



TITLE V AIR PERMIT RENEWAL APPLICATION

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May 2025



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1. APPLICATION SUMMARY

1.1 Purpose of Application

Carmeuse Lime & Stone (Carmeuse) owns and operates a limestone mine, limestone processing, and lime manufacturing plant in Pendleton County, Kentucky (Black River Plant). The plant is classified as a major source under the Title V operating permit program. The current Title V permit (V-19-011) was issued to the plant on November 13, 2020. At the time of this application, a minor revision to the permit (V-19-011 R1) is being processed, but has not been issued final.

Pursuant to Condition G.2.a of the permit, a renewal application must be submitted to the Kentucky Division for Air Quality (Division) at least 6 months prior to permit expiration (i.e., by May 13, 2025). Accordingly, Carmeuse is submitting this renewal application.

1.2 Summary of Application Contents

This application report and associated appendices constitute the complete Title V permit application for the Black River Plant. Pursuant to 401 KAR 52:020, Section 4(2)(c), applications for permit renewals shall provide only the information that is new or different from the most recent source-wide permit application and certification by a responsible official. As most of the information from the last Title V renewal application correctly reflects the emission units and applicable requirements of the plant, the contents of this renewal application are limited. For readability and completeness, a description of the core processes is presented in Section 2. In Section 3, a brief explanation of the organization and nomenclature for emission units is provided. Section 4 provides a review of applicable requirements under state and federal air regulatory programs and from past permit actions.

There are no updates needed to the application forms currently on file with the Division from the last Title V permit renewal application and subsequent revisions. Thus, the only DEP7007 form provided for this renewal is the 7007AI, which is included in Appendix A.

A redline/strike-out version of the pre-proposed Title V permit (V-19-011 R1) showing permit condition changes being sought through this renewal is provided in Appendix B. Generally, the requested changes align with prior permit applications/notifications submitted since the last Title V renewal. A summary of the permit applications and notifications submitted to the Division since the last Title V renewal application is provided in Table 1-1 for reference. Assuming V-19-011 R1 is issued final, there are four additional permit actions that need to be incorporated into the renewed permit. This includes three Section 502(b)(10) changes and a minor permit revision, each of which are indicated as being incorporated in permit version "TBD" in Table 1-1 below.

Note that if V-19-011 R1 is issued final prior to processing this renewal application, Carmeuse respectfully requests that the Division consider any differences between the final V-19-011 R1 and the suggested permit edits included within this renewal application.

Table 1-1. Summary of Permit Actions Since Prior Permit Renewal Application

Submittal Date	Application Type	Subject	Permit Version Incorporating Change
May 2019	502(b)(10)	Kiln Diesel Startup	V-19-011
May 2019	502(b)(10)	Temporary Limestone Processing Operation	N/A
Aug 2019	502(b)(10)	Permanent Limestone Processing Operation	V-19-011
Sept 2019	502(b)(10)	Replacement Limestone Processing Operation	V-19-011
Mar 2020	Minor	Pulverized Lime Railcar Loadout	TBD
Dec 2021	502(b)(10)	Reject Lime Pile and Specialty Lime Operation	TBD
May 2020	502(b)(10)	Slope Car Emergency Generator	V-19-011 R1*
Nov 2020	502(b)(10)	Transloading Operation	TBD
Oct 2022	502(b)(10)	Railcar Cleanout Operation	V-19-011 R1*
Dec 2023	Minor	Burner Change in Rotary Kiln #4	V-19-011 R1*
Oct 2024	Significant	Area Source Determination	N/A [†]
Oct 2024	502(b)(10)	Reject Landfill	TBD

* A pre-proposed version of V-19-011 R1 was provided to Carmeuse for comment, however a final version of the permit revision has not yet been issued.

† The October 2024 significant permit revision application for installation of control technology and area source determination has been withdrawn. As such, this permit application should not be incorporated into the renewed permit.

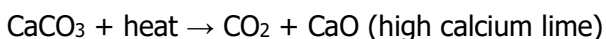
2. FACILITY AND OPERATIONS DESCRIPTION

2.1 Facility Location

The Black River Plant is located approximately 26 miles southeast of Cincinnati in Pendleton County, Kentucky, on a strip of land between the Ohio River and U.S. Highway 8. The property encompasses an area of approximately 1,200 surface acres and is surrounded by wooded hilly terrain. The Universal Transverse Mercator (UTM) coordinates of the facility are (approximately) 218.8 kilometers (km) East and 4,303.5 km North (Zone 17, NAD83).

2.2 Facility Operations Summary

High calcium lime is manufactured at the Black River Plant through the calcination of limestone, represented by the following reaction:¹



The core process operations are: (1) mining raw limestone; (2) preparing limestone by crushing and sizing; (3) calcining limestone in kilns; and (4) transfer, storage, and loadout of lime and limestone. A portion of the lime produced is also conveyed to a hydrate plant at the site to produce hydrated lime products. Detailed descriptions of these core process operations are described in the following sections.

2.3 Limestone Handling

The limestone handling and processing area is subdivided into six functional subgroups: (1) mine to stockpile; (2) stockpiles; (3) screening and crushing operations; (4) kiln feed; and (5) loadout. These limestone processes are discussed below in greater detail.

2.3.1 Mine to Stockpile Transfer (LS01)

Limestone is supplied from an underground mine located adjacent to and under the plant. Limestone is mined by the room and pillar benching method using drilling and blasting. Limestone is crushed in a primary jaw crusher underground in the mine before it is transported by a series of belt conveyors to a run-of-mine stockpile at the surface. The fugitive emissions from the conveying and transfer operations are controlled by available water sprays (as needed to maintain moist material) located at various points between the mine portal exit and the stockpile.

2.3.2 Limestone Stockpiles (LS02) and Limestone Screening and Crushing (LS03)

Two underground belt conveyors receive limestone via vibrating feeders from the run-of-mine stockpile and transfer it above ground to the screening building. Inside the screening building, two triple deck limestone screens separate the stone into large kiln feed (roughly 2 ½" × 1"), small kiln feed (roughly ½" × 1"), oversized, and undersized stone. The large kiln feed stones are transferred to a stockpile via tripper conveyors. Small kiln feed stones are sent to a separate pile via two belt conveyors. Oversized stones are passed through two secondary cone crushers, which break down oversized limestone into smaller pieces. These crushers operate in a closed circuit with screens to recycle the limestone to kiln feed. Undersized

¹ Limestone rock used in lime production is typically either predominantly calcium carbonate, which is the case for rock quarried at the Black River Plant or, it may contain a high magnesium carbonate concentration (termed dolomitic limestone).

stone from the screens is transferred to a dual screw classifier. A radial stacker then transfers stone to a stockpile ($\frac{1}{2} \times 150$ Mesh) or to additional limestone processing operations (LS03B). If additional processing is necessary, the limestone is fed into a single deck screen. The screen sends any limestone greater than $\frac{3}{4}$ " in diameter to a crusher. Crushed limestone is then passed through the single deck screen again. The $\frac{3}{4}$ " top size limestone is sent to a belt conveyor followed by a radial stacker and finally to a $\frac{3}{4}$ " top size stockpile to await shipment.

The screens inside the screening building have the ability to be flooded with water to aid in the separation of the broken limestone and minimize dust generation. The secondary crushers, spiral classifier, and conveyor transfer points, which all operate inside buildings and are enclosed, are not a direct source of emissions to the atmosphere. Fugitive emissions generated inside the buildings are controlled by enclosure and are represented in the emission inventory by the screening, crushing, and transfer house buildings.

2.3.3 Kiln Limestone Feed System (LS04)

The kiln feed limestone is recovered from the stockpiles via an underground belt conveyor, which is fed by multiple vibrating feeders located in a reclaim tunnel under the limestone stockpiles. The stone is then transferred by belt conveyors to either the stone bins for Kilns #1, #2, and #3 or to the preheaters for Kilns #4 and #5. Three sets of indoor and outdoor belt conveyors feed limestone from the stone bins to Kilns #1, #2, and #3. Fugitive emissions generated from limestone feed are controlled by moist material and/or enclosure in buildings.

2.3.4 Limestone Loadout Operations (LS05)

Depending on market demand, limestone from the stockpiles can be loaded into trucks using front end loaders for offsite delivery. Alternately, limestone from the stockpiles can be fed into stone dump hoppers, which convey the stone to the limestone barge loadout station. Fugitive emissions from the stone dump hoppers and transfer points to the barge loadout station are controlled by enclosure and moist material.

2.4 Coal Receiving and Storage (CL01)

Coal, used as the main fuel in Rotary Kilns #1-#3, is received at the plant primarily via barge, but it can also be received via truck. Coal received via trucks is first unloaded into two dump hoppers and is then transferred by belt conveyor into three of the four coal silos. Coal received via barge is unloaded into a coal receiving hopper located on the barge platform. Coal is then transferred to the four coal silos via a series of belt conveyors. Vibrating feeders located inside the coal silos feed coal to a belt conveyor that transfers coal to 5 smaller coal surge bins each of which serves one of the kilns. The 5 smaller coal bins are used to hold the short-term supply of coal needed in each kiln. All the coal conveyors are shrouded and fugitive emissions are controlled by enclosure and moist material.

2.5 Rotary Kilns

There are five rotary lime kilns currently in operation at the plant. In a lime kiln, limestone (CaCO_3) is calcined to produce lime (CaO) and carbon dioxide (CO_2). Calcination is accomplished in the kiln by exposing the appropriately sized limestone to hot exhaust gases generated from the burning of fuel. Coal is the primary fuel used in Kilns #1-#3, although the firing of coal can also be supplemented with glycerin and natural gas. Multichannel burners in Kilns #4 and #5 provide the ability to co-fire natural gas with coal. Thus, the primary fuel for Kilns #4 and #5 is a mix of natural gas and coal, although the Kilns retain the ability to operate on 100% coal. Natural gas and diesel are also used as the startup fuel for all of the kilns.

The limestone is fed into the colder end of the kiln and moves countercurrent to the hot exhaust gas as the kiln rotates towards the hot end of the kilns where the fuel burner is located. The newer Kilns #4 and #5 are equipped with preheaters, which utilize excess heat from the kiln to pre-heat the limestone in preheating chamber. The calcined lime product is discharged from the hot end of the kiln. The exhaust gases from the kilns are routed through baghouses before discharging to the atmosphere. The exhaust gases from Kilns #2, #4, and #5 each discharge through a single stack. The exhaust gas from Kiln #1 is split between two stacks. The exhaust gas from Kiln #3 is discharged to the atmosphere out of vents of the baghouse.

2.6 Lime Handling

The lime handling, storage, and loadout processes are sub divided into 8 groups based on applicable regulations and functions, as detailed in each of the following sections. These processes are discussed in greater detail in the following sections.

2.6.1 Lime Dust Collection Systems (PSD) (LM01) and Lime System Buildings (LM02)

After the lime product leaves the kilns, it passes through coolers situated in the two kiln discharge buildings to reduce its temperature. The lime is then conveyed from the kiln discharge buildings to the product handling and storage area by means of a series of conveyor systems. A conveyor system transfers lime from the discharge building serving Kilns #1, #2, and #3 (33-01) to the Product Storage Building (33-05) via Transfer House 1 (33-03). A separate conveyor system transfers lime from the discharge building serving Kilns #4 and #5 (33-02) to the Product Storage Building via Transfer House 2 (33-04). Once in the Product Storage Building, the lime is screened and sized into small, medium, granular, and other grades of product. The product is then conveyed to a set of storage bins or storage silos (33-06). The reject product from the kiln system is stored in a separate bin and is sent to a dedicated loadout.

The transfers from kiln discharge to the Product Storage Building, to storage bins, and onto the loadout stations all occur inside the building structures. All transfer points from screw conveyors to screw conveyors, screw conveyors to bucket elevators, and storage bins to screw conveyors in the lime handling area are completely enclosed with no emissions to the inside building atmosphere. However, there are also some open belt conveyor to conveyor transfers than may be a source of indoor dust. Multiple dust collection systems provide pickup ducts at these open conveyor transfer points and other strategic points inside the building. These air streams are ducted and directed to fabric filters where the lime is recovered.

The dust collection systems that were installed, upgraded, or modified in 1995 (or that are tied to conveyor systems that were installed, upgraded or modified in 1995) are organized together into emission grouping LM01, since all these systems are covered by applicable requirements from the 1993 PSD permit action. Because the buildings enclosing these operations are also subject to opacity restrictions established in the 1993 PSD permit action, they are organized together into emission grouping LM02.

2.6.2 Lime Storage to Hydrate (LM03)

Some of the lime produced at the facility can be transferred from the Product Storage Building to the Hydrate Plant via a series of covered belt conveyors. Small dust collectors are situated at the two conveyor transfer points between these locations to capture and minimize emissions. Part of the belt conveyor system used to transport lime to the Hydrate Plant is shared for limestone transfer from the dump hoppers to barge loadout. Fugitive emissions from the belt conveyor are minimized by shrouding and enclosure.

2.6.3 Lime Dust Collection Systems (Non-PSD) (LM04)

PM in the kiln exhaust gas is captured by dedicated baghouses serving each kiln. The kiln dust captured at each baghouse is collected in three dust bins. A series of enclosed screw conveyors transport the kiln dust from baghouses to these dust bins. Displacement air emissions tied to enclosed transfers into the dust bins are controlled by dedicated bin vent filters for each dust bin. Dust from the Kiln #1 and #2 Dust Bin and from the Kiln #3 Dust Bin is loaded into trucks at two truck loadouts. The emissions from this loading process are captured by dedicated dust collectors on each loadout spout. In addition, dust accumulated in all the kiln dust bins can be sent to a slurry mix tank, where it is mixed with water and sent to underground inactive areas of the mine.

The dust collection systems associated with the dust bins for Kilns #1, #2, and #3 were not associated with the 1993 PSD permit action for the plant expansion. Therefore, because they have a more limited set of applicable requirements, they are organized together into emission grouping LM04. The dust collection system for the Kiln #4 and #5 dust bin was a part of the plant expansion project covered by the 1993 PSD permit, and thus it is included in LM01.

The LM04 emission unit grouping also includes a transloading operation, which consists of a portable conveyor and its onboard dust collection system. The portable conveyor is hydraulically compressed against the bottom of a railcar to prevent particulate matter from becoming airborne. Lime is then transferred from the railcar to an enclosed truck and the truck ships the lime off-site.

2.6.4 Reject Lime Stockpiles (LM05), Reject Lime Processing (LM06), and Clinker Reclaim (LM07)

Due to various process instabilities or other causes, lime that is not suitable to use as product may be generated at both the hot and cold end of each kiln. At the hot end, this reject lime is separated when the product lime is transferred from the coolers. A large chamber at the feed end (cold end) of each kiln allows for larger dust particles to drop out before the exhaust gas is treated.

Reject lime, dust, and yard material generated in the process is either sent to the reject lime landfill or collected into one of five authorized lime containing material stockpiles (LM05) where it is stored for further disposal. A separate emission unit is defined for each of these reject lime stockpiles, since they have the potential to be a source of fugitive dust. The reject lime from these stockpiles is reclaimed using front end loaders. The lime is transferred into a receiving hopper that is located within a partially enclosed shed. The receiving hopper feeds a wet screw system that is used to separate fines from reject lime. Dust generated from the transfer into the receiving hopper is minimized through use of a small dust collection system. Reject lime is then hydraulically transferred to a holding tank and then underground for disposal. Separated fines may also be collected by front end loaders and transferred into a high pH pond onsite, where they are mixed with water and sent underground for disposal. This reject lime processing operation is organized into emission grouping LM06.

In the clinker reclaim process (LM07), clinker and lime material recovered at various stages of the process is picked up in front end loaders and is transferred to a receiving hopper. From this hopper, the material is transferred to the lime conveyer system serving Kilns #4 and #5. From here, it is conveyed to downstream lime screening, crushing, and storage system operations encompassed by LM01 and LM02.

2.6.5 Lime Loadout (LM08)

Different grades of product stored in silos and product bins are shipped offsite for sale by means of railcar loadout, truck loadout, and barge loadout operations. The rejects from the process are also transferred from the reject bin to trucks at the reject truck loadout station. Fugitive emissions associated with each of these loadout station operations are minimized through use of dust collectors configured to the loadout spouts. All the lime loadout operations are organized into emission group LM08.

