

Iowa Department of Natural Resources Air Quality Construction Permit

Permit Holder

Firm: Homeland Energy Solutions, LLC

Contact:
Chad Kuhlers

Responsible Party:
Stephen Eastman
President

(563) 547-3801

951 North Linn Avenue
New Hampton, IA 50659

Permitted Equipment

Emission Unit(s): Startup and Shutdown Flare #1, EP33A
Maximum Capacity of 166.67 MM BTU / hr @ 15% normal flow
Thus maximum capacity is 25 MM BTU / hr

Control Equipment: Flare at 166.67 MM BTU / hr @ 15% normal flow thus maximum
capacity is 25 MM BTU / hr, EP33A

Emission Point: EP33A

Equipment Location: 2797 Iowa Highway 24
Lawler, IA 52154

Plant Number: 19-04-002

Plant Maximum Capacity: 170 Million Gallons per rolling 12-month of Denatured Ethanol
1,700,000 tons (60,714,286 bushels) of corn per rolling 12-month period
1,411,607 tons per rolling 12-month of Wet Distillers' Grain
552,500 tons per rolling 12-month of DDGS

Permit No.	Proj. No.	Description	Date	Testing
07-A-967P	06-672	Original PSD Permit	08/08/2007	Yes

**MEDICINE BOW
EXHIBIT D
PRE-HRG MEMO**

Under the Direction of the Director of
the Department of Natural Resources

CPFP|1904002|08082007|06672|07A967P

PERMIT CONDITIONS

The permit holder, owner and operator of the facility shall assure that the installation, operation, and maintenance of this equipment is in compliance with all of the conditions of this permit and all other applicable requirements. This permit and its provisions are subject to the appeal rights set forth in Iowa Administrative Code (IAC), rule 561—7.5.

1. Departmental Review

This permit is issued based on information submitted by the applicant. Any misinformation, false statements or misrepresentations by the applicant shall cause this permit to be void. In addition, the applicant may be subject to criminal penalties according to Iowa Code Section 455B.146A.

This permit is issued under the authority of 567 Iowa Administrative Code (IAC) 22.3. The proposed equipment has been evaluated for conformance with Iowa Code Chapter 455B; 567 IAC Chapters 20 – 34; and 40 CFR Parts 51, 52, 60, 61, and 63 and has the potential to comply.

No review has been undertaken on the engineering aspects of the equipment or control equipment other than the potential of that equipment for reducing air contaminant emissions. The DNR assumes no liability, directly or indirectly, for any loss due to damage to persons or property caused by, resulting from, or arising out of the design, installation, maintenance or operation of the proposed equipment.

2. Transferability

As limited by 567 IAC 22.3(3)"F", this permit is not transferable from one location to another or from one piece of equipment to another, unless the equipment is portable. When portable equipment for which a permit has been issued is to be transferred from one location to another, the DNR shall be notified in writing at least thirty (30) days prior to transferring to the new location (See Permit Condition 8.A.6). The owner will be notified at least ten (10) days prior to the scheduled relocation if the relocation will cause a violation of the National Ambient Air Quality Standards (NAAQS). In such case, a supplements permit shall be required prior to the initiation of construction of additional control equipment or equipments modifications needed to meet the standards.

The permit is for the construction and operation of specific emission unit(s), control equipment, and emission point as described in this permit and in the application for this permit. Any owner or operator of the specified emission unit(s), control equipment, or emission point, including any person who becomes an owner or operator subsequent to the date on which this permit is issued, is responsible for compliance with the provisions of this permit. No person shall construct, install, reconstruct or alter this emissions unit, control equipment or emission point without the required revisions to this permit.

3. Construction

It is the owner's responsibility to ensure that construction conforms to the final plans and specifications as submitted, and that adequate operation and maintenance is provided to ensure that no condition of air pollution is created.

This permit shall become void if any one of the following conditions occur:

- (1) the construction or modification of the proposed project, as it affects the emission point(s) permitted herein, is not initiated within eighteen (18) months after the permit issuance date; or
- (2) the construction or modification of the proposed project, as it affects the emission point(s) permitted herein, is not completed within thirty-six (36) months after the permit issuance date; or
- (3) the construction or modification of the proposed project, as it affects the emission point(s) permitted herein, is not completed within a time period specified elsewhere in this permit.

3. Construction (Continued)

3.a. Original Permits

The owner or operator shall obtain a new permit if any changes are made to the final plans and specifications submitted for the proposed project.

3.b. Modified or Supplemental Permits

This permit supersedes any and all previous permits issued for the emission point(s) or emission unit(s) permitted herein.

