AIR QUALITY CONSTRUCTION PERMIT
PREVENTION OF SIGNIFICANT DETERIORATION

PERMIT NUMBER: CP07-0061

Facility Name: Archer Daniels Midland Company (Dry Mill)

NDEQ Facility ID#: 39285

Mailing Address:
3000 East 8th Street
Columbus, Nebraska 68601-9073

Facility Location:
3000 East 8th Street
Columbus, Platte County, Nebraska 68601

Project Description: Permit revision for an ethanol manufacturing plant producing approximately 400 million gallons of denatured ethanol annually

Standard Industrial Classification (SIC) Code: 2869, Industrial Organic Chemicals

SIGNIFICANT PERMIT REVISION to permit: CP06-0005 issued October 20, 2006 (superseded)

This construction permit supersedes permit CP06-0005 and approves revisions to air quality permit CP06-0005 as identified in the air quality construction permit application #07-0061 received August 27, 2007, including any supporting information received prior to issuance of this permit. Additional details of the permit revisions, including changes in estimated pollutant emissions caused by the revisions, can be found in the accompanying Fact Sheet.

Pursuant to Chapter 14 of the Nebraska Air Quality Regulations, the public has been notified by prominent advertisement of this permit revision and the thirty (30) day period allowed for comments has elapsed.

Compliance with this permit shall not be a defense to any enforcement action for violation of an ambient air quality standard. The permit holder, owner, and operator of the facility shall assure that the installation, operation, and maintenance of all equipment is in compliance with all of the conditions of this permit.

The undersigned issues this permit on behalf of the Director under the authority of Title 129 – Nebraska Air Quality Regulations as amended August 18, 2008.

D R A F T

Date

Jay D. Ringenberg,
Deputy Director of Programs

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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
bhp	Brake Horsepower
BMP	Best Management Practice
btu	British Thermal Unit
bu	Bushel
CAA	Clean Air Act
CE	Control Equipment
CEM	Continuous Emissions Monitor
CEMS	Continuous Emissions Monitoring System
cf	Cubic feet
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CP	Construction Permit
DGS	Distiller's Grains with Solubles
DDGS	Dry Distillers Grains with Solubles
dscf	Dry Standard Cubic Feet
dscfm	Dry Standard Cubic Feet per Minute
EMIS	Emergency Management Information System
EPA	Environmental Protection Agency
EQC	Environmental Quality Council
EP	Emission Point
ESP	Electrostatic Precipitator
EU	Emission Unit
FID	Facility Identification Number
FDCP	Fugitive Dust Control Plan
FGR	Flue Gas Recirculation
FIP	Federal Implementation Plan
FR	Federal Register
ft	Feet
FTIR	Fourier Transform Infrared
H_2S	Hydrogen Sulfide
HAP	Hazardous Air Pollutant
hp	Horsepower
hr	Hour
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
MMscf	One Million Standard Cubic Feet
MSDS	Material Safety Data Sheet
MW	Megawatt
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
NSPS	New Source Performance Standard
NSR	New Source Review
PAL	Plant-wide Applicability Limit
Pb	Lead (chemical abbreviation)
PbR	Permit-by-Rule
PEMS	Parametric Emissions Monitoring System
PM	Particulate Matter
PM_{10}	Particulate Matter with and aerodynamic diameter equal to or less than 10 microns
$PM_{2.5}$	Particulate Matter with and aerodynamic diameter equal to or less than 2.5 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
RVP	Reid Vapor Pressure
RATA	Relative Accuracy Test Audit
RMP	Risk Management Plan
RTO	Regenerative Thermal Oxidizer
scf	Standard Cubic Feet
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SO_x	Sulfur Oxides
TDS	Total Dissolved Solids
TO	Thermal Oxidizer
TO/HRSG	Thermal Oxidizer with Heat Recovery Steam Generator
tpy	Tons per year
TRS	Total Reduced Sulfur
TSP	Total Suspended Particulate Matter
ULNB	Ultra Low NO_x Burner
UST	Underground Storage Tank
UTM	Universal Transverse Mercator
VHAP	Volatile Hazardous Air Pollutant
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound
WDGS	Wet Distiller's Grains with Solubles

I. GENERAL CONDITIONS

(A) This permit is not transferable to another source or location. {Chapter 17}

(B) Holding of this permit does not relieve the owner or operator of the source from the responsibility to comply with all applicable portions of the Nebraska Air Quality Regulations and any other requirements under local, State, or Federal law. 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 or permit revocation. {Chapter 41 & Chapter 17, Section 011}

(C) Application for review of plans or advice furnished by the Director will not relieve the owner or operator of legal compliance with any provision of these regulations, or prevent the Director from enforcing or implementing any provision of these regulations. {Chapter 37}

(D) Any owner or operator who failed to submit any relevant facts or who submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. If the owner or operator wishes to make changes at the source that will result in change(s) to values, specifications, and/or locations of emission points that were indicated in the permit application (or other supplemental information provided by the owner or operator and reviewed by the NDEQ in issuance of this permit), the owner or operator must receive approval from the NDEQ before the change(s) can be made. In addition, any modification which may result in an adverse change to the air quality impacts predicted by atmospheric dispersion modeling (such as changes in stack parameters or increases in emission rates, potential emissions, or actual emissions) shall have prior approval from the NDEQ. The owner or operator shall provide all necessary information to verify that there are no substantive changes affecting the basis upon which this permit was issued. Information may include, but not be limited to, additional engineering, modeling and ambient air quality studies. {Chapter 17, Section 006, 007, & 008}

(E) Approval to construct, reconstruct and/or modify the source will become invalid if a continuous program of construction is not commenced within 18 months after the date of issuance of the construction permit, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable period of time. {Chapter 17, Section 012}

(F) The owner/operator of the source shall provide the following notifications to the NDEQ:

(1) The date construction, reconstruction or modification commenced as defined in Chapter 1, Section 031. Notification shall be postmarked no later than 30 days after such date and include a summary description of whether the requirement was met through: {Chapter 17, Section 012}

(a) Initiating physical on-site construction activities of a permanent nature that meet the definition of "begin actual construction", or

(b) Entering into binding agreements or contractual obligations. If this option is used, the notice shall also include a brief summary of each binding agreement or contractual obligation entered into, the date of the agreement or contract, and why it cannot be cancelled or modified without substantial loss to the owner or operator.

(2) The date of initial startup of operations postmarked within 15 days after such date. {Chapter 7, Section 002.03}

(G) The owner or operator shall allow the NDEQ, EPA or an authorized representative, upon presentation of credentials to: {Neb. Rev. Statute §81-1504}

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

(2) Have access to and copy, at reasonable times, any records, for the purpose of ensuring compliance with the permit or applicable requirements;

(3) Inspect at reasonable times any facilities, pollution control equipment, including monitoring and air pollution control equipment, practices, or operations, for the purpose of ensuring compliance with the 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.

(H) When requested by the NDEQ, the owner or operator shall submit completed emission inventory forms for the preceding year to the NDEQ by March 31 of each year. {Chapter 6}

(I) Open fires are prohibited except as allowed by Chapter 30.

(J) Particulate Matter – General Requirements: {Chapter 32}

(1) The owner or operator 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 owner or operator 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 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.

(K) If and when the Director declares an air pollution episode as defined in Chapter 38, Sections 003.01B, 003.01C, or 003.01D, the owner or operator shall immediately take all required actions listed in Title 129, Appendix I until the Director declares the air pollution episode terminated.

(L) This permit may be revised (reopened and reissued) or revoked for cause in accordance with Title 129 and Title 115, Rules of Practice and Procedure. Conditions under which this permit will be revised or revoked for cause, include but are not limited to: {Chapter 15, Section 006}

(1) A determination by the Director, or the Administrator of EPA that:

(a) the permit must be revised 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.

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

(3) The submittal by the owner or operator of false, incomplete, or misleading information to the NDEQ or EPA;

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

(5) The failure of the owner or operator to pay a penalty owed pursuant to court order, stipulation and agreement, or order issued by the Administrator of the EPA.

II. SPECIFIC CONDITIONS

(A) Recordkeeping: Records of all measurements, results, inspections, and observations as required to ensure compliance with all applicable requirements shall be maintained on-site as follows:

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

(2) All records required throughout this permit shall be kept for a minimum of five years and shall be clear and readily accessible to Department representatives, unless otherwise specified in this permit.

(3) Copies of all notifications, reports, test results, and plans.

(4) Calibration records for all operating parameter monitoring equipment.

(5) 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.

(6) Records documenting equipment failures, malfunctions, or other variations, including date and time of occurrence, remedial action taken, and when corrections were made to each piece of permitted equipment, required control equipment, and required monitoring equipment.

(B) All permitted emission units, control equipment, and monitoring equipment shall be properly installed, operated, and maintained.

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

(D) The performance tests required in the permit shall be completed and submitted to the NDEQ as follows: {Chapter 34}

(1) Performance tests shall be conducted while operating at full capacity within sixty (60) days after reaching the maximum capacity, but not more than 180 days after the start-up of operations of each unit, unless otherwise specified by the NDEQ.

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

(3) 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.

(4) 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. The owner or operator shall also provide the NDEQ with an emissions testing protocol at least thirty (30) days prior to testing.

(5) The owner or operator shall monitor the operating parameters for process and control equipment during the performance testing required in the permit.

(6) 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:

(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).

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

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

(E) The following conditions apply to the verification of NAAQS modeling analysis: {Chapter 4}

(1) The stack dimensions of the following emission points shall be constructed as indicated below:

Emission Point ID#	Emission Point Name	Minimum Stack Height (m)	Stack Exit Point Maximum Inside Diameter (m)
DM01	Dry Mill Receiving Baghouse	44.99	1.40
DM04	Grain Conveying, Milling, and Classification Vent	48.01	1.80
DM04A	Flour Conveyor Baghouse	34.99	0.50

Emission Point ID#	Emission Point Name	Minimum Stack Height (m)	Stack Exit Point Maximum Inside Diameter (m)
DM10	Byproduct Conveying Baghouse	45	0.6
DM11	Byproduct Storage Baghouse	45	0.5
DM12	Byproduct Loadout Baghouse	30	0.6
DM39	Degermination Scrubber	85	2.1
DM05	Fermentation RTO	30.5	1.7
DM09	Denatured Ethanol Loadout Flare	11	0.6
DM07A	Natural Gas Fired DDGS Dryer #1	65	1.2
DM07B	Natural Gas Fired DDGS Dryer #2	65	1.2
DM07C	Natural Gas Fired DDGS Dryer #3	65	1.2
DM07D	Natural Gas Fired DDGS Dryer #4	65	1.2
DM07E	Natural Gas Fired DDGS Dryer #5	65	1.2
DM07F	Natural Gas Fired DDGS Dryer #6	65	1.2
DM07G	Natural Gas Fired DDGS Dryer #7	65	1.2
DM07H	Natural Gas Fired DDGS Dryer #8	65	1.2
DM08A	DDGS Cooling Baghouse #1	45	1.3
DM08B	DDGS Cooling Baghouse #2	45	1.3
DM08C	DDGS Cooling Baghouse #3	45	1.3
DM13-20C	Dry Mill Cooling Tower	13.7	12.5

A site survey (using 1422' MSL as basis for ground level to measure stack heights), or similar documentation containing the as-built stack dimensions, shall be maintained on-site and kept for the life of the source. If stack dimensions do not comply with the table above, the owner or operator shall notify the NDEQ prior to start-up of any emission unit and, if requested, submit a revised air dispersion modeling analysis to the NDEQ to ensure that the source will not interfere with the attainment or maintenance of the ambient air quality standards in Chapter 4.

(2) The owner or operator 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. The vertices of the boundary shall be located at the coordinates indicated below:

Fence-line Vertex ID#	UTM X (m)	UTM Y (m)
NW	642,005	4,586,995
NE	643,500	4,587,040
SE	643,558	4,584,725
SW-1	642,488	4,585,260
SW-2	642,475	4,585,980
SW-3	642,023	4,585,995

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. If the boundary dimensions do not comply with the table above, the owner or operator shall notify the NDEQ prior to start-up of any emission unit and, if requested, submit a revised air dispersion modeling analysis to the NDEQ to ensure that the source will not interfere with the attainment or maintenance of the ambient air quality standards in Chapter 4.

III.(A) Specific Conditions for Grain Receiving and Processing

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

Emission Point ID#	Required Control Equipment ID# and Control Equipment Description	Emission Unit Description
DM01	DM01: Dry Mill Receiving Baghouse	EU-DM01A: Rail Unloading
		EU-DM01B: Truck Unloading
DM04	DM04: Grain Conveying and Milling Baghouse	EU-DM04-1: Grain Conveying
		EU-DM04-2: Grain Cleaning
		EU-DM04-3: Hammermilling
		EU-DM04-4: Grain Classification
DM04A	DM04A: Flour Conveyor Baghouse	EU-DM04A: Flour Conveyor

(2) Emission Limitations and Testing Requirements:

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

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
DM01	PM/PM_{10}	0.004 gr/dscf	3-hr or test method average	Chapter 19	Yes
DM04	PM/PM_{10}	0.004 gr/dscf	3-hr or test method average	Chapter 19	Yes
DM04A	PM/PM_{10}	0.004 gr/dscf	3-hr or test method average	Chapter 19	Yes

(3) Operational and Monitoring Requirements and Limitations

(a) Emissions from the emission units identified in Condition III.(A)(1) shall be controlled by pollution control equipment as follows: EU-DM01A and EU-DM01B shall be controlled by DM01; EU-DM04-1, EU-DM04-2, EU-DM04-3, EU-DM04-4 shall be controlled by DM04; and EU-DM04A shall be controlled by DM04A. {Chapters 19 and 20}

(b) Operation and maintenance of each baghouse shall be in accordance with the following requirements: {Chapters 19 and 20}

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

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

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

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

(v) The owner or operator shall maintain an on-site inventory of spare bags of each type used to ensure rapid replacement in the event of bag failure.

(c) Grain receiving operations, by truck, identified in Condition III.(A)(1) shall be located inside a building and all hopper bottom trucks shall utilize choke feed practices during receipt of grain. Grain receiving operations, by rail, identified in Condition III.(A)(1) shall be located inside a building that is fitted with plastic strip curtains on the entrances and exits. {Chapters 19 and 20}

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

The affected facilities associated with the following emission points are subject to the NSPSs listed below: DM01, DM04, and DM04A.

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Chapter 18, Sec. 001.01 40 CFR 60.1
NSPS, Subpart DD	Grain Elevators	Chapter 18, Sec. 001.19 40 CFR 60.300

(5) Reporting and Recordkeeping Requirements:

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

(b) Filter replacement records including the date the filter replacement occurred and the type of filter installed.

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

(d) For affected facilities subject to NSPS, Subpart DD, notifications and record keeping as required by 40 CFR 60.7.

III.(B) Specific Conditions for Degermination

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

Emission Point ID#	Required Control Equipment ID# and Control Equipment Description	Emission Unit Description
DM39	DM39: Degermination Wet Scrubber	EU-DM39A: Germ Dryer #1
		EU-DM39B: Germ Dryer #2
		EU-DM39C: Germ Dryer #3
		EU-DM39D: Germ Dryer #4
		EU-DM39E: Germ Cooler #1
		EU-DM39F: Germ Cooler #2

(2) Emission Limitations and Testing Requirements:

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

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
DM39	PM/PM_{10}	10.24 lb/hr	3-hr or test method average	Chapter 19	Yes
	SO_2	11.92 lb/hr	3-hr or test method average	Chapter 19	Yes
	VOC	6.18 lb/hr[1]	3-hr or test method average	Chapter 19	Yes
	HAP	50% Control Efficiency or 20.0 ppmvd for combined HAPs[2]	Speciation and Quantification of HAP composition at inlet and outlet	Chapter 27	Yes

[1]Expressed as mass of VOC
[2]Limitation shall be complied with in accordance with Specific Conditions III.(B)(2)(b) and III.(B)(2)(c).

(b) A weighted average of the control efficiency for the combined HAPs shall be calculated using the following equation:

$$Efficiency = (1 - \frac{\Sigma C}{\Sigma U}) \times 100$$

Where: Efficiency = the combined HAP control efficiency
C = the controlled (outlet) individual HAP emission rates
U = the uncontrolled (inlet) individual HAP emission rates

(c) If the HAP limitation cannot be achieved, ADM shall submit a revised HAP BACT analysis and a significant construction permit revision request to the Department within

forty-five (45) days of submitting the test results to the Department. The HAP limitation may be subject to revisions after the opportunity for public comment.

(3) Operational and Monitoring Requirements and Limitations

(a) Emissions from the emission units identified in Condition III.(B)(1) shall be controlled by pollution control equipment as follows: EU-DM39A and EU-DM39B shall be controlled by DM39. {Chapters 19}

(b) Operation and maintenance of each scrubber shall be in accordance with the following requirements: {Chapters 19 and 27}

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

(ii) The scrubber shall be equipped with devices capable of continuously monitoring operating parameters including, at a minimum, the scrubbing liquid temperature, scrubbing liquid flow rate, and pressure differential. Operating parameter readings shall be recorded at least once each day the scrubber is in operation.