2.7 Hydrate Plant

2.7.1 Hydration Plant (HY01), Hydrate Bins to Loadout (HY02), and Pulverization System (HY03)

A portion of the product stream from lime storage may be directed to the hydrate plant via series of belt conveyors (LM03). The lime to be processed in the hydrate plant is first stored in two hydrator feed bins. Bin vent collectors sitting on the top of each hydrator feed bin control the emission associated with the transfer from the belt conveyor into the bin. A set of completely enclosed screw conveyors and a bucket elevator then transfer lime from the feed bins to the hydrator system inside the hydrate plant building. Emissions from the enclosed hydrator system, which includes a classifier, a seasoner, and a mixer, are controlled by a dust collector.

Hydrated lime is classified into the proper size range and is directed to hydrate product bins via screw conveyor systems. The transfer points on the storage bins are controlled by integrated bin vent filter systems. The hydrated lime product can be shipped offsite via trucks or railcars in bulk form. Alternately, the product can first be bagged in a bagging operation.

Rejects from the hydrate plant are stored in a separate reject bin and are transferred back to the lime storage area via trucks. Emissions from loadout operations at the hydrate plant area are controlled by dust collectors on the loading spouts. There are no emissions associated with the conveying and shipment of bagged product since the material is encased in sealed bags.

The hydrate plant building also houses a pulverizer system that can be used to generate different size grades of lime. The main unit operations are a Raymond mill and whizzer. The mill pulverizes the material and, after sizing, the product is transferred into Product Storage Bin #3 and is shipped offsite via truck in bulk form. Two dust collectors control emissions from the Raymond mill and whizzers in the pulverization operation.

2.8 Fugitive Emissions from Roads

The movement of trucks and other equipment in and around the property is a small source of fugitive PM emissions. A portion of the roads in the central part of the facility are paved. Raw material delivery, limestone, and lime product trucks primarily travel in areas of the plant that are paved. Limestone truck movements also traverse areas of the property that are unpaved. Fugitive emissions associated with truck movements on paved and unpaved road segments are encompassed by emission units 23-01 and 25-01, respectively.

In addition to the raw material, limestone, and lime product truck traffic at the site, trucks are also occasionally used to haul materials to the on-site landfill located west of the central plant operations. Most off-specification or unusable materials accumulated at the site are disposed to the underground mine via the

Reject Lime Processing operation (LM06). However, some types of oversize material such as kiln bricks cannot be disposed underground. Previously, fugitive emissions associated with haul trucks and other equipment tied to the landfill operations were covered under emission unit 24-01. However, truck traffic to and from the landfill is very small relative to traffic from all other types of raw material and product trucks at the property. To simplify how emissions from these types of operations are tallied and tracked annually for fee purposes, fugitives associated with landfill trucks have been incorporated into emission units 23-01 and 25-01 for paved and unpaved roads.

2.9 Stationary Engines

The Black River Plant has seven (7) stationary compression-ignition engines using diesel fuel. Five of the engines (included in emission group EN01) are used to maintain the rotation on the rotary kilns in the event of power outages and on a limited basis to turn the kilns during planned startups, shutdowns, and maintenance events. The sixth and seventh engines (included in emission group EN02) are used for mine shaft operations in case of power outages.

The Black River Plant also has two (2) spark ignition engines using natural gas (included in emission group EN03), that are integral to emergency generators. The emergency generators help to ensure the safe operation of the kilns by supporting the burner management system (BMS) in the event of a power outage.

3. BLACK RIVER PLANT EMISSION INVENTORY

As presented in Section 2, the heart of the operations at the Black River Plant are the five existing rotary kilns. The kilns, which are also the primary emission units, account for nearly all emissions of regulated pollutants, except for particulate matter. The other core functional areas of the plant can be logically segregated between those that occur upstream of the kilns (limestone processing) and those that occur downstream of the kilns (lime handling and hydrate plant). Also supporting the kilns are the coal receiving and handling operations.

The material handling, storage, and loadout operations associated with the processes upstream and downstream of the kilns are only a source of particulate matter emissions. These PM emissions can be largely attributed to the release of fugitive dust at conveyor to conveyor transfer points and from storage piles. Due to the physical characteristics of the limestone rock and its moisture content, the generation of fugitive dust from limestone conveying and storage operations is relatively low. Similarly, the fugitive dust attributable to conveying and storage of coal is relatively low.

Downstream of the kilns, lime is conveyed to crushing and screening processes and to storage. From storage, the lime is distributed to loadouts via barge, railcar or truck. With a few exceptions, all the lime conveying processes occur indoors, either within buildings, conveyor tubes, or storage silos. Dust collection systems capture and collect emissions generated inside these structures at transfer points and route them to fabric filters for control. Thus, the primary emission units in the lime handling part of the plant are the dust collection systems.

3.1 Framework for Emission Unit Inventory

3.1.1 Grouping of Emission Units

The Black River Plant emission unit inventory is generally organized into seven categories, corresponding to the functional process areas at the plant. The emission units within each functional area are then further organized into logical groupings based on the stage of the process they encompass and/or common applicable requirements. The emission groupings generally follow the flow of material from the mine through the limestone screening and crushing process, through the kilns, and then ultimately to loadouts via barge, rail, or truck. A listing of the functional area categories and emission unit groupings is provided in Table 3-1. Each Section B of the Title V permit covers the emission units associated with each emission grouping.

3.1.2 Nomenclature for Individual Emission Units

3.1.2.1 Emission Unit ID Numbers

Individual emission units at the Black River Plant have already been assigned Equipment IDs, Source IDs, and Process IDs within the Kentucky Emission Inventory System (KyEIS). By design, both the Equipment IDs and Source IDs are unique for each individual emission unit. The Source IDs defined in the KyEIS system for emission units at the Black River Plant are 4 digit numbers, with the first two digits loosely corresponding to a legacy breakdown of the functional area of the plant and the second two digits being a sequential number in that grouping. With regard to the Process ID numbers within KyEIS, the only emission units at the Black River Plant for which separate Process IDs are defined are the rotary kilns. Process ID 1 for each kiln covers emissions from the rotary kiln process that are tied to lime production, Process ID 2

covers emissions of certain air toxic compounds that are tied to coal combustion, Process ID 3 covers the emissions associated with firing of natural gas during startup, and Process ID 4 covers the emissions associated with diesel startup.

3.1.2.2 Emission Unit Names and Descriptions

Each of the emission unit names are prefixed with the internal equipment identification number used within Carmeuse's master equipment inventory system. For conveyor to conveyor transfers, the description indicates the name of the conveyor covered and the name of the conveyor being transferred to. For example, in emission grouping LS01–Mine to Stockpile Transfers, the first emission unit is a conveyor transfer point with Source ID 01-01. This emission unit, named "14-101 Belt Conveyor Transfer to 14-102 Belt Conveyor" encompasses fugitive emissions that may occur from the 14-101 Belt Conveyor as well as those tied to the open transfer to the 14-102 Belt Conveyor. Other types of equipment (e.g., screens, storage bins, bucket elevators, dust collection systems) are similarly named starting with the equipment number prefix and then a suitably detailed identification of the equipment. Emission units for activities that do not have an assigned equipment number in Carmeuse's internal inventory system (e.g., stockpiles, buildings) are simply given a suitable detailed text description.

Table 3-1. Functional Area Categories and Emission Groupings for Emission Units at the Black River Plant

Functional Area	Emission Group ID	Emission Group Name
1. Limestone Processing	LS01	Mine to Stockpile Transfers
	LS02	Limestone Stockpiles
	LS03/LS03B	Limestone Screening & Crushing
	LS04	Kiln Limestone Feed System
	LS05	Limestone Loadout Operations
2. Coal Receiving & Storage	CL01	Coal Receiving, Storage and Conveying
3. Rotary Kilns	KL01	Rotary Kiln #1
	KL02	Rotary Kiln #2
	KL03	Rotary Kiln #3
	KL04	Rotary Kiln #4
	KL05	Rotary Kiln #5
4. Lime Handling & Storage	LM01	Lime Dust Collection Systems (PSD)
	LM02	Lime System Buildings
	LM03	Lime Storage to Hydrate Plant
	LM04	Lime Dust Collection Systems (Non-PSD)
	LM05	Reject Lime Stockpiles
	LM06	Reject Lime Processing
	LM07	Lime Clinker Reclaim
	LM08	Lime Loadout
5. Hydration Plant	HY01	Hydrate Plant
	HY02	Hydrate Bins to Loadout
	HY03	Lime Pulverizer System
6. Roads	RD01	Haul Roads
7. Engines	EN01	Stationary Engines
	EN02	Stationary Emergency-Use CI Engines
	EN03	Stationary Emergency-Use SI Engines

4. APPLICABLE REQUIREMENTS SUMMARY

This section of the permit application summarizes the air quality regulations that apply to operations at the Black River Plant. Specifically, applicable requirements under New Source Performance Standards (NSPS), National Emission Standards of Hazardous Pollutants (NESHAP), and Kentucky State Implementation Plan (SIP) regulations are covered. A copy of the existing Title V permit showing markups for changes being sought through this renewal also delineates all applicable requirements from these regulations.

4.1 Source Classification

4.1.1 Prevention of Significant Deterioration

The Black River Plant is located in Pendleton County, Kentucky, which has been designated by U.S. EPA as unclassified/attainment for all criteria pollutants.² Therefore, with respect to the federal New Source Review permitting program, only the Prevention of Significant Deterioration (PSD) program requirements are relevant to the facility.

Kentucky has incorporated the requirements of the PSD permitting program into its State Implementation Plan (SIP) at 401 KAR 51:017.³ These PSD regulations specifically define 28 industrial source categories for which the major source threshold is 100 tpy of any regulated pollutant.⁴ The major source threshold for facilities not on this “List of 28” is 250 tpy. As presented in Section 2.2, the primary function of Black River Plant is to produce lime from limestone. As such, the Black River Plant is classified under SIC 3274 (Lime). This facility classification is included on the “List of 28” source categories. Thus, the major source threshold under the PSD program for the facility is 100 tpy of a regulated NSR pollutant.

Since the potential emissions of at least one regulated NSR pollutant (e.g., SO₂) currently exceeds 100 tpy, the Black River Plant is classified as an existing major source under the PSD program.

4.1.2 Title V Permitting Program

40 CFR Part 70 contains the regulations implementing the Title V operating permit program mandated by the Clean Air Act. Kentucky has incorporated the provisions of this federal operating permit program in its SIP regulations at 401 KAR 52:020. As specified in 401 KAR 52:001, Section 1(46), a major source with respect to the Title V regulations encompasses facilities with potential emissions of 100 tpy of any regulated pollutant, 10 tpy of any single HAP and/or 25 tpy of any combination of HAPs. The Black River Plant is an existing major source and is currently operating under the Title V operating permit V-19-011.

4.1.3 Hazardous Air Pollutants

A major source of HAP is one with potential emissions in excess of 25 tpy for total combined HAPs and/or potential emissions in excess of 10 tpy for any individual HAP. As existing potential emissions of combined HAPs exceed 25 tpy, the Black River Plant is classified as an existing major source of HAPs.

² 401 KAR 51:010.

³ 40 CFR 52.931.

⁴ 401 KAR 51:001, Section 1 (118)(a)(2)(a)

4.2 New Source Performance Standards

NSPS require new, modified, or reconstructed sources in applicable source categories to control emissions to the levels achievable by the best demonstrated technology as specified in the applicable provisions. Any source subject to an NSPS is also subject to the general provisions of NSPS subpart A, except as noted. The following NSPS subparts are potentially applicable to the emission units at the Black River Plant:

- ▶ Subpart Y – Coal Preparation and Processing Plants
- ▶ Subpart HH – Lime Manufacturing Plants
- ▶ Subpart OOO – Nonmetallic Mineral Processing Plants
- ▶ Subpart UUU – Calciners and Dryers in Mineral Industries
- ▶ Subpart IIII – Stationary Compression Ignition Internal Combustion Engines
- ▶ Subpart JJJJ – Stationary Spark Ignition Internal Combustion Engines

An analysis of applicability for each of these rules is provided in the following subsections. There are no other NSPS regulations that are applicable or potentially applicable to emission units at the plant. The emission units subject to each regulation and the applicable requirements tied to each are addressed in the Suggested Permit in Appendix B.

4.2.1 NSPS Subpart Y – Coal Preparation and Processing Plants

NSPS Subpart Y applies to affected facilities in coal preparation and processing plants constructed or modified after October 27, 1974, that process more than 200 tons of coal per day. A “coal preparation and processing plant” is defined under the rule as any facility (excluding underground mining operations) which prepares coal by one or more of the following processes: breaking, crushing, screening, wet or dry cleaning, and thermal drying.

The coal handling operations at the Black River facility have the capacity to process more than 200 tons per day of coal and the coal is pulverized prior to being delivered to the kilns. Through the initial Title V permit action, the Division previously determined that NSPS Subpart Y applies to the coal handling operations. NSPS Subpart Y limits the opacity from coal processing and conveying equipment to 20%. Since none of the existing coal handling equipment at the facility has been constructed, reconstructed, or modified after April 28, 2008, newer provisions in Subpart Y promulgated on October 8, 2009 do not apply.

4.2.2 NSPS Subpart HH – Lime Manufacturing Plants

NSPS Subpart HH applies to rotary lime kilns constructed or modified after May 3, 1977. Kiln #1, Kiln #2, and Kiln #3 at the Black River facility were constructed in 1970, 1970 and 1974, respectively, and have not since been modified (as defined in 40 CFR 60 Subpart A).⁵ Therefore, these kilns are not currently subject to the requirements of this Subpart. Kiln #4 and Kiln #5, which were constructed in 1995, are subject to the requirements of this subpart.

⁵ Capital improvements were made to Kiln #2 following an unplanned shutdown in 1998 due to equipment failure. These improvements, in the interim period until the kiln restarted in 2005, included replacement of the stone and coal bins serving Kiln #2, an upgrade of the baghouse system, and other minor structural and equipment changes. However, none of these changes resulted in an increase in short-term potential emissions (lb/hr) of any pollutant regulated under Subpart HH (i.e., PM) and thus Kiln #2 remains grandfathered with respect to this regulation.

4.2.3 NSPS Subpart OOO – Nonmetallic Mineral Processing Plants

NSPS Subpart OOO regulates PM emissions from each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, and enclosed truck or railcar loading operation at a nonmetallic mineral processing plant constructed, reconstructed, or modified after August 31, 1983. Pursuant to 40 CFR §60.671, a nonmetallic mineral processing plant means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located except as provided in 40 CFR §60.670 (b) and (c). Limestone is included in the list of nonmetallic minerals covered by the rule. Therefore, limestone handling equipment at the Black River Plant constructed or modified after August 31, 1983, is subject to the requirements of Subpart OOO.

The boundary of the nonmetallic mineral processing plant begins at the conveyor from the run-of-mine stone stockpile (01-03) and covers limestone processing operations up to the point that processed stone is transferred to the two kiln feed stockpiles. At the Black River Plant, the material handling operations within the nonmetallic mineral processing plant include crushers, screening operations, and belt conveyors, which are grouped together under emission group LS03–Limestone Screening and Crushing and LS03B – Limestone Processing Operation. These emission units are subject to the requirements of Subpart OOO as the underlying equipment was constructed or modified in 1995. The limestone conveying operations between the kiln feed piles and the kilns (LS04) are not subject to Subpart OOO since they are not part of the nonmetallic mineral processing plant as defined under the rule. They are, however, regulated under NESHAP Subpart AAAAA as a processed stone handling system, as detailed further below.

4.2.4 NSPS Subpart UUU – Calciners and Dryers (Not Applicable)

NSPS Subpart UUU applies to calciners and dryers at mineral processing plants. The existing rotary kilns meet the definition of calciner in §60.731. However, limestone is not one of the named minerals in the definition of mineral processing plant. Therefore, the rotary kilns at the Black River Plant are not subject to the requirements of this subpart.

4.2.5 NSPS Subpart IIII – Stationary Compression Ignition Internal Combustion Engines

NSPS Subpart IIII, which was originally promulgated on July 11, 2006, established standards for owners and operators of stationary compression ignition (CI) internal combustion engines (ICE) constructed, reconstructed, or modified after July 11, 2005 and manufactured after April 1, 2006.⁶

As noted in Section 2.9, there are nine stationary engines currently at the Black River Plant, seven of which are compression-ignition engines using diesel fuel. Five of the engines, which are used to turn the kilns in the event of a power outage (34-01, 34-02, 34-03, 34-04, and 34-05), were all constructed between 2015 and 2018 and are thereby subject to Subpart IIII. Additionally, the Mine Escape Shaft Emergency Generator (34-06) and Slope Car Emergency Generator were installed in 2006 and 2020, respectively. The Mine Escape Shaft Emergency Generator, which was ordered after July 11, 2005, was manufactured by John Deere on May 2, 2006, just after the April 1, 2006 applicability date. Therefore, these engines are both also subject to Subpart IIII. The pre-proposed permit (V-19-011 R1) adequately captures all of the applicable requirements for the compression ignition engines under Subpart IIII.

