

AIR QUALITY CONSTRUCTION PERMIT PREVENTION OF SIGNIFICANT DETERIORATION

PERMIT NUMBER: CP07-0077b

Facility Name: Archer Daniels Midland Company **NDEQ Facility ID#:** 39285
(Cogeneration Plant)

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

Facility Location:
3000 E. 8th Street
Columbus, Platte County, Nebraska

Project Description: Cogeneration plant comprised of two 768.0 MMBtu/hr solid fuel CFB boilers and associated equipment used to support the Dry Mill and Wet Mill

Standard Industrial Classification (SIC) Code: 4931, Electric and Other Services Combined

Superseded Construction Permits: This permit, in concert with CP07-0077a, supersedes permit CPM02-0006 issued August 4, 2006

Pursuant to Chapter 14 of the Nebraska Air Quality Regulations, the public has been notified by prominent advertisement of this proposed construction of an air contaminant source and the thirty (30) day period allowed for comments has elapsed. This construction permit approves the project as identified in the air quality construction permit application #07-0077 received December 17, 2007, including any supporting information received prior to issuance of this permit. Additional details of the proposed project, including estimated pollutant emissions caused by the project, can be found in the accompanying Fact Sheet.

Compliance with this permit shall not be a defense to any enforcement action for violation of an ambient air quality standard. 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	NO ₂	Nitrogen Dioxide
BACT	Best Available Control Technology	NO _x	Nitrogen Oxides
bhp	Brake Horsepower	NSPS	New Source Performance Standard
BMP	Best Management Practice	NSR	New Source Review
btu	British Thermal Unit	PAL	Plant-wide Applicability Limit
bu	Bushel	Pb	Lead (chemical abbreviation)
CAA	Clean Air Act	PbR	Permit-by-Rule
CE	Control Equipment	PEMS	Parametric Emissions Monitoring System
CEM	Continuous Emissions Monitor	PM	Particulate Matter
CEMS	Continuous Emissions Monitoring System	PM ₁₀	Particulate Matter with and aerodynamic diameter equal to or less than 10 microns
cf	Cubic feet	PM _{2.5}	Particulate Matter with and aerodynamic diameter equal to or less than 2.5 microns
CFR	Code of Federal Regulations	ppb	Parts per Billion
CO	Carbon Monoxide	ppm	Parts per Million
CO ₂	Carbon Dioxide	ppmv	Parts per Million by volume
CP	Construction Permit	ppmvd	Parts per Million by volume, dry basis
DGS	Distiller's Grains with Solubles	PSD	Prevention of Significant Deterioration
DDGS	Dry Distillers Grains with Solubles	PTE	Potential to Emit
dscf	Dry Standard Cubic Feet	RVP	Reid Vapor Pressure
dscfm	Dry Standard Cubic Feet per Minute	RATA	Relative Accuracy Test Audit
EMIS	Emergency Management Information System	RMP	Risk Management Plan
EPA	Environmental Protection Agency	RTO	Regenerative Thermal Oxidizer
EQC	Environmental Quality Council	scf	Standard Cubic Feet
EP	Emission Point	SIC	Standard Industrial Classification
ESP	Electrostatic Precipitator	SIP	State Implementation Plan
EU	Emission Unit	SO ₂	Sulfur Dioxide
FID	Facility Identification Number	SO _x	Sulfur Oxides
FDCP	Fugitive Dust Control Plan	TDS	Total Dissolved Solids
FGR	Flue Gas Recirculation	TO	Thermal Oxidizer
FIP	Federal Implementation Plan	TO/HRSG	Thermal Oxidizer with Heat Recovery Steam Generator
FR	Federal Register	tpy	Tons per year
ft	Feet	TRS	Total Reduced Sulfur
FTIR	Fourier Transform Infrared	TSP	Total Suspended Particulate Matter
H ₂ S	Hydrogen Sulfide	ULNB	Ultra Low NO _x Burner
HAP	Hazardous Air Pollutant	UST	Underground Storage Tank
hp	Horsepower	UTM	Universal Transverse Mercator
hr	Hour	VHAP	Volatile Hazardous Air Pollutant
LDAR	Leak Detection and Repair	VMT	Vehicle Miles Traveled
LNB	Low NO _x Burner	VOC	Volatile Organic Compound
MACT	Maximum Achievable Control Technology	WDGS	Wet Distiller's Grains with Solubles
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		

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.

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- (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:
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- (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 (15th) 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)
COGEN1	COGEN Boilers (Two individual flues, exiting through a single stack)	87.8	3.90
COGEN2	Rail Car Dumper/Truck Dump Building Unit 1	35	1.37
COGEN3	Rail Car Dumper/Truck Dump Building Unit 2	35	1.32

Emission Point ID#	Emission Point Name	Minimum Stack Height (m)	Stack Exit Point Maximum Inside Diameter (m)
COGEN5	Crusher Tower	30	0.92
COGEN6	Powerhouse Bunker Bay	60	0.84
COGEN7	Fly Ash Transfer/Storage Unit 1	45	0.40
COGEN8	Fly Ash Transfer/Storage Unit 2	45	0.40
COGEN9	Fly Ash Collection Unit	38	0.35
COGEN10	Bottom Ash Collection Unit	15	0.35
COGEN11	Bottom Ash Transfer/Storage Unit 1	20	0.35
COGEN12	Bottom Ash Transfer/Storage Unit 2	20	0.35
COGEN13	Limestone Transfer Unit 1	38	0.55
COGEN14	Limestone Transfer Unit 2	38	0.55
COGENC1	CoGen Cooling Tower #1	13	3.00
COGENC2	CoGen Cooling Tower #2	13	7.30

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 COGEN Boilers

(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
COGEN1	COGEN1-A: EU9-1 Baghouse	EU9-1: CFB Boiler #1
	COGEN1-B: EU9-2 Baghouse	EU9-2: CFB Boiler #2

- (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	Rated Capacity (MMBtu/hr)	Permitted Fuel Types
COGEN1	EU9-1: CFB Boiler #1	768.0	Coal and Alternative Fuel Blends ^[1]
	EU9-2: CFB Boiler #2	768.0	

^[1]Alternative fuel blends specifically include coal mixed with up to 20% by weight biomass, petroleum coke, or tire-derived fuel.

(2) Emission Limitations and Testing Requirements:

- (a) Pollutant emission rates from COGEN1 shall not exceed the permitted limits in the table below. Initial performance testing, if required, shall be conducted in accordance with Specific Condition II.(D). Emissions limitations include periods of startup and shutdown and malfunctions shall be handled in accordance with Title 129, Chapter 35 unless otherwise noted.

Emission Point ID#	Pollutant	Permitted Limits ^[1]	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
COGEN1	PM ^[2]	0.015 lb/MMBtu	3-hour or test method average	Chapter 19	Yes ^[3]
	PM ₁₀ ^[4]	0.025 lb/MMBtu	3-hour or test method average	Chapter 19	Yes ^[3]
	NO _x	0.07 lb/MMBtu ^[5]	30-day rolling average	Chapter 19	No ^[6]
	CO	150 lb/hr	3-hour average	Chapter 4	No ^[6]
	CO	0.1 lb/MMBtu ^[7]	30-day rolling average	Chapter 19	No ^[6]
	VOC	0.007 lb/MMBtu ^[8]	3-hour or test method average	Chapter 19	Yes ^[3]
	H ₂ SO ₄	0.01 lb/MMBtu	3-hour or test method average	Chapter 19	Yes ^[9]

Emission Point ID#	Pollutant	Permitted Limits ^[1]	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
	Fluoride (as HF)	0.0012 lb/MMBtu	3-hour or test method average	Chapter 19	Yes ^[9]
	Lead	0.0002 lb/MMBtu	3-hour or test method average	Chapter 19	Yes ^[9]
	HAP	N/A	Speciation and Quantification of HAP composition at outlet	Chapter 27	Yes

^[1]All limits are per boiler (each flue).

^[2]PM is filterable portion only

^[3]Performance testing for each fuel blend shall be conducted within 120 days after first combusting the fuel blend.

^[4]PM₁₀ includes filterable and condensable portions.

^[5]Excluding period of cold startup. A cold startup is defined as the period of time when a coal-fired CFB combustor is proceeding to increase the temperature in the lower combustor from less than 400°F to at least 1,500°F. This period shall last no more than 48 hours and NO_x emissions data from the period shall be excluded when determining compliance with the limits established. Ammonia injection shall begin as soon as the lower combustor temperature reaches 1,500°F and the startup period will end at this time. All data from cold startup periods after the first 48 hours, or while ammonia is injected in the boiler, will be included in determining compliance with the optimized limit.

^[6]A CEMS is required to demonstrate compliance with the emissions limitation.

^[7]Excludes periods of startup and shutdown. Malfunctions shall be handled in accordance with Chapter 35.

^[7]VOC emissions shall be expressed as total mass VOC

^[9]Performance testing shall be completed while combusting the worst-case fuel for each pollutant as determined by fuel analysis.

