

## STATEMENT OF BASIS

United States Gypsum (USG)  
Bridgeport, AL  
Jackson County  
705-0041

This proposed Title V Major Source Operating Permit (MSOP) renewal is issued under the provisions of ADEM Admin. Code r. 335-3-16. The above named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans, and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

United States Gypsum (USG) was issued its MSOP on January 6, 2016, with an effective date of January 6, 2016, and an expiration date of January 5, 2020. Per ADEM Admin Code r. 335-3-16-.012(2), an application for permit renewal shall be submitted at least six (6) months, but not more than eighteen (18) months, before the date of expiration of the permit. The renewal application was received on June 26, 2020.

### Facility Description

USG is a gypsum board manufacturing facility in Bridgeport, Jackson County, Alabama. The following are significant sources of air pollutants at this facility:

- Dryer Mill A and Hammer Mill A with shared Baghouse (EP-3)
- Dryer Mill B and Hammer Mill B with shared Baghouse (EP-4)
- Kettle A and Mini-Kettle A with Baghouse (EP-11, 10, & 19)
- Kettle B and MBR Kettle B with Baghouses (EP-12, 14, 18, 40, & 41)
- Stucco Hot Pit A w/ Baghouse (EP-15)
- Stucco Hot Pit B w/ Baghouse (EP-16)
- Miscellaneous A w/ Baghouse (EP-17)
- Miscellaneous B w/ Baghouse (EP-18)
- Stucco Storage Bins w/ Baghouses (EP-21, & 22)
- Additives Mixing Units w/ 10 Baghouses (EP-20, 23-29, 42-44)
- Paper/Glass Mat Pulling System
- Gypsum Drying Kiln (EP-35)
- Gypsum Board Saw w/ Baghouses and Waste Reclamation System (EP-36-38, & 47)
- Joint Treatment Process (EP-130-133)

The following is a summary of facility-wide controlled potential emissions and the reported 2018 and 2019 actual emissions:

Pollutant	Potential Emissions (TPY)	2019 Actual Emissions (TPY)
PM <sub>total</sub>	152.14	55.18

PM <sub>filterable</sub>	152.14	55.18
PM <sub>10</sub>	152.14	55.18
PM <sub>2.5</sub>	152.14	55.18
PM <sub>con</sub>	9.27	4.66
SO <sub>2</sub>	1.07	0.17
NO <sub>x</sub>	229.58	86.63
NH <sub>3</sub>	-	0.79
CO	136.33	20.96
VOC	47.26	16.89
Formaldehyde	5.21	1.55
Total HAP	8.15	-
HAP <sub>misc</sub>	2.94	-
GHG (CO <sub>2</sub> e)	198,033	-

## Renewal Notes

1. Added the new permitted paper/glass mat pulling system to facility.

## Material Handling Operation

The material handling operation consists of incoming gypsum delivered via railcar or barge and unloaded into a feed hopper. The gypsum is then fed onto a belt conveyor and transported to a raw material storage shed. From the shed the gypsum and recycled waste material is transported via the Kettle Distributor Belt Conveyor to either Dryer Storage Bin A or B before continuing through the process.

This operation is considered an insignificant source since the incoming material has a moisture content around 10-15% and the process is enclosed.

## Milling Process (Lines A & B) with shared Baghouses

The milling process consists of Dryer Mill A and B, Hammer Mill A and B with shared baghouses. Wet cake synthetic gypsum is fed out of a supply bin, Synthetic Gypsum Dryer Feed Bin, into the dryer mill. Heat is transferred to the synthetic gypsum by the heated air stream, which raises the temperature of the synthetic gypsum and drives off the free moisture. The dried land plaster is carried by the heated air stream to a receiving dust collector and is conveyed by material handling conveyors to the kettle calcining process feed bin (LB Bin A/B). There it is combined with recycled material that has been broken down by the Hammer Mill. The heated air stream is filtered in the receiving dust collector and then exhausted to the atmosphere. The waste Hammer Mill receives dry synthetic gypsum oversized from the Dryer Mill dust collector system. The oversized gypsum is mainly paper and stucco that has been previously processed and is currently being recycled in the process. Milled gypsum is conveyed to LP Bin A/B. Emissions are vented to the dust collector. These processes are controlled by a common dust collector for each line (Dust Collector A/B).

Emission point EP-3 is associated with units on Line A. Emission point EP-4 is associated with units on Line B.

Applicability:

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, “*Major Source Operating Permits*”.

Rule 335-3-16-.03

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), “*Visible Emissions*”.

Rule 335-3-4-.01(1)

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), “*Control of Particulate Emissions for Process Industries – General*”.

Rule 335-3-4-.04(1)

- These processes have enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, “*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]*”.

Rule 335-3-14-.04 [Anti-PSD]

- These Dryer Mills A and B and Hammer Mills A and B are affected sources at a nonmetallic mineral processing plant according to §60.670(a). Therefore, they are subject to the applicable requirements of 40 CFR 60, Subpart OOO, “*Standards of Performance for Nonmetallic Mineral Processing Plants*”.

40 CFR 60 Subpart OOO, §60.670(a)

- These processes are subject to the applicable requirements of 40 CFR 63 Subpart A, “*General Provisions*”, as listed in Table 1 of 40 CFR 60 Subpart OOO.

40 CFR 63, Subpart OOO

- The dryers are not subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.03, “*Control of Particulate Emissions for Fuel Burning Equipment*”, since they are direct fired dryers.

Rule 335-3-4-.03

- The dryers and corresponding baghouses are subject to the applicable requirements of 40 CFR 60 Subpart UUU, “*New Source Performance Standards for Calciners and Dryers in Mineral Industries*”.

40 CFR 60, Subpart UUU

- The Dry Mills, Feed Bins, and Hammermills are subject to the applicable requirements of 40 CFR 64, “*Compliance Assurance Monitoring*”, as described in General Proviso No. 33.

40 CFR 64, §64.2

Emissions Standards:

- The facility has agreed to only use natural gas to fire the dryers.

**Opacity:**

- Visible emissions from the Dryer Baghouse A/B shall not exceed 10% opacity as determined by EPA Reference Method 9 of 40 CFR 60, Appendix A, unless the emissions are discharged from an affected facility using a wet scrubbing control device.

40 CFR 60 Subpart UUU, §60.732(b)

- Visible emissions from the Dryer Baghouse A/B shall not exceed 7% opacity, as determined by EPA Reference Method 9 of 40 CFR 60, Appendix A.

40 CFR 60 Subpart OOO, Table 2

- Fugitive emissions from the two storage bins (Dryer Bin A/B and LP Bin A/B) and the Hammer Mill A/B shall not exceed 10% opacity.

40 CFR 60 Subpart OOO, Table 3

- Transfer points on a conveyor belt or any other affected source that is enclosed in a building must comply with the emission limits in §60.672(a) and (b), or the building enclosing the affected facility or facilities must comply with the following emission limits:
  - Fugitive emissions from the building openings (except for vents as defined in §60.671) must not exceed seven percent (7%) opacity; and
  - Vents (as defined in §60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of Subpart OOO.

40 CFR 60 Subpart OOO, §60.672(e)

- **Rule 335-3-4-.01(1)(a)** states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%) over a six (6) minute period. **Rule 335-3-4-.01(1)(b)** states that during one six minute period in

any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity. All other sources would be subject to this regulation.

