AMENDMENT TO AIR QUALITY PERMIT

Permit Amendment No.
3295-163-0035-P-01-1

Effective Date of Amendment
February 11, 2013

In accordance with The Georgia Air Quality Act, O.C.G.A. Section 12-9-1, et seq and the Rules, Chapter 391-3-1, adopted pursuant to or in effect under that Act, Permit No. 3295-163-0035-P-01-0 issued on January 27, 2012 to:

Facility Name: **PyraMax Ceramics, LLC – King's Mill Facility**

Mailing Address: 161 Britt Waters Road, N.W.
Milledgeville, Georgia 31061

Facility Location: County Road 291
Wrens, Georgia 30833 (Jefferson County)

for the following: construction and operation of a ceramic proppant manufacturing facility

is hereby amended as follows: construction and operation of two additional process lines (Line 3 and Line 4).

Reason for Amendment: Application No. 21371 dated August 17, 2012

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached **19** page(s).

This Permit Amendment is effective from the date first above written and is hereby made a part of Permit No. 3295-163-0035-P-01-0 and compliance herewith is hereby ordered. Except as amended hereby, the above referenced Permit remains in full force and effect.

[Signed]

Director
Environmental Protection Division

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PART 1.0 FACILITY DESCRIPTION

1.1 Overall Facility Process Description

1.1.1 This greenfield facility is a ceramic proppant manufacturing facility capable of processing 1,270,000 tons per year of clay slurry (mixture of water, grit and additives). The facility will consist of four identical process/kiln lines which can be operated independently. The manufacturing processes along the process/kiln lines are described briefly below:

Raw Material Handling
The facility will receive locally mined raw clay as feedstock via trucks to any of a number of covered storage bays. Expected emissions from this operation are PM, PM_{10} and $PM_{2.5}$ as fugitive clay particles scattering from the working area. However, such emissions are insignificant due to the high moisture content of the clay (approximately 20% by weight), and, to the use of appropriate control measurement such as timely cleaning of road, working area and/or water spraying.

Feedstock/Slurry Preparation
Front-end loaders will move the received clay from storage bays to a shredder/cage mill which breaks the clay into a fine powder. The fine clay powder is then moved by conveyor to a feeder which transfers the clay powder into a mixer. The mixer then converses the clay powder/feedstock clay into a stable suspended mixture/slurry by mixing the clay with water and a small amount of dispersant. The slurry is agitated and then pH balanced using aqueous ammonia, then stored in tanks. The slurry is then wet screened before addition of a binder agent. Expected emissions from this process include VOC (impurities in the additive). PM, PM_{10} and $PM_{2.5}$. Similar to raw material handling, the emissions will be insignificant because only wet materials and materials with high moisture content are involved in the operation.

Pelletization/Spray Drying
Pelletization of the slurry fed from the storage tanks takes place in spray dryers/pelletizers which are directly heated by burning natural gas with propane as backup fuel. Green clay pellets form from spraying the slurry into the dryer, dry under the heat, then are coated by fresh incoming slurry, and dry again. The process continues until desired bead size is achieved. Each of the process/kiln lines has one (1) spray dryer/pelletizer. Each spray dryer/pelletizer is heated to a desirable temperature by low NO_x natural gas burners with a total heat input rate of approximately 75 MMBtu/hr.

Expected emissions from this process include PM, PM_{10} and $PM_{2.5}$, combustion byproducts (CO, NO_x, SO_2, PM, PM_{10} and $PM_{2.5}$, VOC and GHG/CO_2), and VOC when volatile organics in the additives are evaporated (mostly methanol and methyl acetate). All the emissions will be carried by spent drying air/exhaust gas through a baghouse for removal of particulate matter, and then discharged into the atmosphere via a stack.

Green Pellet Screening

In this process multiple-stack screens will separate green pellets conveyed from spray dryers/pelletizers according to their sizes. On-sized pellets are conveyed to calciners/kilns for further processing. Oversized pellets are diverted to a cage mill for size reduction and then re-fed to the pelletizer feed bin for reprocessing; while undersized pellets are sent directly back to the pelletizer feed bin. Only PM, PM_{10} and $PM_{2.5}$ are emitted from this process, and controlled by baghouses and bin vent filters depending on the operation involved.

Calcining/Sintering

On-sized green pellets are conveyed to the calciner/kiln bins via conveyors and bucket elevators, and metered into the charging end of each counter flow dry-process rotary calciner/kiln where they are slowly heated, dried and then calcined/sintered, releasing moisture and other impurities in the process.

The calciner/kiln rotates as heated by a low NO_x burner fired by natural gas with propane as backup fuel. The burner fires directly onto the kiln feed/green pellets streaming in so that hot exhaust gases travel counter flow to the incoming green proppant pellets/beads. The capacity of the kiln burner is 65 MMBtu/hr and can heat the kiln up to 3,000°F.

Each rotary kiln/calciner is closely followed by a separate rotary cooler which introduces cooling air in the discharge end of the cooler.

