



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

MISSOURI AIR CONSERVATION COMMISSION

PERMIT TO CONSTRUCT

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct the air contaminant source(s) described below, in accordance with the laws, rules and conditions as set forth herein.

Permit Number: **112017-011**

Project Number: 2017-05-030
Installation Number: 137-0029

Parent Company: Farmers Elevator & Exchange Co.

Parent Company Address: 107 South Chestnut Street, Monroe City, MO 63456

Installation Name: Farmers Elevator & Exchange Co.

Installation Address: 214 West Summer Street, Monroe City, MO 63456

Location Information: Monroe County, S13, T56N, R8W

Application for Authority to Construct was made for:

Feed mill additions and installation-wide PM₁₀ de minimis limit. This review was conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*.

Standard Conditions (on reverse) are applicable to this permit.

Standard Conditions (on reverse) and Special Conditions are applicable to this permit.


Prepared by
Jordan Hull
New Source Review Unit


Director or Designee
Department of Natural Resources

NOV 28 2017

Effective Date

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Enforcement and Compliance Section of the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 if you fail to adhere to the specifications and conditions listed in your application, this permit and the project review. In the event that there is a discrepancy between the permit application and this permit, the conditions of this permit shall take precedence. Specifically, all air contaminant control devices shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Enforcement and Compliance Section of the Department's Air Pollution Control Program of the anticipated date of start up of this (these) air contaminant source(s). The information must be made available within 30 days of actual startup. Also, you must notify the Department's regional office responsible for the area within which you are located within 15 days after the actual start up of this (these) air contaminant source(s).

A copy of the permit application and this permit and permit review shall be kept at the installation address and shall be made available to Department's personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, MO 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review and your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit using the contact information below.

Contact Information:
Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102-0176
(573) 751-4817

The regional office information can be found at the following website:
<http://dnr.mo.gov/regions/>

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

The special conditions listed in this permit were included based on the authority granted the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.060). For specific details regarding conditions, see 10 CSR 10-6.060 paragraph (12)(A)10. "Conditions required by permitting authority."

Farmers Elevator & Exchange Co.
Monroe County, S13, T56N, R8W

1. **PM₁₀ Emission Limitation**

- A. Farmers Elevator & Exchange Co. shall emit less than 15.0 tons of PM₁₀ in any consecutive 12-month period from the entire installation (see table 1). Startup, shutdown, and malfunction emissions as reported to the Air Pollution Control Program's Compliance/Enforcement Section according to the provisions of 10 CSR 10-6.050. shall be included in the limitation.

Table 1: Installation Emission Points

Emission Point	Description	MHDR (tph)
EP-1(a,b)	Grain Receiving- Grain	60
EP-2a	Grain Handling- Grain	60
EP-4	Truck Loadout- Grain	60
EP-5	Roller Mill- Grain	60
EP-2b	Storage Bins- Grain	60
EP-15	Grain Dryer- Grain	60
EP-14a	Haul Road - Grain	60
EP-6 (a,b)	Grain Receiving- Feed mill	60
EP-7	Truck Loadout- Feed mill	60
EP-16a	Grain Handling (weigh hopper/mixing) - Feed mill	60
EP-16b	Holding bins (storage bins)	60
EP-14b	Haul Road- Feed mill	60
EP-08	Truck unloading- Fertilizer	40
EP-09a	Conveyor unloading into bays- Fertilizer	40
EP-13a	Fertilizer loaded onto scale hopper from bay (skid steer)	40
EP-13b	Fertilizer Mixer	40
EP-09b	Fertilizer unloaded on conveyor	40
EP-10	Fertilizer unloaded to truck or cart	40
EP-14c	Haul Road- Fertilizer	40

- B. Attachment A or equivalent forms, such as electronic forms, approved by the Air Pollution Control Program shall be used to demonstrate compliance with Special Conditions 1.A.

SPECIAL CONDITIONS:

The permittee is authorized to construct and operate subject to the following special conditions:

2. Best Management Practices

A. Farmers Elevator & Exchange Co. shall control fugitive emissions from all of the haul roads and stockpiles at this site by performing Best Management Practices which include the use of chemical dust suppressant or documented watering. These practices are defined in Attachment B.

3. Control Device Requirements – Dust Collectors

A. Farmers Elevator & Exchange Co. shall control emissions from listed emission points below using dust collectors.

- 1) EP-02a (Grain Handling- Grain) – Dust Collector No. 1
- 2) EP-05 (Roller Mills (2 total)- Grain) – Dust Collector No. 3
- 3) EP-16a (Grain Handling (weigh hopper/mixing and north grinding leg) - Feed mill) – Dust Collector No. 2

B. The dust collector shall be operated and maintained in accordance with the manufacturer's specifications. Farmers Elevator & Exchange Co. shall maintain a copy of the specifications on-site.

C. Farmers Elevator & Exchange Co. shall maintain an operating and maintenance log for the dust collectors which shall include the following:

- 1) Incidents of malfunctions, with impacts on emissions, duration of events, probable causes, and corrective actions; and
- 2) Maintenance activities, with inspection schedules, repair actions, and replacements, etc.

D. Farmers Elevator & Exchange Co. shall monitor and record the operating pressure drop across each of the dust collectors at least once every 24 hours when the associated equipment is in operation. The operating pressure drop shall be maintained within the design conditions specified by the manufacturer's performance warranty.

4. Record Keeping and Reporting Requirements

A. Farmers Elevator & Exchange Co. shall maintain all records required by this permit for not less than five years and shall make them available immediately to any Missouri Department of Natural Resources' personnel upon request.