⁶ Per 40 CFR 60.4200(a), for the purposes of NSPS Subpart IIII, the date that construction commences is the date the engine was ordered by the owner or operator.

4.2.6 NSPS Subpart JJJJ – Stationary Spark Ignition Internal Combustion Engines

NSPS JJJJ is applicable to owners and operators of stationary spark ignition (SI) internal combustion engines (ICE) that commenced construction after June 12, 2006 and were manufactured after January 1, 2009 for emergency engines with a maximum engine power greater than 25 hp. Because the natural gas-fired emergency generator engines (34-12 and 34-14) were ordered after June 12, 2006, and manufactured after January 1, 2009, pursuant to 40 CFR 60.4230(a)(4)(iv), the SI ICE is subject to requirements in Subpart JJJJ. As the engines meet the requirements of 40 CFR 60.4243(d), the engines are also classified as emergency stationary ICE. Because the generator engines have a maximum engine power between 25 bhp and 100 bhp, pursuant to 40 CFR 60.4233(d), the engines must meet the emission requirements listed in Table 1 of 40 CFR 60, Subpart JJJJ. The Kohler engines are certified to meet these emission standards and comply with all applicable requirements in Subpart JJJJ.

4.3 National Emission Standards for Hazardous Air Pollutants

National Emission Standards for Hazardous Air Pollutants (NESHAP) are emission standards for major and area sources of HAP. Part 63 NESHAP allowable emission standards and/or work practice for major HAP sources in designated source categories are established on the basis of a Maximum Achievable Control Technology (MACT) determination. The Black River Plant is classified as a major source of HAPs since combined HAP emissions exceed 25 tpy. In reviewing the source categories for which NESHAP are established for major HAP sources, there are only two that are applicable to the emission units at the Black River Plant. These are discussed in the following sections. The emission units subject to each regulation and the applicable requirements tied to each are addressed in the Suggested Permit in Appendix B.

4.3.1 NESHAP Subpart AAAAA – Lime Manufacturing Plants

NESHAP Subpart AAAAA applies to each lime kiln, their associated coolers, and processed stone handling operations located at lime manufacturing plants located at a major source of HAP. All of the existing rotary kilns at the Black River facility are subject to the requirements of this subpart. All five kilns each meet the definition of an existing lime kiln in §63.7082(e) since they were all constructed prior to December 20, 2002, the date the regulation was initially proposed.

Processed stone handling is defined in §63.7143 as equipment or transfer points between equipment used to transport processed stone (limestone processed to a size suitable for feeding to a lime kiln), and includes: storage bins, conveying system transfer points, bulk loading or unloading systems, screening operations, bucket elevators, and belt conveyors, ending where the processed material is fed to the kiln. At the Black River Plant, the limestone handling equipment used to transfer processed limestone from the kiln feed stockpile to stone bins, and from stone bins to the kilns are grouped under LS04–Kiln Limestone Feed System. Emission units in this grouping are subject to the requirements Subpart AAAAA. In addition, because the Kiln 1, 2 & 3 Discharge Building (33-01) encloses some of the belt conveyors moving limestone between the #1, #2, and #3 Stone Bins and Kiln #1, #2, and #3, this building is also subject to the opacity standards of Subpart AAAAA.

The U.S. EPA is currently reconsidering multiple NESHAPs affecting a broad range of American industrial sectors, including Subpart AAAAA.⁷ In the meantime, the current Administration is considering a 2-year compliance exemption via Section 112(i)(4) of the Clean Air Act for affected facilities while EPA goes

⁷ Trump EPA Announces Reconsideration of Air Rules Regulating American Energy, Manufacturing, Chemical Sectors (NESHAPs), March 12, 2025, <https://www.epa.gov/newsreleases/trump-epa-announces-reconsideration-air-rules-regulating-american-energy-manufacturing>

through the rulemaking process. Carmeuse has submitted a request for Presidential Exemption, which was due by March 31, 2025. Given the uncertainties surrounding the Subpart AAAAA reconsideration and the Presidential Exemption, Carmeuse has not proposed any changes to the permit requirements for existing Subpart AAAAA affected facilities in the Suggested Permit provided in Appendix B.

4.3.2 NESHAP Subpart ZZZZ – Reciprocating Internal Combustion Engines

Subpart ZZZZ regulates HAPs emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. When Subpart ZZZZ was originally promulgated (June 15, 2004), the affected source was limited only to stationary RICE located at major sources of HAPs that had a capacity greater than 500 hp. However, EPA promulgated revisions to Subpart ZZZZ on January 18, 2008, that, among other changes, broadened the applicability of the rule to cover new stationary RICE with capacities less than or equal to 500 hp at a major or area source of HAPs with few exceptions. Then, on March 3, 2012, the rule was again revised to pull in existing stationary RICE of any size at both major and area HAP sources.⁸

Affected sources under Subpart ZZZZ are classified as either **existing** stationary RICE or **new** stationary RICE. For RICE with a rating less than or equal to 500 hp (which is all engines at the Black River Plant), existing RICE are those that were constructed or reconstructed before June 12, 2006.⁹ Since all the engines at the facility were constructed after June 12, 2006, they are all new stationary RICE under Subpart ZZZZ. Pursuant to §63.6590(c), all the engines at the Black River Plant meet the requirements of Subpart ZZZZ by meeting the requirements of Subpart IIII or Subpart JJJJ as applicable.

4.4 Kentucky SIP Regulations

4.4.1 401 KAR 51:017 – Prevention of Significant Deterioration of Air Quality

As indicated in the Section 4.1, the Black River Plant is classified as an existing major source under the PSD program. Kentucky has incorporated the requirements of the PSD permitting program into its State Implementation Plan (SIP) at 401 KAR 51:017.

Rotary Kiln #4, Kiln #5, downstream lime conveying equipment (grouped under LM01) and their associated buildings (grouped under LM02) were all part of a project (authorized by Permit C-93-032 on August 12, 1993) that triggered PSD permitting requirements. From that project, each of these emission units/groups have Best Available Control Technology (BACT) emission limits in the current Title V permit along with associated operating limits and work practice standards.

4.4.2 401 KAR 59:010 – New Process Operations

Particulate emissions from new process operations (commenced on or after July 2, 1975) not subject to other new source standards are regulated by 401 KAR 59:010. The affected facilities regulated by this standard include any “method, form, action, operation, or treatment of manufacturing or processing, and shall include any storage or handling of materials or products, before, during, or after manufacturing or processing.” Dust collection systems and other point sources in the lime handling area and hydrate plant that were constructed after July 2, 1975, are subject to this regulation.

⁸ 69 Fed. Reg. 33474, June 15, 2004; 73 Fed. Reg. 3568, January 18, 2008; 75 Fed. Reg. 9648, March 3, 2010.

⁹ 40 CFR 63.6590(a)(1)(ii).

Section 3 of the rule establishes opacity and PM mass emissions standards. Opacity of continuous emissions (visible emissions of particulate matter persisting for more than three minutes) shall not equal or exceed 20 percent from a control device or stack associated with an affected facility. The mass emission standard for particulate emissions into the open air from a control device or stack is limited based on the process weight rate. A different process weight based allowable emission rate algorithm applies depending on if the process weight for the operation is above or below 60,000 lb/hr.

4.4.3 401 KAR 61:020 – Existing Process Operations

Particulate emissions from existing process operations (commenced prior to July 2, 1975) are regulated by 401 KAR 61:020. As in 401 KAR 59:010, Section 3 of the rule establishes opacity and PM mass emissions standards based on the process weight rate. Kiln #1, Kiln #2, and Kiln #3 are the only process operations at the Black River facility that are covered under this rule since they were constructed prior to July 2, 1975. The potential PM emission rate from each of these kilns is below the allowable emission limit under 401 KAR 61:020.

4.4.4 401 KAR 63:010 – Fugitive Emissions

Fugitive emissions generated from various activities at the Black River facility are regulated by 401 KAR 63:010. 401 KAR 63:010 is a generally applicable standard that requires reasonable precautions to prevent airborne PM emissions. Operations that are regulated under 401 KAR 63:010 are indicated in the Suggested Permit in Appendix B. In accordance with 401 KAR 63:010, Carmeuse takes reasonable precautions as described in the regulation to prevent fugitive emissions and to ensure no visible fugitive dust emissions are discharged beyond the property line.

4.4.5 401 KAR 63:020 – Potentially Hazardous Matter or Toxic Substances

Kentucky regulates the emissions of toxic air pollutant emissions through 401 KAR 63:020. The Division can require that dispersion modeling or other analyses be completed by facilities at permit renewal or when constructing or modifying equipment when there is an increase in air toxic pollutant emissions, as defined in 401 KAR 63:020 Section 2 (2), deemed to be significant. This is done so that there is a documented basis for affirming that a facility does not cause an adverse impact. However, pursuant to 401 KAR 63:020, Section 1, the requirements of this rule are applicable only to the extent that such emissions are not elsewhere subject to the provisions of the Kentucky Administrative Regulations. Because the toxic air pollutant emissions from emission units at Black River facility are already regulated under NESHAP, which are incorporated by reference in the KAR, no additional requirements under 401 KAR 63:020 apply to this facility.

4.5 Compliance Assurance Monitoring

4.5.1 CAM Applicability Analysis

Under 40 CFR Part 64, the Compliance Assurance Monitoring (CAM) regulations, facilities are required to prepare and submit monitoring plans for certain emission units with a Title V application. The CAM plans are intended to document methods that will provide on-going and reasonable assurance of compliance with emission limits. Pursuant to §64.2(a), the CAM regulations apply to a pollutant-specific emissions unit (PSEU), as defined in §64.1, at a major Title V source if the following criteria are met:

1. the PSEU is subject to an emission limitation or standard for the regulated pollutant, other than an emission limitation or standard that is exempt under §64.2(b),

2. the PSEU uses a control device as defined in §64.1 to achieve compliance with the emission limitation, and
3. the PSEU has potential pre-controlled emissions of the applicable regulated air pollutant that are equal to or greater than Title V major source thresholds.

An analysis of applicability to CAM for each unit that is subject to an emission limitation or standard at the Black River Plant is provided in this section. Emission units not subject to any emission standards, which are therefore not addressed herein, include the fugitive emission sources in the limestone processing area, which are only subject to 401 KAR 63:010. This regulation does not prescribe any unit-specific emission standards, only general work practices.

4.5.1.1 Rotary Kilns

All five rotary kilns at the Black River Plant are subject to PM emission standards. Each kiln is equipped with a dedicated baghouse which is used to achieve compliance with these PM emission limits and pre-controlled emissions exceed 100 tpy. However, CAM requirements do not apply to emission limits proposed by EPA after November 15, 1990, pursuant to Section 111 or 112 of the Clean Air Act.¹⁰ The lowest applicable PM emission limit applicable to the kilns is from 40 CFR 63 Subpart AAAAA, the NESHAP for Lime Plants. Accordingly, the rotary kilns are not subject to CAM requirements for PM.¹¹

Rotary Kilns #4 and #5 are also subject to BACT emission limits for SO₂, NO_x, and CO established as part of the 1993 PSD permit action. However, there is no control device used to achieve compliance with these emission standards. Therefore, CAM does not apply to Kiln #4 and #5 for SO₂, NO_x, or CO.

4.5.1.2 Dust Collection Systems in Lime Handling Area

Multiple dust collection systems are used to capture PM emissions generated in the material handling and transfer operations in the lime area of the plant. Most of the dust collection systems consist of ducting to pickup hoods that route captured PM emissions to a filter system for control of PM prior to discharge to the atmosphere. The various barge, railcar, and truck loadout stations also use filter systems on the loading chutes to control PM emissions. These dust collection systems are within emission groupings LM01–Lime Dust Collection Systems (PSD), LM03–Lime Storage to Hydrate, LM04–Lime Dust Collection System (non-PSD), and LM06–Reject Lime Processing. Dust collection systems under LM01 are subject to PM emission standards established as part of the 1993 PSD permit action, as well as 401 KAR 59:010. Dust collection systems under LM03, LM04 (with the exception of 36 02), and LM06 are subject to process weight based PM standards under 401 KAR 59:010 only.

While the post-controlled PM emission rates for all the lime handling dust collection systems are less than 100 tpy, based on the mass emission rates at the exit of the dust collection systems and the nominal control efficiencies the baghouses would be expected to achieve, it is reasonable to assume that potential pre-controlled emissions exceed 100 tpy.¹² Therefore, pursuant to 40 CFR 64.2(a), because the fabric filters are used to achieve compliance with PM emission limits, CAM applies to these emission units for PM. A CAM plan

¹⁰ 40 CFR 64.2(b)(1)(i).

¹¹ Although Kilns #1, #2, and #3 are also subject to PM emission standards under 401 KAR 61:020, the NESHAP Subpart AAAAA PM limit is more stringent and subsumes these SIP-based PM standards.

¹² Based on the low exhaust flow and intermittent operation of certain dust collection systems (e.g., at the barge, rail, and truck loadout stations), their pre-controlled emissions may be less than 100 tpy of PM, in which case CAM would not be applicable. However, in the absence of specific data available to accurately define the inlet loading concentrations to the baghouses, a conservative presumption has been made that they are all subject to CAM.

for PM that can be applied for all the dust collection systems was prepared and submitted with the 2012 Title V permit renewal application and there have been no changes since that warrant a revision.

4.5.1.3 Bin Vent Filters and Dust Collection Systems in Hydrate Area

The hydrator feed bins and hydrate product storage bins, which are subject to process weight based PM emission standards under 401 KAR 59:010, are equipped with bin vent filter systems to minimize the amount of PM released with displacement air. These bin vent filter systems may or may not be classified as air pollution control equipment under CAM since they are integrated components of the storage bins. Regardless, the post-controlled emissions from each of the bin vent filter system are low and it is reasonable to presume based on feasible operating times and nominal control efficiencies provided by the filter systems that pre-controlled emissions are less than 100 tpy. Thus, CAM does not apply to the bin vent filter systems in the hydrate area.

Similar to the lime handling area, the truck and railcar loadout stations for the hydrate plant employ fabric filter to control PM emissions. The estimated pre-controlled emissions from each of these operations however are less than 100 tpy. The pre-controlled emissions from the other point sources in the hydrate area equipped with dust collectors are also less than 100 tpy. Thus, CAM does not apply to the dust collection systems in the hydrate area.

4.5.1.4 Hydrator/Scrubber System in Hydrate Area

The hydrator/scrubber system (21-12 in emission group HY01) is a small source of PM emissions that is entrained in the steam plume released from the hydrator. The steam is produced from heat generated in the exothermic reaction caused by the mixing of lime and water in the hydrator unit. A water scrubber inherent to the hydrator unit is used to introduce water to the process and cool the steam. Indirectly, the hydrator scrubber provides incidental control of PM entrained in the steam. However, because the hydrator scrubber is an inherent part of the hydration process, it would not be classified as an air pollution control device under CAM. Therefore, CAM does not apply to this emission unit.

4.5.1.5 Stationary Internal Combustion Engines

None of the stationary engines at the facility use a control device to achieve compliance with an applicable standard. In addition, the emission standards applicable under NSPS Subpart IIII and NSPS Subpart JJJJ are exempt from CAM pursuant to 40 CFR 64.2(b)(1)(i) and , since this regulation was promulgated after November 15, 1990. Therefore, CAM does not apply to the stationary engines.

4.5.2 CAM Plan Submittal Timeframe

All the dust collection systems in the lime handling area for which CAM requirements apply (for PM) are small pollutant-specific emission units since post-controlled PM emissions for each filter system are less than 100 tpy. Pursuant to §64.5(b), the initial proposed CAM plans are due to be submitted as part of the application for renewal of a Title V permit. However, the required CAM Plan was developed and submitted with the prior Title V renewal application and there have been no changes since that warrant an update or revision. The CAM Plan requirements for the lime handling operations are already incorporated into the current Title V permit.

APPENDIX A. DEP7007AI FORM

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007AI

Administrative Information

- ☐ Section AI.1: Source Information
☐ Section AI.2: Applicant Information
☐ Section AI.3: Owner Information
☐ Section AI.4: Type of Application
☐ Section AI.5: Other Required Information
☐ Section AI.6: Signature Block
☐ Section AI.7: Notes, Comments, and Explanations

Additional Documentation

☐ Additional Documentation attached

Source Name: Carmeuse Lime & Stone, Inc.