Expected emissions from the calcination/sintering include criteria pollutants (CO, NO_x, PM, PM_{10} and $PM_{2.5}$, SO_2 and VOC), greenhouse gas (GHG), and hazardous air pollutants (HAPs). Majority of the HAPs emissions are hydrogen chloride (HCl) and hydrogen fluoride (HF) converted from naturally existing chlorides and fluorides contained in the clay and released at high temperature. Almost all the SO_2 emissions are from the conversion of element sulfur and sulfur compounds contained naturally in the clay, which could vary significantly among different mining sites or even geographical locations/formations with the same mining site. Most of the PM, PM_{10} and $PM_{2.5}$ emissions are from tumbling action of the clay pellets inside the kiln and the rest from fuel combustion. Fuel combustion generates almost all the CO and NO_x emissions. Due to the use of clean fuels, particulate matter, SO_2, and VOC emissions from fuel combustion are insignificant. VOC emissions from conversion of naturally occurring carbon compounds in kiln feedstock are minimum because the clay pellets being processed contains little such compounds. Kiln and cooler exhaust gas streams carrying these emissions are routed to a "catalytic baghouse" for multi-pollutant control. The "catalytic baghouse" itself utilizes, instead of fabric filters bags, an array of rigid porous ceramic tubes to filter/capture the particulate matter. In addition, nano-sized fine particles of catalysts are impregnated across the wall of the ceramic tubes to facilitate the reduction of NO_x to nitrogen (N_2) in the presence of appropriate reducing agents such as ammonia (NH_3), which is injected into the exhaust gas strategically upstream of the "catalytic baghouse". Consequently, the ceramic filtration tubes will function together as a "selective catalytic reactor" (SCR) for NO_x emission control. To reduce acid gas emissions, predominantly SO_2, HCl and HF, calcium or sodium based powdery alkaline sorbents such as sodium bicarbonate ($NaHCO_3$) are injected strategically into the kiln/cooler exhaust air upstream of the "catalytic baghouse" to neutralize the gaseous acids by forming sodium salts such as Na_2SO_4, NaCl and NaF. These powdery solids are then captured along

with other particulate matters by the "catalytic baghouse"/ceramic filter tube system downstream.

Finishing

The calcined/sintered ceramic pellets/proppants are conveyed from the kiln cooler to the final product screens. On-sized pellets/proppants are transferred to quality control bins and off-sized pellets/proppant recycled back to the kiln for further processing. On-size ceramic pellets/proppants are tested for quality and those passing the testing are sent to storage silos awaiting for shipping. Dust collection will occur at transfer points pneumatically and diverted to a common baghouse. Each of the storage silos and bins is equipped with a vent filter to control particulate matter. Finished pellets/proppants are conveyed to a rail car loading spout and into railcars for delivery to customers. Dusts generated during railcar loading are controlled via pneumatic collection at transfer points and then a common baghouse.

Supporting operations

The proposed ceramic proppant manufacturing facility will have the following supporting operations/equipment:

- On-site research and development and QA/QC labs;
- One (1) natural gas-fired 5 MMBtu/hr boilers with propane backup;
- Eight (8) 30,000 gallon propane storage tanks providing backup fuel for all natural gas-fired units;
- Two (2) 350 kW diesel engine powered emergency generators;
- Two (2) 322 gallon storage tanks for the emergency engines;
- One (1) 180 gallon diesel storage tank for the facility fire pump;
- One (1) 15,000 gallon diesel fuel storage tank for facility equipment;
- Three (3) 33,000 aqueous ammonia storage tanks for process pH control and control device operation.

Emission Control

The facility-wide potential emissions of criteria pollutants (CO, NO_x, PM, PM_{10} and $PM_{2.5}$, SO_2 and VOC) and GHG will exceed the major source thresholds under Federal New Source Review (NSR)/Prevention of Significant Deterioration (PSD) regulations under Clean Air Act (CAA). As required by NSR/PSD regulations, Best Available Control Technology (BACT) is used to control these emissions.

Because the facility-wide potential hazardous air pollutants (HAPs) emissions such as methanol, hydrogen fluoride (HF) and hydrogen chloride (HCl) exceed the major source thresholds under Section 112 of CAA of 1990, Case-By-Case Maximum Achievable Control Technology (MACT) as determined per Section 112(g) of CAA is used to control the HAPs emissions.

1.2 Process Description of Modification

1.2.1 The facility is currently permitted for the construction of two identical process/kiln lines (Line 1 and Line 2) which can be operated independently. This is a modification for an

additional two process/kiln lines (Line 3 and Line 4) which can be operated independently. The manufacturing processes along the process/kiln lines (Line 3 and Line 4) are the same as Line 1 and Line 2.

PART 2.0 REQUIREMENTS PERTAINING TO THE ENTIRE FACILITY

2.1 Facility Wide General Requirements

2.1.10 Approval to construct this ceramic proppant manufacturing facility shall become invalid for any of the following reasons:

a. The construction is not commenced within 18 months after issuance of this permit;

b. The construction is discontinued for a period of 18 months or more; or

c. The construction is not completed within a reasonable time.