B. Farmers Elevator & Exchange Co. shall report to the Air Pollution Control Program's Compliance/Enforcement Section either by email at AirComplianceReporting@dnr.mo.gov, or by mail at P.O. Box 176, Jefferson City, MO 65102, no later than 10 days after the end of the month during which any record required by this permit shows an exceedance of a limitation imposed by this permit.

REVIEW OF APPLICATION FOR AUTHORITY TO CONSTRUCT AND OPERATE
SECTION (6) REVIEW

Project Number: 2017-05-030

Installation ID Number: 137-0029

Permit Number: 112017-011

Installation Address:

Farmers Elevator & Exchange Co.
214 West Summer Street
Monroe City, MO 63456

Parent Company:

Farmers Elevator & Exchange Co.
107 South Chestnut Street
Monroe City, MO 63456

Monroe County, S13, T56N, R8W

REVIEW SUMMARY

- Farmers Elevator & Exchange Co. has applied for authority to install feed mill additions that increase the overall throughput and to install an installation-wide PM₁₀ de minimis limit.
- The application was deemed complete on May 31, 2017.
- HAP emissions are expected from the grain drying equipment but at negligible levels. Chromium (III) emissions are expected from the supplement to the feed manufacturing, but in quantities less than the SMAL.
- None of the New Source Performance Standards (NSPS) apply to the installation. 40 CFR Part 60, Subpart DD - Standards of Performance for Grain Elevators doesn't apply to this installation as their storage capacity is less than 2.5 million bushels.
- None of the NESHAPs apply to this installation. None of the currently promulgated MACT regulations apply to the proposed equipment. 40 CFR 63 Subpart DDDDDDD (7D) doesn't apply to this facility because the facility uses additives with less than 0.1% chromium (Cr) by weight and contains no manganese (Mn).
- Baghouses and chemical suppressants are being used to control the PM, PM₁₀, PM_{2.5} emissions from the equipment in this permit.
- This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ are conditioned below de minimis levels. Potential emissions of PM are above de minimis but below major source levels. There are no modeling requirements for PM.
- This installation is located in Monroe County, an attainment area for all criteria pollutants.

- This installation is not on the List of Named Installations found in 10 CSR 10-6.020(3)(B), Table 2. The installation's major source level is 250 tons per year and fugitive emissions are not counted toward major source applicability.
- Ambient air quality modeling was not performed since potential emissions of all pollutant except PM, are conditioned below de minimis levels. There are no modeling requirements for PM.
- Emissions testing is not required for the equipment as a part of this permit. Testing may be required as part of other state, federal or applicable rules.
- No Operating Permit is required for this installation.
- Approval of this permit is recommended with special conditions.

INSTALLATION DESCRIPTION

The Farmers Elevator & Exchange Company (Farmers) is a locally owned farm cooperative that serves the needs of its patrons in a four county area in Northeast Missouri. In addition to operating a country grain elevator that handles corn, soybeans, wheat and sorghum (milo), Farmers also: supports animal nutrition and crop production; provides a full line of livestock and dairy feeds as well as feeds for the farm flock, pet, horse, goat, sheep and show feeds; offers grain bank services as well as feed processing (rolling & mixing); provides bulk and bag feed delivery services; and provides products and services related to crop production including seeds, dry fertilizer, ammonia, and crop protection.

The following New Source Review permits have been issued to Farmers Elevator & Exch Co. from the Air Pollution Control Program.

Table 1: Permit History

Permit Number	Description
032012-009	dry fertilizer facility

PROJECT DESCRIPTION

Farmers Elevator & Exchange Co. is updating and expanding their current feed mill at their facility located at 107 S. Chestnut in Monroe City, MO. The existing facility as well as the addition will be used to produce bulk and bagged livestock feed. The additions include EP-02a (bucket elevators, hoppers, and holding bins), EP- 06 & EP- 07 (conveyors/ legs), and EP-16a (a mixer & scale hopper). Along with the additions it was requested that this permit set an installation-wide PM₁₀ limit of less than de minimis level. The installation was broken into three types of production processes; grain (60 tph), feed mill (60 tph), and fertilizer (40 tph). Each process has different equipment and MHDRs and composite emission factors.

EMISSIONS/CONTROLS EVALUATION

The grain emission factors used in this analysis were obtained from the Environmental Protection Agency (EPA) document AP-42, *Compilation of Air Pollutant Emission Factors*, Fifth Edition, Section 9.9.1 *Grain Elevators and Processes* (May 2003) and Section 13.2.2 *Unpaved Roads* (November 2006). The grain and feed receiving calculations were performed with a 50/50 split between hopper trucks and straight trucks to avoid having to track the type of trucks used for each shipment.

The feed mill along with the grain elevator is controlled by three (3) dust collectors. Dust Collector No. 3 is directly connected to the 2 roller mills. Dust Collector No. 2 is directly connected to the existing 8 ton mixer. The remaining dust collector, Dust Collector No. 1 is directly connected to the north and south leg; and will be directly connected to the new load out bins and new mixer. The mill is an enclosed building. However, the receiving and shipping areas have garage doors that are typically open during operation except during adverse or cold weather. 80% capture efficiencies were given to the internal handling components (EP2a and EP16a, respectively) for both grain and the feed mill. 99% control efficiencies were given based on the manufacture's specification included in the application.

Chromium emissions for the supplement in the feed manufacturing were based on 0.04% of chromium by weight in the supplement. Approximately 1 lb. of supplement is used per ton of feed produced.

The fertilizer emission factors used in this analysis were obtained from the EPA's WebFIRE database (SCC 3-01-027-09, Ammonium Nitrate Production Bulk Loading), (SCC 3-01-040-07, Urea Production Bulk Loading). All emission were considered uncontrolled.

