Permit File Memo

DATE:	March 4, 2011
TO:	Permit File, Standard Ethanol (Facility ID #84220)
FROM:	Robert Sheeder
THRU:	Shelley Schneider and Clark Smith
RE:	Changes to Permit Documents After Public Notice (Permit #OPS2-016)

Draft Permit OPS2-016 for Standard Ethanol was public noticed and open for public comment from January 13, 2011 through February 12, 2011. During the public notice period, internal DEQ comments were made regarding the operating permit attachment and the NESHAP discussion of the fact sheet. As a result of the internal comments, the NDEQ found it necessary to revise the permit documents prior to presenting them for a decision. The revisions did not alter the project scope or increase emission limits of the permit, but were intended to clarify the source of emission factors to be used in calculations required by Attachment A of the permit, provide a brief discussion of NESHAP JJJJJJ in the fact sheet, and provide clarification concerning applicability of Greenhouse Gas (GHG) regulations to the facility.

A summary of the revisions follows:

Permit:

1. The first paragraph of Attachment A now reads:

> To demonstrate compliance with the VOC and HAP emission limits specified in Specific Condition II.(G)(1)(a), emissions shall be calculated each calendar month using data from the most recent valid performance test. For cases where testing data is not available, the permittee shall continue down the list below until the required information is available. For example, when a unit or process has not been tested, the permittee shall use manufacturer's guarantees and MSDS to calculate emissions. If guarantees and MSDS are not available, the permittee shall continue down the list to option 3 and use manufacturer/engineering estimates to calculate HAP emissions. When the information specified in options 1, 2, and 3 are unavailable, the permittee shall use information in AP-42 or other EPA published documents to calculate HAP emissions. For compliance purposes, total HAP is equivalent to the sum of individual HAPs.
>
> 1. Most recent valid performance test results
> 2. Manufacturer's guarantees and Material Safety Data Sheet (MSDS)
> 3. Manufacturer/engineering estimates
> 4. Emission factors from AP-42 or other EPA published documents

The paragraph used in the public notice version of the permit stated that the listing of emission factors were in descending order by "preference." The word preference is not enforceable and implies that NDEQ would like the facility to use the sources of data listed, but it is not required. The new paragraph now makes it clear that Standard Ethanol must use the most recent valid performance test results in VOC

and HAP emissions calculations, when available. If a unit or process has not been tested, Standard must continue down the list until it finds an option where the required information is available.

2. Condition III.(B)(4)(c)(ii) has been changed to correct a typo. The condition had accidentally referred to itself when discussing performance testing of the scrubber. It has been changed to refer to testing as required in Condition III.(B)(4)(c)(iii).

3. The effective date of Title 129 was changed from May 17, 2009 to January 9, 2011 to reflect the most current version of the regulations.

Fact Sheet:

1. The following paragraph was added to the NESHAP discussion of the fact sheet:

> Subpart JJJJJJ—National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers: This subpart, finalized on February 21, 2011 but not yet published in the Federal Register or in Title 129, applies to boilers at area sources of HAPs. According to the NESHAP JJJJJJ Fact Sheet published by USEPA, boilers that burn only gaseous fuels or solid waste are not subject to the rule. The boilers at MAAP/W are restricted to burning natural gas only. Therefore, it appears that the boilers at MAAP/W are not subject to this NESHAP. However, it is up to the permittee to evaluate the applicability of this rule to the boilers once the Subpart is official and published in the Federal Register.

This paragraph alerts the Standard Ethanol to the fact that Subpart JJJJJJ has been finalized and that they are likely not subject to the new rule.

2. The following paragraph was added to the discussion of Title 129, Chapter 5 to clarify how GHG regulations may impact this facility:

> On July 1, 2011 greenhouse gases (GHGs) will become a regulated air pollutant under 40 CFR Part 70 and Title 129, Chapter 1. Because GHGs is not a regulated air pollutant at this time, neither the source nor the NDEQ are obligated to provide emissions estimates on this pollutant. Although GHGs is not a regulated air pollutant at this time, Standard will become a major source on July 1, 2011 (as the program currently stands) and be obligated to submit a Class I operating permit application by July 1, 2012. In the event the EPA exempts, or places a stay on, biogenic emissions from the GHGs program, this source may be eligible for synthetic minor limitations on the other sources of GHGs. Such a limitation would exempt this facility from the Class I requirements.

2. The effective date of Title 129 was changed from May 17, 2009 to January 9, 2011 to reflect the most current version of the regulations.

STATE OF NEBRASKA

Dave Heineman
Governor

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AIR QUALITY CLASS II OPERATING PERMIT

PERMIT NUMBER: 08S2-016

Facility Name: Standard Ethanol, LLC

NDEQ Facility ID#: 84220

Mailing Address:
Standard Ethanol, LLC
PO Box 1655
North Platte, NE 69103

Facility Location:
Mid America Agri Products/Wheatland, LLC
76080 County Road 338
Madrid, Nebraska 69150

Project Description: This operating permit approves the operation of an existing ethanol manufacturing facility.

Standard Industrial Classification (SIC) Code: 2869

Revised or Superseded Operating Permits: None.

Pursuant to Title 129, Chapter 14, of the Nebraska Air Quality Regulations, the public has been notified by prominent advertisement of the proposed operation of an air contaminant source and the thirty (30) day period allowed for comments has elapsed. This Operating Permit approves the operation of an existing ethanol manufacturing facility. This Operating Permit approves the operation of this source as identified in the Air Quality Operating Permit Application (08S2-016) received July 17, 2008, including any supporting information received prior to issuance of this permit. Additional details on the source, including estimated pollutant emissions, can be found in the accompanying Fact Sheet.

Compliance with this permit shall not be a defense to any enforcement action for violation of an ambient air quality standard. Unless otherwise noted, the conditions of this permit are enforceable by the United States Environmental Protection Agency (USEPA) and the Nebraska Department of Environmental Quality (NDEQ). The permit holder, owner, and operator of the facility shall assure that the operation, and maintenance of all equipment is in compliance with all of the conditions of this permit.

The undersigned issues this document on behalf of the Director in accordance with Title 129 – Nebraska Air Quality Regulations as amended January 9, 2011.

3/4/2011
Date

Shelley Schneider, Air Administrator
Air Quality Division

Filename: 84220o01.doc

Total Pages: 47

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

ABBREVIATIONS, SYMBOLS, and UNITS OF MEASURE

AP-42	Compilation of Air Pollutant Emission Factors, Volume I, Stationary Point and Area Sources
BACT	Best Available Control Technology
btu	British Thermal Unit
bu	Bushel
CAA	Clean Air Act
CE	Control Equipment
CEMS	Continuous Emission Monitoring Systems
cf	Cubic feet
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CP	Construction Permit
DDGS	Dry Distillers Grain Solubles
Director	Director of the Nebraska Department of Environmental Quality
dscf	Dry Standard Cubic Feet
dscfm	Dry Standard Cubic Feet per Minute
EMIS	Emergency Management Information System
EQC	Environmental Quality Council
EP	Emission Point
EU	Emission Unit
FIP	Federal Implementation Plan
FR	Federal Register
ft	Feet
FTIR	Fourier Transform Infrared
HAP	Hazardous Air Pollutant(s)
hp	Horsepower
hr	Hour
lb	Pound
LDAR	Leak Detection and Repair
LNB	Low NO_x Burner
MACT	Maximum Achievable Control Technology
Mgal	One Thousand Gallons
MMBtu	One Million British Thermal Units
MMgal	One Million Gallons
MMscf	One Million Standard Cubic Feet
MSDS	Material Safety Data Sheet
n/a	Not Applicable
NAAQS	National Ambient Air Quality Standards
NDEQ	Nebraska Department of Environmental Quality
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NMHC	Non-Methane Hydrocarbons
NSPS	New Source Performance Standard
NSR	New Source Review
OP	Operating Permit
PAL	Plant-wide Applicability Limit
Pb	Lead (chemical abbreviation)
PM	Particulate Matter
PEMS	Predictive Emissions Monitoring Systems
PM_{10}	Particulate Matter with and aerodynamic diameter equal to or less than 10 microns
ppb	Parts per Billion
ppm	Parts per Million
ppmv	Parts per Million by volume
ppmvd	Parts per Million by volume, dry basis
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
scf	Standard Cubic Feet
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxides
TDS	Total Dissolved Solids
Title 129	Title 129, Nebraska Air Quality Regulations
TO/HRSG	Thermal Oxidizer with Heat Recovery Steam Generator
tpy	Tons per year
TRS	Total Reduced Sulfur
TSP	Total Suspended Particulate Matter
USEPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator
VHAP	Volatile Hazardous Air Pollutant
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
yr	Year

I. GENERAL CONDITIONS

(A) Administrative amendment of this permit for a change in ownership or operational control of this source is allowed provided the NDEQ determines that no other change in the permit is necessary and a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the NDEQ (Title 129, Chapter 15, Section 001.01D).

(B) The permittee shall allow the NDEQ, USEPA or an authorized representative, upon presentation of credentials to (Title 129, Chapter 8, Sections 012.02 and 015):

(1) Enter upon the permittee's premises at reasonable times where a source subject to this permit is located, emissions-related activity is conducted, or where records must be kept under the conditions of this permit, for the purpose of ensuring compliance with this permit or applicable requirements;

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, for the purpose of ensuring compliance with this permit or applicable requirements;

(3) Inspect at reasonable times any facilities, pollution control equipment, including monitoring and air pollution control equipment, practices, or operations regulated or required under this permit, for the purpose of ensuring compliance with this permit or applicable requirements;

(4) Sample or monitor at reasonable times substances or parameters for the purpose of ensuring compliance with the permit or applicable requirements.

(C) Regulatory authority:

(1) Title 40 Protection of Environment, Code of Federal Regulations that apply to the source including those not currently delegated to Nebraska or not yet included in Title 129 - Nebraska Air Quality Regulations, and

(2) Title 129 - Nebraska Air Quality Regulations that apply to the source as amended January 9, 2011.

(D) This permit is issued for a fixed term of five (5) years. A renewal application shall be submitted to the NDEQ a minimum of six (6) months and a maximum of eighteen (18) months before permit expiration. Provided their application is submitted within the above timeframe, the source may continue to operate from the date the application is determined to be complete until final action on the application is taken by the NDEQ (Title 129, Chapter 8, Section 003, and Chapter 7, Sections 002.06 and 003.04).

(E) The permittee shall comply with all conditions of this permit. Any permit noncompliance shall constitute a violation of the Nebraska Environmental Protection Act and the Federal Clean Air Act, and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application (Title 129, Chapter 8, Section 007.01).

(F) It shall not be a defense for a permittee in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to

maintain compliance with the conditions of this permit (Title 129, Chapter 8, Sections 007.02 and 015).

(G) This permit may be modified; revoked, reopened, and reissued; or terminated for cause in accordance with Title 129 and Title 115, Rules of Practice and Procedure. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not supersede any permit condition (Title 129, Chapter 8, Sections 007.03 and 015).

(H) Conditions under which this permit will be reopened, revoked, and reissued, or terminated during its term for cause, include but are not limited to (Title 129, Chapter 8, Sections 010 and015: and Chapter 15, Section 006):

(1) Additional applicable requirements under the Nebraska Environmental Protection Act or the Federal Clean Air Act, which become applicable to this source with a remaining permit term of three (3) or more years. No such reopening will occur if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended;

(2) Additional requirements, including excess emissions requirements, that become applicable to an affected source under the acid rain program under Chapter 26;

(3) A determination by the Director, or the Administrator of USEPA that:

(a) The permit must be revoked and reissued to ensure compliance with the applicable requirements;

(b) The permit contains a material mistake or that inaccurate statements were made in the emissions standards or other terms or conditions of the permit;

(c) An applicable requirement or applicable requirement under the Federal Clean Air Act applies which was not identified by the permittee in its application;

(I) This permit may be revoked during its term for cause, including but not limited to (Title 129, Chapter 8, Sections 010 and 015: and Chapter 15, Section 006.02):

(1) The existence at the facility of unresolved noncompliance with applicable requirements or a term or condition of the permit, and refusal of the permittee to agree to an enforceable schedule of compliance to resolve the noncompliance;

(2) The submittal by the permittee of false, incomplete, or misleading information to the NDEQ or USEPA;

(3) A determination by the Director that the permitted facility or activity endangers human health or the environment and that the danger cannot be removed by a revision of the permit; or

(4) The failure of the permittee to pay a penalty owed pursuant to court order, stipulation and agreement, or order issued by the Administrator of the USEPA.

(J) The permit does not convey any property rights of any sort, or any exclusive privilege (Title 129, Chapter 8, Sections 007.04 and 015).

(K) The permittee shall furnish to the NDEQ, within the time specified by the NDEQ, any information requested by the NDEQ in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the NDEQ copies of records required to be kept in accordance with the permit or, for information claimed to be confidential, the permittee may furnish such records along with a claim of confidentiality pursuant to Title 115 - Rules of Practice and Procedure (Title 129, Chapter 8, Section 007.05 and 015).

(L) The provisions of this permit supersede the provisions of any previously issued operating or construction permit. The applicable requirements of previously issued construction permits are now conditions of this permit (Title 129, Chapter 8, Sections 002, 007.06, and 015).

(M) In the event of a challenge to any portions of this permit, the unchallenged permit requirements shall remain valid (Title 129, Chapter 8, Section 006).

(N) The following methods may be used to determine compliance with the terms and conditions in this permit (Title 129, Chapter 34, Section 008):

(1) Any compliance test method specified in the State Implementation Plan;

(2) Any test or monitoring method approved for the source in a permit issued pursuant to Title 129, Chapters 8, 17, 19, or 26;

(3) Any test or monitoring method provided for in Title 129; or

(4) Any other test, monitoring, or information-gathering method that produces information comparable to that produced by any method described in (N)(1) through (3).

(O) Open fires are prohibited except as allowed by Title 129, Chapter 30.

(P) Particulate Matter – General Requirements (Title 129, Chapter 32).

(1) The permittee shall not cause or permit the handling, transporting or storage of any material in a manner which allows particulate matter to become airborne in such quantities and concentrations that it remains visible in the ambient air beyond the property line.

(2) The permittee shall not cause or permit the construction, use, repair or demolition of a building, its appurtenances, a road, a driveway, or an open area without applying all reasonable measures to prevent particulate matter from becoming airborne and remaining visible beyond the property line. Such measures include, but are not limited to, paving or frequent cleaning of roads, driveways and parking lots; application of dust-free surfaces; application of water; and planting and maintenance of vegetative ground cover.

(Q) Application for review of plans or advice furnished by the Director will not relieve the source of legal compliance with any provision of these regulations, or prevent the Director from enforcing or implementing any provision of these regulations (Title 129, Chapter 37).

(R) If and when the Director declares an air pollution episode as defined in Title 129, Chapter 38, Section 003.01B, 003.01C, or 003.01D, the permittee shall immediately take all required actions listed in Title 129, Appendix I, Paragraph

1.1, 1.2, and 1.3, respectively, until the Director declares the air pollution episode terminated (Title 129, Chapter 38, Section 003).

II. SPECIFIC CONDITIONS

Terms and conditions of this permit are in accordance with the requirements of Title 129, Chapter 8, Section 001. The specific applicable requirement which is the basis for each specific permit condition is listed with each permit condition.

(A) Recordkeeping: To ensure compliance with this permit, records shall be maintained as outlined below. Records include, but are not limited to; copies of all applications, notifications, reports, test protocols, test results, and plans; and, originals of all monitoring results, measurements, inspections, and observations (Title 129, Chapter 8, Section 015.02).

(1) All records required by this permit shall be kept on-site for a minimum of five (5) years and shall be clear and readily accessible to NDEQ representatives, unless otherwise specified in this permit.

(2) Monthly calculations and records required throughout this permit shall be compiled no later than the fifteenth (15^{th}) day of each calendar month and shall include all records and calculations generated through the previous calendar month, unless otherwise specified in this permit.

(3) For each malfunction, start-up and shutdown, the source shall keep the following records: the date and time of occurrence: remedial action taken: when corrections were made to each piece of permitted equipment, required control equipment, and required monitoring equipment; and the emissions associated with the event (Title 129, Chapter 6, Sections 002 and 005; Chapter 8, Sections 004.03B; and 015.03: and Chapter 35, Sections 004 and 005).

(4) Records of maintenance performed on all permitted emission units, control equipment, and monitoring equipment (Title 129, Chapter 8, Section 004.01C; Chapter 11, Section 001; Chapter 34, Section 006; and Chapter 35, Sections 006.02 and 006.05).

(5) All records of opacity readings, instrument readings, visual equipment inspections, log book entries, and any other record of equipment performance shall be initialed by the individual who entered the record.

(6) Operation and Maintenance manuals detailing proper operation and maintenance of all permitted emission units, required control equipment and required monitoring equipment shall be kept for the life of the equipment.

(7) Should there be inconsistency between the recordkeeping requirements specified in Condition II.(A) and applicable NSPS or NESHAP recordkeeping requirements, the recordkeeping requirements of Condition II.(A) shall take precedence unless they are less stringent.

(B) Submittals/Reporting:

All submittals, including reports, required by this permit shall contain a certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete (Title 129, Chapter 1, Section 131; Chapter 7, Section 008; and Chapter 8 Sections 012.01 and 015).

The following reports shall be submitted to the NDEQ as specified:

(1) Certification of compliance with the terms and conditions of this permit, including emission limitations, standards, or work practices, for the preceding calendar year, shall be submitted to the NDEQ by March 31 of each year. The

report must be certified by a responsible official and shall include the following (Title 129, Chapter 8, Sections 012.05C and 015.03):

(a) The identification of each term or condition of the permit that is the basis of the certification;

(b) The compliance status;

(c) A determination of whether compliance was continuous or intermittent;

(d) The methods used for determining the compliance status of the source, currently and over the reporting period; and,

(e) All instances of deviations from permit requirements, including those attributable to start-ups, shutdowns or malfunctions, the probable cause of such deviations, and any corrective actions or preventive measures taken.

(2) The permittee shall submit completed emission inventory forms for the preceding calendar year to the NDEQ by March 31 of each year (Title 129, Chapter 6).

(3) Any emissions due to malfunctions, unplanned shutdowns, and ensuing start-ups that are, or may be, in excess of applicable emission limitations shall be reported to the NDEQ in accordance with Title 129, Chapter 35, Section 005.

(4) Should there be inconsistency between the reporting requirements specified in Condition II.(B) and applicable NSPS or NESHAP reporting requirements, the reporting requirements of Condition II.(B) shall take precedence unless they are less stringent.

(C) The permittee may make changes to a permitted facility without a permit revision if the changes would not require a construction permit under Title 129, Chapter 17, 18, 19, 23, 27, or 28; would not result in an exceedence of emissions allowable under this permit; would not violate any terms of this permit related to monitoring, testing, recordkeeping, reporting or compliance certification; would not violate any applicable requirements; and, a written notice is provided as described below (Title 129, Chapter 15, Section 007).

(1) Notification requirements:

(a) Non emergencies:

(i) The written notification must be received by the NDEQ a minimum of thirty (30) days in advance of the proposed changes;

(b) Emergencies:

(i) Notification within two working days of the date on which the permittee first becomes aware of the need for the change;

(ii) A follow-up written notification must be submitted as soon as practicable; and,

(iii) Include an explanation of the nature of the emergency.

(c) Required information:

(i) A brief description of the change within the permitted facility;

(ii) The date on which the change will occur;

(iii) Any change in emissions;

(iv) Any permit term or condition that is no longer applicable as a result of the change; and,

(v) A copy of the notification shall be attached to the facility's copy of the operating permit.

(2) Testing requirements:

(a) Testing may be required if the change involves a unit that was previously tested pursuant to a construction permit requirement.

(D) Testing:

(1) The owner or operator of the source shall conduct a performance test, using the procedures in (D)(3), when the criteria in Conditions II.(D)(1)(a) and (D)(1)(b) are met. Such tests shall be completed within 180 days of when Condition II.(D)(1)(b) is met (Title 129, Chapter 8, Section 012.01 and Chapter 34, Section 001)

(a) A valid performance test has been conducted on the unit; and,

(b) The source makes changes that impact the data obtained from the most recent valid performance test. Actions that would impact the data include, but are not limited to, increasing the capacity of an emissions unit, changing the operational parameters of control equipment that potentially makes the control equipment less efficient, etc.

(2) Performance tests shall be conducted on all emission points identified in Condition III.(B)(1). These tests shall verify compliance with the associated emission limitations listed in Condition III.(B)(3). The performance tests shall be conducted according to the schedule specified in Condition III.(B)(4)(c) (Title 129, Chapter 8, Section 012.01 and Chapter 34, Section 001).

(3) Performance tests, as required in the permit or by NDEQ, shall be completed as follows:

(a) The owner or operator of a source shall provide the NDEQ at least thirty (30) days written notice prior to testing to afford the NDEQ an opportunity to have an observer present (Title 129, Chapter 34, Section 003).

(b) The owner or operator shall provide the NDEQ with an emissions testing protocol at least thirty (30) days prior to testing (Title 129, Chapter 8, Section 004.01B and 012.01)

(c) Testing shall be conducted according to the methodologies found in Title 129, Chapter 34, Section 002, or other NDEQ approved methodologies (Title 129, Chapter 34, Section 002).

(d) Performance tests shall be conducted while operating at full capacity, unless otherwise specified by the NDEQ (Title 129, Chapter 8, Section 004.01B and 012.01).

(e) Performance tests shall be conducted for a minimum of three (3) one-hour runs unless another run-time is specified by the applicable Subpart or as deemed appropriate by the NDEQ (Title 129, Chapter 8, Section 004.01B and 012.01)

(f) The owner or operator shall monitor and record the operating parameters for process and control equipment during the performance testing required in the permit (Title 129, Chapter 8, Section 004.01B and 012.01 and Chapter 34, Section 001).

(g) A written copy of the test results, signed by the person conducting the test, shall be provided to the NDEQ within forty-five (45) days of completion of the test and will, at a minimum, contain the following items (Title 129, Chapter 8, Section 004.01B and 012.01 and Chapter 34, Section 002.07):

(a) A description of the source's operating parameters (i.e., production rates, firing rates of combustion equipment, fuel usage, etc.) control equipment parameters (i.e., baghouse fan speeds, scrubber liquid flow rates, etc.), and ambient conditions (i.e., weather conditions, etc.) during testing.

(b) Copies of all data sheets from the test run(s.)

(iii) A description and explanation of any erroneous data or unusual circumstance(s) and the cause for such situation.

(iv) A final conclusion section describing the outcome of the testing.

(E) All permitted emission units, control equipment, and monitoring equipment shall be properly installed, operated and maintained (Title 129, Chapter 8, Section 004.01C; Chapter 11, Section 001; Chapter 34, Section 006 and Chapter 35 Section 006.02 and 006.05).

(F) Requirements Becoming Effective During the Term of this Permit: The source will meet, in a timely manner, applicable requirements that become effective during the permit term, unless a more detailed schedule is expressly required by the applicable requirement. New Federal applicable requirements are only enforceable by the USEPA until such time as they are adopted into Title 129, Chapter 7, Section 006.02H, and Chapter 8, Section 012.03 and 015.

(G) Source-Wide Limitations:

(1) Emission Limitations and Testing Requirements

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

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required
All	Any Individual HAP	< 10 Tons Per Year	12 Month Rolling Total	Construction Permit issued March 6, 2008	No
All	Total Combined HAPs	< 25 Tons Per Year	12 Month Rolling Total	Construction Permit issued March 6, 2008	No
All	VOCs	< 100 Tons Per Year	12 Month Rolling Total	Title 129, Chapter 5, Section 001.03	No

(i) Compliance with the emissions limitations above shall be demonstrated by performing emissions calculations every month using data obtained from the most current valid emission test and the calculation methodology in Attachment A. Using the

monthly emissions as calculated in this condition, the source shall determine rolling twelve (12) month total emissions every month (Construction Permit issued March 6, 2008; Title 129, Chapter 5, Section 001.03 and Chapter 8, Section 015).

1. When the scrubber operating parameters are not maintained at the levels required in Condition III.(B)(4)(b)(vi), uncontrolled emission factors shall be used in emissions calculations (Construction Permit issued March 6, 2008).

Note: Condition II.(G)(1) above differs from Condition II.(F) of the March 6, 2008 CP. This difference must be noted due to the provisions of Title 129, Chapter 8, Section 002.01. The original CP condition stated that the combined source (including the existing Standard Ethanol, LLC facility and the proposed Mid America Agri Products/Madrid) was limited to less than 10 tons per year of a single HAP and less than 25 tons per year of total HAP. However, as the Mid America Agri Products/Madrid plant was not constructed, this condition has been revised to state that this limit applies only to the Standard Ethanol, LLC facility.

(2) Operational and Monitoring Requirements

(a) To demonstrate compliance with Condition II.(D)(3)(d), the permittee shall monitor the daily production/throughput rate for emissions units that have had a performance test (Title 129, Chapter 34, Section 006).

(b) The permittee shall sufficiently restrict public access to the source at the ambient air boundary relied upon in the air dispersion modeling analysis for the NAAQS compliance demonstration (Construction Permit issued March 6, 2008).

(3) Recordkeeping and Reporting Requirements

(a) A site survey, or similar documentation containing the as-built stack dimensions shall be maintained on-site and kept for the life of the source (Construction Permit issued October 23, 2008).

(b) A site survey, or similar documentation containing the locations of the boundary vertices shall be maintained on-site and kept for the life of the source (Construction Permit issued March 6, 2008).

(c) To demonstrate compliance with Condition II.(G)(1)(a), the owner or operator of the source shall keep records of monthly emissions and rolling 12 month total emissions of HAPs and VOCs on-site (Title 129, Chapter 8, Section 015).

(i) The pemittee shall keep appropriate records to support the emissions calculations above. These records include, but are not

limited to, actual material throughput rates, production rates, fuel usage rates, and operating hours.

(d) To demonstrate compliance with Condition II.(G)(2)(a) above, the owner or operator of the source shall keep records of the daily production/throughput rate for all units that have had a performance test. Records shall include the daily production/throughput rate and the production/throughput rate on a 30 day rolling average basis (Title 129, Chapter 34, Section 006; Title 129, Chapter 8, Section 015).

(e) To demonstrate compliance with Condition II.(D)(3)(d), for emissions units that have had a performance test, the permittee shall notify the NDEQ within fifteen (15) days of (Title 129, Chapter 34, Section 006):

(i) When there is a ten (10) percent increase in daily production/throughput rate over the rate recorded during the most recent valid performance test.

(ii) Each cumulative five (5) percent increase in daily production/throughput rate, based on a 30 day rolling average, over the rate recorded during the most recent valid performance test.

(iii) Exemption: The reporting requirements do not apply to emissions units that have been tested and use a CEMS or PEMS to demonstrate compliance.

(f) For purposes of Conditions II.(G)(2)(a), II.(G)(3)(d), and II.(G)(3)(e) above, "rate" shall mean the production or throughput rate of an emissions unit as recorded in the most recent valid performance test and reported to the NDEQ in the source's written copy of the test results, or test report, documenting the maximum capacity of the unit(s). The rate shall be extrapolated to daily, i.e., convert pounds per hour to pounds per day, gallons per hour to gallons per day, etc. If the source does not know the rate reported, they can contact the NDEQ to obtain the information.