KY EIS (AFS) #: 21-191-00002

Permit #: V-19-011

Agency Interest (AI) ID: 3400

Date: May 2025

Section AI.1: Source Information

Physical Location	Street:	<u>9043 Highway 154</u>		
Address:	City:	<u>Butler</u>	County:	<u>Pendleton</u>
	Street or			
Mailing Address:	P.O. Box:	<u>9043 Highway 154</u>		
	City:	<u>Butler</u>	State:	<u>KY</u>
			Zip Code:	<u>41006</u>

Standard Coordinates for Source Physical Location

Longitude: -84.2407 (decimal degrees)
 Latitude: 38.8371 (decimal degrees)

Primary (NAICS) Category: Lime Manufacturing
 Primary NAICS #: 327410

Classification (SIC) Category:

Lime

Primary SIC #:

3274

Briefly discuss the type of business conducted at this site:

The Black River Plant manufactures high calcium lime through the calcination of limestone. The core process operations are mining raw limestone; preparing limestone by crushing and sizing; calcining limestone in kilns; and transfer, storage and loadout of lime and limestone. A portion of the lime is also conveyed to a hydrate plant at the site to produce hydrated lime products.

Description of Area Surrounding Source:

☒ Rural Area☐ Industrial Park☐ Residential Area

Is any part of the source located on federal land?

☐ Yes☒ No

Number of Employees:

~200☐ Urban Area☐ Industrial Area☐ Commercial Area

Approximate distance to nearest residence or commercial property:

< 0.5 miles

Property Area:

1,200 Acres (Surface)Is this source portable? ☐ Yes ☒ No

What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?

NPDES/KPDES:

☒ Currently Hold☐ Need☐ N/A

Solid Waste:

☐ Currently Hold☐ Need☒ N/A

RCRA:

☐ Currently Hold☐ Need☒ N/A

UST:

☐ Currently Hold☐ Need☒ N/A

Type of Regulated Waste Activity:

☐ Mixed Waste Generator☐ Generator☐ Recycler☐ Other: _____☐ U.S. Importer of Hazardous Waste☐ Transporter☐ Treatment/Storage/Disposal Facility☒ N/A

Section AI.2: Applicant Information**Applicant Name:** Carmeuse Lime & Stone, Inc.**Title:** (if individual) N/A**Mailing Address:** Street or P.O. Box: 9043 Highway 154
City: Butler State: KY Zip Code: 41006**Email:** (if individual) N/A**Phone:** (859) 472-8100**Technical Contact****Name:** Ryan Hopkins**Title:** Area Environmental Manager**Mailing Address:** Street or P.O. Box: 9043 Highway 154
City: Butler State: KY Zip Code: 41006**Email:** Ryan.Hopkins@carmeuse.com**Phone:** (859) 472-8100**Air Permit Contact for Source****Name:** Ryan Hopkins**Title:** Area Environmental Manager**Mailing Address:** Street or P.O. Box: 9043 Highway 154
City: Butler State: KY Zip Code: 41006**Email:** Ryan.Hopkins@carmeuse.com**Phone:** (859) 472-8100

Section AI.3: Owner Information

☒ Owner same as applicant

Name:

Title:

Mailing Address:

Email:

Phone:

Street or P.O. Box:

City:

State:

Zip Code:

List names of owners and officers of the company who have an interest in the company of 5% or more.

Name	Position

Section AI.4: Type of Application

Current Status:	☒ Title V	☐ Conditional Major	☐ State-Origin	☐ General Permit	☐ Registration	☐ None
	☐ Name Change	☐ Initial Registration	☐ Significant Revision	☐ Administrative Permit Amendment		
Requested Action:	☒ Renewal Permit	☐ Revised Registration	☐ Minor Revision	☐ Initial Source-wide Operating Permit		
<i>(check all that apply)</i>	☐ 502(b)(10) Change	☐ Extension Request	☐ Addition of New Facility	☐ Portable Plant Relocation Notice		
	☐ Revision	☐ Off Permit Change	☐ Landfill Alternate Compliance Submittal	☐ Modification of Existing Facilities		
	☐ Ownership Change	☐ Closure				
Requested Status:	☒ Title V	☐ Conditional Major	☐ State-Origin	☐ PSD	☐ NSR	☐ Other: _____

Is the source requesting a limitation of potential emissions?

☐ Yes ☒ No

Pollutant:

Requested Limit:

Pollutant:

Requested Limit:

☐ Particulate Matter

☐ Single HAP

☐ Volatile Organic Compounds (VOC)

☐ Combined HAPs

☐ Carbon Monoxide

☐ Air Toxics (40 CFR 68, Subpart F)

☐ Nitrogen Oxides

☐ Carbon Dioxide

☐ Sulfur Dioxide

☐ Greenhouse Gases (GHG)

☐ Lead

☐ Other

For New Construction:

Proposed Start Date of Construction:

(MM/YYYY)

N/A

Proposed Operation Start-Up Date: *(MM/YYYY)*

N/A

For Modifications:

Proposed Start Date of Modification:

(MM/YYYY)

N/A

Proposed Operation Start-Up Date: *(MM/YYYY)*

N/A

Applicant is seeking coverage under a permit shield.

☒ Yes ☐ No

Identify any non-applicable requirements for which permit shield is sought on a separate attachment to the application.

Section AI.5 Other Required Information

Indicate the documents attached as part of this application:

- | | |
|--|--|
| ☐ DEP7007A Indirect Heat Exchangers and Turbines | ☐ DEP7007CC Compliance Certification |
| ☐ DEP7007B Manufacturing or Processing Operations | ☐ DEP7007DD Insignificant Activities |
| ☐ DEP7007C Incinerators and Waste Burners | ☐ DEP7007EE Internal Combustion Engines |
| ☐ DEP7007F Episode Standby Plan | ☐ DEP7007FF Secondary Aluminum Processing |
| ☐ DEP7007J Volatile Liquid Storage | ☐ DEP7007GG Control Equipment |
| ☐ DEP7007K Surface Coating or Printing Operations | ☐ DEP7007HH Haul Roads |
| ☐ DEP7007L Mineral Processes | ☐ Confidentiality Claim |
| ☐ DEP7007M Metal Cleaning Degreasers | ☐ Ownership Change Form |
| ☐ DEP7007N Source Emissions Profile | ☐ Secretary of State Certificate |
| ☐ DEP7007P Perchloroethylene Dry Cleaning Systems | ☐ Flowcharts or diagrams depicting process |
| ☐ DEP7007R Emission Offset Credit | ☐ Digital Line Graphs (DLG) files of buildings, roads, etc. |
| ☐ DEP7007S Service Stations | ☐ Site Map |
| ☐ DEP7007T Metal Plating and Surface Treatment Operations | ☐ Map or drawing depicting location of facility |
| ☐ DEP7007V Applicable Requirements and Compliance Activities | ☐ Safety Data Sheet (SDS) |
| ☐ DEP7007Y Good Engineering Practice and Stack Height Determination | ☐ Emergency Response Plan |
| ☐ DEP7007AA Compliance Schedule for Non-complying Emission Units | ☒ Other: <u>Suggested Permit Revisions</u> |
| ☐ DEP7007BB Certified Progress Report | |

Section AI.6: Signature Block

I, the undersigned, hereby certify under penalty of law, that I am a responsible official*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.



Authorized Signature

5/13/2025

Date

Michael Klenda

Type or Printed Name of Signatory

Site Operations Manager

Title of Signatory

*Responsible official as defined by 401 KAR 52:001.

Section AI.7: Notes, Comments, and Explanations

APPENDIX B. SUGGESTED TITLE V PERMIT REVISIONS

LM04 – Lime Dust Collection Systems (Non-PSD): Dust Collection Systems

EP	Name	Capacity (tons/hr)	Construction Date	Control Device
32 09	63-400 Dust Collection System for Kiln 1 & 2 Dust Bin and Transfers	46.5	1/1/2011	N/A
32 10	63-264 Dust Collection System for Kiln 1 & 2 Dust Bin and Transfers	46.5	1/1/1970	
32 13	63-271 Dust Collection System for Kiln 1 & 2 Dust Bin Loading Spout	80	1/1/2004	
32 14	63-272 Dust Collection System for Kiln 3 Dust Bin Loading Spout	80		
32 15	63-354 Dust Collection System for Kiln 3 Dust Bin and Transfers	48		
32 16	89-848 Dust Collection System for Lime Transfers	144	1/1/2015	
36 02	Transloading Operation Dust Collection System	300	11/2020	N/A

Commented [A1]: Refer to November 2020 Section 502(b)(10) Notification for Transloading Operation.

LM04 – Lime Dust Collection Systems (Non-PSD): Loading Spouts

EP	Name	Capacity (tons/hr)	Construction Date	Control Device
32 11	63-261LS Kiln 1 & 2 Dust Bin Loading Spout	80	1/1/1970	63-271 Dust Collection System (EP 32 13)
32 12	63-261LS Kiln 1 & 2 Dust Bin Loading Spout	80	1/1/1974	63-272 Dust Collection System (EP 32 14)
<u>36 01</u>	<u>Transloading Operation Loading Spout</u>	<u>300</u>	<u>11/2020</u>	<u>Dust Collection[†] System</u>

Commented [A2]: Refer to November 2020 Section 502(b)(10) Notification for Transloading Operation.

APPLICABLE REGULATIONS:

401 KAR 59:010, New process operations (EP 32 09, 32 13, 32 14, 32 15, ~~and~~ 32 16, and 36 02)

401 KAR 61:020, Existing process operations (EP 32 10)

401 KAR 63:010, Fugitive emissions (EP 32 11, ~~and~~ 32 12, and 36 01)

40 CFR 64, Compliance Assurance Monitoring (CAM) for particulate matter

1. Operating Limitations:

- a. A person shall not cause, suffer, or allow any material to be handled, processed, transported, or stored; a building or its appurtenances to be constructed, altered, repaired, or demolished; or a road to be used without taking reasonable precaution to prevent particulate matter from becoming airborne. Reasonable precautions shall include, as applicable: [401 KAR 63:010, Section 3(1)]
 - 1) Use, if possible, of water or suitable chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land; [401 KAR 63:010, Section 3(1)(a)]

- 2) Application and maintenance of asphalt, oil, water, or suitable chemicals on roads, materials stockpiles, and other surfaces which can create airborne dusts; [401 KAR 63:010, Section 3(1)(b)]
 - 3) Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, or the use of water sprays or other measures to suppress the dust emissions during handling. Adequate containment methods shall be employed during sandblasting or other similar operations. [401 KAR 63:010, Section 3(1)(c)]
 - 4) Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne; [401 KAR 63:010, Section 3(1)(d)]
 - 5) The maintenance of paved roadways in a clean condition; or [401 KAR 63:010, Section 3(1)(e)]
 - 6) The prompt removal of earth or other material from a paved street to which earth or other material has been transported by trucking or earth moving equipment or erosion by water. [401 KAR 63:010, Section 3(1)(f)]
- b. If dust, fumes, gases, mist, odorous matter, vapors, or any combination thereof escape from a building or equipment in such a manner and amount as to cause a nuisance or to violate any administrative regulation, the secretary may, based on the cause, type, or amount of a fugitive emission, order that the building or equipment in which processing, handling and storage are done be tightly closed and ventilated in such a way that all air and gases and air or gas borne material leaving the building or equipment are treated by removal or destruction of air contaminants before discharge to the open air. [401 KAR 63:010, Section 3(3)]
- c. At all times while in motion, open bodied trucks, operating outside company property, transporting materials likely to become airborne shall be covered. [401 KAR 63:010, Section 4(1)]
- d. A person shall not cause, suffer, or allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. [401 KAR 63:010, Section 4(3)]

2. Emission Limitations:

- a. A person shall not cause, suffer, or allow visible fugitive dust emissions beyond the lot line of the property on which the emissions originate, as determined by U.S. EPA Reference Method 22 of Appendix A in 40 C.F.R. Part 60, for: [401 KAR 63:010, Section 3(2)]
- 1) More than five (5) minutes of emission time during any sixty (60) minute observation period; or [401 KAR 63:010, Section 3(2)(a)]
 - 2) More than twenty (20) minutes of emission time during any twenty-four (24) hour period. [401 KAR 63:010, Section 3(2)(b)]

Compliance Demonstration Method

Compliance shall be demonstrated with **1. Operating Limitations.**

- b. For emissions from the Dust Collection Systems (**EP 32 09, 32 13, 32 14, 32 15, ~~and 32 16, and 36 02~~**) the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 59:010, Appendix A:
[401 KAR 59:010, Section 3(2)]
- 1) For $P \leq 0.5$ ton/hr: $E = 2.34$

- 2) For P from 0.5 ton/hr to 30 ton/hr: $E = 3.59P^{0.62}$
3) For P > 30 ton/hr: $E = 17.31P^{0.16}$

Where:

E = rate of emission in lb/hr and;

P = process weight rate in tons/hr

- c. No person shall cause, suffer, allow or permit any continuous emission into the open air from the Dust Collection Systems (EP 32 09, 32 13, 32 14, 32 15, ~~and 32 16,~~ and 36 02) which is equal to or greater than twenty (20) percent opacity. [401 KAR 59:010, Section 3(1)(a)]

Compliance Demonstration Method:

The filter systems of the Dust Collection Systems listed above are assumed to be in compliance with the PM emission limits and opacity limits when they are operating and properly maintained.

- d. For emissions from Dust Collection System EP 32 10 the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 61:020, Appendix A [401 KAR 61:020, Section 3(2)(a)]
- 1) For P ≤ 0.5 ton/hr: $E = 2.58$
2) For P from 0.5 ton/hr to 30 ton/hr: $E = 4.10P^{0.67}$
3) For P > 30 ton/hr: $E = 55.0P^{0.11-40}$

Where:

E = rate of emission in lb/hr and;

P = process weight rate in tons/hr

- e. No person shall cause, suffer, allow or permit any continuous emission into the open air from Dust Collection System EP 32 10 and Loading Spouts EP 32 11 and 32 12 which is equal to or greater than forty (40) percent opacity. [401 KAR 61:020, Section 3(1)(a)]

Compliance Demonstration Method:

The filter systems of the Dust Collection Systems and the systems associated with the Loading Spouts listed above are assumed to be in compliance with the PM emission limits and opacity limits when they are operating and properly maintained.

3. Testing Requirements:

Testing shall be conducted at such times as may be requested by the Cabinet. [401 KAR 50:045, Section 1]

4. Specific Monitoring Requirements:

- a. Monitor the overall process rate (tons/hour) for the Kiln 1, 2 & 3 Dust Bin and Transfers and the Transloading Operation, as defined by total mass of material loaded out to trucks ~~from the dust bins~~ on a monthly basis. [401 KAR 52:020, Section 10]
- b. Comply with the requirements specified below for the listed dust collections systems (except 36 02) to meet applicable particulate matter Compliance Assurance Monitoring requirements. [40 CFR 64]

	Differential Pressure:	Visible Emissions:
Indicator:	Measurement of the resistance of flow across the fabric filter as the gas passes through the filter and filter cake.	Opacity of emissions are related to the size and concentration of particles in the exhaust gas.
Measurement Approach:	Personnel will monitor the differential pressure across the fabric filter. Alternatively, the permittee may install, calibrate, maintain and operate a monitoring device to continuously monitor the differential pressure across the fabric filter.	A qualitative visual observation (QVO) is conducted daily by knowledgeable observers.
Indicator Range:	While the unit is operating, the indicator ranges are: 32 09: 1.5" to 7.5" 32 10: 1.0" to 7.0" 32 13: 1.5" to 9.0" 32 14: 1.5" to 9.0" 32 15: 1.0" to 7.0" 32 16: 1.5" to 10.5"	While operating, a daily QVO will be complete. Presence of visible emissions will trigger an immediate determination of opacity using U.S. EPA Reference Method 9
Excursion defined:	An excursion is defined as a manually recorded differential pressure reading outside the indicator range.	An excursion is defined as visible emissions equal to or greater than 20 percent opacity for any fifteen (15) second interval using the procedures of U.S. EPA Reference Method 9.
Excursion Follow-up:	Following an excursion, the permittee shall conduct a physical inspection of the fabric filter to determine and immediately correct any revealed performance issues.	Following an excursion, the permittee will implement corrective measures. Any maintenance and repairs will be performed on the control device to restore the dust collection systems to operate consistent with good engineering practices.
QA/QC Procedures:	Differential pressure across the fabric filter is read using a manometer or similar type gauge. If necessary, the gauge shall be recalibrated to zero when the dust collection system is shut down for maintenance.	The person responsible for making QVO and Reference U.S. EPA Reference Method 9 observations will be certified in accordance with U.S. EPA Reference Method 9.
Monitoring Frequency:	Personnel will monitor the differential pressure across the fabric filter once per shift and at least once every twelve hours of operation, except when not in operation.	Daily

	Differential Pressure:	Visible Emissions:
Data Collection Procedures:	The source data from each monitoring device shall record a data point every minute from each control device during operation. The 15-minute average will not include periods of startup or shutdown.	Daily QVOs shall be maintained and shall include the time and date of the assessment, an indication of any visible emissions and the name of the person conducting the QVO.

