

NARRATIVE

TO: Hamid Yavari

FROM: S. Ganapathy

DATE: July 8, 2026

Facility Name: **EM Resources, LLC – Plant Branch Beneficial Operations**
AIRS No.: 237-00136
Location: Milledgeville, GA (Putnam County)
Application #: 30190
Date of Application: June 5, 2026, and July 6, 2026, update

Background Information

EM Resources' Milledgeville facility is a Fly Ash Beneficiation system located at 1100 Milledgeville Road, in Milledgeville (Putnam County). The facility is a Synthetic Minor Source of PM and SO₂ emissions and was issued a Synthetic Minor Air Quality Permit No. 5032-237-0136-S-01-0 on August 25, 2024. The plant site is the former Georgia Power Plant Branch site in Milledgeville. This facility is capable of generating approximately 630,000 dry tons of beneficiated ash per year. The facility is located on a previously wooded area near the Georgia Power's Plant Branch ash ponds, on the interior portion of the Georgia Power parcel of land. The reclaimed coal ash is expected to be used in cement plants that produce ready mix concrete and in Gypsum wallboard plants.

Purpose of Application

The facility submitted an expedited permit amendment SIP permit application (Assigned Application No. 30190) on June 5, 2026, to EPD for adding a synthetic minor limit of 100 tons/year CO, on a 12-month rolling sum basis.

The facility has proposed commissioning the ECO System fly ash calciners with CO continuous emissions monitoring systems (CEMS) in place to collect data on CO emissions from the full-scale system under a range of operating conditions. The CEMS will be used to track and document CO emissions during this commissioning period, which is expected to last approximately 3 months. The facility anticipates processing approximately 30,000 tons of fly ash through the ECO System calciners during this time. Actual CO emissions will be limited to less than 100 tons/year during the commissioning period by reducing processing rates (ash throughput) and/or hours of operation.

In the future, a regenerative thermal oxidizer (RTO) will be installed on each ECO System to reduce CO emissions and enable the ECO System to operate at maximum capacity, while remaining below the 100 tons/year CO emissions limit long term. These systems will be installed around January and March 2027. In the interim, one temporary/rental thermal oxidizer (TO) will be placed into service while awaiting the delivery and installation of the permanent RTO systems. The rental TO will have the same control efficiency as the permanent systems. EPD issued a No Permit Required letter on July 7, 2026, for the operation of the

temporary/rental Thermal Oxidizer to process exhaust from the ECO System Calciners during the commissioning period. After the installation and startup of the Regenerative Thermal Oxidizers (RTO's) to control CO emissions from each calciner, the operation of the temporary rental Thermal Oxidizer will be discontinued, and it will be removed from the facility.

The CO emissions will be calculated by multiplying CO mass flow rate (measured by Continuous Emissions Monitoring Systems - CEMS) by the removal efficiency of the thermal oxidizer (TO) as guaranteed by the manufacturer (98%). Only the ECO System connected to the rental TO will process high carbon fly ash during the commissioning period.

No public advisory was issued for this permit application since the Thermal Oxidizer (TO), and the Regenerative Thermal Oxidizers (RTO1 and RTO2) are pollution control equipment and will result in reduction of CO emissions from the facility.

Updated Equipment List

The only updated equipment proposed to be added to the facility is the temporary/rental thermal oxidizer (TO) that will be installed and operated during the commissioning period for the Calciners while the regenerative thermal oxidizers (RTO1 and RTO2) are installed for permanent use with the two Calciners to process the high carbon Coal ash.

- (2) Rotary dryer systems
- (2) Air Classifiers
- **(2) ECO systems (carbon removal) controlled by Regenerative Thermal Oxidizer (RTO)**
- Dry Sorbent Injection System (SO₂ removal) ECOPOD system.
- (1) Raw Ash Storage barn; approximately 7,000 tons
- (1) 1,000-ton Transport Silo
- (2) 3,000-ton Truck Loading silos
- (1) 1,000-ton 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

Updated Process Description

The dryer bottoms, will go through an air classifier to remove oversize particles and bottom ash. The remaining process stream will go to the transfer silo. The fly ash from the transfer silo is then processed through the ECO System to remove carbon, as needed for the high Carbon dried Coal Ash.

The ECO System discharge will be conveyed to the storage silos. A pneumatic enclosed dense phase conveying system will convey the beneficiated coal ash to two different storage silos.

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 and will not be processed in the calciners after drying in the two dryers.

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.

Once the fly ash leaves the ECO System and the SO₂ removal process, it will be captured in the product recovery baghouses associated with these systems, then pneumatically transferred to either the rail or truck loadout silos, equipped with bin vent dust collection systems. The loadout stations are equipped with telescoping chutes and a negative pressure ventilation system and cartridge filter to maximize product capture.

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. The finished product from each process line will be conveyed to a single transfer silo, where it will be distributed to one of the truck or rail loadout operations. The production process will only operate when the baghouse filter systems are operational.

Emissions Summary

Facility-Wide Emissions

(in tons per year)

Criteria Pollutant	Potential Emissions (tpy)	Actual Emissions (tpy)
Carbon Monoxide (CO)	<100	65.4
Nitrogen Oxides (NO _x)	55.9	55.9
Particulate Matter (PM)	< 100	14.4
PM ₁₀	< 100	7.8
PM _{2.5}	< 100	1.6
Sulfur Dioxide (SO ₂)	< 100	60.2
Volatile Organic Compounds (VOC)	3.7	3.7
Total HAPs	2.6	1.2
Greenhouse Gases (GHG)	76,975	76,975

Note: Potential CO, PM, and SO₂ emissions from the facility are limited to 100 tpy (Title V avoidance)

All emissions calculations were based on the potential operating scenario of 8,760 hours per year, processing the maximum rated amount of material.