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS:

(A) Specific Conditions for Grain Handling and Milling Operations (Emission Points EP-2, EP-3, EP-4, EP-5, EP-6, EP-7, EP-8, and EP-24)

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table: (Construction Permit issued March 6, 2008)

Emission Point ID#	Control Equipment ID# and Description	Emission Unit ID# and Description	Maximum Capacity
EP-2	CE002: Grain Receiving Baghouse	EU001: Dump Pit/Hopper – Rail Pit, constructed in 2007.	560 tons/hr
		EU002: Dump Pit/Hopper – Truck Pit, constructed in 2007.	560 tons/hr
		EU003: Grain Conveyor #1, constructed in 2007.	560 tons/hr
		EU004: Grain Elevator #1, constructed in 2007.	560 tons/hr
EP-3	CE003: Storage Silo Baghouse #1	EU005: Grain Conveyor #2 [1], constructed in 2007.	560 tons/hr
		EU007: Grain Storage Silo #1, constructed in 2007.	248,160 bushels
-	-	EU006: Grain Conveyor #3 [2], constructed in 2007.	560 tons/hr
EP-4	CE004: Storage Silo Baghouse #2	EU008: Grain Storage Silo #2, constructed in 2007.	248,160 bushels 560 tons/hr
EP-5	CE005: Grain Elevator Baghouse	EU009: Grain Elevator #2, constructed in 2007.	420 tons/hr
EP-6	CE006: Surge Bin Baghouse #1	EU010: Scalper, constructed in 2007.	78.4 tons/hr
		EU011: Surge Bin, constructed in 2007.	140 tons/hr
EP-7	CE007: Hammermill Baghouse #1	EU012: Hammermill #1, constructed in 2007.	33.6 tons/hr
EP-8	CE008: Hammermill Baghouse #2	EU013: Hammermill #2, constructed in 2007.	33.6 tons/hr
EP-24	CE014: Storage Silo Baghouse #3	EU046: Grain Storage Silo #3	500,000 bushels 560 tons/hr
EP-25	CE015: Storage Silo Baghouse #4	EU005: Grain Conveyor #2 [1], constructed in 2007.	560 tons/hr
		EU047: Grain Storage Silo #4	500,000 bushels

[1] EU005 is controlled by both CE003 and CE015.
[2] EU006 is located underground.

(2) Applicable NSPS and NESHAP Requirements:

The NDEQ has not identified any NSPS or NESHAP requirements that apply to the emission points or emission units listed in III.(A)(1).

Note: Condition III.(A)(2) above differs from Condition III.(A)(4) of the March 6, 2008 CP. This difference must be noted due to the provisions of Title 129, Chapter 8, Section 002.01. The original CP condition stated that this source was subject to 40 CFR, Part 60 Subpart DD as the total grain storage capacity of the Standard Ethanol, LLC facility and the proposed Mid America Agri Products/Madrid would exceed 2.5 million bushels. However, as the Mid America Agri Products/Madrid plant was not constructed, the total grain storage capacity at Standard Ethanol, LLC remains less than the applicability threshold of 2.5 million bushels.

(3) Emission Limitations and Testing Requirements:

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

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-2	PM/PM_{10}	0.74 lb/hr[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-3 EP-4	PM/PM_{10}	0.06 lb/hr (each)[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-5	PM/PM_{10}	0.03 lb/hr[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-6	PM/PM_{10}	0.02 lb/hr[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-7 EP-8	PM/PM_{10}	0.26 lb/hr (each)[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-24 EP-25	PM/PM_{10}	0.13 lb/hr (each)[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-2 EP-3 EP-4 EP-24 EP-25	PM	70.3 lbs/hr (each)[1]	hourly	Title 129, Chapter 20, Section 001	No
EP-5	PM	66.9 lbs/hr[1]	hourly	Title 129, Chapter 20, Section 001	No
EP-6	PM	54.7 lbs/hr[1]	hourly	Title 129, Chapter 20, Section 001	No
EP-7 EP-8	PM	41.0 lbs/hr (each)[1]	hourly	Title 129, Chapter 20, Section 001	No

EP-2 through EP-8, EP-24 EP-25	Opacity	< 20% (each) [1]	6 minutes	Title 129, Chapter 20, Section 001	No

[1] Testing and monitoring requirements are satisfied through compliance with Condition III.(A)(4).

(4) Operational and Monitoring Requirements:

(a) PM and PM_{10} emissions from the emission units identified in Condition III.(A)(1) shall be captured and controlled by the pollution equipment as follows: (Title 129, Chapters 4, 19, and 20) (Construction Permit issued March 6, 2008)

Control Equipment ID# and Description	Emission Unit ID# and Description
CE002: Grain Receiving Baghouse	EU001: Dump Pit/Hopper – Rail Pit
	EU002: Dump Pit/Hopper – Truck Pit
	EU003: Grain Conveyor #1
	EU004: Grain Elevator #1
CE003: Storage Silo Baghouse #1	EU005: Grain Conveyor #2
	EU007: Grain Storage Silo #1
CE004: Storage Silo Baghouse #2	EU008: Grain Storage Silo #2
CE005: Grain Elevator Baghouse	EU009: Grain Elevator #2
CE006: Surge Bin Baghouse #1	EU010: Scalper
	EU011: Surge Bin
CE007: Hammermill Baghouse #1	EU012: Hammermill #1
CE008: Hammermill Baghouse #2	EU013: Hammermill #2
CE014: Storage Silo Baghouse #3	EU046: Grain Storage Silo #3
CE015: Storage Silo Baghouse #4	EU005: Grain Conveyor #2
	EU047: Grain Storage Silo #4

(b) The operations of each baghouse shall be in accordance with the following requirements: (Title 129, Chapter 4, Chapter 8, Section 015, Chapters 19, and 20) (Construction Permit issued March 6, 2008)

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

(ii) The baghouses shall be properly installed, operated and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the baghouses shall be kept on site and readily available to Department representatives.

(iii) Each baghouse shall be equipped with an operational pressure differential indicator. The pressure differential indicator readings shall be recorded at least once each day that the associated baghouse is operating. The pressure indicator shall be properly installed, operated, calibrated, and maintained. The manufacturer's operation and

maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the pressure differential indicator shall be kept on site and readily available to Department representatives.

(iv) Baghouse filter bags/cartridges are to be inspected and/or replaced in accordance with the operation and maintenance manual or more frequently as indicated by pressure differential indicator readings or other indication of bag failure.

(v) Routine observations (at least once each day during day light hours of baghouse operation) shall be conducted to determine whether there are visible emissions from the stack, leaks, noise, atypical pressure differential readings, or other indications, which may necessitate corrective action. Corrective action shall be taken immediately if necessary.

(vi) Collected waste material from the baghouses shall be handled, transported, and stored in a manner that ensures compliance with Condition I.(P).

(vii) The source shall maintain on-site an inventory of spare bags/cartridges of each type used facility-wide to ensure rapid replacement in the event of bag/cartridge failure.

(c) Grain receiving operations shall be located inside a building and utilize choke flow practices during the receipt of grain. (Title 129, Chapters 4, 19, and 20) (Construction Permit issued March 6, 2008)

(5) Recordkeeping and Reporting Requirements:

In order to demonstrate compliance with Condition III.(A)(4)(b), inspection and maintenance records for each baghouse shall include the following: (Title 129, Chapter 8, Section 015.02) (Construction Permit issued March 6, 2008)

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

(b) Records documenting the date, time, and pressure differential reading for each day the associated baghouse is in operation.

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

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

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

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS:

(B) Specific Conditions for Pre-fermentation, Fermentation and Distillation Operations (Emission Point EP-10)

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table: (Construction Permit issued October 23, 2008)

Emission Point ID#	Control Equipment ID# and Description	Emission Unit ID# and Description	Maximum Capacity
EP-10	CE010: CO_2 Scrubber with chemical injection	EU014: Slurry Tank, constructed in 2007.	55 MMgal/yr
		EU015: Liquefaction Tank, constructed in 2007.	
		EU016: Yeast Tank, constructed in 2007.	
		EU017: Process Condensate Tank, constructed in 2007.	
		EU018: Beer Column, constructed in 2007.	
		EU019: Stripper, constructed in 2007.	
		EU020: Rectifier, constructed in 2007.	
		EU021: Evaporators, constructed in 2007.	
		EU022: Whole Stillage Tank, constructed in 2007.	
		EU023: Thin Stillage Tank, constructed in 2007.	
		EU024: Syrup Tank, constructed in 2007.	
		EU025: Centrifuge #1, constructed in 2007.	
		EU026: Centrifuge #2, constructed in 2007.	
		EU027: Centrifuge #3, constructed in 2007.	
		EU028: Centrifuge #4, constructed in 2007.	
		EU029: Stillage Conveyor #1, constructed in 2007.	
		EU030: Stillage Conveyor #2, constructed in 2007.	
		EU031: Molecular Sieve #1, constructed in 2007.	
		EU032: Molecular Sieve #2, constructed in 2007.	
		EU033: 200 Proof Condenser #1, constructed in 2007.	
		EU034: 200 Proof Condenser #2, constructed in 2007.	
		EU035 to EU037: Fermenters #1 through #3, constructed in 2007.	
		EU038: Beer Well, constructed in 2007.	

(2) Applicable NSPS and NESHAP Requirements:

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

(3) Emission Limitations and Testing Requirements:

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

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-10	VOC	14.0 lb/hr [1, 2]	3-hr or test method average	Title 129, Chapter 19 (Construction Permit issued October 23, 2008)	Yes
	HAP	65% Control Efficiency or 20.0 ppmvd for combined HAPs [2]	Speciation and Quantification of HAP composition at inlet and outlet	Title 129, Chapter 27 (Construction Permit issued October 23, 2008)	Yes

[1] Expressed as weight of VOC, excludes scrubber down time in accordance with Condition III.(B)(4)(b)(i).
[2] See Condition III.(B)(4)(c) for specific testing requirements.

(4) Operational and Monitoring Requirements:

(a) VOC and HAP emissions from the emission units identified in Condition III.(B)(1) shall be controlled by the CO_2 scrubber (CE010) with chemical injection. (Title 129, Chapters 17, 19, and 27) (Construction Permit issued October 23, 2008)

(b) Operation and maintenance of scrubber (CE010) shall be in accordance with the following requirements: (Title 129, Chapter 8, Section 015; Title 129, Chapters 17, 19, and 27; Construction Permit issued October 23, 2008)

(i) The scrubber shall be operated and be controlling emissions at all times when the associated emission units are in operation, except during scrubber down time not to exceed 50 hours per year for maintenance.

(ii) The scrubber shall be properly designed, installed, operated and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the scrubber shall be kept on site and readily available to NDEQ representatives.

(iii) The scrubber shall be equipped with devices capable of monitoring the following operating parameters in the manner described below:

1. Scrubbing liquid flow rate shall be monitored continuously;

2. Chemical addition flow rate shall be monitored continuously;

3. Scrubber pressure differential shall be monitored continuously; and,

4. Scrubber liquid temperature shall be monitored daily by direct measurement.

(iv) The total monthly amount of chemical added to the scrubber shall be monitored and recorded by the permittee.

(v) Chemical draw down checks shall be performed upon request by NDEQ personnel to verify that the flow meter is working correctly.

(vi) The scrubber operating parameters shall be maintained at the levels recorded during the most recent valid performance test conducted at the facility as described below:

1. Scrubber liquid shall be comprised of only well water to ensure consistent liquid temperature. In the event that Standard Ethanol, LLC chooses to use an alternate scrubber liquid source, or scrubber liquid recirculation, compliance testing will be required to determine an appropriate scrubber liquid temperature limit.

2. For pressure differential, "maintained at the levels recorded during the most recent valid performance test" shall mean within a range that is representative of the tested level(s) under normal operating conditions, as determined by NDEQ.

3. The scrubbing liquid flow rate, flow rate of chemical additions, and concentration of the chemical injected into the scrubber shall be maintained at or above the levels recorded; or,

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

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

(c) In order to demonstrate compliance with the VOC and HAP limitations in Condition II.(G)(1)(a) and III.(B)(3), the permittee shall derive pounds per hour (lb/hr) emission factors by conducting performance testing on Scrubber CE010. The performance testing shall be as described below: (Title 129, Chapter 34).

(i) By March 31st of each year, the source shall calculate the facility-wide rolling 12-month total emissions of the largest single HAP.

1. To calculate the tons/yr HAP emissions from the fermentation scrubber, the permittee shall use the emission factor derived from performance testing as required in Condition III.(B)(4)(c)(ii).

2. The source shall use the same calculation methodology as required in Condition II.(G)(1)(a) to calculate HAP emissions from the fermentation scrubber.

3. The facility shall submit to the air division their 12-month rolling total emissions, including supporting calculations, by April 30 of each year.

(ii) To calculate the tons/yr VOC emissions from the fermentation scrubber, the permittee shall use the emission factor derived from performance testing as required in Condition III.(B)(4)(c)(iii)

1. The source shall use the same calculation methodology as required in II.(G)(1)(a) to calculate VOC emissions from the fermentation scrubber.

(iii) The testing frequency for Scrubber CE010 is based upon the facility-wide rolling 12-month total emissions of the largest single HAP as determined in Condition III.(B)(4)(c)(i) above. Testing frequency is determined each March 31 using the Tiers listed below.

Tier	Rolling 12-Month Total Emissions of Largest Single HAP	Testing Frequency
1	< 2.5 tons per year	Twice per permit term
2	≥ 2.5 tons per year and < 5 tons per year	Annual
3	≥ 5 tons per year and < 8 tons per year	Semi-Annual
4	≥ 8 tons per year	Quarterly

1. Under each tier, one test must be completed during the third quarter (July through September) each year testing is required.

2. For Tier 3 and Tier 4 sources, the timeframe between tests shall be approximately the same.

3. For Tier 1 sources:

a. The first test must be completed within one year of permit issuance or becoming a Tier 1 source; and,

b. The second test must be completed in the third quarter immediately before the permit expiration date.

(iv) Upon issuance of this permit, initial testing frequency shall be in accordance with Tier 2 identified in Condition III.(B)(4)(c)(i).

(v) The protocol required in Condition II.(D)(3)(b) will identify all operating ranges that testing, as required in this condition, will cover.

(vi) Only one valid performance test may be conducted at each operating range when conducting performance tests on Scrubber CE010.

1. Subsequent performance tests may be conducted if the facility chooses to change any one or all operational parameters (chemical addition rate, type of chemical used, chemical

concentration, and liquid flow rate) in order to demonstrate compliance with permitted limits.

(d) The testing and monitoring requirements in Conditions III.(B)(4)(b)(iii) through (viii) and Condition III.(B)(4)(c) are no longer in effect when the permittee uses an approved CEMS or PEMS monitoring system (Title 129, Chapter 8, Section 015).

(i) If the permittee chooses to utilize a CEMS or PEMS monitoring system, the permittee shall notify the NDEQ at least sixty (60) days prior to installation of the monitoring system.

(ii) Upon installation of a CEMS or PEMS, the permittee shall meet the following, as appropriate:

1. All CEMS shall:

a. Comply with applicable Performance Specifications found in 40 CFR Part 60, Appendix B and F; and,

b. Sample, analyze, and record data at least every 15 minutes while the emissions unit is operating.

2. All PEMS shall:

a. Comply with applicable Performance Specifications found in Title 129, Chapter 34, Section 009 through 015, or Appendix B, Performance Specification 16; and,

b. Samply, analyze, and record data at least every 15 minutes, or at another less frequent interval approved by the Department, while the emissions unit is operating.

(5) Recordkeeping and Reporting Requirements:

The permittee shall maintain the following for the fermentation scrubber CE010 in order to demonstrate compliance with Condition III.(B)(4)(b) and III.(B)(4)(c): (Title 129, Chapter 8, Section 015; Construction Permit issued October 23, 2008)

(a) Records that document the continuous operating parameter data for the scrubber. The records shall include:

(i) Scrubbing liquid flow rate;

(ii) Chemical addition flow rate; and

(iii) Scrubber pressure differential readings.

(b) Monthly records that document the amount of chemical injected into the water supplied to the scrubber.

(c) Monthly records that document the purchase date, concentration, amount, and type of chemical purchased for chemical injection associated with the scrubber.

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

(e) Records documenting the date, time, observations, and corrective actions taken for each day the associated scrubber is in operation.

(f) Monthly records documenting the number of hours the fermentation scrubber was not operating, the pieces of equipment routed to the scrubber while it was not operating, and the reason(s) why the fermentation scrubber was not in operation to demonstrate compliance with II.(G)(1)(a) and III.(B)(4)(b)(i).

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

(h) Records that document the facility-wide monthly and rolling 12 month total emissions of VOCs and the single largest HAP.

(i) If a CEMS or PEMS is utilized, all CEMS or PEMS recorded data shall be documented and kept on-site.

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS:

(C) Specific Conditions for Natural Gas Fired Boilers (Emission Points EP-11 and EP-12)

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table: (Construction Permit issued March 6, 2008)

Emission Point ID#	Control Equipment ID# and Description	Emission Unit ID# and Description	Maximum Capacity
EP-11	CE011: Low NOx Burner	EU039: Natural Gas Fired Boiler #1, installed in 2007.	92.05 MMBtu/hr
EP-12	CE012: Low NOx Burner	EU040: Natural Gas Fired Boiler #2, installed in 2007.	92.05 MMBtu/hr

(2) Applicable NSPS and NESHAP Standards

(a) The following standards apply to the natural gas fired boilers (EU039 and EU040): (Construction Permit issued March 6, 2008)

Applicable Standard	Title	Rule Citation
NSPS	General Provisions	Title 129, Chapter 18, Sec. 001.01 40 CFR 60 Subpart A
NSPS	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	Title 129, Chapter 18, Sec. 001.52 40 CFR 60 Subpart Dc

The NSPS for Small Industrial-Commercial-Institutional Steam Generating Units, Subparts A and Dc (Title 129, Chapter 28, Sections 001.01 and 001.52) apply to the natural gas fired boilers. In the event of any discrepancies between this condition and the NSPS standards, the NSPS standards take precedence unless they are less stringent.

(b) The NDEQ has not identified any NESHAP requirements that apply to the emission points or emission units listed in III.(C)(1).

(3) Emission Limitations and Testing Requirements:

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

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-11 EP-12	NO_x	3.68 lb/hr (each) [1]	3-hour or test method average	Title 129, Chapters 4 and 19 (Construction Permit issued March 6, 2008)	No
EP-11 EP-12	CO	3.41 lb/hr (each) [1]	3-hour or test method average	Title 129, Chapters 4 and 19 (Construction Permit issued March 6, 2008)	No
EP-11 EP-12	PM	33.14 lb/hr (each) [1]	hourly	Title 129, Chapter 20, Section 002	No
EP-11 EP-12	Opacity	< 20% (each) [1]	6 minutes	Title 129, Chapter 20, Section 004	No

[1] Testing and monitoring requirements are satisfied through compliance with Condition III.(C)(4).

(4) Operational and Monitoring Requirements:

(a) Only natural gas shall be burned as fuel in the boilers EU039 and EU040. (Title 129, Chapters 20 and 24; Construction Permit issued March 6, 2008)

(b) The permittee shall comply with the operational and monitoring requirements and limitations as established by NSPS Subpart Dc (Construction Permit Issued March 6, 2008).

(5) Recordkeeping and Reporting Requirements:

(a) In order to demonstrate compliance with Condition III.(C)(4)(a), records of the types of fuel used for the boilers (EU039 and EU040) shall be kept. (Title 129, Chapter 8, Section 015)

(b) The permittee shall submit and maintain notifications, recordkeeping, and reporting as required by NSPS Subpart Dc. (Construction Permit issued March 6, 2008)

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS:

(D) Specific Conditions for Liquid Product Loadout (Emission Point EP-13)

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table: (Construction Permit issued March 6, 2008)

Emission Point ID#	Control Equipment ID# and Description	Emission Unit ID# and Description	Maximum Capacity
EP-13	CE013: Loadout Flare	EU041: Ethanol Truck Loadout Operation, constructed in 2007.	36,000 gal/hr
		EU042: Ethanol Rail Loadout Operation, constructed in 2007.	60,000 gal/hr
		EU043: Loadout Flare (Natural Gas), constructed in 2007.	2.0 MMBtu/hr with 0.03 MMBtu/hr pilot

(2) Applicable NSPS and NESHAP Requirements:

The NDEQ has not identified any NSPS or NESHAP requirements that apply to the emission points or emission units listed in III.(D)(1).

(3) Emission Limitations and Testing Requirements:

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

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-13	PM	1.2 lb/hr[1]	hourly	Title 129, Chapter 20, Section 002	No
EP-13	Opacity	< 20%[1]	6 minutes	Title 129, Chapter 20, Section 004	No

[1] Compliance shall be demonstrated by compliance with Condition III.(D)(4) below.

Note: Condition III.(D)(3) above differs from Condition III.(C)(2) of the March 6, 2008 CP. This difference must be noted due to the provisions of Title 129, Chapter 8, Section 002.01. The original CP stipulated that EP-13 was not subject to any emissions limitations. However, NDEQ has determined this to be an error, as EP-13 is subject to both PM and Opacity limits from Title 129, Chapter 20. Therefore, both a PM limitation and an opacity limitation were added to this operating permit in order to correct the error.

(4) Operational and Monitoring Requirements:

(a) The source shall use submerged loading when transferring liquid product from the storage tanks to tanker railcars or tanker trucks. (Title 129, Chapters 19 and 27) (Construction Permit issued March 6, 2008)

(b) Truck and rail loadout of liquid product shall be controlled by a closed vapor recovery system and Loadout Flare (CE013) at all times product loadout is occurring. (Title 129, Chapter 8, Section 015, Chapters 19 and 27) (Construction Permit issued March 6, 2008)

(i) The vapor recovery system and flare shall be properly designed, installed, operated and maintained in order to capture the vapor generated during product loadout. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the vapor recovery system and flare shall be kept on site and readily available to Department representatives.

(ii) When ethanol loadout is occurring, a flame shall be present at the flare. The facility must install an appropriate safety device or flame monitoring system to ensure that truck and rail loadout cannot occur without the presence of a flame. The safety device or flame monitoring system shall be properly installed, operated, calibrated and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the flame monitoring device/system shall be kept on site and readily available to Department representatives.

(c) Ethanol loadout (by truck and rail) shall be limited to 4,678 hours per any period of twelve (12) consecutive calendar months. (Title 129, Chapter 19) (Construction Permit issued March 6, 2008)

(d) The loadout operations shall be equipped with a non-resettable hour meter to record the operating hours to determine compliance with Condition III.(D)(4)(c). The hour meter shall be installed, operated, calibrated, and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the hour meter shall be kept on site and readily available to Department representatives. (Title 129, Chapter 8, Section 015) (Construction Permit issued March 6, 2008)

(e) Only natural gas shall be burned as fuel in the pilot of the loadout flare. (Title 129, Chapter 8, Section 015)

(5) Recordkeeping and Reporting Requirements:

(a) In order to demonstrate compliance with Condition III.(D)(4)(b), operation and maintenance record for the vapor recovery system, flare, and safety device or flame monitoring system for the liquid product loadout stations, shall include the following: (Title 129, Chapter 8, Section 015)

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

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

(b) In order to demonstrate compliance with Condition III.(D)(4)(c), hours of operation for ethanol loadout shall be recorded for each calendar month and for each period of twelve (12) consecutive calendar months. (Construction Permit issued March 6, 2008)

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS:

(E) Specific Conditions for Emergency Equipment (Emission Points EP-14 and EP-15)

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table: (Construction Permit issued March 6, 2008)

Emission Point ID#	Required Control Equipment ID# and Description	Emission Unit Description	Maximum Capacity
EP-14	n/a	EU044: Emergency Fire Pump Engine, installed in 2007.	290 hp
EP-15	n/a	EU045: Emergency Generator, installed in 2007.	3,740 hp

(2) Applicable NSPS and NESHAP Requirements:

(a) The following standards apply to the emergency fire pump (EU044) and the emergency generator (EU045):

Applicable Standard	Title	Rule Citation
NSPS	General Provisions	Title 129, Chapter 18, Sec. 001.01 40 CFR 60 Subpart A
NSPS	Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE)	40 CFR 60 Subpart IIII (Construction Permit issued March 6, 2008)

The NSPS for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE), Subparts A and IIII (Title 129, Chapter 18, Sections 001.01 and 001.76) apply to the emergency fire pump and emergency generator. In the event of any discrepancies between this condition and the NSPS standards, the NSPS standards take precedence unless they are less stringent.

(b) The NESHAP for Stationary Reciprocating Internal Combustion Engines, Subpart ZZZZ (Title 129, Chapter 28, Section 001.88) applies to the emergency fire pump and emergency generator. Pursuant to 40 CFR 63.6590(c), the requirements of 40 CFR Part 63 Subpart ZZZZ are met by meeting the requirements of 40 CFR Part 60 Subpart IIII; therefore, the requirements of 40 CFR Part 63 Subpart ZZZZ are not included in this operating permit.

(3) Emission Limitations and Testing Requirements:

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

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-14	PM	0.40 g/hp-hr[1]	test method average	40 CFR 60.4205(c) Table 4 to Subpart IIII	No
EP-14	CO	2.6 g/hp-hr[1]	test method average	40 CFR 60.4205(c) Table 4 to Subpart IIII	No
EP-14	NMHC + NO_x	7.8 g/hp-hr[1]	test method average	40 CFR 60.4205(c) Table 4 to Subpart IIII	No
EP-15	PM	0.40 g/hp-hr[1]	test method average	40 CFR 60.4202(b)(1) Table 1 to Subpart IIII	No
EP-15	CO	8.5 g/hp-hr[1]	test method average	40 CFR 60.4202(b)(1) Table 1 to Subpart IIII	No
EP-15	NOx	6.9 g/hp-hr[1]	test method average	40 CFR 60.4202(b)(1) Table 1 to Subpart IIII	No
EP-15	HC	1.0 g/hp-hr[1]	test method average	40 CFR 60.4202(b)(1) Table 1 to Subpart IIII	No
EP-14	PM	1.22 lb/hr[1]	hourly	Title 129, Chapter 20, Section 002	No
EP-15	PM	12.55 lb/hr[1]	hourly	Title 129, Chapter 20, Section 002	No
EP-14 EP-15	Opacity	< 20% (each)[1]	6 minutes	Title 129, Chapter 20, Section 004	No

[1] Compliance shall be demonstrated through compliance with Condition III.(E)(4)(c).

(4) Operational and Monitoring Requirements:

(a) The emergency fire pump engine (EU044) shall be limited to 250 operating hours per any period of twelve (12) consecutive calendar months. (Title 129, Chapters 4 and 19) (Construction Permit issued March 6, 2008)

(b) The emergency generator (EU045) shall be limited to 250 operating hours per any period of twelve (12) consecutive calendar months. (Title 129, Chapters 4 and 19) (Construction Permit issued March 6, 2008)

(c) Only diesel fuel (No. 1 and No. 2) shall be combusted in the emergency firewater pump engine (EU044) and the emergency generator (EU045). (Title 129, Chapters 4, 18, 19, and 24) (Construction Permit issued March 6, 2008)

(d) The sulfur content of the diesel fuel combusted in engines EU044 and EU045 shall not exceed 15 ppm. (40 CFR 60.4207)

(e) Each of the emergency fire pump (EU044) and the emergency generator (EU045) shall be equipped with a non-resettable hour meter to record the monthly and twelve (12) month consecutive operating hours to determine compliance with Conditions III.(E)(4)(a) and (b). The hour meter shall be installed, operated, calibrated, and maintained in accordance with manufacturer's documentation.

The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the hour meter shall be kept on site and readily available to Department representatives. (Title 129, Chapter 8, Section 015 and Chapter 19) (Construction Permit issued March 6, 2008)

(5) Recordkeeping and Reporting Requirements:

(a) In order to demonstrate compliance with Condition III.(E)(4)(a), hours of operation shall be recorded for the emergency fire pump engine (EU044) for each calendar month and for each period of twelve (12) consecutive calendar months. (Construction Permit issued March 6, 2008)

(b) In order to demonstrate compliance with Condition III.(E)(4)(b), hours of operation shall be recorded for the emergency generator (EU045) for each calendar month and for each period of twelve (12) consecutive calendar months. (Construction Permit issued March 6, 2008)

(c) In order to demonstrate compliance with Conditions III.(E)(4)(c) and (d), fuel receipts shall be kept for the diesel fuel from the supplier, including the sulfur content of the diesel fuel in weight percent or ppm. (Construction Permit issued March 6, 2008)

(d) The permittee shall submit and maintain notifications, recordkeeping, and reporting as required by NSPS Subpart IIII. (Construction Permit issued March 6, 2008)

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS:

(F) Specific Conditions for Cooling Tower (Emission Point EP-16)

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table: (Construction Permit issued March 6, 2008)

Emission Point ID#	Control Equipment ID# and Description	Emission Unit ID# and Description	Maximum Capacity
EP-16	Drift Eliminator	FS004: Cooling Towers with 5 cells, constructed in 2007.	25,000 gal/min

(2) Applicable NSPS and NESHAP Requirements:

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

(3) Emission Limitations and Testing Requirements:

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-16	PM	104 lb/hr[1]	hourly	Title 129, Chapter 20, Section 001	No
EP-16	Opacity	< 20%[1]	6 minutes	Title 129, Chapter 20, Section 004	No

[1] Compliance shall be demonstrated by compliance with Condition III.(F)(4) below.