- c. For emission points 32 11, ~~and 32 12~~, and 36 01, at least once per day prior to loading trucks (if trucks are loaded any time that day), the person(s) responsible for the loading operations shall inspect and document that the curtains are present, the loading sock has no holes or tears, and the dust collection system is operational. If the curtain is damaged, loading shall be delayed until the curtain is repaired or temporary measures to control emission are taken. On days when a truck loadout system is not operated, no inspection is required. [401 KAR 52:020, Section 10]

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain a record of the following for the visual observations required by 4. Specific Monitoring Requirements b.: [40 CFR Part 64, 401 KAR 52:020, Section 10]
 - 1) Result of the daily visual observations;
 - 2) Date (mm/dd/yyyy) and time of the observation made;
 - 3) Initials of the observer;
 - 4) Standing position in location to the emission point;
 - 5) Weather conditions;
 - 6) Any emissions observed (yes/no);
 - 7) The suspected or known cause of any visible emissions observed;
 - 8) Any U.S. EPA Reference Method 9 readings taken; and
 - 9) Corrective actions (if any) including results due to observed emissions.
- b. Maintain records of inspections of loadout curtains, loading socks, and dust collection systems indicating for each the date and time, name of inspector, a description of any repairs needed and the date when such repairs were completed. [401 KAR 52:020, Section 10]
- c. Maintain records of the differential pressure readings on the dust collection systems. Records shall, at a minimum include the date and time of the reading, the data collection method, the differential pressure range, the reading value, and, for direct observations, the person collecting the reading. Records shall also include information on any corrective actions taken when readings outside the appropriate range are recorded. [40 CFR Part 64, 401 KAR 52:020, Section 10]
- d. Maintain records of all routine and non-routine maintenance activities performed on the dust collection systems. These records shall include, at a minimum, the date, the name(s) of the person or organization performing the maintenance, and a description of the maintenance completed. [401 KAR 52:020, Section 10]

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- e. Maintain records of the mass of material loaded out to trucks ~~from the dust bins~~ (tons/month) for the Kiln 1, 2 & 3 Dust Bin and Transfers and Transloading Operation on a monthly basis. [401 KAR 52:020, Section 10]

6. Specific Reporting Requirements:

Refer to **Section F** – Monitoring, Recordkeeping, and Reporting Requirements.

7. Specific Control Equipment Operating Conditions:

- a. The Dust Collection Systems shall be operated to maintain compliance with permitted emission limitations, consistent with good engineering practices. [401 KAR 50:055, Section 2]
- b. Records regarding the maintenance of the Dust Collection Systems shall be maintained. [401 KAR 52:020, Section 10]

EP	Name	Capacity (Acres/hr)	Construction Date	Control Device
32 01	Reject Lime Stockpile	0.10	1/1/2007	Wet Suppression
32 02	Reject Lime Stockpile (Reject Bunker)	0.10		
32 03	Reject Lime Stockpile (South of Hydrate Plant)	0.10		
32 04	Reject Lime Stockpile (South of Kiln #5)	0.10		
32 18	Reject Lime Stockpile (North of Hydrate Plant)	0.11	12/2021	Wet Suppression
32 17	Reject Landfill	8.0	10/2024	Wet Suppression

Commented [A3]: Refer to December 2021 Section 502(b)(10) Change Notification for Reject Lime Pile and Temporary Specialty Lime Operation.

Commented [A4]: Refer to October 2024 Section 502(b)(10) Change Notification for Reject Landfill.

APPLICABLE REGULATIONS:

401 KAR 63:010, Fugitive emissions

1. Operating Limitations:

- a. A person shall not cause, suffer, or allow any material to be handled, processed, transported, or stored; a building or its appurtenances to be constructed, altered, repaired, or demolished; or a road to be used without taking reasonable precaution to prevent particulate matter from becoming airborne. Reasonable precautions shall include, as applicable: [401 KAR 63:010, Section 3(1)]
 - 1) Use, if possible, of water or suitable chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land; [401 KAR 63:010, Section 3(1)(a)]
 - 2) Application and maintenance of asphalt, oil, water, or suitable chemicals on roads, materials stockpiles, and other surfaces which can create airborne dusts; [401 KAR 63:010, Section 3(1)(b)]
 - 3) Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, or the use of water sprays or other measures to suppress the dust emissions during handling. Adequate containment methods shall be employed during sandblasting or other similar operations. [401 KAR 63:010, Section 3(1)(c)]
 - 4) Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne; [401 KAR 63:010, Section 3(1)(d)]
 - 5) The maintenance of paved roadways in a clean condition; or [401 KAR 63:010, Section 3(1)(e)]
 - 6) The prompt removal of earth or other material from a paved street which earth or other material has been transported by trucking or earth moving equipment or erosion by water. [401 KAR 63:010, Section 3(1)(f)]
- b. If dust, fumes, gases, mist, odorous matter, vapors, or any combination thereof escape from a building or equipment in such a manner and amount as to cause a nuisance or to violate any administrative regulation, the secretary may, based on the cause, type, or amount of a fugitive emission, order that the building or equipment in which processing, handling and storage are done be tightly closed and ventilated in such a way that all air and gases and air or gas borne material leaving the building or equipment are treated by removal or destruction of air contaminants before discharge to the open air. [401 KAR 63:010, Section 3(3)]

- c. At all times while in motion, open bodied trucks, operating outside company property, transporting materials likely to become airborne shall be covered. [401 KAR 63:010, Section 4(1)]
- d. A person shall not cause, suffer, or allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. [401 KAR 63:010, Section 4(3)]

2. Emission Limitations:

A person shall not cause, suffer, or allow visible fugitive dust emissions beyond the lot line of the property on which the emissions originate, as determined by U.S. EPA Reference Method 22 of Appendix A in 40 C.F.R. Part 60, for: [401 KAR 63:010, Section 3(2)]

- a. More than five (5) minutes of emission time during any sixty (60) minute observation period; or [401 KAR 63:010, Section 3(2)(a)]
- b. More than twenty (20) minutes of emission time during any twenty-four (24) hour period. [401 KAR 63:010, Section 3(2)(b)]

Compliance Demonstration Method

Compliance shall be demonstrated with **1. Operating Limitations.**

3. Testing Requirements:

Testing shall be conducted at such times as may be requested by the Cabinet. [401 KAR 50:045, Section 1]

4. Specific Monitoring Requirements:

- a. Inspect each stockpile and conduct visual observations at least once per week. If the stockpile is determined to have the potential to generate fugitive emissions (e.g. stockpiles are very dry, with no crust and wind speed is substantial enough to disturb the material) or visible emissions observed, take preventative actions to mitigate the potential for fugitive emissions (e.g. misting the stockpile) and conduct a follow-up visual observation. [401 KAR 52:020, Section 10]
- b. If fugitive dust emissions beyond the lot line of the property are observed, the permittee shall conduct U.S. EPA Reference Method 22 (visual determination of fugitive emissions) observations per Appendix A of 40 C.F.R. Part 60. In lieu of conducting U.S. EPA Reference Method 22, the permittee shall immediately perform a corrective action which results in no visible fugitive dust emissions beyond the lot line of the property. [401 KAR 52:020, Section 10]

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain a record of the following for the visual observations required by **4. Specific Monitoring Requirements.**: [401 KAR 52:020, Section 10]
 - 1) Date (mm/dd/yyyy) and time of the observation made;
 - 2) Initials of the observer;
 - 3) Standing position in location to the emission point;
 - 4) Weather conditions;

- 5) Any emissions observed (yes/no);
- 6) The suspected or known cause of any visible emissions observed;
- 7) Any U.S. EPA Reference Method 22 readings taken; and
- 8) Corrective actions (if any) including results due to observed emissions.

6. Specific Reporting Requirements:

- a. When a change in the location of one of the reject lime stockpiles is necessary, notify the Division's Central Office and Florence Regional Office in writing indicating the new location and date when the change will occur.
- b. Refer to **Section F** – Monitoring, Recordkeeping, and Reporting Requirements.

7. Specific Control Equipment Operating Conditions:

Wet suppression shall be applied when applicable, to ensure that reject lime material being stockpiled is sufficiently moist to control fugitive emissions. [401 KAR 50:055, Section 2]

HY02 – Hydration Bins to Loadout: Dust Collection Systems

EP	Name	Capacity (tons/hr)	Construction Date	Control Device
21 23	90-215 Dust Collection System for #3 Product Bin Truck Loadout	100	1/1/1980	N/A
21 31	90-170 Dust Collection System for #1 & #2 Product Bin Truck Loadout	100		
21 35	90-303 Dust Collection System for Hydrate Reject Loadout	100		
22 09	91-209 Dust Collection System for Hydrate Bagging Operation	100	1/1/2002	
27 02	90-221 Dust Collection System for 90-221LS Railcar Loadout	100		
<u>21 37</u>	<u>Dust Collection System for Pulverized Lime Railcar Loadout</u>	<u>100</u>	<u>3/2020</u>	<u>N/A</u>

Commented [A5]: Refer to March 2020 Minor Revision Application for New Pulverized Lime Railcar Loadout.

HY02 – Hydration Bins to Loadout: Storage Bin Vent Filter Systems

EP	Name	Capacity (tons/hr)	Construction Date	Control Device
21 32	90-139A Bin Vent Collector on 90-222 (#3 Product Storage Bin)	30	1/1/1980	N/A
21 33	90-139B Bin Vent Collector on 90-223 (#2 Product Storage Bin)	30		
21 34	90-139C Bin Vent Collector on 90-224 (#1 Product Storage Bin)	30		

APPLICABLE REGULATIONS:**401 KAR 59:010, New process operations****1. Operating Limitations:**

Not Applicable

2. Emission Limitations:

- a. For emissions from the Bin Vent and Dust Collection Systems, the permittee shall not cause, suffer, allow or permit the emission into the open air of particulate matter from any affected facility which is in excess of the quantity specified in 401 KAR 59:010, Appendix A: [401 KAR 59:010, Section 3(2)]

- 1) For $P \leq 0.5$ ton/hr: $E = 2.34$
- 2) For P from 0.5 ton/hr to 30 ton/hr: $E = 3.59P^{0.62}$
- 3) For $P > 30$ ton/hr: $E = 17.31P^{0.16}$

Where:

E = rate of emission in lb/hr and;

P = process weight rate in tons/hr

- b. No person shall cause, suffer, allow or permit any continuous emission into the open air from the Bin Vent and Dust Collection Systems which is equal to or greater than twenty (20) percent opacity. [401 KAR 59:010, Section 3(1)(a)]

Compliance Demonstration Method:

The filter systems of the Bin Vent and Dust Collection Systems listed above are assumed to be in compliance with the PM emission limits and opacity limits when they are operating and properly maintained.

3. Testing Requirements:

Testing shall be conducted at such times as may be requested by the Cabinet. [401 KAR 50:045, Section 1]

4. Specific Monitoring Requirements:

- a. The permittee shall perform a qualitative visual observation of the opacity of emissions of the stack of the Bin Vent and Dust Collection Systems no less frequently than weekly while the affected facility is operating. If visible emissions from the stack are observed (not including condensed water in the plume), then the permittee shall determine the opacity using U.S. EPA Reference Method 9. In lieu of determining the opacity using U.S. EPA Reference Method 9, the permittee shall immediately perform a corrective action which results in no visible emissions (not including condensed water in the plume). [401 KAR 52:020, Section 10]
- b. Monitor the material received and processed (tons/month) on a monthly basis. [401 KAR 52:020, Section 10]

5. Specific Recordkeeping Requirements:

- a. The permittee shall maintain a record of the following for the visual observations required by **4. Specific Monitoring Requirements a.:** [40 CFR Part 64, 401 KAR 52:020, Section 10]
 - 1) Date (mm/dd/yyyy) and time of the observation made;
 - 2) Initials of the observer;
 - 3) Standing position in location to the emission point;
 - 4) Weather conditions;
 - 5) Any emissions observed (yes/no);
 - 6) The suspected or known cause of any visible emissions observed;
 - 7) Any U.S. EPA Reference Method 9 readings taken; and
 - 8) Corrective actions (if any) including results due to observed emissions.
- b. Maintain records of all routine and non-routine maintenance activities performed on the Bin Vent and Dust Collection Systems. These records shall include, at a minimum, the date, the name(s) of the person or organization performing the maintenance, and a description of the maintenance completed. [401 KAR 52:020, Section 10]
- c. Maintain records of the material received and processed (tons/month) on a monthly basis. [401 KAR 52:020, Section 10]

6. Specific Reporting Requirements:

Refer to **Section F** – Monitoring, Recordkeeping, and Reporting Requirements.

7. Specific Control Equipment Operating Conditions:

- a. Each dust collection system shall be operated when controlled emission points are in operation to maintain compliance with permitted emission limitations, consistent with manufacturer's specifications and good operating practices. [401 KAR 50:055, Section 2]

- ~~b. Maintain a log of routine and non routine maintenance activities performed on the dust collection systems. These records shall include, at a minimum, the date, the name(s) of the person or organization performing the maintenance, and a description of the maintenance completed. [401 KAR 52:020, Section 10]~~

Commented [A6]: This condition is duplicative of Condition B.5.b.

HY02 – Hydrate Bins to Loadout: Loadout Transfers

EP	Name	Capacity (tons/hr)	Construction Date	Control Device*
21 25	90-172 Truck Loadout	100	1/1/1980	90-170 Dust Collection System (EP 21 31)
21 27	90-124LS Reject Truck Loadout	85		90-303 Dust Collection System (EP 21 35)
21 28	90-307 Truck Loadout	100		90-215 Dust Collection System (EP 21 23)
27 01	90-221LS Railcar Loadout	100	1/1/2002	90-221 Dust Collection System (EP 27 02)
<u>21 36</u>	<u>Pulverized Lime Railcar Loadout</u>	<u>100</u>	<u>3/2020</u>	<u>Dust Collection System</u>

* The ~~90-170, 90-303, 90-215, and 90-221~~ Dust Collection Systems are included in the Section B of the permit for HY02 – Hydration Bins to Loadout: Dust Collection Systems. All applicable regulations pertaining to the dust collection systems are included in that Section B.

Commented [A7]: Refer to March 2020 Minor Revision Application for New Pulverized Lime Railcar Loadout.