(iii) All monitored operating parameters of the scrubber shall be maintained at the levels recorded during the most recent performance test that demonstrated compliance with the permitted emissions limits. Alternative levels may be used providing the facility can justify that better emissions control is being achieved. Normal operating parameters, or operating parameter ranges, that demonstrate compliance with the permitted emissions limits, with appropriate averaging periods shall be submitted with the source's operating permit application.

(iv) 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.

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

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

(5) Reporting and Recordkeeping Requirements:

(a) Records documenting the date, time, temperature and flow rate of scrubbing liquid, and the pressure differential reading for each day the associated scrubber is in operation.

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

III.(C) Specific Conditions for Fermentation, Distillation, and Nitrogen Stripping

(1) Permitted Emission Points:

(a) The source is permitted to construct the emission points and associated emission units identified in the following table:

Emission Point ID#	Required Control Equipment ID# and Description	Emission Unit Description
DM05	DM05: Fermentation RTO	EU-DM05G: Two Slurry Mix Tanks
		EU-DM05H: Two Pre-Cook Tanks
		EU-DM05I: Two Barometric Condensers
		EU-DM05J: Ten Liquefaction Tanks
		EU-DM05K: Two Evaporator Feed Tanks
		EU-DM05L: Two Decanter (Centrifuge) Feed Tanks
		EU-DM05M: Centrate Tank
		EU-DM05N: Six Evaporators
		EU-DM05O: One CDS (30% DS Product) Tank
		EU-DM05P: One Waste Water Transfer Tank
		EU-DM05Q: One Evaporator (Contaminate) Condensate Tank
		EU-DM05R: Seven Temper Tanks
		EU-DM05S: Three Grind Tanks
		EU-DM05T: One Recycle Tank
		EU-DM05U: One Evaporator Product Tank
		EU-DM05V: One Process Water Tank
		EU-DM05F: Nitrogen Stripper Scrubber
		DM05D/E: Distillation and Dehydration Vent Gas Scrubber
		DM05B/C: CO_2 Scrubber
		EU-DM05A: Propagators
DM05D/E[1]	DM05D/E: Distillation and Dehydration Vent Gas Scrubber	EU-DM05D: Distillation Equipment
		EU-DM05E: Dehydration Equipment
DM05B/C[1]	DM05B/C: CO_2 Scrubber	EU-DM05B: Fermentation Tanks
		EU-DM05C: Two Beerwells

[1] Emissions from DM05D/E: Distillation and Dehydration Vent Gas Scrubber and DM05B/C: CO_2 Scrubber are required to be controlled by DM05: Fermentation RTO.

(b) The source is permitted to construct the following emissions unit identified in the following table at the maximum capacity and using the fuel types listed:

Emission Point ID#	Emission Unit ID# and Description	Maximum Capacity (MMBtu/hr)	Permitted Fuel Types
DM05	DM05: Fermentation RTO	18.0	Natural Gas

(2) Emission Limitations and Testing Requirements:

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

Emission Point ID#	Pollutant	Permitted Limit	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
DM05	SO_2	2.91 lb/hr	3-one hour test runs or test method average	Chapter 19	Yes
	VOC	98% Control Efficiency or 10 ppmv as VOC [1]	3-one hour test runs or test method average	Chapter 19	Yes
	VOC	8.4 lb/hr [2]	3-one hour test runs or test method average	Chapter 19	Yes

[1] Control Efficiency as measured across the RTO (DM05); or concentration as measured at RTO exhaust
[2] Expressed as mass of VOC

Emissions limitations and testing requirements in accordance with NESHAP, Subpart FFFF.

(3) Operational and Monitoring Requirements and Limitations

(a) Emissions from the emission units identified in Condition III.(C)(1) shall be controlled by pollution control equipment as follows: EU-DM05B and C shall be controlled by DM05B/C, EU-DM05D and E shall be controlled by DM05D/E, and EU-DM05A, DM05B/C, DM05D/E, and EU-DM05F though EU-DM05V shall be controlled by DM05. {Chapters 19 and 27}

(b) Operation and maintenance of each scrubber shall be in accordance with the following requirements: {Chapters 19 and 27}

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

(ii) The scrubber shall be equipped with devices capable of continuously monitoring operating parameters including, at a minimum, the scrubbing liquid temperature, scrubbing liquid flow rate, and pressure differential. Operating parameter readings shall be recorded at least once each day the scrubber is in operation.

(iii) All monitored operating parameters of the scrubber shall be maintained at the levels recorded during the most recent performance test that demonstrated compliance with the permitted emissions limits. Alternative levels may be used providing the facility can justify that better emissions control is being achieved. Normal operating parameters, or operating parameter ranges, that demonstrate compliance with the permitted emissions limits, with appropriate averaging periods shall be submitted with the source's operating permit application.

(iv) 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.

(c) Operation and maintenance of each RTO shall be in accordance with the following requirements {Chapters 19, 27, and 28}:

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

(ii) The RTO shall be equipped with a device capable of continuously monitoring and recording the temperature of the thermal oxidation combustion chamber(s).

(iii) All monitored operating parameters of the RTO shall be maintained at the levels recorded during the most recent performance test that demonstrated compliance with the permitted emissions limits. Alternative levels may be used provided the owner or operator can justify that better emissions control is being achieved. Prior to compliance being demonstrated the combustion chamber temperature shall not be operated below 1,400 degrees Fahrenheit. Combustion chamber temperature shall be averaged hourly from a minimum of one cycle of sampling, analyzing, and data recording for each successive fifteen minute period. Normal operating parameters, or operating parameter ranges, that demonstrate compliance with the permitted emissions limits, with appropriate averaging periods shall be submitted with the source's operating permit application.

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

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

The following emission units are subject to the NESHAPs listed below: DM05J, DM05K, DM05L, DM05M, DM05N, DM05O, DM05P, DM05Q, DM05R, DM05S, DM05T, DM05U, DM05V, DM05F, DM05D/E, DM05B/C, and DM05A.

Applicable Standard	Title	Rule Citation
NESHAP, Subpart A	General Provisions	Chapter 28, Sec. 001.01 Requirements Begin at 40 CFR 63.1
NESHAP, Subpart FFFF	Miscellaneous Organic Chemical Manufacturing (MON)	Chapter 28, Sec. 001.78 Requirements Begin at 40 CFR 63.2430

(5) Reporting and Recordkeeping Requirements:

(a) Records documenting the date, time, temperature and flow rate of scrubbing liquid, and the pressure differential reading for each day the associated scrubber is in operation.

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

(c) Records documenting the date, time, and hourly-average temperatures for each day the associated RTO is in operation.

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

(e) Reporting and recordkeeping as required by 40 CFR 63.2430.

III.(D) Specific Conditions for Organic Liquid Process and Storage Tanks

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

Emission Point ID# & Tank ID#	Maximum Storage Capacity (gallons)	Product Stored in Tank
DM40 [1]	500,000	Alcohol Reclaim - Denatured Ethanol
DM41	500,000	200 Proof Day Tank #1
DM42	500,000	200 Proof Day Tank #2
DM43 [1]	500,000	Alcohol QC Tank - Denatured Ethanol
DM44 [1]	2,000,000	Denatured Ethanol Storage #1
DM45 [1]	2,000,000	Denatured Ethanol Storage #2
DM46 [1]	2,000,000	Denatured Ethanol Storage #3
DM47	8,225	Corrosion Inhibitor
DM48 [1]	500,000	Denaturant Storage
DM54	100,000	190 Proof Tank

[1] Subject to Subpart Kb

(2) Emission Limitations and Testing Requirements:

Refer to NSPS, Subpart Kb and NESHAP, Subpart FFFF for any specific emission limitations and testing requirements that may apply to the tanks listed above, as appropriate.

(3) Operational and Monitoring Requirements and Limitations:

(a) The corrosion inhibitor tank (DM47) shall be installed with a fixed roof and use submerged loading when transferring corrosion inhibitor into the tank. {Chapters 19 and 27}

(b) Tanks DM41, DM42, and DM54 shall each be equipped with a fixed roof in combination with an internal floating roof, in accordance with the specifications in 40 CFR 60.112b(a)(1). {Chapters 19 and 27}

(c) Tanks DM41, DM42, and DM54 are subject to the inspection requirements as described in 40 CFR 60.113b(a). {Chapter 27}

(d) Tanks DM40, DM43, DM44, DM45, DM46, and DM48 are subject to all applicable requirements of NSPS, Subpart Kb. {Chapter 18}

(e) The process tanks (DM41, DM42, and DM54) shall not have any direct product loadout capability/operations. All process tanks must loadout to additional processing equipment, other process tanks, or to the storage tanks at the facility.

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

The following standards apply to DM40, DM43, DM44, DM45, DM46, and DM48:

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Chapter 18, Sec. 001.01 40 CFR 60.1
NSPS, Subpart Kb	Volatile Organic Liquid Storage Vessels (Including Liquid Storage Vessels)	Chapter 18, Sec. 001.62 40 CFR 60.110b

The following standards apply to DM40, DM41, DM42, DM43, DM44, DM45, DM46, DM47, DM48, and DM54:

Applicable Standard	Title	Rule Citation
NESHAP, Subpart A	General Provisions	Chapter 28, Sec. 001.01 Requirements Begin at 40 CFR 63.1
NESHAP, Subpart FFFF	Miscellaneous Organic Chemical Manufacturing (MON)	Chapter 28, Sec. 001.78 Requirements Begin at 40 CFR 63.2430

(5) Reporting and Recordkeeping Requirements:

(a) The following apply to EU's DM40, DM43, DM44, DM45, DM46, and DM48:

(i) Notifications and record keeping as required by 40 CFR 60.7.

(ii) Reporting and recordkeeping as required by 40 CFR 60.115b.

(b) The following requirements apply to DM41, DM42, and DM54:

Records of inspections conducted in accordance with Condition III.(D)(3)(c).

(c) The following apply to EU's DM40, DM41, DM42, DM43, DM44, DM45, DM46, DM47, DM48, and DM54:

Reporting and recordkeeping as required by 40 CFR 63.2430.

III.(E) Specific Conditions for Ethanol Loadout

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

Emission Point ID#	Control Equipment ID# and Description	Emission Unit (EU) ID# and Description	Maximum Capacity	Permitted Fuel Type
DM09A	DM09A: Ethanol Loadout Flare #1	EU-DM09: Rail Loadout	720,000 gallons/hour loadout	Denatured Ethanol Vapors and Natural Gas
DM09B	DM09B: Ethanol Loadout Flare #2			

(2) Emission Limitations and Testing Requirements:

Refer to NESHAP, Subpart FFFF for any emission limitations and testing requirements that may apply to DM09A and DM09B.

(3) Operational and Monitoring Requirements and Limitations:

(a) The source shall use submerged or bottom loading when transferring liquid product from the storage tanks to tanker trucks and railcars. {Chapters 19 and 27}

(b) Truck and rail loadout of liquid product from EU-DM09 shall be controlled by a closed vapor recovery system with an enclosed flare at all times liquid product loadout is occurring. {Chapters 19 and 27}

(c) 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. {Chapters 19 and 27}

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

The following standards apply to DM09:

Applicable Standard	Title	Rule Citation
NESHAP, Subpart A	General Provisions	Chapter 28, Sec. 001.01 Requirements Begin at 40 CFR 63.1
NESHAP, Subpart FFFF	Miscellaneous Organic Chemical Manufacturing (MON)	Chapter 28, Sec. 001.78 Requirements Begin at 40 CFR 63.2430

(5) Reporting and Recordkeeping Requirements:

(a) Reporting and recordkeeping as required by 40 CFR 63.2430.

III.(F) Specific Conditions for Feed Production

(1) Permitted Emission Points:

(a) The source is permitted to construct the emission points and associated emission units identified in the following table:

Emission Point ID#	Required Control Equipment ID# and Description	Emission Unit ID# and Description
DM07A	DM07A: Natural Gas Combustor #1	EU-DM07A: DDGS Dryer #1
DM07B	DM07B: Natural Gas Combustor #2	EU-DM07B: DDGS Dryer #2
DM07C	DM07C: Natural Gas Combustor #3	EU-DM07C: DDGS Dryer #3
DM07D	DM07D: Natural Gas Combustor #4	EU-DM07D: DDGS Dryer #4
DM07E	DM07E: Natural Gas Combustor #5	EU-DM07E: DDGS Dryer #5
DM07F	DM07F: Natural Gas Combustor #6	EU-DM07F: DDGS Dryer #6
DM07G	DM07G: Natural Gas Combustor #7	EU-DM07G: DDGS Dryer #7
DM07H	DM07H: Natural Gas Combustor #8	EU-DM07H: DDGS Dryer #8
DM08A	DM08A: DDGS Cooling Baghouse #1	EU-DM08A: DDGS Cooler #1
DM08B	DM08B: DDGS Cooling Baghouse #2	EU-DM08B: DDGS Cooler #2
DM08C	DM08C: DDGS Cooling Baghouse #3	EU-DM08C: DDGS Cooler #3
DM10	DM10: Feed/Germ Conveying Baghouse	EU-DM10: Feed/Germ Conveyor
DM11	DM11: Feed/Germ Storage Baghouse	EU-DM11: Feed/Germ Storage
DM12	DM12: Feed/Germ Loadout Baghouse	EU-DM12: Feed/Germ Loadout

(b) The source is permitted to construct the following emission units identified in the following table at the capacities and using the fuel types listed:

Emission Point ID#	Emission Unit ID# and Description	Capacity (MMBtu/hr)	Permitted Fuel Types
DM07A	DM07A: Natural Gas Combustor #1	93.7	Natural Gas
DM07B	DM07B: Natural Gas Combustor #2	93.7	Natural Gas
DM07C	DM07C: Natural Gas Combustor #3	93.7	Natural Gas
DM07D	DM07D: Natural Gas Combustor #4	93.7	Natural Gas
DM07E	DM07E: Natural Gas Combustor #5	93.7	Natural Gas
DM07F	DM07F: Natural Gas Combustor #6	93.7	Natural Gas
DM07G	DM07G: Natural Gas Combustor #7	93.7	Natural Gas
DM07H	DM07H: Natural Gas Combustor #8	93.7	Natural Gas

(2) Emission Limitations and Testing Requirements:

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

Emission Point ID#	Pollutant	Permitted Limits per Emission Point	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
DM07A DM07B DM07C DM07D DM07E DM07F DM07G DM07H	PM/PM_{10}	2.80 lb/hr	3-hour or test method average	Chapter 19	Yes
	SO_x	0.37 lb/hr	3-hour or test method average	Chapter 19	Yes
	NO_x	0.04 lb/MMBtu	3-hour or test method average	Chapter 19	Yes
	CO	0.11 lb/MMBtu	3-hour or test method average	Chapter 19	Yes
	VOC	5.16 lb/hr	3-hour or test method average	Chapter 19	Yes
	HAP	N/A	Speciation and Quantification of HAP composition at outlet	Chapter 27	Yes
DM08A DM08B DM08C	PM/PM_{10}	0.004 gr/dscf	3-hour or test method average	Chapter 19	Yes
	SO_x	4.49 lb/hr	3-hour or test method average	Chapter 19	Yes
	VOC	12.89 lb/hr	3-hour or test method average	Chapter 19	Yes
	HAP	N/A	Speciation and Quantification of HAP composition at outlet	Chapter 27	Yes
DM10 DM11 DM12	PM/PM_{10}	0.004 gr/dscf	3-hour or test method average	Chapter 19	Yes
	HAP	N/A	3-hour or test method average	Chapter 27	Yes
DM10	VOC	1.43 lb/hr	3-hour or test method average	Chapter 19	Yes
DM11	VOC	1.15 lb/hr	3-hour or test method average	Chapter 19	Yes
DM12	VOC	1.43 lb/hr	3-hour or test method average	Chapter 19	Yes

(3) Operational and Monitoring Requirements and Limitations:

(a) Emissions from EU-DM07A shall be controlled by DM07A, EU-DM07B shall be controlled by DM07B, EU-DM07C shall be controlled by DM07C, EU-DM07D shall be controlled by DM07D, EU-DM07E shall be controlled by DM07E, EU-DM07F shall be controlled by DM07F, EU-DM07G shall be controlled by DM07G, and EU-DM07H shall be controlled by DM07H. The emissions from EU-DM08A shall be controlled by DM08A, EU-DM08B shall be controlled by DM08B, EU-DM08C shall be controlled by DM08C, EU-DM10 shall be controlled by DM10, EU-DM11 shall be controlled by DM11, and EU-DM12 shall be controlled by DM12.

(b) Operation and maintenance of each combustor (DM07A, DM07B, DM07C, DM07D, DM07E, DM07F, DM07G, and DM07H) shall be in accordance with the following requirements: {Chapter 19}

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

(2) The combustor shall be equipped with a device capable of continuously monitoring and recording the temperature of the thermal oxidation combustion chamber(s).