Rule 335-3-4-.01(1)

**Particulate Matter:**

- The particulate matter emission rate from each baghouse associated with Lines A & B shall not exceed the lesser of 0.015 grains per dry standard cubic foot or the allowable set by equation in Rule 335-3-4-.04:

$$E = 3.59P^{0.62} \left( P < 30 \frac{\text{tons}}{\text{hr}} \right)$$

or

$$E = 17.31P^{0.16} \left( P \geq 30 \frac{\text{tons}}{\text{hr}} \right)$$

Where:

E = Emissions in lb/hr

P = Process weight per hour in tons/hr

Rule 335-3-4-.04(1) & Rule 335-3-14-.04 [Anti-PSD]

- The particulate matter emission rate from Hammer Mill A/B and Dryer Feed Bin A/B shall not exceed 0.05 g/dscm (0.022 gr/dscf).

40 CFR 60 Subpart OOO, §60.672(a)

- The particulate matter emission rate from Dryer A/B shall not exceed 0.057 g/dscm (0.025 gr/dscf) for processes where calciners and dryers are installed in series.

40 CFR 60 Subpart UUU, §60.732(a)

**Nitrogen Oxide (NO<sub>x</sub>) and Carbon Monoxide (CO):**

- Nitrogen Oxide and carbon monoxide emissions are curtailed by a facility-wide Anti-PSD limit of  $3.5 \times 10^9$  cubic feet of natural gas consumed in any consecutive 12-month period. In addition, the facility has agreed to only use natural gas to fire any burner.

Rule 335-3-14-.04

### Expected Emissions

According to the application, potential emissions are based on engineering data, AP-42 emission factors and 8,760 hrs/yr. These processes are each rated for 150 TPH. Dryer Burner A has a heat capacity of 35 MMBtu/hr and Dryer Burner B has a heat capacity of 45 MMBtu/hr.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
EP-3	PM	5.51	24.14
	PM <sub>10</sub>	5.51	24.14
	PM <sub>2.5</sub>	5.51	24.14
	SO <sub>2</sub>	0.02	0.10
	NO <sub>x</sub>	3.50	15.33
	CO	2.94	12.88
	VOC	0.19	0.84
	HAP <sub>total</sub>	0.07	0.29
EP-4	PM	5.65	24.75
	PM <sub>10</sub>	5.65	24.75
	PM <sub>2.5</sub>	5.65	24.75
	SO <sub>2</sub>	0.03	0.13
	NO <sub>x</sub>	4.50	19.71
	CO	3.78	16.36
	VOC	0.25	1.08
	HAP <sub>total</sub>	0.845	0.37

### Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

#### Rule 335-3-1-.05

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department, shall be used in the determination of the opacity of the stack emissions.

#### Rule 335-3-1-.05

- Performance tests shall be conducted in accordance with §60.8. The facility shall use as reference methods and procedures those outlined in appendix A. Alternatively, those methods specified in §60.675 and/or §60.736 may be referenced.

40 CFR Subpart OOO, §60.675; 40 CFR 60 Subpart UUU, §60.736

### Periodic Monitoring

- Instantaneous visible emissions checks of each baghouse stack shall be conducted weekly while in operation:
  - If instantaneous visible emissions are greater than 10% at any time, a Method 9 visible emissions observation shall be conducted for a minimum of 12 minutes within 30 minutes of the initial observation.
  - If the average opacity observed during the Method 9 observation exceeds 10%, corrective action shall be initiated within 2 hours to reduce the visible emissions.

Rule 335-3-16-.05 & 40 CFR 64

- Properly maintained and operated devices shall be utilized to measure the pressure differential between the inlet and exhaust of each baghouse to determine if the pressure differential is within the manufacturer's recommended operating range. The pressure differential shall be checked on at least a weekly basis. Whenever a pressure differential is outside of the manufacturer's recommended range, maintenance inspections and/or corrective action to bring the pressure differential within the manufacturer's recommended range are to be initiated within two hours.

Rule 335-3-16-.05 & 40 CFR 64

- This process is not subject to the monitoring requirements of 40 CFR 60 Subpart UUU. Per §60.737(c), the facility of a gypsum rotary dryer who uses a dry control device is exempt from the monitoring requirements of this subpart.

40 CFR 60 Subpart UUU, §60.737(c)

Recordkeeping and Reporting Requirements:

- The Department must be notified and approved should the facility change the type of burner fuel used.

Rule 335-3-16-.05

- The facility shall maintain a record of the amount of natural gas consumed each month and a rolling total of each consecutive 12-month period. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-14-.04

- The facility shall maintain a record of all pressure differential readings, any problems noted, and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

- The facility shall maintain a record of all inspections, including visible emissions checks, Method 9 observations, any problems noted and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

### **Calcination Process (Lines A & B) with Baghouses**

The Calcination Process consists of Kettle A and B, Mini Kettle A and B with baghouses. Kettle A calcines synthetic gypsum through indirect heating. It receives synthetic gypsum from LP Bin A and feeds calcined gypsum to Stucco Hot Pit A. Surge from the kettle is fed to Mini-kettle A. Transfer points are controlled by a common dust collector (EP-13).

There are three emission points associated with Line A as listed below:

- EP-11 Kettle A Burner
- EP-13 Kettle A baghouse and Surge Bin
- EP-19 Mini-kettle A Burner

Kettle B calcines synthetic gypsum through indirect heating. It receives synthetic gypsum from LP Bin B and feeds calcined gypsum to Stucco Hot Pit B. Surge from the kettle is fed to MBR kettle B via a feed bin. The MBR kettle is controlled by a steam exhaust dust collector. Transfer points from Kettle B are controlled by a common dust collector (D/C).

There are five emission points associated with Line B as listed below:

- EP-14 Kettle B Baghouse
- EP-12 Kettle B Burner
- EP-41 MBR Kettle B Baghouse
- EP-40 MBR Kettle B Burner
- EP-18 MBR Kettle B Feed Bin (controlled by Miscellaneous D/C B)

#### Applicability:

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, “*Major Source Operating Permits*”.

Rule 335-3-16-.03

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), “*Visible Emissions*”.

Rule 335-3-4-.01(1)

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), “*Control of Particulate Emissions for Process Industries – General*”.

Rule 335-3-4-.04(1)



- These processes have enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, “*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]*”.

Rule 335-3-14-.04 [Anti-PSD]

- The kettle burners are not subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.03, “*Control of Particulate Emissions for Fuel Burning Equipment*” since they are direct fired burner.

Rule 335-3-4-.03

- The kettles, mini-kettle, and MRB kettle are subject to the applicable requirements of 40 CFR 60 Subpart UUU, “*New Source Performance Standards for Calciners and Dryers in Mineral Industries*”.

40 CFR 60 Subpart UUU

- The Mini-kettle A Surge Bin and MBR Kettle B Feed Bin are subject to the applicable requirements of 40 CFR 60 Subpart OOO, “*New Source Performance Standards of Performance for Nonmetallic Mineral Processing Plants*”.

40 CFR 60 Subpart OOO

- The Mini-kettle A Surge Bin and MBR Kettle B Feed Bin are subject to the applicable requirements of 40 CFR 63 Subpart A, “*General Provisions*” as listed in Table 1 of 40 CFR 60 Subpart OOO.

40 CFR 63 Subpart A, 40 CFR 60 Subpart OOO Table 1

- The Kettle A/B Burners, Mini-kettle Burner, and MBR Kettle Burner are subject to 40 CFR 64, “*Compliance Assurance Monitoring*”.

40 CFR 64

Emissions Standards:

- The facility has agreed to only use natural gas to fire the burners.

**Opacity:**

- Visible emissions from each source shall not exceed 10% opacity as determined by EPA Reference Method 9 of 40 CFR 60, Appendix A, unless the emissions are discharged from an affected facility using a wet scrubbing control device.