Haul road emissions were calculated using the predictive equation found in AP-42 Section 13.2.2 *Unpaved Roads* (November 2006). Application of sap to the haul roads as a dust suppressant was given control efficiencies of 90% for PM and PM₁₀ and 74% for PM_{2.5}.

The following table provides an emissions summary for this project. Existing potential emissions were taken from Permit number 032012-009. Existing actual emissions were taken from the installation's 2016 EIQ. Potential emissions of the project represent the potential of the new equipment and modified equipment, assuming continuous operation (8760 hours per year).

Table 2: Emissions Summary (tpy)

Pollutant	Regulatory De Minimis Levels	Existing Potential Emissions	Existing Actual Emissions (2016 EIQ)	Potential Unconditioned Emissions of the Project	New Installation Unconditioned Potential	New Installation Conditioned Potential
PM	25.0	19.54	N/D	54.22	246.93	>25.0*
PM ₁₀	15.0	15.21	1.55	20.27	96.01	<15.0
PM _{2.5}	10.0	3.60	0.53	3.44	17.51	<10.0**
SOx	40.0	N/D	N/D	0.03	0.03	N/D
NOx	40.0	N/D	N/D	4.19	4.19	N/D
VOC	40.0	N/D	N/D	0.23	0.23	N/D
CO	100.0	N/D	N/D	3.52	3.52	N/D
GHG (CO ₂ e)	N/A	N/D	N/D	N/A	N/D	N/D
GHG (mass)	N/A	N/D	N/D	N/A	N/D	N/D
HAPs	10.0/25.0	N/D	N/D	0.18	0.18	N/D
Chromium(I II)	5.0	N/D	N/D	0.11	0.11	N/D

N/A = Not Applicable; N/D = Not Determined

*PM will be indirectly limited below major source level based on PM₁₀ emissions

**PM_{2.5} will be indirectly conditioned below 10.0 tpy (de Minimis level)

PERMIT RULE APPLICABILITY

This review was conducted in accordance with Section (6) of Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*. Potential emissions of PM₁₀ are conditioned below de Minimis levels. Potential emissions of PM are above de minimis but below major source levels. There are no modeling requirements for PM.

APPLICABLE REQUIREMENTS

Farmers Elevator & Exchange Co. shall comply with the following applicable requirements. The Missouri Air Conservation Laws and Regulations should be consulted for specific record keeping, monitoring, and reporting requirements. Compliance with these emission standards, based on information submitted in the application, has been verified at the time this application was approved.

GENERAL REQUIREMENTS

- *Start-Up, Shutdown, and Malfunction Conditions*, 10 CSR 10-6.050
- *Submission of Emission Data, Emission Fees and Process Information*, 10 CSR 10-6.110

- Per 10 CSR 10-6.110(4)(B)2.B(II) and (4)(B)2.C(II) a full EIQ is required for the first full calendar year the equipment (or modifications) approved by this permit are in operation.
- *Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin*, 10 CSR 10-6.170
- *Restriction of Emission of Visible Air Contaminants*, 10 CSR 10-6.220
- *Restriction of Emission of Odors*, 10 CSR 10-6.165

SPECIFIC REQUIREMENTS

- *Restriction of Emission of Particulate Matter from Industrial Processes*, 10 CSR 10-6.400. The storage bin vents' potential emission(EP-16b) rate of 1.5 pounds per hour of PM is less than 46.29 lbs/hr (Process Rate Rule), and therefore complies with this regulation.

STAFF RECOMMENDATION

On the basis of this review conducted in accordance with Section (6), Missouri State Rule 10 CSR 10-6.060, *Construction Permits Required*, it is recommended that this permit be granted with special conditions.

PERMIT DOCUMENTS

The following documents are incorporated by reference into this permit:

- The Application for Authority to Construct form, dated May 15, 2017, received May 12, 2017, designating Farmers Elevator & Exchange Co. as the owner and operator of the installation.

Attachment A – PM₁₀ Compliance

Farmers Elevator & Exchange Co.

Monroe County, S13, T56N, R8W

Project Number: 2017-05-030

Installation ID Number: 137-0029

Permit Number: **112017-011**

This sheet covers the period from _____ to _____
 (month, year) (month, year)

(a)	(b)		(c)	(d)	(e)	(f)	(g)	(h)
Month	Material Received (tons)		PM ₁₀ Emission Factor (lb/ton)	Monthly PM ₁₀ Emissions (pounds)	Monthly PM ₁₀ Emissions (tons)	Previous Month's 12-Month PM ₁₀ Emissions (tons)	Monthly PM ₁₀ Emissions from Previous Year (tons)	Current 12-Month PM ₁₀ Emissions (tons)
<i>Example</i>	Grain	4,500	0.183	823.5	0.92	2.46	1.07	2.31
	Feed Mill	8,500	0.112	952.0				
	Fertilizer	350	0.060	21.0				
	Grain		0.183					
	Feed Mill		0.106					
	Fertilizer		0.059					
	Grain		0.183					
	Feed Mill		0.106					
	Fertilizer		0.060					
	Grain		0.183					
	Feed Mill		0.106					
	Fertilizer		0.059					
	Grain		0.183					
	Feed Mill		0.106					
	Fertilizer		0.060					

- a) Record the current date. (Month, Year)
- b) Record this month's grain, feed and fertilizer received.
- c) PM₁₀ composite emission factor for each process.
- d) Calculate using the following equation: (d) = (b) x (c).
- e) Calculate using the following equation: (e) = [(d) for grain + (d) for fertilizer + (d) for feed mill] / 2,000 + 0.03 tons from natural gas combustion.
- f) Record the 12-month PM₁₀ emissions (h) from last month.
- g) Record the monthly PM₁₀ emissions (e) from this month last year.
- h) Calculate the new 12-month PM₁₀ emissions. (h) = (e) + (f) - (g)

A 12-month Rolling Total less than 15.0 tons of PM₁₀ indicates compliance with Special Condition 1. Startup, shutdown, and malfunction emissions (as reported to the Air Pollution Control Program's Compliance/Enforcement Section according to the provisions of 10 CSR 10-6.050) shall be included in installation-wide totals to show compliance with the limit.