(3) All monitored operating parameters of the combustor shall be maintained at the levels recorded during the most recent performance test that demonstrated compliance with the permitted emissions limits. Alternative levels may be used provided the owner or operator can justify that better emissions control is being achieved. Prior to compliance being demonstrated, the combustion chamber temperature shall not be operated below 1,500 degrees Fahrenheit. Combustion chamber temperature shall be averaged hourly from a minimum of one cycle of sampling, analyzing, and data recording for each successive fifteen minute period. Normal operating parameters, or operating parameter ranges, that demonstrate compliance with the permitted emissions limits, with appropriate averaging periods shall be submitted with the source's operating permit application.

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

(c) Operation and maintenance of each baghouse shall be in accordance with the following requirements: {Chapter 19}

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

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

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

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

(5) The owner or operator shall maintain an on-site inventory of spare bags of each type used to ensure rapid replacement in the event of bag failure.

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

The following standards apply to the Natural Gas Combustors (DM07A, DM07B, DM07C, DM07D, DM07E, DM07F, DM07G, and DM07H):

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Chapter 18, Sec. 001.01 40 CFR 60.1
NSPS, Subpart Dc	Small Industrial, Commercial, Institutional Steam Generation Units	Chapter 18, Sec. 001.52 40 CFR 60.40c

(5) Reporting and Recordkeeping Requirements:

(a) Records documenting the date, time, and hourly-average temperatures for each day the associated combustor is in operation.

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

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

(d) Filter replacement records including the date the filter replacement occurred and the type of filter installed.

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

(f) Notifications and record keeping as required by 40 CFR 60.7

(g) Reporting and recordkeeping as required by 40 CFR 60.48c

III.(G) Specific Conditions for Emergency Equipment

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

Emission Point ID#	Emission Unit ID# and Description	Capacity (HP)	Permitted Fuel Type
DM50A	EU-DM50A: Fire Water Pump Engine #1	460	Diesel Fuel
DM50B	EU-DM50B: Fire Water Pump Engine #2	460	Diesel Fuel
DM50C	EU-DM50C: Fire Water Pump Engine #3	460	Diesel Fuel
DM50D	EU-DM50D: Fire Water Pump Engine #4	460	Diesel Fuel
DM51	EU-DM51: Emergency Generator #1	134	Diesel Fuel
DM52	EU-DM52: Emergency Generator #2	201	Diesel Fuel
DM53A	EU-DM53A: Emergency Generator #3	804	Diesel Fuel
DM53B	EU-DM53B: Emergency Generator #4	804	Diesel Fuel

(2) Emission Limitations and Testing Requirements:

Refer to NSPS, Subpart IIII and NESHAP, Subpart ZZZZ for emission limitations and testing requirements that apply to the emergency fire water pump engines and generators.

(3) Operational and Monitoring Requirements and Limitations:

(a) Emission Units DM50A, DM50B, DM50C, DM51, DM52, DM53A, and DM53B shall each be limited to 500 operating hours per any period of twelve (12) consecutive calendar months. At no time during the first eleven (11) months after start-up shall each engine's total operating hours exceed 500 hours. {Chapter 19}

Each emergency fire water pump engine and emergency generator shall be equipped with a non-resettable hour meter to record the operating hours.

(b) The sulfur content of the diesel fuel combusted in the emergency equipment shall not exceed 0.05% by weight. {Chapters 18, 19, and 24}

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

The following standards may apply to the emergency fire water pump engines and emergency generators:

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Chapter 18, Sec. 001.01 40 CFR 60.1
NSPS, Subpart IIII	Stationary Compression Ignition Internal Combustion Engines	Chapter 18, Sec. 001.76 40 CFR 60.4200
NESHAP, Subpart A	General Provisions	Chapter 28, Sec. 001.01 40 CFR 63.1

Applicable Standard	Title	Rule Citation
NESHAP, Subpart ZZZZ	Stationary Reciprocating Internal Combustion Engines	Chapter 28, Sec. 001.88 40 CFR 63.6580

(5) Reporting and Recordkeeping Requirements:

(a) Fuel receipts for the diesel fuel from the supplier for the fuel combusted in the fire pump engines and generators. Fuel receipts shall state the sulfur content, by weight, in the distillate fuel.

(b) Hours of operation for the emergency generator and the emergency firewater pump engine for each calendar month and for each period of 12 consecutive calendar months.

(c) Notifications and recordkeeping as required by 40 CFR 60.7.

(d) Recordkeeping as required by 40 CFR 60.4214.

(e) Initial notification requirements of 40 CFR 63.6645(d) and reporting in accordance with 40 CFR 63.6640(e) and 40 CFR 63.6645(d), as applicable.

III.(H) Specific Conditions for Equipment Leaks (DM91):

(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 considered an "affected facility" by NSPS, Subpart VV and/or NESHAP, Subpart FFFF located throughout the ethanol plant.

(2) Emission Limitations and Testing Requirements:

Emission limitations and testing requirements as established by 40 CFR 60 Subpart VV and 40 CFR 63 Subpart FFFF.

(3) Operational and Monitoring Requirements and Limitations:

Operational and Monitoring Requirements and Limitations as established by 40 CFR 60 Subpart VV and 40 CFR 63 Subpart FFFF.

(4) Applicable NSPS, NESHAP, and MACT Standards

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Chapter 18, Sec. 001.01 40 CFR 60.1
NSPS, Subpart VV	Equipment Leaks in the Synthetic Organic Chemicals Manufacturing Industry	Chapter 18, Sec. 001.14 40 CFR 60.480
NESHAP, Subpart A	General Provisions	Chapter 28, Sec. 001.01 Requirements Begin at 40 CFR 63.1
NESHAP, Subpart FFFF	Miscellaneous Organic Chemical Manufacturing (MON)	Chapter 28, Sec. 001.78 Requirements Begin at 40 CFR 63.2430

(5) Reporting and Recordkeeping Requirements:

(a) Notifications and record keeping as required by 40 CFR 60.7.

(b) Record keeping and reporting as required by 40 CFR 60.486 and 40 CFR 60.487.

(c) Reporting and recordkeeping as required by 40 CFR 63.2430.

(d) Records including the date in which 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.

(e) The owner or operator shall submit a semi-annual leak detection and repair report every six (6) calendar months to the Department. The initial semi-annual report shall be submitted beginning six (6) months after the initial startup date [60.487(a)]. Subsequent reports for each six (6) calendar month reporting period shall be submitted within 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:

(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.(I) Specific Conditions for the Cooling Towers (FS-05)

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

Emission Point ID#	Emission Unit Description	Number of Cooling Tower Cells	Maximum Circulation Rate (gal/hr)
DM13 thru DM20, DM20A, DM20B, DM20C	Dry Mill Ethanol Cooling Tower	11	9,900,000

(2) Emission Limitations and Testing Requirements:

The cooling towers identified above are not subject to any emissions limitations. Testing shall be conducted to ensure compliance with the TDS limitation established and is discussed below.

(3) Operational and Monitoring Requirements and Limitations:

(a) Drift loss from each cooling tower listed in Condition III.(I)(1) shall be limited to 0.0005 percent. Verification of drift loss shall be by manufacturer's guarantee. Manufacturer's drift loss guarantee shall be kept on site and readily available to Department representatives, upon request, for the life of the unit. {Chapter 19}

(b) TDS concentration of the cooling water in each cooling tower pool of the Dry Mill Ethanol Cooling Tower shall not exceed 3,000 ppm. A representative TDS sample shall be collected and tested from each cooling tower pool a minimum of once per calendar month. The test method used to determine TDS concentration shall be in accordance with an EPA approved method and be documented. {Chapter 19}

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

Applicable Standard	Title	Rule Citation
NESHAP, Subpart A	General Provisions	Chapter 28, Sec. 001.01 Requirements Begin at 40 CFR 63.1
NESHAP, Subpart FFFF	Miscellaneous Organic Chemical Manufacturing (MON)	Chapter 28, Sec. 001.78 Requirements Begin at 40 CFR 63.2430

(5) Reporting and Recordkeeping Requirements:

(a) TDS concentration in cooling water for each pool for each sampling event and test method used.

(b) Reporting and recordkeeping as required by 40 CFR 63.2430.

III.(J) Specific Conditions for Haul Roads (DM90)

(1) Permitted Emission Points: All on-site haul roads with production-related truck traffic shall be paved. The paved haul roads shall comply with the following conditions. {Chapters 19, 20, and 32}

(2) Emission Limitations and Testing Requirements:

(a) The haul road silt loading shall not exceed 3.0 g/m^2. {Chapter 19}

(3) Operational and Monitoring Requirements and Limitations:

(a) The owner or operator shall develop, maintain, and implement a Fugitive Dust Control Plan (FDCP) to control emissions from haul roads to comply with General Condition I.(J) and Condition III.(J)(2)(a). At a minimum, the requirements of the plan shall include that all paved haul roads shall be cleaned, using a vacuum sweeper, a minimum of three (3) times per week unless weather events are deemed not to warrant such cleaning.

(b) For each day of operation, the owner or operator shall conduct a survey of the plant property and haul roads to determine if visible fugitive emissions are being generated and leaving plant property. Implementation of fugitive dust control shall be taken upon observation of visible fugitive emissions leaving plant property or more frequency in accordance with the FDCP. Documentation of all corrective actions and daily surveys shall be maintained in a log that shall accompany the FDCP.

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

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

(5) Reporting and Recordkeeping Requirements:

(a) The FDCP shall be kept onsite and a copy shall be submitted to the NDEQ within thirty (30) days after initial startup of operations.

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

(c) Records of haul road visible emissions checks taken daily during operation and a description of corrective action taken, if needed.

(d) Records documenting when silt load testing was completed and the results of each testing.

Fact Sheet Attachment: Facility Process Information

Archer Daniels Midland Company - Dry Mill
Facility ID #39285

Process Data

Maximum Capacity (Anhydrous Ethanol Produced)	400,000,000	gallons per year			
Grain to Ethanol Conversion Factor	2.7	gallons of Ethanol per bushel of corn			
Grain Density:	56	lb/bushel for Corn			
Total Grain Receiving Throughput:	4,148,148	ton/yr	=	473.5	ton/hr
	4,148,148	ton/yr	=	148,148,148	bu/yr
DDGS produced by a Bushel of Grain	17	lb DDGS/bushel of Corn			
Dryers are capable of drying % of WDGS	100%				
DDGS Generated (10% Moisture)	1,259,259	ton/yr			
DDGS Generated (Dry Basis)	1,133,333	ton/yr			
100% MDGS Generated (40% Moisture)	1,888,889	ton/yr			

ADM will produce a modified feed by mixing the wet cake (65%) with dry feed (12%) in an approximate 50-50 blend to yield a 40% moisture final product.

Maximum Production/Throughputs

Product #1: Denatured Ethanol (95% Ethanol, 5% Denaturant)	421,052,632	gallons/year
Product #2: WDGS	1,888,889	tons/year
Product #3: DDGS	1,259,259	tons/year
Raw Material #1: Grain	4,148,148	tons/year
Raw Material #2: Denaturant	21,052,632	gallons/year
Anhydrous Ethanol Produced	400,000,000	gallons/year

Additional Information

Grain Receiving Information

Maximum Truck Pit Grain Receiving Rate	1,120	tons/hour
Maximum Rail Pit Grain Receiving Pit Rate	1,680	tons/hour

Byproduct (Feed/Germ) Loadout Information

Byproduct Loading Throughput	lbs obtained per bushel corn	tons obtained per year
Germ Yield	3.6	266,666.7
Gluten Meal Yield	2.4	177,777.8
Fiber Yield	9.0	666,666.7
Total Byproduct Loadout	15.0	1,111,111

Maximum Truck Byproduct Loadout Rate	800	tons/hour
Maximum Rail Byproduct Loadout Rate	200	tons/hour

Fact Sheet Attachment: Grain Receiving and Processing

Archer Daniels Midland Company - Dry Mill
Facility ID #39285

PM/PM_{10} Emissions from Grain Receiving and Processing

Emission Point ID#	Control Equipment ID	Unit Name	(A) Air Flow Rate[1]	(B) Emission Factor & Permitted BACT Limit	Controlled PM/PM_{10} Emissions	
			dscf/min	grains/dscf	(C)[2] (lb/hour)	(D)[3] (ton/year)
DM01	DM01	Dry Mill Receiving Baghouse	55,000	0.004	1.89	8.26
DM04	DM04	Grain Conveying and Milling Baghouse[4]	90,200	0.004	3.09	13.55
DM04A	DM04A	Flour Conveyor Baghouse	8,000	0.004	0.27	1.20

[1]Flow Rates provided by source in application materials

[2](A) x (B) x 60 (minutes/hour) / 7,000 (grains/pound)

[3](C) x 8,760 (hours/year) / 2,000 (lbs/ton)

[4]Conveying and Cleaning Baghouse (DM02) and Grain Milling and Classification Baghouse (DM04) previously permitted have been combined into a single emission point

Note: The BACT limits of 0.004 grains/dscf for Emission Points DM01 and DM04 were established in CP06-0005

Note: Emission Point DM04A is a new emissions point and BACT is being established through this permitting action

PM/PM_{10} Fugitive Emissions from Grain Receiving

Emission Point ID#	Emission Point Description	(A) Hourly Throughput	(B) Annual Throughput	(C) Percent Uncaptured[1]	Emission Factors[2] (lbs/ton)		PM Emissions		PM_{10} Emissions	
		(tons/hour)	(tons/year)		(D) PM	(E) PM_{10}	(F)[3] (lbs/hr)	(G)[4] (tons/yr)	(H)[5] (lbs/hr)	(I)[6] (tons/yr)
DM38/38	Truck Grain Receiving Fugitives - Straight Trucks	224	829,630	1%	0.18	0.059	0.40	0.75	0.13	0.24
DM38/38	Truck Grain Receiving Fugitives - Hopper Trucks	896	3,318,519	1%	0.035	0.0078	0.31	0.58	0.07	0.13
DM37/38	Rail Grain Receiving Fugitives	1,680	4,148,148	1%	0.032	0.0078	0.54	0.66	0.13	0.16

[1]1% uncaptured used in order to be consistent with previous permitting action

[2]Emission Factors are from AP-42 Section 9.9.1 (5/2003)

[3](A) x (C) x (D)

[4](B) x (C) x (D) / 2,000 (lbs/ton)

[5](A) x (C) x (E)

[6](B) x (C) x (E) / 2,000 (lbs/ton)

Total Emissions from Grain Receiving and Processing

Particulate Matter (PM)	24.33	tons/year
Particulate Matter (PM_{10})	23.38	tons/year

Fact Sheet Attachment: Degermination

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM39

Emission Units Routed to Degermination Wet Scrubber

Four (4) Steam Heated Germ Dryers
Two (2) Germ Coolers - Cooled by Ambient Air

Conversion Factors
1 lb-mol = 385.5 dscf @ 68 F, 1 atm

Emissions exiting DM39 from Germ Drying

(A) Flow Rate Exiting One (1) Germ Dryer (provided by source): 7,424 dscf/minute
445,440 dscf/hour

(B) Flow Rate Exiting Four (4) Germ Dryers[1]: 29,696 dscf/minute
1,781,760 dscf/hour

Pollutant	(C) Uncontrolled Emission Factor[2]	Uncontrolled PM/PM_{10} Emissions		(F) Control Efficiency	Controlled PM/PM_{10} Emissions	
	grains/dscf	(D)[3] (lb/hour)	(E)[4] (ton/year)	(%)[5]	(G)[6] (lb/hour)	(H)[7] (ton/year)
Particulate Matter (PM)	0.01	2.55	11.15	0%	2.55	11.15
Particulate Matter (PM_{10})	0.01	2.55	11.15	0%	2.55	11.15

Pollutant	(I) Uncontrolled Emissions[2]	(J) Molecular Weight	Uncontrolled Emissions		(M) Control Efficiency	Controlled Emissions	
	(ppmv,d)	(lb/lb-mol)	(K)[8] (lb/hour)	(L)[9] (ton/year)	(%)[5]	(N)[10] (lb/hour)	(O)[11] (ton/year)
Sulfur Dioxide (SO_2)	10.00	64.06	2.96	12.97	0%	2.96	12.97
Nitrogen Oxides (NO_x)[12]	0.00	46.01	0.00	0.00	0%	0.00	0.00
Carbon Monoxide (CO)[12]	0.00	28.01	0.00	0.00	0%	0.00	0.00
Volatile Organic Compounds (VOC)	100.00	46.00	21.26	93.12	80%	4.25	18.62
Individual Hazardous Air Pollutants (HAP)							
Acetaldehyde	6.00	44.05	1.22	5.35	50%	0.61	2.68
Acrolein	5.00	56.06	1.30	5.67	50%	0.65	2.84
Formaldehyde	10.00	30.03	1.39	6.08	50%	0.69	3.04
Methanol	10.00	32.04	1.48	6.49	50%	0.74	3.24
Total HAPs	-	-	5.39	23.59	-	2.69	11.80