(b) Sulfur dioxide (SO₂) emissions from COGEN1 shall not exceed the following limits:

- (i) 8% of the potential SO₂ emission rate (92% reduction) and 1.2 lbs/MMBtu heat input (30-day rolling average) or 0.20 lbs/MMBtu, including periods of startup, shutdown, and malfunction. {Chapter 18}
- (ii) 3,750 lbs/hr (3-hour average), including periods of startup, shutdown, and malfunction. {Chapter 4}
- (iii) 0.11-0.20 lb/MMBtu (30-day rolling average), excluding periods of startup and shutdown. Malfunctions shall be handled in accordance with Chapter 35. {Chapter 19}

(c) The calculation method that shall be used to determine the emissions limitation for SO₂ (30-day rolling average) as required in Specific Condition III.(A)(2)(b)(iii) for COGEN1 is as follows:

$$\text{SO}_2 \text{ Emission Limitation (lb/MMBtu)} = \left[\frac{(0.20 \times A) + (0.11 \times B) + \sum_{i=1}^n (0.1 \times C_i)}{30} \right] \text{ lb/MMBtu}$$

Where:

A = Number of BODs, during 30 CODs prior to the calculation, when the uncontrolled SO₂ emission potential of the combusted fuel was 2.0 lb/MMBtu or greater based on daily as-fired fuel sulfur analysis.

B = Number of BODs, during 30 CODs prior to the calculation, when the uncontrolled SO₂ emission potential of the combusted fuel was 1.1 lb/MMBtu or less based on daily as-fired fuel sulfur analysis.

C_i = Uncontrolled SO₂ emission potential (lb/MMBtu) of the combusted fuel for BOD_i, for days 1 thru 'n' during the 30 BODs prior to the calculation, for which the uncontrolled SO₂ emission potential of the combusted fuel was greater than 1.1 lb/MMBtu and less than 2.0 lb/MMBtu.

BOD = Boiler Operating Day: a day when the CFB Boiler(s) operates at least one hour, not including periods of startup and shutdown.

For purposes of determining the applicable SO₂ emissions limit, the uncontrolled SO₂ emissions potential of the fuel shall be based on daily as-fired fuel samples obtained each BOD during a period of 30 BODs. Any BOD that does not have valid sulfur analysis results shall be considered a BOD where the uncontrolled SO₂ emission potential was less than 1.1 lb/MMBtu.

(3) Operational and Monitoring Requirements and Limitations:

- (a) The emissions from the CFB boilers shall be controlled by limestone injection, ammonia injection (SNCR), and two fabric filter baghouses (one for each boiler), exhausting through individual flues of a single stack (COGEN1). {Chapters 19 and 27}
- (b) Operation and maintenance of each baghouse shall be in accordance with the following requirements: {Chapter 19}
 - (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.
- (e) The source shall install, calibrate, maintain, and operate a Continuous Emissions Monitoring System(s) (CEMS) in order to monitor NO_x, SO₂, and CO emissions emitted

from COGEN1 to demonstrate compliance with the emissions limitations in Specific Conditions III.(A)(2)(a) and III.(A)(2)(b). The source shall also install a Continuous Opacity Monitoring System (COMS) for measuring opacity to demonstrate compliance with the opacity limitations in NSPS, Subpart Db and Title 129, Chapter 20. The CEMS and COMS shall be operated and maintained in accordance with 40 CFR 60.13.

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

The following standards apply to the CFB Boilers (EU9-1 and EU9-2):

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Chapter 18, Sec. <u>001.01</u> 40 CFR 60.1
NSPS, Subpart Db	Industrial, Commercial, and Institutional Steam Generating Units	Chapter 18, Sec. <u>001.22</u> 40 CFR 60.40b

(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) Notifications and record keeping as required by 40 CFR 60.7
- (e) Reporting and recordkeeping as required by 40 CFR 60.49b

III.(B) Specific Conditions for Coal Receiving and Handling

- (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 Description	Emission Unit Description
COGEN2	COGEN2: Dump Building #1 Baghouse	Rail Car Dumper/Truck Dump Building Unit 1
COGEN3	COGEN3: Dump Building #2 Baghouse	Rail Car Dumper/Truck Dump Building Unit 2
COGEN5	COGEN5: Crusher Tower Baghouse	Crusher Tower
COGEN6	COGEN6: Powerhouse Bunker Bay Baghouse	Powerhouse Bunker Bay
COGEN7	COGEN7: Fly Ash Transfer and Storage Baghouse #1	Fly Ash Transfer/Storage Unit 1
COGEN8	COGEN8: Fly Ash Transfer and Storage Baghouse #2	Fly Ash Transfer/Storage Unit 2
COGEN9	COGEN9: Fly Ash Collection Baghouse #1	Fly Ash Collection Unit 1
COGEN10	COGEN10: Bottom Ash Collection Baghouse #2	Bottom Ash Collection Unit 2
COGEN11	COGEN11: Bottom Ash Transfer and Storage Baghouse #1	Bottom Ash Transfer/Storage Unit 1
COGEN12	COGEN12: Bottom Ash Transfer and Storage Baghouse #1	Bottom Ash Transfer/Storage Unit 2
COGEN13	COGEN13: Limestone Transfer Baghouse #1	Limestone Transfer Unit 1
COGEN14	COGEN14: Limestone Transfer Baghouse #2	Limestone Transfer Unit 2

- (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 per Emission Point	Averaging Period	Basis for Permit Limit	Initial Performance Testing Required (Yes/No)
COGEN2 COGEN3 COGEN5 COGEN6	PM/PM ₁₀	0.004 gr/dscf	3-hour or test method average	Chapter 19	Yes
COGEN7 COGEN8 COGEN9 COGEN10 COGEN11 COGEN12 COGEN13 COGEN14	PM/PM ₁₀	0.005 gr/dscf	3-hour or test method average	Chapter 19	Yes

(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: the Rail Car Dumper/Truck Dump Building Unit 1 shall be controlled by COGEN2; the Rail Car Dumper/Truck Dump Building Unit 2 shall be controlled by COGEN3; the Crusher Tower shall be controlled by COGEN5; the Powerhouse Bunker Bay shall be controlled by COGEN6; the CFB Boilers' Fly Ash Transfer and Storage Unit 1 shall be controlled by COGEN7; the CFB Boilers' Fly Ash Transfer and Storage Unit 2 shall be controlled by COGEN8; the CFB Boilers' Fly Ash Collection Unit 1 shall be controlled by COGEN9; the CFB Boilers' Bottom Ash Collection Unit 2 shall be controlled by COGEN10; the CFB Boilers' Bottom Ash Transfer and Storage Unit 1 shall be controlled by COGEN11; the CFB Boilers' Bottom Ash Transfer and Storage Unit 2 shall be controlled by COGEN12; the CFB Boilers' Limestone Transfer Unit 1 shall be controlled by COGEN13; and the CFB Boilers' Limestone Transfer Unit 2 shall be controlled by COGEN14. {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.

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

The following standards apply to COGEN5 and COGEN6:

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Chapter 18, Sec. <u>001.01</u> 40 CFR 60.1
NSPS, Subpart Y	Coal Preparation Plants	Chapter 18, Sec. <u>001.08</u> 40 CFR 60.250

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

III.(C) Specific Conditions for Emergency Equipment

- (1) Permitted Emission Points: The source is permitted to construct the emissions point and associated emissions unit identified in the following table at the maximum capacity and using the fuel type listed:

Emission Point ID#	Emission Unit ID# and Description	Maximum Capacity (HP)	Permitted Fuel Type
COGEN23	EU-COGEN23: COGEN Generator	1,341	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 generator.

- (3) Operational and Monitoring Requirements and Limitations:

- (a) Emissions unit COGEN23 shall 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 the engine’s total operating hours exceed 500 hours. {Chapter 19}

The 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 generator:

Applicable Standard	Title	Rule Citation
NSPS, Subpart A	General Provisions	Chapter 18, Sec. <u>001.01</u> 40 CFR 60.1
NSPS, Subpart IIII	Stationary Compression Ignition Internal Combustion Engines	Chapter 18, Sec. <u>001.76</u> 40 CFR 60.4200
NESHAP, Subpart A	General Provisions	Chapter 28, Sec. 001.01 40 CFR 63.1
NESHAP, Subpart ZZZZ	Stationary Reciprocating Internal Combustion Engines	Chapter 28, Sec. <u>001.88</u> 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 generator. Fuel receipts shall state the sulfur content, by weight, in the distillate fuel.
- (b) Hours of operation for the emergency generator 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.(D) Specific Conditions for the Cooling Towers

- (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)
COGEN17-18	COGEN Cooling Tower #1	2	168,000
COGEN19-22	COGEN Cooling Tower #2	4	2,040,000

- (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 III.(D)(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 COGEN Cooling Towers (#1 and #2) shall not exceed 2,500 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:

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.(D)(1).

- (5) Reporting and Recordkeeping Requirements:

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

III.(E) Specific Conditions for Haul Roads (COGEN90)

- (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:

The haul road silt loading shall not exceed 3.0 g/m². {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.(E)(2). 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:

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

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FACT SHEET

Archer Daniels Midland Company
3000 East 8th Street
Columbus, Platte County, Nebraska 68601-9073

December 18, 2008

DESCRIPTION OF THE FACILITY OR ACTIVITY:

Archer Daniels Midland Company (ADM), NDEQ ID# 39285, is an existing starch, high fructose corn syrup, ethanol, and animal feed products production facility (primary Standard Industrial Classification, SIC, code 2046 and secondary SIC code 2869; North American Industrial Classification System, NAICS, code 311221) that utilizes a corn wet milling process (Wet Mill) and a fuel grade ethanol production facility (SIC code 2869, NAICS code 325193) that utilizes a corn dry milling process (Dry Mill). The ADM-Columbus complex will also contain a co-generation plant (SIC code 4931) where solid fuel boilers will produce the steam needed to operate the Dry Mill and electricity to power the complex. Two identical 768 million British thermal units per hour (MMBtu/hr), solid fuel-fired steam generating units that utilize CFB boiler technology to burn coal, petroleum coke, biomass (waste or by-products from the grain milling operations including wet gluten feed, DDGS, corn cobs, etc.), and TDF will be constructed.