APPLICABLE REGULATIONS:**401 KAR 63:010, Fugitive emissions****1. Operating Limitations:**

- a. A person shall not cause, suffer, or allow any material to be handled, processed, transported, or stored; a building or its appurtenances to be constructed, altered, repaired, or demolished; or a road to be used without taking reasonable precaution to prevent particulate matter from becoming airborne. Reasonable precautions shall include, as applicable: [401 KAR 63:010, Section 3(1)]
 - 1) Use, if possible, of water or suitable chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land; [401 KAR 63:010, Section 3(1)(a)]
 - 2) Application and maintenance of asphalt, oil, water, or suitable chemicals on roads, materials stockpiles, and other surfaces which can create airborne dusts; [401 KAR 63:010, Section 3(1)(b)]
 - 3) Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials, or the use of water sprays or other measures to suppress the dust emissions during handling. Adequate containment methods shall be employed during sandblasting or other similar operations. [401 KAR 63:010, Section 3(1)(c)]
 - 4) Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne; [401 KAR 63:010, Section 3(1)(d)]
 - 5) The maintenance of paved roadways in a clean condition; or [401 KAR 63:010, Section 3(1)(e)]
 - 6) The prompt removal of earth or other material from a paved street to which earth or other material has been transported by trucking or earth moving equipment or erosion by water. [401 KAR 63:010, Section 3(1)(f)]

- b. If dust, fumes, gases, mist, odorous matter, vapors, or any combination thereof escape from a building or equipment in such a manner and amount as to cause a nuisance or to violate any administrative regulation, the secretary may, based on the cause, type, or amount of a fugitive emission, order that the building or equipment in which processing, handling and storage are done be tightly closed and ventilated in such a way that all air and gases and air or gas borne material leaving the building or equipment are treated by removal or destruction of air contaminants before discharge to the open air. [401 KAR 63:010, Section 3(3)]
- c. At all times while in motion, open bodied trucks, operating outside company property, transporting materials likely to become airborne shall be covered. [401 KAR 63:010, Section 4(1)]
- d. A person shall not cause, suffer, or allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. [401 KAR 63:010, Section 4(3)]

2. Emission Limitations:

A person shall not cause, suffer, or allow visible fugitive dust emissions beyond the lot line of the property on which the emissions originate, as determined by U.S. EPA Reference Method 22 of Appendix A in 40 C.F.R. Part 60, for: [401 KAR 63:010, Section 3(2)]

- a. More than five (5) minutes of emission time during any sixty (60) minute observation period; or [401 KAR 63:010, Section 3(2)(a)]
- b. More than twenty (20) minutes of emission time during any twenty-four (24) hour period. [401 KAR 63:010, Section 3(2)(b)]

Compliance Demonstration Method

Compliance shall be demonstrated with **1. Operating Limitations**

3. Testing Requirements:

Testing shall be conducted at such times as may be requested by the Cabinet. [401 KAR 50:045, Section 1]

4. Specific Monitoring Requirements:

- a. Conduct visual observations weekly during daylight hours. If fugitive dust emissions are observed, the permittee shall immediately perform a corrective action which results in no visible fugitive dust emissions and conduct a follow-up visual observation. [401 KAR 52:020, Section 10]
- b. Monitor the material received and processed (tons/month) on a monthly basis. [401 KAR 52:020, Section 10]
- c. At least once per day prior to loading trucks or rail (if any are loaded any time that day), the person(s) responsible for the loading operations shall inspect and document that the curtains are present, the loading sock has no holes or tears, and the dust collection system is operational. If the curtain is damaged, loading shall be delayed until the curtain is

repaired or temporary measures to control emission are taken. On days when a loadout system is not operated, no inspection is required. [401 KAR 52:020, Section 10]

- d. If fugitive dust emissions beyond the lot line of the property are observed, the permittee shall conduct U.S. EPA Reference Method 22 (visual determination of fugitive emissions) observations per Appendix A of 40 C.F.R. Part 60. In lieu of conducting U.S. EPA Reference Method 22, the permittee shall immediately perform a corrective action which results in no visible fugitive dust emissions beyond the lot line of the property. [401 KAR 52:020, Section 10]

5. Specific Recordkeeping Requirements:

- a. Maintain records of the total amount of material loaded out by truck or rail (tons/month) on a monthly basis. [401 KAR 52:020, Section 10]
- b. The permittee shall maintain a record of the following for the visual observations required by **4. Specific Monitoring Requirements a.**: [401 KAR 52:020, Section 10]
 - 1) Date (mm/dd/yyyy) and time of the observation made;
 - 2) Initials of the observer;
 - 3) Standing position in location to the emission point;
 - 4) Weather conditions;
 - 5) Any emissions observed (yes/no);
 - 6) The suspected or known cause of any visible emissions observed;
 - 7) Any U.S. EPA Reference Method 22 readings taken; and
 - 8) Corrective actions (if any) including results due to observed emissions.

6. Specific Reporting Requirements:

Refer to **Section F** – Monitoring, Recordkeeping, and Reporting Requirements.

EN01 – Stationary Engines

EP	Name	Capacity (gal/hr)	Construction Date	Control Device
34 06	Kiln 1 Pony Motor Engine: New Holland, Model F4HFE413D*A008, 119 bhp	6.080	6/3/2015	None
34 07	Kiln 2 Pony Motor Engine: New Holland, Model F4HFE413D*A008, 119 bhp	6.080		
34 08	Kiln 3 Pony Motor Engine: New Holland, Model F4HFE413D*A008, 119 bhp	6.080		
34 09	Kiln 4 Pony Motor Engine: New Holland, Model F4HFE413D*A008, 119 bhp	6.080		
34 10	Kiln 5 Pony Motor Engine: New Holland, Model F4HFE413D*A008, 119 bhp	6.080		

APPLICABLE REGULATIONS:

401 KAR 60:005, Section 2(2)(dddd) 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

401 KAR 63:002, Section 2(4)(eeee) 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

1. Operating Limitations:

- a. The permittee must meet the requirements of 40 CFR 63, Subpart ZZZ by meeting the requirements of 40 CFR 60, Subpart IIII, for compression ignition engines. No further requirements apply under 40 CFR 63, Subpart ZZZ. [40 CFR 63.6590(c)(7)]
- b. Beginning October 1, 2010, the owner and operator of stationary CI ICE subject to 40 CFR 60, Subpart IIII, with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 1090.305 for non-road diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. [40 CFR 60.4207(b)]

Commented [A8]: Carneuse requests that the references to Subpart IIII and Subpart ZZZZ be corrected as they currently reference IIII and ZZZ.

Compliance Demonstration Method:

- 1) Refer to **4. Specific Monitoring Requirements b.** and **5. Specific Recordkeeping Requirements b.**
- 2) The permittee will comply with fuel requirements by purchasing fuel that meets the specified standards.
- c. For engines that must comply with the emissions standards specified in 40 CFR 60, Subpart IIII, the permittee must do all of the following, except as permitted under 40 CFR 60.4211(g): [40 CFR 60.4211(a)]
 - 1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions; [40 CFR 60.4211(a)(1)]
 - 2) Change only those emission-related settings that are permitted by the manufacturer; and [40 CFR 60.4211(a)(2)]
 - 3) Meet the requirements of 40 CFR part 1068, as they apply. [40 CFR 60.4211(a)(3)]

- d. If the permittee does not install, configure, operate, and maintain the engine and control device according to the manufacturer's emission-related written instructions, or the permittee changes emission-related settings in a way that is not permitted by the manufacturer, the permittee must demonstrate compliance as follows: [40 CFR 60.4211(g)]
 - 1) The permittee must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, the permittee must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after the permittee changes emission-related settings in a way that is not permitted by the manufacturer. [40 CFR 60.4211(g)(2)]
- e. If the stationary CI internal combustion engine is equipped with a diesel particulate filter to comply with the emission standards in 40 CFR 60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached. [40 CFR 60.4209(b)]

2. Emission Limitations:

- a. Owners and operators must comply with the emission standards for new CI engines in 40 CFR 60.4201, as applicable. [40 CFR 60.4204(b)]
 - 1) The engine must be certified to meet the certification emission standards for new nonroad CI engines in 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, 40 CFR 1039.115, and 40 CFR part 1039, appendix I, as applicable, for all pollutants, for the same model year and maximum engine power. [40 CFR 60.4201(a)]

Compliance Demonstration Method:

The permittee must comply by purchasing an engine certified to the emission standards in 40 CFR 60.4204(b), as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in 40 CFR 60.4211(g). [40 CFR 60.4211(c)]

- b. The permittee must operate and maintain stationary CI ICE that achieve the emission standards as required in 40 CFR 60.4204 over the entire life of the engine. [40 CFR 60.4206]

3. Testing Requirements:

Testing shall be conducted at such times as may be requested by the Cabinet. [401 KAR 50:045, Section 1]

4. Specific Monitoring Requirements:

- a. The owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in 40 CFR 60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached. [40 CFR 60.4209(b)]

- b. Monitor the amount of fuel used for the engines on a monthly basis. [401 KAR 52:020, Section 10]

5. Specific Recordkeeping Requirements:

- a. If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached. [40 CFR 60.4214(c)]
- b. Maintain records of the amount of fuel used for the engines on a monthly basis. [401 KAR 52:020, Section 10]
- c. The permittee must keep documentation from the manufacturer that the engines are certified to meet the emission standards as required in 40 CFR 60.4201(a)

6. Specific Reporting Requirements:

Refer to **Section F** – Monitoring, Recordkeeping, and Reporting Requirements.

EN02 – Stationary Emergency-Use CI Engines (NSPS Applicable)

EP	Name	Capacity (gal/hr)	Construction Date	Control Device
34 06G	Mine Escape Shaft Emergency Generator (34 06G) 166 bhp	8.482	1/1/2006	None
34 13	Slope Car Emergency Generator (Caterpillar C9 ACERT DM8168) (Diesel) (444.3 bhp)	22.70	5/13/2020	

APPLICABLE REGULATIONS:

401 KAR 60:005, Section 2(2)(dddd) 40 C.F.R. 60.4200 through 60.4219, Tables 1 through 8 (Subpart IIII), Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

401 KAR 63:002, Section 2(4)(eeee) 40 C.F.R. 63.6580 through 63.6675, Tables 1a through 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

1. Operating Limitations:

- a. The permittee must meet the requirements of 40 CFR 63, Subpart ZZZ by meeting the requirements of 40 CFR 60, Subpart III, for compression ignition engines. No further requirements apply under 40 CFR 63, Subpart ZZZ. [40 CFR 63.6590(c)(6)]
- b. Beginning October 1, 2010, the owner and operator of stationary CI ICE subject to 40 CFR 60, Subpart IIII, with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 1090.305 for non-road diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted. [40 CFR 60.4207(b)]

Commented [A9]: Carause requests that the references to Subpart IIII and Subpart ZZZZ be corrected as they currently reference III and ZZZ.

Compliance Demonstration Method:

- 1) Refer to **4. Specific Monitoring Requirements b.** and **5. Specific Recordkeeping Requirements a.**
- 2) The permittee will comply with fuel requirements by purchasing fuel that meets the specified standards.
- c. For engines that must comply with the emissions standards specified in 40 CFR 60, Subpart IIII, the permittee must do all of the following, except as permitted under 40 CFR 60.4211(g): [40 CFR 60.4211(a)]
 - 1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions; [40 CFR 60.4211(a)(1)]
 - 2) Change only those emission-related settings that are permitted by the manufacturer; and [40 CFR 60.4211(a)(2)]
 - 3) Meet the requirements of 40 CFR part 1068, as they apply. [40 CFR 60.4211(a)(3)]
- d. The permittee must operate the emergency stationary ICE according to the requirements in 40 CFR 60.4211(f)(1) through (3). In order for the engine to be considered an emergency stationary ICE under 40 CFR 60, Subpart IIII, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in nonemergency situations for 50 hours per year, as described in 40 CFR 60.4211(f)(1)

through (3) is prohibited. If the engine is not operated according to the requirements in 40 CFR 60.4211(f)(1) through (3), the engine will not be considered an emergency engine under 40 CFR 60, Subpart IIII and must meet all requirements for non-emergency engines. [40 CFR 60.4211(f)]

- 1) There is no time limit on the use of emergency stationary ICE in emergency situations. [40 CFR 60.4211(f)(1)]
- 2) The permittee may operate the emergency stationary ICE for the purpose specified in 40 CFR 60.4211(f)(2)(i) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by 40 CFR 60.4211(f)(3) counts as part of the 100 hours per calendar year allowed by 40 CFR 60.4211(f)(2). [40 CFR 60.4211(f)(2)]
 - i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year. [40 CFR 60.4211(f)(2)(i)]
- 3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in 40 CFR 60.4211 (f)(2). Except as provided in 40 CFR 60.4211(f)(3)(i), the 50 hours per calendar year for nonemergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity. [40 CFR 60.4211(f)(3)]
 - i) The 50 hours per year for nonemergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met: [40 CFR 60.4211(f)(3)(i)]
 - a) The engine is dispatched by the local balancing authority or local transmission and distribution system operator; [40 CFR 60.4211(f)(3)(i)(A)]
 - b) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region. [40 CFR 60.4211(f)(3)(i)(B)]
 - c) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines. [40 CFR 60.4211(f)(3)(i)(C)]
 - d) The power is provided only to the facility itself or to support the local transmission and distribution system. [40 CFR 60.4211(f)(3)(i)(D)]
 - e) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator. [40 CFR 60.4211(f)(3)(i)(D)]

2. Emission Limitations:

- a. For **EP 34 06G** only, nitrogen oxide emissions shall not exceed 9.2 g/KW-hr (6.9 g/HP-hr) as measured by a performance test conducted in accordance with 40 CFR 60.4212. [40 CFR 60.4205(a), Table 1]
- b. Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in 40 CFR 60.4202, for all pollutants, for the same model year and maximum engine power. [40 CFR 60.4205(b)]
- c. Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in 40 CFR 60.4205 over the entire life of the engine. [40 CFR 60.4206]

Compliance Demonstration Method:

The permittee must comply by purchasing an engine certified to the emission standards in 40 CFR 60.4204(b), as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in 40 CFR 60.4211(g). [40 CFR 60.4211(c)]

3. Testing Requirements:

- a. For **EP 34 06G** only, conduct an initial performance test according to 40 CFR 60.4212(a)-(e) to demonstrate compliance with the NO_x emission standards. [40 CFR 60.4211(b)(5)]
- b. Testing shall be conducted at such times as may be requested by the Cabinet. [401 KAR 50:045, Section 1]

4. Specific Monitoring Requirements:

- a. The permittee must install a non-resettable hour meter prior to startup of the engines. [40 CFR 60.4209(a)]
- b. Monitor the amount of fuel used for the engines on a monthly basis. [401 KAR 52:020, Section 10]

5. Specific Recordkeeping Requirements:

- a. Maintain records of the amount of fuel used for the engines on a monthly basis. [401 KAR 52:020, Section 10]
- b. The permittee must keep documentation from the manufacturer that the engines are certified to meet the emission standards as required in 40 CFR 60.4202(a)(2).

6. Specific Reporting Requirements:

- a. If the emergency stationary CI ICE operates for the purposes specified in 40 CFR 60.4211(f)(3)(i), the permittee must submit an annual report according to the requirements in 60.4214(d)(1) through (3). [40 CFR 60.4214(d)]
 - 1) The report must contain the following information: [40 CFR 60.4214(d)(1)]
 - i) Company name and address where the engine is located. [40 CFR 60.4214(d)(1)(i)]

- ii) Date of the report and beginning and ending dates of the reporting period. [40 CFR 60.4214(d)(1)(ii)]
 - iii) Engine site rating and model year. [40 CFR 60.4214(d)(1)(iii)]
 - iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place. [40 CFR 60.4214(d)(1)(iv)]
 - v) Hours spent for operation for the purposes specified in 40 CFR 60.4211(f)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in 40 CFR 60.4211(f)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine. [40 CFR 60.4214(d)(1)(vii)]
- 2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year. [40 CFR 60.4214(d)(2)]
- 3) The annual report must be submitted electronically using the 40 CFR 60, Subpart IIII specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through U.S. EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to 40 CFR 60, Subpart IIII is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in 40 CFR 60.4.
- b. Refer to **Section F** – Monitoring, Recordkeeping, and Reporting Requirements.



Carmeuse Lime & Stone – Black River Operation

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November 30, 2023

Mr. Julian Breckenridge
Minerals Section Supervisor
Kentucky Department for Environmental Protection
Division for Air Quality
300 Sower Boulevard, 2nd Floor
Frankfort, KY 40601

RE: **Minor Permit Revision Application for Burner Change in Rotary Kiln #4**
Carmeuse Lime & Stone, Inc. – Black River Plant (AI 3400)

Dear Ms. Switzer:

Carmeuse Lime & Stone, Inc. (Carmeuse) submitted a minor permit revision application on January 3, 2017 to the Kentucky Division for Air Quality (Division) to cover planned modifications to Rotary Kiln 4 and Rotary Kiln 5 at our Black River lime production plant in Pendleton County (AI 3400). Specifically, Carmeuse planned to install new multichannel burners on both kilns that would provide the ability to co-fire natural gas with coal. Although installation of the multichannel burner was completed on Kiln 5, the burner installation on Kiln 4 was delayed due to natural gas supply constraints at that time and construction authority eventually lapsed.

The Black River Plant is planning to continue the multichannel burner project for Kiln 4 soon and is submitting this permit application to authorize the installation and operation of the new burner. Additionally, Carmeuse is proposing to install one new emergency generator that will serve the Kiln #4 burner management system (BMS) as part of the project. Carmeuse has determined that the project qualifies to be addressed through a minor permit revision under 401 KAR 52:020 Section 14. Accordingly, we are hereby submitting this letter and attachments, which constitute a minor permit revision application for this project.

DESCRIPTION OF PROJECT

The Black River Plant is currently regulated under Title V Permit V-19-011, issued on November 13, 2020. This permit identifies pulverized coal and natural gas as the primary fuels for Kilns #4 and #5 at the plant, but also lists natural gas and glycerin as secondary fuels.¹ The January 2017 minor revision application authorized natural gas combustion as a primary fuel for Kilns #4 and #5. However, the multichannel burner, which provides the capability to combust natural gas, was ultimately never installed on Kiln #4 due to natural gas supply constraints at that time. Due to changing market conditions, Carmeuse has decided to move forward with the installation of the multichannel burner on Kiln #4 and the use of natural gas as a primary fuel to co-fire with coal. This modification would allow Carmeuse to increase fuel flexibility and the amount of natural gas used relative to coal if desirable based on market conditions. Co-firing with gas would reduce operating costs and emissions associated with lime manufacturing operations.

