ENGINEERING ANALYSIS

FOR

EM RESOURCES, LLC

PLANT BARRY FLY ASH BENEFICIATION

MOBILE, ALABAMA

(AIR PERMIT NO. 503-0154-X001)

EM Resources, LLC, has applied to the ADEM - Air Division for a Synthetic Minor Operating Permit (SMOP) that would authorize the construction and operation of a fly ash beneficiation system on the property of Alabama Power-Plant Barry located at 15300 US-43 N in Bucks, Mobile County, Alabama 36512.

PROPOSED FLY ASH BENEFICIATION PROCESS

The proposed fly ash process will serve as a beneficiation process resulting in significant environmental benefits including:

- Increasing the life of concrete roads and structures by improving concrete durability,
- Net reduction in energy use and greenhouse gas (GHG) and other adverse air emissions when reclaimed coal ash is used to replace or displace manufactured cement.
- Reduction in the amount of coal combustion products that are disposed of in landfills or ash ponds. The proposed facility will generate approximately 630,000 dry tons of beneficiated ash per year.
- Conservation of other natural resources and materials.

EQUIPMENT TO BE INSTALLED

- (2) Rotary Dryer Systems
- (2) Air Classifiers
- (2) ECO (Efficient Carbon Offloading) Systems (carbon removal)
- Dry Sorbent Injection System (SO2 removal)
- (1) Raw Ash Storage Barn; approximately 7,000 tons
- (1) 1,000-ton Product Transfer Silo
- (1) 1,500-ton Product Rail Loading Silo
- Process equipment under roof
- Dense phase ash transport system: 120 tph
- Raw ash pre-screening
- (1) Backup Natural Gas Fired Emergency Generator

PROCESS DESCRIPTION

Alabama Power will harvest the pond ash through their approved Plant Barry Ash Pond Closure Permit. Once the pond ash and/or landfill raw material is received at the beneficiation system, it will undergo processing steps in order to meet American Society for Testing and Materials

(ASTM) and market requirements. The beneficiation operation will include drying, size classification, calcination (for carbon removal), and SO2 removal.

Wet fly ash will be reclaimed and loaded on haul trucks and delivered to the enclosed raw ash storage building where it will be conveyed to a pre-screener. Once the material is pre-screened, it will be processed in one of the two parallel systems, beginning with the rotary dryers reducing the moisture content from as much as 23% down to a maximum of 1%. The dryers will only remove the moisture from the ash material; there will be no chemical reaction process taking place.

There will be two streams of dry ash coming out of the dryers. One stream, bag house fines, will go to a transfer silo. The other stream, dryer bottoms, will then go through an air classifier to remove oversize particles and bottom ash. After the product is sized, it will be processed through the ECO System to remove the carbon. The ECO System discharge will be conveyed to the storage silos. A pneumatic enclosed dense phase conveying system will convey the fly ash from the transfer silo to the different final storage silos for sale to customers.

The amount of material to be processed through the ECO System will be dependent on the amount of carbon in the material. The carbon levels of the pond ash are highly variable, and some material will not require any carbon removal. During startup of the ECO System, the process air is heated with startup burners firing on natural gas until the ECO System temperatures reach auto-ignition, at this point the residual carbon in the fly ash reacts and becomes the heat source for the self-sustaining process. Under certain conditions natural gas may be co-fired with the residual carbon in the fly ash. Process controls meter additional raw fly ash through a feeder into the ECO System as necessary. As additional materials are added to the ECO System, the processed material is entrained in the exhaust and exits the ECO System. After material exits the ECO System, the ash material entrained in the flue gas passes through a separation process, which separates the solid materials from the flue gas. A dry sorbent injection system for SO2 removal, with flue gas recirculation (FGR), will control SO2 emissions. SO2 emissions will be monitored by a Continuous Emissions Monitoring System (CEMS) which will be installed on Stacks 3 and 4 (ST03 and ST04).

Within the facility, various surge bins, material handling and transfer, and storage silos will be installed to support the process, each one having a baghouse or cartridge filter to maximize product capture. The finished product from each process line will be conveyed to a single transfer silo, where it will be distributed to the rail loadout operation.

The facility is designed to capture 100 percent of the fly ash through baghouse filter/collection systems, as the fly ash material is the product being processed and collected for sale to the concrete market. The baghouse filter/collection systems serve as an integral part of the production process, with a secondary benefit of reducing emissions. The production process will only operate when the baghouse filter systems are operational.

REGULATORY APPLICABILITY

The facility's uncontrolled potential emissions for PM and SO2 would be greater than the major source thresholds for both Title V and PSD; however, **EM Resources, LLC, has requested to**

limit SO2 and PM emissions to below major source thresholds, in order to meet the requirements of a Synthetic Minor source and obtain a Synthetic Minor Operating Permit (SMOP). EM Resources, LLC, has proposed an emission limit of **20.55 lbs/hr (90 TPY)** for SO2 and PM, individually. The facility's proposed emission limits for SO2 and PM emissions are provided in *Table 1* of Appendix A.

This facility would be subject to the State Implementation Plan (SIP), which, based on the process weight for this plant, allows a particulate emission rate of ≤ **36.17 lbs/hr** or **158.42 TPY** *(*Appendix A). However, the facility has chosen a more stringent PM emission limit of **20.55 lbs/hr** or **90 TPY** in order to remain below major source thresholds. PM emission limits for individual emission points are as follows:

			Particulate Emission Limit	
Emission Unit	**Stack ID**	**Source Name**	**PM (lb/hr)**	**PM (Tons/yr)**
CU01	ST01	DRYER 1 BAGHOUSE EXHAUST THROUGH STACK 1	7.57	33.18
DU01	ST01	Dryer #1 Associated with BH1 (refer to emission under CU01BH1)		
CU02	ST02	DRYER 2 BAGHOUSE EXHAUST THROUGH STACK 2	7.57	33.18
DU02	ST02	Dryer #2 Associated with BH2 (refer to emission under CU02BH2)		
CU03	ST03	CLASSIFIER 1 BAGHOUSE, EXHAUST THROUGH STACK 3	0.31	1.34
CU05 *	ST03	ECO1 - ECO ROTARY CALCINER COMBUSTION UNIT/BH5; WILL BE USED FOR HEAT RECOVERY IN DRYER 1 THEN EXHAUST THROUGH STACK 3	0.15	0.67
CU07	ST03	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 7; EXHAUST THROUGH STACK 3		
CU04	ST04	CLASSIFIER 2 BAGHOUSE, EXHAUST THROUGH STACK 4	0.31	1.34
CU06 *	ST04	ECO2 - ECO ROTARY CALCINER COMBUSTION UNIT/BH6; WILL BE USED FOR HEAT RECOVERY IN DRYER 2 THEN EXHAUST THROUGH STACK 4	0.15	0.67
CU08	ST04	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 8; EXHAUST THROUGH STACK 4		
SB01	nside Buildin	CLASSIFIER 1 FEED SURGE BIN (BIN VENT)	0.27	1.18
SB02	nside Buildin	CLASSIFIER 2 FEED SURGE BIN (BIN VENT)	0.27	1.18
SB03	nside Buildin	ECO SYTEM 1 FEED SURGE BIN (BIN VENT)	0.27	1.18
SB04	nside Buildin	ECO SYTEM 2 FEED SURGE BIN (BIN VENT)	0.27	1.18
GVF1	GVF1	GRAVIMETRIC VENT FILTER #1 (4-INCH LINE) BIN VENT	0.05	0.20
GVF2	GVF2	GRAVIMETRIC VENT FILTER #2 (4-INCH LINE) BIN VENT	0.05	0.20
GVF3	GVF3	GRAVIMETRIC VENT FILTER #3 (4-INCH LINE) BIN VENT	0.05	0.20
CLV1	CLV1	10" CONVEYING LINE VENT FILTER #1 BIN VENT	0.02	0.08
CLV2	CLV2	10" CONVEYING LINE VENT FILTER #2 BIN VENT	0.02	0.08
CLV3	CLV3	10" CONVEYING LINE VENT FILTER #3 BIN VENT	0.02	0.08
S1	S1BV	1000-TON TRANSFER SILO BIN VENT	0.93	4.08
S2	S2BV	1500-TON RAIL LOADOUT SILO BIN VENT	0.70	3.06
S3	S3BV	500-TON REJECTS SILO BIN VENT	0.47	2.04
S4	S4BV	100-TON DRY SORBANT BIN VENT	0.11	0.47
S5	S5BV	200-TON SO2 DISPOSAL/WASTE SILO BIN VENT	0.27	1.18
RL1	RL1	1500-TON RAIL LOADOUT SPOUT DUST COLLECTOR	0.36	1.57

In order to determine compliance with the SMOP limits for PM/PM10 emissions, this facility will be required to conduct **EPA Reference Method 5 or Method 17 stack emission testing on Stack 1 (ST01) *or* Stack 2 (ST02)**.