Note: Condition III.(F)(3) above differs from Condition III.(F)(2) of the March 6, 2008 CP. This difference must be noted due to the provisions of Title 129, Chapter 8, Section 002.01. The original CP stipulated that EP-16 was not subject to any emissions limitations. However, NDEQ has determined this to be an error, as EP-16 is subject to both PM and Opacity limits from Title 129, Chapter 20. Therefore, both a PM limitation and an opacity limitation were added to this operating permit in order to correct the error.

(4) Operational and Monitoring Requirements:

(a) The cooling tower shall be properly installed, operated and maintained. The manufacturer's operation and maintenance manual, or its equivalent, detailing proper operation, inspection and maintenance of the cooling tower shall be kept on site and readily available to Department representatives. (Title 129, Chapter 8, Section 015)

(b) Drift loss from the cooling tower shall be limited to 0.005 percent. Verification of drift loss shall be by manufacturer's specification. Manufacturer's drift loss specification shall be kept on site and readily available to Department representatives, upon request and for the life of the unit. (Title 129, Chapters 4 and 19) (Construction Permit issued March 6, 2008)

Note: Condition III.(F)(4)(b) above differs from Condition III.(F)(3)(a) of the March 6, 2008 CP. This difference must be noted due to the provisions of Title 129, Chapter 8, Section 002.01. The original CP predicated compliance with the drift loss limit based on manufacturer's "guarantee". The Department has modified this language in this operating permit to use the term "specification" as not to imply that liability of compliance with this limit is taken on by the cooling tower manufacturer.

(c) Total Dissolved Solids (TDS) concentration of the cooling water in the cooling tower shall not exceed to 2,500 ppm. A representative TDS sample shall be collected and tested from the cooling tower a minimum of once per calendar month. The test method shall be in accordance with an EPA approved test method and be documented. (Title 129, Chapters 4 and 19) (Construction Permit issued March 6, 2008)

(5) Recordkeeping and Reporting Requirements:

(a) In order to demonstrate compliance with Condition III.(F)(4)(a), operation and maintenance records for the cooling tower shall include the following: (Title 129, Chapter 8, Section 015)

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

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

(b) In order to demonstrate compliance with Condition III.(F)(4)(c), TDS concentration in the cooling water, and the test method used, shall be recorded for each sampling event. (Construction Permit issued March 6, 2008)

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS:

(G) Specific Conditions for Storage Tanks (Emission Points EP-18 through EP-23)

(1) Permitted Emission Points:

The source is permitted to operate the emission points and associated emission units identified in the following table: (Construction Permit issued March 6, 2008)

Emission Point ID#	Control Equipment ID# and Description	Emission Unit ID# and Description	Maximum Capacity
EP-18	Internal Floating Roof	TK001: Denatured Ethanol Storage Tank, installed in 2007.	541,456 gallons
EP-19	Internal Floating Roof	TK002: Denatured Ethanol Storage Tank, installed in 2007.	541,456 gallons
EP-20	Internal Floating Roof	TK003: 200-Proof Ethanol Storage Tank, installed in 2007.	155,820 gallons
EP-21	Internal Floating Roof	TK004: 200-Proof Ethanol Storage Tank, installed in 2007.	155,820 gallons
EP-22	Internal Floating Roof	TK005: Denaturant (Gasoline) Storage Tank, installed in 2007.	91,014 gallons
EP-23	n/a	TK006: Corrosion Inhibitor Tank, installed in 2007.	2,000 gallons

(2) Applicable NSPS and NESHAP Standards

(a) The following standards apply to storage tanks TK001, TK002, and TK005:

Applicable Standard	Title	Rule Citation
NSPS	General Provisions	Title 129, Chapter 18, Sec. 001.01 40 CFR 60 Subpart A
NSPS	Standards of Performance for Volatile Organic Liquid Storage Vessels	Title 129, Chapter 18, Sec. 001.62 40 CFR 60 Subpart Kb

The NSPS for Volatile Organic Liquid Storage Vessels, Subparts A and Kb (Title 129, Chapter 28, Sections 001.01 and 001.62) apply to storage tanks TK001, TK002, and TK005. In the event of any discrepancies between this condition and the NSPS standards, the NSPS standards take precedence unless they are less stringent.

(b) The NDEQ has not identified any NESHAP requirements that apply to the emission points or emission units listed in III.(G)(1).

(3) Emission Limitations and Testing Requirements:

No emission limitations and testing requirements are associated with the emission points or emission units identified in Condition III.(G)(1).

(4) Operational and Monitoring Requirements:

(a) Process Tanks TK003 and TK004 shall be constructed with internal floating roofs utilizing a liquid mounted primary seal as described in 40 CFR 60.112b(a)(1). (Title 129, Chapter 27) (Construction Permit issued March 6, 2008)

(b) Process Tanks TK003 and TK004 are subject to the inspection requirements as described in 40 CFR 60.113b(a). (Title 129, Chapter 27) (Construction Permit issued March 6, 2008)

(c) Storage Tanks TK001, TK002 and TK005 shall be constructed with internal floating roofs utilizing a liquid mounted primary seal and are subject to all applicable requirements of NSPS, Subpart Kb. (Title 129, Chapter 18) (Construction Permit issued March 6, 2008)

(5) Recordkeeping and Reporting Requirements:

(a) Process Tanks TK003 and TK004 shall comply with the reporting and recordkeeping requirements as described in 40 CFR 60.115b(a)(2), (3) and (4). (Construction Permit issued March 6, 2008)

(b) Storage tanks TK001, TK002, and TK005 are subject to the notifications and recordkeeping as required by 40 CFR 60.7 (Construction Permit issued March 6, 2008).

(c) Storage tanks TK001, TK002, and TK005 are subject to the reporting and recordkeeping as required by 40 CFR 60.115b (Construction Permit issued March 6, 2008).

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS:

(H) Specific Conditions for Equipment Leaks

(1) Permitted Emission Points:

Each valve, pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, flange, or other connector in VOC service and any device or system required by NSPS, Subpart VV located throughout the ethanol plant. (Construction Permit issued March 6, 2008)

(2) Applicable NSPS and NESHAP Standards

(a) The following standards apply to equipment leaks:

Applicable Standard	Title	Rule Citation
NSPS	General Provisions	Title 129, Chapter 18, Sec. 001.01 40 CFR 60 Subpart A
NSPS	Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced after January 5, 1981, and on or before November 7, 2006	Title 129, Chapter 18, Sec. 001.14 40 CFR 60 Subpart VV

The NSPS for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry, Subparts A and VV (Title 129, Chapter 28, Sections 001.01 and 001.14) apply to equipment leaks. In the event of any discrepancies between this condition and the NSPS standards, the NSPS standards take precedence unless they are less stringent.

(b) The NDEQ has not identified any NESHAP requirements that apply to the emission points or emission units listed in III.(H)(1).

(3) Emission Limitations and Testing Requirements:

Emission limitations and testing requirements as established by 40 CFR 60 Subpart VV. (Construction Permit issued March 6, 2008)

(4) Operational and Monitoring Requirements:

Operational and Monitoring Requirements as established by 40 CFR 60 Subpart VV. (Construction Permit issued March 6, 2008)

(5) Recordkeeping and Reporting Requirements:

(a) Notifications and recordkeeping as required by 40 CFR 60.7 (Construction Permit issued March 6, 2008).

(b) Recordkeeping and reporting as required by 40 CFR 60.486 and 40 CFR 60.487 (Construction Permit issued March 6, 2008).

(c) Records including the date the leak detection testing occurred, which valves, pumps, seals, open-ended lines, flanges, connectors, etc. were tested, and name of the individual who conducted the testing (Construction Permit issued March 6, 2008).

(d) The owner or operator shall submit a semi-annual leak detection and repair report every six (6) calendar months to the Department. Reports for each six (6) calendar month reporting period shall be submitted within forty-five (45) days following June 30 and December 31 of each year. Each report must be certified by a responsible official and include the following items (Construction Permit issued March 6, 2008):

(i) Date and time testing occurred;

(ii) Name of individual who conducted the testing; and

(iii) Additional information required to be reported to the Department in accordance with 40 CFR 60.480.

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS:

(I) Specific Conditions for Haul Roads

(1) Permitted Emission Points:

The source is permitted to operate on-site haul roads. (Construction Permit issued March 6, 2008)

(2) Applicable NSPS and NESHAP Requirements:

The NDEQ has not identified any NSPS or NESHAP requirements that apply to haul roads.

(3) Emission Limitations and Testing Requirements:

The haul road silt loading shall not exceed 1.0 g/m^2. (Construction Permit issued March 6, 2008)

(4) Operational and Monitoring Requirements:

(a) All on-site haul roads with production-related truck traffic shall be paved. (Title 129, Chapters 4 and 19) (Construction Permit issued March 6, 2008)

(b) The paved haul roads shall comply with the following conditions: (Title 129, Chapters 4 and 19) (Construction Permit issued March 6, 2008)

(i) The owner or operator shall develop, maintain, and implement a Fugitive Dust Control Plan (FDCP) to control emissions from haul roads to comply with the silt load limit and General Condition I.(P).

(ii) For each day of operation, the permittee shall conduct a survey of the plant property and haul roads to determine if visible fugitive emissions are being generated and leaving plant property. Implementation of fugitive dust controls shall be taken upon observation of visible fugitive emissions leaving plant property or more frequently in accordance with the FDCP. Documentation of all fugitive dust control measures implemented and daily surveys shall be maintained in a log accompanying the FDCP.

(5) Recordkeeping and Reporting Requirements:

(a) The FDCP shall be kept on site. (Construction Permit issued March 6, 2008)

(b) Records documenting use of fugitive dust control measures on haul roads. (Construction Permit issued March 6, 2008)

(c) Records of haul road visible emissions surveys taken daily during operation and a description of corrective action taken, if needed. (Construction Permit issued March 6, 2008)

III. SPECIFIC CONDITIONS FOR AFFECTED EMISSION POINTS:

(J) Specific Conditions for Insignificant Activities

(1) The source is permitted for the insignificant activities in the following table:

Insignificant Activity ID	Unit Description
Space Heater 1	Diesel fired heater, 0.115 MMBtu/hr
Space heater 2	Diesel fired heater, 0.165 MMBtu/hr

(2) Emission Limitations:

Each insignificant combustion unit shall not exceed the permitted limits identified in the following table.

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit
All combustion units identified in III.(J)(1)	PM	0.60 lb/MMBtu	hourly	Title 129, Chapter 20, Section 002
All combustion units identified in III.(J)(1)	Opacity	< 20%	6 minutes	Title 129, Chapter 20, Section 004

(3) Operational and Monitoring Requirements:

The insignificant activities identified in Condition III.(J)(1) are exempt from specific operational and monitoring requirements.

(4) Recordkeeping and Reporting Requirements:

A written notification in accordance with Condition II.(C) of this permit shall be made to the NDEQ if there are additions, or changes, to the list of insignificant activities in Specific Condition III.(J)(1) (insignificant activities are as defined in Operating Permit Application Forms). Notification is only required for those insignificant activities that must be included in an application.

ATTACHMENT A

EMISSION CALCULATION METHODOLOGY

IV. Attachments

(A) To demonstrate compliance with the VOC and HAP emission limits specified in Specific Condition II.(G)(1)(a), emissions shall be calculated each calendar month using data from the most recent valid performance test. For cases where testing data is not available, the permittee shall continue down the list below until the required information is available. For example, when a unit or process has not been tested, the permittee shall use manufacturer's guarantees and MSDS to calculate emissions. If guarantees and MSDS are not available, the permittee shall continue down the list to option 3 and use manufacturer/engineering estimates to calculate HAP emissions. When the information specified in options 1, 2, and 3 are unavailable, the permittee shall use information in AP-42 or other EPA published documents to calculate HAP emissions. For compliance purposes, total HAP is equivalent to the sum of individual HAPs.

1. Most recent valid performance test results
2. Manufacturer's guarantees and Material Safety Data Sheet (MSDS)
3. Manufacturer/engineering estimates
4. Emission factors from AP-42 or other EPA published documents

If it is necessary to convert uncontrolled to controlled emissions, multiply the uncontrolled emissions by one minus the overall control efficiency (fraction) of the control equipment. When emission unit or control equipment operating parameter(s) are not maintained at levels recorded during the most recent performance test, uncontrolled emission factors shall be used.

Additional individual HAPs not specifically addressed in this calculation method that are found to be emitted from the emission points listed below must be incorporated into the facility-wide HAP emission calculation.

VOC and HAP Emissions from Pre-fermentation, Fermentation and Distillation Operations

VOC and HAP Emissions from the fermentation and distillation scrubber shall be calculated using Equation (1).

(1) $E_S = \{(CEF_S) \times (H_1) + (UEFs) \times (H_2)\} / (2{,}000 \text{ lbs/ton})$

Where E_S = Emissions from Scrubber (tons/month)
CEF_S = Controlled process emission factor (lbs/hour)
UEFs = Uncontrolled process emission factor (lbs/hour)
H_1 = Hours of operation for controlled emission
H_2 = Hours of operation for uncontrolled emission

The permittee shall use the lb/hr emission factors from the most recent valid performance test at the facility to compute emissions (E_s) from the scrubber.

VOC and HAP Combustion Emissions from Boilers and Loadout Flare Pilot

VOC and HAP Emissions from the boilers and the flare shall each be calculated using Equation (2).

(2) $E_U = (EF) \times (NG_U) / (2{,}000 \text{ lbs/ton})$

Where E_U = Emissions from Unit (tons/month)
EF = Emission factor (lbs/MMscf)
NG_U = Natural Gas Usage of Unit (MMscf/month)

Pollutant	Emission Factor (lb/MMBtu)
VOC	0.003
Individual HAPs	**Emission Factors (lb/MMcf)**
Benzene	0.0021
Dichlorobenzene	0.0012
Formaldehyde	0.075
Hexane	1.8
Lead Compounds	0.0005
Naphthalene	0.00061
Polycyclic Organic Matter	0.0000882
Toluene	0.0034
Arsenic Compounds	0.0002
Beryllium Compounds	0.000012
Cadmium Compounds	0.0011
Chromium Compounds	0.0014
Cobalt Compounds	0.000084
Manganese Compounds	0.00038
Mercury Compounds	0.00026
Nickel Compounds	0.0021
Selenium Compounds	0.000024
Total HAPs	1.89

VOC and HAP Emissions from Liquid Product Loadout

VOC and HAP Emissions from liquid product loadout shall each be calculated using Equations (3a) through (3j).

(3a) $E_{VOC,LL} = E_{VOC,LL,T} + E_{VOC,LL,R}$

(3b) $E_{VOC,LL,T} = E_{VOC,LL,T,G} + E_{VOC,LL,T,E} + E_{VOC,LL,T,D}$

(3c) $E_{VOC,LL,T} = \{[(EF_{VOC,LL,T,G}) \times (P_{LL,T})] + [(EF_{VOC,LL,T,E}) \times (P_{LL,T})] + [(EF_{VOC,LL,T,D}) \times (P_{LL,T})]\} / (2{,}000$ lbs/ton)

(3d) $E_{VOC,LL,R} = E_{VOC,LL,R,E} + E_{VOC,LL,R,D}$

(3e) $E_{VOC,LL,R} = \{[(EF_{VOC,LL,R,E}) \times (P_{LL,R})] + [(EF_{VOC,LL,R,D}) \times (P_{LL,R})]\} / (2{,}000$ lbs/ton)

Where:

$E_{VOC,LL}$ = VOC Emissions from Liquid Loadout (tons/month)
$E_{VOC,LL,T}$ = VOC Emissions from Liquid Loadout into Trucks (tons/month)
$E_{VOC,LL,R}$ = VOC Emissions from Liquid Loadout into Railcars (tons/month)
$E_{VOC,LL,T,G}$ = VOC Emissions from displacing Gasoline from Trucks (tons/month)
$E_{VOC,LL,T,E}$ = VOC Emissions from loading Ethanol into Trucks (tons/month)
$E_{VOC,LL,T,D}$ = VOC Emissions from loading Denaturant into Trucks (tons/month)
$EF_{VOC,LL,T,G}$ = VOC Controlled Emission Factor for displacing Gasoline from Trucks (lbs/Mgal)
$EF_{VOC,LL,T,E}$ = VOC Controlled Emission Factor for loading Ethanol into Trucks (lbs/Mgal)
$EF_{VOC,LL,T,D}$ = VOC Controlled Emission Factor for loading Denaturant into Trucks (lbs/Mgal)
$P_{LL,T}$ = Product loaded into Trucks (Mgal/month)
$E_{VOC,LL,R,E}$ = VOC Emissions from loading Ethanol into Railcars (tons/month)
$E_{VOC,LL,R,E}$ = VOC Emissions from loading Denaturant into Railcars (tons/month)
$EF_{VOC,LL,R,E}$ = VOC Controlled Emission Factor for loading Ethanol into Railcars (lbs/Mgal)
$EF_{VOC,LL,R,D}$ = VOC Controlled Emission Factor for loading Denaturant into Railcars (lbs/Mgal)
$P_{LL,R}$ = Product loaded into Railcars (Mgal/month)

Pollutant	Controlled Emission Factors (lbs/Mgal)	
	Truck Loadout	Rail Loadout
VOC		
Gasoline	0.10655	-
Ethanol	0.04862	0.04862
Denaturant	0.01369	0.01369

(3f) $E_{HAP,LL} = E_{HAP,LL,T} + E_{HAP,LL,R}$

(3g) $E_{HAP,LL,T} = E_{HAP,LL,T,G} + E_{HAP,LL,T,E} + E_{HAP,LL,T,D}$

(3h) $E_{HAP,LL,T} = (E_{VOC,LL,T,G} \times WF_{HAP,G}) + (E_{VOC,LL,T,E} \times WF_{HAP,E}) + (E_{VOC,LL,T,D} \times WF_{HAP,D})$

(3i) $E_{HAP,LL,R} = E_{HAP,LL,R,E} + E_{HAP,LL,R,D}$

(3j) $E_{HAP,LL,R} = (E_{VOC,LL,R,E} \times WF_{HAP,E}) + (E_{VOC,LL,R,D} \times WF_{HAP,D})$

Where:

$E_{HAP,LL}$ = HAP emissions from liquid loadout (tons/month)
$E_{HAP,LL,T}$ = HAP Emissions from Liquid Loadout into Trucks (tons/month)
$E_{HAP,LL,R}$ = HAP Emissions from Liquid Loadout into Railcars (tons/month)
$E_{HAP,LL,T,G}$ = HAP Emissions from displacing Gasoline from Trucks (tons/month)
$E_{HAP,LL,T,E}$ = HAP Emissions from Loading Ethanol into Trucks (tons/month)
$E_{HAP,LL,T,D}$ = HAP Emissions from Loading Denaturant into Trucks (tons/month)
$WF_{HAP,G}$ = Weight Fraction of HAP in Gasoline (HAP/VOC)
$WF_{HAP,E}$ = Weight Fraction of HAP in Ethanol (HAP/VOC)
$WF_{HAP,D}$ = Weight Fraction of HAP in Denaturant (HAP/VOC)
$E_{HAP,LL,R,E}$ = HAP Emissions from Loading Ethanol into Railcars (tons/month)
$E_{HAP,LL,R,D}$ = HAP Emissions from Loading Denaturant into Railcars (tons/month)

Pollutants	Weight Fraction of VOC Emissions		
	Gasoline	Ethanol	Denaturant
Individual HAPs			
Acetaldehyde	-	2.00E-04	-
Benzene	2.50E-03	-	2.50E-03
Carbon disulfide	2.00E-05	-	2.00E-05
Cumene	1.00E-04	-	1.00E-04
Ethyl benzene	5.00E-05	-	5.00E-05
n-Hexane	5.00E-02	-	5.00E-02
Methanol	-	2.00E-04	-
Toluene	5.00E-03	-	5.00E-03
Xylene	5.00E-04	-	5.00E-04
Total HAPs	5.82E-02	4.00E-04	5.82E-02

VOC and HAP Emissions from WDGS Storage

VOC and HAP emissions from the WDGS storage shall be calculated using Equation (4).

(4) $E_{WC} = (EF_{WC}) \times (P_{WC}) / (2{,}000 \text{ lbs/ton})$

Where: E_{WC} = Emissions from WDGS storage (tons/month)
EF_{WC} = Emission factor for WDGS storage (lbs/ton WDGS)
P_{wc} = WDGS stored as product (tons WDGS/month)

Pollutant	Emission Factor (lb/ton)
VOC	0.00833
Individual HAPs	
Acetaldehyde	1.11E-04
Acrolein	1.67E-05
Formaldehyde	2.22E-04
Methanol	4.44E-05
Total HAPs	3.94E-04

Emergency Generator and Firewater Pump Engine

HAP emissions from the emergency generator and the firewater pump engine shall be calculated using Equation (5).

(5) $E_E = (EF_E) \times (HI_E) \times OT / (2{,}000 \text{ lbs/ton})$

Where E_E = Emissions from Engine (tons/month)
EF_E = Emission factor for Engine (lbs/MMBtu)
HI_E = Heat Input of Engine (MMBtu/hr)
OT = Operating Time of Engine (hours/month)

Pollutant	Emission Factor Emergency Generator (lbs/hr)	Emission Factor Firewater Pump Engine (lbs/hr)
VOC	2.64	0.72
Individual HAPs	**Emission Factor Emergency Generator (lbs/MMBtu)**	**Emission Factor Firewater Pump Engine (lbs/MMBtu)**
Acetaldehyde	2.52E-05	7.67E-04
Acrolein	7.88E-06	9.25E-04
Benzene	7.76E-04	9.33E-04
1,3-Butadiene	-	3.91E-05
Formaldehyde	7.89E-05	1.18E-03
Naphthalene	1.30E-04	8.48E-05
Polycyclic Organic Matter	8.20E-05	8.32E-05
Toluene	2.81E-04	4.09E-04
Xylene	1.93E-04	2.85E-04
Total HAPs	1.57E-03	4.71E-03

VOC and HAP Emissions from Storage Tanks

VOC emissions from storage tanks shall be calculated using the EPA's TANKS program. HAP emissions from each of the storage tanks shall be calculated using Equation (6).

(6) $E_{ST\text{-}HAP} = (E_{ST\text{-}VOC}) \times (PPM_{ST}/10^6)$

Where: $E_{ST\text{-}HAP}$ = Individual HAP emissions from storage tank (tons/month)
$E_{ST\text{-}VOC}$ = VOC emissions from storage tank (tons/month)
PPM_{ST} = HAP content of material stored in storage tank (ppm by weight)

VOC and HAP Emissions from Equipment Leaks

VOC emissions from equipment leaks shall be calculated using Equation (7a). HAP emissions from equipment leaks shall be calculated using Equation (7b). These equations are based on compliance with the LDAR program.

(7a) $LK, _{VOC} = \{\Sigma[(N\text{-}LK) \times (EF\text{-}LK) \times (1-(CE\text{-}LK/100))]\} \times (OH\text{-}LK) \times (2.21 \text{ lbs/kg}) / (2{,}000 \text{ lbs/ton})$

Where: $LK, _{VOC}$ = VOC emissions from equipment leaks (tons/month)
Σ = Summation over all types of components
N-LK = Number of components in each type
EF-LK= Equipment leak emission factor (kg/hr/source)
CE-LK = Control efficiency of LDAR system (%)
OH-LK = Operating hours (hrs/month)

(7b) $LK_{,HAP} = (LK_{,VOC}) \times (PPM\text{-}LK/10^6)$

Where:

$LK_{,HAP}$ = HAP emissions from equipment leaks (tons/month)
$LK_{,VOC}$ = VOC emissions from equipment leaks (tons/month)
PPM-LK = HAP content of anhydrous ethanol (ppm by weight)

FACT SHEET

Date: **March 4, 2011**

Facility Name: Standard Ethanol, LLC

NDEQ Facility ID#: 84220

Mailing Address:
Standard Ethanol, LLC
PO Box 1655
North Platte, NE 69103

Facility Location:
Mid America Agri Products/Wheatland, LLC
76080 County Road 338
Madrid, Nebraska 69150

DESCRIPTION OF THE FACILITY OR ACTIVITY:

This Operating Permit approves the operation of an anhydrous ethanol manufacturing plant (standard industrial classification (SIC) code 2869) with a capacity of 55 million gallons per year (MMgal/yr) of anhydrous ethanol, with final products estimated at 57.75 million gallons per year of denatured ethanol. Solids resulting from the dry-milling process are converted to animal feed. Approximately 419,957 tons/year of wet distiller grain with solubles (WDGS) are produced as a feed co-product.

The Department received the original construction permit application for the Mid America Agri Products/Wheatland (MAAP/W) facility on November 30, 2004 for an ethanol plant that was designed to produce 84 MMgal/yr of denatured ethanol. A construction permit based on this application was issued to the facility on June 30, 2005. On September 20, 2005, the Department received a construction permit application to incorporate proposed design changes at the facility, including an increase in production rate to 88.2 MMgal/yr of denatured ethanol. In response to this application, the Department issued a construction permit (CP05-0040) on January 26, 2006, which superseded the original permit.

During the construction of MAAP/W, the owner chose not to install a significant portion of the equipment that was permitted under CP05-0040, including the following:

- One truck dump pit and baghouse
- One scalper and one surge bin and respective baghouse
- Two hammermills and respective baghouses
- One yeast tank and three fermentation tanks
- One beer column, one stripper, one rectifier, one 200-Proof condenser, and three centrifuges
- DDGS Dryer, DDGS Cooler, Regenerative Thermal Oxidizer, and Multiclone
- All DDGS storage, conveying, and loadout equipment and baghouses
- Two 200-Proof storage tanks, one denaturant storage tank, and two denatured ethanol storage tanks
- One natural gas fired boiler
- Five cooling tower cells

Instead, the owner decided to build a second ethanol plant nearby to be known as Mid America Agri Products/Madrid (MAAP/M). Standard Ethanol, LLC, received a construction permit (CP07-0008) on March 6, 2008 to construct the MAAP/M plant, which was to be constructed on adjacent property east of MAAP/W. The MAAP/W and MAAP/M plants were to operate independently of each other. However, the Department determined that these facilities had common ownership, the same SIC code, and would be located on contiguous property. Therefore, these two plants were considered one single source under the Prevention of Significant Deterioration (PSD) and Title V permit programs and the facilities were assigned a single facility identification number.

On March 6, 2008, a new construction permit (CP07-0009) was issued to MAAP/W which superceded CP05-0040. CP07-0009 includes federally enforceable limits to ensure the total HAP emissions from both MAAP/M and MAAP/W would be less than the HAP major source thresholds, and modifies the production capacity at the MAAP/W plant to 55 MMgal/yr.

On May 8, 2008, CP07-0009 was revised by permit CP08-018h in order to include requirements that the fermentation scrubber utilize a chemical additive (if used during testing) in order to ensure compliance with the hazardous air pollutant (HAP) emissions limitation which keeps the source minor for HAPs. On October 23, 2008, NDEQ issued a new construction permit CP08-040 to MAAP/W to revise the emissions limit for the fermentation scrubber based on the stack test results and to revise the stack height requirement for the scrubber. CP08-040 superseded CP08-018h.

The permit application for the Class II Operating Permit for the MAAP/W plant was received by the Nebraska Department of Environmental Quality (NDEQ) on July 17, 2008.

The construction permit for the MAAP/M plant expired on September 6, 2009 and Standard Ethanol, LLC did not proceed with the construction project for the MAAP/M plant. Therefore, the facility ID 84220 now only includes one single plant (MAAP/W).