40 CFR 60 Subpart UUU, §60.732(b)

- Visible emissions from the Min-kettle Surge Bin and MBR Kettle Feed Bin shall not exceed 7% opacity, as determined by EPA Reference Method 9 of 40 CFR 60, Appendix A.

40 CFR 60 Subpart OOO, Table 2

- Fugitive emissions from any transfer point shall not exceed 10% opacity.

40 CFR 60 Subpart OOO, Table 3

- Transfer points on a conveyor belt or any other affected source that is enclosed in a building must comply with the emission limits in §60.672(a) and (b), or the building enclosing the affected facility or facilities must comply with the following emission limits:
  - Fugitive emissions from the building openings (except for vents as defined in §60.671) must not exceed seven percent (7%) opacity; and
  - Vents (as defined in §60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of Subpart OOO.

40 CFR 60 Subpart OOO, §60.672(e)

- **Rule 335-3-4-.01(1)(a)** states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%) over a six (6) minute period. **Rule 335-3-4-.01(1)(b)** states that during one six minute period in any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity. All other sources would be subject to this regulation.

Rule 335-3-4-.01(1)

**Particulate Matter:**

- The particulate matter emission rate from each baghouse associated with Lines A & B shall not exceed the lesser of 0.015 grains per dry standard cubic foot or the allowable set by equation in Rule 335-3-4-.04.

Rule 335-3-4-.04(1) & Rule 335-3-14-.04 [Anti-PSD]

- The particulate matter emission rate from Mini-kettle A Surge Bin or from MBR Kettle Feed Bin shall not exceed 0.05 g/dscm (0.022 gr/dscf).

40 CFR 60 Subpart OOO, §60.672(a)

- The particulate matter emission rate from Kettle A, Mini-Kettle A, Kettle B, or MBR Kettle B shall not exceed 0.040 gr/dscf.

40 CFR 60 Subpart UUU, §60.732(a)

### **Nitrogen Oxide and Carbon Monoxide:**

- Nitrogen Oxide and carbon monoxide emissions are curtailed by a facility-wide Anti-PSD limit of  $3.5 \times 10^9$  cubic feet of natural gas consumed in any consecutive 12-month period. In addition, the facility has agreed to only use natural gas to fire any burner.

Rule 335-3-14-.04

### Emissions

According to the application, potential emissions are based on engineering data, AP-42 emission factors and 8,760 hrs/yr. Line A process is rated for 55 TPH and Line B process is rated for 70 TPH. Kettle A and B Burners have a heat capacity of 30 MMBtu/hr, Mini-Kettle A Burner has a heat capacity of 5 MMBtu/hr, and MRB Kettle B Burner has a heat capacity of 15 MMBtu/hr. Emissions for EP-18 are accounted for under Miscellaneous D/C B.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
EP-11	PM	0.27	1.17
	PM <sub>10</sub>	0.27	1.17
	PM <sub>2.5</sub>	0.27	1.17
	SO <sub>2</sub>	0.02	0.10
	NO <sub>x</sub>	3.50	15.33
	CO	2.94	12.88
	VOC	0.19	0.84
	HAP <sub>total</sub>	0.066	0.29
EP-13/EP-19	PM	1.31	5.75
	PM <sub>10</sub>	1.31	5.75
	PM <sub>2.5</sub>	1.31	5.75
EP-12	PM	0.23	1.00
	PM <sub>10</sub>	0.23	1.00
	PM <sub>2.5</sub>	0.23	1.00
	SO <sub>2</sub>	0.02	0.09
	NO <sub>x</sub>	3.00	13.14
	CO	2.52	11.04
	VOC	0.17	0.73
	HAP <sub>total</sub>	0.057	0.25
EP-40	PM	0.11	0.50
	PM <sub>10</sub>	0.11	0.50
	PM <sub>2.5</sub>	0.11	0.50

	SO <sub>2</sub>	0.01	0.04
	NO <sub>x</sub>	1.50	6.57
	CO	1.26	5.52
	VOC	0.08	0.36
	HAP <sub>total</sub>	0.027	0.12
EP-14	PM	1.31	5.75
	PM <sub>10</sub>	1.31	5.75
	PM <sub>2.5</sub>	1.31	5.75
EP-41	PM	0.87	3.83
	PM <sub>10</sub>	0.87	3.83
	PM <sub>2.5</sub>	0.87	3.83

#### Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

#### Rule 335-3-1-.05

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department, shall be used in the determination of the opacity of the stack emissions.

#### Rule 335-3-1-.05

- Performance tests shall be conducted in accordance with §60.8. The facility shall use as reference methods and procedures those outlined in appendix A. Alternatively those methods specified in §60.675 and/or §60.736 may be referenced.

#### 40 CFR Subpart OOO, §60.675; 40 CFR 60 Subpart UUU, §60.736

#### Periodic Monitoring

- Instantaneous visible emissions checks of each baghouse stack shall be conducted weekly while in operation:
  - If instantaneous visible emissions are greater than 10% at any time, a Method 9 visible emissions observation shall be conducted for a minimum of 12 minutes within 30 minutes of the initial observation.
  - If the average opacity observed during the Method 9 observation exceeds 10%, corrective action shall be initiated within 2 hours to reduce the visible emissions.

#### Rule 335-3-16-.05 & 40 CFR 64

- Properly maintained and operated devices shall be utilized to measure the pressure differential between the inlet and exhaust of each baghouse to determine if the pressure differential is within the manufacturer's recommended operating range. The pressure differential shall be checked on at least a weekly basis. Whenever a pressure differential

is outside of the manufacturer's recommended range, maintenance inspections and/or corrective action to bring the pressure differential within the manufacturer's recommended range are to be initiated within two hours.

Rule 335-3-16-.05 & 40 CFR 64

- This process is not subject to the monitoring requirements of 40 CFR 60 Subpart UUU. Per §60.737(c), the facility of a gypsum rotary dryer who uses a dry control device is exempt from the monitoring requirements of this subpart.

40 CFR 60 Subpart UUU, §60.737(c)

Recordkeeping and Reporting Requirements:

- The Department must be notified and approved should the facility change the type of burner fuel used.

Rule 335-3-16-.05

- The facility shall maintain a record of the amount of natural gas consumed each month and a rolling total of each consecutive 12-month period. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-14-.04

- The facility shall maintain a record of all pressure differential readings, any problems noted, and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

- The facility shall maintain a record of all inspections, including visible emissions checks, Method 9 observations, any problems noted and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

**Stucco Hot Pits (Lines A & B) with Baghouse**

Stucco Hot Pit A/B with vent filter cools calcined gypsum for further processing. For Line A the calcined gypsum is received from Kettle A, Kettle A dust collector, and Mini-Kettle A. For Line B the calcined gypsum is received from Kettle B and Kettle B dust collector. Hot Pit A/B then feeds the Dribble Bin to continue through the process. Each pit is controlled by a baghouse.

There is one emission point associated with Line A, EP-15. There is one emission point associated with Line B, EP-16

#### Applicability:

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, “*Major Source Operating Permits*”.

#### Rule 335-3-16-.03

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), “*Visible Emissions*”.

#### Rule 335-3-4-.01(1)

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), “*Control of Particulate Emissions for Process Industries – General*”.

#### Rule 335-3-4-.04(1)

- These processes have enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, “*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]*”.

#### Rule 335-3-14-.04 [Anti-PSD]

- The Kettle A/B Burners, Mini-kettle Burner, and MBR Kettle Burner are subject to 40 CFR 64, “*Compliance Assurance Monitoring*”.

#### 40 CFR 64

#### Emissions Standards:

#### **Opacity:**

- **Rule 335-3-4-.01(1)(a)** states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%) over a six (6) minute period. **Rule 335-3-4-.01(1)(b)** states that during one six minute period in any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity. These sources would be subject to this regulation.