A sulfur dioxide (SO_2) continuous emission monitoring system (CEMS) will be installed on Stacks 3 and 4 to monitor SO_2 emissions from ECO Systems 1 and 2. SO_2 emissions for individual emission points will be limited to the following:

			Proposed Emission Limit	
Emission Unit	Stack ID	Source Name	SO_2 (lb/hr)	SO_2 (Tons/yr)
CU01	ST01	DRYER 1 BAGHOUSE EXHAUST THROUGH STACK 1	0.05	0.20
CU02	ST02	DRYER 2 BAGHOUSE EXHAUST THROUGH STACK 2	0.05	0.20
CU05	ST03	ECO1 - ECO ROTARY CALCINER COMBUSTION UNIT/BH5; WILL BE USED FOR HEAT RECOVERY IN DRYER 1 THEN EXHAUST THROUGH STACK 3	0.00	0.00
CU07	ST03	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 7; EXHAUST THROUGH STACK 3	10.23	44.80
CU06	ST04	ECO2 - ECO ROTARY CALCINER COMBUSTION UNIT/BH6; WILL BE USED FOR HEAT RECOVERY IN DRYER 2 THEN EXHAUST THROUGH STACK 4	0.00	0.00
CU08	ST04	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 8; EXHAUST THROUGH STACK 4	10.23	44.80

Each CEMS shall be operated and maintained according to the manufacturer's specifications. The facility will be required to furnish a copy of the manufacturer's specification documents for each CEMS to the Air Division prior to commencing operation.

In order to determine compliance with the SMOP limits for SO_2 emissions, this facility will be required to conduct **EPA Reference Method 6 or Method 6c on Stack 3 (ST03) *or* Stack 4 (ST04)**. Subsequent SO_2 emissions tests are to be conducted at intervals **not to exceed five (5) years following the date of initial compliance testing**.

This facility will be required to submit an **annual emissions report by March 15th** of each calendar year that provides total facility-wide PM and SO_2 emissions during the previous calendar year.

The 154 hp Generac emergency generator would be subject to New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart JJJJ for Stationary Spark Ignition ICE. This unit would be certified to meet the emission standards provided in Table 1 of NSPS-JJJJ for emergency engines with a maximum engine power of ≥130 hp.

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards a					
			g/HP-hr			ppmvd at 15% O2		
			NOX	CO	VOC d	NOX	CO	VOC d
Non-Emergency SI Natural Gas b and Non-Emergency SI Lean Burn LPG b	100≤HP<500	7/1/2008	2.0	4.0	1.0	160	540	86
		1/1/2011	1.0	2.0	0.7	82	270	60
Non-Emergency SI Lean Burn Natural Gas and LPG	500≤HP<1,350	1/1/2008	2.0	4.0	1.0	160	540	86
		7/1/2010	1.0	2.0	0.7	82	270	60
Non-Emergency SI Natural Gas and Non-Emergency SI Lean Burn LPG (except lean burn 500≤HP<1,350)	HP≥500	7/1/2007	2.0	4.0	1.0	160	540	86
	HP≥500	7/1/2010	1.0	2.0	0.7	82	270	60
Landfill/Digester Gas (except lean burn 500≤HP<1,350)	HP<500	7/1/2008	3.0	5.0	1.0	220	610	80
		1/1/2011	2.0	5.0	1.0	150	610	80
	HP≥500	7/1/2007	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80
Landfill/Digester Gas Lean Burn	500≤HP<1,350	1/1/2008	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80
Emergency	25<HP<130	1/1/2009	c 10	387	N/A	N/A	N/A	N/A
	HP≥130		2.0	4.0	1.0	160	540	86

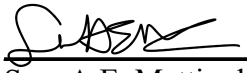
The emergency generator would also be subject to National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR Part 63, Subpart ZZZZ for Stationary Reciprocating Internal Combustion Engines. Since the proposed engine would be new and would be located at an area source of HAPs, the requirements of NSPS-JJJJ must be met in order to meet the requirements of Subpart ZZZZ.

ENVIRONMENTAL JUSTICE AND OTHER CONSIDERATIONS

ADEM utilized the EJScreen and Justice40 screening tools to perform an analysis of the area surrounding the facility.

This facility would not be located within a 100 km radius of the Breton Wildlife Refuge, a Class I Wildlife area. The operation of this plant is not anticipated to significantly impact this area.
EM Resources, LLC will be required to undergo a **15-day public comment period** for this process.

Based on the information submitted by EM Resources, LLC, this analysis indicates that this proposed source would meet the requirements of all ADEM - Air Division rules and regulations. Therefore, I recommend that a Synthetic Minor Operating Permit be issued to EM Resources, LLC, incorporating the provisions of Appendix B and Appendix C, which is the cover letter.



07/29/2024

Sara A.E. Mattingly, Sr. Environmental Scientist
Air Division - Energy Branch - CMS

Date

APPENDIX A
EM RESOURCES, LLC
PLANT BARRY FLY ASH BENEFICIATION
MOBILE, ALABAMA
(AIR PERMIT NO. 503-0154-X001)
EMISSIONS CALCULATIONS

RAW MATERIAL HANDLING AND PRE-SCREENING (FUGITIVES)

LOADING AND UNLOADING PROCESS

Section 13.2.4 of AP 42 was utilized to create emission factors for the various loading and unloading processes and emission calculations.

The quantity of particulate emissions generated by either type of drop operation, per kilogram (kg) (ton) of material transferred, may be estimated, with a rating of A, using the following empirical expression:[11]

$$E = k(0.0016)\ \frac{\left(\frac{U}{2.2}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}\ \text{(kg/megagram [Mg])}$$

$$E = k(0.0032)\ \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}\ \text{(pound [lb]/ton)}$$

where:

E = emission factor
k = particle size multiplier (dimensionless)
U = mean wind speed, meters per second (m/s) (miles per hour [mph])
M = material moisture content (%)

The particle size multiplier in the equation, k, varies with aerodynamic particle size range, as follows:

Aerodynamic Particle Size Multiplier (k) For Equation 1				
< 30 µm	< 15 µm	< 10 µm	< 5 µm	< 2.5 µm
0.74	0.48	0.35	0.20	0.053[a]

[a] Multiplier for < 2.5 µm taken from Reference 14.

**Variables utilized for U and M in Emission Factor Formula:*
U = Annual Average Wind Speed in Mobile, Alabama = 7.5mph
M = Material Moisture Content) = 22% (Moisture content of raw fly ash)
K = (particle size) found in the table "Aerodynamic Particle Size Multiplier (k) For Equation 1" Under 13.2.4.3 Predictive Emission Factor Equations, AP 42.

$$\text{Emission Factor} = (0.35)(0.0032)\frac{\left(\frac{7.5}{5}\right)^{1.3}}{\left(\frac{22\%}{2}\right)^{1.4}} = 0.000066 \text{ lbs/T}$$

$$\frac{0.000066 \text{ lbs}}{1 \text{ T}} \text{x} \frac{876{,}000 \text{ T}}{1 \text{ yr}} \text{x} \frac{1 \text{ T}}{2000 \text{ lbs}} = 0.0289 \text{ TPY}$$

0.0289 TPY x 2 transfer points (truck unloading and loading pre − screen)

= 0.0578 TPY Fugitive Emissions

PROCESS WEIGHT

Process Weight Per Hour:

$$\frac{876{,}000 \text{ T}}{1 \text{ yr}} \text{x} \frac{2{,}000 \text{ } lbs}{1 \text{ T}} \text{x} \frac{1 \text{ yr}}{8{,}760 \text{ hrs}} = 200{,}000 \text{ lbs/hr}$$

Process Weight Per Hour in tons per hour:

$$\frac{200{,}000 \text{ lbs}}{1 \text{ hr}} \text{x} \frac{1 \text{ } T}{2{,}000 \text{ lbs}} = 100 \text{ TPH (P)}$$

Process Weight Equation for Allowable Emission Rate:

For *Class I* Counties:

If Process Weight Per Hour is ≤ 60,000 lbs/hr:

$$E = 3.59P^{0.62} \text{ (where P} \leq 30 \text{ TPH)}$$

If Process Weight Per Hour is ≥ 60,000 lbs/hr:

$$E = 17.31P^{0.16} \text{ (where P} \geq 30 \text{ TPH)}$$

E = Emissions in pounds per hour
P = Process weight per hour in tons per hour

$$E = (17.31)100^{0.16}$$

E = 36.17 lbs/hr @ 8,760 hrs/yr or 158.42 TPY Allowable Emission Rate

Table 1 – Requested SMOP Emission Limits

EM Resources, LLC - Plant Barry Beneficial Use Operations
Emissions Limits Summary