The emission units currently operating at the MAAP/W facility are as follows:

Emission Point ID#	Control Equipment ID# and Description	Emission Unit ID# and Description	Maximum Capacity
EP-2	CE002: Grain Receiving Baghouse	EU001: Dump Pit/Hopper – Rail Pit, constructed in 2007.	560 tons/hr
		EU002: Dump Pit/Hopper – Truck Pit, constructed in 2007.	560 tons/hr
		EU003: Grain Conveyor #1, constructed in 2007.	560 tons/hr
		EU004: Grain Elevator #1, constructed in 2007.	560 tons/hr
EP-3	CE003: Storage Silo Baghouse #1	EU005: Grain Conveyor #2 [1], constructed in 2007.	560 tons/hr
		EU007: Grain Storage Silo #1, constructed in 2007.	248,160 bushels
-	-	EU006: Grain Conveyor #3 [2], constructed in 2007.	560 tons/hr
EP-4	CE004: Storage Silo Baghouse #2	EU008: Grain Storage Silo #2, constructed in 2007.	248,160 bushels 560 tons/hr
EP-5	CE005: Grain Elevator Baghouse	EU009: Grain Elevator #2, constructed in 2007.	420 tons/hr
EP-6	CE006: Surge Bin Baghouse #1	EU010: Scalper, constructed in 2007.	78.4 tons/hr
		EU011: Surge Bin, constructed in 2007.	140 tons/hr
EP-7	CE007: Hammermill Baghouse #1	EU012: Hammermill #1, constructed in 2007.	33.6 tons/hr
EP-8	CE008: Hammermill Baghouse #2	EU013: Hammermill #2, constructed in 2007.	33.6 tons/hr
EP-10	CE010: CO_2 Scrubber with chemical injection	EU014: Slurry Tank, constructed in 2007.	55 MMgal/yr
		EU015: Liquefaction Tank, constructed in 2007.	

Emission Point ID#	Control Equipment ID# and Description	Emission Unit ID# and Description	Maximum Capacity
		EU016: Yeast Tank, constructed in 2007.	
		EU017: Process Condensate Tank, constructed in 2007.	
		EU018: Beer Column, constructed in 2007.	
		EU019: Stripper, constructed in 2007.	
		EU020: Rectifier, constructed in 2007.	
		EU021: Evaporators, constructed in 2007.	
		EU022: Whole Stillage Tank, constructed in 2007.	
		EU023: Thin Stillage Tank, constructed in 2007.	
		EU024: Syrup Tank, constructed in 2007.	
		EU025: Centrifuge #1, constructed in 2007.	
		EU026: Centrifuge #2, constructed in 2007.	
		EU027: Centrifuge #3, constructed in 2007.	
		EU028: Centrifuge #4, constructed in 2007.	
		EU029: Stillage Conveyor #1, constructed in 2007.	
		EU030: Stillage Conveyor #2, constructed in 2007.	
		EU031: Molecular Sieve #1, constructed in 2007.	
		EU032: Molecular Sieve #2, constructed in 2007.	
		EU033: 200 Proof Condenser #1, constructed in 2007.	
		EU034: 200 Proof Condenser #2, constructed in 2007.	
		EU035 to EU037: Fermenters #1 through #3, constructed in 2007.	
		EU038: Beer Well, constructed in 2007.	
EP-11	CE011: Low NOx Burner	EU039: Natural Gas Fired Boiler #1, installed in 2007.	92.05 MMBtu/hr
EP-12	CE012: Low NOx Burner	EU040: Natural Gas Fired Boiler #2, installed in 2007.	92.05 MMBtu/hr
EP-13	CE013: Loadout Flare	EU041: Ethanol Truck Loadout Operation, constructed in 2007.	36,000 gal/hr
		EU042: Ethanol Rail Loadout Operation, constructed in 2007.	60,000 gal/hr
		EU043: Loadout Flare (NG), constructed in 2007.	2.0 MMBtu/hr with 0.03 MMBtu/hr pilot
EP-14	n/a	EU044: Emergency Fire Pump Engine, installed in 2007.	290 hp
EP-15	n/a	EU045: Emergency Generator, installed in 2007.	3,740 hp
EP-16	Drift Eliminator	FS004: Cooling Towers with 5 cells, constructed in 2007.	25,000 gal/min

Emission Point ID#	Control Equipment ID# and Description	Emission Unit ID# and Description	Maximum Capacity
EP-17	n/a	FS005: Wet Cake Storage, constructed in 2007.	47.9 tons/hr
EP-18	Internal Floating Roof	TK001: Denatured Ethanol Storage Tank, installed in 2007.	541,456 gallons
EP-19	Internal Floating Roof	TK002: Denatured Ethanol Storage Tank, installed in 2007.	541,456 gallons
EP-20	Internal Floating Roof	TK003: 200-Proof Ethanol Storage Tank, installed in 2007.	155,820 gallons
EP-21	Internal Floating Roof	TK004: 200-Proof Ethanol Storage Tank, installed in 2007.	155,820 gallons
EP-22	Internal Floating Roof	TK005: Denaturant (Gasoline) Storage Tank, installed in 2007.	91,014 gallons
EP-23	n/a	TK006: Corrosion Inhibitor Tank, installed in 2007.	2,000 gallons
EP-24	CE014: Storage Silo Baghouse #3	EU046: Grain Storage Silo #3	500,000 bushels 560 tons/hr
EP-25	CE015: Storage Silo Baghouse #4	EU005: Grain Conveyor #2 [1], constructed in 2007.	560 tons/hr
		EU047: Grain Storage Silo #4	500,000 bushels

[1] EU005 is controlled by both CE003 and CE015.
[2] EU006 is located underground.

Due to a discrepancy in the Emission Unit ID's listed in CP07-0009, the ID's listed above for EU's 039-045 do not match those found in the CP. The following table provides a cross-reference of the current ID used for these units in this operating permit, and those found in CP07-0009.

Emission Point ID#	CP07-0009 Emission Unit ID# and Description	OP Emission Unit ID# and Description
EP-11	EU038: Boiler #1	EU039: Natural Gas Fired Boiler #1, installed in 2007.
EP-12	EU039: Boiler #2	EU040: Natural Gas Fired Boiler #2, installed in 2007.
EP-13	EU043: Ethanol Truck Loadout	EU041: Ethanol Truck Loadout Operation, constructed in 2007.
	EU044: Ethanol Rail Loadout	EU042: Ethanol Rail Loadout Operation, constructed in 2007.
	EU040: Loadout Flare	EU043: Loadout Flare (NG), constructed in 2007.
EP-14	EU041: Emergency Fire Pump Engine	EU044: Emergency Fire Pump Engine, installed in 2007.
EP-15	EU042: Emergency Generator	EU045: Emergency Generator, installed in 2007.

COMPLIANCE HISTORY

The following table summarizes the compliance history at Standard Ethanol:

Date	Type of Violation	Description
October 20, 2008	Notice of Violation	Failure to meet VOC construction permit limit of 8.0 lb/hr at fermentation scrubber (EP-10).

Review of NDEQ files for the facility indicates that Standard Ethanol took steps to correct the compliance issues listed in the table above by applying for and receiving a CP modification to increase the VOC permitted limit.

TYPE AND QUANTITY OF AIR CONTAMINANT EMISSIONS ANTICIPATED:

The ethanol plant generates emissions of several air pollutants, including particulate matter (PM), particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}), sulfur oxides (SO_x), nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and hazardous air pollutants (HAP). The primary emission sources at the facility are from the following equipment/processes:

Equipment/Process	Pollutants
Grain receiving, storing, and hammermilling	PM and PM_{10}
Fermentation and distillation	VOC and HAPs
Ethanol/denaturant storage and loadout	VOC and HAPs
Steam generation	PM, PM_{10}, SO_2, NO_x, CO, VOC, and HAP
WDGS storage	VOC and HAPs
Equipment leaks	VOC and HAPs
Cooling towers	PM and PM_{10}
Emergency equipment	PM, PM_{10}, NO_x, SO_2, CO, VOC, and HAP
Haul Roads	PM and PM_{10}

Various pieces of control equipment have been designed into the facility to reduce potential emissions. These include baghouses on grain receiving and hammermilling equipment, a scrubber on fermentation and distillation equipment, a flare to control emissions from ethanol loadout, and paving of all plant haul roads to minimize fugitive emissions.

Potential emissions of criteria pollutants and HAPs were estimated using a combination of vendor specifications, process design data, emissions tests from similar facilities, emission factors from EPA's Compilation of Air Pollutant Emission Factors, 5th Edition, Volume 1 (AP-42), and material safety data sheet (MSDS) information. Potential emission calculations are shown in Appendix A, and a brief discussion of each process and the emissions estimation approach is provided below.

Grain Handling and Milling Operations

The grain handling operations at MAAP/W consist of unloading of grain by trucks or railcars at a maximum rate of 560 tons per hour to two 248,160 bushel capacity storage silos and two 500,000 bushel capacity storage silos via the associated grain elevators and conveyors. Grain is received at the plant in 25-ton hopper bottom trucks or railcars at two dump pits (one for trucks and one for railcars) that are located inside a partially enclosed building. The dump pits are fitted with conveyor belts, which feed the elevator leg and grain-to-grain storage silos. The dump pits and associated grain transfer points are controlled by a baghouse (CE002: Grain Receiving Baghouse). Four baghouses (CE003: Storage Silo

Baghouse #1, CE004: Storage Silo Baghouse #2, CE014: Storage Silo Baghouse #3, and CE015: Storage Silo Baghouse #4) control PM/PM_{10} emissions from the grain storage silos. Grain exits the grain storage silos through an enclosed reclaim system prior to the start of hammermilling operations. The annual grain-unloading rate of 573,370 tons per year (tpy) is estimated based on the maximum anhydrous ethanol production rate of 55 MMGal/yr and the most current grain-to-ethanol conversion of 2.7 gallons 200-proof ethanol per bushel of corn.

The grain milling operations consist of a grain surge bin, a scalper (screening bin), two hammermills, and associated enclosed conveyors. Grain is fed by the enclosed reclaim system from the grain storage silos to the scalper, which moves it to the adjacent surge bins to the scalper at a maximum rate of 5,000 bu/hour. The surge bin has a maximum capacity of 5,000 bushels. The scalper remove sticks, cobs, and other unusable debris from the grain. Particulate matter (PM/PM_{10}) emissions from the surge bins are controlled by two baghouses (CE005: Grain Elevator Baghouse and CE006: Surge Bin Baghouse #1). The hammermills are controlled by two separate baghouses (CE007: Hammermill Baghouse #1 and CE008: Hammermill Baghouse #2). The emissions are estimated based on a baghouse outlet grain loading of 0.005 gr/dscf (based on vendor guarantee) and design airflow rates. The stack results on January 20, 2008 have shown that the actual outlet grain loading of these baghouses is less than 0.005 gr/dscf.

The grain receiving area is partially enclosed and is assumed to have 90% capture efficiency whereas the remaining 10% of grain handling emissions are identified as and quantified for as fugitive dust emissions.

Pre-Fermentation, Fermentation, and Distillation

The fermentation and distillation operations consist of a slurry tank, yeast tank, liquefaction tank, three fermenters, beer well, a one-column distillation unit, two molecular sieves, whole stillage tank, process condensate tank, four centrifuges, thin stillage tank, syrup tank, and evaporators.

Pre-Fermentation:
Milled grain is transferred to the slurry tank and mixed with recycled process water from the cook water tank. The slurry is cooked, liquefacted with enzymes, and the resultant mash cooled. The slurry tank provides surge capacity in the cooking system, allows for pre-liquefaction of the starch, and if necessary, controls viscosity. Mash leaves the cooker and is cooled by flashing in a liquefaction tank. Emissions from the process vents are routed to and controlled by the Fermentation Scrubber (CE010).

Fermentation:
The cooled mash is mixed with yeast and more enzymes in the first of three fermenters. Saccharifying enzymes, nutrients, and industrial antibiotics are added to the fermenter during filling. The carbon dioxide (CO_2) generated during fermentation is vented to the fermentation scrubber for recovery of ethanol vapors. After approximately 48 to 55 hours of fermentation the resultant liquid (beer) contains 11%-15% ethanol by weight. When fermentation is completed, the beer is transferred to the beer well via the fermenter pumps. Cleaning and sterilizing the fermenters, fermenter coolers, mash coolers, and related process piping is accomplished by an automated clean-in-place (CIP) system. The facility utilizes a batch fermentation process.

The fermentation (CO_2) scrubber (CE010) is utilized to control VOC and HAP emissions from the fermentation operations. Performance tests are required to verify compliance with the emission limits.

The emissions from the fermentation process are critical in meeting the minor source single Hazardous Air Pollutant (HAP) limitation. The emissions from the fermentation process can account for more than 90 percent of the single HAP emissions at an ethanol plant. As such, the fermentation process is classified as a significant emissions unit in regard to this limitation.

The NDEQ has allowed MAAP/W to rely on parametric monitoring (monitoring of the scrubber operational parameters) to demonstrate compliance with the HAP limitations. When parametric monitoring is used to demonstrate compliance, the permit must require periodic testing to verify the operational parameters accurately demonstrate compliance. As explained below, the NDEQ has determined the periodic testing frequency for the fermentation scrubber will be based on previous testing results at MAAP/W for the HAP emitted in the largest quantity, generally acetaldehyde. The frequencies are as follows:

- If the previous results show that the largest single HAP emissions are consistently between eight (8) and 10 tons per year (tpy), the frequency will be quarterly.
- If the results show that the largest single HAP emissions are consistently between five (5) and eight (8) tpy, the frequency will be semiannual.
- If the results show that the largest single HAP emissions are consistently between five (5) tpy and two and one half (2.5) tpy, the frequency will be annual.
- If the results show that the largest single HAP emissions are consistently below two and one half (2.5) tpy, the frequency will be twice per permit term.

To allow for improvements in emissions control by MAAP/W, the permit will allow them to move to a lower frequency by demonstrating their largest single HAP emissions are within one of the lower ranges. On March 31st of each year MAAP/W will compare their rolling 12-month total to the four tiers described above and adjust their testing frequency accordingly. Conversely, MAAP/W will be required to move into a higher frequency if the March 31st evaluation shows the acetaldehyde emissions are within a higher range.

It should be noted that MAAP/W is not necessarily required to test at the above frequencies. The permit includes a condition that allows sources to use a Continuous Emissions Monitor (CEM) or Predictive Emissions Monitor (PEM) to verify compliance. As discussed below, depending on the testing frequency MAAP/W falls into, a CEM or PEM may be a more economical method of demonstrating compliance. With this permit action, we are giving MAAP/W the option of demonstrating compliance through testing or the use of a CEM or PEM.

Monitoring and Testing Justification

When evaluating the testing frequencies for the scrubber, the following factors were considered:

- The relevant time period of the limitation;
- The likelihood of violating the applicable requirement;
- Whether add-on controls are necessary for the unit to meet the emission limit;
- The variability of emissions from the unit over time;
- The type of monitoring, process, maintenance, or control equipment data already available for the emission unit;
- The technical and economic considerations associated with the range of possible monitoring methods; and
- The kind of monitoring found on similar emission units.

Relevant time period – The NDEQ realizes that the above testing frequencies do not meet the relevant time period criteria. The relevant time period for a rolling 12-month total is one month. However, the

NDEQ believes that requiring monthly testing would place an excessive cost burden on MAAP/W (approximately $480,000 per year over the five year permit term).

The NDEQ can establish an alternative frequency provided the data are representative of the relevant time period. While the parametric monitoring being required may not yield consistent testing results (see "The variability of emissions from the unit over time" section below), the NDEQ believes that the combination of parametric monitoring and verification testing will provide sufficient data to determine compliance during the relevant time period.

The likelihood of violating the applicable requirement – Testing data for a fermentation scrubber at a batch ethanol plant have shown that meeting the minor source limitations may be challenging. At one point, seven of 13 ethanol plants tested had at least one test where they were emitting at a rate that would make them a major source. In addition, two sources have operated at a level where their actual emissions were above the major source thresholds.

Given the compliance history of the ethanol industry as a whole, the NDEQ believes that there is a greater likelihood that MAAP/W may also experience compliance issues. Therefore, the monitoring and testing frequencies that are established in this operating permit are appropriate.

Whether add-on controls are necessary for the unit to meet the emission limit – Ethanol plants use wet scrubbers to control fermentation emissions. In addition, MAAP/W must use chemical addition as an additional control mechanism. However, as pointed out in the compliance discussion above, the ability of the wet scrubber to consistently control HAP emissions is suspect.

One issue impacting the ability of the wet scrubber to consistently control HAP emissions is the variability of the emissions (see Figure 1 below) during the fermentation cycle (The fermentation cycle is defined as the time between when one fermentation tank is emptied until the next fermentation tank is emptied – generally from 12-20 hours). This variability causes problems in two areas: testing to demonstrate compliance; and, establishing operational parameters for the scrubber.

To address the testing issue, the NDEQ has allowed testing to be conducted over the entire cycle using the Fourier Transform Infrared Spectroscopy (FTIR) method, not just worst case (three one-hour tests at the highest emissions rate). Considering that the limitation is a rolling 12-month total, this approach provides an emission rate that is more representative of the "average" over the entire fermentation cycle and therefore the relevant period; rather than results that are representative of "worst case" conditions.

To address the operational parameter issue, the NDEQ has, in most cases, required that sources use constant operational parameters to demonstrate compliance. This means that adequate control should be provided at times when the emission rate is high. However, it also means that the emissions are being over-controlled when the emission rate is low. There are limited cases where the NDEQ has allowed variable parameters. In these cases, the source must demonstrate compliance under each operational scenario.

Given the above, this permit is requiring MAAP/W to maintain the following operational parameters at the levels that were established during the most recent valid performance test that demonstrated compliance:

- Water flow rate;
- Chemical flow rate; and,
- Chemical concentration.

The variability of emissions from the unit over time – Over the years, the data from the testing of fermentation scrubbers has shown that there is variability from one fermentation cycle to another (see Figure 2 below). As shown in Figure 2, testing has shown that, while using the same operational

parameters, the results can be different, sometimes by more than an order of magnitude. Because of this, compliance with the single HAP limit is suspect.

This variability is a concern when the testing results show the source is operating close to the single HAP limit. With this in mind, the NDEQ has developed the above testing frequency requiring more frequent testing the closer the results are to the limitation. As discussed above, the tiered frequency approach allows MAAP/W to demonstrate that they have developed operational parameters that assure consistent testing results. When such demonstration has been made, MAAP/W is allowed to test less frequently. However, if MAAP/W fails to demonstrate their operational parameters produce consistent testing results, they will be required to perform verification testing at the appropriate frequency.

Given the variability of the emissions from the fermentation process and MAAP/W past performance, the NDEQ has determined the initial testing frequency will be on an annual basis.

The type of monitoring, process, maintenance, or control equipment data already available for the emission unit – As discussed above, there is an abundance of data available on the operational parameters for, and emissions from, fermentation scrubbers. However, this data has not demonstrated consistent testing results. While this data can be used to establish operational parameters for use between tests, testing is still necessary to demonstrate compliance with the minor source HAP limitations.

Given the above, this permit requires MAAP/W to develop operational parameters as discussed above, to maintain those operational parameters between tests, and to test at the above frequency.

The technical and economic considerations associated with the range of possible monitoring methods – In addition to parametric monitoring with verification testing, the NDEQ considered requiring the use of a Continuous Emissions Monitoring (CEM) device. A CEM in this application is technically feasible. The technology utilized in the CEM reviewed by the NDEQ for this application is proven in the area of organic HAP emissions testing and in demonstrating continuous compliance in the petroleum refinery industry. This CEM uses Fourier Transform Infrared Spectroscopy (FTIR) technology which is an approved and reliable testing method for organic HAP emissions. In addition, the use of a CEM would be more economical and provide MAAP/W with more flexibility than parametric monitoring with verification testing.

As discussed above, testing has shown that there is variability in the emission rate during a fermentation cycle. Under the parametric monitoring approach, sources must use constant operational parameters to demonstrate compliance. This means that adequate control is being provided at times when the emission rate is high. However, it can also mean that the emissions are being over-controlled when the emission rate is low. This can result in excess water being used and, since chemical is being added, excess chemical added at low emissions rates. If a CEM were used to monitor compliance, MAAP/W would also be able to monitor the need for, and regulate the flow of, their chemical addition. By relying on the CEMS, they would be able to continuously demonstrate compliance with their permit and realize cost savings on the chemical by only adding it when needed and at the rate necessary to comply.

Regardless of the testing frequency MAAP/W falls under, it appears as though a CEM is the least cost option for the facility. In addition to saving costs on chemical addition, if MAAP/W is required to test on a quarterly basis they would realize a cost savings on verification testing of approximately $600,000[1] over the term of the permit. With semi-annual verification testing MAAP/W would realize a cost savings of approximately $300,000 over the permit term. Under the annual testing category, the cost of testing

[1] Average annual cost of a CEM is $40,000, average annual cost of quarterly testing is $160,000, and average annual cost of semi-annual testing is $80,000. Assumptions: Cost of CEM = $150,000; Cost of annual CEM Relative Accuracy Test Audit (RATA) = $10,000; and, cost of one performance test = $40,000. NOTE: a RATA is less expensive than a performance test due to the length of time at the source (four hours vs. the fermentation cycle, approx. 18 hours) and the nature of the test (verifying accuracy of the instrumentation vs. compliance with permit).

would equal $200,000. This is equal to the cost of the CEM over the term of the operating permit. However, even under this scenario, a CEM presents cost savings to MAAP/W through reductions in water usage and chemical addition when emission rates are low.

Given the above, the permit has been written so the costs of compliance can be minimized. In addition to the tiered approach (where the testing frequency can be reduced based on the level of control), the permit includes an option to install a CEM in lieu of the testing. Based on conservative cost estimates to install and operate a CEM, the cost over the term of the first operating permit would be approximately $200,000. The costs over subsequent permits would be substantially less due to the one-time capital cost of the CEM incurred during the first permit term. In subsequent permits, the cost for the permit term will be approximately $40,000, making future costs savings significantly greater than those expressed above ($740,000 and $440,000 respectively). Finally, as discussed above, a CEM would provide MAAP/W with additional operational flexibility, reduce the cost of chemical addition, and eliminate the costs associated with operational parameter monitoring for the scrubbers in question. In summary, the NDEQ is not dictating how MAAP/W demonstrates compliance and therefore the cost of compliance. Instead, the NDEQ has provided two options for MAAP/W to demonstrate compliance with the permit. Upon issuance of this permit, MAAP/W has the responsibility to demonstrate compliance. The option they choose to do this is a business decision on their part.

Figure 1 – Variation Through a Typical Fermentation Cycle

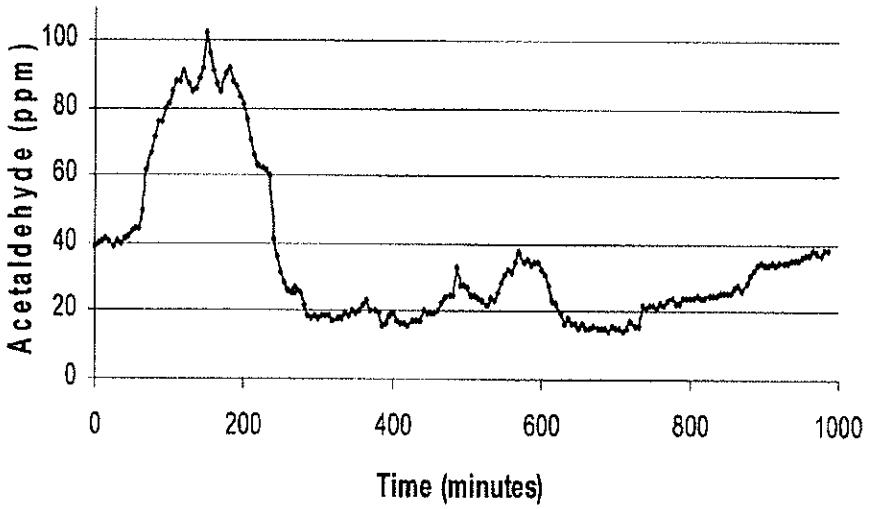


Figure 2- Variability on a Day to Day Basis

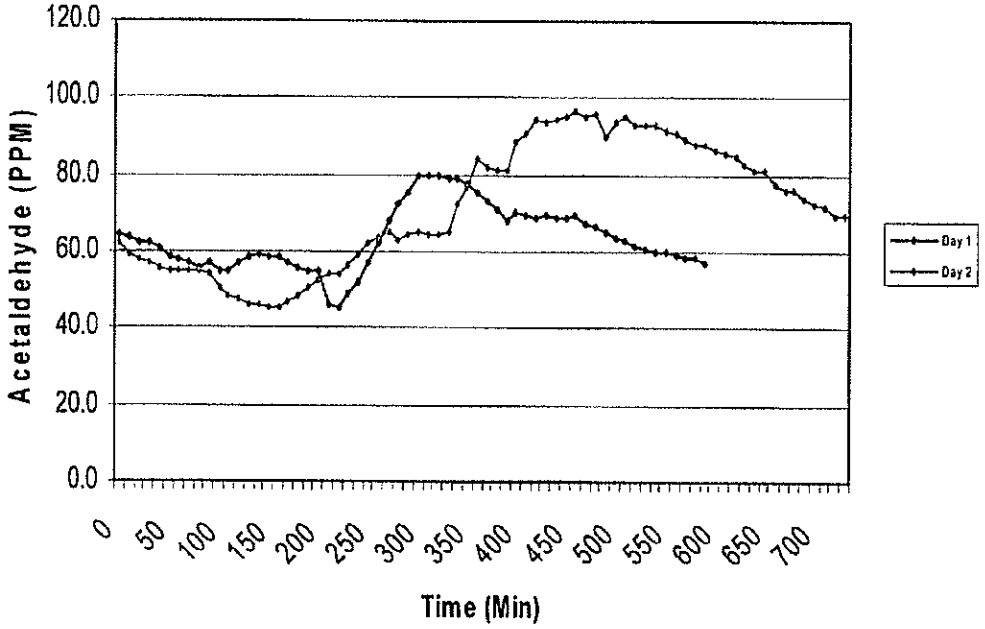
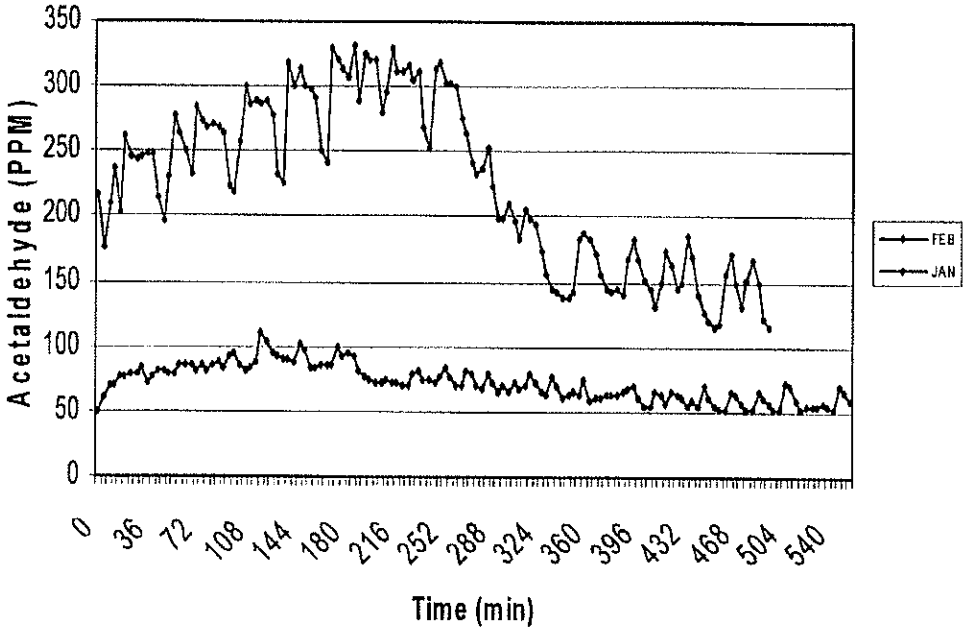


Figure 3 – Variability on a Month to Month Basis



Distillation, Dehydration, Centrifugation and Evaporation:

The beer well serves as a surge tank connecting the fermentation system with distillation. The contents of the beer well are kept circulated by the beer well agitator. The beer is pumped by the distillation beer feed pump through the beer preheat train to two beer stills in series. The beer stills' function is to separate the ethanol from the residual grain solids. The remaining grain solids, known as stillage, are sent to the whole stillage tank to be further processed for use as cattle feed. Sulfuric acid may be added between the fermentation and distillation processes for pH adjustment.