The Division may extend the 18-month period upon a satisfactory showing that an extension is justified. For purposes of this permit, the definition of "commence" is given in 40 CFR 52.21(b)(9).
[40 CFR 52.21(r)]

PART 3.0 REQUIREMENTS FOR EMISSION UNITS

3.1.1 Amended Emission Unit & Emission Group Listing

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	**Description**	**Applicable Requirements/ Standards**	**Corresponding Permit Conditions**	**Description**	**ID No.**
PS3,4	Slurry preparation – Line 3 Slurry Preparation – Line 4	391-3-1-.02(2)(p)1 391-3-1-.02(2)(b)	3.3.4, 3.3.5, 3.3.12, 4.2.5, 5.2.4, 6.2.13	Baghouses	PS 3,4
PEL3, SC3 PEL4, SC4	Spray Dryer/Pelletizer – Line 3 (Pelletizer, Screw Conveyor) Spray Dryer/Pelletizer – Line **4** (Pelletizer, Screw Conveyor)	391-3-1-.02(2)(p)1 391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(n) 40 CFR Part 60, Subpart UUU 40 CFR 52.21 – PSD/BACT 112(g) case-by-case MACT/40 CFR 63, Subpart B	3.3.1, 3.3.2, 3.3.4, 3.3.5, 3.3.6, 3.3.7, 3.3.8, 3.3.12, 3.3.18, 3.3.19, 4.2.1, 4.2.5, 4.2.6, 4.2.9, 5.2.1, 5.2.2, 5.2.4, 5.2.7, 5.2.10, 6.1.7, 6.2.1, 6.2.3, 6.2.4, 6.2.5, 6.2.6, 6.2.8, 6.2.13, 6.2.20	Baghouses	BHP3,4
GPS3,4 RB3,4 KE3, 4 VC3,4 BC3,4 SC5,6 FH3,4 SE3,4	Green Pellet Screen Reversing Belt Conveyor Kiln Feed Elevator Vibratory Conveyor Belt Conveyor Screw Conveyor Feed Hopper Seed Bin Elevator	391-3-1-.02(2)(p)1 391-3-1-.02(2)(b) 391-3-1-.02(2)(n) 40 CFR Part 60, Subpart OOO 40 CFR 52.21 – PSD/BACT	3.3.4, 3.3.5, 3.3.6, 3.3.7, 3.3.12, 4.2.5, 5.2.3, 5.2.4, 5.2.7, 6.1.7, 6.2.1, 6.2.7, 6.2.8, 6.2.13	Baghouses	BHG3,4
FS30,40	Final Product Screen	391-3-1-.02(2)(p)1 391-3-1-.02(2)(b) 391-3-1-.02(2)(n) 40 CFR Part 60, Subpart OOO 40 CFR 52.21 – PSD/BACT	3.3.4, 3.3.5, 3.3.6, 3.3.7, 3.3.12, 4.2.5, 5.2.3, 5.2.4, 5.2.7, 6.1.7, 6.2.1, 6.2.7, 6.2.8, 6.2.13	Baghouses	BHF3,4
KLN3	Calciner/Kiln Line 3 (Kiln, Kiln Cooler)	391-3-1-.02(2)(p)1 391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(n) 40 CFR Part 60, Subpart UUU 40 CFR 52.21 – PSD/BACT 112(g) case-by-case MACT/40 CFR 63, Subpart B	3.3.1, 3.3.2, 3.3.4, 3.3.5, 3.3.6, 3.3.8, 3.3.12, 3.3.13, 3.3.14, 3.3.15, 3.3.18, 3.3.19, 4.2.1, 4.2.2, 4.2.6, 4.2.7, 4.2.8, 4.2.9, 4.2.10, 4.2.11, 4.2.12, 5.2.1, 5.2.2, 5.2.4, 5.2.8, 5.2.9, 5.2.10, 6.1.7, 6.2.1, 6.2.3, 6.2.13, 6.2.14, 6.2.15, 6.2.16, 6.2.17, 6.2.18, 6.2.20	Catalytic Baghouse	BHK3