					Controlled Emissions		Proposed Emission Limit		Controlled Emissions		Proposed Emission Limit	
Emission Unit	**APCD ID**		**Stack ID**	**Source Name**	**PM (lb/hr)**	**PM (Tons/yr)**	**PM (lb/hr)**	**PM (Tons/yr)**	**SO_2 (lb/hr)**	**SO_2 (Tons/yr)**	**SO_2 (lb/hr)**	**SO_2 (Tons/yr)**
CU01	CU01	CU01BH1	ST01	DRYER 1 BAGHOUSE EXHAUST THROUGH STACK 1	1.09	4.76	7.57	33.18	0.03	0.13	0.05	0.20
DU01	DU01	DU01BH1	ST01	Dryer #1 Associated with BH1 (refer to emission under CU01BH1)								
CU02	CU02	CU02BH2	ST02	DRYER 2 BAGHOUSE EXHAUST THROUGH STACK 2	1.09	4.76	7.57	33.18	0.03	0.13	0.05	0.20
DU02	DU02	DU02BH2	ST02	Dryer #2 Associated with BH2 (refer to emission under CU02BH2)								
CU03	CU03	CU03BH3	ST03	CLASSIFIER 1 BAGHOUSE, EXHAUST THROUGH STACK 3	0.04	0.19	0.31	1.34				
CU05 *	CU05	CU05BH5	ST03	ECO1 - ECO ROTARY CALCINER COMBUSTION UNIT/BH5; WILL BE USED FOR HEAT RECOVERY IN DRYER 1 THEN EXHAUST THROUGH STACK 3	0.02	0.10	0.15	0.67	0.00	0.00	0.00	0.00
CU07	CU07	CU07BH7	ST03	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 7; EXHAUST THROUGH STACK 3					6.85	30	10.23	44.80
CU04	CU04	CU04BH4	ST04	CLASSIFIER 2 BAGHOUSE, EXHAUST THROUGH STACK 4	0.04	0.19	0.31	1.34				
CU06 *	CU06	CU06BH6	ST04	ECO2 - ECO ROTARY CALCINER COMBUSTION UNIT/BH6; WILL BE USED FOR HEAT RECOVERY IN DRYER 2 THEN EXHAUST THROUGH STACK 4	0.02	0.10	0.15	0.67	0.00	0.00	0.00	0.00
CU08	CU08	CU08BH8	ST04	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 8; EXHAUST THROUGH STACK 4					6.85	30	10.23	44.80
SB01	SB01	SB01BV1	Inside Building	CLASSIFIER 1 FEED SURGE BIN (BIN VENT)	0.04	0.17	0.27	1.18				
SB02	SB02	SB02BV2	Inside Building	CLASSIFIER 2 FEED SURGE BIN (BIN VENT)	0.04	0.17	0.27	1.18				
SB03	SB03	SB03BV3	Inside Building	ECO SYTEM 1 FEED SURGE BIN (BIN VENT)	0.04	0.17	0.27	1.18				
SB04	SB04	SB04BV4	Inside Building	ECO SYTEM 2 FEED SURGE BIN (BIN VENT)	0.04	0.17	0.27	1.18				
GVF1	GVF1	GVF01BV5	GVF1	GRAVIMETRIC VENT FILTER #1 (4-INCH LINE) BIN VENT	0.01	0.03	0.05	0.20				
GVF2	GVF2	GVF02BV6	GVF2	GRAVIMETRIC VENT FILTER #2 (4-INCH LINE) BIN VENT	0.01	0.03	0.05	0.20				
GVF3	GVF3	GVF02BV7	GVF3	GRAVIMETRIC VENT FILTER #3 (4-INCH LINE) BIN VENT	0.01	0.03	0.05	0.20				
CLV1	CLV1	CLVF01BV8	CLV1	10" CONVEYING LINE VENT FILTER #1 BIN VENT	0.003	0.011	0.02	0.08				
CLV2	CLV2	CLVF02BV9	CLV2	10" CONVEYING LINE VENT FILTER #2 BIN VENT	0.003	0.011	0.02	0.08				
CLV3	CLV3	CLVF03BV10	CLV3	10" CONVEYING LINE VENT FILTER #3 BIN VENT	0.003	0.011	0.02	0.08				
S1	S1BV	S1BV11	S1BV	1000-TON TRANSFER SILO BIN VENT	0.13	0.59	0.93	4.08				
S2	S2BV	S2BV12	S2BV	1500-TON RAIL LOADOUT SILO BIN VENT	0.10	0.44	0.70	3.06				
S3	S3BV	S3BV13	S3BV	500-TON REJECTS SILO BIN VENT	0.07	0.29	0.47	2.04				
S4	S4BV	S4BV14	S4BV	100-TON DRY SORBANT BIN VENT	0.02	0.07	0.11	0.47				
S5	S5BV	S5BV15	S5BV	200-TON SO2 DISPOSAL/WASTE SILO BIN VENT	0.04	0.17	0.27	1.18				
RL1	RL1	RL1CF1	RL1	1500-TON RAIL LOADOUT SPOUT DUST COLLECTOR	0.05	0.23	0.36	1.57				
GEN1	GEN1	GEN1	GEN1	NG Emergency Backup Generator	1.01E-04	2.52E-05	0.00	0.00	7.68E-04	1.92E-04	0.00E+00	1.92E-04
WASB	WASB1	WASB1	FUG	Wet Ash Storage Building 7000-ton (enclosed)	1.39E-05	1.21E-01	0.00	0.85				
FEED	FEED	WMSBFH	FUG	Wet material Storage Bldg. Feed Hopper/Prescreen	1.39E-05	1.21E-01	0.00	0.85				
				Facility wide Metal HAPs								
				Total Plant Emissions	2.90	12.92	20.55	90	13.76	60.27	20.55	90
				PSD/NSR Threshold		**100**		**100**		**100**		**100**

*** Emissions from CU05 and CU06 are the Max of either operating at full capacity firing on natural gas, or full capacity of combustion of ash.**

Table 2 – Controlled PTE

EM Resources, LLC - Plant Barry Beneficial Use Operations
Emissions Summary
Controlled - Potential Emissions

Emission Unit	APCD ID		Stack ID	Source Name	PM (Tons/yr)	PM_{10} (Tons/yr)	$PM_{2.5}$ (Tons/yr)	CO (Tons/yr)	NO_X (Tons/yr)	SO_2 (Tons/yr)	VOC (Tons/yr)	GHG Total CO2e (Tons/yr)	TOC (Tons/yr)	Pb Tons/yr	Total HAPS (Tons/yr)
CU01	CU01	CU01BH1	ST01	DRYER 1 BAGHOUSE EXHAUST THROUGH STACK 1	4.76	2.81	0.65	18.76	7.15	0.13	1.23	26,861	2.46	1.12E-04	0.421
DU01	DU01	DU01BH1	ST01	Dryer #1 Associated with BH1 (refer to emission under CU01BH1)											
CU02	CU02	CU02BH2	ST02	DRYER 2 BAGHOUSE EXHAUST THROUGH STACK 2	4.76	2.81	0.65	18.76	7.15	0.13	1.23	26,861	2.46	1.12E-04	0.421
DU02	DU02	DU02BH2	ST02	Dryer #2 Associated with BH2 (refer to emission under CU02BH2)											
CU03	CU03	CU03BH3	ST03	CLASSIFIER 1 BAGHOUSE, EXHAUST THROUGH STACK 3	0.19	0.06	4.38E-03								
CU05 *	CU05	CU05BH5	ST03	ECO1 - ECO ROTARY CALCINER COMBUSTION UNIT/BH5; WILL BE USED FOR HEAT RECOVERY IN DRYER 1 THEN EXHAUST THROUGH STACK 3	0.10	0.03	2.19E-03	12.94	21.39	0.00	0.71	14,190	0.94	0.00	0.16
CU07	CU07	CU07BH7	ST03	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 7; EXHAUST THROUGH STACK 3						30					
			ST03	***Stack 03 Total***	*0.29*	*0.10*	*0.01*	*12.94*	*21.39*	*30.00*	*0.71*	*14190.47*	*0.94*	*0.00*	*0.16*
CU04	CU04	CU04BH4	ST04	CLASSIFIER 2 BAGHOUSE, EXHAUST THROUGH STACK 4	0.19	0.06	4.38E-03								
CU06 *	CU06	CU06BH6	ST04	ECO2 - ECO ROTARY CALCINER COMBUSTION UNIT/BH6; WILL BE USED FOR HEAT RECOVERY IN DRYER 2 THEN EXHAUST THROUGH STACK 4	0.10	0.03	2.19E-03	12.94	21.39	0.00	0.71	14,190	0.94	0.00	0.16
CU08	CU08	CU08BH8	ST04	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 8; EXHAUST THROUGH STACK 4						30					
			ST04	***Stack 04 Total***	*0.29*	*0.10*	*0.01*	*12.94*	*21.39*	*30.00*	*0.71*	*14190.47*	*0.94*	*0.00*	*0.16*
SB01	SB01	SB01BV1	Inside Building	CLASSIFIER 1 FEED SURGE BIN (BIN VENT)	0.17	0.08	1.27E-02								
SB02	SB02	SB02BV2	Inside Building	CLASSIFIER 2 FEED SURGE BIN (BIN VENT)	0.17	0.08	1.27E-02								
SB03	SB03	SB03BV3	Inside Building	ECO SYTEM 1 FEED SURGE BIN (BIN VENT)	0.17	0.08	1.27E-02								
SB04	SB04	SB04BV4	Inside Building	ECO SYTEM 2 FEED SURGE BIN (BIN VENT)	0.17	0.08	1.27E-02								
GVF1	GVF1	GVF01BV5	GVF1	GRAVIMETRIC VENT FILTER #1 (4-INCH LINE) BIN VENT	0.03	0.01	2.15E-03								
GVF2	GVF2	GVF02BV6	GVF2	GRAVIMETRIC VENT FILTER #2 (4-INCH LINE) BIN VENT	0.03	0.01	2.15E-03								
GVF3	GVF3	GVF02BV7	GVF3	GRAVIMETRIC VENT FILTER #3 (4-INCH LINE) BIN VENT	0.03	0.01	2.15E-03								
CLV1	CLV1	CLVF01BV8	CLV1	10" CONVEYING LINE VENT FILTER #1 BIN VENT	0.01	0.01	8.45E-04								
CLV2	CLV2	CLVF02BV9	CLV2	10" CONVEYING LINE VENT FILTER #2 BIN VENT	0.01	0.01	8.45E-04								
CLV3	CLV3	CLVF03BV10	CLV3	10" CONVEYING LINE VENT FILTER #3 BIN VENT	0.01	0.01	8.45E-04								
S1	S1BV	S1BV11	S1BV	1000-TON TRANSFER SILO BIN VENT	0.59	0.29	4.39E-02								
S2	S2BV	S2BV12	S2BV	1500-TON RAIL LOADOUT SILO BIN VENT	0.44	0.22	3.29E-02								
S3	S3BV	S3BV13	S3BV	500-TON REJECTS SILO BIN VENT	0.29	0.15	2.20E-02								
S4	S4BV	S4BV14	S4BV	100-TON DRY SORBANT BIN VENT	0.07	0.03	5.07E-03								
S5	S5BV	S5BV15	S5BV	200-TON SO2 DISPOSAL/WASTE SILO BIN VENT	0.17	0.08	1.27E-02								
RL1	RL1	RL1CF1	RL1	1500-TON RAIL LOADOUT SPOUT DUST COLLECTOR	0.23	0.11	1.69E-02								
GEN1	GEN1	GEN1	GEN1	NG Emergency Backup Generator	2.52E-05	2.52E-05	2.52E-05	0.34	0.17	1.92E-04	0.08	35.90			0.02
WASB	WASB1	WASB1	FUG	Wet Ash Storage Building 7000-ton (enclosed)	1.21E-01	5.74E-02	8.69E-03								
FEED	FEED	WMSBFH	FUG	Wet material Storage Bldg. Feed Hopper/Prescreen	1.21E-01	5.74E-02	8.69E-03								
Facility wide Metal HAPs															2.40E-04
				Total Plant Emissions	12.92	7.21	1.53	63.76	57.25	60.27	3.97	82138.93	6.80	0.00	1.19
				PSD/NSR Threshold	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100,000**		**10**	**25**