The permitting action described in this document is solely related to the co-generation facility (CoGen). Separate permitting documents have been prepared to address modifications at the Wet Mill (CP07-0077a) and the Dry Mill (CP07-0061).

Co-Gen's Air Quality Permitting History

August 4, 2006 – A PSD construction permit was issued that permitted the construction of a new co-generation facility which will consist of two new 768 MMBtu/hr solid fuel-fired, circulating fluidized bed steam generating units and associated equipment. This permit also superseded all previously issued construction permits addressing the Wet Mill portion of the Columbus complex. The CP addressed several outstanding regulatory requirements, as well as requirements contained in a Consent Decree negotiated under *United States v. ADM* (C.D. IL, NO. 03-CV-2066). The permit also permitted an expansion of the wet-milling ethanol production operations, which increased the capacity of this facility from 100 million gallons per year to 120 million gallons per year of anhydrous ethanol. Finally, the wet mill's CP addressed the requirements and associated injunctive relief related to compliance with Title 129, Chapter 27, Section 002 (Best Available Control Technology requirements for sources of hazardous air pollutants) of the Nebraska Administrative Code.

The Co-Gen facility has not yet completed construction or began operation and therefore no operating permit application addressing this addition to the complex has been submitted to the Department.

Current Permitting Action

On December 17, 2007, the Department received a construction permit application (#07-0077) requesting to permit the construction of a new 1,341 horsepower (HP) (1,000 kilowatt) emergency generator associated with the COGEN facility. A construction permit is needed for the generator because the unrestricted potential emissions from the unit exceeds the construction permit thresholds and numerous other projects were being permitted throughout the ADM-Columbus complex. ADM has also requested minor revisions to the coal receiving and handling emission calculations to better reflect proposed equipment (lowered grain loading of baghouses, increased air flow) and to remove three emission points,

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COGEN4, COGEN15, and COGEN16 that will not be constructed. In addition, emission calculations for haul roads were updated to reflect increased truck travel distances at the plant.

Upon closer examination of the ADM Columbus complex the Department has determined that it would be beneficial to issue separate construction permits to the three areas of the facility in order to eliminate confusion between different emissions units. A notice was submitted to the Department that construction of the facility was commenced on January 10, 2007 in regard to construction permit CPM02-0006, which was issued as a combined permit for the Wet Mill and CoGen projects. Because the Department is now proposing to issue separate permits under this permitting action for the Wet Mill (CP07-0077a) and CoGen (CP07-0077b), the original start of construction notice shall continue to be valid for the Wet Mill and CoGen projects individually. A notification letter was also previously submitted to the Department that construction of the CFB boilers was commenced on August 20, 2007 under construction permit CPM02-0006, and that notice shall remain valid.

The application received on December 17, 2007 not only requested numerous changes regarding the CoGen facility, but also sought approval to modify the Wet Mill facility. Since the Department is issuing separate permits for the Wet Mill, Dry Mill, and CoGen facilities, the information submitted in the December 2007 application has been incorporated into the two separate permitting actions; CP07-0077a for the Wet Mill and CP07-0077b for the CoGen plant.

Due to the numerous changes and recent development of a new permitting format by the Department, ADM and the Department have decided to issue the source a revised construction permit for the CoGen facility, concurrent with the issuance of revised construction permits for the Wet Mill, and supersede the permit issued on August 4, 2006 in its entirety. All limits previously established that are not impacted by the construction of a new emergency generator or revision of the TDS limit, are only reiterated in the new format. The only change being made to the permitted requirements of the CoGen facility is allowing the installation and operation a new 1,341 HP generator and revising the TDS limit. All changes to the CoGen portion of the October 2006 permit are explicitly discussed throughout this fact sheet.

ADM CoGen

The ADM CoGen consists of the production steps/equipment presented in the following table. All emissions from each of the production steps have been accounted for in determining the potential emissions from the CoGen plant. The table also identifies the emission point identification numbers associated with each production step and the location in the construction permit where conditions for each production step are located.

Equipment/Process	Emission Point ID#s	Permit Conditions
Steam Generation	COGEN1	Condition III.(A)
Coal Receiving and Handling	COGEN2, COGEN3, COGEN5-14	Condition III.(B)
Emergency Equipment	COGEN23	Condition III.(C)
Cooling Towers	COGEN17-18 and COGEN19-22	Condition III.(D)
Haul Roads	COGEN90	Condition III.(E)

TYPE AND QUANTITY OF AIR CONTAMINANT EMISSIONS ANTICIPATED:

The CoGen facility will generate emissions of several air pollutants, including particulate matter (PM), particulate matter less than or equal to ten (10) microns (PM₁₀), sulfur oxides (SO_x), nitrogen oxides

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(NO_x), carbon monoxide (CO), volatile organic compounds (VOC), and hazardous air pollutants (HAP), specifically Acetaldehyde. The primary emission sources at the facility will be from the following equipment/processes:

Equipment/Process	Expected Pollutants
Steam Generation	PM, PM ₁₀ , SO ₂ , NO _x , CO, VOC, and HAP
Coal Receiving and Handling	PM and PM ₁₀
Emergency Equipment	PM, PM ₁₀ , SO ₂ , NO _x , CO, VOC, and HAP
Cooling Tower	PM and PM ₁₀
Haul Roads	PM and PM ₁₀

Potential emissions of pollutants were estimated using a combination of vendor guarantees, process design data, testing results from operational ethanol facilities, emission factors from EPA's Compilation of Air Pollutant Emission Factors, 5th Edition, Volume 1 (AP-42), EPA protocol and guidance documents, and resulting from the BACT analysis. Detailed emission calculations for the CoGen facility are presented in the Fact Sheet Attachment.

The previously permitted equipment associated with the CoGen plant is not being modified and the overall process of the facility is also remaining the same. Therefore, for additional information on the process and how emissions were estimated, please refer to the fact sheet that accompanied CPM02-0006 (filename: 39285f06.doc).

Emergency Generator

ADM is proposing to construct a 1,341 HP emergency generator, specifically associated with the COGEN facility. The generator will combust diesel fuel and is limited to operating 500 hours/year. Due to the hourly restriction, BACT has been determined to be no additional control.

Potential emissions were estimated using AP-42, Section 3.4: *Large Stationary Diesel and All Stationary Dual-fuel Engines* (10/96). The information presented in Section 3.4 is for industrial engines greater than 600 HP.

Emissions from the CoGen facility are increasing as follows (due to the installation of the Emergency Generator and other miscellaneous emission calculation method updates:

Pollutant	Emergency Generator (tons/year)	Other-truck traffic/ coal handling (tons/year)	Total Emissions Increase (tons/year)
Particulate Matter (PM)	0.16	11.72	11.88
Particulate Matter (PM ₁₀)	0.13	9.05	9.18
Sulfur Dioxide (SO ₂)	0.12	-	0.12
Nitrogen Oxides (NO _x)	7.51	-	7.51
Carbon Monoxide (CO)	1.99	-	1.99
Volatile Organic Compounds (VOC)	0.19	-	0.19
Total HAP	3.69E-03	-	3.69E-03

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APPLICABLE REQUIREMENTS AND VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS:

Title 129, Chapter 4 – Ambient Air Quality Standards

ADM conducted an extensive modeling analysis to support the issuance of construction permits that approve numerous changes occurring at the complex simultaneously. A description of the modeling analysis conducted is described in the fact sheets that accompany the Dry Mill and Wet Mill permits being issued with this permitting action. Below is a summary of the air dispersion modeling results showing that the facility is not expected to cause or contribute to violations of the ambient air quality standards. The ADM-Columbus NAAQS Modeled Impact includes contributions from nearby sources and a background concentration. The ADM-Columbus Increment Modeling Impacts include contributions from appropriate increment consuming sources. Haul road emissions were accounted for in all particulate matter models with the exception of 24-hour increment.

Pollutant	Averaging Period	Ambient Air Quality Standards ($\mu\text{g}/\text{m}^3$)	
		ADM Modeled Impact	Nebraska
PM ₁₀	24-hour ^[b]	123.85	150
	Annual	38.94	50
SO ₂	3-hour ^[a]	265.82	1300
	24-hour ^[a]	104.48	365
	Annual	22.24	80
NO ₂	Annual	35.68	100
CO	1-hour ^[a]	212.80	40,000
	8-hour ^[a]	69.66	10,000

^[a]Concentration is allowed to be exceeded once per year at a single receptor.

^[b]Concentration is allowed to be exceeded five times in a five-year period at a single receptor.

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Results of ADM-Columbus Increment Modeling Analysis

Pollutant	Averaging Period	Air Quality Increment (ug/m ³)	
		ADM Modeled Impact	Nebraska
PM ₁₀	24-hour ^[a]	23.94	30
	Annual	12.06	17
SO ₂	3-hour ^[a]	145.82	512
	24-hour ^[a]	56.48	91
	Annual	10.24	20
NO ₂	Annual	20.68	25

^[a]Concentration is allowed to be exceeded once per year at a single receptor.

Title 129, Chapter 17 – Construction Permit Requirements

A federal Prevention of Significant Deterioration (PSD) construction permit is required for this facility because the construction projects occurring throughout the Columbus complex at this time will emit more than the PSD emission thresholds. A PSD construction permit was originally issued for the construction of the CoGen on August 4, 2006. This permitting action is allowing the construction of the new emergency generator and reissuing all other conditions in a revised permitting format.