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	**Description**	**Applicable Requirements/ Standards**	**Corresponding Permit Conditions**	**Description**	**ID No.**
KLN4	Calciner/Kiln – Line 4 (Kiln, Kiln Cooler)	391-3-1-.02(2)(p)1 391-3-1-.02(2)(b) 391-3-1-.02(2)(g) 391-3-1-.02(2)(n) 40 CFR Part 60, Subpart UUU 40 CFR 52.21 – PSD/BACT 112(g) case-by-case MACT/40 CFR 63, Subpart B	3.3.1, 3.3.2, 3.3.4, 3.3.5, 3.3.6, 3.3.8, 3.3.12, 3.3.13, 3.3.14, 3.3.15, 3.3.18, 3.3.19, 4.2.1, 4.2.2, 4.2.6, 4.2.7, 4.2.8, 4.2.9, 4.2.10, 4.2.11, 4.2.12, 5.2.1, 5.2.2, 5.2.4, 5.2.8, 5.2.9, 5.2.10, 6.1.7, 6.2.1, 6.2.3, 6.2.13, 6.2.14, 6.2.15, 6.2.16, 6.2.17, 6.2.18, 6.2.20	Catalytic Baghouse	BHK4
BC3,4 LE3,4 WB3,4 LS3,4	Belt Conveyor Loading Elevator Weigh Bin Loading Spout	391-3-1-.02(2)(p)1 391-3-1-.02(2)(b) 391-3-1-.02(2)(n) 40 CFR Part 60, Subpart OOO 40 CFR 52.21 – PSD/BACT	3.3.4, 3.3.5, 3.3.6, 3.3.7, 3.3.12, 4.2.5, 5.2.3, 5.2.4, 5.2.7, 6.1.7, 6.2.1, 6.2.7, 6.2.8, 6.2.13	Baghouse	BHL3,4
S3a S4a	Control System –Line 3,4 **Sorbent Silo**	391-3-1-.02(2)(p)1 391-3-1-.02(2)(b) 391-3-1-.02(2)(n) 40 CFR Part 60, Subpart OOO 40 CFR 52.21 – PSD/BACT	3.3.6, 3.3.7, 3.3.12, 4.2.5, 5.2.7, 6.2.1, 6.2.2, 6.1.7, 6.2.7, 6.2.8, 6.2.13	Bin Vent Filter	S3a,S4a
CB	Conveyor Baghouse	391-3-1-.02(2)(p)1 391-3-1-.02(2)(b) 391-3-1-.02(2)(n) 40 CFR Part 60, Subpart OOO 40 CFR 52.21 – PSD/BACT	3.3.4, 3.3.5, 3.3.6, 3.3.7, 3.3.12, 4.2.5, 5.2.3, 5.2.4, 5.2.7, 6.1.7, 6.2.1, 6.2.7, 6.2.8, 6.2.13	Baghouse	CB
B1	**5.0 MMBtu/Hr Boiler**	**391-3-1-.02(2)(d) 391-3-1-.02(2)(g) 40 CFR 52.21 – PSD/BACT 112(g) case-by-case MACT/40 CFR 63, Subpart B**	**3.3.1, 3.3.2, 3.3.12, 3.3.22, 3.4.2, 5.2.10, 6.2.3 & 6.2.20**	**None**	**None**
EG2	Emergency Generator 2	40 CFR 52.21 – PSD/BACT 40 CFR Part 63, Subpart ZZZZ 40 CFR Part 60, Subpart IIII	3.3.9, 3.3.10, 3.3.11, 3.3.12, 3.3.16, 3.3.17, 3.3.20, 3.3.21, 5.2.6, 5.2.10, 6.1.7, 6.2.9, 6.2.10, 6.2.11, 6.2.12, 6.2.13, 6.2.20	None	None

* Only source-specific conditions are listed for reference. Generally applicable requirements/conditions contained in this permit may also apply to emission units listed above.

3.3 Equipment Federal Rule Standards

NSPS Requirements

3.3.9 The Permittee shall comply with all the applicable provisions of 40 CFR, Part 60, Subpart IIII, *"Standards of Performance for Stationary Compression Ignition Internal Combustion Engines"*. In particular, the Permittee shall limit the accumulated maintenance check and readiness testing time for each emergency stationary diesel generator to 100 hours per year. The Permittee may petition the Division for approval of additional hours for maintenance checks and readiness testing, but a petition is not required if the Permittee maintains records indicating that Federal, State, or local standards require maintenance and testing of the emergency stationary diesel generators beyond 100 hours per year. Any operation other than emergency power generation, and maintenance check and readiness testing is prohibited.
[40 CFR 60.4211(e)]

3.3.10 Each emergency stationary diesel generator shall be certified for emission standards for new nonroad compression ignition engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants, operated and maintained according to the manufacturer's written specifications/ instructions or procedures developed by the Permittee that are approved by the engine manufacturer, over the entire life of the engine. The Permittee may only change diesel generator settings that are permitted by the manufacturer.
[40 CFR 52.21 PSD/BACT, 40 CFR 60.4202(a)(2), 60.4205 subsumed, 60.4206, 60.4211(a) and 60.4211(b)(1)and 60.4211(c)]

3.3.11 Each emergency stationary diesel generator and any associated control devices shall be installed and configured according to the manufacturer's written instructions.
[40 CFR 60.4211(c)]

3.3.12 Emissions from each of the listed process units shall comply with the following pertinent BACT limits:
[40 CFR 52.21 - PSD/BACT]

Table 3.3.12-1: BACT Emission Limits for Process Units

Operation	Emission[1]	Emission Limit	Compliance Method	Averaging Time
Each calciner/kiln	Filterable PM/PM_{10}	0.010 gr./dscf	Methods 5 (Method 201/ 201A)	3 hours
	PM/PM_{10}& CPM combined	8.53 lbs./hr	Methods 5 & 202 (Method 201/201A and Method 202)	
	$PM_{2.5}$& CPM combined[1]	6.98 lbs./hr	Methods 5 & 202 (Method 201/201A and Method 202)	
Each spray dryer/pelletizer	PM/PM_{10}	0.010 gr./dscf	Methods 5 & 202 (Method 201 or 201A in conjunction with Method 202 if necessary)	3 hours
	$PM_{2.5}$	0.006 gr./dscf		
Each spray dryer/ pelletizer and calciner/kiln	Visible	10% opacity	COMS	6-minute average
Each of the emission units with baghouse	$PM/PM_{10}/PM_{2.5}$	0.005 gr./dscf	Method 5 (Method 201/201A)	3 hours