Fact Sheet Attachment: Degermination Drying and Cooling

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM39

Emissions exiting DM39 from Germ Cooling

(A) Flow Rate Exiting One (1) Germ Cooler (provided by source):	44,863	dscf/minute
	2,691,780	dscf/hour
(B) Flow Rate Exiting Two (2) Germ Coolers:	89,726	dscf/minute
	5,383,560	dscf/hour

Pollutant	(C) Uncontrolled Emission Factor[2]	Uncontrolled PM/PM_{10} Emissions		(F) Control Efficiency	Controlled PM/PM_{10} Emissions	
	grains/dscf	(D)[3] (lb/hour)	(E)[4] (ton/year)	(%)[5]	(G)[6] (lb/hour)	(H)[7] (ton/year)
Particulate Matter (PM)	0.01	7.69	33.69	0%	7.69	33.69
Particulate Matter (PM_{10})	0.01	7.69	33.69	0%	7.69	33.69

Pollutant	(I) Uncontrolled Emissions[2]	(J) Molecular Weight	Uncontrolled Emissions		(M) Control Efficiency	Controlled Emissions	
	(ppmv,d)	(lb/lb-mol)	(K)[8] (lb/hour)	(L)[9] (ton/year)	(%)[5]	(N)[10] (lb/hour)	(O)[11] (ton/year)
Sulfur Dioxide (SO_2)	10.00	64.06	8.95	39.18	0%	8.95	39.18
Nitrogen Oxides (NO_x)	0.00	46.01	0.00	0.00	0%	0.00	0.00
Carbon Monoxide (CO)	0.00	28.01	0.00	0.00	0%	0.00	0.00
Volatile Organic Compounds (VOC)	15.00	46.00	9.64	42.21	80%	1.93	8.44
Individual Hazardous Air Pollutants (HAP)							
Acetaldehyde	4.00	44.05	2.46	10.78	50%	1.23	5.39
Acrolein	3.00	56.06	2.35	10.29	50%	1.17	5.14
Formaldehyde	5.50	30.03	2.31	10.10	50%	1.15	5.05
Methanol	5.00	32.04	2.24	9.80	50%	1.12	4.90
Total HAPs	-	-	9.35	40.97	-	4.68	20.48

Total Emissions from Germ Drying and Cooling (DM39)

Pollutant	Controlled Emissions		Permitted BACT Limits for DM39	
	(lb/hour)	(ton/year)	(lb/hour)	(ton/year)
Particulate Matter (PM)	10.24	44.83	10.24	44.85
Particulate Matter (PM_{10})	10.24	44.83	10.24	44.85
Sulfur Dioxide (SO_2)	11.91	52.15	11.92	52.21
Volatile Organic Compounds (VOC)	6.18	27.07	6.18	27.07
Individual Hazardous Air Pollutants (HAP)				
Acetaldehyde	1.84	8.06	50% Control	8.06
Acrolein	1.82	7.98		7.98
Formaldehyde	1.85	8.09		8.09
Methanol	1.86	8.14		8.14
Total HAPs	7.37	32.28		32.28

[1](A) x 4
[2]Uncontrolled Emission Factors and Emissions provided by source in application materials and based on design specifications
[3](B) (dscf/minute) x (C) x 60 (mins/hr) / 7,000 (grains/lb)
[4](E) x 8,760 (hrs/yr) / 2,000 (lbs/ton)
[5]Wet Scrubber Control Efficiency provided in application materials
[6](D) x (1 - (F))
[7](E) x (1-(F))
[8]((I) / 1,000,000) x (J) x (B) (dscf/hour) / 385.5 (dscf/lb-mol)
[9](K) x 8,760 (hrs/yr) / 2,000 (lbs/ton)
[10](K) x (1-(M))
[11](L) x (1-(M))
[12]NO_x and CO emissions are not expected from these dryers because they are steam-heated
Note: H_2SO_4 emissions are not expected because no SO_3 will form due to the low temperature
Note: Lead (Pb) emissions are not expected because no lead is present in the process

Fact Sheet Attachment: Fermentation Regenerative Thermal Oxidizer (RTO)

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM05

Emission Units Routed to Fermentation RTO

Process Tanks and Vents

Two Slurry Mix Tanks (DM05G)	One CDS (30% DS Product) Tank (DM05O)
Two Pre-Cook Tanks (DM05H)	One Waste Water Transfer Tank (DM05P)
Two Barometric Condensers (DM05I)	One Evaporator (Contaminate) Condensate (DM05Q)
Ten Liquefaction Tanks (DM05J)	Seven Tempers (DM05R)
Two Evaporator Feeds (DM05K)	Three Grind (DM05S)
Two Decanter (Centrifuge) Feeds (DM05L)	One Recycle (DM05T)
Centrate Tank Vent (DM05M)	One Evaporator Product Tank (DM05U)
Six Evaporators (DM05N)	One Process Water Tank (DM05V)

Nitrogen Stripper Scrubber Vent (DM05F)
Distillation and Dehydration Vent Gas Scrubber (DM05D/DM05E)
CO_2 Scrubber (DM05B and DM05C)
Propagators (DM05A)

Conversion Factors

1 lb-mol =	385.5	dscf @ 68 F, 1 atm
mass VOC/mass C =	2.0926	from Midwest Scaling Protocol

Process Tank and Vent (DM05G - DM05V) Emissions being sent to Fermentation RTO

Pollutant	Uncontrolled Emissions[1]	
	(lb/hour)	(ton/year)
Sulfur Dioxide (SO_2)	2.05	8.96
Nitrogen Oxides (NO_x)	1.44	6.30
Volatile Organic Compounds (VOC)	41.96	183.80
Individual Hazardous Air Pollutants (HAP)		
Acetaldehyde	6.11	26.75
Acrolein	12.83	56.20
Formaldehyde	8.86	38.82
Methanol	1.15	5.03
Total HAPs	28.95	126.80

Nitrogen Stripper Scrubber (DM05F) Emissions being sent to Fermentation RTO

(A) Flow Rate Exiting Nitrogen Stripper Scrubber (provided by source): 483 dscf/minute
28,980 dscf/hour

Pollutant	(B) Uncontrolled Emissions[2]	(C) Molecular Weight	Uncontrolled Emissions		(F) Control Efficiency	Controlled Emissions	
	(ppmv,d)	(lb/lb-mol)	(D)[3] (lb/hour)	(E)[4] (ton/year)	(%)[5]	(G)[6] (lb/hour)	(H)[7] (ton/year)
Sulfur Dioxide (SO_2)	47.55	64.06	0.23	1.00	90%	0.02	0.10
Volatile Organic Compounds (VOC) as Carbon	100,000.00	12.00	90.21	395.12	-	-	-
Volatile Organic Compounds (VOC) as VOC	-	-	188.77	826.83	95%	9.44	41.34
Individual Hazardous Air Pollutants (HAP)							
Acetaldehyde	500.00	44.05	1.66	7.25	15%	1.41	6.16
Methanol	10,000.00	32.04	24.09	105.50	95%	1.20	5.27
Total HAPs	-	-	25.74	112.75	-	2.61	11.44

Fact Sheet Attachment: Fermentation Regenerative Thermal Oxidizer (RTO)

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM05 (continued)

Distillation and Dehydration Vent Gas Scrubber (DM05D/DM05E) Emissions being sent to Fermentation RTO

(A) Flow Rate Exiting D&D Vent Gas Scrubber (provided by source): 1,210 dscf/minute
72,600 dscf/hour

Pollutant	(B) Uncontrolled Emissions[2]	(C) Molecular Weight	Uncontrolled Emissions		(F) Control Efficiency	Controlled Emissions	
	(ppmv,d)	(lb/lb-mol)	(D)[3] (lb/hour)	(E)[4] (ton/year)	(%)[5]	(G)[6] (lb/hour)	(H)[7] (ton/year)
Sulfur Dioxide (SO_2)	47.55	64.06	0.57	2.51	90%	0.06	0.25
Volatile Organic Compounds (VOC) as Carbon	100,000.00	12.00	225.99	989.85	-	-	-
Volatile Organic Compounds (VOC) as VOC	-	-	472.91	2,071.35	95%	23.65	103.57
Individual Hazardous Air Pollutants (HAP)							
Acetaldehyde	500.00	44.05	4.15	18.17	15%	3.53	15.44
Methanol	10,000.00	32.04	60.34	264.29	95%	3.02	13.21
Total HAPs	-	-	64.49	282.46	-	6.54	28.66

CO_2 Scrubber (DM05A, DM05B, and DM05C) Emissions being sent to Fermentation RTO

Emissions from Beerwells (DM05C) being sent to CO_2 Scrubber

Pollutant	Uncontrolled Emissions[1]	
	(lb/hour)	(ton/year)
Sulfur Dioxide (SO_2)	0.08	0.34
Volatile Organic Compounds (VOC)	6.16	26.97
Individual Hazardous Air Pollutants (HAP)		
Acetaldehyde	0.14	0.60
Acrolein	0.25	1.11
Formaldehyde	0.24	1.06
Methanol	0.02	0.07
Total HAPs	0.65	2.83

Emissions from Fermenters (DM05B) being sent to CO_2 Scrubber

(A) Flow Rate Exiting Fermenters (entering CO_2 Scrubber) (provided by source): 47,781 dscf/minute
2,866,860 dscf/hour

Pollutant	(B) Uncontrolled Emissions[2]	(C) Molecular Weight	Uncontrolled Emissions	
	(ppmv,d)	(lb/lb-mol)	(D)[3] (lb/hour)	(E)[4] (ton/year)
Sulfur Dioxide (SO_2)	5.03	64.06	2.40	10.50
Volatile Organic Compounds (VOC) as Carbon	30,000.00	12.00	2,677.22	11,726.24
Volatile Organic Compounds (VOC) as VOC	-	-	5,602.36	24,538.33
Individual Hazardous Air Pollutants (HAP)				
Acetaldehyde[8]	6.55E-02	44.05	26.83	117.51
Acrolein[8]	8.07E-04	56.06	0.33	1.45
Formaldehyde[8]	4.55E-04	30.03	0.19	0.82
Methanol[8]	1.31E-02	32.04	5.37	23.53
Total HAPs	-	-	32.72	143.30

Fact Sheet Attachment: Fermentation Regenerative Thermal Oxidizer (RTO)

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM05 (continued)

CO_2 Scrubber (DM05B and DM05C) Emissions being sent to Fermentation RTO

Pollutant	(I) Emission Factor[9]	PM/PM_{10} Emissions	
	grains/dscf	(J)[10] (lb/hour)	(K)[11] (ton/year)
Particulate Matter (PM)	0.004	1.64	7.18
Particulate Matter (PM_{10})	0.004	1.64	7.18

Pollutant	Uncontrolled Emissions from Beerwells		Uncontrolled Emissions from Fermenters		(L) Control Efficiency	Controlled Emissions	
	(lb/hour)	(ton/year)	(lb/hour)	(ton/year)	(%)[5]	(M)[12] (lb/hour)	(N)[12] (ton/year)
Sulfur Dioxide (SO_2)	0.08	0.34	2.40	10.50	90%	0.25	1.08
Volatile Organic Compounds (VOC) as Carbon	-	-	2,677.22	11,726.24	-	-	-
Volatile Organic Compounds (VOC) as VOC	6.16	26.97	5,602.36	24,538.33	95%	280.43	1,228.26
Individual Hazardous Air Pollutants (HAP)							
Acetaldehyde	0.14	0.60	26.83	117.51	15%	22.92	100.39
Acrolein	0.25	1.11	0.33	1.45	15%	0.50	2.17
Formaldehyde	0.24	1.06	0.19	0.82	15%	0.36	1.59
Methanol	0.02	0.07	5.37	23.53	15%	4.58	20.06
Total HAPs	0.65	2.83	32.72	143.30	15%	28.36	124.22

350932.83 gallon/yr ethanol

Emissions from Propagators (DM05A) being sent to Fermentation RTO

(A) Flow Rate Exiting Propagators (entering CO_2 Scrubber) (provided by source): 10,512 dscf/minute
630,720 dscf/hour

Pollutant	(B) Uncontrolled Emissions[2]	(C) Molecular Weight	Uncontrolled Emissions	
	(ppmv,d)	(lb/lb-mol)	(D)[3] (lb/hour)	(E)[4] (ton/year)
Sulfur Dioxide (SO_2)	5.03	64.06	0.53	2.31
Volatile Organic Compounds (VOC) as Carbon	1,437.50	12.00	28.22	123.62
Volatile Organic Compounds (VOC) as VOC	-	-	59.06	258.68
Individual Hazardous Air Pollutants (HAP)				
Acetaldehyde[8]	6.55E-02	44.05	5.9024	25.85
Acrolein[8]	8.07E-04	56.06	0.0727	0.32
Formaldehyde[8]	4.55E-04	30.03	0.0410	0.18
Methanol[8]	1.31E-02	32.04	1.1819	5.18
Total HAPs	-	-	7.20	31.53

Fact Sheet Attachment: Fermentation Regenerative Thermal Oxidizer (RTO)

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM05 (continued)

Process Emissions emitted from Fermentation RTO

Pollutant	Uncontrolled Emissions from Process Tanks and Vents		Controlled Emissions from N_2 Stripper Scrubber		Controlled Emissions from D&D Vent Gas Scrubber		Emissions from Propagators	
	(lb/hour)	(ton/year)	(lb/hour)	(ton/year)	(lb/hour)	(ton/year)	(lb/hour)	(ton/year)
Particulate Matter (PM)	-	-	-	-	-	-	-	-
Particulate Matter (PM_{10})	-	-	-	-	-	-	-	-
Sulfur Dioxide (SO_2)	2.05	8.96	0.02	0.10	0.06	0.25	0.53	2.31
Nitrogen Oxides (NO_x)	1.44	6.30	-	-	-	-	-	-
Volatile Organic Compounds (VOC) as VOC	41.96	183.80	9.44	41.34	23.65	103.57	59.06	258.68
Individual Hazardous Air Pollutants (HAP)								
Acetaldehyde	6.11	26.75	1.41	6.16	3.53	15.44	5.90	25.85
Acrolein	12.83	56.20	-	-	-	-	0.07	0.32
Formaldehyde	8.86	38.82	-	-	-	-	0.04	0.18
Methanol	1.15	5.03	1.20	5.27	3.02	13.21	1.18	5.18
Total HAPs	28.95	126.80	2.61	11.44	6.54	28.66	7.20	31.53

Pollutant	Controlled Emissions from CO_2 Scrubber		(L) Control Efficiency	Controlled Process Emissions emitted from Fermentation RTO	
	(lb/hour)	(ton/year)	(%)[5]	(M)[12] (lb/hour)	(N)[12] (ton/year)
Particulate Matter (PM)	1.64	7.18	0%	1.64	7.18
Particulate Matter (PM_{10})	1.64	7.18	0%	1.64	7.18
Sulfur Dioxide (SO_2)	0.25	1.08	0%	2.90	12.71
Nitrogen Oxides (NO_x)	-	-	0%	1.44	6.30
Volatile Organic Compounds (VOC) as VOC	280.43	1,228.26	98.0%	8.30	36.35
Individual Hazardous Air Pollutants (HAP)					
Acetaldehyde	22.92	100.39	98%	0.80	3.49
Acrolein	0.50	2.17	98%	0.27	1.17
Formaldehyde	0.36	1.59	98%	0.19	0.81
Methanol	4.58	20.06	98%	0.22	0.98
Total HAPs	28.36	124.22	98%	1.47	6.45

Fact Sheet Attachment: Fermentation Regenerative Thermal Oxidizer (RTO)

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM05 (continued)

Combustion Emissions emitted from Fermentation RTO

(O) Total Heat Input Capacity	18.0	MMBtu/hr
(P) Potential Natural Gas Throughput	0.02	MMscf/hr
	154	MMscf/yr

NOTE: Conversion Factor: 1 MMscf = 1,020 MMBtu from AP-42 Table 1.4-1, Footnote a

Pollutant	(Q) Emission Factor[13] (lb/MMscf)	(R) Emission Rate[15] (lbs/hr)	(S) Emission Rate[16] (lbs/year)	(T) Emission Rate[17] (tons/year)
Particulate Matter (PM)	7.6	0.13	1171.74	0.59
Particulate Matter (PM_{10})	7.6	0.13	1171.74	0.59
Sulfur Dioxide (SO_2)	0.6	0.01	92.51	0.05
Nitrogen Oxides (NO_x)[14]	0.02	0.36	3153.60	1.58
Carbon Monoxide (CO)[14]	0.1	1.80	15768.00	7.88
Volatile Organic Compounds (VOC)	5.5	0.10	847.97	0.42
Individual Hazardous Air Pollutants (HAP)				
Benzene	0.0021	3.70E-05	3.24E-01	1.62E-04
Dichlorobenzene	0.0012	2.11E-05	1.85E-01	9.25E-05
Hexane	1.8	3.17E-02	2.78E+02	1.39E-01
Lead Compounds	0.0005	8.80E-06	7.71E-02	3.85E-05
Naphthalene	0.00061	1.07E-05	9.40E-02	4.70E-05
Polycyclic Organic Matter (POM)	0.0000882	1.55E-06	1.36E-02	6.80E-06
Toluene	0.0034	5.98E-05	5.24E-01	2.62E-04
Arsenic Compounds (ASC)	0.0002	3.52E-06	3.08E-02	1.54E-05
Beryllium Compounds (BEC)	0.000012	2.11E-07	1.85E-03	9.25E-07
Cadmium Compounds (CDC)	0.0011	1.94E-05	1.70E-01	8.48E-05
Chromium Compounds (CRC)	0.0014	2.46E-05	2.16E-01	1.08E-04
Cobalt Compounds (COC)	0.000084	1.48E-06	1.30E-02	6.48E-06
Manganese Compounds (MNC)	0.00038	6.69E-06	5.86E-02	2.93E-05
Mercury Compounds (HGC)	0.00026	4.58E-06	4.01E-02	2.00E-05
Nickel Compounds (NIC)	0.0021	3.70E-05	3.24E-01	1.62E-04
Selenium Compounds (SEC)	0.000024	4.22E-07	3.70E-03	1.85E-06
Total HAPs	-	0.03	279.59	0.14