The facility-wide potential emissions from the facility after the issuance of this permit falls into the following category:

- 100 tons or more per year of any air pollutant; or
- 10 tons or more per year of any single HAP; or
- 25 tons or more per year of any combination of HAPs

Therefore, the facility submitted a \$3,000.00 fee when submitting their Air Quality Construction Permit Application, in accordance with Title 129, Chapter 17, Section 003.01.

Title 129, Chapter 18 – New Source Performance Standards (NSPS), and 40 CFR Part 60

Only those NSPS requirements in which the determinations have been altered or the rules themselves have been revised since the issuance of the construction permit issued on August 4, 2006 are discussed below. Additional NSPS discussions can be found in the fact sheet that accompanied the August 4, 2006 permit.

Subpart Y – Standards of Performance for Coal Preparation Plants: This subpart, adopted by reference in Title 129, Chapter 18, Section 001.08, applies to the equipment installed to receive, handle, and process coal for the new CFB boilers because the units will be constructed after October 24, 1974 and will process more than 200 tons of coal per day. However, emission units EU9-2 and EU9-3 (rotary car dumper/truck dump bldgs) are not subject to this standard because they do not meet the definition of a “transfer and loading system” as defined in Subpart Y. On April 28, 2008, EPA proposed changes to Subpart Y that apply to units constructed after April 28, 2008. Depending on when affected units are constructed and when the proposed changes become final, the new requirements may apply to some of the coal preparation facilities at ADM.

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Subpart IIII – Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE): This subpart, adopted by reference in Title 129, Chapter 18, Section 001.76, applies to stationary compression ignition internal combustion engines with a displacement of less than 30 liters per cylinder that commence construction or have been modified or reconstructed after July 11, 2005. Unlike other NSPS Subparts, for Subpart IIII, the commence construction date is the date the engine is ordered. The CoGen emergency generator is subject to this subpart because it is a new unit that will be ordered after July 11, 2005.

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

- (a) Maintenance checks and readiness testing shall be limited to 100 hours per year. {40 CFR 60.4211(e)}
- (b) Emergency stationary CI ICEs with a displacement of less than ten liters per cylinder that are not fire pump engines must comply with the emission standards in Table 1 of Subpart IIII. Engines with a maximum power greater than 560 KW (750 HP) shall comply with the following emission standards {40 CFR 60.4205}:
 - (i) Particulate Matter (PM): 0.40 g/Hp-hr
 - (ii) Carbon Monoxide (CO): 8.5 g/Hp-hr
 - (iii) Nitrogen Oxides (NO_x): 6.9 g/Hp-hr
 - (iv) Hydrocarbons (HC): 1.0 g/Hp-hr
- (c) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a). {40 CFR 60.4207(a)}
- (d) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel. {40 CFR 60.4207(b)}
- (e) A non-resettable hour meter must be installed on the stationary CI ICE prior to startup of the engine.
- (f) If the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

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

Each of the three “plants” located at the ADM-Columbus complex each emit emissions in excess of the applicable major source threshold. All equipment that is currently located on site or has been previously permitted has obtained a permit in accordance with New Source Review either prior to being constructed or retroactively. Although the emergency generator alone would not constitute a major modification, due to the numerous other projects occurring at the complex, a BACT analysis was done and it was determined that no control would be necessary due to the hour restriction imposed on the unit (500 hours).

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Information concerning the BACT analyses previously conducted on units located at the CoGen facility can be found in the application and fact sheet that accompanies CPM02-0006.

The BACT analysis for the coal handling baghouses was revised based on the updated configuration of the equipment. The original BACT determination was a grain loading of 0.005 gr/dscf {represented in the previous permit as a lb/hr BACT limit based on anticipated blower capacities of each baghouse, Condition XIII(L)(3)}. Based on revised design and configuration of the coal handling baghouses, the original BACT determination of 0.005 was lowered to 0.004 gr/dscf. In addition, the proposed permit includes a grain loading limit in the permit {Condition III.(B)(2)} instead of the corresponding lb/hr emission rate found in the previous permit.

Title 129, Chapter 27 – Hazardous Air Pollutants; Maximum Achievable Control Technology (MACT)

Title 129, Chapter 27, Section 002 – State Toxics BACT (T-BACT)

ADM will satisfy the requirements of T-BACT through compliance with the applicable MACT standards.

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

The CFB boilers located at the CoGen facility are not subject to the requirements of 112(g). The CFB boilers were permitted on October 20, 2006. Since NESHAP, Subpart DDDDD was not vacated until July 30, 2007, the CFB boilers were deemed subject to this subpart. The addition of the CoGen emergency generator and additional changes being permitted through this permitting action does not constitute reconstruction of the CFB boilers. The CFB boilers are therefore not considered to be new or reconstructed units for this permitting action and therefore Section 112(g) does not apply. The CFB boilers will be subject to 112(j) requirements, as discussed in the Chapter 28 discussion below, if EPA does not promulgate a new standard.

Title 129, Chapter 28 – Hazardous Air Pollutant Emission Standards

Only those NESHAP/MACT requirements in which the determinations have been altered or the rules themselves have been revised since the issuance of the construction permit issued on October 20, 2006 are discussed below. Additional determinations can be found in the fact sheet that accompanied the October 20, 2006 permit.

Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines (RICE) {40 CFR 63.6580, promulgated June 15, 2004 (amended January 18, 2008)}: This subpart, adopted by reference in Title 129, Chapter 28, Section 001.88, applies to stationary reciprocating internal combustion engines (non-road) located at a major (≥ 10 tons/year of individual HAP or ≥ 25 tons/year of combined HAPs) or area (non-major) source of HAPs, except if the stationary RICE is being tested at a stationary RICE test cell/stand. Currently this rule only establishes requirements for new or reconstructed units located at major and area sources and existing units greater than 500 HP located at major sources. A new RICE is a unit which commenced construction after June 12, 2006. The emergency generator being constructed at the CoGen facility is subject to this subpart. This is because the engines being constructed are considered to be new units and ADM Columbus is a major source of HAPs. ADM must comply with all applicable requirements.

Subpart DDDDD – Industrial, Commercial, and Institutional Boilers and Process Heaters: This subpart, adopted by reference in Title 129, Chapter 28, Section 001.90, applied to boilers and process heaters that are located at major HAP sources (≥ 10 tons/year of individual HAP or ≥ 25 tons/year of combined HAPs). The CFB boilers would have been subject to Subpart DDDDD for Industrial, Commercial, and

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Institutional Boilers and Process Heaters, however the subpart was vacated in its entirety by the Court of Appeals for the District of Columbia Circuit on July 30, 2007 (NRDC v. EPA). The vacatur of the rule essentially means that no rule has been promulgated for this source category. Since the coal fired boilers were permitted as new units prior to the vacatur of the rule, section 112(j) will now apply since the Administrator (EPA) has failed to promulgate a standard for this source category by the May 15, 2002 deadline established in section 112(j). To comply with the section 112(j) requirements, ADM must submit a 112(j) Part 1 application for the coal fired units to the Department once it is determined which units are subject to this subpart, according to regulation. However, the Department will instruct the source in the future as to when and if a Part 1 application needs to be submitted based on impending guidance from EPA. Within sixty (60) days of submitting the Part 1 application, the owner or operator must submit a 112(j) Part 2 application, if a standard has not yet been promulgated, which shall include a case-by-case MACT determination in accordance with 112(g). The Department will then review the case-by-case MACT determination and incorporate the necessary requirements into a Title V permitting action. Alternate to the 112(j) approach, a November 13, 2008, court order from the D.C. District Court between the Sierra Club and EPA established an August 15, 2009 deadline to promulgate a new MACT standard for industrial boilers. There are some provisions that could extend this deadline to as late as July 15, 2010.

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

- II.(A) This condition contains general recordkeeping and reporting requirements that apply to all permitted emission units, control equipment, and monitoring devices. These requirements establish several things including, a completion date when records must be completed, how long records need to be maintained, and identifying specific types of records that must be maintained. Records are required to be maintained to ensure compliance with all applicable requirements, specifically those required in this permit. However, additional recordkeeping requirements may be established in the future to better ensure compliance. Documentation detailing operation, inspection, and maintenance can be operational and maintenance manuals provided by the manufacturer. If manufacturer manuals are not available, the owner or operator must develop a document containing operation, inspection, and maintenance requirement for each permitted emission unit and piece of required control equipment.
- II.(B) This condition requires all permitted emission units, required control equipment, and required monitoring equipment to be properly installed, operated, and maintained. It is expected that the installation, operation, and maintenance conducted will be similar to the items contained in the documents detailing proper operation, inspection, and maintenance of the equipment (required in Specific Condition II.(A)(5)). It is very important that permitted and required equipment is operating properly and maintained since un-maintained equipment has the potential to emit greater amounts of pollution into the atmosphere or monitor items incorrectly or inaccurately. Emission estimates for this permitting action assume that all equipment is operating properly and being properly maintained.
- II.(C) This condition requires that the source report excess emissions and malfunctions in accordance with Title 129, Chapter 35.
- II.(D) General initial performance testing requirements. All performance tests required throughout this permit are required to be conducted in accordance with these conditions.
- II.(E) This condition specifies the stack heights upon which the dispersion modeling analysis is based. If any stack exit point dimensions differ from the information used in modeling for the basis of this permit, the permittee shall provide a discussion of the discrepancy with respect to the

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modeling analysis and submit justification as to why the modeling analysis remains valid with supporting conclusions. Alternately, the permittee may submit revised modeling based on the as-built stack parameters. The Department may require that revised modeling based on as-built conditions be submitted to demonstrate compliance with Title 129, Chapter 4. The property must restrict public access. The restriction plan shall be submitted to the NDEQ prior to start up of operations. Site surveys (or other similar documentations) must be kept in order to demonstrate compliance.