Operation	Emission[1]	Emission Limit	Compliance Method	Averaging Time
control excluding spray dryers/ pelletizers and calciners/kilns	Visible	7% opacity	Method 9	6-minute average
All fugitive sources	Fugitive	10% opacity	Method 22 and/or Method 9	Per Method 22 or Method 9
Each calciner/kiln	SO_2	No less than 90% by weight overall control	Method 6 or 6C; Daily Analysis of Clay Sulfur Content	3 hours;
		Not to exceed 11.64 lbs/hr.		Daily average
	NO_x	No less than 80% by weight overall control	Method 7 or 7E	3 hours
		Not to exceed 36.3 lbs/hr.		
	CO	33.0 lbs/hr.	Method 10	3 hours
	VOC	0.71 lbs/hr	Method 25 or 25A	3 hours
	CO_2e	436.0 lbs/ton cooler product	Mass balance calculation based on Division-approved emission factors	12-month rolling
Each spray dryer/pelletizer	NO_x	Not to exceed 2.25 lbs/hr.	Method 7 or 7E	3 hours
	CO	Not to exceed 13.73 lbs/hr.	Method 10	3 hours
	VOC	Not to exceed 11.78 lbs/hr.	Mass balance calculation	Monthly Average
	CO_2e	44,446 tons	Mass balance calculation based on Division-approved emission factors	12-month rolling total
5 MMBtu/hr natural gas fired boiler	**NOx**	**12 ppmv@ 3% O_2 at dry standard conditions**	**Manufacturer's written guarantee**	**N/A**
	CO_2e	**5,809 tons**	**Mass balance calculation based on EPD-approved emission factors**	**12-month rolling total**
Each Emergency Diesel Generator	CO_2e	153 tons	Mass balance calculation based on Division-approved emission factors	12-month rolling total

[1] CPM: condensable particulate matter
[2] The Tier III NO_x, CO, PM and VOC emission standards applicable to the diesel generators have been determined as BACT. Since the generator will be purchased as certified by U.S EPA to be in compliance with these standards, the BACT standards are not listed in this table. Please refer to Table 1 of 40 CFR 89.112 for details.

a. The following applicable State rules or emission limits are subsumed by the applicable and more stringent BACT or NSPS emission limits:

- Georgia Air Quality Rule 391-3-1-.02(2)(b): *"Visible Emissions"*
- Georgia Air Quality Rule 391-3-1-.02(2)(p): *"Particulate Emission from Kaolin and Fuller's Earth Processes"*
- Georgia Rule 391-3-1-.02(2)(g): *"Sulfur Dioxide"*

- Georgia Air Quality Rule 391-3-1-.02(2)(n)2: *"Fugitive Dust"*

b. Method 201 or 201A in conjunction with Method 202 shall be used to demonstrate compliance with the PM_{10} emission limits during the performance testing. As an alternative to Method 201 or 201A, the Permittee may assume that 100% of the PM emissions from the baghouses as determined via Method 5 are PM_{10} in the emission compliance demonstration, and use Method 5 in conjunction with Method 202 to demonstrate compliance with the PM_{10} emission limits.

3.3.16 The Permittee shall operate each stationary emergency diesel generator using diesel fuel that has a maximum sulfur content of 15 parts per million (ppm) (0.0015% by weight) and either a minimum cetane index of 40 or maximum aromatic content of 35 volume percent.
[40 CFR 52.21 – PSD /BACT, 40 CFR 60.4207(a) & 60.4207(b)]

3.3.17 The accumulated annual operating time for each stationary emergency diesel generator shall not exceed 500 hours per year.
[40 CFR 52.21-PSD/BACT]

NESHAP Requirements

3.3.20 The Permittee shall comply with all the applicable provisions of 40 CFR Part 63, Subpart ZZZZ, *"National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines"*. In particular, the Permittee shall operate each emergency stationary diesel generator only in an emergency situation such as to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility is interrupted, or to pump water in the case of fire or flood, etc. It may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the diesel generator.
[40 CFR 63.6590(b)(i)]

3.3.21 The Permittee shall submit an Initial Notification for each emergency stationary diesel generator no later than 120 days after the startup of the diesel generator, following the applicable requirements under 40 CFR 63.9(b)(2)(i) through (v), and a statement that the diesel generator has no additional requirements and explain the basis of the exclusion.
[40 CFR 63.6645(d)]

3.3.22 The Permittee shall comply with all applicable provisions of the National Emission Standard for Hazardous Air Pollutants (NESHAP) as found in 40 CFR Part 63, Subpart A, *"General Provisions"* and in 40 CFR Part 63, Subpart DDDDD, *"National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters"* for the operation of the **5.0 MMBtu/Hr** natural gas fired boiler.

3.4 Equipment SIP Rule Standards

3.4.2 The Permittee shall not cause, let, suffer, permit, or allow any emissions from the **5.0 MMBtu/hr** boiler (Emission Unit ID No. B1) which:

a. Contain fly ash and/or other particulate matter in amounts equal to or exceeding 0.5 pounds per million BTU heat input.
[391-3-1-.02(2)(d)2.(i)]

b. Exhibit visible emissions, the opacity of which is equal to or greater than 20 percent except for one six minute period per hour of not more than 27 percent opacity.
[391-3-1-.02(2)(d)3.]