Fact Sheet Attachment: Fermentation Regenerative Thermal Oxidizer (RTO)

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM05 (continued)

Total Emissions Emitted from Fermentation RTO

Pollutant	Controlled Process Emissions emitted from Fermentation RTO		Combustion Emissions emitted from Fermentation RTO		Total Emissions emitted from Fermentation RTO	
	(lb/hour)	(ton/year)	(lb/hour)	(ton/year)	(lb/hour)	(ton/year)
Particulate Matter (PM)	1.64	7.18	0.13	0.59	1.77	7.76
Particulate Matter (PM_{10})	1.64	7.18	0.13	0.59	1.77	7.76
Sulfur Dioxide (SO_2)	2.90	12.71	0.01	0.05	2.91	12.75
Nitrogen Oxides (NO_x)	1.44	6.30	0.36	1.58	1.80	7.88
Carbon Monoxide (CO)	-	-	1.80	7.88	1.80	7.88
Volatile Organic Compounds (VOC)	8.30	36.35	0.10	0.42	8.40	36.78
Individual Hazardous Air Pollutants (HAP)						
Acetaldehyde	0.80	3.49	-	-	0.80	3.49
Acrolein	0.27	1.17	-	-	0.27	1.17
Benzene	-	-	3.70E-05	1.62E-04	3.70E-05	1.62E-04
Dichlorobenzene	-	-	2.11E-05	9.25E-05	2.11E-05	9.25E-05
Formaldehyde	0.19	0.81	-	-	0.19	0.81
Hexane	-	-	3.17E-02	1.39E-01	3.17E-02	1.39E-01
Lead Compounds	-	-	8.80E-06	3.85E-05	8.80E-06	3.85E-05
Methanol	0.22	0.98	-	-	0.22	0.98
Naphthalene	-	-	1.07E-05	4.70E-05	1.07E-05	4.70E-05
Polycyclic Organic Matter (POM)	-	-	1.55E-06	6.80E-06	1.55E-06	6.80E-06
Toluene	-	-	5.98E-05	2.62E-04	5.98E-05	2.62E-04
Arsenic Compounds (ASC)	-	-	3.52E-06	1.54E-05	3.52E-06	1.54E-05
Beryllium Compounds (BEC)	-	-	2.11E-07	9.25E-07	2.11E-07	9.25E-07
Cadmium Compounds (CDC)	-	-	1.94E-05	8.48E-05	1.94E-05	8.48E-05
Chromium Compounds (CRC)	-	-	2.46E-05	1.08E-04	2.46E-05	1.08E-04
Cobalt Compounds (COC)	-	-	1.48E-06	6.48E-06	1.48E-06	6.48E-06
Manganese Compounds (MNC)	-	-	6.69E-06	2.93E-05	6.69E-06	2.93E-05
Mercury Compounds (HGC)	-	-	4.58E-06	2.00E-05	4.58E-06	2.00E-05
Nickel Compounds (NIC)	-	-	3.70E-05	1.62E-04	3.70E-05	1.62E-04
Selenium Compounds (SEC)	-	-	4.22E-07	1.85E-06	4.22E-07	1.85E-06
Total HAPs	1.47	6.45	3.19E-02	1.40E-01	1.51	6.59

[1]Emissions calculated by source, full calculations in application materials

[2]Emissions provided by source in application materials, based on worst-case scenarios and design estimate

[3]((B) / 1,000,000) x (C) x (A) (dscf/hour) / 385.5 (dscf/lb-mol); For VOC as C to VOC, VOC as Carbon (lb/hr) x 2.0926 (Midwest Scaling Factor)

[4](D) x 8,760 (hrs/yr) / 2,000 (lbs/ton)

[5]Control Efficiencies provided by source and based on control equipment design

[6](D) x (1-(F))

[7](E) x (1-(F))

[8]Emission Factor in grains/dscf; (D) = (B) x (A) (dscf/hour) / 7,000 grains/dscf

[9]Emission Factor based on outlet concentration of CO_2 Scrubber

[10](I) x (A) for Fermenters [47,781 dscf/minute] x 60 (mins/hr) / 7,000 (grains/dscf)

[11](J) x 8,760 (hrs/yr) / 2,000 (lbs/ton)

[12]SUM of Emissions x (1-(L))

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

[14]Emission Factors in units of lb/MMBtu, provided by the source based on vendor information; (R) = (O) x (Q)

[15](P) (MMscf/hr) x (Q)

[16](R) x 8,760 (hrs/yr)

[17](S) / 2,000 (lbs/ton)

Fact Sheet Attachment:Tanks

Archer Daniels Midland Company - Dry Mill
Facility ID #39285

Liquid Throughputs

Anhydrous Ethanol Produced:	400,000,000	gallons/year
Denaturant Usage:	21,052,632	gallons/year
Denatured Ethanol Produced:	421,052,632	gallons/year

Storage Tanks VOC Emission Summary

Tank ID#	Product Stored	Tank Capacity	Throughput	Turnovers	VOC[1]	Amount of VOC from Ethanol[1]	Amount of VOC from Denaturant[1]
		(gallons)	(gallons/year)		(lbs/yr)	(lbs/yr)	(lbs/yr)
DM40	Alcohol Reclaim - Denatured Ethanol	500,000	42,000,000	84	444.49	401.52	42.97
DM41	200 Proof Day Tank #1	500,000	200,000,000	400	1,254.07	1254.07	-
DM42	200 Proof Day Tank #2	500,000	200,000,000	400	1,254.07	1254.07	-
DM43	Alcohol QC Tank - Denatured Ethanol	500,000	421,052,632	842	2,436.65	2307.81	128.84
DM44	Denatured Ethanol Storage #1	2,000,000	140,350,877	70	1,085.85	960.42	125.43
DM45	Denatured Ethanol Storage #2	2,000,000	140,350,877	70	1,085.85	960.42	125.43
DM46	Denatured Ethanol Storage #3	2,000,000	140,350,877	70	1,085.85	960.42	125.43
DM47	Corrosion Inhibitor Tank	8,225	420,000	51	1,785.17	-	1,608.21
DM48	Denaturant Storage	500,000	21,052,632	42	1,048.75	-	1,048.75
DM54	190 Proof Tank	100,000	425,500,000	4,255	4,241.50	4241.50	-

[1]VOC emissions calculated by using EPA's TANKS 4.09d

Total VOC Emissions **15722.25** **lb/yr**
7.86 **ton/yr**

Storage Tanks HAP Emission Summary

Material	Hazardous Air Pollutant	HAP Weight Fraction	HAPs from Individual Tanks (lbs/yr)										Total Individual HAPs	Total Individual HAPs
			DM40	DM41	DM42	DM43	DM44	DM45	DM46	DM47	DM48	DM54	lb/year	tons/yr
Anhydrous Ethanol	Acetaldehyde[1]	1.29%	5.18	5.18	5.18	5.18	16.18	16.18	12.39	-	-	54.72	120.18	6.01E-02
	Methanol[1]	0.18%	0.72	0.72	0.72	0.72	2.26	2.26	1.73	-	-	7.63	16.77	8.38E-03
Denaturant	Benzene[1]	0.29%	0.12	0.12	0.12	0.12	-	-	0.36	4.66	3.04	-	8.57	4.28E-03
	Carbon disulfide	2.00E-05	0.00	0.00	0.00	0.00	-	-	0.00	0.03	0.02	-	0.06	2.95E-05
	Cumene	1.00E-04	0.00	0.00	0.00	0.00	-	-	0.01	0.16	0.10	-	0.30	1.48E-04
	Ethyl Benzene	5.00E-05	0.00	0.00	0.00	0.00	-	-	0.01	0.08	0.05	-	0.15	7.39E-05
	n-Hexane[1]	1.21%	0.52	0.52	0.52	0.52	-	-	1.52	19.46	12.69	-	35.75	1.79E-02
	Toluene[1]	0.18%	0.08	0.08	0.08	0.08	-	-	0.23	2.89	1.89	-	5.32	2.66E-03
	Xylenes	5.00E-04	0.02	0.02	0.02	0.02	-	-	0.06	0.80	0.52	-	1.48	7.39E-04
Corrosion Inhibitor	Methanol	2.50E-01	-	-	-	-	-	-	-	446.29	-	-	446.29	2.23E-01
	Xylenes	1.00E-01	-	-	-	-	-	-	-	178.52	-	-	178.517	8.93E-02
												Total HAPs from Storage Tanks:	813.37	0.4067

[1]Denatured Ethanol Vapor Composition (wt%)

Fact Sheet Attachment: Ethanol Liquid Loadout

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM09

Anhydrous Ethanol Loading Rate:	400.00	MMgal/yr
Denaturant Loading Rate:	21.05	MMgal/yr
Denatured Ethanol Loading Rate:	421.05	MMgal/yr

Vapor Recovery Control Efficiency provided in Application

	Rail loadout
Capture efficiency:	100.0%
Control efficiency:	98.0%
Overall control efficiency:	98.0%

Material Physical Data

	Gasoline (RVP-13)	Ethanol	Denaturant (Natural Gasoline)
Molecular weight (M, lbs/lbs-mole)	62	46.07	62
Temperature (T, deg R)[1]	540	540	540
Vapor pressure (P, psia)	9.91	1.27	9.91
Liquid molecular weight (ML)	92	46	92
Density (D, lb/gal)	5.6	6.6	5.6
Liquid Mole Fraction (X)[2]	N/A	0.98	0.02

[1]Temperatures from TANKS 4.09d, average ambient temperature for Grand Island, NE

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

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

Hazardous Air Pollutant Weight Fractions

Individual HAPs	HAP Weight Fraction or Denatured Ethanol Vapor Composition (wt%)		
	Gasoline	Ethanol	Denaturant
Acetaldehyde	N/A	1.29%	N/A
Benzene	2.50E-03	N/A	0.29%
Carbon disulfide	2.00E-05	N/A	2.00E-05
Cumene	1.00E-04	N/A	1.00E-04
Ethyl benzene	5.00E-05	N/A	5.00E-05
n-Hexane	5.00E-02	N/A	1.21%
Methanol	N/A	0.18%	N/A
Toluene	5.00E-03	N/A	0.18%
Xylene	5.00E-04	N/A	5.00E-04
Total HAPs	5.82E-02	1.47E-02	1.75E-02

Saturation Factors

$S_{normal\ dedicated,\ submerged\ loading}$	0.6	Saturation factor

Rail loadout is assumed to be in dedicated railcars, which previous load was denatured ethanol.

VOC Emissions

Denatured Ethanol Emission Factor Calculations

	Railcar Loadout Uncontrolled Emission Factor (lbs VOC/Mgal)	Railcar Loadout Controlled Emission Factor (lbs VOC/Mgal)
$EF_{gasoline}$	N/A	N/A
$EF_{ethanol}$	0.794	0.0159
$EF_{denaturant}$	0.186	0.0037
EF_{VOC}	0.980	0.0196

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.

Fact Sheet Attachment: Ethanol Liquid Loadout

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM09

Total VOC Emission Calculations from Denatured Ethanol Loadout

Loadout Type/Material	(A) Denatured Ethanol Loaded Out (Mgal/year)	(B) Uncontrolled Emission Factor (lbs VOC/Mgal)	(C)=(A)x(B)/2000 Total VOC Emissions (tons/year)	(D) Capture Efficiency (%)	(E)=(C)*(D) Captured VOC Emissions (tons/year)	(F)=(C)-(E) Uncaptured VOC Emissions (tons/year)	(G) Control Efficiency (%)	(H)=(E)x[1-(G)] Captured and Controlled VOC Emissions (tons/year)	(I)=(F)+(H) Total VOC Emissions
100% Loadout By Rail			**206.32**		206.32	**0.00**		**4.1263**	**4.13**
Rail Loadout									
Ethanol	421,053	0.794	167.16	100.00%	167.16	0.00	98.0%	3.3432	3.34
Denaturant		0.186	39.16	100.00%	39.16	0.00	98.0%	0.7832	0.78

Controlled Hazardous Air Pollutant Emissions assuming 100% Rail Loadout

Hazardous Air Pollutant	Rail Loadout (ton/yr)		Maximum Controlled HAP Emissions (tons/year)
	Ethanol	Denaturant	
Acetaldehyde	4.31E-02	N/A	4.31E-02
Benzene	N/A	2.27E-03	2.27E-03
Carbon disulfide	N/A	1.57E-05	1.57E-05
Cumene	N/A	7.83E-05	7.83E-05
Ethyl benzene	N/A	3.92E-05	3.92E-05
n-Hexane	N/A	9.48E-03	9.48E-03
Methanol	6.02E-03	N/A	6.02E-03
Toluene	N/A	1.41E-03	1.41E-03
Xylene	N/A	3.92E-04	3.92E-04
Total HAPs	0.06		0.06

Fact Sheet Attachment: Liquid Loadout Flare

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM09

(A) Maximum Denatured Ethanol Loadout[1]	720,000 421,052,632	gallons/hour gallons/year
(B) lbs VOC / Mgal Denatured Ethanol Load Out	0.980	lb/Mgal

Flare Information (Captured Loadout Vapors)

(C) Heating Value of Captured Vapor[1]	19.0	Btu/gal Liquid Denatured Ethanol Loaded
(D) Density of Denatured Ethanol (Liquid @ 27°F)	6.5030	lb/gallon Liquid
(E) Hourly Captured VOC Vapors[2]	705.60	lb VOC/hr
(F) Hourly Captured Rate[3]	108.5	gallons/hr
(G) Hourly MMBtu/hr from Captured Vapor[4]	0.0021	MMBtu/hr
(H) Annual Captured Denatured Ethanol Vapors [5]	206.32	ton VOC/yr
(I) Annual Captured Rate[6]	63,452	gallons/year
(J) Annual MMBtu from Captured Vapor[7]	1.21	MMBtu/yr

Supplemental Fuel Information

(K) Hourly MMBtu/hr from Supplemental Fuel	11.00	MMBtu/hr
(L) Annual MMBtu from Supplemental Fuel[8]	96,360	MMBtu/yr

Pilot Information

(M) Hourly MMBtu/hr from Pilot	0.055	MMBtu/hr
(N) Annual MMBtu from Pilot[8]	481.800	MMBtu/yr

MMscf/hr from Natural Gas

(O) Hourly MMscf/hr from Natural Gas[9]	0.011	MMscf/hr
(P) Annual MMscf/yr from Natural Gas[10]	94.943	MMscf/yr

MMBtu/hr and MMscf/hr from Natural Gas and Denatured Ethanol Vapors

(Q) Total MMBtu/hr[11]	11.057	MMBtu/hr
(R) Total MMscf/hr[12]	0.011	MMscf/hr
(S) Total MMBtu/year[13]	96,843.006	MMBtu/yr
(T) Total MMscf/year[12]	94.944	MMscf/yr

Pollutant	(U) Emission Factor (lb/MMscf)[14]	(V) Emission Rate (lbs/hr)[15]	(W) Emission Rate (tons/year)[16]
Particulate Matter (PM)	7.6	0.0824	0.3608
Particulate Matter (PM_{10})	7.6	0.0824	0.3608
Sulfur Dioxide (SO_2)	0.6	0.0065	0.0285
Nitrogen Oxides (NO_x)[17]	0.15	1.66	7.26
Carbon Monoxide (CO)[17]	0.35	3.87	16.95
Individual Hazardous Air Pollutants (HAP)			
Benzene	0.0021	2.28E-05	9.97E-05
Dichlorobenzene	0.0012	1.30E-05	5.70E-05
Formaldehyde	0.075	8.13E-04	3.56E-03
Hexane	1.8	1.95E-02	8.54E-02
Lead Compounds	0.0005	5.42E-06	2.37E-05
Naphthalene	0.00061	6.61E-06	2.90E-05
Polycyclic Organic Matter (POM)	0.0000882	9.56E-07	4.19E-06
Toluene	0.0034	3.69E-05	1.61E-04
Arsenic Compounds (ASC)	0.0002	2.17E-06	9.49E-06
Beryllium Compounds (BEC)	0.000012	1.30E-07	5.70E-07
Cadmium Compounds (CDC)	0.0011	1.19E-05	5.22E-05
Chromium Compounds (CRC)	0.0014	1.52E-05	6.65E-05
Cobalt Compounds (COC)	0.000084	9.10E-07	3.99E-06
Manganese Compounds (MNC)	0.00038	4.12E-06	1.80E-05
Mercury Compounds (HGC)	0.00026	2.82E-06	1.23E-05
Nickel Compounds (NIC)	0.0021	2.28E-05	9.97E-05
Selenium Compounds (SEC)	0.000024	2.60E-07	1.14E-06
Total HAPs	-	2.05E-02	8.96E-02