Emission Point Conditions contained in the proposed permit are discussed as follows. The only requirements that are new as a result of this permitting action are the requirements associated with the new emergency generator.

III.(A)

Steam Generation (COGEN Boilers)

- (1) The owner or operator is permitted to construct the emission units described in the table. The requirements previously established on these units have remained unchanged although maintenance required for control equipment has been updated to reflect current requirements.
- (2) PM/PM₁₀, SO_x, NO_x, CO, and VOC emissions limits are established as a result of the BACT analysis previously conducted. The COGEN boilers are subject to NSPS Subparts A and Db. The BACT emission limitations are equivalent or more stringent than the applicable NSPS limitations. The CO lb/hr limitation has been established in order to demonstrate compliance with the CO ambient air quality standards.
- (3) In order to control particulate emissions, a baghouse must be properly operated whenever the associated emission units are in operation. One indication of baghouse malfunction is an atypical pressure drop across the baghouse. Therefore, each baghouse is required to be equipped with an operational pressure differential indicator. The facility must conduct daily observations, during the daylight hours of baghouse operation, to ensure that there are not visible emissions from the stack, leaks, noise from the unit, or atypical pressure differential readings. By requiring daily observations, baghouse malfunctions will be detected quickly and should be corrected. The facility is required to keep an on-site inventory of spare bags of each type used. If a baghouse is not operating properly (i.e. has a blown bag), it is expected that there will be excess emissions emitted from the unit. Keeping spare bags will minimize the duration of excess emissions. The required CEMS and COMS are required to be operated and maintained in accordance with 40 CFR 60.13.
- (4) The COGEN boilers are subject to NSPS, Subparts A and Db.
- (5) Recordkeeping requirements include documenting pressure differential indicator readings, indicators that corrective action is needed, when baghouse filters are replaced, observations and corrective actions taken. Reporting and recordkeeping required by the NSPS. Additional recordkeeping requirements in accordance with Specific Condition II.(A) are also required to be maintained, which includes but is not limited to, documenting equipment failures and malfunctions.

III.(B)

Coal Receiving and Handling (COGEN 2, 3, 5-14)

- (1) The owner or operator is permitted to construct the emission units described in the table. The requirements previously established on these units have remained unchanged although maintenance required for control equipment has been updated to reflect current requirements.
- (2) PM/PM₁₀ emission limitations (gr/dscf) have been established for each of the coal receiving and handling emission points based on the BACT analysis previously conducted. COGEN 2,

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- 3, 5, and 6 are similar sources, therefore it shall be up to the discretion of the Department whether or not testing will be required on each of these emission points or if one of the emission points can be tested to represent all. COGEN 7 through 12 are similar sources, therefore it shall be up to the discretion of the Department whether or not testing will be required on each of these emission points or if one of the emission points can be tested to represent all. COGEN 13 and 14 are similar sources, therefore it shall be up to the discretion of the Department whether or not testing will be required on each of these emission points or if one of the emission points can be tested to represent all. The testing protocol must identify what the source wants to test and specifically explain why that stack is representative of the others.
- (3) In order to control particulate emissions, a baghouse must be properly operated whenever the associated emission units are in operation. One indication of baghouse malfunction is an atypical pressure drop across the baghouse. Therefore, each baghouse is required to be equipped with an operational pressure differential indicator. The facility must conduct daily observations, during the daylight hours of baghouse operation, to ensure that there are not visible emissions from the stack, leaks, noise from the unit, or atypical pressure differential readings. By requiring daily observations, baghouse malfunctions will be detected quickly and should be corrected. The facility is required to keep an on-site inventory of spare bags of each type used. If a baghouse is not operating properly (i.e. has a blown bag), it is expected that there will be excess emissions emitted from the unit. Keeping spare bags will minimize the duration of excess emissions. Although the baghouse operational and maintenance language has been updated in the permit, the requirements are consistent with those required in CPM02-0006.
 - (4) COGEN5: Crusher Tower Baghouse and COGEN6: Powerhouse Bunker Bay Baghouse are subject to NSPS, Subparts A and Y.
 - (5) Recordkeeping requirements that include documenting pressure differential indicator readings, indicators that corrective action is needed, when baghouse filters are replaced, observations and corrective actions taken. Reporting and recordkeeping required by the NSPS. Additional recordkeeping requirements in accordance with Specific Condition II.(A) are also required to be maintained, which includes but is not limited to, documenting equipment failures and malfunctions.

III.(C)

Emergency Equipment

- (1) The source is permitted to construct the equipment listed in the table. The maximum horsepower ratings and permitted fuel types of the combustion equipment is also listed. All but the 1,341 HP generator, specifically associated with the COGEN facility was previously permitted. The COGEN generator will combust diesel fuel and is limited to operating 500 hours/year.
- (2) Emission limitations and testing required by NSPS, Subpart IIII and NESHAP, Subpart ZZZZ are required, as applicable.
- (3) The emergency generator is limited to operating 500 hours per year. The facility must install an hour meter on the engine to record the hours of engine operation. It would not be cost effective to install control equipment on an emissions unit that is only permitted to operate 500 hours per year. The engine may only combust distillate fuel with a maximum sulfur content of 0.05% by weight.
- (4) The emergency generator is subject to NSPS, Subpart IIII and NESHAP, Subpart ZZZZ.
- (5) Recordkeeping requirements include maintaining fuel receipts to indicate that distillate fuel with a maximum sulfur content of 0.05% by weight is the only fuel being combusted in the engine and records indicating that the engines have not exceeded their 500 hour/year

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operational limits. The owner or operator is also required to maintain appropriate records and make appropriate notifications in accordance with the NSPS and NESHAP requirements. Additional recordkeeping requirements in accordance with Specific Condition II.(A) are also required to be maintained.

III.(D)

Cooling Towers

- (1) ADM - CoGen is permitted to construct and operate two (2) cooling towers.
- (2) No emission limitations or testing requirements are being established on either cooling tower. Monitoring of TDS concentration is being required and is discussed below.
- (3) The total dissolved solids (TDS) concentration in the COGEN cooling towers' water has been limited to 2,500 ppm (same as previous permit). The owner or operator is required to conduct monthly cooling tower water tests to determine TDS concentration. A limitation on the drift loss percent from each cooling tower has also been established at 0.0005%, based on the manufacturer's drift loss percent. If the cooling towers are properly maintained and operated then the drift loss percent limitation is expected to be complied with. The permitted drift loss is based on the BACT analysis previously conducted.
- (4) At this time the Department has not identified any NSPS, NESHAP, or MACT standards that apply to the cooling towers associated with the Cogen facility.
- (5) Recordkeeping requirements include documenting when routine maintenance and preventative actions are performed on the cooling towers, when equipment failures occur, and the TDS testing results. Additional recordkeeping requirements in accordance with Specific Condition II.(A) are also required to be maintained.

III.(E)

Haul Roads (COGEN90)

Conditions regarding haul roads were previously located in Condition XIII.(O) of the permit issued on August 4, 2006. The conditions have not become less stringent as a result of this permitting action. Language regarding the maintenance and documentation of such maintenance has been updated. For consistency, the haul road requirements for each "plant's" permit (Wet Mill, Dry Mill, Cogen) are identical.

- (1) All haul roads are required to be paved. This requirement is based on the BACT analysis conducted for this emissions source. Paved roads, with proper maintenance, are expected to emit less PM/PM₁₀ than unpaved roads. This requirement will also help ADM comply with Title 129, Chapters 20 and 32.
- (2) A silt load limit of 3.0 grams/square meter (g/m²) has been established for the facility's paved haul roads. This is a conservative silt load for haul roads located at ethanol plants and therefore no silt load testing is required. A silt load limitation has been established so that if the facility is required to conduct silt load testing in the future by the Department, which may occur if there is reason to believe the haul roads are not being properly maintained, then the facility has a silt load value that they are required to comply with (i.e. test to).
- (3) Haul road emissions must be controlled to prevent off-site transport of fugitive particulate matter. If the visible fugitive emissions go beyond the property line, then the facility may be in violation of General Condition II.(J). The facility will develop and maintain a truck traffic Fugitive Dust Control Plan (FDCP) to ensure the haul roads are maintained to minimize fugitive PM/PM₁₀ emissions. ADM is required to vacuum sweep the haul roads a minimum of three times per week, weather permitting. Since a conservative 3.0 g/m² silt loading value

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was permitted, initial silt load testing is not required for this facility. Therefore, the facility will demonstrate compliance with the silt load value and haul road emissions by complying with General Condition II.(J). Visible emissions are an indicator that the haul roads must be cleaned or have additional controls to prevent off-site transport of particulate matter. No visible emissions occurring during truck traffic movement on haul roads indicate that the controls methods are adequate to prevent air-borne off-site transport of particulate matter.

- (4) There are no NSPS, NESHAP, or MACT Requirements applicable to this emission point.
- (5) Recordkeeping requirements include documenting the types of fugitive dust control measures taken, including weekly sweeping, and when daily haul road emissions observations occur.