PART 4.0 REQUIREMENTS FOR PERFORMANCE AND COMPLIANCE TESTING

4.2 Specific Testing Requirements

4.2.1 Within 60 days after achieving the maximum production rate at which each of the spray dryers/pelletizers (Emission Unit ID Nos. PEL1, PEL2, PEL3, and PEL4) and each of the calciners/kilns (Emission Unit ID Nos. KLN1, KLN2, KLN3, and KLN4) will be operated, but no later than 180 days of the initial startup of the sources, the Permittee shall determine compliance with the NSPS Subpart UUU PM and visible emission limits in Condition 3.3.8 under 40 CFR 60.732 as follows:
[40 CFR 60.736]

a. Method 5 or Method 17 shall be used to determine the PM concentration. The sampling time and volume for each test run shall be at least 2 hours and 1.70 dscm (60 dscf).

b. Method 9 and the procedures in 40 CFR 60.11, including the use of COMS in lieu of Method 9 if preferred, shall be used to determine opacity from stack emissions.

4.2.5 Within 180 days after the initial startup of this facility, the Permittee shall conduct initial performance tests as specified in the Table 4.2.5-1 to demonstrate initial compliance with the BACT, MACT and SIP emissions limits using applicable test methods and/or procedures specified in Condition 4.1.1 through 4.1.5. The tests shall be conducted under the conditions that exist when the affected source(s) is operating at the representative performance conditions. In lieu of the testing required by this condition, the appropriate testing results from Conditions 4.2.1 and 4.2.2, can be used to demonstrate initial compliance with the PM and visible emission limits for the same affected sources under the pertinent PSD/BACT and State rules in Sections 3.3 and 3.4 of this permit provided that the testing methodology meet the requirement of this condition.
[391-3-1-.02(3) and 3-1-3-1-.03(2)(c)]

Table 4.2.5-1: Initial BACT & Case-By-Case MACT Performance Test for Process/Kiln Lines

Emission Unit	Emission Unit ID	Emissions & Parameters[1]
Calciner/Kiln No. 1	KLN1	Visible Emissions, CO, NO_x, particulate matter as specified, SO_2, HCl, HF and Reduction/control efficiency of NO_x, SO_2, HCl & HF
Calciner/Kiln No. 2	KLN2	
Calciner/Kiln No. 3	KLN3	
Calciner/Kiln No. 4	KLN4	
Spray Dryer/Pelletizer No. 1	PEL1	Visible Emissions, CO, NO_x and particulate matter as specified
Spray Dryer/Pelletizer No. 2	PEL2	
Spray Dryer/Pelletizer No. 3	PEL3	
Spray Dryer/Pelletizer No. 4	PEL4	
Other stack emission sources excluding spray dryers/pelletizers, calciners/kilns and silos with dedicated bin vents.	(refer to Table 3.1)	Visible Emissions & particulate matter as specified
Silos with dedicated bin vents	(refer to Table 3.1)	Visible Emissions

[1] CPM: condensable particulate matter; HCl and HF emissions should be determined in lbs/ton of kiln feed for use in Condition 6.2.17.

When starting to use a different sorbent to control NO_x, SO_2, HCl and HF emissions from calciner(s)/kiln(s) via the "catalytic baghouses" the first time, the Permittee shall conduct performance tests to determine the NO_x, SO_2, HCl, HF emission rates and control efficiencies of SO_2, HCl and HF for the sorbent within the time specified by the Division. The Permittee shall notify the Division in writing of the change 60 days in advance.
[391-3-1-.02(3) and 3-1-3-1-.03(2)(c)]

PART 5.0 REQUIREMENTS FOR MONITORING (Related to Data Collection)

5.2 Specific Monitoring Requirements

5.2.1 The Permittee shall install, calibrate, maintain, and operate a system to continuously monitor and record the indicated emissions or parameters on the following equipment listed. Each system shall meet the applicable performance specification(s) of the Division's monitoring requirements and be operated in a manner sufficient to demonstrate continuous compliance with the applicable emission standards in this permit.
[40 CFR 60.734(a) and 391-3-1-.02(6)(b)1]

Emission Unit Being Monitored	Emission Unit ID	Emissions or Parameters Being Monitored	Monitoring System Being Used & Installation Location
Kiln Nos. 1-4	KLN1-4	Visible Emissions	A Continuous Opacity Monitoring System (COMS) at the outlet of the Kiln Catalytic Baghouse Nos. 1-4 (BHK1-4)
Spray Dryer/Pelletizer No. 1-4	PEL1-4	Visible Emissions	A COMS at the outlet of the Process/Kiln Line No. 1-4 Baghouse for Pelletization (BHP1-4)

The sources shall be maintained such that the 6-minute average opacity for any 6-minute period for any COMS does not exceed the visible emission limit in Conditions 3.3.8 or 3.3.12. If the average opacity for any 6-minute period exceeds any of the opacity limits in these conditions, this shall constitute a violation of the visible emission standard.