[1]Information based on manufacturer information and was submitted with application materials
[2][(A) / 1,000] x (B)
[3](E)/(D)
[4](F) x (C) / 1,000,000 (Btu/MMBtu)
[5][(A) / 1,000] x (B) / 2,000 (lb/ton)
[6](H) x 2,000 (lbs/ton) / (D)
[7](I) x (C) / 1,000,000 (Btu/MMBtu)
[8]MMBtu/hr x 8,760 (hours/yr)
[9][(K) + (O)] / 1,020 (Btu/scf)
[10][(L) + (N)] / 1,020 (Btu/scf)
[11](G) + (K) + (M)
[12]MMBtu/hr / 1,020 (Btu/scf)
[13](J) + (L) + (N)
[14]Emission Factors from AP-42 Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4 (7/98) unless otherwise specified
[15]For PM, PM10, and SO2: (V) = (R) x (U). For NOx and CO: (V) = (Q) x (U). For HAPs: (V) = (O) x (U).
[16]For PM, PM10, and SO2: (V) = (T) x (U) / 2,000. For NOx and CO: (V) = (S) x (U) / 2,000. For HAPs: (V) = (P) x (U) / 2,000.
[17]Emission Factor in units of lb/MMBtu and provided in application materials

Fact Sheet Attachment: 30% DS Liquid Loadout

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM09

Anhydrous Ethanol Loading Rate:	0.00375	MMgal/yr
Water Loading Rate:	7.49625	MMgal/yr
30% DS Loading Rate:	7.50	MMgal/yr

Material Physical Data

	Ethanol	Water
Molecular weight (M, lbs/lbs-mole)	46	18
Temperature (T, deg R)[1]	540	540
Vapor pressure (P, psia)	1.27	0.51
Liquid molecular weight (ML)	46	18
Density (D, lb/gal)	6.53	8.34
Liquid Mole Fraction (X)[2]	0.00E+00	0.9998

[1]Temperatures from TANKS 4.09d, average ambient temperature for Grand Island, NE

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

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

Saturation Factors

Saturation factor 1.45

30% DS Emission Factor Calculations

	Railcar Loadout Uncontrolled Emission Factor (lbs Vapor/Mgal)
$EF_{ethanol}$	0.000
EF_{water}	0.307
EF_{Vapor}	0.307

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.

Total VOC Emission Calculations from 30% DS Loadout

Loadout Type/Material	(A) Denatured Ethanol Loaded Out (Mgal/year)	(B) Uncontrolled Factor (lbs Vapor/Mgal)	(C) Vapor Composition (wt.%)	(D)=(A)x(B)x(C)/2000 Total VOC Emissions (tons/year)
100% Loadout By Rail				**0.00115**
Rail Loadout				
Ethanol	7,500	0.307	0.1%	0.00115
Water			99.9%	0.00

Fact Sheet Attachment: Solid Product Loadout

Archer Daniels Midland Company - Dry Mill
Facility ID #39285

Potential to Emit Calculations for Emissions from WDGS Loadout

Maximum amount of WDGS produced	1,888,889	tons/year
	215.63	tons/hour

Pollutant	(A) Emission Factor[1] (lb/ton WDGS)	Potential Emission Rate	
		(B) = (A) x ton WDGS/hr (lb/hr)	(C) = (B)x8760/2000 (ton/yr)
Volatile Organic Compounds (VOC)	0.0083	1.7897	7.84
Individual Hazardous Air Pollutants (HAP)			
Acetaldehyde	1.11E-04	0.0239	0.1048
Acrolein	1.67E-05	0.0036	0.0158
Formaldehyde	2.22E-04	0.0479	0.2097
Methanol	4.44E-05	0.0096	0.0419
Total HAPs	-	0.0850	0.3722

[1]Emission Factors based on November 2, 2004 emissions testing at DENCO, LLC in Morris, MN @ 65% moisture produc

Fact Sheet Attachment: DDGS Drying and Cooling Operations

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM07A though DM07H and DM08A through DM08C

Conversion Factors

1 lb-mol = 385.5 dscf @ 68 F, 1 atm

DDGS Drying Emissions (DM07A, DM07B, DM07C, DM07D, DM07E, DM07F, DM07G, and DM07H)

(A) Flow Rate Exiting One (1) DDGS Dryers (provided by source): 1,568 dscf/minute
(19,213) 94,080 dscf/hour

(B) Flow Rate Exiting Eight (8) DDGS Dryers[1]: 12,544 dscf/minute
752,640 dscf/hour

Pollutant	(C) Uncontrolled Emission Factor[2]	Uncontrolled PM/PM$_{10}$ Emissions from One (1) DDGS Dryer		Uncontrolled PM/PM$_{10}$ Emissions from All (8) DDGS Dryers	
	grains/dscf	(D)[3] (lb/hour)	(E)[4] (ton/year)	(F)[5] (lb/hour)	(G)[6] (ton/year)
Particulate Matter (PM)	0.156	2.10	9.18	16.77	73.47
Particulate Matter (PM$_{10}$)	0.156	2.10	9.18	16.77	73.47

Pollutant	(H) Uncontrolled Emissions[2]	(I) Molecular Weight	Uncontrolled Emissions from One (1) DDGS Dryer		Uncontrolled Emissions from All (8) DDGS Dryers	
	(ppmv,d)	(lb/lb-mol)	(J)[7] (lb/hour)	(K)[8] (ton/year)	(L)[9] (lb/hour)	(M)[10] (ton/year)
Sulfur Dioxide (SO$_2$)	20.00	64.06	0.31	1.37	2.50	10.96
Volatile Organic Compounds (VOC)	20747.85	46.00	232.92	1,020.18	1,863.35	8,161.46
Individual Hazardous Air Pollutants (HAP)						
Acetaldehyde	776.25	44.05	8.34	36.55	66.76	292.40
Acrolein	82.80	56.06	1.13	4.96	9.06	39.69
Formaldehyde	495.75	30.03	3.63	15.91	29.07	127.31
Methanol	185.40	32.04	1.45	6.35	11.60	50.80
Total HAPs	-	-	14.56	63.78	116.48	510.20

Routing DDGS Drying Emissions through Eight (8) Natural Gas Fired Combustors

Natural Gas Combustion Emissions

(N) Heat Input Capacity for One (1) Combustor 93.7 MMBtu/hr
(O) Natural Gas Throughput for One (1) Combustor 0.09 MMscf/hr
805 MMscf/yr

NOTE: Conversion Factor: 1 MMscf = 1,020 MMBtu from AP-42 Table 1.4-1, Footnote a

Pollutant	(P) Emission Factor[11] (lb/MMscf)	Emission Rates for One (1) Combustor		Emission Rates for All (8) Natural Gas Combustors	
		(Q) Emission Rate[12] (lbs/hr)	(R) Emission Rate[13] (tons/year)	(S) Emission Rate[14] (lbs/hr)	(T) Emission Rate[15] (tons/year)
Particulate Matter (PM)	7.6	0.70	3.06	5.59	24.47
Particulate Matter (PM$_{10}$)	7.6	0.70	3.06	5.59	24.47
Sulfur Dioxide (SO$_2$)	0.6	0.06	0.24	0.44	1.93
Nitrogen Oxides (NO$_x$)[16]	0.04	3.75	16.42	29.98	131.33
Carbon Monoxide (CO)[16]	0.11	10.31	45.14	82.46	361.16
Volatile Organic Compounds (VOC)	5.5	0.51	2.21	4.04	17.71
Individual Hazardous Air Pollutants (HAP)					
Benzene	0.0021	1.93E-04	8.45E-04	1.54E-03	6.76E-03
Dichlorobenzene	0.0012	1.10E-04	4.83E-04	8.82E-04	3.86E-03
Hexane	1.8	1.65E-01	7.25E-01	1.32E+00	5.80E+00
Lead Compounds	0.0005	4.60E-05	2.01E-04	3.68E-04	1.61E-03
Naphthalene	0.00061	5.61E-05	2.46E-04	4.48E-04	1.96E-03
Polycyclic Organic Matter (POM)	0.0000882	8.11E-06	3.55E-05	6.48E-05	2.84E-04
Toluene	0.0034	3.12E-04	1.37E-03	2.50E-03	1.09E-02
Arsenic Compounds (ASC)	0.0002	1.84E-05	8.05E-05	1.47E-04	6.44E-04
Beryllium Compounds (BEC)	0.000012	1.10E-06	4.83E-06	8.82E-06	3.86E-05
Cadmium Compounds (CDC)	0.0011	1.01E-04	4.43E-04	8.09E-04	3.54E-03
Chromium Compounds (CRC)	0.0014	1.29E-04	5.64E-04	1.03E-03	4.51E-03
Cobalt Compounds (COC)	0.000084	7.72E-06	3.38E-05	6.18E-05	2.70E-04
Manganese Compounds (MNC)	0.00038	3.49E-05	1.53E-04	2.79E-04	1.22E-03
Mercury Compounds (HGC)	0.00026	2.39E-05	1.05E-04	1.91E-04	8.37E-04
Nickel Compounds (NIC)	0.0021	1.93E-04	8.45E-04	1.54E-03	6.76E-03
Selenium Compounds (SEC)	0.000024	2.21E-06	9.66E-06	1.76E-05	7.73E-05
Total HAPs	-	0.17	0.73	1.33	5.84

Fact Sheet Attachment: DDGS Drying and Cooling Operations

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM07A though DM07H and DM08A through DM08C

Controlled DDGS Dryer Process Emissions

Pollutant	Uncontrolled Emissions from One (1) DDGS Dryer		(W) Control Efficiency	Controlled Emissions from One (1) DDGS Dryer		Controlled Emissions from ALL DDGS Dryers	
	(U) (lb/hour)	(V) (ton/year)	(%)[17]	(X)[18] (lb/hour)	(Y)[19] (ton/year)	(Z)[20] (lb/hour)	(AA)[21] (ton/year)
Particulate Matter (PM)	2.10	9.18	0%	2.10	9.18	16.77	73.47
Particulate Matter (PM_{10})	2.10	9.18	0%	2.10	9.18	16.77	73.47
Sulfur Dioxide (SO_2)	0.31	1.37	0%	0.31	1.37	2.50	10.96
Volatile Organic Compounds (VOC) as VOC	232.92	1,020.18	98%	4.66	20.40	37.27	163.23
Individual Hazardous Air Pollutants (HAP)							
Acetaldehyde	8.34	36.55	98%	0.17	0.73	1.34	5.85
Acrolein	1.13	4.96	98%	0.02	0.10	0.18	0.79
Formaldehyde	3.63	15.91	98%	0.07	0.32	0.58	2.55
Methanol	1.45	6.35	98%	0.03	0.13	0.23	1.02
Total HAPs	14.56	63.78	98%	0.29	1.28	2.33	10.20

Total Emissions associated with DDGS Drying

Pollutant	Controlled Emissions from One (1) DDGS Dryer		Combustion Emissions for One (1) Combustor		Total Emissions from One (1) Combustor		Total Emissions from All Combustors	
	(lb/hour)	(ton/year)	(lbs/hr)	(tons/year)	(lbs/hr)	(tons/year)	(lbs/hr)	(tons/year)
Particulate Matter (PM)	2.10	9.18	0.70	3.06	2.80	12.24	22.36	97.94
Particulate Matter (PM_{10})	2.10	9.18	0.70	3.06	2.80	12.24	22.36	97.94
Sulfur Dioxide (SO_2)	0.31	1.37	0.06	0.24	0.37	1.61	2.94	12.89
Nitrogen Oxides (NO_x)	-	-	3.75	16.42	3.75	16.42	29.98	131.33
Carbon Monoxide (CO)	-	-	10.31	45.14	10.31	45.14	82.46	361.16
Volatile Organic Compounds (VOC)	4.66	20.40	0.51	2.21	5.16	22.62	41.31	180.94
Individual Hazardous Air Pollutants (HAP)								
Acetaldehyde	1.67E-01	7.31E-01	-	-	1.67E-01	7.31E-01	1.34E+00	5.85E+00
Acrolein	2.27E-02	9.92E-02	-	-	2.27E-02	9.92E-02	1.81E-01	7.94E-01
Benzene	-	-	1.93E-04	8.45E-04	1.93E-04	8.45E-04	1.54E-03	6.76E-03
Dichlorobenzene	-	-	1.10E-04	4.83E-04	1.10E-04	4.83E-04	8.82E-04	3.86E-03
Formaldehyde	7.27E-02	3.18E-01	-	-	7.27E-02	3.18E-01	5.81E-01	2.55E+00
Hexane	-	-	1.65E-01	7.25E-01	1.65E-01	7.25E-01	1.32E+00	5.80E+00
Lead Compounds	-	-	4.60E-05	2.01E-04	4.60E-05	2.01E-04	3.68E-04	1.61E-03
Methanol	2.90E-02	1.27E-01	-	-	2.90E-02	1.27E-01	2.32E-01	1.02E+00
Naphthalene	-	-	5.61E-05	2.46E-04	5.61E-05	2.46E-04	4.48E-04	1.96E-03
Polycyclic Organic Matter (POM)	-	-	8.11E-06	3.55E-05	8.11E-06	3.55E-05	6.48E-05	2.84E-04
Toluene	-	-	3.12E-04	1.37E-03	3.12E-04	1.37E-03	2.50E-03	1.09E-02
Arsenic Compounds (ASC)	-	-	1.84E-05	8.05E-05	1.84E-05	8.05E-05	1.47E-04	6.44E-04
Beryllium Compounds (BEC)	-	-	1.10E-06	4.83E-06	1.10E-06	4.83E-06	8.82E-06	3.86E-05
Cadmium Compounds (CDC)	-	-	1.01E-04	4.43E-04	1.01E-04	4.43E-04	8.09E-04	3.54E-03
Chromium Compounds (CRC)	-	-	1.29E-04	5.64E-04	1.29E-04	5.64E-04	1.03E-03	4.51E-03
Cobalt Compounds (COC)	-	-	7.72E-06	3.38E-05	7.72E-06	3.38E-05	6.18E-05	2.70E-04
Manganese Compounds (MNC)	-	-	3.49E-05	1.53E-04	3.49E-05	1.53E-04	2.79E-04	1.22E-03
Mercury Compounds (HGC)	-	-	2.39E-05	1.05E-04	2.39E-05	1.05E-04	1.91E-04	8.37E-04
Nickel Compounds (NIC)	-	-	1.93E-04	8.45E-04	1.93E-04	8.45E-04	1.54E-03	6.76E-03
Selenium Compounds (SEC)	-	-	2.21E-06	9.66E-06	2.21E-06	9.66E-06	1.76E-05	7.73E-05
Total HAPs	0.29	1.28	0.17	0.73	0.46	2.01	3.66	16.04

[1](A) x 8
[2]Provided by source in application materials
[3](A) (dscf/hour) x (C) / 7,000 (grains/lb)
[4](D) x 8,760 (hours/yr) / 2,000 (lbs/ton)
[5](D) x 8
[6](E) x 8
[7]((H) / 1,000,000) x (I) x (A) (dscf/hour) / 385.5 (dscf/lb-mol)
[8](J) x 8,760 (hours/yr) / 2,000 (lbs/ton)
[9](J) x 8
[10](K) x 8
[11]Emission Factors from AP-42 Tables 1.4-1, 1.4-2, 1.4-3, and 1.4-4 (7/98) unless otherwise specified
[12](O) (MMscf/hr) x (P)
[13](Q) x 8,760 (hours/yr) / 2,000 (lbs/ton)
[14](Q) x 8
[15](R) x 8
[16]Emission Factors in units of lb/MMBtu, provided by the source based on vendor information; (Q) = (N) x (P)
[17]Control Efficiency provided by source; Controlled by the Natural Gas Combustors
[18](U) x (1-(W))
[19](V) x (1-(W))
[20](X) x 8
[21](Y) x 8

Fact Sheet Attachment: DDGS Drying and Cooling Operations

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM07A though DM07H and DM08A through DM08C

DDGS Cooling Emissions (DM08A, DM08B, and DM08C)

(A) Flow Rate Exiting One (1) DDGS Cooling Baghouse (provided by source): 45,000 dscf/minute
2,700,000 dscf/hour