*** Emissions from CU05 and CU06 are the Max of either operating at full capacity firing on natural gas, or full capacity of combustion of ash.**

Table 3 – Uncontrolled PTE

EM Resources, LLC - Plant Barry Beneficial Use Operations
Emissions Summary
Uncontrolled - Potential Emissions

Emission Unit	APCD ID		Stack ID	Source Name	PM (Tons/yr)	PM_{10} (Tons/yr)	$PM_{2.5}$ (Tons/yr)	CO (Tons/yr)	NO_X (Tons/yr)	SO_2 (Tons/yr)	VOC (Tons/yr)	GHG Total CO2e (Tons/yr)	TOC (Tons/yr)	Pb Tons/yr	Total other HAPS/TAPS (Tons/yr)
CU01	CU01	CU01BH1	ST01	DRYER 1 BAGHOUSE EXHAUST THROUGH STACK 1	614.90	307.87	46.41	18.76	7.15	0.13	1.23	26,861	2.46	1.12E-04	0.42
DU01	DU01	DU01BH1	ST01	Dryer #1 Associated with BH1 (refer to emission under CU01BH1)											
CU02	CU02	CU02BH2	ST02	DRYER 2 BAGHOUSE EXHAUST THROUGH STACK 2	614.90	307.87	46.41	18.76	7.15	0.13	1.23	26,861	2.46	1.12E-04	0.42
DU02	DU02	DU02BH2	ST02	Dryer #2 Associated with BH2 (refer to emission under CU02BH2)											
CU03	CU03	CU03BH3	ST03	CLASSIFIER 1 BAGHOUSE, EXHAUST THROUGH STACK 3	2.19	0.76	0.39								
CU05 *	CU05	CU05BH5	ST03	ECO1 - ECO ROTARY CALCINER COMBUSTION UNIT/BH5; WILL BE USED FOR HEAT RECOVERY IN DRYER 1 THEN EXHAUST THROUGH STACK 3	1.10	0.38	0.19	12.94	21.39	0.00	0.71	14,190	0.94	4.29E-05	0.16
CU07	CU07	CU07BH7	ST03	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 7; EXHAUST THROUGH STACK 3						500					
CU04	CU04	CU04BH4	ST04	CLASSIFIER 2 BAGHOUSE, EXHAUST THROUGH STACK 4	2.19	0.76	0.39								
CU06 *	CU06	CU06BH6	ST04	ECO2 - ECO ROTARY CALCINER COMBUSTION UNIT/BH6; WILL BE USED FOR HEAT RECOVERY IN DRYER 2 THEN EXHAUST THROUGH STACK 4	1.10	0.38	0.19	12.94	21.39	0.00	0.71	14,190	0.94	4.29E-05	0.16
CU08	CU08	CU08BH8	ST04	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 8; EXHAUST THROUGH STACK 4						500					
SB01	SB01	SB01BV1	Inside Building	CLASSIFIER 1 FEED SURGE BIN (BIN VENT)	168.94	84.47	12.67								
SB02	SB02	SB02BV2	Inside Building	CLASSIFIER 2 FEED SURGE BIN (BIN VENT)	168.94	84.47	12.67								
SB03	SB03	SB03BV3	Inside Building	ECO SYTEM 1 FEED SURGE BIN (BIN VENT)	168.94	84.47	12.67								
SB04	SB04	SB04BV4	Inside Building	ECO SYTEM 2 FEED SURGE BIN (BIN VENT)	168.94	84.47	12.67								
GVF1	GVF1	GVF01BV5	GVF1	GRAVIMETRIC VENT FILTER #1 (4-INCH LINE) BIN VENT	28.61	14.30	2.15								
GVF2	GVF2	GVF02BV6	GVF2	GRAVIMETRIC VENT FILTER #2 (4-INCH LINE) BIN VENT	28.61	14.30	2.15								
GVF3	GVF3	GVF02BV7	GVF3	GRAVIMETRIC VENT FILTER #3 (4-INCH LINE) BIN VENT	28.61	14.30	2.15								
CLV1	CLV1	CLVF01BV8	CLV1	10" CONVEYING LINE VENT FILTER #1 BIN VENT	11.26	5.63	0.84								
CLV2	CLV2	CLVF02BV9	CLV2	10" CONVEYING LINE VENT FILTER #2 BIN VENT	11.26	5.63	0.84								
CLV3	CLV3	CLVF03BV1	CLV3	10" CONVEYING LINE VENT FILTER #3 BIN VENT	11.26	5.63	0.84								
S1	S1BV	S1BV11	S1BV	1000-TON TRANSFER SILO BIN VENT	585.67	292.83	43.93								
S2	S2BV	S2BV12	S2BV	1500-TON RAIL LOADOUT SILO BIN VENT	439.25	219.63	32.94								
S3	S3BV	S3BV13	S3BV	500-TON REJECTS SILO BIN VENT	292.83	146.42	21.96								
S4	S4BV	S4BV14	S4BV	100-TON DRY SORBANT BIN VENT	67.58	33.79	5.07								
S5	S5BV	S5BV15	S5BV	200-TON SO2 DISPOSAL/WASTE SILO BIN VENT	168.94	84.47	12.67								
RL1	RL1	RL1CF1	RL1	1500-TON RAIL LOADOUT SPOUT DUST COLLECTOR	225.26	112.63	16.89								
GEN1	GEN1	GEN1	GEN1	NG Emergency Backup Generator	2.52E-05	2.52E-05	2.52E-05	0.34	0.17	1.92E-04	0.08	36			0.02
WASB	WASB1	WASB1	FUG	Wet Ash Storage Building 7000-ton (enclosed)	1.21E-01	5.74E-02	8.69E-03								
FEED	FEED	WMSBFH	FUG	Wet material Storage Bldg. Feed Hopper/Prescreen	1.21E-01	5.74E-02	8.69E-03								
Facility wide Metal HAPs															0.06
				Total Plant Emissions	3811.52	1905.60	287.12	63.76	57.25	1000.27	3.97	82,139	6.80	3.09E-04	1.25
				PSD/NSR Threshold	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100,000**		**10**	**25**

*** Emissions from CU05 and CU06 are the Max of either operating at full capacity firing on natural gas, or full capacity of combustion of ash.**

EM Resources, LLC - Plant Barry Beneficial Use Operations
Natural Gas Combustion Emissions from Dryers #1 & #2

	Heat Input Capacity (MMBtu/hr)
Dryer #1 (DU01):	52
Dryer #2 (DU02):	52
Combined Heat Input Capacity:	104

Natural Gas Feed Rate:

$$104\frac{MMBtu}{hr} = \frac{10^6}{1020}\frac{scf}{MMBTU} = 0.102\ \frac{10^6 scf}{hr}$$