However, the permittee may continue to act under the provisions of the previous permit for the emission point(s) or emission unit(s) until one of the following conditions occurs:

- (1) The proposed project authorized by this permit is completed as it affects the emission point(s) permitted herein; or
- (2) The permit becomes void.

The owner or operator shall obtain a new permit if:

- (1) Any changes are made to the final plans and specifications submitted for the proposed project; or
 - (2) This permit becomes void.
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4. Credible Evidence

As stated in 567 IAC 21.5 and also in 40 CFR Part 60.11(g), where applicable, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any provisions specified in this permit or any provisions of 567 IAC Chapters 20 through 34.

5. Owner Responsibility

Issuance of this permit shall not relieve the owner or operator of the responsibility to comply fully with applicable provisions of the State Implementation Plan (SIP), and any other requirements of local, state, and federal law.

The owner or operator of any emission unit or control equipment shall maintain and operate the equipment and control equipment at all times in a manner consistent with good practice for minimizing emissions, as required by paragraph 567 IAC 24.2(1) "*Maintenance and Repair*".

6. Excess Emissions

Excess emissions during a period of startup, shutdown, or cleaning of control equipment are not a violation of the emission standard if it is accomplished expeditiously and in a manner consistent with good practice for minimizing emissions except when another regulation applicable to the unit or process provides otherwise. Cleaning of control equipment, which does not require the shutdown of process equipment, shall be limited to one six-minute period per one-hour period. An incident of excess emissions other than the above is a violation and may be subject to criminal penalties according to Iowa Code 455B.146A. If excess emissions are occurring, either the control equipment causing the excess shall be repaired in an expeditious manner, or the process generating the emissions shall be shutdown within a reasonable period of time, as specified in 567 IAC 24.1.

An incident of excess emissions shall be orally reported to the appropriate DNR field office within eight (8) hours of, or at the start of, the first working day following the onset of the incident (See section 8.B.1). A written report of an incident of excess emissions shall be submitted as a follow-up to all required oral reports within seven (7) days of the onset of the upset condition.

7. Disposal of Contaminants

The disposal of materials collected by the control equipment shall meet all applicable rules.

8. Notification, Reporting, and Recordkeeping

- A. The owner shall furnish the DNR the following written notifications:
1. The date construction, installation, or alteration is initiated postmarked within thirty (30) days following initiation of construction, installation, or alteration;
 2. The actual date of startup, postmarked within fifteen (15) days following the start of operation;
 3. The date of each compliance test required by Permit Condition 12, at least thirty (30) days before the anticipated compliance test date;
 4. The date of each pretest meeting, at least fifteen (15) days before the proposed meeting date. The owner shall request a proposed test plan protocol questionnaire at least sixty (60) days prior to each compliance test date. The completed questionnaire shall be received by the DNR at least fifteen (15) days before the pretest meeting date;
 5. Transfer of equipment ownership, within 30 days of the occurrence;
 6. Portable equipment relocation, at least thirty (30) days before equipment relocation.
- B. The owner shall furnish the DNR with the following reports:
1. Oral excess emissions reports, in accordance with 567 IAC 24.1;
 2. A written compliance demonstration report for each compliance testing event, whether successful or not, postmarked not later than six (6) weeks after the completion of the test period unless other regulations provide for other notification requirements. In that case, the more stringent reporting requirement shall be met;
 3. Operation of this emission unit(s) or control equipment outside of those limits specified in Permit Conditions 10 and 14 and according to the schedule set forth in 567 IAC 24.1.
- C. The owner shall send correspondence regarding this permit to the following address:
- Construction Permit Supervisor
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, IA 50322
Telephone: (515) 281-8189
Fax: (515) 242-5094
- D. The owner shall send correspondence concerning stack testing to:
- Stack Testing Coordinator
Air Quality Bureau
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Urbandale, Iowa 50322
Telephone: (515) 242-6001
FAX: (515) 242-5127
- E. The owner shall send reports and notifications to:

Compliance Unit Supervisor Air Quality Bureau Iowa Department of Natural Resources 7900 Hickman Road, Suite 1 Urbandale, IA 50322 Telephone: (515) 281-8448 Fax: (515) 242-5127	Field Office 1, Manchester 909 West Main Street Suite 4 Manchester, IA 52057 Telephone: (563) 927-2640 Fax: (563) 927-2075
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8. Notification, Reporting, and Recordkeeping (Continued)

- F. All data, records, reports, documentation, construction plans, and calculations required under this permit shall be available at the plant during normal business hours for inspection and copying by federal, state, or local air pollution regulatory agencies and their authorized representatives, for a minimum of two (2) years from the date of recording.

9. Permit Violations

Knowingly committing a violation of this permit may carry a criminal penalty of up to \$10,000 per day fine and 2 years in jail according to Iowa Code Section 455B.146A.