STATUTORY OR REGULATORY PROVISIONS ON WHICH PERMIT REQUIREMENTS ARE BASED:

Applicable regulations: Title 129 - Nebraska Air Quality Regulations as amended August 18, 2008.

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

The public notice, as required under NAQR Chapter 14, shall be published on December 24, 2008, in the Columbus Telegram newspaper. Persons or groups shall have 30 days from that issuance of public notice (January 22, 2009) to provide the NDEQ with any written comments concerning the proposed permit action and/or to request a public hearing, in accordance with NAQR Chapter 14. If a public hearing is granted by the Director, there will be a notice of that meeting published at least 30 days prior to the hearing. Persons having comments or requesting a public hearing may contact:

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

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

Brad Reid-Environmental Engineer
Air Quality Division-Permitting Section
Nebraska Department of Environmental Quality
PO Box 98922
Lincoln, Nebraska 68509-8922

Telephone inquiries may be made at:

(402) 471-2189

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

PUBLIC NOTICE

Nebraska Department of Environmental Quality

Air Quality Division

Notice is given to the public, according to Chapter 14 of Title 129 - Nebraska Air Quality Regulations, of the application of Archer Daniels Midland (ADM) for permission to modify its existing wet mill facility and cogeneration facility located at 3000 East 8th Street in Columbus, Platte County, Nebraska.

The change in emissions of air contaminants anticipated due to the proposed modifications are estimated in the following table:

Regulated Pollutant	Wet Mill Emissions Change (tons/year)	CoGen Emissions Change (tons/year)
Particulate Matter (PM)	-70.53	11.88
PM < 10 microns (PM ₁₀)	26.47	9.18
Sulfur Oxides (SO _x)	20.94	0.12
Nitrogen Oxides (NO _x)	-57.22	7.51
Carbon Monoxide (CO)	-58.07	1.99
Volatile Organic Compounds (VOC)	33.60	0.19
Total HAPs	16.20	0.004

Platte County is in attainment in regard to the National Ambient Air Quality Standards (NAAQS) for those pollutants subject to a NAAQS and is expected to continue in that status. Predicted consumption of the Prevention of Significant Deterioration (PSD) Class II increment by the source is presented in the table below:

PSD Increment Standards for PM₁₀, SO₂, and NO₂			
Pollutant	Averaging Period	Air Quality Increment (ug/m³)	
		Limit	Modeled
PM ₁₀	24-hour	30	23.94
	Annual	17	12.06
SO ₂	3-hour	512	145.82
	24-hour	91	56.48
	Annual	20	10.24
NO ₂	Annual	25	20.68

Platte County is not classifiable in regard to the state Total Reduced Sulfur (TRS) standards and no TRS emissions are expected from this project. No impact is anticipated on habitat for any rare or threatened species.

The Department proposes to issue two (2) separate PSD construction permits with specific conditions, based on Title 129 - Nebraska Air Quality Regulations, which:

Permit CP07-0077a – Wet Mill:

- Increase the maximum short-term throughput rate and grain loading rate for certain rail and truck corn receiving equipment
- Allow the existing Gluten Flash Dryer #2 and Fluidized Bed Germ Dryer to combust biogas generated in the existing wastewater treatment facility
- Update grain loading rates and baghouse capture efficiency rates associated with grain receiving, handling, storage, and transport
- Revise the performance testing requirements associated with the Lime Silo Bin Vent
- Increase the Fiber-Dewatering Vent's VOC emissions limit from 1.52 lb/hr to 3.12 lb/hr
- Require the installation of a Regenerative Thermal Oxidizer (RTO) to further control emissions from fermentation operations, and other areas

Permit CP07-0077b – CoGen:

- Allow the addition of a 1,000 KW (1,341 HP) emergency generator

The proposed permits will revise one or more previously issued construction permits. Requirements from previously issued permits may be incorporated into the proposed permit with or without revision. The Department is seeking public comment on all new and revised permit conditions as outlined in the supporting materials for each permit.

The proposed permits and supporting materials are available for inspection at the office of the Nebraska Department of Environmental Quality, Suite 400, 1200 "N" Street, Lincoln, Nebraska 68508. These materials were also forwarded to the Columbus Public Library. Telephone inquiries may be made at (402) 471-2189. Please notify the Department of Environmental Quality if alternate formats of materials are needed. Contact phone number is (402) 471-2186. TDD users please call 711 and ask the relay operator to call us at (402) 471-2186. Persons requiring further information should contact:

Brad Reid-Environmental Engineer
Air Quality Division-Permitting Section
Nebraska Department of Environmental Quality
PO Box 98922
Lincoln, NE 68509-8922

Within 30 days after the initial publication of this notice, persons may request or petition the Director for public hearing, or submit comments relative to the issuance of one or both of the proposed permits. Comments received during the 30 day public notice period, ending January 22, 2009, will be considered prior to the final decision to issue or to deny the proposed permit(s). A request or petition for hearing must state the specific permit to which the request or petition applies to and the nature of the issues to be raised and all arguments and factual grounds supporting such position. If a public hearing is granted by the Director for one or both of the permits, the hearing will be advertised by public notice at least 30 days prior to its occurrence. Comments and requests should be mailed to:

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

Fact Sheet Attachment: CoGen Boilers

Archer Daniels Midland Company - CoGen Plant
Facility ID #39285
Emission Point ID Number: COGEN1

Coal Combustion Emissions

(A) Heat Input Capacity for One (1) Boiler	768.0	MMBtu/hr
(B) Coal Throughput for One (1) Boilers	90,352.94	lb/hr
	45.18	ton/hr

NOTE: Conversion Factor: 1 lb coal = 8,500 Btu

Pollutant	Emission Factors		Combustion Emissions for One (1) Boiler		Combustion Emissions for All (2) Boilers	
	(C) (lbs/ton) ^[1]	(D) (lbs/MMBtu) ^[2]	(E) (lbs/hr) ^[3]	(F) (tons/year) ^[4]	(G) (lbs/hr) ^[5]	(H) (tons/year) ^[6]
Particulate Matter (PM) ^[7]	-	0.028	21.12	92.51	42.24	185.01
Particulate Matter (PM ₁₀)	-	0.025	19.20	84.10	38.40	168.19
Sulfur Dioxide (SO ₂) ^[8]	-	0.200	153.60	672.77	307.20	1345.54
Nitrogen Oxides (NO _x)	-	0.070	53.76	235.47	107.52	470.94
Carbon Monoxide (CO)	-	0.100	76.80	336.38	153.60	672.77
Volatile Organic Compounds (VOC)	-	0.007	5.38	23.55	10.75	47.09
Sulfuric Acid (H ₂ SO ₄)	-	0.010	7.68	33.64	15.36	67.28
Fluorides (HF)	-	1.20E-03	0.92	4.04	1.84	8.07
Lead Compounds (Pb)	-	2.00E-04	0.15	0.67	0.31	1.35
Individual Hazardous Air Pollutants (HAP)						
Acetaldehyde	5.70E-04	-	2.58E-02	1.13E-01	5.15E-02	2.26E-01
Acetophenone	1.50E-05	-	6.78E-04	2.97E-03	1.36E-03	5.94E-03
Acrolein	2.90E-04	-	1.31E-02	5.74E-02	2.62E-02	1.15E-01
Antimony compounds	1.80E-05	-	8.13E-04	3.56E-03	1.63E-03	7.12E-03
Arsenic compounds	4.10E-04	-	1.85E-02	8.11E-02	3.70E-02	1.62E-01
Benzene	1.30E-03	-	5.87E-02	2.57E-01	1.17E-01	5.14E-01
Benzyl chloride	7.00E-04	-	3.16E-02	1.39E-01	6.32E-02	2.77E-01
Beryllium compounds	2.10E-05	-	9.49E-04	4.16E-03	1.90E-03	8.31E-03
Biphenyl	1.70E-06	-	7.68E-05	3.36E-04	1.54E-04	6.73E-04
Bis(2-ethylhexyl)phthalate (DEHP)	7.30E-05	-	3.30E-03	1.44E-02	6.60E-03	2.89E-02
Bromoform	3.90E-05	-	1.76E-03	7.72E-03	3.52E-03	1.54E-02
Cadmium compounds	5.10E-05	-	2.30E-03	1.01E-02	4.61E-03	2.02E-02
Carbon disulfide	1.30E-04	-	5.87E-03	2.57E-02	1.17E-02	5.14E-02
2-Chloroacetophenone	7.00E-06	-	3.16E-04	1.39E-03	6.32E-04	2.77E-03
Chlorobenzene	2.20E-05	-	9.94E-04	4.35E-03	1.99E-03	8.71E-03
Chloroform	5.90E-05	-	2.67E-03	1.17E-02	5.33E-03	2.33E-02
Chromium compounds	2.60E-04	-	1.17E-02	5.14E-02	2.35E-02	1.03E-01
Cobalt compounds	1.00E-04	-	4.52E-03	1.98E-02	9.04E-03	3.96E-02
Cumene	5.30E-06	-	2.39E-04	1.05E-03	4.79E-04	2.10E-03
Cyanide compounds	2.50E-03	-	1.13E-01	4.95E-01	2.26E-01	9.89E-01
Dimethyl sulfate	4.80E-05	-	2.17E-03	9.50E-03	4.34E-03	1.90E-02
2,4-Dinitrotoluene	2.80E-07	-	1.26E-05	5.54E-05	2.53E-05	1.11E-04
Ethyl benzene	9.40E-05	-	4.25E-03	1.86E-02	8.49E-03	3.72E-02
Ethyl chloride	4.20E-05	-	1.90E-03	8.31E-03	3.79E-03	1.66E-02
Ethylene dibromide	1.20E-06	-	5.42E-05	2.37E-04	1.08E-04	4.75E-04
Ethylene dichloride	4.00E-05	-	1.81E-03	7.91E-03	3.61E-03	1.58E-02
Formaldehyde	2.40E-04	-	1.08E-02	4.75E-02	2.17E-02	9.50E-02
Hexane	6.70E-05	-	3.03E-03	1.33E-02	6.05E-03	2.65E-02
Hydrochloric acid		0.02	15.36	67.28	30.72	134.55
Isophorone	5.80E-04	-	2.62E-02	1.15E-01	5.24E-02	2.30E-01
Manganese compounds	4.90E-04	-	2.21E-02	9.70E-02	4.43E-02	1.94E-01
Mercury compounds (Hg)		3.00E-06	2.30E-03	1.01E-02	4.61E-03	2.02E-02
Methyl bromide	1.60E-04	-	7.23E-03	3.17E-02	1.45E-02	6.33E-02
Methyl chloride	5.30E-04	-	2.39E-02	1.05E-01	4.79E-02	2.10E-01
Methyl chloroform	2.00E-05	-	9.04E-04	3.96E-03	1.81E-03	7.91E-03
Methyl hydrazine	1.70E-04	-	7.68E-03	3.36E-02	1.54E-02	6.73E-02
Methyl methacrylate	2.00E-05	-	9.04E-04	3.96E-03	1.81E-03	7.91E-03
Methyl tert butyl ether	3.50E-05	-	1.58E-03	6.93E-03	3.16E-03	1.39E-02
Methylene chloride	2.90E-04	-	1.31E-02	5.74E-02	2.62E-02	1.15E-01
Naphthalene	1.30E-05	-	5.87E-04	2.57E-03	1.17E-03	5.14E-03
Nickel compounds	2.80E-04	-	1.26E-02	5.54E-02	2.53E-02	1.11E-01
Phenol	1.60E-05	-	7.23E-04	3.17E-03	1.45E-03	6.33E-03
Polycyclic Organic Matter (POM)	6.06E-06	-	2.74E-04	1.20E-03	5.47E-04	2.40E-03
Propionaldehyde	3.80E-04	-	1.72E-02	7.52E-02	3.43E-02	1.50E-01
Tetrachloroethylene	4.30E-05	-	1.94E-03	8.51E-03	3.89E-03	1.70E-02
Toluene	2.40E-04	-	1.08E-02	4.75E-02	2.17E-02	9.50E-02
Selenium compounds	1.30E-03	-	5.87E-02	2.57E-01	1.17E-01	5.14E-01
Styrene	2.50E-05	-	1.13E-03	4.95E-03	2.26E-03	9.89E-03
Xylenes	3.70E-05	-	1.67E-03	7.32E-03	3.34E-03	1.46E-02
Vinyl acetate	7.60E-06	-	3.43E-04	1.50E-03	6.87E-04	3.01E-03
Total HAPs	-	-	16.97	74.32	33.94	148.64