Constituent	Heat Input Capacity MMBtu/hr	Natural Gas Feed Rate (10^6scf/hr)	Emission Factor lb/10^6 scf	Emission Rate Short-term (lbs/hr)	Emission Rate Annual (tons/yr)	Emission Factor Reference [1]
PM Filterable	104	1.02E-01	1.9	0.19	0.85	EPA AP-42, Table 1.4-2
PM Condensable	104	1.02E-01	5.7	0.58	2.55	EPA AP-42, Table 1.4-2
PM Total	104	1.02E-01	7.6	0.78	3.40	EPA AP-42, Table 1.4-2
SO_2	104	1.02E-01	0.6	0.06	0.268	EPA AP-42, Table 1.4-2
NOx [2]	104	1.02E-01	32	3.26	14.30	EPA AP-42, Table 1.4-1
N_2O [2]	104	1.02E-01	0.64	0.07	0.29	EPA AP-42, Table 1.4-2
CO	104	1.02E-01	84	8.57	37.53	EPA AP-42, Table 1.4-1
VOC	104	1.02E-01	5.5	0.56	2.46	EPA AP-42, Table 1.4-2
TOC	104	1.02E-01	11	1.12	4.91	EPA AP-42, Table 1.4-2
Methane CH_4	104	1.02E-01	2.3	0.23	1.03	EPA AP-42, Table 1.4-2
Pb	104	1.02E-01	5.00E-04	5.10E-05	2.23E-04	EPA AP-42, Table 1.4-2
CO_2	104	1.02E-01	120,000	12,240	53,611	EPA AP-42, Table 1.4-2
Benzene	104	1.02E-01	2.10E-03	2.14E-04	9.38E-04	EPA AP-42, Table 1.4-3
Formaldehyde	104	1.02E-01	7.50E-02	7.65E-03	3.35E-02	EPA AP-42, Table 1.4-3
Hexane	104	1.02E-01	1.80	0.18	0.80	EPA AP-42, Table 1.4-3
Naphthalene	104	1.02E-01	6.10E-04	6.22E-05	2.73E-04	EPA AP-42, Table 1.4-3
Toluene	104	1.02E-01	3.40E-03	3.47E-04	1.52E-03	EPA AP-42, Table 1.4-3
Arsenic	104	1.02E-01	2.00E-04	2.04E-05	8.94E-05	EPA AP-42, Table 1.4-4
Beryllium	104	1.02E-01	1.20E-05	1.22E-06	5.36E-06	EPA AP-42, Table 1.4-4
Cadmium	104	1.02E-01	1.10E-03	1.12E-04	4.91E-04	EPA AP-42, Table 1.4-4
Chromium	104	1.02E-01	1.40E-03	1.43E-04	6.25E-04	EPA AP-42, Table 1.4-4
Cobalt	104	1.02E-01	8.40E-05	8.57E-06	3.75E-05	EPA AP-42, Table 1.4-4
Manganese	104	1.02E-01	3.80E-04	3.88E-05	1.70E-04	EPA AP-42, Table 1.4-4
Mercury	104	1.02E-01	2.60E-04	2.65E-05	1.16E-04	EPA AP-42, Table 1.4-4
Nickel	104	1.02E-01	2.10E-03	2.14E-04	9.38E-04	EPA AP-42, Table 1.4-4
Selenium	104	1.02E-01	2.40E-05	2.45E-06	1.07E-05	EPA AP-42, Table 1.4-4

[1] AP-42, Fifth Edition, Section 1.4 Natural Gas Combustion,Tables 1.4-1 through 1.4-4.
[2] Controlled - Low NO_x burners with FGR

Table 5 – Natural Gas Combustion – ECO Systems #1 and #2

EM Resources, LLC - Plant Barry Beneficial Use Operations
Natural Gas Combustion Emissions from ECO System #1 & #2

	Heat Input Capacity (MMBtu/hr)
ECO #1:	20
ECO #2:	20
Combined Heat Input Capacity:	40

Natural Gas Feed Rate:

$$40\frac{MMBtu}{hr} = \frac{10^6}{1020}\frac{scf}{MMBTU} = 0.0392\ \frac{10^6 scf}{hr}$$

Constituent	Heat Input Capacity MMBtu/hr	Natural Gas Feed Rate (10^6scf/hr)	Emission Factor lb/10^6 scf	Emission Rate Short-term (lbs/hr)	Emission Rate Annual (tons/yr)	Emission Factor Reference [1]
PM Filterable	40	3.92E-02	1.9	0.07	0.33	Use Baghouse specs
PM Condensable	40	3.92E-02	5.7	0.22	0.98	Use Baghouse specs
PM Total	40	3.92E-02	7.6	0.30	1.30	Use Baghouse specs
SO_2	40	3.92E-02	0.6	0.02	0.10	Use Scrubber specs
NOx [2]	40	3.92E-02	61.9	2.43	10.63	Manufacturer Guarantee
N_2O [2]	40	3.92E-02	0.64	0.03	0.11	EPA AP-42, Table 1.4-2
CO [2]	40	3.92E-02	150.8	5.91	25.89	Manufacturer Guarantee
VOC	40	3.92E-02	5.5	0.22	0.94	EPA AP-42, Table 1.4-2
TOC	40	3.92E-02	11	0.43	1.89	EPA AP-42, Table 1.4-2
Methane CH_4	40	3.92E-02	2.3	0.09	0.39	EPA AP-42, Table 1.4-2
Pb	40	3.92E-02	5.00E-04	1.96E-05	8.58E-05	EPA AP-42, Table 1.4-2
CO_2	40	3.92E-02	120,000	4,704	20,604	EPA AP-42, Table 1.4-2
Benzene	40	3.92E-02	2.10E-03	8.23E-05	3.61E-04	EPA AP-42, Table 1.4-3
Formaldehyde	40	3.92E-02	7.50E-02	2.94E-03	1.29E-02	EPA AP-42, Table 1.4-3
Hexane	40	3.92E-02	1.8	0.07	0.31	EPA AP-42, Table 1.4-3
Naphthalene	40	3.92E-02	6.10E-04	2.39E-05	1.05E-04	EPA AP-42, Table 1.4-3
Toluene	40	3.92E-02	3.40E-03	1.33E-04	5.84E-04	EPA AP-42, Table 1.4-3
Arsenic	40	3.92E-02	2.00E-04	7.84E-06	3.43E-05	EPA AP-42, Table 1.4-4
Beryllium	40	3.92E-02	1.20E-05	4.70E-07	2.06E-06	EPA AP-42, Table 1.4-4
Cadmium	40	3.92E-02	1.10E-03	4.31E-05	1.89E-04	EPA AP-42, Table 1.4-4
Chromium	40	3.92E-02	1.40E-03	5.49E-05	2.40E-04	EPA AP-42, Table 1.4-4
Cobalt	40	3.92E-02	8.40E-05	3.29E-06	1.44E-05	EPA AP-42, Table 1.4-4
Manganese	40	3.92E-02	3.80E-04	1.49E-05	6.52E-05	EPA AP-42, Table 1.4-4
Mercury	40	3.92E-02	2.60E-04	1.02E-05	4.46E-05	EPA AP-42, Table 1.4-4
Nickel	40	3.92E-02	2.10E-03	8.23E-05	3.61E-04	EPA AP-42, Table 1.4-4
Selenium	40	3.92E-02	2.40E-05	9.41E-07	4.12E-06	EPA AP-42, Table 1.4-4

[1] AP-42, Fifth Edition, Section 1.4 Natural Gas Combustion,Tables 1.4-1 through 1.4-4.

[2] Controlled - Low NO_x burners with FGR. Manufacturer Emission Guarantees NOx < 50 ppm @ 3% O2 over 4:1 turndown, CO < 200 ppm @ 3% O2

Table 6 – Fly Ash Combustion – ECO Systems #1 and #2

EM Resources, LLC - Plant Barry Beneficial Use Operations
Fly Ash Combustion Emissions from ECO System #1 & #2

	Max. Ash Throughput (ton/hr)		
ECO #1:	11		
ECO #2:	11		
Combined Ash Throughput:	22		
Average LOI:	4%		
Ash Heat Content:	564	Btu/lb, average	(Ranges from 423 Btu/lb for 3% LOI to 846 Btu/lb for 6% LOI)

Constituent	Ash Throughput (Ton/hr)	Heat Input (MMBtu/hr)	Emission Factor (lb/ton)	Emission Rate Short-term (lbs/hr)	Emission Rate Annual (tons/yr)	Emission Factor Reference
PM Filterable	22	24.82		0.00	0.00	Use Baghouse specs
PM Condensable	22	24.82		0.00	0.00	Use Baghouse specs
PM Total	22	24.82		0.00	0.00	Use Baghouse specs
SO_2	22	24.82		0.00	0.000	Use Scrubber specs
NOx *	22	24.82	0.4440	9.77	42.78	Engineering Estimate
N_2O	22	24.82	0.0040	0.09	0.38	40 CFR 98, Table C-2
CO *	22	24.82	0.1480	3.26	14.26	Engineering Estimate
VOC	22	24.82	0.0148	0.33	1.43	Assumed 10% of CO
TOC	22	24.82	0.0148	0.33	1.43	Assumed equal to VOC
Methane CH_4	22	24.82	0.0274	0.60	2.636	40 CFR 98, Table C-2
Pb	22	24.82		0.00E+00	0.00E+00	Incl. in site-wide estimate
CO_2	22	24.82	293.33	6453.33	28,266	Mass Balance

* NO_X and CO factors were derived from AP-42 Tables 1.2-1 and -2 factors for combustion of anthracite culm in a fluidized bed combustion unit, adjusted for heat content. A 50% safety factor was added to account for differences in the fuel and combustor design.

Table 7 –ECOPOD Unit Emissions

EM Resources, LLC - Plant Barry Beneficial Use Operations
ECOPOD Unit Emissions

Downstream of each Calciner baghouse (CU05BH5 and CU06BH6), There will be one ECOPOD system which has injection lances to both lines. This ECOPOD system will each have their own baghouse System (CU07BH7 and CU08BH8), which will vent to stacks 3 and 4, respectfully. The ECOPOD unit, through a dry sorbent injection system, is designed for 94% or greater removal efficiency of SO_2. The emissions represtented are the total from the system, and half would be emitted from each process line.