Carmeuse now plans to proceed with a project to modify Kiln #4 by installing a new multichannel burner. The new burner, to be supplied by Bridge Gap Engineering, LLC, will be capable of accommodating 100% coal, 100% natural gas, and the full range of possible coal/natural gas co-firing operations. The burner will have a nominal capacity of approximately 200 MMBtu/hr for either coal or natural gas, and a maximum thermal capacity of 245 MMBtu/hr. The new burner will have the same capacity as the existing burner on Kiln #5 and

¹ Natural gas is also identified as a startup fuel for all the kilns.

the existing 9.6 ton/hr maximum coal feed rate capacity for Kiln #4 will not change.² This project's impacts on air emissions and regulatory requirements are presented in this application along with requisite application forms necessary to accommodate the project. Suggested permit revisions pertaining to the burner change are not being included with this application because the requisite permit conditions were already incorporated into the permit in the permit action (V-14-002 R4) resulting from the January 2017 application.

The planned kiln burner change will not alter or impact Kiln #4's limestone feed rate or lime production capacity. Except for the replacement of the fuel burner component, no physical changes will be made to the kiln or to the associated stone feed system. The new burner to be installed in the kiln merely accommodates the substitution, on an equivalent heat input basis, of natural gas for coal. Following the burner change, the kiln will retain the ability to operate using 100% coal as fuel. The maximum gas substitution rate that will be achievable will be dependent on lime product quality constraints, but is expected to reach upwards of 80%. For simplicity however, no constraint on the gas substitution rate is being sought through this permit action, nor is it necessary since gas co-firing results in significant decreases for some NSR pollutants (e.g., NO_x), and insignificant increases in emissions of other NSR pollutants (i.e., VOC and CO) relative to permitting thresholds.

As the project will not change or impact Kiln #4's capacity or projected utilization rate, the project will not cause any emission increases from equipment upstream or downstream of the kilns. Thus, there are no emission impacts to consider as part of the permitting review for the burner change except those at Kiln #4. Modifications to Kiln #4's burner system (i.e., the installation of the new multi-channel burner) are expected to begin in **November 2023**.

Additionally, Carmeuse is planning to install a new BMS at the Black River plant, which will control electronics and fuel flow measurement systems associated with Rotary Kiln #4. To ensure safe operation of Kiln #4, Carmeuse has determined that the BMS must be provided continuous power even in the event of a power outage so that fuel flows can be properly managed during an unplanned shutdown event. As such, Carmeuse is planning to install a new emergency generator to serve the BMS.

Specifications for the new emergency generator engine are provided on the 7007EE form in Attachment 1. As a new stationary SI engine, the emergency engine is subject to the requirements of the New Source Performance Standards (NSPS) for Stationary Spark Ignition Internal Combustion Engines (40 CFR 60, Subpart JJJJ) and needs to be added to Section B of the Title V permit. Carmeuse presumes that the Division will add the new BMS emergency generator to the Emission Group EN03 alongside the existing BMS emergency generator (34 12). This proposed change is shown in the suggested permit revisions in Attachment 3.

AIR EMISSION IMPACTS FROM PROJECT

Rotary Kiln #4 Burner Change

In accordance with 401 KAR 51:017 Section 1(4), Carmeuse has calculated the "actual-to-projected actual" emissions changes that will result due to the planned co-firing of natural gas with coal in Kiln #4. These calculated emissions changes were used to assess the applicability of Prevention of Significant Deterioration (PSD) permitting requirements to this project, as detailed in the subsequent section of this application.

Baseline actual emissions from Kiln #4 were determined using the 100% coal emission factors calculated from the Kiln #4 July 2020 performance testing along with the Kiln #4 production rate achieved during a representative 24-month baseline period. The selected baseline period, from May 2020 to April 2022,

² At a 9.6 ton/hr maximum coal feed rate, the burner heat input capacity is met using a bituminous coal with a heating value of 12,760 Btu/lb. This coal heating value is consistent with historical averages for the coal consumed at the Black River Plant.

corresponds to 24-months of recent Kiln #4 operations and thus is representative of current market conditions. The emission factors from the July 2020 performance testing are the most recent source-specific emission factors available for Kiln #4 and are representative of the selected baseline period.

Since the kiln burner change will not impact Kiln #4's lime production capacity or utilization, the production rates associated with the selected baseline period also represent the projected future production rates. Thus, in accordance with 401 KAR 51:001 Section 1 (199), the future projected emissions were determined using the same baseline production rate for Kiln #4, but applied to the gas/coal co-fired emission factors quantified in the June 2018 performance testing of Kiln #5.

On June 5, 2018, TRC Environmental Corporation (TRC) performed stack testing on Kiln #5 at the Black River Plant to measure pollutant emissions while co-firing coal and natural gas. Tested pollutants included nitrogen oxides (NO_x), sulfur dioxide (SO₂), carbon monoxide (CO), total hydrocarbons (THC or VOC), filterable particulate matter (FPM) and condensable particulate matter (CPM). The fuel ratio measured during the test was approximately 18% coal and 82% gas on a heat input basis. Carmeuse plans to increase the fraction of natural gas co-fired with coal after installation of the proposed permanent burner systems. However, the expectation is that increasing levels of gas substitution will only further decrease Kiln #4's emissions relative to using 100% coal for most pollutants.

Given the identical design of Kiln #4 and Kiln #5, the emission factors derived from the Kiln #5 performance testing are representative of the projected post-project emissions for Kiln #4. Kilns #4 and #5 are both pre-heater type rotary kilns with the same design and capacity (17 feet in diameter and 200 feet long; 110 ton/hr stone feed capacity). They both were installed at the same time in 1995 and have the same control configuration and emission limits. Given their matching design, size, and operating characteristics, the performance test results for Kiln #5 are assumed to be representative of Kiln #4. Thus, the same emissions changes observed in Kiln #5 would be reasonably expected to occur in Kiln #4 under the gas/coal co-firing condition.

The calculated annual emissions changes resulting from the project for Kiln #4 are shown in Table 1 in units of tons per year (tpy). As shown in Table 1, emissions decrease for all regulated pollutants, with the exception of CO and VOC. These calculations are further detailed in the supporting emission calculations provided in Attachment 2.

Table 1. Kiln #4 Actual-to-Projected Actual Emissions Changes

Pollutant	Baseline Actual Emissions (tpy)	Future Projected Actual Emissions (tpy)	Kiln #4 Emissions Change (tpy)	PSD Significant Emission Rate (tpy)
NO _x	308.8	192.6	-116.2	40.0
CO	67.5	68.7	1.1	100.0
SO ₂	52.6	18.1	-34.5	40.0
VOC	9.0	15.9	6.9	40.0
PM	21.2	16.9	-4.3	40.0
PM ₁₀	21.2	16.9	-4.3	15.0
PM _{2.5}	21.2	16.9	-4.3	10.0

New BMS Emergency Generator

A small amount of emissions will result from natural gas combustion in the generator engine. Potential emissions of CO, NO_x, VOC, and CO₂ from the new engine are calculated using emission factors based on test results provided by the manufacturer on an engine's emissions data sheet.³ Other GHG emissions are calculated using emission factors from 40 CFR 98, Subpart C for natural gas combustion. Potential emissions of PM, SO₂, and Hazardous Air Pollutants (HAPs) are calculated using emission factors published in U.S. EPA's AP-42 compilation document for natural gas fired engines. These calculations, as well as the derivation of the emission factors used is provided in Attachment 2. Pursuant to NSPS Subpart JJJJ, an emergency stationary ICE may be operated for any combination of the purposes specified in paragraphs 40 CFR 60.4243(d)(2)(i) through (iii) for a maximum of 100 hours per calendar year. However, there is no limit on the number of hours an emergency engine may operate in emergency situations. Given there is no method for quantifying the typical duration of an emergency or when one might occur, EPA has established 500 hours as an appropriate default assumption for estimating the number of hours that an emergency generator is expected to operate on a worst-case basis.⁴ Therefore, the emission calculations rely on this assumption to estimate the potential emissions from the engine. In summation, the PTE of PM, PM₁₀, and PM_{2.5} is 0.0007 tpy, and the NO_x, CO, SO₂, and VOC emissions are 0.0667 tpy, 1.480 tpy, 4.21E-05 tpy, and 0.0322 tpy, respectively.

REGULATORY APPLICABILITY

Prevention of Significant Deterioration

The Black River Plant is located in Pendleton County, which is listed as unclassifiable/ attainment for all criteria pollutants. Therefore, with respect to the New Source Review (NSR) permitting program, only PSD requirements potentially could apply to the proposed project for regulated NSR pollutants such as PM, PM₁₀, PM_{2.5}, SO₂, NO_x, VOC, and CO. As an existing major PSD source, PSD permitting would only be triggered if the kiln burner change project constituted a major modification to the plant.

The U.S. EPA defines a "major modification" as:

"Any physical change in or change in the method of operation of a major stationary source that would result in:

- 1) A significant emissions increase of a regulated NSR pollutant; and*
- 2) A significant net emissions increase of that pollutant from the major stationary source..."*

To determine if the kiln burner change project results in the significant emissions increase of a regulated NSR pollutant, project emissions increases are compared to the pollutant-specific Significant Emission Rates (SERs) established under the PSD program.⁵ As shown in Table 3, with the exception of CO and VOC, co-firing natural gas with coal is expected to decrease emissions of all regulated NSR pollutants. Therefore, for those pollutants, it is implicit that PSD permitting requirements are not triggered.⁶

³ An emissions data sheet for the exact model year engine being installed was not available from the manufacturer. As such, the emission factors were taken from an emissions data sheet from the same manufacturer for a generator engine with identical fuel consumption, engine power, and emission standards.

⁴ Memo from John S. Seitz, Director (OAQPS) to EPA Regional Directors, "Calculating Potential to Emit (PTE) for Emergency Generators", September 6, 1995

⁵ 401 KAR 51:001 Section 1 (218).

⁶ Note that even though there is expected to be an actual emissions reduction, no federally enforceable emission reduction credit is being requested as the plant will retain the flexibility to fire the kilns on 100% coal.

CO and VOC emissions increases associated with co-firing natural gas in Kiln #4 are **1.1 tpy** and **6.9 tpy**, respectively as presented in Table 1. These increases fall well below the 100 tpy SER for CO and the 40 tpy SER for VOC. Even if a 100% gas substitution was achieved (which is not expected) and there was a proportionate increase in VOC as the gas substitution rate rose (which is likewise not expected), the calculated VOC emissions increase from the project would still only be 8.4 tpy. Therefore, the kiln burner project does not result in a significant emissions increase of a regulated NSR pollutant, and PSD permitting is not triggered for the project. In addition, given the low CO and VOC emissions increases relative to the SERs, no synthetic limit of CO or VOC emissions increases from the project are warranted and correspondingly, no limit on gas co-firing rates is needed. Furthermore, the emissions increases remain well below the applicable SERs after totaling the ATPA emissions from the Kiln#4 burner change and the emissions from the new BMS emergency generator.

NSPS Subpart JJJJ – Spark Ignition Reciprocating Internal Combustion Engines

New Source Performance Standard Subpart JJJJ is applicable to owners and operators of stationary spark ignition (SI) internal combustion engines (ICE) that commenced construction after June 12, 2006 and were manufactured after January 1, 2009 for emergency engines with a maximum engine power greater than 25 hp. Because the natural gas-fired emergency generator engine was ordered after June 12, 2006 and manufactured after January 1, 2009, pursuant to 40 CFR 60.4230(a)(4)(iv), the SI ICE is subject to requirements in Subpart JJJJ. As the engine meets the requirements of 40 CFR 60.4243(d), the engine is also classified as an emergency stationary ICE. Because the generator engine has a maximum engine power less than 25 bhp, pursuant to 40 CFR 60.4233(a), the engine must meet the emission requirements listed in Table 1 to 40 CFR 1054. As documented by the EPA Certificate of Conformity provided in Attachment 4, the new emergency engine is certified to meet these emission standards and will comply with applicable requirements in Subpart JJJJ. Applicable requirements under Subpart JJJJ for the new engine are detailed in the provisions of the Suggested Permit provided in Attachment 3.

NESHAP Subpart ZZZZ – Reciprocating Internal Combustion Engines

40 CFR 63 Subpart ZZZZ regulates HAPs emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. When Subpart ZZZZ was originally promulgated (June 15, 2004), the affected source was limited only to stationary RICE located at major sources of HAPs that had a capacity greater than 500 hp. However, EPA promulgated revisions to Subpart ZZZZ on January 18, 2008, that, among other changes, broadened the applicability of the rule to cover new stationary RICE with capacities less than or equal to 500 hp at a major or area source of HAPs with few exceptions. Then, on March 3, 2010, the rule was again revised to pull in existing stationary RICE of any size at both major and area HAP sources.

Since the new emergency engine was manufactured in 2023, it is classified as a new engine under Subpart ZZZZ. Pursuant to 40 CFR 63.6590(c)(6), to meet the requirements of Subpart ZZZZ, the engine must meet all applicable requirements in 40 CFR 60, Subpart JJJJ. No further requirements apply to this engine under Subpart ZZZZ.

Other Federal Source-Specific Requirements

The existing Black River Plant, including Kiln #4, is subject to various source-specific federal regulations. These include a New Source Performance Standard (NSPS) (40 CFR 60 Subpart HH), which applies to rotary lime kilns that have been installed or modified after May 3, 1977, and a National Emission Standard for Hazardous Air Pollutants (NESHAP) (40 CFR 63 Subpart AAAAA), which applies to equipment at lime manufacturing plants including rotary kilns. NSPS Subpart HH already applies to Kiln #4; therefore, the proposed project does not affect the applicability of this regulation. NESHAP Subpart AAAAA also already applies to these kilns, and since the emission limitations contained in this rule are not specific to the type of fuel combusted in a kiln, the proposed kiln burner project will not affect the applicability of this regulation.

Kentucky SIP Requirements

The proposed project does not impact currently applicable requirements under Kentucky's State Implementation Plan (SIP) and does not trigger the applicability of any new SIP requirements.

AIR PERMITTING REQUIREMENTS

Required Changes to Title V Permit

For minor permit revisions, 401 KAR 52:020 Section 14(3)(d) specifies that a modified version of the existing Title V permit with new text to reflect the proposed modification should be included with the application. Accordingly, relevant red-lined permit language proposed by Carmeuse is provided in Attachment 3.⁷

Monitoring of fuel firing rates to the kilns is already required by the permit. As noted in the prior section, no existing applicable regulatory requirements are affected by the project, nor are any new operating limits or emission limits necessitated. As emissions are generally expected to decrease with gas co-firing, the current monitoring and recordkeeping requirements for Kiln #4 in place to demonstrate compliance with existing emission limits will be sufficient to ensure continuing compliance following the execution of the proposed project.

Qualification for Treatment as a Minor Revision

This permit application seeks to authorize the use of natural gas as a primary fuel in Kiln #4 and install a new emergency BMS generator. 401 KAR 52:020 Section 14 provides procedures for existing Title V sources to obtain minor permit revisions for modifications that meet certain criteria. An analysis of these criteria for this permit action is provided as follows:

- ▲ The project does not violate any applicable requirements. The co-firing strategy will maintain compliance with all applicable emission limits. No new case-by-case emissions or operating limits are being requested or are necessary because of this permit action.
- ▲ The requested permit change does not involve significant changes to existing monitoring, reporting, or recordkeeping requirements in the permit. Because emissions are expected to decrease with gas co-firing, the current monitoring requirements for Kiln #4 are sufficient to ensure continuing compliance with the existing applicable limits.
- ▲ This permit action does not require or change a case-by-case determination of an emission limit, a source-specific determination for temporary sources, or a visibility or increment analysis. No PSD avoidance emission limits are necessary for the kiln burner change project because the actual to projected actual emissions of all regulated NSR pollutants are well below the corresponding PSD SERs.
- ▲ This permit action does not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement, and which the source has assumed to avoid an otherwise applicable requirement.
- ▲ This permit action is not a modification under Title I of the Clean Air Act as this term is defined at 401 KAR 52:001 Section 1(52). Kentucky's Title V permitting rules defines Modification under Title I of the Act as "a change at a facility that would constitute a modification under 42 USC 7470 to 7492 or 42

⁷ Only Section B of the permit for the BMS emergency generator is provided, as this is the only section where changes are needed to accommodate the project. Changes to permit conditions and source description for Kiln #4 was already updated based on the original January 2017 burner change application.