10a. PSD Emission Limits

Pollutant	Limits ¹	Reference (567 IAC)
Particulate Matter (PM)	0.0076 lb / MM BTU	BACT
PM ₁₀	0.0076 lb / MM BTU	BACT
Opacity	0% ²	BACT
Sulfur Dioxide (SO ₂)	0.395 lb / MM BTU	BACT
Nitrogen Oxides (NO _x)	0.2 lb / MM BTU	BACT
Volatile Organic Compounds	0.006 lb / MM BTU ³	BACT
Carbon Monoxide (CO)	1.10 lb / MM BTU	BACT

¹ Standard is expressed as the average of three (3) runs.

² Standard is expressed as a six-minute average.

³ The pound per hour limit is the limit from the exhaust of the flare, EP-33A

10b. Other Emission Limits

Pollutant	lb/hr ¹	tons/yr ²	Additional Limits	Reference (567 IAC)
Particulate Matter (PM)	NA	NA	0.1 gr/dscf	23.3(2)"a"
PM ₁₀	0.19	NA	NA	NAAQS
Opacity	NA	NA	40% ³	23.3(2)"d"
Sulfur Dioxide (SO ₂)	9.86	NA	500 ppmv	23.3(3) and NAAQS
Nitrogen Oxides (NO _x)	5.0	NA	NA	NAAQS
Volatile Organic Compounds	NA	NA	NA	NA
Carbon Monoxide (CO)	NA	NA	NA	NA
Lead (Pb)	NA	NA	NA	NA
(Single HAP)	NA	9.4 ³	NA	NA
(Total HAP)	NA	24.4 ⁵	NA	NA

¹ Standard is expressed as the average of three (3) runs.

² Standard is a 12-month rolling total.

³ An exceedance of the indicator opacity of "NO VISIBLE EMISSIONS" will require the owner/operator to promptly investigate the emission unit and make corrections to operations or equipment associated with the exceedance. If exceedances continue after the corrections, the DNR may require additional proof to demonstrate compliance (e.g., stack testing).

⁴ Plant-wide limit to stay minor for NESHAP.

11. Emission Characteristics

This emission point shall conform to the specifications listed below:

Parameter	Value
Stack Height, (ft, from the ground)	75 feet
Discharge Style	Vertical Unobstructed
Stack Opening, (inches, dia.)	45.5 inches
Exhaust Temperature (°F)	1831 °F
Exhaust Flowrate (scfm)	10,500 scfm (45,000 acfm)

The temperature and flow rate are intended to be representative and characteristic of the design of the permitted emission point. The Department recognizes that the temperature and flow rate may vary with changes in the process and ambient conditions. If it is determined that any of the emission point design characteristics are different than the values stated above, the owner/operator must notify the Department and obtain a permit amendment, if required.

12. Compliance Demonstration(s) and Performance Testing

Pollutant	Initial	Subsequent	Methodology	Frequency
PM (federal)	No	No	NA	NA
PM (state)	No	No	NA	NA
PM ₁₀	No	No	NA	NA
Opacity	Yes	No	Stack Testing / Observation	NA
SO ₂	No	No	NA	NA
NO _x	No	No	NA	NA
VOC	No	No	NA	NA
CO	No	No	NA	NA
Pb	No	No	NA	NA
HAP	No	No	NA	NA

If an initial compliance demonstration specified above is testing, the owner shall verify compliance with the emission limitations contained in Permit Condition 10 within sixty (60) days after achieving maximum production rate and no later than one hundred eighty (180) days after the initial startup date of the proposed equipment.

If subsequent testing is specified above, the owner shall verify compliance with the emission limitations contained in Permit Condition 10 according to the frequency noted above.

If testing is required, the owner shall use the test method and run time listed in the table below unless another testing methodology is approved by the Department prior to testing.

Pollutant	Test Run Time	Test Method
PM (federal)	8 hours	40 CFR 60, Appendix A, Method 5
PM (state)	8 hours	Iowa Compliance Sampling Manual Method 5
PM ₁₀	13 hours	40 CFR 51, Appendix M, 201A with 202
Opacity	1 hour	40 CFR 60, Appendix A, Method 9
SO ₂	1 hour	40 CFR 60, Appendix A, Method 6C
NO _x	1 hour	40 CFR 60, Appendix A, Method 7E
VOC	1 hour	40 CFR 60, Appendix A, Method 25A
CO	1 hour	40 CFR 60, Appendix A, Method 10
Pb	1 hour	40 CFR 60, Appendix A, Method 12
Other		

The unit(s) being sampled should be operated in a normal manner at its maximum continuous output as rated by the equipment manufacturer, or the rate specified by the owner as the maximum production rate at which this unit(s) will be operated. In cases where compliance is to be demonstrated at less than the maximum continuous output as rated by the manufacturer, and it is the owner's intent to limit the capacity to that rating, the owner may submit evidence to the Department that this unit(s) has been physically altered so that capacity cannot be exceeded, or the Department may require additional testing, continuous monitoring, reports of operating levels, or any other information deemed necessary by the Department to determine whether this unit(s) is in compliance.