Attachment B: Best Management Practices

Haul roads and vehicular activity areas shall be maintained in accordance with at least one of the following options when the plant is operating.

1. **Application of Chemical Dust Suppressants**
 - A. The operator shall apply a chemical dust suppressant (such as magnesium chloride, calcium chloride, lignosulfonates, etc.) to unpaved areas.
 - B. The quantities of the chemical dust suppressant shall be applied and maintained in accordance with the manufacturer's recommendation (if available) and in sufficient quantities to achieve control of fugitive emissions from these areas while the plant is operating.
 - C. The operator shall record the time, date and the amount of material applied for each application of the chemical dust suppressant agent on the above areas. The operator shall keep these records with the plant for not less than five (5) years and make these records available to Department of Natural Resources' personnel upon request.

2. **Application of Water-Documented Daily**
 - A. The operator shall apply water to unpaved areas. Water shall be applied at a rate of 100 gallons per day per 1,000 square feet of unpaved or untreated surface area while the plant is operating.
 - B. Precipitation may be substituted for watering if the precipitation is greater than one quarter of one inch and is sufficient to control fugitive emissions.
 - C. Watering may also be suspended when the ground is frozen, during periods of freezing conditions when watering would be inadvisable for traffic safety reasons, or when there will be no traffic on the roads.
 - D. The operator shall record the date, volume of water application and total surface area of active haul roads or the amount of precipitation that day. The operators shall also record the rationale for not watering (e.g. freezing conditions or not operating).
 - E. The operator shall keep these records with the plant for not less than five (5) years, and the operator shall make these records available to Department of Natural Resources' personnel upon request.

APPENDIX A

Abbreviations and Acronyms

%percent	m/smeters per second
°Fdegrees Fahrenheit	Mgal1,000 gallons
acfmactual cubic feet per minute	MWmegawatt
BACTBest Available Control Technology	MHDRmaximum hourly design rate
BMPsBest Management Practices	MMBtuMillion British thermal units
BtuBritish thermal unit	MMCFmillion cubic feet
CAM Compliance Assurance Monitoring	MSDSMaterial Safety Data Sheet
CAS Chemical Abstracts Service	NAAQSNational Ambient Air Quality Standards
CEMS Continuous Emission Monitor System	NESHAPs National Emissions Standards for Hazardous Air Pollutants
CFR Code of Federal Regulations	NO_xnitrogen oxides
COcarbon monoxide	NSPSNew Source Performance Standards
CO₂carbon dioxide	NSRNew Source Review
CO₂ecarbon dioxide equivalent	PMparticulate matter
COMS Continuous Opacity Monitoring System	PM_{2.5}particulate matter less than 2.5 microns in aerodynamic diameter
CSR Code of State Regulations	PM₁₀particulate matter less than 10 microns in aerodynamic diameter
dscfdry standard cubic feet	ppmparts per million
EIQEmission Inventory Questionnaire	PSDPrevention of Significant Deterioration
EPEmission Point	PTEpotential to emit
EPAEnvironmental Protection Agency	RACTReasonable Available Control Technology
EUEmission Unit	RALRisk Assessment Level
fps feet per second	SCCSource Classification Code
ftfeet	scfmstandard cubic feet per minute
GACTGenerally Available Control Technology	SDSSafety Data Sheet
GHGGreenhouse Gas	SICStandard Industrial Classification
gpmgallons per minute	SIPState Implementation Plan
grgrains	SMALScreening Model Action Levels
GWP Global Warming Potential	SO_xsulfur oxides
HAPHazardous Air Pollutant	SO₂sulfur dioxide
hrhour	tphtons per hour
hphorsepower	tpytons per year
lbpound	VMTvehicle miles traveled
lbs/hrpounds per hour	VOCVolatile Organic Compound
MACTMaximum Achievable Control Technology	
µg/m³micrograms per cubic meter	

Project # 2017-05-030
Farmers Elevator and Exchange

	PM	PM10	pm 2.5	NOx	SOx	CO	VOC	HAPs	
Grain	161.54	48.43	7.56	4.19	0.03	3.52	0.23	0.079044	tpy
	63.38221951	29.43714508	3.572815	0	0	0	0	0	tpy
	22.00	18.14835452	6.38	0	0	0	0	0	tpy
summary	246.93	96.01	17.51	4.19	0.03	3.52	0.23	0.18	tpy

	tons of product (tons)	Composite PM10 EF	lbs	tons
Grain	56,200	0.183068492	10288.45	5.144225
Feed	103,100	0.11201349	11548.59	5.774295
Fertilizer	4,000	0.060050144	240.2006	0.1201
			22077.24	11.03862

above is the anticipated yearly production from the applicant

chromium in the feed supplement
 0.04% by weight
 1lb/ton of supplement/ ton of feed
 60 tph is manufacturing speed
 60lb/hr of supplement used