#### **Particulate Matter:**

- The particulate matter emission rate from each baghouse associated with Lines A & B shall not exceed the lesser of 0.015 grains per dry standard cubic foot or the allowable set by equation in Rule 335-3-4-.04.

Rule 335-3-4-.04(1) & Rule 335-3-14-.04 [Anti-PSD]

Emissions:

According to the application, potential emissions are based on engineering data, and 8,760 hrs/yr. These processes are each rated for 46.75 TPH.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
EP-15	PM	0.27	1.20
	PM <sub>10</sub>	0.27	1.20
	PM <sub>2.5</sub>	0.27	1.20
EP-16	PM	0.27	1.20
	PM <sub>10</sub>	0.27	1.20
	PM <sub>2.5</sub>	0.27	1.20

Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

Rule 335-3-1-.05

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department, shall be used in the determination of the opacity of the stack emissions.

Rule 335-3-1-.05

Periodic Monitoring

- Instantaneous visible emissions checks of each baghouse stack shall be conducted weekly while in operation:
  - If instantaneous visible emissions are greater than 10% at any time, a Method 9 visible emissions observation shall be conducted for a minimum of 12 minutes within 30 minutes of the initial observation.
  - If the average opacity observed during the Method 9 observation exceeds 10%, corrective action shall be initiated within 2 hours to reduce the visible emissions.

Rule 335-3-16-.05 & 40 CFR 64

- Properly maintained and operated devices shall be utilized to measure the pressure differential between the inlet and exhaust of each baghouse to determine if the pressure differential is within the manufacturer's recommended operating range. The pressure differential shall be checked on at least a weekly basis. Whenever a pressure differential is outside of the manufacturer's recommended range, maintenance inspections and/or

corrective action to bring the pressure differential within the manufacturer's recommended range are to be initiated within two hours.

Rule 335-3-16-.05 & 40 CFR 64

Recordkeeping and Reporting Requirements:

- The facility shall maintain a record of all pressure differential readings, any problems noted, and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

- The facility shall maintain a record of all inspections, including visible emissions checks, Method 9 observations, any problems noted and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

**Miscellaneous Units (Lines A & B) with Dust Collectors**

For Line A, the dust collector controls emissions from Dryer Mill Screen A; Dribble Bin; Bucket Elevators 1, 3, and 5; and LP Bin A. For Line B, the dust collector controls emissions from Dryer Mill Screen B; Dribble Bin; Bucket Elevators 2 and 4; and LP Bin B.

There is one emission point associated with Line A, EP-17. There is one emission point associated with Line B, EP-18.

Applicability:

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "*Major Source Operating Permits*".

Rule 335-3-16-.03

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), "*Visible Emissions*".

Rule 335-3-4-.01(1)

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), "*Control of Particulate Emissions for Process Industries – General*".

Rule 335-3-4-.04(1)



- These processes have enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, “*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]*”.

Rule 335-3-14-.04 [Anti-PSD]

- Screen A/B, LP Bin A/B, and Bucket Elevators No. 1 through 5 are subject to the applicable requirements of 40 CFR 60 Subpart OOO, “*New Source Performance Standards of Performance for Nonmetallic Mineral Processing Plants*”.

40 CFR 60 Subpart OOO

- Screen A/B, LP Bin A/B, and Bucket Elevators No. 1 through 5 are subject to the applicable requirements of 40 CFR 63 Subpart A, “*General Provisions*” as listed in Table 1 of 40 CFR 60 Subpart OOO.

40 CFR 63 Subpart A, 40 CFR 60 Subpart OOO Table 1

- These sources are subject to 40 CFR 64, “*Compliance Assurance Monitoring*”.

40 CFR 64

Emissions Standards:

**Opacity:**

- Visible emissions from the Miscellaneous Dust Collectors A and B shall not exceed 7% opacity, as determined by EPA Reference Method 9 of 40 CFR 60, Appendix A.

40 CFR 60 Subpart OOO, Table 2

- Fugitive emissions from the bucket elevators and any conveying systems shall not exceed 10% opacity.

40 CFR 60 Subpart OOO, Table 3

- Transfer points on a conveyor belt or any other affected source that is enclosed in a building must comply with the emission limits in §60.672(a) and (b), or the building enclosing the affected facility or facilities must comply with the following emission limits:
  - Fugitive emissions from the building openings (except for vents as defined in §60.671) must not exceed seven percent (7%) opacity; and
  - Vents (as defined in §60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of Subpart OOO.

40 CFR 60 Subpart OOO, §60.672(e)

**Particulate Matter:**

- The particulate matter emission rate from each baghouse associated with Lines A & B shall not exceed the lesser of 0.015 grains per dry standard cubic foot or the allowable set by equation in Rule 335-3-4-.04.

Rule 335-3-4-.04(1) & Rule 335-3-14-.04 [Anti-PSD]

- The particulate matter emission rate from Screens A/B, LP Bin A/B, and Bucket Elevators No. 1 through 5 shall not exceed 0.05 g/dscm (0.022 gr/dscf).

40 CFR 60 Subpart OOO, §60.672(a)

Emissions:

According to the application, potential emissions are based on engineering data, and 8,760 hrs/yr. These sources are each rated for 90 TPH.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
EP-17	PM	0.79	3.45
	PM <sub>10</sub>	0.79	3.45
	PM <sub>2.5</sub>	0.79	3.45
EP-18	PM	0.79	3.45
	PM <sub>10</sub>	0.79	3.45
	PM <sub>2.5</sub>	0.79	3.45

Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

Rule 335-3-1-.05

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department, shall be used in the determination of the opacity of the stack emissions.

Rule 335-3-1-.05

- Performance tests shall be conducted in accordance with §60.8. The facility shall use as reference methods and procedures those outlined in appendix A. Alternatively those methods specified in §60.675 may be referenced.

40 CFR Subpart OOO, §60.675;

Periodic Monitoring

- Instantaneous visible emissions checks of each baghouse stack shall be conducted at least once per day while in operation:
  - If instantaneous visible emissions are greater than 10% at any time, a Method 9 visible emissions observation shall be conducted for a minimum of 12 minutes within 30 minutes of the initial observation.
  - If the average opacity observed during the Method 9 observation exceeds 10%, corrective action shall be initiated within 2 hours to reduce the visible emissions.

Rule 335-3-16-.05 & 40 CFR 64

- Properly maintained and operated devices shall be utilized to measure the pressure differential between the inlet and exhaust of each baghouse to determine if the pressure differential is within the manufacturer's recommended operating range. The pressure differential shall be checked on at least a weekly basis. Whenever a pressure differential is outside of the manufacturer's recommended range, maintenance inspections and/or corrective action to bring the pressure differential within the manufacturer's recommended range are to be initiated within two hours.

Rule 335-3-16-.05 & 40 CFR 64

Recordkeeping and Reporting Requirements:

- The facility shall maintain a record of all pressure differential readings, any problems noted, and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

- The facility shall maintain a record of all inspections, including visible emissions checks, Method 9 observations, any problems noted and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

**Stucco Storage Bins with Baghouses**

Material is fed to a storage bin from the Dribble Bin before continuing to the Rotary Screen. There are two storage bins for this process, each controlled by a dust collector.

There are two emission points associated with this process, EP-21 and EP-22.

Applicability:

- These bins are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, “*Major Source Operating Permits*”.

Rule 335-3-16-.03

- These bins are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), “*Visible Emissions*”.

Rule 335-3-4-.01(1)

- These bins are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), “*Control of Particulate Emissions for Process Industries – General*”.