ECOPOD SO_2 REMOVAL		
Dry Scrubber Air Flow	45,000	ACFM
Dry Scrubber Control Efficiency EFFICIENCY	94	%
Dry Scrubber SO_2 , Inlet, Max	1,000	TPY
Dry Scrubber SO_2 , Outlet	60.0	TPY
Dry Scrubber SO_2 , Outlet	13.7	lb/hr

* Dry Scrubber SO_2 Inlet rate based on mass balance of operating scenario, along with manufacturer guarantee

Table 8 –Dryer, Classifier, and ECO Baghouse Filter/Collection Systems

EM Resources, LLC - Plant Barry Beneficial Use Operations
Dryer, Classifier, & ECO Baghouse Filter/Collection Systems

Source Name	Emission Unit ID	APCD Unit ID	Material	Hourly Max. Design Capacity (Tons/hr)	Maximum Capacity (Ton/yr)	ACFM	Control Device	Pollutant (Filterable)	Control Device Efficiency (%)	Manufacturer Design or AP-42 EF (lbs/ton) Controlled	Uncontrolled Emission Factor (lb/ton)	Reference	Uncontrolled Hourly Emissions (lbs/hr)	Uncontrolled Annual Emissions (tons/yr)	Controlled Hourly Emissions (lbs/hr)	Controlled Annual Emissions (Tons/yr)
Dryer #1 Baghouse Exhaust	CU01	CU01BH1	Dry Fly Ash	70	613,200	55,826	Dust Collector/Baghouse	PM	99.9 to 100%	0.010	2.0	AP-42;CH 11.19.1	140.00	613.20	0.70	3.07
								PM_{10}	99.9 to 100%	0.010	2.0		70.00	306.60	0.35	1.53
								$PM_{2.5}$	99.9 to 100%	0.010	2.0		10.50	45.99	0.05	0.23
Dryer #2 Baghouse Exhaust	CU02	CU02BH2	Dry Fly Ash	70	613,200	55,826	Dust Collector/Baghouse	PM	99.9 to 100%	0.010	2.0	AP-42;CH 11.19.1	140.00	613.20	0.70	3.07
								PM_{10}	99.9 to 100%	0.010	2.0		70.00	306.60	0.35	1.53
								$PM_{2.5}$	99.9 to 100%	0.010	2.0		10.50	45.99	0.05	0.23
Classifier #1 Baghouse Exhaust	CU03	CU03BH3	Dry Fly Ash	20	175,200	12,646	Dust Collector/Baghouse	PM	99.9 to 100%	0.00220	0.0250	AP-42;CH 11.19.2	0.50	2.19	0.04	0.19
								PM_{10}	99.9 to 100%	0.00074	0.0087		0.17	0.76	0.01	0.06
								$PM_{2.5}$	99.9 to 100%	0.00005	0.0044		0.09	0.39	0.001	0.004
Classifier #2 Baghouse Exhaust	CU04	CU04BH4	Dry Fly Ash	20	175,200	12,646	Dust Collector/Baghouse	PM	99.9 to 100%	0.00220	0.0250	AP-42;CH 11.19.2	0.50	2.19	0.04	0.19
								PM_{10}	99.9 to 100%	0.00074	0.0087		0.17	0.76	0.01	0.06
								$PM_{2.5}$	99.9 to 100%	0.00005	0.0044		0.09	0.39	0.001	0.004
ECO-Calciner #1 BH exhaust	CU05	CU05BH5	Dry Fly Ash	10	87,600	22,364	Dust Collector/Baghouse	PM	99.9 to 100%	0.00220	0.0250	AP-42;CH 11.19.2	0.25	1.10	0.02	0.10
								PM_{10}	99.9 to 100%	0.00074	0.0087		0.09	0.38	0.01	0.03
								$PM_{2.5}$	99.9 to 100%	0.00005	0.0044		0.04	0.19	0.001	0.002
ECO-Calciner #2 BH exhaust	CU06	CU06BH6	Dry Fly Ash	10	87,600	22,364	Dust Collector/Baghouse	PM	99.9 to 100%	0.00220	0.0250	AP-42;CH 11.19.2	0.25	1.10	0.02	0.10
								PM_{10}	99.9 to 100%	0.00074	0.0087		0.09	0.38	0.01	0.03
								$PM_{2.5}$	99.9 to 100%	0.00005	0.0044		0.04	0.19	0.001	0.002
											TOTALS	**PM**	**281.50**	**1232.97**	**1.53**	**6.71**
												PM_{10}	**140.52**	**615.49**	**0.73**	**3.26**
												$PM_{2.5}$	**21.26**	**93.14**	**0.11**	**0.47**

Notes/Inputs

1. Controlled particulate emission factor based on manufacturer specification for the Baghouse filters
2. Filter baghouse control Manufacturer efficiency Baghouse is 99.99% with a 100% capture of material, per manufacturer specifications
3. AP-42;Section 11.19.1 emission factors in this section pertain to non-metallic mineral processing and they are the closest related to drying of fine materials, therefore EF in AP-42 Section 11.19.1 Tables 11.19.1-1 for controlled/uncontrolled dryer baghouse emissions was used.
4. AP-42; Section 11.19.2 emission factors in this section pertain to non-metallic crushed stone processing operations, they are the closest EF related to screening/classifier seperation operations
5. PM10 is assumed to be 50% of total PM, where there were no AP-42 EF to use for the calculations and is based on AP-42, 13.2.4.3 Predictive Emission Factor Equation
6. PM2.5 is assumed to be 15% of PM10, where there were no AP-42 EF to use for the calculations and is based on AP-42, 13.2.4.3 Predictive Emission Factor Equation
7. Filter/collection systems serve primarily as part of the production process and secondarily as a means to control emissions. The Baghouse filter/collection systems are an integral part of the production to capture the material, therefore the production process will only operate when the BH filter/collection systems are operational.

Table 9 –Dust Collector Emissions

EM Resources, LLC - Plant Barry Beneficial Use Operations
Dust Collectors Emissions

Point Emission Sources		Point Emission Sources		Control Device Nominal Air Flow	PM Controlled Emission Factor	Controlled Emission Rates						UnControlled Emission Rates		
Source ID	Description	Emission Unit ID	ACDP ID	CFM	gr/dscf [1]	PM (max. lb/hr)	PM (tpy)	PM_{10} [2] (max. lb/hr)	PM_{10} [2] (tpy)	$PM_{2.5}$ [3] (max. lb/hr)	$PM_{2.5}$ [3] (tpy)	PM (tpy)	PM_{10} [2] (tpy)	$PM_{2.5}$ [3] (tpy)
Classifier #1 Feed Surge Bin	Classifier 1 Feed Surge Bin Baghouse	SB01	SB01BV1	1,500	0.003	0.039	0.169	0.019	0.084	0.0029	0.013	168.94	84.47	12.67
Classifier #2 Feed Surge Bin	Classifier 2 Feed Surge Bin Baghouse	SB02	SB02BV2	1,500	0.003	0.039	0.169	0.019	0.084	0.0029	0.013	168.94	84.47	12.67
ECO #1 Feed Surge Bin	ECO 1 Feed Surge Bin Baghouse	SB03	SB03BV3	1,500	0.003	0.039	0.169	0.019	0.084	0.0029	0.013	168.94	84.47	12.67
ECO #2 Feed Surge Bin	ECO 2 Feed Surge Bin Baghouse	SB04	SB04BV4	1,500	0.003	0.039	0.169	0.019	0.084	0.0029	0.013	168.94	84.47	12.67
ECOPOD Gravimetric Vent Filter #1	IMETRIC VENT FILTER #1 (4-INCH LINE) BIN	GVF01	GVF01BV5	254	0.003	0.007	0.029	0.003	0.014	0.0005	0.002	28.61	14.30	2.15
ECOPOD Gravimetric Vent Filter #2	GRAVIMETRIC VENT FILTER #2 (4-INCH LINE) BIN VENT	GVF02	GVF02BV6	254	0.003	0.007	0.029	0.003	0.014	0.0005	0.002	28.61	14.30	2.15
ECOPOD Gravimetric Vent Filter #3	GRAVIMETRIC VENT FILTER #3 (4-INCH LINE) BIN VENT	GVF03	GVF03BV7	254	0.003	0.007	0.029	0.003	0.014	0.0005	0.002	28.61	14.30	2.15
ECOPOD CL Vent Filter #1	10" CONVEYING LINE VENT FILTER #1 BIN VENT	CLVF01	CLVF01BV8	100	0.003	0.003	0.011	0.001	0.006	0.0002	0.001	11.26	5.63	0.84
ECOPOD CL Vent Filter #2	10" CONVEYING LINE VENT FILTER #2 BIN VENT	CLVF02	CLVF02BV9	100	0.003	0.003	0.011	0.001	0.006	0.0002	0.001	11.26	5.63	0.84
ECOPOD CL Vent Filter #3	10" CONVEYING LINE VENT FILTER #3 BIN VENT	CLVF03	CLVF03BV10	100	0.003	0.003	0.011	0.001	0.006	0.0002	0.001	11.26	5.63	0.84
1000 ton Transfer Silo	Product Transfer Silo	S1	S1BV11	5,200	0.003	0.134	0.586	0.067	0.293	0.0100	0.044	585.67	292.83	43.93
1500 Ton Silo	Rail Product Loadout Silo	S2	S2BV12	3,900	0.003	0.100	0.439	0.050	0.220	0.0075	0.033	439.25	219.63	32.94
500 Ton Silo/Bin	Reject Silo/Bin	S3	S3BV13	2,600	0.003	0.067	0.293	0.033	0.146	0.0050	0.022	292.83	146.42	21.96
100-Ton Silo	100-Ton Dry Sorbent Silo Bin Vent	S4	S4BV14	600	0.003	0.015	0.068	0.008	0.034	0.0012	0.005	67.58	33.79	5.07
200-Ton Silo	200-Ton SO2 Disposal Silo Bin Vent	S5	S5BV15	1,500	0.003	0.039	0.169	0.019	0.084	0.0029	0.013	168.94	84.47	12.67
Rail Loadout #1	Loadout chute associated with Rail Loadout Silo	RL1	RL1CF1	2,000	0.003	0.051	0.225	0.026	0.113	0.0039	0.017	225.26	112.63	16.89
					TOTALS	**0.59**	**2.57**	**0.29**	**1.29**	**0.04**	**0.19**	**2574.91**	**1287.46**	**193.12**