60 lb/hr
 0.04%
 0.024 lb/hr of chromium

0.10512 tpy of chromium (III) emissions

Emission point	Description	Process				MHDR true (tons)	MHDR (tons)	Control Device	Capture Efficiency %	PM Removal Eff %	PM10 Removal Eff %	PM2.5 Removal Eff %	Hours per Year
		Hopper Truck %	Straight Truck %	Rail %	Barge %								
EP 1a	Grain Receiving	50%	0%			N/A	60	none	0%	0%	0%	0%	8760
EP 1b	Grain Receiving	0%	50%			N/A	60	none	0%	0%	0%	0%	8760
EP 4	Truck Loadout	100%		0%		N/A	60	none	0%	0%	0%	0%	8760
EP 2a	Grain Handling	Headhouse & Internal Handling (legs, belts, distributors, scale, etc.) - 30200530				N/A	60	enclosed building/baghouse	80%	99.0%	99.0%	99.0%	8760
EP2b	Storage Bins	Storage Bin Vents - 30200540				N/A	60	none	0%	0.0%	0.0%	0.0%	8760
EP 5	Roller Mill	Feed Manufacture - Grain Cracker - 30200819				N/A	60	baghouse	80%	99.0%	99.0%	99.0%	8760
EP-15	Grain Drying	Grain Drying - Column Dryer - 30200527					60	none	0%	0%	0%	0%	8760
EP-14a	Haul Roads grain (see ingredient Haul Roads tab)												

Receiving
Shipping

Process Equipment

Emission point	PM Emission Factor (lb/ton)	PM10 Emission Factor (lb/ton)	PM2.5 Emission Factor (lb/ton)	Emission Factor SCC	Available PM lb/hr	Available PM10 lb/hr	Available PM2.5 lb/hr	PM Emissions (tpy)	PM10 Emissions (tpy)	PM2.5 Emissions (tpy)
EP 1a	0.0175	0.0078	0.00065	30200552	1.05	0.468	0.039	4.60	2.05	0.17
EP 1b	0.09	0.059	0.005	30200552	5.4	3.54	0.3	23.65	15.51	1.31
EP 4	0.0860	0.0290	0.0049	30200560	5.16	1.74	0.294	22.60	7.62	1.29
EP 2a	0.0610	0.0340	0.0058	30200530	3.66000	2.04000	0.34800	3.33	1.86	0.32
EP2b	0.0250	0.0063	0.0011	30200540	1.50000	0.37800	0.06600	19.71	4.97	0.87
EP 5	0.4800	0.0120	0.0102	30200819	28.80000	0.72000	0.61200	26.24	0.66	0.56
EP-15	2.20E-01	5.50E-02	9.40E-03	30200527	13.20000	3.30000	0.56400	57.82	14.45	2.47
EP-14a								3.51	1.00	0.26
Totals								161.482	48.110	7.244

Grain
Composite PM10
0.183068492
Production Limit
163873.093

Activity Description	Truck Types									
	1	2	3	4	5	6	7	8	9	10
receiving	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
shipping	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Truck Type	We (tons)	Wf (tons)
Truck Type	13	36.6
Truck Type	18	18

truck type row must sum to 100% per each activity

1=empty
2=full
3=both

Activities	MHDR													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
receiving	15.498	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
shipping	4.112	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W Surface	19.611	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

MHDR	Emissions (lbs/VMT)													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
receiving	0.513181	0	0	0	0	0	0	0	0	0	0	0	0	0
shipping	0.306383	0	0	0	0	0	0	0	0	0	0	0	0	0
MHDR	0.819574	0	0	0	0	0	0	0	0	0	0	0	0	0

Totals	PTE (lb/hr)		
	PM	PM10	PM2.5
receiving	0.50212	0.142785	0.037124
shipping	0.299773	0.085245	0.022164
Sum PTE (lb/hr)	0.801893	0.22803	0.059288
SUM PTE Grain (tpy)	3.512293	0.998769	0.25966

Haul Road BMP's	Control Efficiency %		
	PM	PM10	PM2.5
Documented Watering	90	90	74

Chemical surfactant will be applied to the unpaved haul roads

Haul Road BMP's	Control Efficiency %		
	PM	PM10	PM2.5
No Control	0	0	0
Undocumented Watering	50	50	41.1111
Documented Watering	90	90	74

Activity Description	MHDR													Truck Types		
	1	2	3	4	5	6	7	8	9	10	11	12	13	Truck Type	We (tons)	Wf (tons)
Unpaved	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Hopper	18	36.5
Unpaved	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Straight	6	18
Unpaved	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	type		
Unpaved	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	type		

truck type row must sum to 100% per each activity
1=empty
2=full
3=both

Activity	MHDR												
	1	2	3	4	5	6	7	8	9	10	11	12	13
receiving	12.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
shipping	12.375	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W Surface	24.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Activity	MHDR												
	1	2	3	4	5	6	7	8	9	10	11	12	13
receiving	0.07234	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
shipping	0.07234	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
MHDR	0.14468	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
PTE PM2.5 (lb/hr)	0.044327	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (lb/hr)	0.170488	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (lb/hr)	0.599546	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM2.5 (lb/hr) w rain	0.121444	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (lb/hr) w rain	0.214445	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (lb/hr) w rain	0.270741	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM2.5 (tons/yr)	0.194153	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (tons/yr)	0.746743	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (tons/yr)	2.626013	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM2.5 (tons/yr) w rain	0.531927	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (tons/yr) w rain	5.319269	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (tons/yr) w rain	18.70585	0	0	0	0	0	0	0	0	0	0	0	0

Activity	MHDR		
	PM	PM10	PM2.5
receiving	0.299773	0.085245	0.022164
shipping	0.299773	0.085245	0.022164
Totals	0.599546	0.170488	0.044327
Sum PTE (lb/hr)	0.599546	0.170488	0.044327
SUM PTE Grain (tpy)	2.626013	0.746743	0.194153
SUM PTE total (tpy)	2.626013	0.746743	0.194153

Haul Road BMP's	Control Efficiency %		
	PM	PM10	PM2.5
Documented Watering	80	80	74

Chemical surfactant will be applied to the unpaved haul roads

Haul Road BMP's	Control Efficiency %		
	PM	PM10	PM2.5
No Control	0	0	0
Undocumented Watering	50	50	41.1111
Documented Watering	80	80	74