Rule 335-3-4-.04(1)

- These bins have enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, “*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]*”.

Rule 335-3-14-.04 [Anti-PSD]

- These bins are subject to 40 CFR 64, “*Compliance Assurance Monitoring*”.

40 CFR 64

Emissions Standards:

**Opacity:**

- **Rule 335-3-4-.01(1)(a)** states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%) over a six (6) minute period. **Rule 335-3-4-.01(1)(b)** states that during one six minute period in any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity. This operation would be subject to this regulation.

Rule 335-3-4-.01

**Particulate:**

- The particulate matter emission rate from the baghouses associated with the Storage Bins shall not exceed the lesser of 0.015 grains per dry standard cubic foot of exhaust or the allowable set by equation in Rule 335-3-4-.04.

Rule 335-3-4-.04(1) & Rule 335-3-14-.04 [Anti-PSD]

Emissions:

According to the application, potential emissions are based on engineering data, and 8,760 hrs/yr. Storage Bin 1 is rated for 87 TPH and Storage Bin 2 is rated for 80 TPH.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
EP-21	PM	0.82	3.60
	PM <sub>10</sub>	0.82	3.60
	PM <sub>2.5</sub>	0.82	3.60
EP-22	PM	0.82	3.60
	PM <sub>10</sub>	0.82	3.60
	PM <sub>2.5</sub>	0.82	3.60

Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

Rule 335-3-1-.05

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department, shall be used in the determination of the opacity of the stack emissions.

Rule 335-3-1-.05

Periodic Monitoring

- Instantaneous visible emissions checks of each baghouse stack shall be conducted at least once per day while in operation:
  - If instantaneous visible emissions are greater than 10% at any time, a Method 9 visible emissions observation shall be conducted for a minimum of 12 minutes within 30 minutes of the initial observation.
  - If the average opacity observed during the Method 9 observation exceeds 10%, corrective action shall be initiated within 2 hours to reduce the visible emissions.

Rule 335-3-16-.05 & 40 CFR 64

- Properly maintained and operated devices shall be utilized to measure the pressure differential between the inlet and exhaust of each baghouse to determine if the pressure differential is within the manufacturer's recommended operating range. The pressure differential shall be checked on at least a weekly basis. Whenever a pressure differential is outside of the manufacturer's recommended range, maintenance inspections and/or

corrective action to bring the pressure differential within the manufacturer's recommended range are to be initiated within two hours.

Rule 335-3-16-.05 & 40 CFR 64

Recordkeeping and Reporting Requirements:

- The facility shall maintain a record of all pressure differential readings, any problems noted, and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

- The facility shall maintain a record of all inspections, including visible emissions checks, Method 9 observations, any problems noted and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

**Additives Mixing Process with Baghouses**

There are three additives: stucco, perculite, and calcium that are added to the gypsum. HRA is an accelerant that is added to expedite the drying process so that the board may be cut before the final drying process. This process includes a Stucco & Dry Additives Feed Bin, HRA Ball Mills 1 & 2, HRA Landplaster Bins 1 & 2, Additives 1 & 2 Storage Bins, Additive 1 Refill Bin, Additive 2 Vacuum Bin, Stucco Screw, and Additive 3 Bin. Each one of these units is controlled by an individual dust collection system.

There are eleven emission points associated with this process: Stucco & Dry Additives Dust Collector (EP-29), HRA Ball Mills 1 & 2 Dust Collectors (EP-24/43), HRA Landplaster Bins 1 & 2 Dust Collectors (EP-42/23), Additives 1 & 2 Storage Bin Vent Filters (EP-25/26), Additive 1 Refill Bin Vent Filter (EP-27), Additive 2 Vacuum Bin Cent Filter (EP-28), Stucco Screw (EP-44), and Additive 3 Bin (EP-20).

Applicability:

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "*Major Source Operating Permits*".

Rule 335-3-16-.03

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), "*Visible Emissions*".

Rule 335-3-4-.01(1)

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), “*Control of Particulate Emissions for Process Industries – General*”.

Rule 335-3-4-.04(1)

- These processes have enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, “*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]*”.

Rule 335-3-14-.04 [Anti-PSD]

- Land Plaster Feed Bins No. 1 and No. 2, HRA Ball Mill No. 1 and No. 2, and HRA Refill Bin are subject to the applicable requirements of 40 CFR 60 Subpart OOO, “*New Source Performance Standards of Performance for Nonmetallic Mineral Processing Plants*”.

40 CFR 60 Subpart OOO

- Land Plaster Feed Bins No. 1 and No. 2, HRA Ball Mill No. 1 and No. 2, and HRA Refill Bin are subject to the applicable requirements of 40 CFR 63 Subpart A, “*General Provisions*” as listed in Table 1 of 40 CFR 60 Subpart OOO.

40 CFR 63 Subpart A, 40 CFR 60 Subpart OOO Table 1

- The Stucco & Dry Additives Feed Bin is subject to 40 CFR 64, “*Compliance Assurance Monitoring*”.

40 CFR 64

Emissions Standards:

**Opacity:**

- Visible emissions from the Land Plaster Feed Bins No. 1 and No. 2, HRA Ball Mill No. 1 and No. 2, and HRA Refill shall not exceed 7% opacity, as determined by EPA Reference Method 9 of 40 CFR 60, Appendix A.

40 CFR 60 Subpart OOO, Table 2

- Fugitive emissions from any transfer point shall not exceed 10% opacity.

40 CFR 60 Subpart OOO, Table 3

- Transfer points on a conveyor belt or any other affected source that is enclosed in a building must comply with the emission limits in §60.672(a) and (b), or the building

enclosing the affected facility or facilities must comply with the following emission limits:

- Fugitive emissions from the building openings (except for vents as defined in §60.671) must not exceed seven percent (7%) opacity; and
- Vents (as defined in §60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of Subpart OOO.

40 CFR 60 Subpart OOO, §60.672(e)

- **Rule 335-3-4-.01(1)(a)** states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%) over a six (6) minute period. **Rule 335-3-4-.01(1)(b)** states that during one six minute period in any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity. All other sources would be subject to this regulation.

Rule 335-3-4-.01

**Particulate Matter:**

- The particulate matter emission rate from each baghouse associated with those units comprising the Additives Mixing Process shall not exceed the lesser of 0.015 grains per dry standard cubic foot of exhaust or the allowable set by equation in Rule 335-3-4-.04:

Rule 335-3-4-.04(1) & Rule 335-3-14-.04 [Anti-PSD]

- The particulate matter emission rate from the Land Plaster Feed Bins No. 1 and No. 22, HRA Ball Mill No. 1 and No. 2, and HRA Refill shall not exceed 0.05 g/dscm (0.022 gr/dscf).