5.2.2 The Permittee shall install a device to continuously monitor the temperature at the inlets of baghouses that receive gases at a temperature higher than ambient air (BHP1, BHP2, BHP3, BHP4, BHK1, BHK2, BHK3 and BHK4), and record the time and date of each incident when the temperature exceeds the fabric filter bag design temperature. In lieu of monitoring temperature at the baghouse inlet, the Permittee may monitor a surrogate temperature (e.g., clay temperature or dryer/pelletizer outlet temperature). For each baghouse monitored by a surrogate temperature, the Permittee shall determine the equivalent fabric filter bag design temperature and record each incident when the surrogate temperature exceeds the equivalent fabric filter bag design temperature. The Permittee shall record the fabric filter bag design temperature or the equivalent filter bag design temperature for each fabric baghouse listed. Such records and any supporting calculations shall be made available for inspection.
[391-3-1-.02(6)(b)1]

5.2.6 Each stationary emergency diesel generator shall be equipped with a non-resettable hour meter to track the number of hours operated during any type of operation and during each calendar month. The Permittee shall record the time of operation and the reason the generator was in operation during that time.
[40 CFR 60.4209(c) and 60.4214(b)]

5.2.10 The Permittee shall install, calibrate, maintain, and operate a system to continuously monitor and record each of the indicated parameters on the following equipment in accordance with the manufacturer's recommendations. Where such performance specification(s) exist, each system shall meet the applicable performance specification(s) of the Division's monitoring requirements.
[391-3-1-.02(6)(b)1]

a. The exhaust gas temperature at the inlet of each of the "catalytic baghouse" systems serving calciners/kilns.

b. The ammonia injection rate to each of the "catalytic baghouse" systems serving calciners/kilns.

c. The injection rate of powdery sorbent to each of the "catalytic baghouse" systems serving calciners/kilns.

d. The slurry input rate (1-hour block average) to each spray dryer/pelletizer.

e. The kiln feed input rate (1-hour block average) to each calciner/kiln.

f. Monthly total output of cooler product for each calciner/kiln

g. Monthly fuel usage for each spray dryer/pelletizer, calciner/kiln, the **5 MMBtu/hr** boiler, and all emergency diesel generators combined.

PART 6.0 RECORD KEEPING, COMPLIANCE DEMONSTRATION AND REPORTING REQUIREMENTS

6.1 General Record Keeping and Reporting Requirements

6.1.7 For the purpose of reporting excess emissions, exceedances or excursions in the report required in Condition 6.1.4, the following excess emissions, exceedances, and excursions shall be reported:
[391-3-1-.02(6)(b)1, 40 CFR 52.21, 40 CFR Part 60, Subparts Dc, OOO, UUU and IIII, 40 CFR Part 63, Subpart ZZZZ and 40 CFR 63.40 through 63.44/112(g) case-by-case MACT]

a. Excess emissions: (means for the purpose of this Condition and Condition 6.1.4, any condition that is detected by monitoring or record keeping which is specifically defined, or stated to be, excess emissions by an applicable requirement)

None.

b. Exceedances: (means for the purpose of this Condition and Condition 6.1.4, any condition that is detected by monitoring or record keeping that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) do not meet the applicable emission limitation or standard consistent with the averaging period specified for averaging the results of the monitoring)

i. Each exceedance of the SO_2 emission limit of 11.64 lbs/hr for calciners/kilns in Condition 3.3.12, as determined per Condition 6.2.15.

ii. Each exceedance of visible emission limit of 10% opacity (6-minute block average) in Condition 3.3.12 for calciners/kilns and spray dryers/pelletizers, as indicated by COMS required by Condition 5.2.1.

iii. Firing any of the boilers, spray dryers/pelletizers and calciners/kilns with fuel(s) other than natural gas and propane.

iv. Any monthly average of methanol emissions from any spray dryer/pelletizer that exceed the limit of 0.23 lbs per ton of kiln feed in Condition 3.3.19.

v. Any 12-month rolling total of methanol emissions from any spray dryer/pelletizer that exceeds the 24.0 tons limit in Condition 3.3.19.

vi. Any instance of firing any of the stationary emergency diesel generators subject to Condition 3.3.16 with diesel fuel that:

- Contains more than 0.05% sulfur by weight; contains either more than 35% by volume of aromatic content or has a cetane index of less than 40; or

- Contains more than 0.0015% sulfur by weight; contains either more than 35% by volume of aromatic content **or** has a cetane index of less than 40 on and after October 1, 2010.

vii. Any 12-month rolling total of HCl emissions from any calciner/kiln that exceeds the 2.96 tons limit in Condition 3.3.19.

viii. Any 12-month rolling total of HF emissions from any calciner/kiln that exceeds the 4.49 tons limit in Condition 3.3.19.

ix. Any hourly VOC emission rate from any spray dryer/pelletizer that exceeds the limit of 11.78 lbs./hr in Condition 3.3.12.

x. Any CO_2e emissions as determined by Condition 6.2.20 that exceed the corresponding limit in Condition 3.3.12.

c. Excursions: (means for the purpose of this Condition and Condition 6.1.4, any departure from an indicator range or value established for monitoring consistent with any averaging period specified for averaging the results of the monitoring)

i. Any 3-hour block average temperature at the inlet of any "catalytic baghouse" that falls below the temperature established during the most recent Division-approved performance test or exceeds 750°F.

ii. For the sources specified in Condition 5.2.3, any two consecutive required daily determinations of visible emissions from the same source for which visible emissions are equal to or exceed the opacity action level.

iii. Any visible emissions or mechanical failure or malfunction discovered by the walk through described in Condition 5.2.5 that are not eliminated or corrected within 24 hours of first discovering the visible emissions or mechanical failure or malfunction.

iv. Each event that the quarterly 30-minute visible emissions inspection required by Condition 5.2.7 was not conducted.

v. Any 3-hour block average ammonia injection rate (lb/hr) that deviated more than 5% from the level established during the most recent Division-approved performance test.

vi. Any 3-hour block average sorbet injection rate (lb/hr) that is less than 5% below the daily "current injection rate" as determined per Condition 6.2.16.

vii. Any instance of operating any of the stationary emergency diesel generators for more than 500 hours during any period of 12 rolling/consecutive months.

viii. Any instance of the accumulated maintenance check and readiness testing time for any of the emergency stationary diesel generator exceeding 100 hours during any period of 12 rolling/consecutive months as limited by Condition 3.3.9.

ix. Any NOx measurement conducted in accordance with Condition 5.2.8 that indicates a NOx outlet emission rate in excess of 36.3 lb/hr or a NOx reduction less than 80%.