Pollutant	(B) Controlled Emission Factor and BACT Limit[1]	Controlled PM/PM$_{10}$ Emissions from One (1) DDGS Cooling Baghouse		Controlled PM/PM$_{10}$ Emissions from All (3) DDGS Cooling Baghouses	
	grains/dscf	(C)[2] (lb/hour)	(D)[3] (ton/year)	(E)[4] (lb/hour)	(F)[5] (ton/year)
Particulate Matter (PM)	0.004	1.54	6.76	4.63	20.27
Particulate Matter (PM$_{10}$)	0.004	1.54	6.76	4.63	20.27

Pollutant	(G) Uncontrolled Emissions[6]	(H) Molecular Weight	Uncontrolled Emissions from One (1) DDGS Cooling Baghouse		Uncontrolled Emissions from All (3) DDGS Cooling Baghouses	
	(ppmv,d)	(lb/lb-mol)	(I)[7] (lb/hour)	(J)[8] (ton/year)	(K)[9] (lb/hour)	(L)[10] (ton/year)
Sulfur Dioxide (SO_2)[11]	10.00	64.06	4.49	19.65	13.46	58.96
Volatile Organic Compounds (VOC)[11]	40.00	46.00	12.89	56.45	38.66	169.34
Individual Hazardous Air Pollutants (HAP)						
Acetaldehyde	2.10	44.05	0.65	2.84	1.94	8.51
Acrolein	2.90	56.06	1.14	4.99	3.42	14.96
Formaldehyde	3.10	30.03	0.65	2.86	1.96	8.57
Methanol	1.70	32.04	0.38	1.67	1.14	5.01
Total HAPs	-	-	2.82	12.35	8.46	37.06

[1]Emission Factor based on established BACT Limit

[2](A) (dscf/minute) x (B) x 60 (mins/hr) / 7,000 (grains/lb)

[3](C) x 8,760 (hrs/yr) / 2,000 (lbs/ton)

[4](C) x 3

[5](D) x 3

[6]Emissions provided by source in application materials, based on worst-case scenarios and design estimate

[7]((G) / 1,000,000) x (G) x (A) (dscf/hour) / 385.5 (dscf/lb-mol)

[8](I) x 8,760 (hrs/yr) / 2,000 (lbs/ton)

[9](I) x 3

[10](J) x 3

[11]The Uncontrolled Emissions in ppmv,d has been established as the BACT Limitation as it is not cost effective to install a control device for control of this pollutai

Fact Sheet Attachment: DDGS Drying and Cooling Operations

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM07A though DM07H and DM08A through DM08C

Total Emissions from Drying and Cooling DDGS

Pollutant	DDGS Drying Emissions (tons/year)	DDGS Cooling Emissions (tons/year)	Total DDGS Drying and Cooling Emissions (tons/year)
Particulate Matter (PM)	97.94	20.27	118.21
Particulate Matter (PM_{10})	97.94	20.27	118.21
Sulfur Dioxide (SO_2)	12.89	58.96	71.84
Nitrogen Oxides (NO_x)	131.33	-	131.33
Carbon Monoxide (CO)	361.16	-	361.16
Volatile Organic Compounds (VOC)	180.94	169.34	350.28
Individual Hazardous Air Pollutants (HAP)			
Acetaldehyde	5.85	8.51	14.36
Acrolein	0.79	14.96	15.76
Benzene	6.76E-03	-	6.76E-03
Dichlorobenzene	3.86E-03	-	3.86E-03
Formaldehyde	2.55	8.57	11.11
Hexane	5.80	-	5.80
Lead Compounds	1.61E-03	-	1.61E-03
Methanol	1.02	5.01	6.03
Naphthalene	1.96E-03	-	1.96E-03
Polycyclic Organic Matter (POM)	2.84E-04	-	2.84E-04
Toluene	1.09E-02	-	1.09E-02
Arsenic Compounds (ASC)	6.44E-04	-	6.44E-04
Beryllium Compounds (BEC)	3.86E-05	-	3.86E-05
Cadmium Compounds (CDC)	3.54E-03	-	3.54E-03
Chromium Compounds (CRC)	4.51E-03	-	4.51E-03
Cobalt Compounds (COC)	2.70E-04	-	2.70E-04
Manganese Compounds (MNC)	1.22E-03	-	1.22E-03
Mercury Compounds (HGC)	8.37E-04	-	8.37E-04
Nickel Compounds (NIC)	6.76E-03	-	6.76E-03
Selenium Compounds (SEC)	7.73E-05	-	7.73E-05
Total HAPs	16.04	37.06	53.10

Fact Sheet Attachment: Degermination Byproduct Conveying, Storage, and Loadout

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Numbers: DM10, DM11, and DM12

Conversion Factors

1 lb-mol = 385.5 dscf @ 68 F, 1 atm

Emissions exiting DM10: Byproduct (Feed/Germ) Conveying Baghouse

(A) Conveyor Aspiration Rate for One (1) Conveyor (provided by source): 1,000 dscf/minute
60,000 dscf/hour

(B) Conveyor Aspiration Rate for Ten (10) Convyors[1]: 10,000 dscf/minute
600,000 dscf/hour

Pollutant	(C) Controlled Emission Factor and BACT Limit[2]	Controlled PM/PM_{10} Emissions	
	grains/dscf	(D)[3] (lb/hour)	(E)[4] (ton/year)
Particulate Matter (PM)	0.004	0.34	1.50
Particulate Matter (PM_{10})	0.004	0.34	1.50

Pollutant	(F) Uncontrolled Emissions[2]	(G) Molecular Weight	Uncontrolled Emissions		Permitted BACT Limits for DM10	
	(ppmv,d)	(lb/lb-mol)	(H)[5] (lb/hour)	(I)[6] (ton/year)	(lb/hour)	(ton/year)
Volatile Organic Compounds (VOC)	20.00	46.00	1.43	6.27	1.43	6.26
Individual Hazardous Air Pollutants (HAP)						
Acetaldehyde	3.00	44.05	0.21	0.90	No Control	
Acrolein	2.30	56.06	0.20	0.88		
Formaldehyde	4.00	30.03	0.19	0.82		
Methanol	3.50	32.04	0.17	0.76		
Total HAPs	-	-	0.77	3.36		

Fact Sheet Attachment: Degermination Byproduct Conveying, Storage, and Loadout

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Numbers: DM10, DM11, and DM12

Emissions exiting DM11: Byproduct (Feed/Germ) Storage Baghouse

(A) Bin Vent Aspiration Rate for One (1) Bin Vent (provided by source):	1,000	dscf/minute
	60,000	dscf/hour
(B) Bin Vent Aspiration Rate for Eight (8) Bin Vents[1]:	8,000	dscf/minute
	480,000	dscf/hour

Pollutant	(C) Controlled Emission Factor and BACT Limit[2]	Controlled PM/PM_{10} Emissions	
	grains/dscf	(D)[3] (lb/hour)	(E)[4] (ton/year)
Particulate Matter (PM)	0.004	0.27	1.20
Particulate Matter (PM_{10})	0.004	0.27	1.20

Pollutant	(F) Uncontrolled Emissions[2]	(G) Molecular Weight	Uncontrolled Emissions		Permitted BACT Limits for DM11	
	(ppmv,d)	(lb/lb-mol)	(H)[5] (lb/hour)	(I)[6] (ton/year)	(lb/hour)	(ton/year)
Volatile Organic Compounds (VOC)	20.00	46.00	1.15	5.02	1.15	5.04
Individual Hazardous Air Pollutants (HAP)						
Acetaldehyde	3.00	44.05	0.16	0.72	No Control	
Acrolein	2.30	56.06	0.16	0.70		
Formaldehyde	4.00	30.03	0.15	0.66		
Methanol	3.50	32.04	0.14	0.61		
Total HAPs	-	-	0.61	2.69		

Fact Sheet Attachment: Degermination Byproduct Conveying, Storage, and Loadout

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Numbers: DM10, DM11, and DM12

Emissions exiting DM12: Byproduct (Feed/Germ) Loadout Baghouse

(A) Byproduct (Feed/Germ) Loadout Baghouse Aspiration Rate (provided by source): 10,000 dscf/minute
600,000 dscf/hour

Pollutant	(C) Controlled Emission Factor and BACT Limit[2]	Controlled PM/PM_{10} Emissions	
	grains/dscf	(D)[3] (lb/hour)	(E)[4] (ton/year)
Particulate Matter (PM)	0.004	0.34	1.50
Particulate Matter (PM_{10})	0.004	0.34	1.50

Pollutant	(F) Uncontrolled Emissions[2]	(G) Molecular Weight	Uncontrolled Emissions		Permitted BACT Limits for DM12	
	(ppmv,d)	(lb/lb-mol)	(H)[5] (lb/hour)	(I)[6] (ton/year)	(lb/hour)	(ton/year)
Volatile Organic Compounds (VOC)	20.00	46.00	1.43	6.27	1.43	6.26
Individual Hazardous Air Pollutants (HAP)						
Acetaldehyde	3.00	44.05	0.21	0.90	No Control	
Acrolein	2.30	56.06	0.20	0.88		
Formaldehyde	4.00	30.03	0.19	0.82		
Methanol	3.50	32.04	0.17	0.76		
Total HAPs	-	-	0.77	3.36		

[1](A) x 10 (DM10) or (A) x 8 (DM11)

[2]Provided by source in application materials and based on design specifications

[3](B) (dscf/minute) x (C) x 60 (mins/hr) / 7,000 (grains/lb)

[4](E) x 8,760 (hrs/yr) / 2,000 (lbs/ton)

[5]((F) / 1,000,000) x (G) x (B) (dscf/hour) / 385.5 (dscf/lb-mol)

[6](H) x 8,760 (hrs/yr) / 2,000 (lbs/ton)

Fact Sheet Attachment: Degermination Byproduct Conveying, Storage, and Loadout

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Numbers: DM10, DM11, and DM12
PM/PM_{10} Fugitive Emissions from Byproduct (Feed/Germ) Loadout

Emission Point ID#	Emission Point Description	(A) Hourly Throughput	(B) Annual Throughput	(C) Percent Fugitives[1]	Emission Factors[2] (lbs/ton)		PM Emissions		PM_{10} Emissions	
		(tons/hour)	(tons/year)		(D) PM	(E) PM_{10}	(F)[3] (lbs/hr)	(G)[4] (tons/yr)	(H)[5] (lbs/hr)	(I)[6] (tons/yr)
DM35/DM35A	Truck Byproduct Loadout Fugitives	800	1,111,111	5%	0.0033	0.0008	0.13	0.09	0.03	0.02
DM36/DM36A	Rail Byproduct Loadout Fugitives	200	1,111,111	5%	0.0033	0.0008	0.03	0.09	0.01	0.02

[1]5% fugitives are assumed since loading operations will occur in an enclosure and will utilize choke flow and/or coupled chutes
[2]Emission Factors are from AP-42 Section 9.9.1 (5/2003)
[3](A) x (C) x (D)
[4](B) x (C) x (D) / 2,000 (lbs/ton)
[5](A) x (C) x (E)
[6](B) x (C) x (E) / 2,000 (lbs/ton)
NOTE: All VOC emissions from Byproduct (Feed/Germ) Conveying, Storage, and Loadout are accounted for in the calculations above

Total Emissions from Byproduct (Feed/Germ) Conveying, Storage, and Loadout

Pollutant	Controlled/Permitted Emissions	
	(lb/hour)	(ton/year)
Particulate Matter (PM)	1.09	4.30
Particulate Matter (PM_{10})	0.99	4.23
Volatile Organic Compounds (VOC)	4.01	17.56
Individual Hazardous Air Pollutants (HAP)		
Acetaldehyde	0.58	2.52
Acrolein	0.56	2.46
Formaldehyde	0.52	2.29
Methanol	0.49	2.14
Total HAPs	2.15	9.42

Fact Sheet Attachment: Emergency Fire Pumps

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Numbers: DM50A, DM50B, DM50C, and DM50D
Four (4) 460 HP Emergency Fire Pumps

Internal Combustion of Distillate Fuel in Engines (< 600 hp)

Total Horsepower	1,840	HP		
Total Heat Input Capacity	12.88	MMBtu/hr		
Potential Diesel Fuel Throughput	0.094	kgal/hr	823.44	kgal/year
Sulfur Fuel Limit	0.05	weight % sulfur		
Limited Operating Hours	500	hr/year		

Pollutant	(A) Emission Factor[1] (lb/MMBtu)	(B) = (A)x kgal/hr Emission Rate (lbs/hr)		(C) = (B)xOperating Hours Emission Rate (lbs/year)		(D) = (C)/2000 Potential to Emit (tons/year)	
		Potential	Limited	Potential	Limited	Potential	Limited
Particulate Matter (PM)[2]	8.82E-04	1.62	1.62	14213.76	811.29	7.11	0.41
Particulate Matter (PM_{10})[2]	8.82E-04	1.62	1.62	14213.76	811.29	7.11	0.41
Sulfur Dioxide (SO_2)	0.29	3.74	3.74	32720.35	1867.60	16.36	0.93
Nitrogen Oxides (NO_x)[2]	1.72E-02	31.64	31.64	277168.25	15820.11	138.58	7.91
Carbon Monoxide (CO)[2]	5.73E-03	10.55	10.55	92389.42	5273.37	46.19	2.64
Volatile Organic Compounds (VOC)[2]	1.72E-02	31.64	31.64	277168.25	15820.11	138.58	7.91
Individual Hazardous Air Pollutants (HAP)							
1,3 - Butadiene	3.91E-05	0.0005	0.0005	4.41E+00	0.25	2.21E-03	1.26E-04
Acetaldehyde	7.67E-04	0.0099	0.0099	8.65E+01	4.94	4.33E-02	2.47E-03
Acrolein	9.25E-04	0.0119	0.0119	1.04E+02	5.96	5.22E-02	2.98E-03
Benzene	9.33E-04	0.0120	0.0120	1.05E+02	6.01	5.26E-02	3.00E-03
Formaldehyde	1.18E-03	0.0152	0.0152	1.33E+02	7.60	6.66E-02	3.80E-03
Naphthalene	8.48E-05	0.0011	0.0011	9.57E+00	0.55	4.79E-03	2.73E-04
Polycyclic Organic Matter (POM)	8.32E-05	0.0011	0.0011	9.39E+00	0.54	4.70E-03	2.68E-04
Toluene	4.09E-04	0.0053	0.0053	4.62E+01	2.63	2.31E-02	1.32E-03
Xylene	2.85E-04	0.0037	0.0037	3.22E+01	1.84	1.61E-02	9.18E-04
Total HAPs	-	0.0606	0.0606	530.9800	30.31	0.2655	1.52E-02

[1]Emission Factors are from AP-42 Tables 3.3-1 and 3.3-2 (10/96)

[2]Emission Factors in lb/hp-hr and based on emission limitation in NSPS, Subpart IIII for Stationary Fire Pumps, ≥300hp & <600hp, Model Year 2008 and earlier
Conversion Factor: Heat Capacity of Diesel Fuel is 137,000 Btu/gal (AP-42 Appendix A)
Note: Sulfur Dioxide Emission Factor = 1.01 x Sulfur Content (%)
Note: kgal = 1000 gallons
Note: Potential Operating Hours is 8760
Note: The units are each limited to their operating hours by permit, therefore the PTE of the units are the Limited values

Fact Sheet Attachment: Emergency Generators

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Numbers: DM51, DM52, and DM53
Two (2) 804 HP, One (1) 134 HP, and One (1) 201 HP Emergency Generators

Internal Combustion of Distillate Fuel in Engines (> 600 hp)

Total Horsepower	1,943	HP		
Total Heat Input Capacity	13.60	MMBtu/hr		
Potential Diesel Fuel Throughput	0.0993	kgal/hr	869.868	kgal/year
Sulfur Fuel Limit	0.05	weight % sulfur		
Limited Operating Hours for Each Generator	500	hr/year		

Pollutant	(A) Emission Factor[1] (lb/MMBtu)	(B) = (A)x MMBtu/hr Emission Rate (lbs/hr)		(C) = (B)xOperating Hours Emission Rate (lbs/year)		(D) = (C)/2000 Potential to Emit (tons/year)	
		Potential	Limited	Potential	Limited	Potential	Limited
Particulate Matter (PM)	0.0697	0.95	0.95	8,304.39	473.99	4.15	0.24
Particulate Matter (PM_{10})	0.0573	0.78	0.78	6,826.99	389.67	3.41	0.19
Sulfur Dioxide (SO_2)	0.0505	0.69	0.69	6,016.81	343.43	3.01	0.17
Nitrogen Oxides (NO_x)	3.2	43.52	43.52	381,263.23	21,761.60	190.63	10.88
Carbon Monoxide (CO)	0.85	11.56	11.56	101,273.05	5,780.43	50.64	2.89
Volatile Organic Compounds (VOC)	0.0819	1.11	1.11	9,757.96	556.96	4.88	0.28
Individual Hazardous Air Pollutants (HAP)							
Acetaldehyde	2.52E-05	0.0003	0.0003	3.00E+00	1.71E-01	1.50E-03	1.00E-04
Acrolein	7.88E-06	0.0001	0.0001	9.40E-01	5.36E-02	5.00E-04	0.00E+00
Benzene	7.76E-04	0.0106	0.0106	9.25E+01	5.28E+00	4.62E-02	2.60E-03
Formaldehyde	7.89E-05	0.0011	0.0011	9.40E+00	5.37E-01	4.70E-03	3.00E-04
Naphthalene	1.30E-04	0.0018	0.0018	1.55E+01	8.84E-01	7.70E-03	4.00E-04
Toluene	2.81E-04	0.0038	0.0038	3.35E+01	1.91E+00	1.67E-02	1.00E-03
Xylene	1.93E-04	0.0026	0.0026	2.30E+01	1.31E+00	1.15E-02	7.00E-04
Polycyclic Organic Matter (POM)	8.15E-05	0.0011	0.0011	9.71E+00	5.55E-01	4.90E-03	3.00E-04
Total HAPs	1.57E-03	0.02	0.02	187.48	10.70	0.09	0.01