40 CFR 60 Subpart OOO, §60.672(a)

Emissions:

According to the application, potential emissions are back calculated from expected emissions, assuming a 99% control efficiency, and 8,760 hrs/yr. This process is rated for 1.8 TPH.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
EP-20	PM	0.19	0.82
	PM <sub>10</sub>	0.19	0.82
	PM <sub>2.5</sub>	0.19	0.82
EP-23	PM	0.04	0.19
	PM <sub>10</sub>	0.04	0.19
	PM <sub>2.5</sub>	0.04	0.19



EP-24	PM	0.11	0.46
	PM <sub>10</sub>	0.11	0.46
	PM <sub>2.5</sub>	0.11	0.46
EP-25	PM	0.15	0.66
	PM <sub>10</sub>	0.15	0.66
	PM <sub>2.5</sub>	0.15	0.66
EP-26	PM	0.08	0.33
	PM <sub>10</sub>	0.08	0.33
	PM <sub>2.5</sub>	0.08	0.33
EP-27	PM	0.10	0.44
	PM <sub>10</sub>	0.10	0.44
	PM <sub>2.5</sub>	0.10	0.44
EP-28	PM	0.11	0.47
	PM <sub>10</sub>	0.11	0.47
	PM <sub>2.5</sub>	0.11	0.47
EP-29	PM	0.95	4.14
	PM <sub>10</sub>	0.95	4.14
	PM <sub>2.5</sub>	0.95	4.14
EP-42	PM	0.17	0.75
	PM <sub>10</sub>	0.17	0.75
	PM <sub>2.5</sub>	0.17	0.75
EP-43	PM	0.11	0.46
	PM <sub>10</sub>	0.11	0.46
	PM <sub>2.5</sub>	0.11	0.46
EP-44	PM	0.11	0.47
	PM <sub>10</sub>	0.11	0.47
	PM <sub>2.5</sub>	0.11	0.47

Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

Rule 335-3-1-.05

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department, shall be used in the determination of the opacity of the stack emissions.

Rule 335-3-1-.05

- Performance tests shall be conducted in accordance with §60.8. The facility shall use as reference methods and procedures those outlined in appendix A. Alternatively those methods specified in §60.675 may be referenced.

40 CFR Subpart OOO, §60.675

### Periodic Monitoring

- Instantaneous visible emissions checks of each baghouse stack shall be conducted at least once per day while in operation:
  - If instantaneous visible emissions are greater than 10% at any time, a Method 9 visible emissions observation shall be conducted for a minimum of 12 minutes within 30 minutes of the initial observation.
  - If the average opacity observed during the Method 9 observation exceeds 10%, corrective action shall be initiated within 2 hours to reduce the visible emissions.

#### Rule 335-3-16-.05 & 40 CFR 64

- Properly maintained and operated devices shall be utilized to measure the pressure differential between the inlet and exhaust of each baghouse to determine if the pressure differential is within the manufacturer's recommended operating range. The pressure differential shall be checked on at least a weekly basis. Whenever a pressure differential is outside of the manufacturer's recommended range, maintenance inspections and/or corrective action to bring the pressure differential within the manufacturer's recommended range are to be initiated within two hours.

#### Rule 335-3-16-.05 & 40 CFR 64

### Recordkeeping and Reporting Requirements:

- The facility shall maintain a record of all pressure differential readings, any problems noted, and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

#### Rule 335-3-16-.05(c) & 40 CFR Part 64

- The facility shall maintain a record of all inspections, including visible emissions checks, Method 9 observations, any problems noted and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

#### Rule 335-3-16-.05(c) & 40 CFR Part 64

### **Gypsum Drying Kiln**

Wet gypsum wallboards are fed from the manufacturing line into the board tunnel drying kiln. Water is driven out of the board via convective heaters.

There is one emission point associated with this process, EP-35. All five convective heaters exhaust through this one emission point.

### Applicability:

- This unit is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, “*Major Source Operating Permits*”.

Rule 335-3-16-.03

- This unit is subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), “*Visible Emissions*”.

Rule 335-3-4-.01(1)

- This unit is subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), “*Control of Particulate Emissions for Process Industries – General*”.

Rule 335-3-4-.04(1)

- This kiln is not subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.03, “*Control of Particulate Emissions for Fuel Burning Equipment*” since it is a direct fired kiln.

Rule 335-3-4-.03

- This unit has enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, “*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]*”.

Rule 335-3-14-.04 [Anti-PSD]

- This unit is subject to 40 CFR 64, “*Compliance Assurance Monitoring*”.

40 CFR 64

Emissions Standards:

**Opacity:**

- **Rule 335-3-4-.01(1)(a)** states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%) over a six (6) minute period. **Rule 335-3-4-.01(1)(b)** states that during one six minute period in any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity. This operation would be subject to this regulation.

Rule 335-3-4-.01

**Particulate Matter:**

- The particulate emission rate from the kiln shall not exceed the lesser of 6.65 lb/hr or the allowable set by the equations in Rule 335-3-4-.04 while producing normal wallboard.

Rule 335-3-4-.04(1) & Rule 335-3-14-.04 [Anti-PSD]

- The particulate emission rate from the kiln shall not exceed the lesser of 31.55 lb/hr or 0.0144lb per lb of Siloxane used or the allowable set by the equations in Rule 335-3-4-.04, while producing wallboard using Siloxane.

Rule 335-3-4-.04(1) & Rule 335-3-14-.04 [Anti-PSD]

### **Nitrogen Oxide and Carbon Monoxide:**

- Nitrogen Oxide and carbon monoxide emissions are curtailed by a facility-wide Anti-PSD limit of  $3.5 \times 10^9$  cubic feet of natural gas consumed in any consecutive 12-month period. In addition, the facility has agreed to only use natural gas to fire any burner.

ADEM Admin. Code r. 335-3-14-.04

### **Siloxane:**

- The facility shall not exceed 2,000,000 pounds of Siloxane used in any consecutive 12-month period.

ADEM Admin. Code r. 335-3-14-.04

### **Chain Lubricant Oil:**

- The facility shall not exceed 5,280 gallons of chain lubrication oil used in any consecutive 12-month period.

ADEM Admin. Code r. 335-3-14-.04

### Emissions:

According to the application, potential emissions are based on engineering data, AP-42 emission factors and 8,760 hrs/yr. This process is rated for 180 TPH. The kiln has a heat capacity of 210.5 MMBtu/hr.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
EP-35	PM	31.49	43.53
	PM <sub>10</sub>	31.49	43.53
	PM <sub>2.5</sub>	31.49	43.53

	SO <sub>2</sub>	0.14	0.61
	NO <sub>x</sub>	36.42	159.50
	CO	17.68	77.45
	VOC	48.88	61.89
	HAP <sub>total</sub>	0.07	10.23

Below are the potential emissions due to the use of chain oil lubricant.

Emission Point	Pollutant	Emission Rate	
		lb/hr	TPY
EP-35	VOC	9.91	14.73

Below are the potential emissions due to the use of Siloxane.

Emission Point	Pollutant	Emission Rate	
		lb/hr	TPY
EP-35	PM <sub>10</sub>	6.65	14.4
	VOC	9.91	14.76
	Formaldehyde	1.18	2.88

#### Compliance and Performance Test Methods and Procedures:

- Compliance with particulate matter emissions limits shall be determined using the permitted limit of 0.0144 lbs PM/lb Siloxane, a natural gas combustion emissions factor of 0.0076 lbs PM/MMBtu, and a process emissions factor of 0.024 lbs/MMBtu.
- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

#### Rule 335-3-1-.05

- Method 9 of 40 CFR 60, Appendix A, shall be used in the determination of opacity.

#### Rule 335-3-1-.05

#### Periodic Monitoring:

- The stack associated with this unit shall be observed on a daily basis for any visible emissions. Whenever any visible emissions are observed, maintenance inspections and/or corrective action to reduce the visible emissions are to be initiated within two hours, followed by an additional observation to confirm the visible emissions have ceased.

#### Rule 335-3-16-.05

#### Recordkeeping and Reporting Requirements:

- The facility shall maintain a record of the amount of natural gas consumed each month and a rolling total of each consecutive 12-month. Each record shall be maintained for a period of five years from the date of generation.

#### ADEM Admin. Code r. 335-3-16-.05

- The facility shall maintain a record of the amount of chain oil used each month on the kiln and a rolling total of each consecutive 12-month period. Each record shall be maintained for a period of five years from the date of generation.