The beer is distilled in a one-column distillation process; the resultant product is 95% ethanol and 5% water (190-proof) and whole stillage consisting of solids and water. The vapors are vented to a Fermentation Scrubber (CE010) for emission control. Hydrous ethanol vapor from distillation is drawn and superheated in the molecular sieve using steam. The superheated ethanol vapor flows to the molecular sieve units in a process known as dehydration. The dehydration process is used to increase the ethanol concentration from 95% to 99.3%. The vapor passes up through one bed of molecular sieve beads, which is under pressure control. Incoming water is adsorbed on the molecular sieve material. The molecular sieve units are cycled so that one is regenerating under vacuum while the other is adsorbing water under pressure from the hydrous ethanol vapor stream. The regenerating stream is sent back to distillation for processing. Using molecular sieves, the remaining 5% water is removed from the product resulting in 100% ethanol (200-proof). The anhydrous ethanol product is sent to one of three product shift tanks. Following quality control analysis, the product is transferred to final storage and combined with 5% natural gasoline and sold as near 200-proof denatured ethanol.

Stillage from the whole stillage tank is pumped to the stillage centrifuges to remove the majority of the water. The underflow from the centrifuges is called wet distillers grain with solubles (WDGS). The WDGS is considered a high quality animal feed and can be sold locally.

Solid Product Storage and Loading

The wet cake (WDGS) is stored in an open storage area from which it is be loaded onto trucks for delivery to feed lots in the area. At about 65% water content, the wet cake remains moist on the storage pad. Because the wet cake is transferred offsite quickly (e.g., in 1 or 2 days), the cake does not dry completely in any type of extreme weather. Therefore, wet cake storage and handling is expected to produce negligible PM_{10} emissions. Potential VOC and HAP emissions from wet cake storage (EP-17) were estimated based on November 2, 2004 emission testing at a wet cake storage building at DENCO, LLC in Morris, MN and scaled accordingly.

Boilers

Steam is required to power the process. The facility uses two (2) natural gas fired boilers with a maximum capacity of 92.05 MMBtu/hr each (EP- 11 and EP-12).

The boilers include low nitrogen oxide (Low-NO_x) burners, and are limited to the combustion of natural gas only. Emissions for CO and NO_x are based on vendor-supplied emission factors. All other emission factors are derived from AP-42, Tables 1.4-2, 1.4-3 and 1.4-4 (7/1998). The facility is required to comply with all applicable requirements of 40 CFR 60 Subpart Dc, including monitoring of fuel use.

Storage Tanks

There are five (5) production storage tanks at this facility. These production tanks hold raw material (denaturants), as well as intermediate and final products (various grades of ethanol and denatured

alcohol). The tanks include two denatured ethanol tanks (TK001 and TK002), each with a capacity of 541,456 gallons, two ethanol day tanks (TK003, TK004) each with capacities of 155,820 gallons and one denaturant tank (TK005) with a capacity of 91,014 gallons. Additionally, there is one 2,000 gallon corrosion inhibitor tank (TK006).

Tanks TK001, TK002, and TK005 are subject to NSPS, Subpart Kb, due to size and stored material. The control equipment installed in the tanks is an internal floating roof with liquid mounted primary seals. Tanks TK003 and TK004 are considered process tanks as defined by NSPS Subpart Kb and are not subject to the requirements of Kb because they do not store a final product. However, because the source is subject to the requirements of Title 129, Chapter 27, Section 002 - Best Available Control Technology, the NDEQ is requiring internal floating roofs for TK003 and TK004.

The emissions for each of these tanks were calculated using TANKS 4.09d, using the maximum throughput for each tank. The denaturant used at this facility is natural gasoline (natural gas liquid, more volatile than commercial gasoline). In the ethanol, acetaldehyde and methanol are assumed to be present at 200 ppm for emission calculation purposes. Additionally, the denaturant HAP emissions may include hexane, toluene, benzene, xylenes, cumene, ethyl benzene, and carbon disulfide.

Ethanol Product Loading

The denatured ethanol is shipped via tanker truck and rail car. Liquid product loading consists of submerged loading of denatured ethanol into tanker trucks and tanker rail cars. The facility has installed a closed vapor recovery system on both the truck and rail loadout. The emissions from the truck and railcar loadout are collected by a vapor recovery system then routed a flare (CE013).

The overall control efficiency used in the emissions calculations assumes that 100% of the vapors displaced while loading ethanol into tanker trucks and tanker rail cars are routed to the flare, and that these are destroyed at a level of 98%. This level of vapor recovery is achievable with new systems employing a "closed" design whereby the vapor collection line is clamped to the tanker truck or rail car receiving the ethanol. The permit contains requirements that this system be properly designed, installed, operated, and maintained in order to support these assumptions.

Emissions of VOC and HAP from ethanol product loadout were calculated using the methodology developed by the Department with the following assumptions:

- The tanker trucks previously contained conventional unleaded gasoline (RVP 13) and the gasoline vapors are displaced as the denatured ethanol is loaded. This is a worst-case assumption; emissions will be less if the tanker trucks previously contained denatured ethanol.
- Emissions from displacement of gasoline previously contained in the tanker trucks are estimated based on the difference between the saturation factors (S) for normal dedicated and clean cargo provided in AP-42, Section 5.2 (1/95).
- The railcars previously contained denatured ethanol, and the denatured ethanol vapors are displaced as the denatured ethanol is loaded. The displaced vapors are assumed to be in the same proportion as the composition of the denatured ethanol, for worst-case assumption: 95% anhydrous ethanol and 5% denaturant.
- VOC emission factor equation is from AP-42, Section 5.2.2 (January 1995) - Loading Losses.
- HAP emissions are based on the HAP content of gasoline, anhydrous ethanol, and denaturant (RVP 13).
- The vapor control system has an approximate overall efficiency of 97%.

- The vapor pressure, molar mass, and temperature for denatured ethanol are based on TANKS 4.09d output data.

Equipment Leaks

Equipment leaks are leaks from valves and pumps in light service, gas valves, control valves, flanges, transmitters, and manholes. The company performs Leak Detection and Repair (LDAR) in accordance with NSPS, Subpart VV (40 CFR 60.480 through 60.489). Emissions are calculated from Protocol for Leak Emission Estimates, EPA-453/R-95-017 issued November 1995. A control credit for LDAR as required per NSPS Subpart VV has been applied to the emission estimates, and the source will employ the results of the LDAR program when calculating emissions.

Cooling Tower

The energy input to conduct distillation, evaporation and other operations must also be removed to condense the ethanol and water vapors, provide cooling prior to fermentation and enable water to be re-used within the plant. This energy removal is accomplished through the use of a cooling tower. The cooling tower is considered a particulate matter emission source, as solids dissolved in the water are lost through drift (very small water droplets, as opposed to evaporated water). This drift subsequently becomes fine particulate matter when the water droplet evaporates and leaves the dissolved solids suspended within the air. The cooling tower is equipped with high efficiency 'drift eliminators' that limit drift loss to less than 0.005% of the amount of water being circulated within the cooling tower.

The facility has one (1) cooling tower with multiple cells and a combined circulation rate of 1,500,000 gallons per hour. PM/PM_{10} emissions at the cooling tower are calculated with a mass balance approach as presented in AP-42, Section 13.4: *Wet Cooling Towers* (1/95), using data on water circulation rate, total dissolved solids (TDS) concentration, and cooling tower drift losses. This method assumes that the TDS present in water evaporated at the cooling tower produce PM/PM_{10} emissions. The total dissolved solids (TDS) concentration in the cooling water is limited to 2,500 ppm for any single sampling event. Drift loss is assumed to be 0.005%, due to a manufacturer's specification.

Haul Roads

The facility in-plant haul roads are paved. Fugitive dust emissions from traffic on these roads have been calculated using AP-42 emission factors and typical characteristics for paved roads. A silt load factor of 1.0 g/m^2 has been used in the haul road calculations because of construction permit limitations. The emission unit ID for plant roads is listed as FS001 (fugitive source).

Emergency Equipment

The emergency equipment consists of a 3,740 hp emergency generator (EP-15) and a 290 hp diesel-fired engine for the emergency fire pump (EP-14). The engines are designated for emergency use and are limited to no more than 250 hours/year. The limitation on the emergency equipment is from the March 6, 2008 CP and was included to limit the plant emissions below PSD threshold levels.

Emissions Summary

The following table summarizes the potential as limited by the permit and actual emissions from this source:

Regulated Pollutant	Potential Emissions as limited by permit* (tons/year)	Actual Emissions** (tons/year)
Particulate Matter (PM)	26.0	23.45
Particulate Matter less than or equal to 10 microns (PM_{10})	22.2	5.64
Particulate Matter less than or equal to 2.5 microns ($PM_{2.5}$)	19.0	7.07
Sulfur Dioxide (SO_2)	0.70	0.11
Oxides of Nitrogen (NO_x)	40.3	4.88
Carbon Monoxide (CO)	40.5	0.69
Volatile Organic Compounds (VOCs)	93.4	11.1
Hazardous Air Pollutants (HAPs)***:		
Acetaldehyde	Less than 10	3.56
Acrolein	0.39	0.67
n-Hexane	1.74	0.25
All Other HAPs	1.22	0.42
Total HAPs	14.94	4.90

* The potential emissions listed here include fugitive emissions from this source.

** Actual Emissions are from 2009 air emissions inventory.

*** Only individual HAPs with potential emissions greater than the reporting level in Appendix III of Title 129 are listed.

Results from the July 30, 2008 performance test on the fermentation scrubber (2.4 lbs/hr) were used in calculating potential emissions of acetaldehyde from the source. While MAAP/W conducted a performance test in February 2009 that showed acetaldehyde emissions were emitted at a lower rate than during the July 2008 performance test, the July 2008 test must be used because, by definition, "Potential to Emit" is the maximum capacity of a stationary source to emit a pollutant under its physical and operational design (Title 129, Chapter 1, Section 112). Since MAAP/W had acetaldehyde emissions of 2.4 lbs/hr in the past, NDEQ must assume that this value can be reached again at any given point in time for calculation of potential emissions. For compliance purposes, though, MAAP/W will use the value of the most recent performance test to calculate actual emissions of acetaldehyde from the scrubber [see Condition II.(G)(1)(a) and Condition III.(B)(4)(c)(i)].

APPLICABLE REQUIREMENTS AND VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS:

Title 129, Chapter 5 - Operating Permit Program

As described in Title 129, Chapter 5, emission limits for a facility requesting a Class II operating permit must be less than major emission thresholds (100 tons per year (tpy) of each listed pollutant, 10 tpy of any single HAP, and 25 tpy of all listed HAP). If a facility has the potential to exceed any of these thresholds, then it is classified as a Class I source, unless the facility agrees to limit the potential to emit below the threshold values. This source obtained a construction permit that limits the PTE of all pollutants below the Class I thresholds; therefore, the source is not a Class I source.

The proposed operating permit limits the emissions of any single HAP to a PTE value of less than 10 tons per year, the emissions of all listed HAPs to less than 25 tons per year, and the PTE of all criteria pollutants to less than 100 tons per year, each. The short term (lb/hr) limits carried over from the Construction Permits issued on March 6, 2008 and October 23, 2008 effectively limit each of the criteria pollutants to less than 100 tons per year. Therefore, the facility is considered a synthetic minor and not a major stationary source.

On July 1, 2011 greenhouse gases (GHGs) will become a regulated air pollutant under 40 CFR Part 70 and Title 129, Chapter 1. Because GHGs is not a regulated air pollutant at this time, neither Standard nor the NDEQ are obligated to provide emissions estimates on this pollutant. Although GHGs is not a regulated air pollutant at this time, Standard will become a major source on July 1, 2011 (as the program currently stands) and be obligated to submit a Class I operating permit application by July 1, 2012. In the event the EPA exempts, or places a stay on, biogenic emissions from the GHGs program, this facility may be eligible for synthetic minor limitations on the other sources of GHGs. Such a limitation would exempt this facility from the Class I requirements.

Title 129, Chapter 18 - New Source Performance Standards (NSPS)

Subpart A – General Provisions: NSPS Subpart A, adopted by reference in Title 129, Chapter 18, Section 001.01, applies to those units covered by the specific NSPS as discussed below. The permittee is required to submit notification of the date construction commenced postmarked no later than 30 days after such date (40 CFR 60.7(a)(1)), notification of the anticipated date of initial startup of the equipment postmarked not more than 60 days nor less than 30 days prior to such date (40 CFR 60.7(a)(2)), and notification of the actual date of initial start up of the equipment postmarked within 15 days after such date (40 CFR 60.7(a)(3)).

Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units: This subpart, adopted by reference in Title 129, Chapter 18, Section 001.52, is for steam generating units with a design rate between 10 MMBtu/hr and 100 MMBtu/hr, installed after June 9, 1989. Therefore, the 92.05 MMBtu/hr boilers (EU039 and EU040) are each subject to this NSPS. The NSPS, Subpart Dc requires the source to record and maintain records of the amounts of fuel combusted in each boiler during each calendar month as specified in 40 CFR 60.48c(g).

The applicable requirements of NSPS Subpart Dc include, but are not limited to, the following:

Type of Equipment: Two (2) boilers with Low NO_x burners, each with a rated capacity of 92.05 MMBtu/hr. These units burn only natural gas.

REQUIREMENT	CITATION
Applicability	§ 60.40c(a) through § 60.40c(d)
Definitions	§ 60.41c
Reporting and Recordkeeping	§ 60.48b(a), (g)(1), (g)(2), (g)(3), (i), (j)

No requirements pertaining to Particulate Matter (PM) or Sulfur Oxides (SO_x) from NSPS Subpart Dc apply to the two boilers at MAAP/W. This is because the boilers have a permit limitation that requires only natural gas be used as a fuel source. If this fuel restriction is relaxed in the future, the boilers at MAAP/W will become subject to further requirements under Subpart Dc.

Please note that in Title 129, the requirements of NSPS Subpart Dc are those that were published in the Federal Register on June 13, 2007. NSPS Subpart Dc has since been amended at the Federal level on

January 28, 2009, but the amendments did not change the requirements applicable to the boiler units at MAAP/W.

Subpart DD – Standards of Performance for Grain Elevators: This subpart, adopted by reference in Title 129, Chapter 18, Section 001.19, does not apply to the grain handling operations at this facility because this facility receives and handles dry corn which is not for human consumption and the permanent storage capacity is less than 2.5 million bushels. The permanent storage capacity for the grain handling operations at this plant is 1,500,000 bushels. At the time the March 6, 2008 permit was issued, the combined MAAP/M and MAAP/W source had a total planned grain storage capacity greater than 2.5 million bushels. However, the MAAP/M plant was not constructed and the permanent storage capacity for the grain handling operations at MAAP/W is 1,500,000 bushels

Subpart Kb – Standards of Performance for Volatile Organic Liquid Storage Vessels: This subpart, adopted by reference in Title 129, Chapter 18, Section 001.62, applies to the denatured ethanol storage tanks (TK001 and TK002) and the denaturant storage tank (TK005) because the tanks exceed the 75 cubic meter (19,800 gal) capacity size {40 CFR 60.110b(a)} and do not qualify as process tanks. The anhydrous ethanol tanks (TK003 and TK004) are not subject to this subpart because they are process tanks, which are excluded from the rule since the rule only applies to storage tanks.

Type of Equipment: Two (2) denatured ethanol storage tanks and one (1) denaturant storage tank. All tanks have storage capacities greater than 75 m^3 and are equipped with internal floating roofs with liquid mounted seals.

REQUIREMENT	CITATION
Applicability	§ 60.110b(a)
Definitions	§ 60.111b
Standard for Volatile Organic Compounds	§ 60.112b(a)(1)
Testing and Procedures	§ 60.113b(a)
Reporting and Recordkeeping	§ 60.115b(a)
Monitoring of Operations	§ 60.116b(a), (b), (c), (d), (e)
Delegation of Authority	§ 60.117b

Subpart VV – Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and on or Before November 7, 2006: This subpart, adopted by reference in Title 129, Chapter 18, Section 001.14, applies to the VOC equipment leaks associated with this plant (a Synthetic Organic Chemical Manufacturing Industry) because the equipment at this source was constructed under CP05-0040, issued on January 26, 2006. Although CP05-0040 was later superseded by CP07-0009 issued on March 6, 2008, the permitted production rate of this plant actually decreased and was not considered a modification or reconstruction under NSPS, Subpart VV. This subpart is associated with subpart NNN & RRR, but NNN & RRR are based on how the chemical is produced (biomass versus synthetic), while VV is based on the chemicals produced. Since new organic chemicals are synthesized (process doesn't matter), then all of the associated equipment leaks are subject to this subpart.

The requirements of NSPS Subpart VV in Title 129, Chapter 18, are those that were published in the Federal Register on July 1, 2006. NSPS Subpart VV was then amended on November 16, 2007. The amendments have not been adopted into Title 129, Chapter 18. Therefore, MAAP/W must comply with the requirements of both versions of the rule. The requirements from July 1, 2006 are enforceable by NDEQ and USEPA, whereas the requirements from the amendments on November 16, 2007 are enforceable by USEPA only.

The requirements of Subpart VV on July 1, 2006, include, but are not limited to, the following:

REQUIREMENT	CITATION
Definitions	§ 60.481
Standards: General	§ 60.482-1(e), (f), (g)
Standards: Pumps in Light Liquid Service	§ 60.482-2(a)(1), (a)(2), (b)(2), (c)(2), (d)(4), (d)(5), (d)(6),
Standards: Sampling Connection Systems	§ 60.482-5(a), (b)
Standards: Valves in Gas/Vapor Service and in Light Liquid Service	§ 60.482-7(a), (c)
Standards: Pumps and Valves in Heavy Liquid Service, Pressure Relief Devices in Light Liquid or Heavy Liquid Service, and Connectors	§ 60.482-8(a)(2), (d)
Standards: Delay of Repair	§ 60.482-9(a), (f)
Alternative Standards for Valves—Allowable Percentage of Valves Leaking	§ 60.483-1(d)
Alternative Standards for Valves—Skip Period Leak Detection and Repair	§ 60.483-2(b)(5)
Test Methods and Procedures	§ 60.485(g)(4), (g)(5), (h)
Recordkeeping	§ 60.486(e)(6)
Reporting	§ 60.487(c)(2)

The following requirements have been added or changed as a result of NSPS Subpart VV amendments at the Federal level on November 16, 2007. These requirements are only enforceable by USEPA until the amendments are adopted into Title 129:

REQUIREMENT	CITATION
Definitions	§ 60.481
Standards: General	§ 60.482-1(e), (f), (g)
Standards: Pumps in Light Liquid Service	§ 60.482-2(a)(1), (a)(2), (b)(2), (c)(2), (d)(4), (d)(5), (d)(6),
Standards: Sampling Connection Systems	§ 60.482-5(a), (b)
Standards: Valves in Gas/Vapor Service and in Light Liquid Service	§ 60.482-7(a), (c)
Standards: Pumps and Valves in Heavy Liquid Service, Pressure Relief Devices in Light Liquid or Heavy Liquid Service, and Connectors	§ 60.482-8(a)(2), (d)
Standards: Delay of Repair	§ 60.482-9(a), (f)
Alternative Standards for Valves—Allowable Percentage of Valves Leaking	§ 60.483-1(d)
Alternative Standards for Valves—Skip Period Leak Detection and Repair	§ 60.483-2(b)(5)
Test Methods and Procedures	§ 60.485(g)(4), (g)(5), (h)
Recordkeeping	§ 60.486(e)(6)
Reporting	§ 60.487(c)(2)

Subpart VVa – Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006: This subpart, not yet adopted into Title 129, Chapter 18, applies to the VOC equipment leaks associated at a Synthetic Organic Chemical Manufacturing facility that was constructed, reconstructed, or modified after November 7, 2006. This new subpart includes all the requirements of 40 CFR Part 60, Subpart VV, as amended, along with new provisions. Differences between Subparts VVa and VV include, but are not limited to, lower leak definitions for pumps and valves, requiring monitoring of connectors, and additional recordkeeping requirements and quality assurance measures. At this time, Subpart VVa is not applicable to Standard Ethanol, LLC because construction of the facility commenced before November 7, 2006 and no modification/reconstruction has been made to the affected process line after November 7, 2006. However, if the permittee would physically modify its process line in the future, this subpart may become applicable.

Subpart NNN – Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemicals Manufacturing Industry (SOCMI) Distillation Operations: This subpart, adopted by reference in Title 129, Chapter 18, Section 001.61, does not apply to the distillation operation, per EPA's January 24, 2000, letter from Richard Tripp, EPA Region VII to Randy Griffin, Nebraska Air Quality Compliance Supervisor, concerning applicability of 40 CFR 60 to biomass ethanol production. The letter stated that Subpart NNN does not apply to ethanol derived from biomass such as corn. Subpart NNN applies to synthetic (chemical reaction of petroleum refining products) processes to produce organic chemicals (including ethanol).

Subpart RRR – Standards of Performance for Volatile Organic Compound (VOC) Emissions from Synthetic Organic Chemicals Manufacturing Industry (SOCMI) Reactor Processes: This subpart, adopted by reference in Title 129, Chapter 18, Section 001.70, does not apply to the fermentation tanks, per EPA's January 24, 2000, letter, from Richard Tripp, EPA Region VII to Randy Griffin, Nebraska Air Quality Compliance Supervisor, concerning applicability of 40 CFR 60 to biomass ethanol production. The letter stated that Subpart RRR does not apply to ethanol derived from biomass such as corn. Subpart RRR applies to synthetic (chemical reaction of petroleum refining products) processes to produce organic chemicals (including ethanol).

Subpart IIII – Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE): This subpart, adopted by reference in Title 129, Chapter 18, Section 001.76, applies to stationary compression ignition internal combustion engines that have commenced construction or have been modified or reconstructed after July 11, 2005. The subpart limits emissions of CI ICE based on engine size (hp, cylinder displacement), type of use (emergency or non-emergency), and model year. The emergency firewater pump (EU044) and the emergency generator (EU045) at this facility were manufactured and installed in 2007, therefore, are subject to this subpart.

The requirements of NSPS Subpart IIII include, but are not limited, to the following:

Type of Equipment: Compression Ignition (Diesel) Emergency Fire Pump Engine, 290 HP, displacement less than 30 liters, no diesel particulate filter, installed in 2007.

REQUIREMENT	CITATION
Applicability	§ 60.4200(a)(2)(ii)
Emission Standards for Emergency Engines	§ 60.4205(c), including Table 4 of this subpart
Length of Time Emission Standards Must be Met	§ 60.4206
Fuel Requirements	§ 60.4207(a), (b), (c)
Monitoring Requirements	§ 60.4209(a)
Compliance Requirements	§ 60.4211(a), (b), (e)
Test Methods and Procedures	§ 60.4212
Notification, Reporting, and Recordkeeping	§ 60.4214(b)
General Provisions	§ 60.4218, including Table 8
Definitions	§ 60.4219

Type of Equipment: Compression Ignition (Diesel) Emergency Generator, 3,740 HP, displacement less than 10 liters, no diesel particulate filter, installed in 2007.

REQUIREMENT	CITATION
Applicability	§ 60.4200(a)(2)(i)
Emission Standards for Emergency Engines	§ 60.4205(a), including Table 1 of this subpart
Length of Time Emission Standards Must be Met	§ 60.4206
Fuel Requirements	§ 60.4207(a), (b), (c)
Monitoring Requirements	§ 60.4209(a)
Compliance Requirements	§ 60.4211(a), (b), (e)
Test Methods and Procedures	§ 60.4212
Notification, Reporting, and Recordkeeping	§ 60.4214(b)
General Provisions	§ 60.4218, including Table 8
Definitions	§ 60.4219

Title 129, Chapter 19 - Prevention of Significant Deterioration (PSD)

The facility is considered a minor source with regard to the PSD program because the potential emissions of each New Source Review (NSR) regulated pollutant are below the major source threshold of 250 tons/year for the entire facility. At this time, ethanol plants do not fall into one of the 28 source categories that are subject to a 100 tons/year threshold as listed in Chapter 2, Section 008.01, for each NSR regulated pollutant. In addition, there are no "nested" sources within the ethanol plant that may otherwise be subject to a 100 tons/year major source threshold.

New rules in Title 129 pertaining to ethanol plant PSD applicability became effective February 6, 2008. The change increased the threshold at which the facility would be considered "major PSD" from 100 tons/yr to 250 tons/yr. However, this does not mean that the plant can now emit up to 250 tons/year without approval. The source must still comply with the terms and conditions of all valid air quality permits, unless the permits are revised or removed through a future permitting action.

This ethanol manufacturing plant accepted limits on the throughput and on the emission rates of PM, PM_{10}, SO_x, NO_x, CO, and VOC, which limit emissions of all regulated pollutants from the entire source (including fugitive emissions) to less than one hundred (100) tons/yr. Therefore, this source is a minor PSD source and the requirements of Title 129, Chapter 19 are not applicable.

Title 129, Chapter 20, Section 001 - Process Weight Rate

Each of the permitted emission rate limitations ensures the process weight rate limitations will not be exceeded. The following formulas were used to determine compliance: for process weight rates up to 60,000 lbs/hr, $E= 4.10\ p^{0.67}$, and for process weight rates in excess of 60,000 lbs/hr, $E= 55.0\ p^{0.11}-40$, where E = rate of emissions in lbs/hr and p = process weight rate in tons/hr. The facility is expected to be in compliance with the process weight rate limitations. The process weight rate limitations are calculated in Attachment A of this fact sheet.

Title 129, Chapter 20, Section 002 -Particulate Emissions from Combustion Sources

This facility is expected to be in compliance with this regulation because the fuels combusted at this facility are natural gas and diesel fuel. The allowable emission rates per Title 129, Chapter 20, Section 002 are presented in Attachment A of this fact sheet.

Title 129, Chapter 20, Section 004 - Opacity

All of the equipment at the facility is subject to the opacity standard (20% opacity limit) specified in Title 129, Chapter 20, Section 004. It is unlikely that the fuel burning equipment would exceed the opacity standard due to the use of natural gas and distillate fuel oil (diesel) as fuel. These fuels are considered "clean fuels" with regard to particulate emissions. In addition, control equipment used throughout the facility helps the source comply with the opacity standard.

Title 129, Chapter 24 - Sulfur Compounds Emissions

All the units at this facility were constructed after February 26, 1974. Therefore, the requirements of Title 129, Chapter 24 are not applicable.

Title 129, Chapter 27, Section 002 - Best Available Control Technology

This facility is subject to Best Available Control Technology (BACT) since potential individual HAP emissions exceed 2.5 tons/year and combined HAP emissions exceed 10 tons/year. The Department has included BACT equipment and activities in the construction permits as follows:

Process	BACT equipment/activities
Fermentation and Distillation	Scrubbers with a minimum 65% control efficiency for total combined HAPs
Equipment Leaks	LDAR program
Storage Tanks	Internal floating roof
Loading of Liquid Product	Submerged filling, loadout vapor recovery system and flare

All of the BACT equipment/activities are standard in ethanol plants that emit less than 10 tons/year of individual HAP and 25 tons/year of combined HAPs.

Title 129, Chapter 27, Section 003 -Maximum Achievable Control Technology

This facility is not subject to Maximum Achievable Control Technology (MACT) because the controlled

emissions of the source are limited to less than 10 tons/year of any individual HAP and less than 25 tons/year of combined HAPs. Specific Condition II.(F) of the permit limits the facility-wide HAP emissions below MACT threshold levels. If the facility-wide HAP emissions exceed the MACT threshold, then a MACT analysis will need to be conducted on a facility-wide basis to determine if changes in the control equipment will be necessary.