Emission Point	Description	True MHDR (Tons/hour)	Bottlenecked MHDR (tons/hour)	Pollutant	Emission Factor (lb/ton)	Emission Rate (lb/hour)	PTE (tons/year)
EP-08	Truck unloading	40	40	PM	0.02	0.80	3.50
				PM10	0.017	0.68	2.98
				PM2.5	0.006	0.24	1.05
EP-09	Conveyor unloading into bays	40	40	PM	0.02	0.80	3.50
				PM10	0.017	0.68	2.98
				PM2.5	0.006	0.24	1.05
EP-13a	Fertilizer loaded onto scale hopper from bay (skidster)	40	40	PM	0.02	0.80	3.50
				PM10	0.017	0.68	2.98
				PM2.5	0.006	0.24	1.05
EP-13b	Existing Fertilizer Mixer	40	40	PM	0.020	0.80	3.50
				PM10	0.017	0.68	2.98
				PM2.5	0.006	0.24	1.05
EP-09	Fertilizer unloaded on conveyor	40	40	PM	0.02	0.80	3.50
				PM10	0.017	0.68	2.98
				PM2.5	0.006	0.24	1.05
EP-10	Fertilizer unloaded to truck or cart	40	40	PM	0.020	0.80	3.50
				PM10	0.017	0.68	2.98
				PM2.5	0.006	0.24	1.05

*Bottlenecked from Fertilizer mixing

EP-14c	Haul Road	See Haul Road spread Sheet	PM	See Haul Road spread Sheet	0.977460435	
			PM10			0.277954517
			PM2.5			0.072268174

Total PTE	
PM	22.00
PM10	18.148
PM2.5	6.38

PM10 Composite Emission Factor for project 2017-05-030
0.060050144 lb/ton

Activity	MHDR		Truck Types				We*	Wf*
	(tons/hr)	(trips/hr)	Hopper	Straight	Bucket	type		
Fertilizer receiving	40.0	1.702	100%				13	36.8
Fertilizer shipping	40.0	4.000		100%			6	18
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0
title	0.000						0	0

Truck Type	We (tons)	Wf (tons)
Hopper	13	36.8
Straight	6	18
Bucket	2	6
type		

truck type row must sum to 100% per each activity

1=empty
2=full
3=both

Road Segment ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14
D one way (feet)	106													
D one way (miles)	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fertilizer receiving	3													
Fertilizer shipping	3													
title														
title														
title														
title														
title														
title														
title														
W	7.388	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fertilizer receiving	7.716	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fertilizer shipping	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
title	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
W	15.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Surface	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Unpaved	Paved

E(PM2.5) (lbs/VMT)	0.07234	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E(PM10) (lbs/VMT)	0.27823	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
E(PM30) (lbs/VMT)	0.97843	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Eexh(PM2.5) (lbs/VMT)	0.19819	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Eexh(PM10) (lbs/VMT)	1.98191	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Eexh(PM30) (lbs/VMT)	6.98981	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Fertilizer receiving	0.068085	0	0	0	0	0	0	0	0	0	0	0	0	0
Fertilizer shipping	0.16	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
title	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MHDR	0.228085	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM2.5 (lb/hr)	0.0165	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (lb/hr)	0.06346	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (lb/hr)	0.223164	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM2.5 (lb/hr) w/ rain	0.045204	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (lb/hr) w/ rain	0.452043	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (lb/hr) w/ rain	1.589665	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM2.5 (tons/yr)	0.072268	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (tons/yr)	0.277955	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (tons/yr)	0.97746	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM2.5 (tons/yr) w/ rain	0.197995	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM10 (tons/yr) w/ rain	1.97995	0	0	0	0	0	0	0	0	0	0	0	0	0
PTE PM30 (tons/yr) w/ rain	6.962732	0	0	0	0	0	0	0	0	0	0	0	0	0

	PM	PM10	PM2.5
Fertilizer receiving	0.066616	0.018943	0.004925
Fertilizer shipping	0.156548	0.044517	0.011574
title	0	0	0
title	0	0	0
title	0	0	0
title	0	0	0
title	0	0	0
title	0	0	0
title	0	0	0
title	0	0	0
Sum PTE (lb/hr)	0.223164	0.06346	0.0165
Sum PTE (Tons/yr)	0.97746	0.277955	0.072268

Haul Road BMP's	Control Efficiency %		
	PM	PM10	PM2.5
Documented Wetting	90	90	74

Totals

Haul Road/Haul Truck/Material Hauled Information														
Haul Road ID No.:	1	2	3	4	5	6	7	8	9	10	11	12	0	0
W (tons)	24.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
sL (g/m ²):	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
P:	105	105	105	105	105	105	105	105	105	105	105	105	105	105
N:	365	365	365	365	365	365	365	365	365	365	365	365	365	365
Haul Roads - Max Hourly VMT Rate and Emission Factor Calculations														
E(PM _{2.5})(lbs/VMT):	0.0155	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E(PM ₁₀)(lbs/VMT):	0.0633	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E(PM ₃₀) (lbs/VMT):	0.3166	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM _{2.5})(lbs/VMT):	0.0144	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM ₁₀)(lbs/VMT):	0.0588	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM ₃₀) (lbs/VMT):	0.2938	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

E = k(sL)^{0.91} * (W)^{1.02} where:

E = particulate emission factor (having units matching the units of k)

k = particle size multiplier for particle size range and units of interest

sL = road surface silt loading (grams per square meter) (g/m²)