#### ADEM Admin. Code r. 335-3-16-.05

- The facility shall maintain a record of the hours of operation when siloxane is used. Each record shall be maintained for a period of five years from the date of generation.

#### ADEM Admin. Code r. 335-3-16-.05

- The facility shall maintain a record showing a monthly and consecutive 12 month rolling total of Siloxane used. Each record shall be maintained for a period of five years from the date of generation.

#### ADEM Admin. Code r. 335-3-16-.05

- The facility shall maintain a record of all inspections, including visible emissions checks, Method 9 observations, any problems noted and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

- Rule 335-3-16-.05(c)

#### **Gypsum Board Cutting Process and Waste Reclamation System**

The end saw trims gypsum wallboard to specified lengths. The process includes the End Saw, Dunnage, End Saw Vacuum Receiver, and Waste Receiving System (Stamler Shredder, Waste Reclamation Conveyor, Waste Hopper and Mill Feed Belt Conveyor). The Mill Feed Belt Conveyor feeds the Kettle Distribution Belt. The Waste Receiving System is located at the raw material storage shed. Dust collection systems control emissions from the End Saw, Dunnage, End Saw Vacuum Receiver, and Waste Hopper.

There are four emission points associated with this process: End Saw (EP-36), Dunnage (EP-47), End Saw Vacuum Receiver (EP-37), and Waste Receiving System/Waste Hopper (EP-38). All other emissions are considered fugitive: Stamler Shredder (F-ST), Waste Reclaim Conveyor (F-WRC), Mill Feed Belt Conveyor (F-MFBC), and the Kettle Distribution Belt (F-KDB).

#### Applicability:

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, “*Major Source Operating Permits*”.

Rule 335-3-16-.03

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), “*Visible Emissions*”.

Rule 335-3-4-.01(1)

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), “*Control of Particulate Emissions for Process Industries – General*”.

Rule 335-3-4-.04(1)

- These processes have enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, “*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]*”.

Rule 335-3-14-.04 [Anti-PSD]

- The Waste Hopper, Stamler, Waste Reclaim Conveyor, Mill Feed Belt Conveyor and Kettle Distribution Belt are affected sources at a nonmetallic mineral processing plant according to §60.670(a). Therefore, they are subject to the applicable requirements of 40 CFR 60, Subpart OOO, “*Standards of Performance for Nonmetallic Mineral Processing Plants*”.

40 CFR 60 Subpart OOO, §60.670(a)

- The Waste Hopper, Stamler, Waste Reclaim Conveyor, Mill Feed Belt Conveyor and Kettle Distribution Belt are subject to the applicable requirements of 40 CFR 63 Subpart A, “*General Provisions*”, as listed in Table 1 of 40 CFR 60 Subpart OOO.

40 CFR 63, Subpart OOO

- The End Saw, End Saw Vacuum Receiver, and Dunnage are subject to the applicable requirements of 40 CFR 64, “*Compliance Assurance Monitoring*”, as described in General Proviso No. 33.

40 CFR 64, §64.2

Emissions Standards:

**Opacity:**

- Visible emissions from the stacks associated with the dry control devices controlling the Waste Hopper shall not exceed 7% opacity, as determined by EPA Reference Method 9 of 40 CFR 60, Appendix A.

40 CFR 60 Subpart OOO, Table 2

- Fugitive emissions from any transfer point shall not exceed 10% opacity.

40 CFR 60 Subpart OOO, Table 3

- Transfer points on a conveyor belt or any other affected source that is enclosed in a building must comply with the emission limits in §60.672(a) and (b), or the building enclosing the affected facility or facilities must comply with the following emission limits:
  - Fugitive emissions from the building openings (except for vents as defined in §60.671) must not exceed seven percent (7%) opacity; and
  - Vents (as defined in §60.671) in the building must meet the applicable stack emission limits and compliance requirements in Table 2 of Subpart OOO.

40 CFR 60 Subpart OOO, §60.672(e)

- **Rule 335-3-4-.01(1)(a)** states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%) over a six (6) minute period. **Rule 335-3-4-.01(1)(b)** states that during one six minute period in any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity. All other sources would be subject to this regulation.

Rule 335-3-4-.01

**Particulate Matter:**

- The particulate matter emission rate from each baghouse associated with the End Saw, Dunnage, End Saw Vacuum Receiver, and Waste Hopper shall not exceed the lesser of 0.015 grains per dry standard cubic foot of exhaust or the allowable set by equation in Rule 335-3-4-.04.

Rule 335-3-4-.04(1) & Rule 335-3-14-.04 [Anti-PSD]

- The particulate matter emission rate from the Waste Hopper shall not exceed 0.05 g/dscm (0.022 gr/dscf).

40 CFR 60 Subpart OOO, §60.672(a)

Emissions:



According to the application, potential emissions are based on engineering data, and 8,760 hrs/yr. This process is rated for 8.5 TPH.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
EP-36	PM	1.25	5.49
	PM <sub>10</sub>	1.25	5.49
	PM <sub>2.5</sub>	1.25	5.49
EP-37	PM	0.48	2.08
	PM <sub>10</sub>	0.48	2.08
	PM <sub>2.5</sub>	0.48	2.08
EP-38	PM	0.38	1.65
	PM <sub>10</sub>	0.38	1.65
	PM <sub>2.5</sub>	0.38	1.65
EP-47	PM	1.25	5.49
	PM <sub>10</sub>	1.25	5.49
	PM <sub>2.5</sub>	1.25	5.49

#### Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

#### Rule 335-3-1-.05

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department, shall be used in the determination of the opacity of the stack emissions.

#### Rule 335-3-1-.05

- Performance tests shall be conducted in accordance with §60.8. The facility shall use as reference methods and procedures those outlined in appendix A. Alternatively those methods specified in §60.675 may be referenced.

#### 40 CFR Subpart OOO, §60.675

#### Periodic Monitoring

- Instantaneous visible emissions checks of each baghouse stack shall be conducted at least once per day while in operation:
  - If instantaneous visible emissions are greater than 10% at any time, a Method 9 visible emissions observation shall be conducted for a minimum of 12 minutes within 30 minutes of the initial observation.

- If the average opacity observed during the Method 9 observation exceeds 10%, corrective action shall be initiated within 2 hours to reduce the visible emissions.

Rule 335-3-16-.05 & 40 CFR 64

- Properly maintained and operated devices shall be utilized to measure the pressure differential between the inlet and exhaust of each baghouse to determine if the pressure differential is within the manufacturer's recommended operating range. The pressure differential shall be checked on at least a weekly basis. Whenever a pressure differential is outside of the manufacturer's recommended range, maintenance inspections and/or corrective action to bring the pressure differential within the manufacturer's recommended range are to be initiated within two hours.

Rule 335-3-16-.05 & 40 CFR 64

Recordkeeping and Reporting Requirements:

- The facility shall maintain a record of all pressure differential readings, any problems noted, and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

- The facility shall maintain a record of all inspections, including visible emissions checks, Method 9 observations, any problems noted and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

**Joint Treatment Process**

This process includes a Perlite Silo, Calcium Carbonate Silo, Bag Dump Area, and Dry Mixer. Each emission point is controlled by a dust collection system. The end product is used downstream of production as a filler during the installation process.

There are four emission points associated with this process: Bulk Calcium Silo w/ Baghouse (EP-130), Bulk Perlite Silo w/ Baghouse (EP-131), Dry Mixer w/ Baghouse (EP-132), and Bag Dump w/ Baghouse (EP-133).

Applicability:

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "*Major Source Operating Permits*".

Rule 335-3-16-.03

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), “*Visible Emissions*”.

Rule 335-3-4-.01(1)

- These sources are subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), “*Control of Particulate Emissions for Process Industries – General*”.