^[1]Emission Factors (lbs/ton) from AP-42, Tables 1.1-12, 1.1-13, 1.1-14, and 1.1-18 (9/1998).

^[2]Emission Factors (lbs/MMBtu) based on previously established BACT limits for the Emission Point

^[3]For lb/MMBtu Emission Factor - (E) = (A) x (D); For lbs/ton Emission Factor - (E) = (B) (ton/hr) x (C)

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

^[5](E) x 2

^[6](F) x 2

^[7]PM Emission factor includes the BACT limit of 0.015 lb/MMBtu (filterable) + 50% of PM₁₀ Emission Factor expected to account for the condensable fraction of total PM

^[8]SO₂ permitted limit varies from 0.11 to 0.2 lb/MMBtu depending on fuel sulfur input.

Fact Sheet Attachment: Coal Receiving and Handling

Archer Daniels Midland Company - CoGen Plant
 Facility ID #39285

PM/PM₁₀ Emissions from Coal Receiving and Handling

Emission Point ID#	Unit Name	(A)	(B)	Controlled PM/PM ₁₀ Emissions	
		Air Flow Rate ^[1] dscf/min	Emission Factor & Permitted BACT Limit grains/dscf	(C) ^[2] (lb/hour)	(D) ^[3] (ton/year)
COGEN2	Rotary Car Dumper/Truck Dump Building Unit 1	50,000	0.004	1.71	7.51
COGEN3	Rotary Car Dumper/Truck Dump Building Unit 2	50,000	0.004	1.71	7.51
COGEN5	Crusher Tower	36,900	0.004	1.27	5.54
COGEN6	Powerhouse Bunker Bay	30,000	0.004	1.03	4.51
COGEN7	Fly Ash Transfer/Storage Unit 1	5,572	0.005	0.24	1.05
COGEN8	Fly Ash Transfer/Storage Unit 2	5,572	0.005	0.24	1.05
COGEN9	Bottom Ash Collection Unit 1	1,857	0.005	0.08	0.35
COGEN10	Bottom Ash Collection Unit 2	1,857	0.005	0.08	0.35
COGEN11	Bottom Ash Transfer/Storage Unit 1	1,857	0.005	0.08	0.35
COGEN12	Bottom Ash Transfer/Storage Unit 2	1,857	0.005	0.08	0.35
COGEN13	Limestone Storage Unit 1	4,925	0.005	0.21	0.92
COGEN14	Limestone Storage Unit 2	4,925	0.005	0.21	0.92

^[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)

Note: The BACT limits of 0.005 grains/dscf were established as lb/hr limitations in CPM02-0006, the 0.004 gr/dscf are being established now due to increases in fan size

PM/PM₁₀ Fugitive Emissions from Coal Receiving

Emission Point ID#	Emission Point Description	(A)	(B)	(C)	Emission Factors ^[2] (lbs/ton)		PM Emissions		PM ₁₀ Emissions	
		Hourly Throughput (tons/hour)	Annual Throughput (tons/year)		(D) PM	(E) PM ₁₀	(F) ^[3] (lbs/hr)	(G) ^[4] (tons/yr)	(H) ^[5] (lbs/hr)	(I) ^[6] (tons/yr)
Coal_Rec	Coal Receiving	2,200	1,050,000	1%	0.02	0.006	0.44	0.11	0.13	0.03

^[1]1% fugitives are assumed since coal receiving operations will occur in an enclosure

^[2]Emission Factors are from FIRE database (SCC 30501008).

^[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 Coal Receiving and Handling

Particulate Matter (PM) 30.50 tons/year
 Particulate Matter (PM₁₀) 30.43 tons/year

Fact Sheet Attachment: COGEN Emergency Generator

Archer Daniels Midland Company - CoGen Plant

Facility ID #39285

Emission Point ID Number: COGEN23

One (1) 1,341 HP Emergency Generator

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

Total Horsepower	1,341	HP		
Total Heat Input Capacity	9.39	MMBtu/hr		
Potential Diesel Fuel Throughput	0.0685	kgal/hr	600.06	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	0.65	0.65	5,731.44	327.14	2.87	0.16
Particulate Matter (PM ₁₀)	0.0573	0.54	0.54	4,711.79	268.94	2.36	0.13
Sulfur Dioxide (SO ₂)	0.0505	0.47	0.47	4,152.62	237.02	2.08	0.12
Nitrogen Oxides (NO _x)	3.2	30.04	30.04	263,136.38	15,019.20	131.57	7.51
Carbon Monoxide (CO)	0.85	7.98	7.98	69,895.60	3,989.48	34.95	1.99
Volatile Organic Compounds (VOC)	0.0819	0.77	0.77	6,734.65	384.40	3.37	0.19
Individual Hazardous Air Pollutants (HAP)							
Acetaldehyde	2.52E-05	2.37E-04	2.37E-04	2.07E+00	1.18E-01	1.00E-03	5.92E-05
Acrolein	7.88E-06	7.40E-05	7.40E-05	6.50E-01	3.70E-02	3.00E-04	1.85E-05
Benzene	7.76E-04	7.28E-03	7.28E-03	6.38E+01	3.64E+00	3.19E-02	1.82E-03
Formaldehyde	7.89E-05	7.41E-04	7.41E-04	6.49E+00	3.70E-01	3.20E-03	1.85E-04
Naphthalene	1.30E-04	1.22E-03	1.22E-03	1.07E+01	6.10E-01	5.30E-03	3.05E-04
Toluene	2.81E-04	2.64E-03	2.64E-03	2.31E+01	1.32E+00	1.16E-02	6.59E-04
Xylene	1.93E-04	1.81E-03	1.81E-03	1.59E+01	9.06E-01	7.90E-03	4.53E-04
Polycyclic Organic Matter (POM)	8.15E-05	7.65E-04	7.65E-04	6.70E+00	3.83E-01	3.40E-03	1.91E-04
Total HAPs	1.57E-03	1.48E-02	1.48E-02	129.39	7.39	6.47E-02	3.69E-03

^[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: Cooling Towers (COGEN)

Archer Daniels Midland Company - CoGen Plant
 Facility ID #39285

	COGEN Cooling Tower #1 (17-18)	COGEN Cooling Tower #2 (19-22)
Total Dissolved Solids (ppm):	2,500	2,500
Drift Loss (%):	0.0005	0.0005
Number of Cells:	2	4
Individual Cell Flow Rate (gal/min):	1,400	8,500
Total Tower Flow Rate (gal/min):	2,800	34,000
Operation Hours (hrs/yr):	8,760	8,760