W = average weight (tons) of the vehicles traveling the road

Table 13.2.1-1 PARTICLE SIZE MULTIPLIERS FOR PAVED ROAD EQUATION

Size range	k (lb/VMT)
PM2.5	0.00054
PM10	0.0022
PM15	0.0027
PM30	0.011

Eext = [k(sL)^{0.91} * (W)^{1.02}](1-P/(4N)) where:

k, sL, W and S are as defined above and

Eext = annual average emission factor in the same units as k

P = number of "wet" days with at least 0.01 inch of precipitation during the averaging period

N = number of days in the averaging period (365 for annual)

The equations retain the quality rating of A (D for PM2.5), if applied within the range of source conditions that were Silt loading:

0.03-400 g/m²

0.04-570 grains/square foot (ft²)

Mean vehicle weight:

1.8-38 megagrams (Mg)

2.0-42 tons

Mean vehicle speed:

1-88 kilometers per hour (kph)

1-55 miles per hour (mph)

The upper 95% confidence levels of equation 1 for PM10 is best described with equations using an exponent of 1.14

E95% = k(sL)^{1.14} * (W)^{1.19}

E95%(PM_{2.5})(lbs/VMT): 0.0274 0.0000 0.0000 0.0000 0.0000 0.0000

E95%(PM₁₀)(lbs/VMT): 0.1117 0.0000 0.0000 0.0000 0.0000 0.0000

Emission Unit	Description	Installation's Designation	MHDR (MMBtu/hr input)	Combined MHDR (MMBtu/hr input)	MHDR (MMcf/hr)	Pollutant	CAS	HAP?	Emission Factor (lb / mmcf)	Emission Factor Source (SCC)	Available Pollutant (lb/hr)	Control Device	PTE (lb/hr)	PTE (tpy)
	Dryer		9.75	9.75	0.010	PM filterable			1.9		0.0182	none	0.0182	0.08
						PM10			7.6		0.0726	none	0.0726	0.32
						PM2.5			7.6		0.0726	none	0.0726	0.32
						SOx			0.6		0.0057	none	0.0057	0.03
						NOx			100		0.9559	none	0.9559	4.19
						VOC			5.5		0.0526	none	0.0526	0.23
						CO			84		0.8029	none	0.8029	3.52
						Combined HAPs			1.888		0.0180	none	0.0180	0.07904
						POM aggregate group			6.98E-04		6.67E-06	none	6.67E-06	2.92E-05
						2-Methylnaphthalene	91-57-6	y	2.40E-05		2.294E-07	none	2.29E-07	1.00E-06
						3-Methylchloranthrene	56-49-5	y	1.80E-06		1.721E-08	none	1.72E-08	7.54E-08
						7,12-Dimethylbenzanthracene	57-97-6	y	1.60E-05		1.529E-07	none	1.53E-07	6.70E-07
						Acenaphthene	83-32-9	y	1.80E-06		1.721E-08	none	1.72E-08	7.54E-08
						Acenaphthylene	203-96-8	y	1.80E-06		1.721E-08	none	1.72E-08	7.54E-08
						Anthracene	120-12-7	y	2.40E-06		2.294E-08	none	2.29E-08	1.00E-07
						Benzanthracene	56-55-3	y	1.80E-06		1.721E-08	none	1.72E-08	7.54E-08
						Benzene	71-43-2	y	2.10E-03		2.007E-05	none	2.01E-05	8.79E-05
						Benzo(a)pyrene	50-32-8	y	1.20E-06		1.147E-08	none	1.15E-08	5.02E-08
						Benzo(b)fluoranthene	205-99-2	y	1.80E-06		1.721E-08	none	1.72E-08	7.54E-08
						Benzo(g,h,i)perylene	191-24-2	y	1.20E-06		1.147E-08	none	1.15E-08	5.02E-08
						Benzo(k)fluoranthene	205-82-3	y	1.80E-06		1.721E-08	none	1.72E-08	7.54E-08
						Butane	106-97-8		2.10E+00		2.007E-02	none	2.01E-02	8.79E-02
					Chrysene	218-01-9	y	1.80E-06		1.721E-08	none	1.72E-08	7.54E-08	
					Dibenzo(a,h)anthracene	53-70-3	y	1.20E-06		1.147E-08	none	1.15E-08	5.02E-08	
					Dichlorobenzene	25321-22-6	y	1.20E-03		1.147E-05	none	1.15E-05	5.02E-05	
					Ethane	74-84-0		3.10E+00		2.963E-02	none	2.96E-02	1.30E-01	
					Fluoranthene	206-44-0	y	3.00E-06		2.868E-08	none	2.87E-08	1.26E-07	
					Fluorene	86-73-7	y	2.80E-06		2.676E-08	none	2.68E-08	1.17E-07	
					Formaldehyde	50-00-0	y	7.50E-02		7.169E-04	none	7.17E-04	3.14E-03	
					Hexane	110-54-3	y	1.80E+00		1.721E-02	none	0.0172	0.08	
					Indeno(1,2,3-cd)pyrene	193-39-5	y	1.80E-06		1.721E-08	none	1.72E-08	7.54E-08	
					Naphthalene	91-20-3	y	6.10E-04		5.831E-06	none	5.83E-06	2.55E-05	
					Pentane	109-66-0		2.60E+00		2.485E-02	none	2.49E-02	1.09E-01	
					Phenanathrene	85-01-8	y	1.70E-05		1.625E-07	none	1.63E-07	7.12E-07	
					Propane	74-98-6		1.60E+00		1.529E-02	none	1.53E-02	6.70E-02	
					Pyrene	129-00-0	y	5.00E-06		4.779E-08	none	4.78E-08	2.09E-07	
					Toluene	108-88-3	y	3.40E-03		3.250E-05	none	3.25E-05	1.42E-04	
					Arsenic	7440-38-2	y	2.00E-04		1.912E-06	none	1.91E-06	8.37E-06	
					Barium	7440-39-3		4.40E-03		4.206E-05	none	4.21E-05	1.84E-04	
					Beryllium	7440-41-7	y	1.20E-05		1.147E-07	none	1.15E-07	5.02E-07	
					Cadmium	7440-43-9	y	1.10E-03		1.051E-05	none	1.05E-05	4.61E-05	
					Chromium	7440-47-3	y	1.40E-03		1.338E-05	none	1.34E-05	5.86E-05	
					Cobalt	7440-48-4	y	8.40E-05		8.029E-07	none	8.03E-07	3.52E-06	
					Copper	7440-50-8		8.50E-04		8.125E-06	none	8.13E-06	3.56E-05	
					Manganese	7439-96-5	y	3.80E-04		3.632E-06	none	3.63E-06	1.59E-05	
					Mercury	7439-97-6	y	2.60E-04		2.485E-06	none	2.49E-06	1.09E-05	
					Molybdenum	7439-98-7		1.10E-03		1.051E-05	none	1.05E-05	4.61E-05	
					Nickel	7440-02-0	y	2.10E-03		2.007E-05	none	2.01E-05	8.79E-05	
					Selenium	7782-49-2	y	2.40E-05		2.294E-07	none	2.29E-07	1.00E-06	
					Vanadium	7440-62-2		2.30E-03		2.199E-05	none	2.20E-05	9.63E-05	
					Zinc	7440-68-6		2.90E-02		2.772E-04	none	2.77E-04	1.21E-03	
					CO2			120,000		1147.0588	none	1147.059	5,024.12	
					Methane			2.3		0.0220	none	0.0220	0.10	
					N2O			2.2		0.0210	none	0.0210	0.09211	
					GHG (mass)								5,024.306	
					GHG (CO2e)								5,053.97	