NOTES:
1 - Emission factors based on manufacturer grain loading 0.003 gr/dscf for PM
2 - PM10 assumed to be 50% of the total PM based on a ratio of the k factor from drop equation AP42 - 13.2.4
3 - PM2.5 assumed to be 15% of PM10 based on a ratio of the k factor from drop equation AP42 - 13.2.4
4 - Potential Operating Scenario of 8760 hours/year for each system.
5- Uncontrolled Emission Rate is based on the assumption of 99.9% Control Efficiency.

EM Resources, LLC - Plant Barry Beneficial Use Operations
Emergency Generator Emissions

Fuel Type:	Natural Gas
Estimated annual operation (hr):	500.0
Max. Fuel Usage (scfh):	1280
Heat Content (Btu/scf):	1020
Heat Input (MMBtu/hr):	1.3056

Generator Identification	Engine Rating (BHp)	Engine Rating (kW)
NG Emergency Backup Generator	154	115

Pollutant	Emissions Factor		Emissions [3] NG Emergency Backup Generator lb/hr	Emissions [3] NG Emergency Backup Generator tpy
NO_X [1]	2.00	(g/hp-hr)	0.68	1.70E-01
CO [1]	4.00	(g/hp-hr)	1.36	3.40E-01
PM_{10} [2]	7.71E-05	(lb/MMBtu)	1.01E-04	2.52E-05
$PM_{2.5}$ [2]	7.71E-05	(lb/MMBtu)	1.01E-04	2.52E-05
VOC [1]	1.00	(g/hp-hr)	0.34	8.49E-02
SO_2 [2]	5.88E-04	(lb/MMBtu)	7.68E-04	1.92E-04
CO_2 [2]	110.00	(lb/MMBtu)	143.62	35.90
Formaldehyde [2]	5.28E-02	(lb/MMBtu)	0.07	1.72E-02
Total HAP [2]	7.22E-02	(lb/MMBtu)	0.09	2.36E-02

[1] Emission standards in Table 1 of 40 CFR Part 60, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

[2] AP-42 Section 3.2, Natural Gas Fired Engines, Table 3.2-2, "Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines".

[3] Potential Emissions were calculated on the spreadsheet as follows:

(Heat Input MMBtu/hr) * (Emission Factor in lb/MMBtu) = Potential Emissions in lb/hr

(Engine Rating in hp) * (Emission Factor in g/hp-hr) * (0.002205 lb / 1 g) = Potential Emissions in lb/hr

(Engine Rating in hp) * (Emission Factor in lb/hp-hr) * (Estimated Annual Operation in hr) / (2000 lb/ton) = Potential Emissions in TPY

EM Resources, LLC - Plant Barry Beneficial Use Operations
Fly Ash Operations - HAPs Metals

Potential Emissions Inventory, HAP Emissions from Wet/Dry Ash Handling
Metal concentrations taken from Analytical Report, for sampling of Plant Barry Landfill Ash.

Pollutant	Concentration (mg/Kg)	HAP Emission Rate, based on Total PM_{10} for the site [1] lb/hr	ton/yr
Arsenic	12	1.94E-05	8.65E-05
Barium	12	1.94E-05	8.65E-05
Cadmium	0.54	8.75E-07	3.89E-06
Chromium	1	1.62E-06	7.21E-06
Lead	2.3	3.73E-06	1.66E-05
Mercury	0.21	3.40E-07	1.51E-06
Selenium	4.7	7.61E-06	3.39E-05
Silver	0.5	8.10E-07	3.60E-06
Total HAP:	**33.25**	**5.39E-05**	**2.40E-04**

1. Although some PM_{10} emitted from the facility would be from the combustion of natural gas, in order to be conservative, it is assumed that all PM_{10} emissions from the facility is in the form of fly ash, which contains the HAP pollutants in the concentrations listed above.

APPENDIX B
EM RESOURCES, LLC
PLANT BARRY FLY ASH BENEFICIATION
MOBILE, ALABAMA
(AIR PERMIT NO. 503-0154-X001)
DRAFT PERMIT COVER AND PROVISIONS

Synthetic Minor Operating Permit

PERMITTEE: EM RESOURCES, LLC

FACILITY NAME: PLANT BARRY FLY ASH BENEFICIATION SYSTEM

LOCATION: BUCKS, ALABAMA

PERMIT NUMBER	DESCRIPTION OF EQUIPMENT, ARTICLE OR DEVICE
503-0154-X001	Fly Ash Beneficiation System – Screening, Drying, Size Classification, Carbon Removal, and SO2 Removal (Includes Screens, ECO Systems, Dry Sorbent Injection, Dryers, Silos, Baghouses, Air Classifiers, and Emergency Generator) *SIP, NSPS-JJJJ, NESHAP-ZZZZ*

In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, Ala. Code §§ 22-28-1 to 22-28-23, as amended, the Alabama Environmental Management Act, Ala. Code §§ 22-22A-1 to 22-22A-17, as amended, and rules and regulations adopted there under, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.

ISSUANCE DATE: DRAFT

PLANT BARRY FLY ASH BENEFICIATION SYSTEM
BUCKS, ALABAMA
PERMIT NO. 503-0154-X001
PROVISOS

1. This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.

2. This permit is not transferable. Upon sale or legal transfer, the new owner or operator must apply for a permit within 30 days.

3. A new permit application must be made for new sources, replacements, alterations or design changes which may result in the issuance of, or an increase in the issuance of, air contaminants, or the use of which may eliminate or reduce or control the issuance of air contaminants.

4. The permittee shall keep this permit under file or on display at all times at the site where the facility for which the permit is issued is located and shall make the permit readily available for inspection by any or all persons who may request to see it.

5. Each point of emission, which requires testing, will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.

6. All air pollution control equipment shall be operated at all times while this process is operational. In the event of scheduled maintenance, unscheduled maintenance, or a breakdown of the pollution control equipment, the process shall be shut down as expeditiously as possible (unless this act and subsequent re-start would clearly cause greater emissions than continuing operations of the process for a short period). The Department shall be notified of all such events **that exceed 1 hour** within 24 hours. The notification shall include all pertinent facts, including the duration of the process operating without the control device and the level of excess emissions which have occurred. Records of all such events, regardless of reporting requirements, shall be made and maintained for a period of five years. These records shall be available for inspection.

7. This process, including all air pollution control devices and capture systems for which this permit is issued shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants shall be established.

8. This permit expires and the application is cancelled if construction has not begun within 24 months of the date of issuance of the permit.

9. On completion of construction of the device(s) for which this permit is issued, written notification of the fact is to be submitted to the Chief of the Air Division. The notification shall indicate whether the device(s) was constructed as proposed in the application. The device(s) shall not be operated until authorization to operate is granted by the Chief of the Air Division. Failure to notify the Chief of the Air Division of completion of construction and/or operation without authorization could result in revocation of this permit.

10. If this plant relocates to another site, this plant's Air Permit remains valid for this site unless or until it is revoked for failure to comply with ADEM Air Division Rules and Regulations. The owner or operator of this plant must provide written notification of the intent to relocate the plant to this site at least two weeks in advance. The written notification should include the planned construction beginning date and the projected startup date. Failure to provide this written notification is a violation of this permit condition and is grounds for revocation of this permit.

11. Prior to a date to be specified by the Chief of the Air Division in the authorization to operate, emission tests are to be conducted by persons familiar with and using the EPA Sampling Train and Test Procedure as described in the Code of Federal Regulations, Title 40, Part 60, for the following pollutants. Written tests results are to be reported to the Air Division within **45 working days** of completion of testing.

Particulates	(**X**)	Carbon Monoxide	( )
Sulfur Dioxide	(**X**)	Nitrogen Oxides	( )
Volatile Organic Compounds	( )	Visible Emissions	( )

12. Emissions tests are to be conducted for the following pollutants at **intervals not to exceed five (5) years following the date of initial compliance testing**. All reports must be submitted to the Air Division within **45 working days** of completion of testing.

Particulates	( )	Carbon Monoxide	( )
Sulfur Dioxide	(**X**)	Nitrogen Oxides	( )
Volatile Organic Compounds	( )	Visible Emissions	( )

13. Submittal of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require stack emission testing at any time.

14. Nothing in this permit or conditions thereto shall negate any authority granted to the Air Division pursuant to the Alabama Environmental Management Act or regulations issued thereunder.