Water density: 8.34 lbs/gal

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

$$PM \text{ emission factor} = \left(\frac{ppmTDS}{1,000,000 \text{ lbwater}} \right) \left(\frac{8.34 \text{ lbs}}{\text{gal}} \text{ water} \right) \left(\frac{1,000 \text{ gal}}{1Mgal} \right) \left(\frac{0.005 \text{ driftloss}}{100} \right)$$

	COGEN Cooling Tower #1 (17-18)	COGEN Cooling Tower #2 (19-22)	
PM Emission Factor (lbs/Mgal):	0.000104	0.000104	
PM ₁₀ Fraction (%):	60.16%	60.16%	
PM Emissions:	lb/hr	0.02	0.21
	ton/yr	0.08	0.93
PM ₁₀ Emissions:	lb/hr	0.01	0.13
	ton/yr	0.05	0.56

Fact Sheet Attachment: Haul Road Emissions

Archer Daniels Midland Company - CoGen Plant

Facility ID #39285

Emission Point ID Number: COGEN90

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

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

(modified)

	k	d
PM	0.082	0.3
PM ₁₀	0.016	0.5

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

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

(modified)

	k	a	b	d
PM	4.9	0.7	0.45	0.3
PM ₁₀	1.5	0.9	0.45	0.5

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]						
COGEN Ash Removal	p	3.00	5,745	3,910	15	40	25.1	30	112,431	25	ton	8,224
COGEN Limestone	p	3.00	4,585	5,070	15	40	28.1	30	72,164	25	ton	5,278
COGEN Coal	p	3.00	4,585	5,070	15	40	28.1	30	672,768	25	ton	49,209

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

Total VMT: 62,711

^[2] Includes permit-limited throughput

Fact Sheet Attachment

	Emission Factors (lb/VMT)		Potential Emissions (tons/yr)	
	PM	PM ₁₀	PM	PM ₁₀
COGEN Ash Removal	2.43	0.47	9.98	1.95
COGEN Limestone	2.88	0.56	7.59	1.48
COGEN Coal	2.88	0.56	70.74	13.80
Total Annual Emissions:			88.31	17.23

Corrected Total Annual Emissions^[3]: **9.70** **1.89**

^[3] 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/m²) 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

$$P = \boxed{90}$$

S: mean vehicle speed on road (mph)

default = 30, minimum = 15

CE: unpaved road, dust control efficiency

$$CE = \boxed{0\%} \quad \text{default} = 0\%$$

VMT: vehicle miles traveled

Fact Sheet Attachment: CoGen PSD Pollutant Emissions

Archer Daniels Midland Company - CoGen Plant
Facility ID #39285

Cogeneration Plant 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 ₂ SO ₄)	Fluoride (F)	Lead (Pb)
COGEN Boiler Emissions (COGEN1)	185.01	168.19	1345.54	470.94	672.77	47.09	67.28	8.07	1.35
Coal Receiving and Handling	30.50	30.43	-	-	-	-	-	-	-
COGEN Generator (COGEN23)	0.16	0.13	0.12	7.51	1.99	0.19	-	-	-
Cooling Towers (CoGen)	1.01	0.61	-	-	-	-	-	-	-
Haul Roads	9.70	1.89	-	-	-	-	-	-	-
Revised CoGen Potential Emissions (CP07-0077b)	226.39	201.26	1345.65	478.45	674.76	47.29	67.28	8.07	1.35
CoGen Plant Emissions from previous permit (see below)	214.51	192.08	1345.54	470.94	672.77	47.09	67.28	8.07	1.35
Change in CoGen Plant Emissions	11.88	9.18	0.12	7.51	1.99	0.19	0.00	0.00	0.00

From Previous Permit Calculations for Cogen Plant (CPM02-0006)

Description	PM	PM10	SO2	NOx	CO	VOC	H2SO4	Fluoride	Lead
Lime Silo Bin : 62	0.55	0.55							
Soda Ash Receiving: 63	0.37	0.37							
Coal Receiving Fugitives: COAL_FUG	1.05	0.32							
Coal-fired boiler Nos. 1 and 2: COGEN1A/1B	185.01	168.19	1,345.54	470.94	672.77	47.09	67.28	8.07	1.35
Rotary Car Dumper/Truck Dump Building Unit 1: COGEN2	3.10	3.10							
Rotary Car Dumper/Truck Dump Building Unit 2: COGEN3	3.10	3.10							
Coal Storage Dome/Reclaim Tunnel: COGEN4 (deleted)	2.96	2.96							
Crusher Tower: COGEN5	2.22	2.22							
Powerhouse Bunker Bay : COGEN6	2.40	2.40							
Fly Ash Transfer/Storage Unit 1 : COGEN7	1.05	1.05							
Fly Ash Transfer/Storage Unit 2 : COGEN8	1.05	1.05							
Bottom Ash Collection Unit 1: COGEN9	0.35	0.35							
Bottom Ash Collection Unit 2 : COGEN10	0.35	0.35							
Bottom Ash Transfer/Storage Unit 1 : COGEN11	0.35	0.35							
Bottom Ash Transfer/Storage Unit 2: COGEN12	0.35	0.35							
Limestone Storage Unit 1 : COGEN13	0.92	0.92							
Limestone Storage Unit 2 : COGEN14	0.92	0.92							
Limestone Transfer Unit 1 : COGEN15 (deleted)	0.92	0.92							
Limestone Transfer Unit 2 : COGEN16 (deleted)	0.92	0.92							
CoGeneration Cooling Towers Unit #1: COGEN17-18	0.08	0.05							
CoGeneration Cooling Towers Unit #2: COGEN19-22	0.93	0.56							
Fugitive Particulate (Roads, Cogen only): TRUCK_FUG	5.55	1.08							
TOTAL	214.51	192.08	1,345.54	470.94	672.77	47.09	67.28	8.07	1.35

Fact Sheet Attachment: CoGen HAP Pollutant Emissions

Archer Daniels Midland Company - CoGen Plant
 Facility ID #39285

CoGen Plant HAP Emissions (tons/year)

	COGEN Generator (COGEN23)	COGEN Boiler Emissions (COGEN1)	Total Individual HAPs
Individual Hazardous Air Pollutants (HAP)			
Acetaldehyde	5.92E-05	2.26E-01	0.23
Acetophenone	-	5.94E-03	0.01
Acrolein	1.85E-05	1.15E-01	0.11
Antimony compounds	-	7.12E-03	0.01
Arsenic compounds	-	1.62E-01	0.16
Benzene	1.82E-03	5.14E-01	0.52
Benzyl chloride	-	2.77E-01	0.28
Beryllium compounds	-	8.31E-03	0.01
Biphenyl	-	6.73E-04	0.00
Bis(2-ethylhexyl)phthalate (DEHP)	-	2.89E-02	0.03
Bromoform	-	1.54E-02	0.02
Cadmium compounds	-	2.02E-02	0.02
Carbon disulfide	-	5.14E-02	0.05
2-Chloroacetophenone	-	2.77E-03	0.00
Chlorobenzene	-	8.71E-03	0.01
Chloroform	-	2.33E-02	0.02
Chromium compounds	-	1.03E-01	0.10
Cobalt compounds	-	3.96E-02	0.04
Cumene	-	2.10E-03	0.00
Cyanide compounds	-	9.89E-01	0.99
Dichlorobenzene	-	-	0.00
Dimethyl sulfate	-	1.90E-02	0.02
2,4-Dinitrotoluene	-	1.11E-04	0.00
Dioxins/Furans	-	-	-
Ethyl benzene	-	3.72E-02	0.04
Ethyl chloride	-	1.66E-02	0.02
Ethylene dibromide	-	4.75E-04	0.00
Ethylene dichloride	-	1.58E-02	0.02

	COGEN Generator (COGEN23)	COGEN Boiler Emissions (COGEN1)	Total Individual HAPs
Individual HAP (continued)			
Formaldehyde	1.85E-04	9.50E-02	0.10
Hexane	-	2.65E-02	0.03
Hydrochloric acid	-	134.55	134.55
Isophorone	-	2.30E-01	0.23
Lead Compounds	-	1.35	1.35
Manganese compounds	-	1.94E-01	0.19
Mercury compounds	-	2.02E-02	0.02
Methanol	-	-	0.00
Methyl bromide	-	6.33E-02	0.06
Methyl chloride	-	2.10E-01	0.21
Methyl chloroform	-	7.91E-03	0.01
Methyl hydrazine	-	6.73E-02	0.07
Methyl methacrylate	-	7.91E-03	0.01
Methyl tert butyl ether	-	1.39E-02	0.01
Methylene chloride	-	1.15E-01	0.11
Naphthalene	3.05E-04	5.14E-03	0.01
Nickel compounds	-	1.11E-01	0.11
Phenol	-	6.33E-03	0.01
Polycyclic Organic Matter (POM)	6.59E-04	2.40E-03	0.00
Propionaldehyde	-	1.50E-01	0.15
Selenium compounds	-	5.14E-01	0.51
Styrene	-	9.89E-03	0.01
Tetrachloroethylene	-	1.70E-02	0.02
Toluene	4.53E-04	9.50E-02	0.10
Xylenes	1.91E-04	1.46E-02	0.01
Vinyl acetate	-	3.01E-03	0.00
TOTAL HAP	3.69E-03	148.64	148.65