Title 129, Chapter 28 -National Emission Standards for Hazardous Air Pollutants (NESHAP, 40 CFR 63)

Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines: Changes made to this rule on July 12, 2006 extended coverage to stationary reciprocating internal combustion engines (RICE) that are less than 500 brake horse power (bhp), and to RICEs of all sizes that are located at area sources of HAPs. The emergency fire pump engine (EU044) and the emergency generator (EU045) are considered new affected units under this rule according to 40 CFR 63.6590(a)(2)(iii). Pursuant to 40 CFR 63.6590(c), the requirements of 40 CFR Part 63 Subpart ZZZZ are met by meeting the requirements of 40 CFR Part 60 Subpart IIII for new affected units located at an area source, and no further requirements apply for such engines under Subpart ZZZZ. Therefore, the requirements of 40 CFR Part 63 Subpart ZZZZ are not included in this operating permit as compliance is demonstrated through 40 CFR Part 60 Subpart IIII. Subpart ZZZZ was amended again on March 3, 2010. However, none of the changes made in 2010 affect the requirements for the emergency fire pump engine (EU044) or the emergency generator (EU045).

There are no other NESHAPs applicable to this source because the PTE has been limited to less than 10 tons/yr of a single HAP and less than 25 tons/yr for all combined HAPs. If emissions were to exceed these thresholds in the future, the following NESHAPs would potentially be applicable to the source:

Subpart F – National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry: This subpart, adopted by reference in Title 129, Chapter 28, Section 001.20, applies to manufacturing facilities which produce a chemical on the list of primary products in the rule {40 CFR 63.100(b)(1)}, use an organic HAP as a reactant or manufacture the chemical as a product or co-product {40 CFR 63.100(b)(2)}, and are located at a plant site that is a major source of HAPs (≥10 tons/year of individual HAP or ≥ 25 tons/year of combined HAPs). This plant produces ethanol, which contains acetaldehyde and methanol, as well as the HAPs in the denaturant. This facility is not subject to this subpart because the primary product is ethanol (which is not on the primary product list in this subpart) and the facility is limited to less than 10 tons/year of individual HAP and less than 25 tons/year of combined HAPs.

Subpart G – National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater: This subpart, adopted by reference in Title 129, Chapter 28, Section 001.21, applies to the same manufacturing facilities as Subpart F, but only for all of the process vents, storage vessels, transfer racks and wastewater streams. Since this plant is exempt from Subpart F, it is also exempt from Subpart G.

Subpart H – National Emission Standards for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical Manufacturing Industry for Equipment Leaks: This subpart, adopted by reference in Title 129, Chapter 28, Section 001.22, applies to the same manufacturing facilities as Subpart F, but only for the following equipment: pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, instrumentation systems, and control devices or closed vent systems that are intended in

operate in organic hazardous air pollutant service 300 hours or more during the calendar year. Since this plant is exempt from Subpart F, it is also exempt from Subpart H.

Subpart Q – National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers: This subpart, adopted by reference in Title 129, Chapter 28, Section 001.04, applies to industrial process cooling towers that are operated with chromium-based water treatment chemicals and are located at major facilities for HAPs (≥10 tons/year of individual HAP or ≥ 25 tons/year of combined HAPs). This facility is exempt from this subpart because the facility is limited to below the major source thresholds. Also, no chromium-based water treatment chemicals were reported to be used for the cooling towers.

Subpart EEEE – National Emission Standards for Hazardous Air Pollutants for Organic Liquids Distribution (non-gasoline): This subpart adopted by reference in Title 129, Chapter 28, Section 001.83, applies to major HAP facilities (≥10 tons/year of individual HAP or ≥ 25 tons/year of combined HAPs), which have organic liquids distribution. The organic liquids distribution operation must have 7.29 million gallons per year or more either into or out of the operation to be subject to this subpart. Organic liquids are all crude oils other than black oil, and those liquids or liquid mixtures, except gasoline, that contain a total of 5 percent by weight or more of the organic HAP listed in the subpart (including acetaldehyde, methanol, benzene, carbon disulfide, cumene, ethyl benzene, hexane, toluene, xylenes). Fuels used on-site (such as fuels used for fleet refueling) are exempt from this subpart. This facility is exempt from this subpart because the facility is limited to below the major source thresholds. If the facility-wide HAP emissions exceed the major source threshold, then an analysis will need to be conducted on the organic liquid distribution operations to determine if this subpart is applicable.

Subpart FFFF – National Emission Standards for Hazardous Air Pollutants for Miscellaneous Organic Chemical Manufacturing: This subpart adopted by reference in Title 129, Chapter 28, Section 001.78, applies to major HAP facilities (≥ 10 tons/year of individual HAP or ≥ 25 tons/year of combined HAPs), which own or operate miscellaneous organic chemical manufacturing process units (MCPU). An MCPU includes equipment necessary to operate a miscellaneous organic chemical manufacturing process, as defined in §63.2550 (process includes reaction, recovery, separation, purification, or other activity, operation, manufacture, or treatment which are used to produce a product of isolated intermediate), that produce an organic chemical(s) in the specified SIC (includes SIC 2869), and it processes, uses, or produces HAP. This facility is exempt from this subpart because the facility is limited to below the major source thresholds. If the facility-wide HAP emissions exceed the major source threshold, then the miscellaneous organic chemical manufacturing units and operations would be subject to this NESHAP.

Subpart JJJJJJ—National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers: This subpart, finalized on February 21, 2011 but not yet published in the Federal Register or in Title 129, applies to boilers at area sources of HAPs. According to the NESHAP JJJJJJ Fact Sheet published by USEPA, boilers that burn only gaseous fuels or solid waste are not subject to the rule. The boilers at MAAP/W are restricted to burning natural gas only. Therefore, it appears that the boilers at MAAP/W are not subject to this NESHAP. However, it is up to the permittee to evaluate the applicability of this rule to the boilers once the Subpart is official and published in the Federal Register.

Subpart VVVVVV—National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources: This subpart, not yet adopted into Title 129, applies to area sources of HAPs that own or operate miscellaneous organic manufacturing process units (MCPU). This subpart applies to each chemical manufacturing process unit (CMPU) at an area source that uses as feedstock,

generates as a byproduct, or produces as a product any of the HAPs listed in the rule. A CMPU includes all process equipment and activities involved in the production of a material described by NAICS code 325. Additionally, a CMPU includes each surge control vessel, bottoms receiver, pump, compressor, agitator, pressure relief device, sampling connection system, open-ended valve or line, valve, connector, storage tank, transfer rack, and instrumentation system associated with production.

NESHAP Subpart VVVVVV applicability for ethanol plants is currently under review by the USEPA. Information concerning this decision will be distributed as soon as it is available.

Title 129, Chapter 29 - Operating Permit Emission Fees

This operating permit limits the emissions of PM, VOC, CO, and NO_x to less than the Class I threshold of 100 tons per year. The PTE of all other criteria pollutants are below the Class I thresholds. Emissions of HAPs are limited to below the Class I threshold of 10 tpy of any individual HAP and 25 tpy of total HAPs. Therefore, the source is not a Class I source. This facility is a synthetic minor source and is not required to pay an annual emission fee under this rule.

Operating Parameters of Control Equipment

The monitoring requirements for the control equipment are to ensure the equipment is operated in the same condition as during the stack testing. The monitored operating parameters for each piece of control equipment are not limited to the parameters listed in the permit (i.e. pressure differential, temperature). The operating parameters are those that the facility normally monitors to ensure that the control equipment is operating properly.

In the case of fermentation scrubber CE010, NDEQ has defined four (4) operating parameters. These parameters are the chemical addition rate, the type of chemical used, the chemical concentration, and the liquid flow rate. While there may be several other operating parameters associated with the scrubber (perhaps as many as twenty (20)), these four (4) parameters are considered most important. A change in any one listed scrubber operating parameter would require a new performance test to be conducted by the facility.

Maintenance of Equipment

The maintenance requirements in this operating permit for both the emissions units and the control equipment ensure that all equipment is operated in the same condition as during the stack testing. This is required because proper maintenance is critical in assuring compliance with the operating permit.

At a minimum, all equipment is to be maintained as specified in the manufacturer's documentation. The source may also develop site specific maintenance manuals provided they are equivalent to one produced by the manufacturer of the equipment. The maintenance procedures should include procedures developed over time that the facility uses for prevention of poor performance requiring corrective action (atypical operating parameters, leaks, noise, etc). For example, during scrubber shutdowns, the internal conditions (confined entry area) should be checked for things such as:

- are the demister, packing, or tray orifices relatively free of solids build-up?
- are the trays in the scrubber sagging?
- are any of the nozzles plugged?
- is there excessive corrosion in downcomers, trays or other areas?
- are there any broken downcomers?

Permit conditions specific to the proposed permit are discussed as follows:

II. Specific Conditions

II.(A) This condition contains general recordkeeping and reporting requirements that apply to all permitted emission units, control equipment, and monitoring devices. These requirements establish several things, including: a date when records must be completed, how long records need to be maintained (required to keep on-site for a minimum of five (5) years), and identification of specific types of records that must be maintained. Records are required to be maintained to ensure compliance with all applicable requirements, specifically those required in this permit. Additional recordkeeping requirements may be established in the future. Documentation detailing operation and maintenance can be operational and maintenance manuals provided by the manufacturer(s). If manufacturer manuals are not available, the owner or operator must develop a document containing proper operation and maintenance requirements for each permitted emission unit and piece of required control equipment. Specific recordkeeping requirements for permitted emission units can be found in the respective section covering the unit.

II.(B) This condition contains the reporting requirements for annual compliance certifications, deviations and the annual emission inventory.

II.(C) This condition provides provisions for when the permittee makes changes to a permitted facility that do not require a permit revision.

II.(D) This condition contains the performance testing requirements. All performance tests required throughout this permit are required to be conducted in accordance with these conditions. The permittee is required to provide the NDEQ at least thirty (30) days written (i.e. hard copy, not electronic or verbal) notice prior to testing. The notification should include the emissions testing protocol. This is to ensure that the NDEQ has the opportunity to witness the emissions testing and/or approve the testing plan proposed. The owner or operator must also submit the final test results within forty-five (45) days after the test has occurred. EPA's stack testing guidance indicates that full capacity is operation at 90 percent of maximum rated capacity or greater.

II.(E) This condition requires all permitted emission units, control equipment, and monitoring equipment to be properly installed, operated, and maintained.

II.(F) This condition requires the source to comply in a timely manner with any applicable requirements that become effective during the permit term.

II.(G) This condition contains the following source-wide requirements:

(1)(a) This condition establishes the annual HAP emission limits for this source to less than 10 tons per year of a single HAP and less than 25 tons per year of total HAP. The facility has been limited as a synthetic minor source for HAP emissions and therefore, is exempt from both Class I and major source NESHAP requirements. (Construction Permit issued March 6, 2008). This condition also establishes a 100 tons per year annual VOC limit to keep MAAP/W as a Class II Synthetic Minor Source for purposes of the operating permit program (Title 129, Chapter 5, Section 001.03).

Compliance with the emission limits in this condition must be demonstrated by performing emissions calculations every month using the calculation methodology presented in Attachment A to calculate the single and total HAPs emissions, as well as emissions of VOCs. Since testing has been required under the construction permit and by this operating permit, the source must use the emission factor, in pounds per hour, derived through testing when performing the calculations. In addition, the source must use data from the most recent valid emission test conducted in accordance with Condition II.(D). Once the monthly emissions are calculated, the source is required to add the current monthly total and subtract the total from 13 months ago to determine their rolling twelve (12) month total emissions (Construction Permit Issued March 6, 2008; Title 129, Chapter 5, Section 001.03 and Chapter 8, Section 015). The source must also use uncontrolled emission factors in emissions calculations when the scrubber operating parameters are not maintained at the levels as required in Condition III.(B)(4)(b)(vi) (Construction Permit issued March 6, 2008).

Note: Condition II.(G)(1) above differs from Condition II.(F) of the March 6, 2008 CP. This difference must be noted due to the provisions of Title 129, Chapter 8, Section 002.01. The original CP condition stated that the combined source (including the existing Standard Ethanol, LLC facility and the proposed Mid America Agri Products/Madrid) was limited to less than 10 tons per year of a single HAP and less than 25 tons per year of total HAP. However, as the Mid America Agri Products/Madrid plant was not constructed, this condition has been revised to state that this limit applies only to the Standard Ethanol, LLC facility.

(2)(a) The permittee is required to monitor daily production/throughput rates in order to demonstrate compliance with the requirements in Condition II.(D)(3)(d). This requirement applies to emission units that have had a performance test (Title 129, Chapter 34, Section 006).

(2)(b) The permittee is required to restrict public access to the source at the ambient air boundary relied upon in the air dispersion modeling analysis for the NAAQS compliance demonstration (Construction Permit issued March 6, 2008).

(3)(a) The permittee is required to maintain a site survey, or similar documentation containing the as-built stack dimensions on-site. The site survey shall be kept for the life of the source (Construction Permit issued October 23, 2008).

(3)(b) The permittee is required to maintain a site survey, or similar documentation containing the locations of the boundary vertices relied upon in the air dispersion modeling analysis for the NAAQS compliance demonstration. The survey must be kept on-site and maintained for the life of the source (Construction Permit issued March 6, 2008).

(3)(c) To demonstrate compliance with Condition II.(G)(1)(a), the permittee is required to keep records of monthly emissions and rolling 12 month total emissions of HAPs on-site. The permittee must also keep records that support the emissions calculations required in this condition. These records include, but are not limited to, actual material throughput rates, production rates, fuel usage rates, and operating hours (Construction Permit issued March 6, 2008; Title 129, Chapter 8, Section 015).

(3)(d) To demonstrate compliance with Condition II.(G)(2)(a), MAAP/W must keep records of daily production/throughput rates for all units that have had a performance test. These records include daily production/throughput rates and production/throughput rates on a

30 day rolling average basis (Title 129, Chapter 34, Section 006; Title 129, Chapter 8, Section 015).

(3)(e) To demonstrate compliance with Condition II.(D)(3)(d), for emissions units that have had a performance test, MAAP/W must notify the NDEQ of any ten (10) percent increase in daily production/throughput rate over the rate recorded during the most recent valid performance test. NDEQ must also be notified of each cumulative five (5) percent increase in daily production/throughput rate, based on a 30 day rolling average, over the rate recorded during the most recent valid performance test. Emissions units that have been tested and use a CEMS or PEMS device to demonstrate compliance are exempt from these reporting requirements (Title 129, Chapter 34, Section 006).

(3)(f) This condition clarifies which production/throughput rates must be recorded by specifying that the source track the rate used to document "maximum" capacity in their most recent performance test and as submitted to the NDEQ in their stack test report. While a source is required to test at "maximum" capacity, there are times when they cannot reach this rate at the time of a performance test. In addition, a source can make efficiency changes that increase the "maximum" capacity of an emissions unit and/or a process. These conditions, II.(G)(2)(a), II.(G)(3)(d), and II.(G)(3)(e), are included in the operating permit to assure performance testing has been conducted at a level that is representative of the source maximum capacity.

III. Specific Conditions for Affected Emission Points:

III.(A) This condition contains specific conditions for grain handling and milling as follows:

(1) The condition specifies the permitted emission points and associated emission units for grain handling and milling operations. Emissions from the grain handling and milling units are required to be controlled by baghouses. (Construction Permit issued March 6, 2008)

(2) There are no NSPS or NESHAP requirements applicable to these emission points.

Note: Condition III.(A)(2) above differs from Condition III.(A)(4) of the March 6, 2008 CP. This difference must be noted due to the provisions of Title 129, Chapter 8, Section 002.01. The original CP condition stated that this source was subject to 40 CFR, Part 60 Subpart DD as the total grain storage capacity of the Standard Ethanol, LLC facility and the proposed Mid America Agri Products/Madrid would exceed 2.5 million bushels. However, as the Mid America Agri Products/Madrid plant was not constructed, the total grain storage capacity at Standard Ethanol, LLC remains less than the applicability threshold of 2.5 million bushels.

(3) This condition establishes opacity limitations and PM/PM_{10} hourly emissions limitations for the emission points to ensure the facility demonstrates compliance with Title 129, Chapters 4, 19, and 20. Stack testing is not required for the grain handling and milling units because these units were previously tested and the test results were below the emission limits specified in this permit.

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-2	PM/PM_{10}	0.74 lb/hr[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-3 EP-4	PM/PM_{10}	0.06 lb/hr (each)[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-5	PM/PM_{10}	0.03 lb/hr[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-6	PM/PM_{10}	0.02 lb/hr[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-7 EP-8	PM/PM_{10}	0.26 lb/hr (each)[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-24 EP-25	PM/PM_{10}	0.13 lb/hr (each)[1]	3-hour or test method average	Title 129, Chapters 4, 19, and 20 (Construction Permit issued March 6, 2008)	No
EP-2 EP-3 EP-4 EP-24 EP-25	PM	70.3 lbs/hr (each)[1]	hourly	Title 129, Chapter 20, Section 001	No
EP-5	PM	66.9 lbs/hr[1]	hourly	Title 129, Chapter 20, Section 001	No
EP-6	PM	54.7 lbs/hr[1]	hourly	Title 129, Chapter 20, Section 001	No
EP-7 EP-8	PM	41.0 lbs/hr (each)[1]	hourly	Title 129, Chapter 20, Section 001	No
EP-2 through EP-8, EP-24 EP-25	Opacity	< 20% (each)[1]	6 minutes	Title 129, Chapter 20, Section 001	No

[1] Testing and monitoring requirements are satisfied through compliance with Condition III.(A)(4).

(4) PM and PM_{10} emissions from the grain handling and milling units are required to be controlled by baghouses. Control equipment is required to ensure that the source does not exceed Class I thresholds and remains minor for purposes of PSD applicability. Baghouse requirements are to ensure that the control equipment is operating correctly and are maintained at a level consistent with the operational conditions at the time of compliance testing. One indication of baghouse malfunction is an atypical pressure drop across the baghouse. Therefore, each baghouse is required to be equipped with an

operational pressure differential indicator. The facility must conduct daily observations, during the daylight hours of baghouse operation, to ensure that there are not visible emissions from the stack, leaks, noise from the unit, or atypical pressure differential readings. By requiring daily observations, the Department is confident that baghouse malfunctions will be detected quickly and be corrected. The facility is required to keep an on-site inventory of spare bags of each type used. If a baghouse is not operating properly (i.e. has a blown bag), it is expected that there will be excess emissions emitted from the unit. Keeping spare bags will minimize the duration of excess emissions. (Title 129, Chapter 8, Section 015) (Construction Permit issued March 6, 2008)

(5) This condition requires recordkeeping that includes documenting pressure differential readings, when routine observations occur, when corrective actions are taken, and when baghouse filters are replaced. (Title 129, Chapter 8, Section 015) (Construction Permit issued March 6, 2008)

III.(B) This condition contains specific conditions for pre-fermentation, fermentation and distillation operations as follows:

(1) The condition specifies the permitted emission points and associated emission units for the pre-fermentation, fermentation and distillation operations. (Construction Permit issued March 6, 2008)

(2) There are no NSPS or NESHAP requirements applicable to these emission points.

(3) This condition establishes a VOC hourly emission limitation and HAP control efficiency limit from the October 23, 2008 Construction Permit in order to ensure the facility demonstrates compliance with Title 129, Chapter 19 and 27, respectively.

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-10	VOC	14.0 lb/hr [1, 2]	3-hr or test method average	Title 129, Chapter 19 (Construction Permit issued October 23, 2008)	Yes
	HAP	65% Control Efficiency or 20.0 ppmvd for combined HAPs [2]	Speciation and Quantification of HAP composition at inlet and outlet	Title 129, Chapter 27 (Construction Permit issued October 23, 2008)	Yes

[1] Expressed as weight of VOC, excludes scrubber down time in accordance with Condition III.(B)(4)(b)(i).
[2] See Condition III.(B)(4)(c) for specific testing requirements.

(4)(a) VOC and HAP emissions from the pre-fermentation, fermentation and distillation operations are required to be controlled by a CO_2 scrubber with chemical addition. A scrubber is required to control the emissions from the fermentation operations because (1) the uncontrolled VOC emissions would exceed 100 tons/yr which would exceed the PSD thresholds that were in effect at the time of permit issuance, and (2) the uncontrolled individual HAP emissions would exceed 10 tons/yr and the uncontrolled

total HAP emissions would exceed 25 tons/yr, which would exceed MACT/NESHAP requirements thresholds. Also, state HAP BACT (Title 129, Chapter 27) applies to this emission point because individual HAP emissions exceed 2.5 tons/yr and total HAP emissions exceed 10 tons/yr (Construction Permit issued October 23, 2008)

(4)(b) Scrubber operation and maintenance requirements are included to ensure that the control equipment is operating correctly and is maintained. In order to control PM, PM_{10}, VOC, and HAP emissions, the scrubber must be properly operated whenever the associated emission units are in operation. This condition requires the permittee to continuously monitor scrubbing liquid flow rate, chemical addition flow rate, pressure differential, and instantaneously monitor scrubber liquid temperature. The permittee is also required to monitor and record the total monthly amount of chemical injected into the scrubber. The requirements to have a manufacturer's operation and maintenance manual, or its equivalent, on site and readily available to NDEQ, as well as the requirement to do perform chemical drawdown checks when requested by NDEQ staff are ways to determine whether the monitoring devices installed on the CO_2 scrubber (CE010) are properly calibrated. This condition also requires that all operating parameters of the scrubber (scrubbing liquid temperature, scrubbing liquid flow rate, pressure differential, flow rate of chemical additions, and concentration of the chemical injected into the scrubber) be maintained at the levels of the most recent performance test conducted at the facility. (Title 129, Chapter 8, Section 015) (Construction Permit issued October 23, 2008)

(4)(c) This condition requires the permittee to conduct performance tests on scrubber CE010 in order to determine VOC and HAP emissions rates and demonstrate compliance with specific condition III.(B)(3). The testing frequency is dependent upon the rolling 12-month total emissions of largest single HAP. Upon issuance of this permit, initial testing frequency will be annual (Tier 2). This condition also stipulates that only one valid performance test may be conducted at each operating range. This condition stipulates that additional performance testing may be conducted at the facility if operational parameters are changed in order to better control VOC and HAP emissions from the fermentation scrubber. As noted in the Operating Parameters and Control Equipment discussion of this fact sheet, NDEQ defines the primary operating parameters specific to the fermentation process scrubber as the chemical addition rate, the type of chemical used, the concentration of the chemical used, and liquid flow rate used in the scrubber. (Title 129, Chapter 34)

(4)(d) This condition allows the use of CEMS/PEMS in lieu of the testing and monitoring requirements specified in Conditions III.(B)(4)(b)(iii) through (viii) and Condition III.(B)(4)(c). The specifications for CEMS and PEMS are also included in this condition. (Title 129, Chapter 8, Section 015)

(5) This condition requires the permittee to maintain records of the continuous scrubbing liquid flow rate, chemical addition rate, and pressure differential readings taken from scrubber CE010. These records shall also include monthly records that document the amount of chemical injected into the water supplied to the scrubber. This condition requires the permittee to maintain monthly records that document the purchase date, concentration, amount, and type of chemical purchased for chemical injection associated with the scrubber. This condition requires the permittee to maintain records that document the operating parameters developed during the most recent valid performance

test conducted at the facility. This condition requires the permittee to maintain records that document the facility-wide rolling 12 month total emissions of VOCs and the single largest HAP. This condition requires the permitte record the hours of operation of when the fermentation scrubber was not operating while associated emission units were in operation. A written notification for planned shutdown of the fermentation scrubber is also required. Lastly, if a CEMS or PEMS is used, all CEMS or PEMS data recorded data must be documented and kept on-site (Title 129, Chapter 8, Section 015; Construction Permit issued October 23, 2008).

III.(C) This condition contains specific conditions for the natural gas fired boilers as follows:

(1) The condition specifies the permitted emission points and associated emission units for the natural gas fired boilers. (Construction Permit issued March 6, 2008)

(2) The boilers subject to NSPS, Subparts A and Dc. There are no NESHAP requirements applicable to the emission points.

(3) This condition establishes emission limitations for opacity, PM, NO_x and CO from the boilers to ensure the facility demonstrates compliance with Title 129, Chapters 4, 19, and 20. Stack testing is not required for the boilers because these units were previously tested and the test results were below the emission limits specified in this permit.

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-11 EP-12	NO_x	3.68 lb/hr (each) [1]	3-hour or test method average	Title 129, Chapters 4 and 19 (Construction Permit issued March 6, 2008)	No
EP-11 EP-12	CO	3.41 lb/hr (each) [1]	3-hour or test method average	Title 129, Chapters 4 and 19 (Construction Permit issued March 6, 2008)	No
EP-11 EP-12	PM	33.14 lb/hr (each) [1]	hourly	Title 129, Chapter 20, Section 002	No
EP-11 EP-12	Opacity	< 20% (each) [1]	6 minutes	Title 129, Chapter 20, Section 004	No

[1] Testing and monitoring requirements are satisfied through compliance with Condition III.(C)(4).

(4) The boilers are required to only burn natural gas and comply with the operational and monitoring requirements and limitations as established by NSPS Subpart Dc. (Construction Permit issued March 6, 2008)

(5) This condition requires recordkeeping to document compliance with the fuel use restrictions in Condition III.(C)(4), and recordkeeping and reporting to document compliance with NSPS, Subpart Dc. (Title 129, Chapter 8, Section 015; Construction Permit issued March 6, 2008)

III.(D) This condition contains specific conditions for liquid product loadout as follows:

(1) The condition specifies the permitted emission points and associated emission units for the liquid product loadout operations. VOC and HAP emissions from truck and railcar loading are required to be captured and controlled by a vapor recovery system and loadout flare. (Construction Permit issued March 6, 2008)

(2) There are no NSPS or NESHAP requirements applicable to these emission points.

(3) This condition establishes opacity and PM limitations for the emission points to ensure the facility demonstrates compliance with Title 129, Chapter 20.

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-13	PM	1.2 lb/hr[1]	hourly	Title 129, Chapter 20, Section 002	No
EP-13	Opacity	< 20%[1]	6 minutes	Title 129, Chapter 20, Section 004	No

[1] Compliance will be demonstrated by compliance with Condition III.(D)(4).

Note: Condition III.(D)(3) above differs from Condition III.(C)(2) of the March 6, 2008 CP. This difference must be noted due to the provisions of Title 129, Chapter 8, Section 002.01. The original CP stipulated that EP-13 was not subject to any emissions limitations. However, NDEQ has determined this to be an error, as EP-13 is subject to both PM and Opacity limits from Title 129, Chapter 20. Therefore, both a PM limitation and an opacity limitation were added to this operating permit in order to correct the error.

(4) In order to ensure compliance with Title 129, Chapters 19 and 27 and protect CP requirements, this condition limits operating hours of ethanol loadout. The facility requested this limit to ensure that CO and NO_x emissions did not exceed the PSD major source thresholds. In addition, submerged loading is required when transferring liquid to limit the amount of VOC and HAPs emitted during the transfer process. Also, a flare is required for the truck and railcar loadout operations. If the flare was not required for the loadout operations, the facility would have the potential to be a major PSD source. The condition contains operation and maintenance requirements for the vapor recovery system and flare to ensure that the control equipment is operating correctly and is maintained. The fuel used in the pilot of the loadout flare is limited to natural gas only. (Title 129, Chapter 8, Section 015; Construction Permit issued March 6, 2008)

(5) This condition requires recordkeeping that includes documenting when routine maintenance occurs, when corrective actions are taken, and the hours of operation of ethanol loadout. (Title 129, Chapter 8, Section 015; Construction Permit issued October 23, 2008)

III.(E) This condition contains specific conditions for emergency equipment as follows:

(1) The condition specifies the permitted emission points and maximum capacity for the emergency firewater pump engine and the emergency generator. (Construction Permit issued March 6, 2008)

(2) The emergency firewater pump engine and the emergency generator are subject to NSPS, Subparts A and IIII and NESHAP, Subpart ZZZZ. Pursuant to 40 CFR 63.6590(c), the requirements of 40 CFR Part 63 Subpart ZZZZ are met by meeting the requirements of 40 CFR Part 60 Subpart IIII.

