.21 40 CFR Part 70 Minn. R. 7011.1005	Emission limits set for VOC to restrict potential emissions to less than major source levels Minn. R. 7011.0715, Standards of Performance for Industrial Process Equipment
EU018, EU034, Boilers	40 CFR 60, Subp. Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units  Both boilers burn only natural gas or propane, so are not subject to any of the emission limitations in the standard

### 3. Technical Information

#### *Compliance Demonstration Discussion:*

The permit contains specific requirements for the operation, maintenance, and monitoring of all control equipment to help ensure that emission limits are met. Where further compliance

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demonstration has been deemed necessary, stack performance testing has also been included in the permit. Heartland's anticipated startup of its modified facility is May of 2001. Some of the periodic stack testing requirements in the existing permit have been modified to provide for testing within 90 days of startup of the modified facility. Some have not. Below is a discussion of the factors affecting the decisions regarding additional stack testing for each stack/vent group or emission unit, as appropriate.

SV001: A higher capacity elevator, scalper, and three new corn bins will be added. However, no stack testing is required. Calculations show that emissions would need to be in excess of 0.025 gr/dscf to exceed the 1.5 lb/hour limit. This is unlikely for two reasons. First, the units are batch process units controlled by a baghouse. Most baghouse manufacturers guarantee emissions less than 0.02 gr/dscf. Secondly, all processes controlled are mechanical ones (versus combustion or reaction) and will produce particles that are relatively large. Those relatively large particles should be collected in the baghouse with efficiencies approaching 100%.

Further supporting the decision not to require stack testing are the emission calculations. Emission calculations based on AP42 factors, coupled with a 99% control efficiency predict emissions that are only 10% of the limit. Predicted emissions are 0.15 lb/hour.

SV002: A new hammermill will be added to the existing hammermill venting through this stack. Calculations show that the emissions from this process must be at or below 0.01 gr/dscf in order to meet the 0.6 lb/hour limit. AP42 factors combined with a 99% control efficiency predict that emissions from the processes will be 0.26 lb/hour, which is below the limit.

To verify that the calculations are correct, and Heartland is able to meet the emission limits, PM10 testing is required 90 days after initial startup of the second hammermill. PM testing is not required because particles that penetrate a fabric filter will mostly be less than 10 microns, if not all. PM10 is also of greater interest because of the company's assertion that the facility is minor for Part 70 purposes.

SV003: The existing permit was issued with a requirement for testing for VOC emissions from this stack. Testing was also required periodically every 5 years. Past testing yielded an emission rate of 0.25 lb VOC per hour. The limit in the existing permit was set at 5.13 lb VOC per hour. This permit raises the limit to 6.9 lb VOC per hour.

Three additional fermenters will vent through the stack after the modification. However, even if emissions double, the limit will not be threatened. For this reason, no additional stack testing requirements have been added to the permit. The permit retains the requirement for the periodic testing.

SV004/SV011: This permit allows the installation of a new DDGS Dryer, Dryer #2. SV004 will be replaced by SV011 along with this modification. The applicant has not indicated that the cyclone will be replaced also. Requirements that apply to both dryers have been placed under SV011.

Past emissions testing for particulate shows that PM10 emissions for Dryer #1 were 6.34 lb/hour. The PM10 emission limit for both dryers set by this permit is 15 lb/hour.

The VOC limit set for both dryers is 7.6 lb/hour. Past testing of the single dryer yielded VOC emissions of 4.2 lb/hour.

For both pollutants it appears that emissions from two dryers may be at or near the emission limits. The existing permit required testing periodically, every three years for PM and PM10, and every five years for VOC. The start date for the periodic testing for particulate was 1/8/99. That start date has been changed to 5/1/01, the anticipated date of startup and a requirement to test within 90 days of startup has also been added. Testing for PM, PM10, and VOC are required, and are all required every 3 years.

SV005: No new requirements for stack testing have been added to the periodically required VOC testing for these units. The emission limit for VOCs is 0.8 lb/hour. Past results were 0.19 lb/hour. Though the distillation capacity has been increased, it does not seem likely that the emission limit will be exceeded. That Heartland perform periodic testing for VOCs from the distillation equipment still remains a requirement of the permit.

SV009: Unmodified emission units.

SV012 and SV013: Both the DDGS storage building and the flare qualify as insignificant activities under Minn. R. 7007.1300, subp. 4.B. As such, no testing is required.

SV006 and SV010: The boilers are subject to 40 CFR 60, Subp. Dc. That performance standard, however, establishes no emission limits for boilers fueled by natural gas or propane.

*Emission Calculations:* Emission calculations are attached.

#### **4. Conclusion**

Based on the information provided by Heartland Corn Products, the MPCA has reasonable assurance that the proposed operation of the emission facility, as described in the Air Emission Permit No. 14300014-003 and this technical support document, will not cause or contribute to a violation of applicable federal regulations and Minnesota Rules.

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Attachment: Calculations