6.2 Specific Notification, Record Keeping, Compliance Demonstration & Report Requirements

6.2.9 The Permittee shall maintain monthly operating records of the each stationary emergency diesel generator, including operating hours and reasons of the operation, e.g., emergency power generation and/or fire distinguishing, readiness testing and/or maintenance check. These records shall be kept available for inspection or submittal for 5 years from the date of record.
[40 CFR 60.4211(e) & 40 CFR 52.21-PSD/BACT]

6.2.11 The Permittee shall keep records verifying that each shipment of diesel fuel received for firing the each stationary emergency diesel generator complies with the applicable requirements in Condition 3.3.16. Verification shall consist of the fuel oil receipts and fuel supplier certifications or results of analyses of the fuel oils conducted by methods of sampling and analysis which have been specified or approved by the EPA or the Division. These records shall be kept available for inspection or submittal for 5 years from the date of record.
[40 CFR 60.4207 and 40 CFR 52.21 – PSD/BACT]

6.2.14 The Permittee shall obtain a representative sample daily from each clay slurry tank or each calciner/kiln's feed stream feeding any calciner/kiln and analyze the sample for the sulfur in percent by weight. The Permittee shall also obtain a respective sample daily from each calciner/kiln's output product stream and analyze the sample for the sulfur in percent by weight. **The sample from the output stream can be reported as zero percent by weight if the Permittee chooses.** The daily samples shall be acquired and analyzed for sulfur content by methods acceptable to the Division. The sulfur content results shall be used to determine SO_2 emissions as required by Condition 6.2.15.
[391-3-I-.02(6)(b)1 and 40 CFR 52.21 - PSD/BACT]

6.2.20 The Permittee shall utilize the appropriate records in Condition 5.2.10 to calculate the CO_2e emissions from each spray dryer/pelletizer, calciner/kiln, **5 MMBtu/hr** natural gas fired boiler, and all diesel generators combined during each period of twelve (12) consecutive months. The results of the calculated CO_2e emissions shall be expressed in the same units as the corresponding BACT limits listed in Condition 3.3.12. In the emissions calculation, the Permittee shall use GHG emission factors used in the Application supporting this permit, and keep records of the calculations and all the emission factors. The Permittee shall notify the Division in writing if any of the CO_2e emissions calculated exceed its corresponding limit specified in Condition 3.3.12. This notification shall be postmarked by the 15th day of the following month and shall include an explanation of how the Permittee intends to attain or maintain compliance with the emission limit.
[391-3-1-.02(6)(b)1 and 40 CFR 52.21 - PSD/BACT]

ATTACHMENT A

List Of Standard Abbreviations

AIRS	Aerometric Information Retrieval System	PM	Particulate Matter
APCD	Air Pollution Control Device	PM_{10} (PM10)	Particulate Matter less than 10 micrometers in diameter
ASTM	American Society for Testing and Materials	PPM (ppm)	Parts per Million
BACT	Best Available Control Technology	PSD	Prevention of Significant Deterioration
BTU	British Thermal Unit	RACT	Reasonably Available Control Technology
CAAA	Clean Air Act Amendments	RMP	Risk Management Plan
CEM	Continuous Emission Monitor	SIC	Standard Industrial Classification
CERMS	Continuous Emission Rate Monitoring System	SIP	State Implementation Plan
CFR	Code of Federal Regulations	SO_2 (SO2)	Sulfur Dioxide
CMS	Continuous Monitoring System(s)	USC	United States Code
CO	Carbon Monoxide	VE	Visible Emissions
COM	Continuous Opacity Monitor	VOC	Volatile Organic Compound
dscf/dscm	Dry Standard Cubic Foot / Dry Standard Cubic Meter		
EPA	United States Environmental Protection Agency		
EPCRA	Emergency Planning and Community Right to Know Act		
gr	Grain(s)		
GPM (gpm)	Gallons per minute		
H_2O (H2O)	Water		
HAP	Hazardous Air Pollutant		
HCFC	Hydro-chloro-fluorocarbon		
MACT	Maximum Achievable Control Technology		
MMBtu	Million British Thermal Units		
MMBtu/hr	Million British Thermal Units per hour		
MVAC	Motor Vehicle Air Conditioner		
MW	Megawatt		
NESHAP	National Emission Standards for Hazardous Air Pollutants		
NO_x (NOx)	Nitrogen Oxides		
NSPS	New Source Performance Standards		
OCGA	Official Code of Georgia Annotated		

List of Permit Specific Abbreviations

None	N/A		