(3) This condition establishes emission limitations to ensure compliance with 40 CFR 60, Subpart IIII. It also establishes opacity and PM emissions limitations for the emission points to ensure the facility demonstrates compliance with Title 129, Chapter 20.

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-14	PM	0.40 g/hp-hr[1]	test method average	40 CFR 60.4205(c) Table 4 to Subpart IIII	No
EP-14	CO	2.6 g/hp-hr[1]	test method average	40 CFR 60.4205(c) Table 4 to Subpart IIII	No
EP-14	NMHC + NO_x	7.8 g/hp-hr[1]	test method average	40 CFR 60.4205(c) Table 4 to Subpart IIII	No
EP-15	PM	0.40 g/hp-hr[1]	test method average	40 CFR 60.4202(b)(1) Table 1 to Subpart IIII	No
EP-15	CO	8.5 g/hp-hr[1]	test method average	40 CFR 60.4202(b)(1) Table 1 to Subpart IIII	No
EP-15	NOx	6.9 g/hp-hr[1]	test method average	40 CFR 60.4202(b)(1) Table 1 to Subpart IIII	No
EP-15	HC	1.0 g/hp-hr[1]	test method average	40 CFR 60.4202(b)(1) Table 1 to Subpart IIII	No
EP-14	PM	1.22 lb/hr[1]	hourly	Title 129, Chapter 20, Section 002	No
EP-15	PM	12.55 lb/hr[1]	hourly	Title 129, Chapter 20, Section 002	No
EP-14 EP-15	Opacity	< 20% (each)[1]	6 minutes	Title 129, Chapter 20, Section 004	No

[1] Compliance will be demonstrated through compliance with Condition III.(E)(4)(c).

(4) In order to keep the facilitywide PTE below PSD major source and Class I thresholds, the emergency firewater pump engine and the emergency generator are each limited to operating 250 hours per year. The facility must install hour meters on the engines to record the hours of engine operation. In addition, the engines are required to only burn diesel fuel (No. 1 and No. 2). The sulfur content of the diesel fuel is limited to 15 ppm (Title 129, Chapter 8, Section 015 and Chapter 19) (Construction Permit issued March 6, 2008; NSPS Subpart IIII)

(5) This condition requires recordkeeping that includes documenting that the engines have not exceeded its 250 hour per year operational limit, maintaining fuel receipts to indicate that diesel fuel is the only fuel being combusted in the engines, and notifications and

recordkeeping as required by NSPS Subpart IIII. (Construction Permit issued March 6, 2008)

III.(F) This condition contains specific conditions for cooling towers as follows:

(1) The facility is permitted to operate one (1) cooling tower with a maximum water circulation rate of 25,000 gallons per minute. (Construction Permit issued March 6, 2008)

(2) There are no NSPS or NESHAP requirements applicable to this emission point.

(3) This condition establishes PM and opacity emission limitations for the cooling tower to ensure the facility demonstrates compliance with Title 129, Chapters 20. Note: Testing shall be conducted to ensure compliance with the TDS limitation.

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Performance Testing Required (Yes/No)
EP-16	PM	104 lb/hr[1]	hourly	Title 129, Chapter 20, Section 001	No
EP-16	Opacity	< 20%[1]	6 minutes	Title 129, Chapter 20, Section 004	No

[1] Compliance will be demonstrated by compliance with Condition III.(F)(4).

Note: Condition III.(F)(3) above differs from Condition III.(F)(2) of the March 6, 2008 CP. This difference must be noted due to the provisions of Title 129, Chapter 8, Section 002.01. The original CP stipulated that EP-16 was not subject to any emissions limitations. However, NDEQ has determined this to be an error, as EP-16 is subject to both PM and Opacity limits from Title 129, Chapter 20. Therefore, both a PM limitation and an opacity limitation were added to this operating permit in order to correct the error.

(4) In order to keep the facility wide PTE below PSD thresholds, the maximum amount of total dissolved solids in water is limited and monthly sampling and testing of TDS in the circulation water in the cooling tower is required. TDS amounts are used to calculate particulate matter emissions. Also, the maximum drift loss percentage from the cooling tower is limited as specified by the manufacturer based on the design of the cooling tower. The maximum drift loss percent is used to calculate particulate matter emissions and the specification must be available on site. This condition also requires the facility to properly install, operate and maintain the cooling tower. (Title 129, Chapter 8, Section 015) (Construction Permit issued March 6, 2008)

Note: Condition III.(F)(4)(b) above differs from Condition III.(F)(3)(a) of the March 6, 2008 CP. This difference must be noted due to the provisions of Title 129, Chapter 8, Section 002.01. The original CP predicated compliance with the drift loss limit based on manufacturer's "guarantee". The Department has modified this language in this operating permit to use the term "specification" as not to imply that liability of compliance with this limit is taken on by the cooling tower manufacturer.

(5) This condition requires recordkeeping that includes documenting when routine maintenance occurs, when corrective actions are taken, and monthly TDS test results. (Title 129, Chapter 8, Section 015) (Construction Permit issued March 6, 2008)

III.(G) This condition contains specific conditions for storage tanks as follows:

(1) The condition specifies the permitted tanks and associated capacity and contents of each. (Construction Permit issued March 6, 2008)

(2) TK001, TK002, and TK005 are subject to NSPS, Subparts A and Kb. There are no NESHAP requirements applicable to these emission points.

(3) There are no emission limitations established for these emission points.

(4) The process tanks (TK003 and TK004) do not meet the applicability requirements of NSPS Subpart Kb; however, the NDEQ requires internal floating roofs for emission control because state HAP BACT (Title 129, Chapter 27) applies to these emission points. The process tanks are also required to be inspected as described in NSPS Subpart Kb to assure the floating roofs are constructed appropriately, remain intact and function as designed. The denatured ethanol/denaturant storage tanks (TK001, TK002, and TK005) were constructed with internal floating roofs and subject to all applicable requirements of NSPS Subpart Kb. (Construction Permit issued March 6, 2008)

(5) The NDEQ requires the reporting and recordkeeping requirements as described in NSPS, Subpart Kb for the process tanks (TK003 and TK004) to document the tanks are regularly inspected and properly maintained. The denatured ethanol/denaturant storage tanks (TK001, TK002, and TK005) are required to comply with the notification, recordkeeping and reporting requirements in NSPS, Subpart Kb. (Construction Permit issued March 6, 2008)

III.(H) This condition contains specific conditions for the equipment leaks as follows:

(1) The condition specifies equipment leaks caused by valve, pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, flange, or other connector in VOC service and any device or system required by NSPS, Subpart VV located throughout the ethanol plant. (Construction Permit issued March 6, 2008)

(2) The facility is subject to NSPS, Subparts A and VV. There are no NESHAP requirements applicable to this emission point.

(3) Emission limitations and testing as required by the NSPS Subpart VV. (Construction Permit issued March 6, 2008)

(4) Operational limitations and monitoring as required by the NSPS Subpart VV. (Construction Permit issued March 6, 2008)

(5) The owner or operator is required to maintain appropriate records and make appropriate notifications in accordance with the NSPS Subpart VV requirements, and to submit a

semi-annual leak detection and repair report to the Department every six months. (Construction Permit issued March 6, 2008)

III.(I) This condition contains specific conditions for haul roads as follows:

(1) The source operates haul roads. (Construction Permit issued March 6, 2008)

(2) There are no NSPS or NESHAP requirements applicable to this emission point.

(3) A silt load limit of 1.0 grams/square meter has been established for the facility's paved haul roads. Haul road emissions must be controlled to prevent off-site transport of fugitive particulate matter. This requirement also limits PM and PM_{10} emissions in order to comply with both PSD and Class II limitations. If the visible fugitive emissions go beyond the property line, then the facility may be in violation of General Condition I.(P). (Construction Permit issued March 6, 2008)

(4) In order to comply with Title 129, Chapters 4, 19, and 32, as well as applicable CP conditions, all haul roads must be paved and the facility is required to develop, maintain, and implement a Fugitive Dust Control Plan (FDCP) to control PM emissions. Visible emissions surveys are required every day. Visible emissions noted during a visible emissions survey are considered an indicator that the haul roads must be cleaned or have additional controls to prevent off-site transport of particulate matter. No visible emissions occurring during truck traffic movement on haul roads indicate that the controls methods are adequate to prevent air-borne off-site transport of particulate matter. (Construction Permit issued March 6, 2008)

(5) This condition requires recordkeeping that includes use of fugitive dust control measures on haul roads, daily plant surveys, and fugitive dust control measures implemented. (Construction Permit issued March 6, 2008)

III.(J) Insignificant Activities

(1) The source is permitted for the insignificant activities listed in the table below:

Insignificant Activity ID	Unit Description
Space Heater 1	Diesel fired heater, 0.115 MMBtu/hr
Space heater 2	Diesel fired heater, 0.165 MMBtu/hr

(2) Each insignificant activity must maintain compliance with the permitted limits of Title 129, Chapter 20.

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit
All combustion units identified in III.(J)(1)	PM	0.60 lb/MMBtu	hourly	Title 129, Chapter 20, Section 002
All combustion units identified in III.(J)(1)	Opacity	< 20%	6 minutes	Title 129, Chapter 20, Section 004

(3) There are no operational or monitoring requirements for insignificant activities at Standard Ethanol.

(4) A written notification in accordance with Condition II.(C) must be received by the NDEQ if there are additions or changes made to the list of insignificant activities found in Condition III.(J)(1). Notification is only required for insignificant activities that must be included in an application.

The following terms and conditions from the construction permit issued March 6, 2008 were not incorporated into this Class II Operating Permit, or have been modified as discussed below:

Specific Condition	Reason Modified or Not Included In Operating Permit
III.(C)(3)(a)	The phrase "At no time during the first eleven (11) months after the startup date shall the ethanol loadout exceed 4,678 hours." has been removed because 12 months has elapsed since startup.
III.(D)	Updated to standard NSPS incorporation method.
III.(E)(3)(a)	The phrase "At no time during the first eleven (11) months after permit issuance shall the total operating hours exceed 250 hours." has been removed because 12 months has elapsed since permit issuance.
III.(E)(3)(b)	The phrase "At no time during the first eleven (11) months after permit issuance shall the total operating hours exceed 250 hours." has been removed because 12 months has elapsed since permit issuance.
III.(E)	Updated to standard NSPS incorporation method.
III.(G)	Updated to standard NSPS incorporation method.
III.(I)	Updated to standard NSPS incorporation method.

The following terms and conditions from the construction permit issued October 23, 2008 were not incorporated into this Class II Operating Permit, or have been modified as discussed below:

Specific Condition	Reason Modified or Not Included In Operating Permit
II.(E)	This condition is not included in the operating permit since the specific stack height and fenceline requirements are one time CP requirements.
III.(B)(2)(b)	The performance testing requirements for the CO_2 scrubber have been revised to be consistent with NDEQ's current policy.
III.(B)(3)(c)	This condition is not included in the operating permit since the source did not demonstrate that chemical injection was not necessary.
III.(B)(3)(d)	This condition is not included in the operating permit since the continuous monitoring equipment for the CO_2 scrubber has been installed.
III.(H)(2)(b)	This condition stated that a series of initial silt loading performance tests were required at least once per calendar quarter during the first year the facility was operational. Since this facility has been in operation for over 1 year and has submitted the results of the initial silt load performance tests as required by the

	CP, the requirements in this condition are not included in this operating permit.

STATUTORY OR REGULATORY PROVISIONS ON WHICH PERMIT REQUIREMENTS ARE BASED:

Applicable regulations: Title 129 - Nebraska Air Quality Regulations as amended January 9, 2011.

PROCEDURES FOR FINAL DETERMINATION WITH RESPECT TO THE PROPOSED OPERATING PERMIT:

The public notice, as required under NAQR Chapter 14, shall be published on **{day, date and name of newspaper-Admin Asst will fill this in}**. Persons or groups shall have 30 days from that issuance of public notice **{date-Admin Asst will fill this in}** to provide the NDEQ with any written comments concerning the proposed permit action and/or to request a public hearing, in accordance with NAQR Chapter 14. If a public hearing is granted by the Director, there will be a notice of that meeting published at least 30 days prior to the hearing. Persons having comments or requesting a public hearing may contact:

W. Clark Smith-Permitting Section Supervisor
Air Quality Division
Nebraska Department of Environmental Quality
PO Box 98922
Lincoln, Nebraska 68509-8922

If no public hearing is requested, the permit may be granted at the close of the 30-day comment period. If a public hearing is requested, the Director of the NDEQ may choose to extend the date on which the permit is to be granted until after that public hearing has been held. During the 30-day comment period, persons requiring further information should contact:

{Permit Writer's Name}
Air Quality Division-Permitting Section
Nebraska Department of Environmental Quality
PO Box 98922
Lincoln, Nebraska 68509-8922

Telephone inquiries may be made at:

(402) 471-2189

TDD users please call 711 and ask the relay operator to call us at (402) 471-2186.

Compliance with this permit shall not be a defense to any enforcement action for violation of an ambient air quality standard.

Fact Sheet Attachment

Emission Summary - PTE of the Entire Facility - Criteria Pollutants

Emission Unit(s)	Emission Point	PM	PM_{10}	$PM_{2.5}$	SO_2	NO_x	CO	VOC
Grain Receiving Baghouse	EP - 2	3.25	3.25	0.11	-	-	-	-
Corn Storage Silo Baghouse #1	EP - 3	0.28	0.28	0.01	-	-	-	-
Corn Storage Silo Baghouse #2	EP - 4	0.28	0.28	0.01	-	-	-	-
Corn Storage Silo Baghouse #3	EP-24	0.56	0.56	0.02	-	-	-	-
Corn Storage Silo Baghouse #4	EP-25	0.56	0.56	0.02	-	-	-	-
Grain Elevator Baghouse	EP - 5	0.15	0.15	0.01	-	-	-	-
Surge Bin Baghouse	EP - 6	0.09	0.09	0.00	-	-	-	-
Hammermill Baghouse #1	EP - 7	1.13	1.13	0.83	-	-	-	-
Hammermill Baghouse #2	EP - 8	1.13	1.13	0.83	-	-	-	-
Fermentation and Distillation Scrubber	EP - 10	0.44	0.44	0.26	-	-	-	61.0
Fermentation and Distillation (uncontrolle	-	0.03	0.03	0.02	-	-	-	18.8
Ethanol Loadout and Flare	EP - 13	0.00	0.00	0.00	0.00	0.32	1.74	4.88
Boiler #1	EP - 11	3.02	3.02	6.05	0.24	16.13	14.92	1.21
Boiler #2	EP - 12	3.02	3.02	6.05	0.24	16.13	14.92	1.21
Emergency Fire Pump	EP - 14	0.03	0.03	0.03	0.07	0.62	0.21	0.09
Emergency Generator	EP - 15	0.41	0.41	0.41	0.14	7.11	8.76	0.33
Cooling Tower	EP - 16	6.85	6.85	4.11	-	-	-	-
Wet Cake Storage	EP - 17	-	-	-	-	-	-	1.75
Paved Haul Roads	FS001	3.7	0.72	0.18	-	-	-	-
Grain Receiving Fugitives	FS002	1.00	0.22	0.04	-	-	-	-
Equipment Leaks	FS003	-	-	-	-	-	-	1.80
Storage Tanks	EP-18~23	-	-	-	-	-	-	2.37
Total Emissions		**26.0**	**22.2**	**19.0**	**0.70**	**40.3**	**40.5**	**93.4**

Fact Sheet Attachment

Emission Summary - PTE of the Entire Facility - HAPs

Pollutant	CAS #	Scrubber (ton/yr)	Uncontrolled Fermentation (ton/yr)	Boilers (ton/yr)	Equipment Leaks (ton/yr)	Tanks (ton/yr)	Ethanol Loadout (ton/yr)	Emergency Units[1] (ton/yr)	**Total HAPs (ton/yr)**
Acetaldehyde[2]	75070	1.05E+01	1.13E+00	---	3.61E-04	1.24E-04	2.81E-04	2.77E-04	11.59
Acrolein	107028	3.48E-01	3.77E-02	---	---	---	---	---	3.86E-01
Benzene	71432	---	---	1.66E-03	4.51E-03	2.44E-03	8.68E-03	2.78E-03	2.01E-02
1,3-Butadiene	106990	---	---	---	---	---	---	9.92E-06	9.92E-06
Carbon Disulfide	75150	---	---	---	3.61E-05	1.95E-05	6.94E-05	---	1.25E-04
Cumene	98828	---	---	---	1.80E-04	9.75E-05	3.47E-04	---	6.25E-04
1,4-Dichlorobenzene	106467	---	---	9.49E-04	---	---	---	---	9.49E-04
Ethyl Benzene	100414	---	---	---	9.02E-05	4.88E-05	6.17E-03	---	6.31E-03
Formaldehyde	50000	8.71E-02	9.43E-03	5.93E-02	---	---	---	5.58E-04	1.56E-01
n-Hexane	110543	---	---	1.42E+00	9.02E-02	4.88E-02	1.74E-01	---	1.74E+00
Isopentane	78784	---	---	---	---	7.58E-01	---	---	7.58E-01
Lead Compounds	NA	---	---	3.95E-04				---	3.95E-04
Methanol	67561	2.18E-01	2.36E-02	---	3.61E-04	1.24E-04	2.81E-04	---	2.42E-01
Naphthalene	91203	---	---	4.82E-04	---	---	---	4.47E-04	9.29E-04
Polycyclic Organic Matter	NA	---	---	6.97E-05	---	---	---	2.89E-04	3.59E-04
Toluene	108883	---	---	2.69E-03	9.02E-03	4.88E-03	1.74E-02	1.02E-03	3.50E-02
Xylenes	1330207	---	---	---	9.02E-04	4.88E-04	1.74E-03	7.04E-04	3.83E-03
Arsenic Compounds	NA	---	---	1.58E-04	---	---	---	---	1.58E-04
Beryllium Compounds	NA	---	---	9.49E-06	---	---	---	---	9.49E-06
Cadmium Compounds	NA	---	---	8.70E-04	---	---	---	---	8.70E-04
Chromium Compounds	NA	---	---	1.11E-03	---	---	---	---	1.11E-03
Cobalt Compounds	NA	---	---	6.64E-05	---	---	---	---	6.64E-05
Manganese Compounds	NA	---	---	3.00E-04	---	---	---	---	3.00E-04
Mercury Compounds	NA	---	---	2.06E-04	---	---	---	---	2.06E-04
Nickel Compounds	NA	---	---	1.66E-03	---	---	---	---	1.66E-03
Selenium Compounds	NA	---	---	1.90E-05	---	---	---	---	1.90E-05
Total (ton/yr)		**11.105**	**1.203**	**1.493**	**0.106**	**0.815**	**0.209**	**0.006**	**14.94**

[1] Includes HAP emissions from emergency generator and fire pump engine.
[2] Largest individual HAP.

Fact Sheet Attachment

Grain Receiving: EP-2
Grain Storage: EP-3, EP-4, EP-24, EP-25
Grain Handling: EP-5, EP-6, EP-7, EP-8

Total Grain	**20,370,370** bu/year	(provided by the source - assumes 2.7 gallons of ethanol per bushel)
Receiving Throughput:	**570,370** tons/year	
Max. Hourly Throughput:	**650** tons/hr	

Calculations for Controlled PM Emissions from Grain Receiving, Storage, Cleaning, and Hammermilling

Emission Point ID#	Control Equipment ID	Unit Name	(A) Flow Rate[1]	(B) Emission Factor[2]	Controlled PM/PM_{10} Emissions[3]		Controlled $PM_{2.5}$ Emissions[4]	
			dscf/min	grains/dscf	(C) = (A)x(B)x60/7000 (lb/hour)	(D) = (C)x8760/2000 (ton/year)	(E) (lb/hour)	(F) = (E)x8760/2000 (ton/year)
EP - 2	CE002	Grain Receiving Baghouse	17,300	0.005	0.74	3.25	0.025	0.11
EP - 3	CE003	Corn Storage Silo Baghouse #1	1,500	0.005	0.06	0.28	0.002	0.01
EP - 4	CE004	Corn Storage Silo Baghouse #2	1,500	0.005	0.06	0.28	0.002	0.01
EP - 5	CE005	Grain Elevator Baghouse	800	0.005	0.03	0.15	0.001	0.01
EP - 6	CE006	Surge Bin Baghouse	500	0.005	0.02	0.09	0.001	0.00
EP - 7	CE007	Hammermill Baghouse #1	6,000	0.005	0.26	1.13	0.191	0.83
EP - 8	CE008	Hammermill Baghouse #2	6,000	0.005	0.26	1.13	0.191	0.83
EP-24	CE014	Corn Storage Silo Baghouse #3	3,000	0.005	0.13	0.56	0.004	0.02
EP-25	CE015	Corn Storage Silo Baghouse #4	3,000	0.005	0.13	0.56	0.004	0.02

Conversion Factor. 7000 grains per pound

[1]Flow rate based on fan ratins (engineering estimates from applicant)

[2]Emission factors based on vendor guarantees

[3]Assume PM emissions equal PM_{10} for baghouses

[4]PM2.5 emissions from EP-2 through EP-6, EP-24, and EP-25 assumed to be 0.034 of hourly and annual PM10 PTE. PM2.5 emissions from EP-7 and EP-8 assumed to be 0.741 of hourly and annual PM10 PTE, per South Coast Air Quality Management District, Final - Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5

Fact Sheet Attachment

Fugitive Emissions from Grain Receiving Operations: FS002

Calculations for Fugitive PM Emissions from Grain Receiving

Emission Unit ID	Emission Source	Max. Throughput (ton/hr)	Annual Throughput (ton/yr)	AP-42 Emission Factor[4] (lb/ton)	Potential PM Emissions (lb/hr)	Potential PM Emissions (tpy)	Capture[5] Efficiency		Uncaptured PM Emissions (lb/hr)	Uncaptured PM Emissions (tpy)
FS002	Grain Receiving	650	570,370	0.035	22.75	9.98	10%	Uncaptured	2.28	1.00

Calculations for Fugitive PM_{10} Emissions from Grain Receiving

Emission Unit ID	Emission Source	Max. Throughput (ton/hr)	Annual Throughput (ton/yr)	AP-42 Emission Factor[4] (lb/ton)	Potential PM_{10} Emissions (lb/hr)	Potential PM_{10} Emissions (tpy)	Capture[5] Efficiency		Uncaptured PM_{10} Emissions (lb/hr)	Uncaptured PM_{10} Emissions (tpy)
FS002	Grain Receiving	650	570,370	0.0078	5.07	2.22	10%	Uncaptured	0.507	0.22

Calculations for Fugitive $PM_{2.5}$ Emissions from Grain Receiving

Emission Unit ID	Emission Source	Max. Throughput (ton/hr)	Annual Throughput (ton/yr)	AP-42 Emission Factor[4] (lb/ton)	Potential PM_{10} Emissions (lb/hr)	Potential PM_{10} Emissions (tpy)	Capture[5] Efficiency		Uncaptured PM_{10} Emissions (lb/hr)	Uncaptured PM_{10} Emissions (tpy)
FS002	Grain Receiving	650	570,370	0.0013	0.85	0.37	10%	Uncaptured	0.085	0.04

[4]Emission factor source is AP-42, Table 9.9.1-1 (4/03)

[5]Assume Capture Efficiency of Grain Receiving Dump Pits with choked flow is 90%.

Methodology:

Uncaptured PM/PM10 (lb/hr) =(ton/hr)(lb /ton)(% uncaptured)

Uncaptured PM/PM10 (tpy) =(ton/yr)(lb/ton)(1 ton/2000 lb)(% uncaptured)

Standard Ethanol, LLC (Wheatland)
Filename: 84220S01.XLS

Fact Sheet Attachment

Fermentation (CO_2) Scrubber: EP-10

Potential Controlled VOC Emissions

Controlled VOC emission rate = 12.300 lb/hr (based on test results of 07/30/08)

Scrubber Efficiency = 94.70 % (based on the test results of 07/30/08)
Operating hours = 8,710 hr/yr

Controlled VOC Limit*:	**14.00 lb/hr =**	**60.97 ton/yr**

* This limit was established in CP08-040, issued on 10/23/08.
VOC (ton/yr) = VOC Limit (lb/hr) x Operating hours (hr/yr) x 1 ton/2000 lb

Potential Controlled HAP Emissions

Controlled HAP emission rate = 2.370 lb/hr (based on test results of 07/30/08)
Scrubber Efficiency = 94.7% (based on the test results of 07/30/08)
Operating hours = 8,710 hr/yr

Controlled HAP Emissions

Pollutant	Estimated Emissions (lb/hr)	Estimated Emissions (ton/yr)
Acetaldehyde	2.40	10.45
Acrolein	0.08	0.35
Formaldehyde	0.02	0.09
Methanol	0.05	0.22
Total	2.55	**11.11**

HAP (ton/yr) = HAP (lb/hr) x Operating hours (hr/yr) x 1 ton/2000 lb

Controlled $PM/PM_{10}/PM_{2.5}$ Emissions

Estimated PM/PM_{10} emission rate = 0.10 lb/hr (NDEQ estimate)
Estimated PM/PM_{10} emissions = 871 lb/year
Estimated PM/PM_{10} emissions = 0.44 tons/year
Note: PM emissions are estimated based on assumptions made by the NDEQ.

Estimated $PM_{2.5}$ emission rate = 0.06 lb/hr
Estimated $PM_{2.5}$ emissions = 523 lb/year
Estimated $PM_{2.5}$ emissions = 0.26 tons/year
[3]PM2.5 emissions assumed to be 0.600 of hourly and annual PM10 PTE, per South Coast Air Quality Management District, Final - Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5

Fact Sheet Attachment

Fermentation (CO_2) Scrubber: EP-10

Potential Uncontrolled VOC Emissions

Uncontrolled VOC emission rate = 232.08 lb/hr (based on test results of 07/30/08)
Operating hours = 50 hr/yr

Estimated Uncontrolled VOC Rate:	**750.00 lb/hr =**	**18.75 ton/yr**

Uncontrolled VOC (ton/yr) = Uncontrolled VOC (lb/hr) x Operating hours (hr/yr) x 1 ton/2000 lb

Potential Uncontrolled HAP Emissions

Uncontrolled HAP emission rate = 2.39 lb/hr (based on test results of 08/05/09)
Operating hours = 50 hr/yr

Potential Uncontrolled HAP Emissions

Pollutant	Estimated Emissions (lb/hr)	Estimated Emissions (ton/yr)
Acetaldehyde	45.28	1.132
Acrolein	1.509	0.038
Formaldehyde	0.377	0.009
Methanol	0.943	0.024
Total	48.11	**1.20**

Uncontrolled HAP (ton/yr) = Uncontrolled HAP (lb/hr) x Operating hours (hr/yr) x 1 ton/2000 lb

Uncontrolled $PM/PM_{10}/PM_{2.5}$ Emissions

Estimated PM/PM_{10} emission rate = 1.00 lb/hr (NDEQ estimate)
Estimated PM/PM_{10} emissions = 50 lb/year
Estimated PM/PM_{10} emissions = 0.03 tons/year
Note: PM emissions are estimated based on assumptions made by the NDEQ.

Estimated $PM_{2.5}$ emission rate = 0.60 lb/hr
Estimated $PM_{2.5}$ emissions = 30 lb/year
Estimated $PM_{2.5}$ emissions = 0.02 tons/year
[3]PM2.5 emissions assumed to be 0.600 of hourly and annual PM10 PTE, per South Coast Air Quality Management District, Final - Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5

Fact Sheet Attachment

Ethanol Truck Loadout: EU041
Ethanol Rail Loadout: EU042

Anhydrous Ethanol Loading Rate:	55	MMgal/yr
Denaturant Loading Rate:	2.75	MMgal/yr
Denatured Ethanol Loading Rate:	57.75	MMgal/yr

Vapor Recovery Control Efficiency

	Truck loadout	Rail loadout
Capture efficiency:	90.0%	90.0%
Control efficiency:	98.0%	98.0%
Overall control efficiency:	88.2%	88.2%

Material Physical Data

	Gasoline (RVP-13)	Ethanol	Denaturant (Natural Gasoline)
Molecular weight (M, lbs/lbs-mole)	62	46	62
Temperature (T, deg R)	510	525	525
Vapor pressure (P, psia)	5.96	0.77	7.57
Liquid molecular weight (ML)	92	46	92
Density (D, lb/gal)	5.6	6.6	5.6
Liquid Mole Fraction (X)[a]	N/A	0.98	0.02

Saturation Factors

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

Truck loadout is assumed to be non-dedicated trucks, which previous load was unleaded gasoline.
The gasoline vapors are assumed to be displaced by the ethanol, for worst-case assumption.
Rail loadout is assumed to be in dedicated railcars, which previous load was denatured ethanol.