Natural Gas HHV (Btu/cf)
1,020

100yr GWP 40 CFR 98
Table A-1, Jan 1 2014

CO2	1
CH4	25
N2O	298

Natural gas HHV of 1,020 Btu/cf cited from AP-42 Section 1.4, July 1998.
 Dichlorobenzene group CAS 25321-22-6 conservatively assumed as 100% 1,4-dichlorobenzene CAS 106-46-7.
 HAPs updated per "Air Pollution Control Program Table of Hazardous Air Pollutants, Screening Model Action Levels, and Risk Assessment Levels" Revision 10, 5/3/2012

0.026516

Haul Road/Haul Truck/Material Hauled-Information	1	2	3	4	5	6	7	8	9	10	11	12	0	0
Haul Road ID No.:	1	2	3	4	5	6	7	8	9	10	11	12	0	0
W (tons):	24.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
s (%):	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3
P (days):	105	105	105	105	105	105	105	105	105	105	105	105	105	105
E(PM2.5) (lbs/VMT):	0.2782	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E(PM10) (lbs/VMT):	2.7823	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
E(PM30) (lbs/VMT):	9.7843	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM2.5) (lbs/VMT):	0.1982	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM10) (lbs/VMT):	1.9819	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Eext(PM30) (lbs/VMT):	6.9696	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

E = k (s/12)^a * (W/3)^b where:

E = size-specific emission factor (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

Constants for Equation

Particle Size	k(lb/VMT)	Constant	
		a	b
PM2.5	0.15	0.9	0.45
PM10	1.5	0.9	0.45
PM30	4.9	0.7	0.45

Eext = E[(365-P)/365] where E is defined above and:

Eext = annual size-specific emission factor extrapolated for natural mitigation (lb/VMT)

P = number of days in a year with at least 0.01 inch of precipitation



Missouri Department of

dnr.mo.gov

NATURAL RESOURCES

Eric R. Greitens, Governor

Carol S. Comer, Director

NOV 28 2017

Mr. Marlin McCormick
General Manager
Farmers Elevator & Exchange Company
107 South Chestnut Street
Monroe City, MO 63456

RE: New Source Review Permit - Project Number: 2017-05-030

Dear Mr. McCormick:

Enclosed with this letter is your permit to construct. Please study it carefully and refer to Appendix A for a list of common abbreviations and acronyms used in the permit. Also, note the special conditions, on the accompanying pages. The document entitled, "Review of Application for Authority to Construct," is part of the permit and should be kept with this permit in your files. Operation in accordance with these conditions, your new source review permit application is necessary for continued compliance. The reverse side of your permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri.

This permit may include requirements with which you may not be familiar. If you would like the department to meet with you to discuss how to understand and satisfy the requirements contained in this permit, an appointment referred to as a Compliance Assistance Visit (CAV) can be set up with you. To request a CAV, please contact your local regional office or fill out an online request. The regional office contact information can be found at the following website: <http://dnr.mo.gov/regions/>. The online CAV request can be found at <http://dnr.mo.gov/cav/compliance.htm>.

If you were adversely affected by this permit decision, you may be entitled to pursue an appeal before the administrative hearing commission pursuant to Sections 621.250 and 643.075.6 RSMo. To appeal, you must file a petition with the administrative hearing commission within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the administrative hearing commission, whose contact information is: Administrative Hearing Commission, United States Post Office Building, 131 West High Street, Third Floor, P.O. Box 1557, Jefferson City, Missouri 65102, phone: 573-751-2422, fax: 573-751-5018, website: www.oh.mo.gov/ahc.



Recycled paper

Mr. Marlin McCormick
Page Two

If you have any questions regarding this permit, please do not hesitate to contact Jordan Hull, at the Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102 or at (573) 751-4817. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM



Susan Heckenkamp
New Source Review Unit Chief

SH;jhj

Enclosures

c: Northeast Regional Office
PAMS File: 2017-05-030

Permit Number: 112017 - 011