(12. Compliance Demonstration(s) and Performance Testing continued)

Each emissions compliance test must be approved by the Department. Unless otherwise specified by the Department, each test shall consist of three (3) separate runs. The arithmetic mean of three (3) acceptable test runs shall apply for compliance, unless otherwise indicated by the Department.

A pretest meeting shall be held at a mutually agreeable site no less than fifteen (15) days prior to the date of each test. Representatives from the Department shall attend this meeting, along with the owner and the testing firm, if any. It shall be the responsibility of the owner to coordinate and schedule the pretest meeting. The owner shall be responsible for the installation and maintenance of test ports. The Department shall reserve the right to impose additional, different, or more detailed testing requirements.

13. NSPS and NESHAP Applicability

This emission unit is not subject to any New Source Performance Standards (NSPS) at this time.

This emission unit is not subject to any of the National Emission Standards for Hazardous Air Pollutants (NESHAP) at this time.

14. Operating Limits

Operating limits for this emission unit shall be:

- A) All control equipment shall be maintained according to the manufacturer's specifications.
 - B) The auxiliary fuel used in the flare is limited to natural gas, syngas, biogas, or propane.
 - C) The flares (#1 = EP33A, #2 = EP33B, and #3 = EP33C) shall be limited to operating in any combination of the three together no more than 146 hours per rolling 12-month period and adhere to the specifications of 40 CFR Part 60.18 (i.e. smokeless design) specifically 60.18b through 60.18f.
 - D) An air flow meter shall be installed on each of the pipes feeding the controlled / released gas from the startup and shutdown of the gasifier to flare #1 = EP33A, flare #2 = EP33B, and flare #3 = EP33C to verify that only 15% of the normal flow is occurring.
 - E) An air flow meter shall be installed on each of the pipes that lead to the dryers and thermal oxidizers to verify the normal flow of gases generated by the gasifier system.
 - F) At 40% production rate for syn-gas the activated carbon bed and H₂S Removal System shall be on-line.
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15. Operating Condition Monitoring

All records as required by this permit shall be kept on-site for a minimum of two (2) years and shall be available for inspection by the DNR. Records shall be legible and maintained in an orderly manner.

- A) The owner or operator shall maintain a record of all inspections and maintenance activities.
- B) The owner or operator shall record the number of hours the flares (#1 = EP33A, #2 = EP33B, and #3 = EP33C) are used each month.
- C) After the first twelve months the owner or operator shall calculate the hours the flares are used on a twelve-month rolling period.
- D) Install and continually operate a strip chart recorder or other device to continually record the air flow feed rate to the flares (#1 = EP33A, #2 = EP33B, and #3 = EP33C) verifying only 15% of the normal is being feed to the flares. All excess emission reporting shall be conducted in accordance with conditions 6 and 8.
- E) Install and continually operate a strip chart recorder or other device to continually record the air flow feed rate to the dryers and thermal oxidizers coming from the gasifier.
- F) Record when the activated carbon bed and H₂S Removal System come on-line by documenting the percent level of production rate for syn-gas.
- G) The facility shall submit all emission units and associated emission points final design plans and specifications including maximum capacities at the facility. The facility shall also update any permits that may have changed due to a change in the final plans and specifications.

16. Continuous Emission Monitoring

Continuous emission monitoring is not required by this permit at this time.

17. Departmental Review

acfm	Actual cubic feet per minute
Applicant	The owner, company official or authorized agent
CFR	Code of Federal Regulations
Department	Iowa Department of Natural Resources
DNR	Iowa Department of Natural Resources
gr/dscf	Grains per dry standard cubic foot
HAP	Hazardous Air Pollutant(s)
IAC	Iowa Administrative Code
MMBtu	One million British thermal units
NA	Not Applicable
NAAQS	National Ambient Air Quality Standards
NO _x	Nitrogen Oxides
Owner	The owner or authorized representative
Permit	This document including permit conditions and all submitted application materials
PM ₁₀	Particulate Matter equal to or less than 10 microns in aerodynamic diameter
scfm	Standard cubic feet per minute
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
VOC	Volatile Organic Compound

END OF PERMIT CONDITIONS