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

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

Fact Sheet Attachment

Ethanol Truck Loadout: EU041
Ethanol Rail Loadout: EU042

VOC Emissions

Denatured Ethanol Emission Factor Calculations

	Truck Loadout Uncontrolled Emission Factor (lbs VOC/Mgal)	Railcar Loadout Uncontrolled Emission Factor (lbs VOC/Mgal)
$EF_{gasoline}$	0.903	N/A
$EF_{ethanol}$	0.412	0.412
$EF_{denaturant}$	0.116	0.116
EF_{VOC}	1.431	0.528

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

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

$EF_{gasoline}$ emission factors assumes S = S_{normal} - $S_{clean\ cargo}$ and do not use the Liquid Mole Fraction (X) in the equations.

Individual Component Emission Calculations

Loadout Type/Material	(A) Denatured Ethanol Loaded Out (Mgal/year)	(B) Uncontrolled Emission Factor (lbs VOC/Mgal)	(C)=(A)x(B)/2000 Uncontrolled VOC Emissions (tons/year)	(D) Overall Control Efficiency (%)	(E)=(C)*[1-(D)] Controlled VOC Emissions (tons/year)
Truck Loadout	57,750.00				
Gasoline		0.903	26.074125	88.20%	3.0767
Ethanol		0.412	11.8965	88.20%	1.4038
Denaturant		0.116	3.3495	88.20%	0.3952
Rail Loadout	57,750.00				
Ethanol		0.412	11.8965	88.20%	1.40
Denaturant		0.116	3.3495	88.20%	0.40

Total VOC Emission Calculations from Denatured Ethanol Loadout

Loadout Type	(A) Denatured Ethanol Loaded Out (Mgal/year)	(B) Uncontrolled Emission Factor (lbs VOC/Mgal)	(C)=(A)x(B)/2000 Uncontrolled VOC Emissions (tons/year)	(D) Overall Control Efficiency (%)	(E)=(C)*[1-(D)] Controlled VOC Emissions (tons/year)
Truck Loadout	57,750.00	1.431	41.32	88.20%	4.88
Rail Loadout	57,750.00	0.528	15.25	88.20%	1.80

Maximum VOC Emissions from Denatured Ethanol Loadout: **4.88** **tons/year** **100% Truck**

Fact Sheet Attachment
Ethanol Truck Loadout: EU041
Ethanol Rail Loadout: EU042

VOC Emissions (tpy)	E_{voc} (100% Truck)	E_{voc} (100% Rail)
$E_{gasoline}$	3.08	NA
$E_{ethanol}$	1.40	1.40
$E_{denaturant}$	0.40	0.40
Total	4.88	1.80

HAP Emission Factors	Emission Factor (Wt Fraction of VOC Emissions) [1]		
	Gasoline	Ethanol	Denaturant
Benzene	2.50E-03	-	2.50E-03
Carbon Disulfide	2.00E-05	-	2.00E-05
Cumene	1.00E-04	-	1.00E-04
Ethyl benzene	2.00E-03	-	5.00E-05
n-Hexane	5.00E-02	-	5.00E-02
Toluene	5.00E-03	-	5.00E-03
Xylene	5.00E-04	-	5.00E-04
Acetaldehyde	-	2.00E-04	-
Methanol	-	2.00E-04	-

[1] Gasoline and Ethanol speciation based on NDEQ default values, Denaturant speciation based on application.

HAP Emissions	100% Loadout by Truck (tpy)			
	Gasoline	Ethanol	Denaturant	Total
Benzene	7.69E-03	-	9.88E-04	0.0087
Carbon Disulfide	6.15E-05		7.90E-06	0.0001
Cumene	3.08E-04	-	3.95E-05	0.0003
Ethyl benzene	6.15E-03	-	1.98E-05	0.0062
n-Hexane	1.54E-01	-	1.98E-02	0.1736
Toluene	1.54E-02	-	1.98E-03	0.0174
Xylene	1.54E-03	-	1.98E-04	0.0017
Acetaldehyde	-	2.81E-04	-	0.0003
Methanol	-	2.81E-04	-	0.0003
Total HAP - 100% by Truck				0.2085

Fact Sheet Attachment

Ethanol Truck Loadout: EU041

Ethanol Rail Loadout: EU042

HAP Emissions	100% Loadout by Rail (tpy)			
	Gasoline	Ethanol	Denaturant	Total
Benzene	-	-	9.88E-04	0.0010
Carbon Disulfide	-	-	7.90E-06	0.0000
Cumene	-	-	3.95E-05	0.0000
Ethyl benzene	-	-	1.98E-05	0.0000
n-Hexane	-	-	1.98E-02	0.0198
Toluene	-	-	1.98E-03	0.0020
Xylene	-	-	1.98E-04	0.0002
Acetaldehyde	-	2.81E-04	-	0.0003
Methanol	-	2.81E-04	-	0.0003
Total HAP - 100% by Rail				0.0236

Maximum HAP Emissions from Denatured Ethanol Loadout:

0.209 tons/year with 100% Truck Loadout

Fact Sheet Attachment

Loadout Flare: EP-13

Design rate of flare:	2.0	MMBtu/hr
Heating value:	850	Btu/scf
Operating hours:	4678	hr/yr

Pollutant	(A) Emission Factor[1] (lb/MMBtu)	(B) = (A)x MMBtu/hr Potential Emission Rate (lbs/hr)	(C) = (B)xOT Potential Emission Rate (lbs/year)	(D) = (C)/2000 Potential Emission Rate (tons/year)
Particulate Matter (PM)	Negligible, Smokeless Design			
Particulate Matter (PM_{10})	Negligible, Smokeless Design			
Nitrogen Oxides (NO_x)	0.068	0.14	636	0.32
Sulfur Oxides (SO_x)	Negligible, Due to Fuel Type			
Carbon Monoxide (CO)	0.37	0.74	3,462	1.73
Volatile Organic Compounds (VOC)[2]	-	-	-	-

[1]Emission Factors provided by facility based on AP-42 Table 13.5-1

[2]VOC emissions from Ethanol Loadout are accounted for in 'Ethanol Loadout VOC' Worksheet

Pilot Emissions

Total Heat Input Capacity of Pilot	0.030	MMBtu/hr
Heating Value	1,020	Btu/scf
Operating Time	4,082	hr/yr
Total Natural Gas Usage	2.94E-05	MMscf/hr

Pollutant	(A) Emission Factor[3] (lb/MMscf)	(B) = (A)x MMscf/hr Potential Emission Rate (lbs/hr)	(C) = (B)xOT Potential Emission Rate (lbs/year)	(D) = (C)/2000 Potential Emission Rate (tons/year)
Particulate Matter (PM)	7.6	0.0002	0.9124	0.0005
Particulate Matter (PM_{10})	7.6	0.0002	0.9124	0.0005
Particulate Matter ($PM_{2.5}$)[4]	-	0.0002	0.9124	0.0005
Nitrogen Oxides (NO_x)	100	0.0029	12.0059	0.0060
Sulfur Dioxide (SO_2)	0.6	0.0000	0.0720	3.60E-05
Carbon Monoxide (CO)	84	0.0025	10.0849	0.0050
Volatile Organic Compounds (VOC)	5.5	0.0002	0.6603	0.0003

[3]Emission Factors from AP-42 Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4 (7/98)

[4]PM2.5 emissions assumed to be 1.0 of hourly and annual PM10 PTE, per South Coast Air Quality Management District, Final - Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5

Total Flare Emissions

Pollutant	Total Potential Emission Rate (tons/year)
Particulate Matter (PM)	0.0005
Particulate Matter (PM_{10})	0.0005
Particulate Matter ($PM_{2.5}$)	0.0005
Nitrogen Oxides (NO_x)	0.3241
Sulfur Dioxide (SO_2)	3.60E-05
Carbon Monoxide (CO)	1.7359
Volatile Organic Compounds (VOC)	0.0003

Fact Sheet Attachment

NG Fired Boilers: EP-11, EP-12

Number of Units:	2 natural gas fired boilers
Firing Capacity:	92,050,000 BTU/hr (each)
Heating Value:	1,020 BTU/cf
Annual Fuel Use Limit:	100% each unit

Per Boiler

	Natural Gas
Max Potential Firing Capacity:	92.05 MMBtu/hr
Annual Maximum Fuel Use:	806,358 MMBtu/yr
Max Fuel Burning Capacity:	0.090 MMcf/hr
Annual Fuel Burning Capacity:	791 MMcf/yr

Pollutant	Emission Factor[1] (lb/MMBtu)	Emission Rate Per Unit (lb/hr)	Emission Rate Per Unit (ton/yr)	Total Combined Emissions (ton/yr)
PM	0.0075	0.69	3.02	6.05
PM_{10}	0.0075	0.69	3.02	6.05
$PM_{2.5}$[2]	-	0.69	3.02	6.05
NO_x[3]	0.040	3.68	16.13	32.25
SO_x	0.0006	0.06	0.24	0.48
CO[2]	0.037	3.41	14.92	29.84
VOC	0.003	0.28	1.21	2.42

[1] Emission factors are from AP-42 (7/1998), Tables 1.4-1 and 1.4-2

[2]PM2.5 emissions assumed to be 1.0 of hourly and annual PM10 PTE, per South Coast Air Quality Management District, Final - Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5

The lb/hr emission rates are also permit limits in CP.

Emission Rate (lb/hr) = Emission Factor (lb/MMBtu) x Max. Capacity (MMBtu/hr)
Emission Rate (ton/yr) = Emission Rate (lb/hr) x 8760 hr/yr x 1 ton/2000 lb

Fact Sheet Attachment

NG Fired Boilers: EP-11, EP-12

Boiler HAP Emission Calculations

Pollutant	Emission Factor[3] (lb/MMcf)	PTE of HAPs Per Unit (lb/hr)	PTE of HAPs Per Unit (ton/yr)	Combined Emissions[4] (ton/yr)
Benzene	0.0021	1.9E-04	8.3E-04	1.7E-03
Dichlorobenzene	0.0012	1.1E-04	4.7E-04	9.5E-04
Formaldehyde	0.075	6.8E-03	3.0E-02	5.9E-02
n-Hexane	1.8	1.6E-01	7.1E-01	1.4E+00
Lead Compounds	0.0005	4.5E-05	2.0E-04	4.0E-04
Naphthalene	0.00061	5.5E-05	2.4E-04	4.8E-04
Polycyclic Organic Matter	0.0000882	8.0E-06	3.5E-05	7.0E-05
Toluene	0.0034	3.1E-04	1.3E-03	2.7E-03
Arsenic Compounds	0.0002	1.8E-05	7.9E-05	1.6E-04
Beryllium Compounds	0.000012	1.1E-06	4.7E-06	9.5E-06
Cadmium Compounds	0.0011	9.9E-05	4.3E-04	8.7E-04
Chromium Compounds	0.0014	1.3E-04	5.5E-04	1.1E-03
Cobalt Compounds	0.000084	7.6E-06	3.3E-05	6.6E-05
Manganese Compounds	0.00038	3.4E-05	1.5E-04	3.0E-04
Mercury Compounds	0.00026	2.3E-05	1.0E-04	2.1E-04
Nickel Compounds	0.0021	1.9E-04	8.3E-04	1.7E-03
Selenium Compounds	0.000024	2.2E-06	9.5E-06	1.9E-05
Total HAPs		**0.170**	**0.746**	**1.493**

[3] The emission factors are from AP-42 (7/1998), Tables 1.4-2, 1.4-3 and 1.4-4.

[4] Combined HAPS represents the total HAP emissions both Boilers

PTE of HAP (lb/hr) = Emission Factor (lb/MMcf) x Max. Fuel Burning Capacity (MMcf/hr)
PTE of HAP (ton/yr) = PTE of HAP (lb/hr) x 8760 hr/yr x 1 ton/2000 lb

Fact Sheet Attachment

Storage Tanks: TK001, TK002, TK003, TK004, TK005, TK006

TANK ID.	Tank Capacity (Gallons)	Process/ Tank Type	Throughput (MM gal/yr)	Potential EtOH Emissions (tpy)	Potential Denaturant Emissions (tpy)	Total VOC Emissions (tpy)
TK001	541,456	Denatured Ethanol	28.88	0.12	0.09	0.21
TK002	541,456	Denatured Ethanol	28.88	0.12	0.09	0.21
TK003	155,820	Ethanol Day Tank	27.5	0.19	NA	0.19
TK004	155,820	Ethanol Day Tank	27.5	0.19	NA	0.19
TK005	91,014	Denaturant	2.75	NA	0.80	0.80
TK006	2,000	Corrosion Inh.	0.0052	NA	NA	0.78
			Total	**0.62**	**0.98**	**2.37**

Note: Tank VOC PTE based on EPA TANKS 4.09d.

HAP Compound	HAP Mass Fraction	HAP Emissions (tpy)						Total HAPs (tpy)
		TK001	TK002	TK003	TK004	TK005	TK006	
Acetaldehyde	2.00E-04	2.46E-05	2.46E-05	3.73E-05	3.73E-05			1.24E-04
Methanol	2.00E-04	2.46E-05	2.46E-05	3.73E-05	3.73E-05			1.24E-04
Benzene	2.50E-03	2.20E-04	2.20E-04			2.00E-03		2.44E-03
Carbon Disulfide	2.00E-05	1.76E-06	1.76E-06			1.60E-05		1.95E-05
Cumene	1.00E-04	8.79E-06	8.79E-06			8.00E-05		9.75E-05
Ethyl Benzene	5.00E-05	4.39E-06	4.39E-06			4.00E-05		4.88E-05
Isopentane	9.75E-01						7.58E-01	7.58E-01
n-Hexane	5.00E-02	4.39E-03	4.39E-03			4.00E-02		4.88E-02
Toluene	5.00E-03	4.39E-04	4.39E-04			4.00E-03		4.88E-03
Xylenes	5.00E-04	4.39E-05	4.39E-05			4.00E-04		4.88E-04
Total HAPs		5.16E-03	5.16E-03	7.46E-05	7.46E-05	4.65E-02	7.58E-01	**8.15E-01**

Fact Sheet Attachment
Cooling Tower: EP-16

Circulation rate:	25,000	gal/min
	1,500,000	gal/hr
	13,140,000	Mgal/yr (based on 8,760 hrs/yr)
Number of Cells:	5	
Drift loss percent:	0.005	%
Water density:	8.34	lbs/gal
TDS concentration:	2,500	ppm single sample event

Emission Factor Calculation for PM and PM_{10}

Emission factor equation from AP-42, Section 13.4-2 (01/1995)

$$PM/PM_{10}\text{ emission factor} = \left(\frac{ppm\ TDS}{1{,}000{,}000\ lbs\ water}\right)\left(\frac{8.34\ lbs}{gal}\ water\right)\left(\frac{1{,}000\ gal}{1\ Mgal}\right)\left(\frac{0.005}{100}\ drift loss\right)$$

PM/PM_{10} emission factor = 0.00104 lbs/Mgal single sample event (highest hourly rate)

Hourly Emissions = (lbs/Mgal single sample event)(hourly throughput gal/hr)(1 Mgal/1,000 gal)
Annual Emissions = (lbs/Mgal average annual rate)(annual throughput Mgal/yr)/(2,000 lbs/ton)

Cooling Tower Emission Summary		
Pollutant	Hourly PTE (lb/hr)	Annual PTE (ton/year)
PM	1.565	6.85
PM_{10}	1.565	6.85
$PM_{2.5}$[1]	0.939	4.11

[1]PM2.5 emissions assumed to be 0.600 of hourly and annual PM10 PTE, per South Coast Air Quality Management District, Final - Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5

Nebraska Department of Environmental Quality

PTE Calculation For Truck Traffic On Haul Roads

Rev. 06/2010

Paved roads {Draft AP-42 Chapter 13.IV (6/10)}

Equation (2): $E = k \times \left(\frac{sL}{2}\right)^{0.98} \times \left(\frac{W}{3}\right)^{0.53} \times \left(1 - \frac{P}{4 \times 365}\right) \times \left(\frac{S}{30}\right)^{d}$

(modified)

	k	*d*
PM	0.078	0.16
PM_{10}	0.015	0.16
$PM_{2.5}$	0.0037	0.16

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

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

(modified)

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

Haul Road / Traffic Parameters

Activity / Road Description	Road Type / Silt Value		Roundtrip Length (feet)		Truck Weight (tons)			Ave. Speed (mph)	Unrestricted Maximum Throughput (units/yr)	Ave. Truck Capacity (units/truck)		Annual VMT
			empty	full	empty	full	Ave.					
Grain Receiving	P	1.50	1,346	3,412	17	42	34.9	15	570,370	25	ton	20,559
WDGS Loadout	P	1.50	1,346	3,412	17	42	34.9	15	419,957	25	ton	15,138
Ethanol Loadout	P	1.50	2,962	1,526	17	42	25.5	15	57,750,000	8,000	gal	6,136
Denaturant Delivery	P	1.50	1,526	2,962	17	42	33.5	15	2,750,000	8,000	gal	292

Emission Calculations

	Emission Factors (lb/VMT)			Potential Emissions (tons/yr)		
	PM	PM_{10}	$PM_{2.5}$	PM	PM_{10}	$PM_{2.5}$
Grain Receiving	0.18	0.03	0.01	1.87	0.36	0.09
WDGS Loadout	0.18	0.03	0.01	1.37	0.26	0.07
Ethanol Loadout	0.15	0.03	0.01	0.47	0.09	0.02
Denaturant Delivery	0.18	0.03	0.01	0.03	0.00	0.00
Total Annual Emissions:				3.74	0.72	0.18

Description of Constants/Variables

E: haul road emissions (lb/VMT)

k, d: dimensionless constants from Draft AP-4 Chapter 13.IV (paved)

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

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

sC: silt content (%) of unpaved road surface

W: average vehicle weight (tons)

P: days/yr with at least 0.01" of precipitatio

P = 90 default = 90

S: mean vehicle speed on road (mph)

default = 30, minimum = 15

CE: unpaved road, dust control efficiency

CE = 0 % default = 0%

VMT: vehicle miles traveled

Fact Sheet Attachment

Equipment Leak: FS003

	Equipment Leak VOC Emissions								VOC weight[2] (%)	Emitted VOC (tpy)
	Component Source	Product	Component Count[1]	Factor[3] (Kg/comp.-hr)	Factor[3] (lb/comp.-hr)	Rate (lb/hr)	Control Effectiveness[3]	Rate (lb/hr)		
Fermentation	Valves	Gas/Vapor	0	0.00597	0.0132	0.00	87%	0.00	13.00%	**0.000**
	Valves	Light Liquid	73	0.00403	0.0089	0.65	84%	0.10	13.00%	**0.059**
	Pumps	Light Liquid	6	0.0199	0.0440	0.26	69%	0.08	13.00%	**0.047**
	Compressor Seals	Gas/Vapor	0	0.228	0.5039	0.00	75%	0.00	13.00%	**0.000**
	Pressure-Relief Valves	Gas/Vapor	4	0.104	0.2298	0.92	87%	0.12	13.00%	**0.068**
	Sampling Connections	All	0	0.015	0.0332	0.00	87%	0.00	13.00%	**0.000**
	Open-ended Lines	All	7	0.0017	0.0038	0.03	84%	0.00	13.00%	**0.002**
	Flanges (connectors)	All	82	0.00183	0.0040	0.33	84%	0.05	13.00%	**0.030**
Distillation	Valves	Gas/Vapor	103	0.00597	0.0132	1.36	87%	0.18	81.70%	**0.632**
	Valves	Light Liquid	0	0.00403	0.0089	0.00	84%	0.00	81.70%	**0.000**
	Pumps	Light Liquid	4	0.0199	0.0440	0.18	69%	0.05	81.70%	**0.195**
	Compressor Seals	Gas/Vapor	0	0.228	0.5039	0.00	75%	0.00	81.70%	**0.000**
	Pressure-Relief Valves	Gas/Vapor	1	0.104	0.2298	0.23	87%	0.03	81.70%	**0.107**
	Sampling Connections	All	0	0.015	0.0332	0.00	87%	0.00	81.70%	**0.000**
	Open-ended Lines	All	35	0.0017	0.0038	0.13	84%	0.02	81.70%	**0.075**
	Flanges (connectors)	All	58	0.00183	0.0040	0.23	84%	0.04	81.70%	**0.134**
Tank Farm	Valves	Gas/Vapor	0	0.00597	0.0132	0.00	87%	0.00	100.00%	**0.000**
	Valves	Light Liquid	27	0.00403	0.0089	0.24	84%	0.04	100.00%	**0.169**
	Pumps	Light Liquid	3	0.0199	0.0440	0.13	69%	0.04	100.00%	**0.179**
	Compressor Seals	Gas/Vapor	0	0.228	0.5039	0.00	75%	0.00	100.00%	**0.000**
	Pressure-Relief Valves	Gas/Vapor	0	0.104	0.2298	0.00	87%	0.00	100.00%	**0.000**
	Sampling Connections	All	0	0.015	0.0332	0.00	87%	0.00	100.00%	**0.000**
	Open-ended Lines	All	7	0.0017	0.0038	0.03	84%	0.00	100.00%	**0.018**
	Flanges (connectors)	All	31	0.00183	0.0040	0.13	84%	0.02	100.00%	**0.088**
	Total		441			4.85		0.79		**1.80**

[1] Component counts are based on the source's Subpart VV equipment inventory.

[2] VOC is considered to be worst case for each process stream identified.

[3] Emission factors taken from Protocol for Equipment Leak Emission Estimates, EPA-453/R-95-017. Table 2-1 and Table 5-2.

Fact Sheet Attachment

Equipment Leak: FS003

HAP Emission Calculations[5]		
HAP	Fraction	Emissions (tpy)
Acetaldehyde	2.00E-04	3.61E-04
Methanol	2.00E-04	3.61E-04
Benzene	2.50E-03	4.51E-03
Carbon Disulfide	2.00E-05	3.61E-05
Cumene	1.00E-04	1.80E-04
Ethyl Benzene	5.00E-05	9.02E-05
n-Hexane	5.00E-02	9.02E-02
Toluene	5.00E-03	9.02E-03
Xylenes	5.00E-04	9.02E-04
Total		**0.106**

[5] HAP emissions are conservatively estimated, for calculation purposes its assumed that all HAPs are emitted from all components.

Methodology:

Emitted VOC (tpy) = (component count)(emission factor kg/comp.-hr)(2.21 lbs/kg)(1-Control Effctiveness)(VOC weight %) x 8760 hr/yr x 1 ton/2000 lb

HAP emissions (tpy) = Total Emitted VOC (tpy) x HAP Fraction

Fact Sheet Attachment

Emergency Fire Pump Engine: EP-14

Design rate of engine:	290 hp
	2.03 MMBtu/hr
Operating hours limit:	250 hrs/yr
Diesel Fuel Sulfur Limit:	15 ppm

Emergency Equipment - Fire Pump (EP-14) Emission Summary

Pollutant	Emission Factor[1] (lbs/hp-hr)	Hourly PTE (lbs/hr)	Annual Limited PTE (tons/year)
PM[2]	0.00088	0.26	0.032
PM_{10}[2]	0.00088	0.26	0.032
$PM_{2.5}$[3]	-	0.25	0.032
SO_2	0.00205	0.59	0.074
NO_x[2]	0.01720	4.99	0.623
CO[2]	0.00573	1.66	0.208
VOC	0.00247	0.72	0.090
Individual HAPs	(lbs/MMBtu)		
Acetaldehyde	7.67E-04	1.56E-03	1.95E-04
Acrolein	9.25E-04	1.88E-03	2.35E-04
Benzene	9.33E-04	1.89E-03	2.37E-04
1,3-Butadiene	3.91E-05	7.94E-05	9.92E-06
Formaldehyde	1.18E-03	2.40E-03	2.99E-04
Naphthalene	8.48E-05	1.72E-04	2.15E-05
Polycyclic Organic Matter	8.32E-05	1.69E-04	2.11E-05
Toluene	4.09E-04	8.30E-04	1.04E-04
Xylenes	2.85E-04	5.79E-04	7.23E-05
Total HAPs		**9.55E-03**	**1.19E-03**

[1] Emission factors came from AP-42, Section 3.3 (10/1996), Tables 3.3-1 and 3.3-2.

[2] Emission factors are the emission limits in Table 4 of 40 CFR 60, Subpart IIII.

[3] PM2.5 emissions assumed to be 0.991 of hourly and annual PM10 PTE, per South Coast Air Quality Management District, Final - Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5

Methodology:

Hourly Emissions = (lbs/hp-hr)(hp) = lbs/hr

Hourly Emissions = (lbs/MMBtu)(MMBtu/hr) = lbs/hr

Annual Emissions = (lbs/hr)(limited hrs/yr)/(2000 lbs/ton)

Fact Sheet Attachment
Emergency Generator: EP-15

Design rate of engine:	3,740 hp
	26.2 MMBtu/hr
Operating hours limit:	250 hrs/yr
Diesel Fuel Sulfur Limit:	15 ppm

Emergency Equipment - Emergency Generator (EP-15) Emissions

Pollutant	Emission Factor[1] (lbs/hp-hr)	Hourly PTE (lbs/hr)	Annual Limited PTE (tons/year)
PM^2	0.0009	3.30	0.412
$PM_{10}{}^2$	0.0009	3.30	0.412
$PM_{2.5}{}^3$	-	3.27	0.409
SO_2	0.0003	1.12	0.140
$NO_x{}^2$	0.0152	56.89	7.111
CO^2	0.0187	70.08	8.760
VOC	0.0007	2.64	0.330
Individual HAPs	(lbs/MMBtu)		
Acetaldehyde	2.52E-05	6.60E-04	8.25E-05
Acrolein	7.88E-06	2.06E-04	2.58E-05
Benzene	7.76E-04	2.03E-02	2.54E-03
Formaldehyde	7.89E-05	2.07E-03	2.58E-04
Naphthalene	1.30E-04	3.40E-03	4.25E-04
Polycyclic Organic Matter	8.20E-05	2.15E-03	2.68E-04
Toluene	2.81E-04	7.36E-03	9.20E-04
Xylenes	1.93E-04	5.05E-03	6.32E-04
Total HAPs		**4.12E-02**	**5.15E-03**

[1] Emission Factors are from AP-42 Tables 3.4-1, 3.4-2, 3.4-4 (10/96).

[2] Emission factors are the emission limits in Table 1 of 40 CFR 60, Subpart IIII.

[3]PM2.5 emissions assumed to be 0.991 of hourly and annual PM10 PTE, per South Coast Air Quality Management District, Final - Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5

Methodology:

Hourly Emissions = (lbs/hp-hr)(hp) = lbs/hr

Hourly Emissions = (lbs/MMBtu)(MMBtu/hr) = lbs/hr

Annual Emissions = (lbs/hr)(limited hrs/yr)/(2000 lbs/ton)

Fact Sheet Attachment

Wet Cake Storage: EP-17

Assumptions:

Emissions calculated based on Stack Test data from similar facility

WDGS Production Rate for Wheatland = 419,957 ton/yr (aprox)

VOC/HAP Emission Calculation

Pollutant	DENCO Adjusted Emission Factor (lb/ton WDGS)	Emissions (ton/yr)
VOC	0.00833	1.75
Individual HAPs		
Acetaldehyde	1.11E-04	2.33E-02
Acrolein	1.67E-05	3.51E-03
Formaldehyde	2.22E-04	4.66E-02
Methanol	4.44E-05	9.32E-03

Note: Emission factors are based on the test results for Diversified Energy Company (DENCO) in Morris, MN. The test date is November 2, 2004.

Methodology:
Emissions (ton/yr) = WDGS Production Rate (ton/yr) x Emission Factor (lb/ton) x 1 ton/2000 lb