15. This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.

16. The Air Division must be notified in writing at least 10 working days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.

    To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:

    a. The date the test crew is expected to arrive, the anticipated date and time of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.

b. A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedure requires probe cleaning).

c. A description of the process(es) to be tested, including the feed rate, any operating parameter used to control or influence the operations, and the rated capacity.

d. A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.

A pretest meeting may be held at the request of the source owner or the Department. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.

All test reports must be submitted to the Air Division within 45 days of the actual completion of the test, unless an extension of time is specifically approved by the Air Division.

17. All the original data charts, performance evaluations, calibration checks, adjustment and maintenance records and other information regarding monitoring system(s) will be maintained in a permanent form suitable for inspection. The file shall be retained for at least **five years** following the date of such measurements, maintenance, reports and records.

18. Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.

Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:

a. by the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;

b. by reducing the speed of vehicular traffic to a point below that at which dust emissions are created;

c. by paving;
d. by the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;

Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.

19. A properly maintained and operated device will be utilized to measure the pressure differential across each baghouse.

20. Any performance tests required shall be conducted and data reduced in accordance with the test methods and procedures contained in each specific permit condition unless the Director (1) specifies or approves, in specific cases, the use of a reference method with minor changes in methodology, (2) approves the use of an equivalent method, or (3) approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.

21. This facility is limited to the use of Natural Gas only as a fuel to fire the dryers. Any plans to change the type of fuel utilized must receive prior approval from this office.

22. No person shall discharge into the atmosphere from any source of emission, particulate of an opacity greater than that designated as twenty percent **(20%) opacity**, as determined by a six (6) minute average. During one six (6) minute period in any sixty (60) minute period, a person may discharge into the atmosphere from any source of emission, a particulate of an opacity not greater than that designated as forty percent **(40%) opacity**.

23. **A sulfur dioxide (SO_2) continuous emission monitoring system (CEMS) shall be installed on Stacks 3 and 4** (ST03 and ST04) to monitor SO2 emissions from ECO Systems 1 and 2. Each CEMS shall be operated and maintained according to the manufacturer's specifications. **The facility will furnish a copy of the manufacturer's specification documents for each CEMS to the Air Division prior to commencing operation**. SO_2 emissions for individual emission points are limited to the following:

			Proposed Emission Limit	
Emission Unit	**Stack ID**	**Source Name**	**SO_2 (lb/hr)**	**SO_2 (Tons/yr)**
CU01	ST01	DRYER 1 BAGHOUSE EXHAUST THROUGH STACK 1	0.05	0.20
CU02	ST02	DRYER 2 BAGHOUSE EXHAUST THROUGH STACK 2	0.05	0.20
CU05	ST03	ECO1 - ECO ROTARY CALCINER COMBUSTION UNIT/BH5; WILL BE USED FOR HEAT RECOVERY IN DRYER 1 THEN EXHAUST THROUGH STACK 3	0.00	0.00
CU07	ST03	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 7; EXHAUST THROUGH STACK 3	10.23	44.80
CU06	ST04	ECO2 - ECO ROTARY CALCINER COMBUSTION UNIT/BH6; WILL BE USED FOR HEAT RECOVERY IN DRYER 2 THEN EXHAUST THROUGH STACK 4	0.00	0.00
CU08	ST04	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 8; EXHAUST THROUGH STACK 4	10.23	44.80

24. When determining compliance with the SO2 limit of **10.23 lb/hr**, EPA Reference Method 6 or Method 6c shall be used to measure SO2 emissions from **Stack 3 (ST03)** *or* **Stack 4 (ST04)**.

25. PM/PM10 emissions generated by the operation of this facility shall be limited to the following Synthetic Minor Operating Permit (SMOP) emission rates for individual emission points:

			Particulate Emission Limit	
Emission Unit	**Stack ID**	**Source Name**	**PM (lb/hr)**	**PM (Tons/yr)**
CU01	ST01	DRYER 1 BAGHOUSE EXHAUST THROUGH STACK 1	7.57	33.18
DU01	ST01	Dryer #1 Associated with BH1 (refer to emission under CU01BH1)		
CU02	ST02	DRYER 2 BAGHOUSE EXHAUST THROUGH STACK 2	7.57	33.18
DU02	ST02	Dryer #2 Associated with BH2 (refer to emission under CU02BH2)		
CU03	ST03	CLASSIFIER 1 BAGHOUSE, EXHAUST THROUGH STACK 3	0.31	1.34
CU05 *	ST03	ECO1 - ECO ROTARY CALCINER COMBUSTION UNIT/BH5; WILL BE USED FOR HEAT RECOVERY IN DRYER 1 THEN EXHAUST THROUGH STACK 3	0.15	0.67
CU07	ST03	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 7; EXHAUST THROUGH STACK 3		
CU04	ST04	CLASSIFIER 2 BAGHOUSE, EXHAUST THROUGH STACK 4	0.31	1.34
CU06 *	ST04	ECO2 - ECO ROTARY CALCINER COMBUSTION UNIT/BH6; WILL BE USED FOR HEAT RECOVERY IN DRYER 2 THEN EXHAUST THROUGH STACK 4	0.15	0.67
CU08	ST04	ECO SO2 REMOVAL SYSTEM 1 BAGHOUSE 8; EXHAUST THROUGH STACK 4		
SB01	nside Buildin	CLASSIFIER 1 FEED SURGE BIN (BIN VENT)	0.27	1.18
SB02	nside Buildin	CLASSIFIER 2 FEED SURGE BIN (BIN VENT)	0.27	1.18
SB03	nside Buildin	ECO SYTEM 1 FEED SURGE BIN (BIN VENT)	0.27	1.18
SB04	nside Buildin	ECO SYTEM 2 FEED SURGE BIN (BIN VENT)	0.27	1.18
GVF1	GVF1	GRAVIMETRIC VENT FILTER #1 (4-INCH LINE) BIN VENT	0.05	0.20
GVF2	GVF2	GRAVIMETRIC VENT FILTER #2 (4-INCH LINE) BIN VENT	0.05	0.20
GVF3	GVF3	GRAVIMETRIC VENT FILTER #3 (4-INCH LINE) BIN VENT	0.05	0.20
CLV1	CLV1	10" CONVEYING LINE VENT FILTER #1 BIN VENT	0.02	0.08
CLV2	CLV2	10" CONVEYING LINE VENT FILTER #2 BIN VENT	0.02	0.08
CLV3	CLV3	10" CONVEYING LINE VENT FILTER #3 BIN VENT	0.02	0.08
S1	S1BV	1000-TON TRANSFER SILO BIN VENT	0.93	4.08
S2	S2BV	1500-TON RAIL LOADOUT SILO BIN VENT	0.70	3.06
S3	S3BV	500-TON REJECTS SILO BIN VENT	0.47	2.04
S4	S4BV	100-TON DRY SORBANT BIN VENT	0.11	0.47
S5	S5BV	200-TON SO2 DISPOSAL/WASTE SILO BIN VENT	0.27	1.18
RL1	RL1	1500-TON RAIL LOADOUT SPOUT DUST COLLECTOR	0.36	1.57

26. When determining compliance with the PM/PM10 limit of **7.57 lb/hr**, EPA Reference Method 5 or Method 17 shall be conducted on **Stack 1 (ST01)** *or* **Stack 2 (ST02)** to determine the particulate matter concentration. Method 5I shall be used as an alternative to Method 5 if the minimal sampling volume of 60 dscf cannot be obtained and the equipment being tested operates for less than 1 hour at a time such as (but not limited to) storage bins or enclosed truck or railcar loading stations.

27. This permittee shall submit an **annual emissions report by March 15th of each calendar** year that provides facility-wide total PM and SO2 emissions calculated during the previous calendar year.

28. The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.

29. Should this facility, at any time, exceed the limits set forth in this permit, this Department must be notified within ten (10) days of the exceedance.

30. Additions and revisions to the conditions of this Permit will be made, if necessary, to ensure that the Department's air pollution control rules and regulations are not violated.

31. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

DRAFT
Date

APPENDIX C
EM RESOURCES, LLC
PLANT BARRY FLY ASH BENEFICIATION
MOBILE, ALABAMA
(AIR PERMIT NO. 503-0154-X001)
DRAFT COVER LETTER

DATE

Ms. Teri Bowman
EM Resources, LLC
10701 S. River Front Parkway, Suite 300
South Jordan, UT 84095

Dear Ms. Bowman:

RE: Plant Barry Fly Ash Beneficiation System
Facility No. 503-0154
Unit X001

The enclosed Synthetic Minor Operating Permit is issued pursuant to the Department's air pollution control rules and regulations. Please note the conditions (provisions) which must be met in order to retain this Permit.

New sources of air pollution receiving approval by an Air Permit must notify the Chief of the Air Division upon completion of construction and prior to operation. Authorization to Operate must then be received from the Chief of the Air Division. Failure to notify the Chief of the Air Division upon completion of construction and/or operation without authorization can result in the revocation of the Air Permit.

Upon receiving the enclosed Air Permit, please review **all** of the provisions.

Should you have any questions or if clarification of permit conditions is required, please do not hesitate to contact Sara Mattingly at (334) 270-5639 in Montgomery.

Sincerely,

Ronald W. Gore, Chief
Air Division

RWG/sam

Enclosures