Rule 335-3-4-.04(1)

- These processes have enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, “*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]*”.

Rule 335-3-14-.04 [Anti-PSD]

- These processes are subject to the applicable requirements of 40 CFR 64, “*Compliance Assurance Monitoring*”, as described in General Proviso No. 33.

40 CFR 64, §64.2

Emissions Standards:

**Opacity:**

- **Rule 335-3-4-.01(1)(a)** states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%) over a six (6) minute period. **Rule 335-3-4-.01(1)(b)** states that during one six minute period in any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity. This operation would be subject to this regulation.

Rule 335-3-4-.01

**Particulate Matter:**

- The particulate matter emission rate from each baghouse associated with the Joint Treatment process shall not exceed the lesser of 0.015 grains per dry standard cubic foot of exhaust or the allowable set by equation in Rule 335-3-4-.04.

Rule 335-3-4-.04(1) & Rule 335-3-14-.04 [Anti-PSD]

Emissions:

According to the application, potential emissions are based on engineering data, and 8,760 hrs/yr. This process is rated for 16.5 TPH.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY
EP-130	PM	0.06	0.28
	PM <sub>10</sub>	0.06	0.28
	PM <sub>2.5</sub>	0.06	0.28
EP-131	PM	0.06	0.28
	PM <sub>10</sub>	0.06	0.28
	PM <sub>2.5</sub>	0.06	0.28
EP-132	PM	0.06	0.28
	PM <sub>10</sub>	0.06	0.28
	PM <sub>2.5</sub>	0.06	0.28
EP-133	PM	0.15	0.68
	PM <sub>10</sub>	0.15	0.68
	PM <sub>2.5</sub>	0.15	0.68

#### Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

##### Rule 335-3-1-.05

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department, shall be used in the determination of the opacity of the stack emissions.

##### Rule 335-3-1-.05

#### Periodic Monitoring

- Instantaneous visible emissions checks of each baghouse stack shall be conducted at least once per day while in operation:
  - If instantaneous visible emissions are greater than 10% at any time, a Method 9 visible emissions observation shall be conducted for a minimum of 12 minutes within 30 minutes of the initial observation.
  - If the average opacity observed during the Method 9 observation exceeds 10%, corrective action shall be initiated within 2 hours to reduce the visible emissions.

##### Rule 335-3-16-.05

- Properly maintained and operated devices shall be utilized to measure the pressure differential between the inlet and exhaust of each baghouse to determine if the pressure

differential is within the manufacturer's recommended operating range. The pressure differential shall be checked on at least a weekly basis. Whenever a pressure differential is outside of the manufacturer's recommended range, maintenance inspections and/or corrective action to bring the pressure differential within the manufacturer's recommended range are to be initiated within two hours. /89+

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Rule 335-3-16-.05

Recordkeeping and Reporting Requirements:

- The facility shall maintain a record of all pressure differential readings, any problems noted, and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c)

- The facility shall maintain a record of all inspections, including visible emissions checks, Method 9 observations, any problems noted and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c)

**Product Handling & Shipping**

Finished product is stacked and loaded onto trucks. Trucks are then covered before awaiting shipping.

Emissions from this process are considered insignificant.

**Paper/Glass Mat Pull System**

Paper or coated or uncontrolled glass mat is pulled off reels prior to being conveyed to a wet mixer. Emissions are vented to a baghouse.

Applicability:

- This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-16-.03, "*Major Source Operating Permits*".

Rule 335-3-16-.03

- This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.01(1), "*Visible Emissions*".

Rule 335-3-4-.01(1)

- This source is subject to the applicable requirements of ADEM Admin. Code r. 335-3-4-.04(1), “*Control of Particulate Emissions for Process Industries – General*”.

Rule 335-3-4-.04(1)

- This source has enforceable limits in place in order to prevent them from being subject to the provisions of ADEM Admin. Code r. 335-3-14-.04, “*Air Permits Authorizing Construction in Clean Air Areas [Prevention of Significant Deterioration]*”.

Rule 335-3-14-.04 [Anti-PSD]

- The paper/glass mat pull system is subject to 40 CFR 64, “*Compliance Assurance Monitoring*”.

40 CFR 64

Emissions Standards:

**Opacity:**

- **Rule 335-3-4-.01(1)(a)** states that no person shall emit to the atmosphere from any source of emissions, particulate matter of an opacity greater than twenty percent (20%) over a six (6) minute period. **Rule 335-3-4-.01(1)(b)** states that during one six minute period in any sixty minute period a person may discharge into the atmosphere from any source of emissions, particulate of an opacity not greater than that designated as forty percent (40%) opacity. This operation would be subject to this regulation.

Rule 335-3-4-.01

**Particulate Matter:**

- The particulate matter emission rate from the baghouse associated with the paper/glass mat pull system shall not exceed the lesser of 0.015 grains per dry standard cubic foot of exhaust or the allowable set by equation in Rule 335-3-4-.04.

Rule 335-3-4-.04(1) & Rule 335-3-14-.04 [Anti-PSD]

Emissions:

According to the application, potential emissions are back calculated from expected emissions, assuming a 99% control efficiency, and 8,760 hrs/yr. This process is rated for 1.8 TPH.

Source #	Pollutant	Emission Rate	
		lb/hr	TPY

EP-50	PM	0.50	2.19
	PM <sub>10</sub>	0.50	2.19
	PM <sub>2.5</sub>	0.50	2.19

#### Compliance and Performance Test Methods and Procedures:

- Method 5 of 40 CFR 60, Appendix A, shall be used in the determination of particulate emissions.

#### Rule 335-3-1-.05

- Method 9 of 40 CFR 60, Appendix A, or an equivalent method approved by the Department, shall be used in the determination of the opacity of the stack emissions.

#### Rule 335-3-1-.05

#### Periodic Monitoring

- Instantaneous visible emissions checks of each baghouse stack shall be conducted at least once per day while in operation:
  - If instantaneous visible emissions are greater than 10% at any time, a Method 9 visible emissions observation shall be conducted for a minimum of 12 minutes within 30 minutes of the initial observation.
  - If the average opacity observed during the Method 9 observation exceeds 10%, corrective action shall be initiated within 2 hours to reduce the visible emissions.

#### Rule 335-3-16-.05 & 40 CFR 64

- Properly maintained and operated devices shall be utilized to measure the pressure differential between the inlet and exhaust of each baghouse to determine if the pressure differential is within the manufacturer's recommended operating range. The pressure differential shall be checked on at least a weekly basis. Whenever a pressure differential is outside of the manufacturer's recommended range, maintenance inspections and/or corrective action to bring the pressure differential within the manufacturer's recommended range are to be initiated within two hours.

#### Rule 335-3-16-.05 & 40 CFR 64

#### Recordkeeping and Reporting Requirements:

- The facility shall maintain a record of all pressure differential readings, any problems noted, and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

#### Rule 335-3-16-.05(c) & 40 CFR Part 64

- The facility shall maintain a record of all inspections, including visible emissions checks, Method 9 observations, any problems noted and corrective actions. Each record shall be maintained for a period of five years from the date of generation.

Rule 335-3-16-.05(c) & 40 CFR Part 64

### **Recommendation**

Based on the above analysis, I recommend that, pending the 30-day public comment period and the 45-day EPA review period, US Gypsum be issued a renewal for Major Source Operating Permit No. 705-0041. The facility should be able to meet the requirements of this permit and all applicable state and federal air pollution regulations.

Haley K. Crumpton  
Haley K. Crumpton  
Industrial Minerals Section  
Energy Branch  
Air Division

November 6, 2020  
Date