The wet ash dryers and ECO Systems will combust natural gas, using low NO_x burners and flue gas recirculation. The emissions from the combustion of natural gas are included in the calculations, using manufacturer information for NO_x and CO, and AP-42 emission factors for all other pollutants. The emissions from the carbon removal process are estimated using a combination of mass balance and AP-42 factors.

The emissions from the combustion of the fly ash in each ECO System were calculated using the design ash heat content and throughput, along with AP-42 emission factors of combustion of anthracite culm in a fluidized bed combustion unit. The AP-42 values were adjusted for heat content, and a 50% safety factor applied.

The potential emissions from each ECO System are represented as the maximum of either operating at full capacity firing on natural gas, or full capacity of combustion of fly ash. Approximately 50% of the hot flue gas is recirculated from each ECO System, back into the two dryers, lowering SO₂ emission rates.

In order to be conservative, it is assumed that all PM₁₀ emissions from the facility are in the form of fly ash and contain the metal HAP pollutants.

Regulatory Applicability

The ECO system natural gas fire burners are rated at 2.4 MMBTU/hr. The Calciners and the RTO burners are direct-fired sources and is not subject to the boiler NSPS or Georgia Rule (d). The opacity from the Calciners and the RTO are limited to 40% under Georgia Rule (b). PM emissions from the Calciners and RTO are subject to Georgia Rule (e) PM emission limit. The fuel sulfur content is limited to 2.5 wt.% under Georgia Rule (g)2 for the Calciners and the RTOs. Since the calciners and dryers are fired with natural gas which has negligible sulfur content, compliance with the fuel sulfur content limit of Georgia Rule (g)2 is assured. Fugitive emission opacity is limited to 20% under Georgia Rule (n)2 for the Calciner and the RTO emissions.

Permit Conditions

Amended condition 2.1 adds CO whose emissions cannot equal or exceed 100 tons per year. This is a Synthetic Minor emission limit for CO emissions from the facility.

Amended Condition 2.4 adds Calciners (CU05 and CU06), Emergency Generator (GEN1) and Regenerative Thermal Oxidizers (RTO1 and RTO2) to sources subject to the 2.5 wt.% fuel sulfur content limit of Georgia Rule (g)2. All these sources are fired with natural gas which has negligible sulfur content and will easily comply with fuel sulfur content limit of Georgia Rule (g)2.

Existing Condition 5.1 is amended by adding Carbon Monoxide (CO) to the continuous monitoring requirement to ensure compliance with the SM emission limit for CO in Condition 2.1

Condition 5.4 is amended by requiring monitoring of CO emissions using a Continuous Emission Monitoring System (CEM) for monitoring CO emissions from the Calciners and the Regenerative Thermal Oxidizers (RTO).

New Condition 5.7 requires the RTOs to be operated at or above 1450°F to ensure compliance with the Synthetic Minor CO emission limit in Condition 2.1.

New Condition 6.3 requires the Permittee to Test the performance of the RTO for CO emission reduction Using Method 10 within 120 days after the startup of the RTOs. The CO CEMS shall meet the specifications in 40 CFR 60 Appendix B, Performance Specification 4 (PS4).

New Condition 7.3 requires the Permittee to monitor CO emissions from the Calciners at the RTO outlet using a CO Continuous Emission Monitoring Systems (CEMS) each month and over the last twelve

consecutive months and report in writing, any 12 month CO emissions of 100 tons or more within 15 days after the end of the month in which the exceedance was recorded.

The report shall outline the steps taken by the Permittee to avoid a recurrence of the exceedance or submit a Title V permit application for the facility if CO emissions cannot be limited below 100 tons per year.

Toxic Impact Assessment

No Toxic Impact Assessment was performed for this permit amendment application since there is no increase in emission of air toxics or emission of any new air toxic that was not previously emitted.

Summary & Recommendations

I recommend that Air Quality Permit Amendment No. 5032-237-0136-S-01-1 be issued to EM Resources, LLC – Plant Branch Beneficial Use Operations for commissioning and operation of two Calciners to remove Carbon from dried high Carbon Coal ash with CO emissions controlled using a temporary/rental Thermal Oxidizer (TO) during the commissioning period of three months while the Regenerative Thermal Oxidizers (RTOs) are installed at the facility. The facility will be synthetic minor (SM) source for CO emissions with respect to Title V. The facility will continuously monitor CO emissions from the Calciners at the Thermal Oxidizer outlet or the RTO outlet using CO CEMS. Each month the facility will calculate the CO emissions from the Calciners and maintain a running total of CO emissions over the last twelve consecutive months. The permittee shall promptly report in writing any 12 consecutive month CO emissions equal to or greater than 100 tons per year and shall outline the steps it will take to prevent a recurrence of the exceedance of the SM CO emission limit. EPD's Stationary Source Compliance Program will continue to be in charge of facility inspection and overall facility compliance oversight. No public advisory was issued for this permit amendment since there will be no increase in emissions of any pollutant from the facility.

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//