[1]Emission Factors are from AP-42 Tables 3.4-1, 3.4-2, and 3.4-4 (10/96)
Conversion Factor: Heat Capacity of Diesel Fuel is 137,000 Btu/gal (AP-42 Appendix A)
Note: Sulfur Dioxide Emission Factor = 1.01 x Sulfur Content (%)
Note: kgal = 1,000 gallons
Note: Potential Operating Hours is 8,760
Note: The units are each limited to their operating hours by permit, therefore the PTE of the units are the Limited values

Fact Sheet Attachment: Equipment Leaks

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Number: DM91

Type of Component	(A) Component Count[1]	VOC Emission Factors[2]		(D) % of components serviced with leak rates ≥ 10,000 ppmv[3]	(E)[4] Weighted Average Emission Factor (kg/hr/source)	VOC Potential Emissions	
		(B) LDAR leak rates ≥ 10,000 ppmv (kg/hr/source)	(C) LDAR leak rates < 10,000 ppmv (kg/hr/source)			(F) (lbs/hr)[5]	(G) (tons/yr)[6]
Valves - Gas Service	400	0.078200	0.000131	1.83%	0.001558	1.377	6.032
Valves - Light Liquid	1,600	0.089200	0.000165	0.78%	0.000860	3.041	13.319
Valves - Heavy Liquid	600	0.000230	0.000230	0.01%	0.000230	0.305	1.336
Pump & Agitator Seals - Light Liquid	100	0.243000	0.001870	1.73%	0.006045	1.336	5.851
Pump & Agitator Seals - Heavy Liquid	20	0.216000	0.002100	0.09%	0.002297	0.102	0.445
Compressor Seals	0	1.608000	0.089400	0.00%	0.089400	0.000	0.000
Pressure Relief Valves	10	1.691000	0.044700	1.25%	0.065213	1.441	6.312
Connectors & Flanges	1,800	0.113000	0.000081	0.48%	0.000623	2.478	10.855
Open-ended Lines	50	0.011950	0.001500	0.00%	0.001500	0.166	0.726
Sampling Connections	20	0.015000		0.00%	0.015000	0.663	2.904

[1]Component count based on design estimate. The valves, seals, and pumps are based on the existing Cedar Rapids component count. The open-ended lines are based on the Wahalla component count.

[2]Emission factors are from Protocol for Equipment Leak Emission Estimates, Tables 2-1 and 2-5, Nov. 1995.

[3]ADM LDAR Data

[4](B) x (D) + (C) x (1-(D))

[5](A) x (E) x 2.21 (lbs/kg)

[6](F) x 8,760 (hours/yr) / 2,000 (lbs/ton)

Total VOC Emissions	10.91	lb/hr
	47.78	ton/year

Pollutants	(A) HAP Speciation of VOC (wt %)	Emission Rate	
		(lbs/hr)[1]	(tons/yr)[2]
Acetaldehyde	1.29%	0.1405	0.6154
Benzene	0.29%	0.0321	0.1405
n-Hexane	1.21%	0.1323	0.5794
Methanol	0.18%	0.0201	0.0880
Toluene	0.18%	0.0194	0.0848
Total HAPS		0.3443	1.5080

[1]Total VOC Emissions (lb/hr) x (A)

[2]Total VOC Emissions (ton/year) x (A)

Fact Sheet Attachment: Cooling Tower Emissions

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Numbers: DM13 - DM20, DM20A, DM20B, and DM20C

Potential to Emit Calculations for Emissions from the One (1) Eleven (11) celled Cooling Tower

Circulation rate:	9,900,000	gal/hr
	86,724,000	Mgal/yr (based on 8,760 hrs/yr)
Drift loss percent:	0.0005	%
Water density:	8.34	lbs/gal
TDS concentration:	3,000	ppm single sample event
	3,000	ppm average annual rate

Emission Factor Calculation for PM and PM_{10}

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

$$PM/PM_{10}\text{ emission factor} = \left(\frac{ppmTDS}{1{,}000{,}000\,lbswater}\right)\left(\frac{8.34\,lbs}{gal}\,water\right)\left(\frac{1{,}000\,gal}{1Mgal}\right)\left(\frac{0.0005}{100}\,driftloss\right)$$

0.000125	lbs/Mgal single sample event (highest hourly rate)
0.000125	lbs/Mgal average annual 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 (lbs/hr)	Annual PTE (tons/year)
PM	1.24	5.42
PM_{10} [1]	0.62	2.71

[1] PM_{10} is 50% percent of the PM amount, percentage provided by facility

Fact Sheet Attachment: Haul Road Emissions

Archer Daniels Midland Company - Dry Mill
Facility ID #39285
Emission Point ID Numbers: DM90

Paved roads {AP-42 Chapter 13.2.1 (11/06)}

Equation (2): (modified)

$$E = k \times \left(\frac{sL}{2}\right)^{0.65} \times \left(\frac{W}{3}\right)^{1.5} \times \left(1 - \frac{P}{4 \times 365}\right) \times \left(\frac{S}{30}\right)^{d}$$

	k	*d*
PM	0.082	0.3
PM_{10}	0.016	0.5

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

Equation (1a): (modified)

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

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

Haul Road / Traffic Parameters

Activity / Road Description	Road Type / Silt Value		Roundtrip Distance (feet)		Truck Weight (tons)			Ave. Speed (mph)	Maximum Throughput (units/yr) [2]	Ave. Truck Capacity (units/truck)		Annual VMT
			empty	full	empty	full	Ave.[1]					
Grain Delivery	p	3.00	1,700	3,500	15	40	31.8	15	4,148,148	25	ton	163,412
Denaturant	p	3.00	3,000	3,000	15	40	27.5	15	21,052,632	8,000	gallon	2,990
WDGS	p	3.00	2,640	2,640	15	40	27.5	15	1,888,889	25	ton	75,556
DDGS	p	3.00	2,640	2,640	15	40	27.5	15	1,259,259	25	ton	50,370
Byproduct	p	3.00	2,640	2,640	15	40	27.5	15	1,111,111	25	ton	44,444

[1] Weighted average = {(distance*weight empty)+(distance*weight full)}/(Roundtrip distance)

Total VMT: 336,773

[2] Includes permit-limited throughput

Fact Sheet Attachment

	Emission Factors (lb/VMT)		Potential Emissions (tons/yr)	
	PM	**PM_{10}**	**PM**	**PM_{10}**
Grain Delivery	2.81	0.48	229.67	39.01
Denaturant	2.26	0.38	3.38	0.57
WDGS	2.26	0.38	85.29	14.49
DDGS	2.26	0.38	56.86	9.66
Byproduct	2.26	0.38	50.17	8.52
Total Annual Emissions[3]:			**368.50**	**62.59**
Corrected Total Annual Emissions[4]:			**40.49**	**6.88**

[3]Includes Grain Delivery, Denaturant, Byproduct, and WDGS

[4]Total Annual Emissions divided by 9.1

Description of Constants/Variables

E: haul road emissions (lb/VMT)

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

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

sC: silt content (%) of unpaved road surface

W: average vehicle weight (tons)

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

P = 90

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

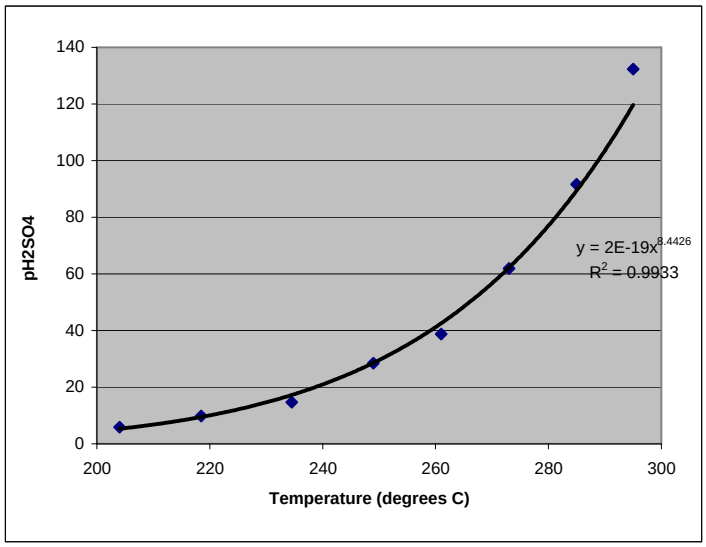
Fact Sheet Attachment: H_2SO_4 Tank Emissions

Archer Daniels Midland Company - Dry Mill
Facility ID #39285

Tank Diameter	15	ft	
Level Rate Change	20%	gal/gal	
Level Change Range (set point +/-)	2	ft	
Minimum Level Cycle Time	15,107	min	
Working Volume	40,000	gal	
Tank Throughput	4	gpm	
Tank Temperature	75	^oF	
Tank Temperature	24	^oC	
Tank Pressure	14.7	psia	
Water Vapor Pressure @ Tank Temp.	0.4	psia	
Moisture Content of Vapor	3%	vol. %	
Tank Displacement Rate	0.05	acfm (wet)	
Tank Displacement Rate	0.05	scfm (wet)	
Tank Displacement Rate	0.04	scfm (dry)	
Process Vent Molar Flow	0.01	lb-mol/hr	
R (gas law constant)	1.9872	cal/gmol-^oK	
Saturation Factor	100%	vol. %	
H_2SO_4 Concentration	1.1E-04	ppmv (dry)	<-- Extrapolation of Perry's data; see figure for equation.
H_2SO_4 Emissions	3.4E-10	tpy	

T (^oC)	pH_2SO_4
204	5.9
218.5	9.8
234.5	14.7
249	28.5
261	38.8
273	61.9
285	91.6
295	132.3

Data from Perry's 5th Edition; Table 3-14.



Fact Sheet Attachment: Facility Wide PSD Pollutant Emissions

Archer Daniels Midland Company - Dry Mill
Facility ID #39285

Facility Wide Emissions (tons/year)

Process or Unit	Pollutants								
	Particulate Matter (PM)	Particulate Matter (PM_{10})	Sulfur Oxides (SO_x)	Nitrogen Oxides (NO_x)	Carbon Monoxide (CO)	Volatile Organic Compounds (VOC)	Sulfuric Acid (H_2SO_4)	Fluoride (F)	Lead (Pb)
Grain Receiving and Processing (DM01, DM04, DM04A)	24.33	23.38	-	-	-	-	-	-	-
Degermination Drying and Cooling (DM39)	44.85	44.85	52.21	-	-	27.07	-	-	-
Byproduct Conveying, Storage, and Loadout (DM10, DM11, DM12)	4.30	4.23	-	-	-	17.56	-	-	-
Fermentation RTO (DM05)	7.76	7.76	12.75	7.88	7.88	36.78	-	-	3.85E-05
DDGS Drying and Cooling	118.21	118.21	71.84	131.33	361.16	350.28	-	-	1.61E-03
Fire Pumps (DM50)	0.41	0.41	0.93	7.91	2.64	7.91	-	-	-
Generators (DM51, DM52, DM53)	0.2370	0.1948	0.1717	10.88	2.89	0.28	-	-	-
Haul Roads	40.49	6.88	-	-	-	-	-	-	-
Tanks	-	-	-	-	-	7.86	-	-	-
Liquid Loadout (DM09)	0.36	0.36	0.03	7.26	16.95	4.13	-	-	-
Cooling Tower (DM13-DM20)	5.42	2.71	-	-	-	-	-	-	-
30% DS Loadout	-	-	-	-	-	0.0012	-	-	-
H_2SO_4 Tank	-	-	-	-	-	-	3.41E-10	-	-
Equipment Leaks (DM91)	-	-	-	-	-	47.78	-	-	-
Dry Mill Potential Emissions (tons/year)	246.37	208.98	137.94	165.26	391.52	499.65	3.41E-10	0.00E+00	1.65E-03
Dry Mill Emissions (CP07-0061)	246.37	208.98	137.94	165.26	391.52	499.65	0.00	0.00	0.00
Dry Mill Emissions (CP06-0005)	179.26	147.61	874.38	345.11	416.33	477.18	32.81	3.94	0.66
Change in Dry Mill Potential Emissions	67.11	61.37	-736.44	-179.85	-24.81	22.47	-32.81	-3.94	-0.66

Fact Sheet Attachment: Facility Wide HAP Pollutant Emissions

Archer Daniels Midland Company - Dry Mill
Facility ID #39285

Facility Wide HAP Emissions (tons/year)

	Degermination Drying and Cooling (DM39)	Byproduct Conveying, Storage, and Loadout (DM10, DM11, DM12)	Fermentation RTO (DM05)	DDGS Drying and Cooling	Fire Pumps (DM50)	Generators (DM51, DM52, DM53)	Tanks	Liquid Loadout (DM09)	Equipment Leaks (DM91)	Total Individual HAPs
Individual Hazardous Air Pollutants (HAP)										
Acetaldehyde	**8.06**	**2.52**	**3.49**	**14.36**	**2.47E-03**	**1.00E-04**	**6.01E-02**	**4.31E-02**	**6.15E-01**	**29.16**
Acrolein	**7.98**	**2.46**	**1.17**	**15.76**	**2.98E-03**	**0.00E+00**	**-**	**-**	**-**	**27.37**
Arsenic compounds	-	-	1.54E-05	6.44E-04	-	-	-	9.49E-06	-	6.69E-04
Benzene	-	-	1.62E-04	6.76E-03	3.00E-03	2.60E-03	4.28E-03	2.37E-03	1.40E-01	0.16
Beryllium compounds	-	-	9.25E-07	3.86E-05	-	-	-	5.70E-07	-	4.01E-05
1,3 - Butadiene	-	-	-	-	1.26E-04	-	-	-	-	1.26E-04
Cadmium compounds	-	-	8.48E-05	3.54E-03	-	-	-	5.22E-05	-	3.68E-03
Carbon disulfide	-	-	-	-	-	-	2.95E-05	1.57E-05	-	4.52E-05
Chromium compounds	-	-	1.08E-04	4.51E-03	-	-	-	6.65E-05	-	4.68E-03
Cobalt compounds	-	-	6.48E-06	2.70E-04	-	-	-	3.99E-06	-	2.81E-04
Cumene	-	-	-	-	-	-	1.48E-04	7.83E-05	-	2.26E-04
Dichlorobenzene	-	-	9.25E-05	3.86E-03	-	-	-	5.70E-05	-	4.01E-03
Ethyl benzene	-	-	-	-	-	-	7.39E-05	3.92E-05	-	1.13E-04
Formaldehyde	**8.09**	**2.29**	**8.12E-01**	**1.11E+01**	**3.80E-03**	**3.00E-04**	**-**	**3.56E-03**	**-**	**22.32**
Hexane	-	-	1.39E-01	5.80E+00	-	-	1.79E-02	9.49E-02	5.79E-01	6.63
Lead Compounds	-	-	3.85E-05	1.61E-03	-	-	-	2.37E-05	-	1.67E-03
Manganese compounds	-	-	2.93E-05	1.22E-03	-	-	-	1.80E-05	-	1.27E-03
Mercury compounds	-	-	2.00E-05	8.37E-04	-	-	-	1.23E-05	-	8.70E-04
Methanol	**8.14**	**2.14**	**9.75E-01**	**6.03E+00**	**-**	**-**	**2.32E-01**	**6.02E-03**	**8.80E-02**	**17.61**
Naphthalene	-	-	4.70E-05	1.96E-03	2.73E-04	4.00E-04	-	2.90E-05	-	2.71E-03
Nickel compounds	-	-	1.62E-04	6.76E-03	-	-	-	9.97E-05	-	0.01
Polycyclic Organic Matter (POM)	-	-	6.80E-06	2.84E-04	2.68E-04	3.00E-04	-	4.19E-06	-	8.63E-04
Selenium compounds	-	-	1.85E-06	7.73E-05	-	-	-	1.14E-06	-	8.03E-05
Toluene	-	-	2.62E-04	1.09E-02	1.32E-03	1.00E-03	2.66E-03	1.57E-03	8.48E-02	0.10
Xylenes	-	-	-	-	9.18E-04	7.00E-04	9.00E-02	3.92E-04	-	0.09
TOTAL HAP	**32.28**	**9.42**	**6.59**	**53.10**	**0.02**	**0.01**	**0.41**	**0.15**	**1.51**	**103.47**