USC 7501 to 7515.” This includes PSD and Nonattainment New Source Review (NNSR) modifications. The proposed kiln burner project does not trigger PSD review, and thus, is not considered a modification under Title I of the Act.

Based on the analysis of the minor permit revision criteria in accordance with 401 KAR 52:020 Section 14(3)(c), Carmeuse has determined that the permit action can be processed by KDAQ as a minor permit revision. This application package provides information required under 401 KAR 52:020, Section 4 and 5 for this purpose. The appropriate DEP7007 forms (AI, N, and EE) covering the proposed project are provided in Attachment 1.⁸

Timing of Changes

Section 14(4) of 401 KAR 52:020 allows an applicant to proceed with the proposed modifications upon the filing of an administratively complete minor revision application. Carmeuse plans to install the new permanent burner in Kiln #4 in December 2023.

~ ~ ~ ~ ~

Should you have any questions regarding this report, please do not hesitate to contact me at 219-293-2684.

Sincerely,

A handwritten signature in blue ink, appearing to read 'S. Langeliers'.

Sarah Langeliers
Area Environmental Manager

cc: Mr. Mike Klenda, Surface Site Operations Manager, Carmeuse
Mr. Brian Otten, Trinity Consultants

⁸ A 7007B form is not included because the project does not change the process rate capacities of Kiln #4. A 7007V form is not included because no applicable requirements are affected by the project. The only new information conveyed on the forms are updated lb/ton emission factors for CO and VOC reflecting the potentially higher emission rates when co-firing gas with coal. The PM₁₀ and PM_{2.5} emission factors are also recommended to be updated based on the more conservative condensable particulate emission factor from the Kiln #5 June 2018 co-fire stack testing. In addition, the formaldehyde emissions factor has been corrected to align with AP-42 Table 1.1-14.

ATTACHMENT 1

DEP7007 Forms

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007AI**Administrative Information**

- ☐ Section AI.1: Source Information
☐ Section AI.2: Applicant Information
☐ Section AI.3: Owner Information
☐ Section AI.4: Type of Application
☐ Section AI.5: Other Required Information
☐ Section AI.6: Signature Block
☐ Section AI.7: Notes, Comments, and Explanations

Additional Documentation

☐ Additional Documentation attached

Source Name: Carmeuse Lime & Stone, Inc.

KY EIS (AFS) #: 21-191-00002

Permit #: V-19-011

Agency Interest (AI) ID: 3400

Date: November 30, 2023

Section AI.1: Source Information

Physical Location	Street:	<u>9043 Highway 154</u>		
Address:	City:	<u>Butler</u>	County:	<u>Pendleton</u>
	Street or		Zip Code:	<u>41006</u>
Mailing Address:	P.O. Box:	<u>9043 Highway 154</u>		
	City:	<u>Butler</u>	State:	<u>KY</u>
			Zip Code:	<u>41006</u>

Standard Coordinates for Source Physical Location

Longitude: -84.2407 (decimal degrees) Latitude: 38.8371 (decimal degrees)

Primary (NAICS) Category: Lime Manufacturing Primary NAICS #: 327410

Classification (SIC) Category:

Lime

Primary SIC #:

3274

Briefly discuss the type of business conducted at this site:

The Black River Plant manufactures high calcium lime through the calcination of limestone. The core process operations are mining raw limestone; preparing limestone by crushing and sizing; calcining limestone in kilns; and transfer, storage and loadout of lime and limestone. A portion of the lime is also conveyed to a hydrate plant at the site to produce hydrated lime products.

Description of Area Surrounding Source:

☒ Rural Area☐ Industrial Park☐ Residential Area

Is any part of the source located on federal land?

☐ Yes☒ No

Number of Employees:

~200☐ Urban Area☐ Industrial Area☐ Commercial Area

Approximate distance to nearest residence or commercial property:

< 0.5 miles

Property Area:

1,200 Acres (Surface)Is this source portable? ☐ Yes ☒ No

What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?

NPDES/KPDES:

☒ Currently Hold☐ Need☐ N/A

Solid Waste:

☐ Currently Hold☐ Need☒ N/A

RCRA:

☐ Currently Hold☐ Need☒ N/A

UST:

☐ Currently Hold☐ Need☒ N/A

Type of Regulated Waste Activity:

☐ Mixed Waste Generator☐ Generator☐ Recycler☐ Other: _____☐ U.S. Importer of Hazardous Waste☐ Transporter☐ Treatment/Storage/Disposal Facility☒ N/A

Section AI.2: Applicant Information

Applicant Name: Carmeuse Lime & Stone, Inc.

Title: (if individual) N/A

Mailing Address: **Street or P.O. Box:** 9043 Highway 154
City: Butler **State:** KY **Zip Code:** 41006

Email: (if individual) N/A

Phone: (859) 472-8100

Technical Contact

Name: Sarah Langeliers

Title: Area Environmental Manager

Mailing Address: **Street or P.O. Box:** 9043 Highway 154
City: Butler **State:** KY **Zip Code:** 41006

Email: Sarah.Langeliers@carmeuse.com

Phone: (859) 472-7731

Air Permit Contact for Source

Name: Sarah Langeliers

Title: Area Environmental Manager

Mailing Address: **Street or P.O. Box:** 9043 Highway 154
City: Butler **State:** KY **Zip Code:** 41006

Email: Sarah.Langeliers@carmeuse.com

Phone: (859) 472-7731

Section AI.3: Owner Information

☒ Owner same as applicant

Name:

Title:

Mailing Address:

Email:

Phone:

Street or P.O. Box:

City:

State:

Zip Code:

List names of owners and officers of the company who have an interest in the company of 5% or more.

Name	Position

Section AI.4: Type of Application

Current Status: ☒ Title V ☐ Conditional Major ☐ State-Origin ☐ General Permit ☐ Registration ☐ None

☐ Name Change ☐ Initial Registration ☐ Significant Revision ☐ Administrative Permit Amendment

Requested Action:

(check all that apply)

☐ Renewal Permit ☐ Revised Registration ☒ Minor Revision ☐ Initial Source-wide Operating Permit

☐ 502(b)(10) Change ☐ Extension Request ☒ Addition of New Facility ☐ Portable Plant Relocation Notice

☐ Revision ☐ Off Permit Change ☐ Landfill Alternate Compliance Submittal ☐ Modification of Existing Facilities

☐ Ownership Change ☐ Closure

Requested Status: ☒ Title V ☐ Conditional Major ☐ State-Origin ☐ PSD ☐ NSR ☐ Other: _____

Is the source requesting a limitation of potential emissions?

☐ Yes ☒ No

Pollutant:

Requested Limit:

☐ Particulate Matter

☐ Volatile Organic Compounds (VOC)

☐ Carbon Monoxide

☐ Nitrogen Oxides

☐ Sulfur Dioxide

☐ Lead

Pollutant:

Requested Limit:

☐ Single HAP

☐ Combined HAPs

☐ Air Toxics (40 CFR 68, Subpart F)

☐ Carbon Dioxide

☐ Greenhouse Gases (GHG)

☐ Other

For New Construction:

Proposed Start Date of Construction:

(MM/YYYY)

12/2023

Proposed Operation Start-Up Date: (MM/YYYY)

12/2023

For Modifications:

Proposed Start Date of Modification:

(MM/YYYY)

12/2023

Proposed Operation Start-Up Date: (MM/YYYY)

12/2023

Applicant is seeking coverage under a permit shield. ☐ Yes ☒ No

Identify any non-applicable requirements for which permit shield is sought on a separate attachment to the application.

Section AI.5 Other Required Information

Indicate the documents attached as part of this application:

- | | |
|--|--|
| ☐ DEP7007A Indirect Heat Exchangers and Turbines | ☐ DEP7007CC Compliance Certification *Refer to RY2022 ACC Submitted Jan 2023 |
| ☐ DEP7007B Manufacturing or Processing Operations | ☐ DEP7007DD Insignificant Activities |
| ☐ DEP7007C Incinerators and Waste Burners | ☒ 1 DEP7007EE Internal Combustion Engines |
| ☐ DEP7007F Episode Standby Plan | ☐ DEP7007FF Secondary Aluminum Processing |
| ☐ DEP7007J Volatile Liquid Storage | ☐ DEP7007GG Control Equipment |
| ☐ DEP7007K Surface Coating or Printing Operations | ☐ DEP7007HH Haul Roads |
| ☐ DEP7007L Mineral Processes | ☐ Confidentiality Claim |
| ☐ DEP7007M Metal Cleaning Degreasers | ☐ Ownership Change Form |
| ☒ 1 DEP7007N Source Emissions Profile | ☐ Secretary of State Certificate |
| ☐ DEP7007P Perchloroethylene Dry Cleaning Systems | ☐ Flowcharts or diagrams depicting process |
| ☐ DEP7007R Emission Offset Credit | ☐ Digital Line Graphs (DLG) files of buldings, roads, etc. |
| ☐ DEP7007S Service Stations | ☐ Site Map |
| ☐ DEP7007T Metal Plating and Surface Treatment Operations | ☐ Map or drawing depicting location of facility |
| ☐ DEP7007V Applicable Requirements and Compliance Activities | ☐ Safety Data Sheet (SDS) |
| ☐ DEP7007Y Good Engineering Practice and Stack Height Determination | ☐ Emergency Response Plan |
| ☐ DEP7007AA Compliance Schedule for Non-complying Emission Units | ☐ Other: _____ |
| ☐ DEP7007BB Certified Progress Report | |

Section AI.6: Signature Block

I, the undersigned, hereby certify under penalty of law, that I am a responsible official*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.

Authorized Signature

Date

Michael Klenda

Site Operations Manager

Type or Printed Name of Signatory

Title of Signatory

*Responsible official as defined by 401 KAR 52:001.

Section AI.7: Notes, Comments, and Explanations

Division for Air Quality

300 Sower Boulevard

Frankfort, KY 40601

(502) 564-3999

DEP7007N

Source Emissions Profile

___ Section N.1: Emission Summary

___ Section N.2: Stack Information

___ Section N.3: Fugitive Information

___ Section N.4: Notes, Comments, and Explanations

Additional Documentation

___ Complete DEP7007AI

Source Name:

Carmeuse Lime & Stone, Inc.

KY EIS (AFS) #:

21- 191-00002

Permit #:

V-19-011

Agency Interest (AI) ID:

3400

Date:

November 30, 2023

N.1: Emission Summary																
Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential (lb/hr)	Controlled Potential (lb/hr)	Uncontrolled Potential (tons/yr)	Controlled Potential (tons/yr)
10 01	Rotary Kiln #4	1	Rotary Kiln #4	Baghouse	na	10-01	46.00	PM	7.29E-02	7/2020 Stack Test; 100% Coal Fired (Assume FPM + CPM	na	na	3.354	3.354	14.691	14.691
				Baghouse	na	10-01	46.00	PM10	0.220		na	na	10.111	10.111	44.285	44.285
				Baghouse	na	10-01	46.00	PM2.5	0.198	Assume 90% of PM10	na	na	9.100	9.100	39.857	39.857
				Baghouse	na	10-01	46.00	Condensable PM	0.147	6/2018 Stack Test; Cofire Scenario	na	na	6.757	na	29.594	na
				na	na	10-01	46.00	SO2	0.527	7/2020 Stack Test; 100% Coal Fired	na	na	24.257	24.257	106.25	106.25
				na	na	10-01	46.00	NOx	3.095	7/2020 Stack Test; 100% Coal Fired	na	na	142.36	na	623.52	na
				na	na	10-01	46.00	CO	0.688	6/2018 Stack Test; Cofire Scenario	na	na	31.659	na	138.67	na
				na	na	10-01	46.00	VOC	0.160	6/2018 Stack Test; Cofire Scenario	na	na	7.345	na	32.170	na
				na	na	10-01	46.00	CO2	2,682	40 CFR 98 Table C-1	na	na	123,358	na	540,308	na
				na	na	10-01	46.00	CH4	0.131	40 CFR 98 Table C-2	na	na	6.023	na	26.379	na

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential (lb/hr)	Controlled Potential (lb/hr)	Uncontrolled Potential (tons/yr)	Controlled Potential (tons/yr)
				na	na	10-01	46.00	N2O	1.90E-02	40 CFR 98 Table C-3	na	na	0.876	na	3.837	na
				na	na	10-01	46.00	CO2e	2,690	40 CFR 98 Table A-2	na	na	123,756	na	542,052	na
10 01	Pulverized Coal Burner	2	Pulverized Coal Burner	Baghouse	na	10-02	9.60	Antimony	1.80E-02	AP 42 Table 1.1-18	na	99.9%	0.173	1.73E-04	0.757	7.57E-04
				Baghouse	na	10-02	9.60	Arsenic	0.410	AP 42 Table 1.1-18	na	99.9%	3.936	3.94E-03	17.240	1.72E-02
				Baghouse	na	10-02	9.60	Beryllium	2.10E-02	AP 42 Table 1.1-18	na	99.9%	0.202	2.02E-04	0.883	8.83E-04
				Baghouse	na	10-02	9.60	Cadmium	5.10E-02	AP 42 Table 1.1-18	na	99.9%	0.490	4.90E-04	2.144	2.14E-03
				Baghouse	na	10-02	9.60	Chromium	0.260	AP 42 Table 1.1-18	na	99.9%	2.496	2.50E-03	10.932	1.09E-02
				na	na	10-02	9.60	Formaldehyde	2.40E-04	AP 42 Table 1.1-14	na	na	2.30E-03	na	1.01E-02	na
10 01	Rotary Kiln #4	2	Pulverized Coal Burner	na	na	10-02	9.60	HCl	1.438	11/07 stack test (K2)	na	na	13.805	na	60.465	na
				Baghouse	na	10-02	9.60	Lead	5.51E-03	NLA Test	na	99.9%	5.29E-02	5.29E-05	0.232	2.32E-04
				Baghouse	na	10-02	9.60	Manganese	0.490	AP 42 Table 1.1-18	na	99.9%	4.704	4.70E-03	20.604	2.06E-02
				Baghouse	na	10-02	9.60	Mercury	7.19E-02	NLA Test	na	99.9%	0.690	6.90E-04	3.022	3.02E-03
				Baghouse	na	10-02	9.60	Nickel	0.280	AP 42 Table 1.1-18	na	99.9%	2.688	2.69E-03	11.773	1.18E-02
				Baghouse	na	10-02	9.60	Selenium	1.300	AP 42 Table 1.1-18	na	99.9%	12.480	1.25E-02	54.662	5.47E-02
10 01	Natural Gas - Startup	3	Natural Gas - Startup	na	na	10-03	0.23	CO	84.000	AP-42 Table 1.4-1, 07/98	na	na	18.900	na	82.782	na
				na	na	10-03	0.23	NOx	100.00	AP-42 Table 1.4-1, 07/98	na	na	22.500	na	98.550	na
				na	na	10-03	0.23	PM	7.600	AP-42 Table 1.4-2, 07/98	na	na	1.710	na	7.490	na

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential (lb/hr)	Controlled Potential (lb/hr)	Uncontrolled Potential (tons/yr)	Controlled Potential (tons/yr)
				na	na	10-03	0.23	PM10	7.600	AP-42 Table 1.4-2, 07/98	na	na	1.710	na	7.490	na
				na	na	10-03	0.23	PM2.5	7.600	AP-42 Table 1.4-2, 07/98	na	na	1.710	na	7.490	na
				na	na	10-03	0.23	SO2	0.600	AP-42 Table 1.4-2, 07/98	na	na	0.135	na	0.591	na
				na	na	10-03	0.23	VOC	5.500	AP-42 Table 1.4-2, 07/98	na	na	1.238	na	5.420	na
				na	na	10-03	0.23	CO2	120,396	40 CFR 98, Subpart C, Table C-1	na	na	27,089	na	118,650	na
				na	na	10-03	0.23	CH4	2.271	40 CFR 98, Subpart C, Table C-2	na	na	0.511	na	2.238	na
				na	na	10-03	0.23	N2O	0.227	40 CFR 98, Subpart C, Table C-2	na	na	5.11E-02	na	0.224	na
10 01	Diesel - Startup	4	Diesel - Startup	na	na	10-04	0.23	CO	32.847	Startup Event Emission Calculations	na	na	7.391	na	32.370	na
				na	na	10-04	0.23	CH4	5.952	Startup Event Emission Calculations	na	na	1.339	na	5.866	na
				na	na	10-04	0.23	NOx	131.39	Startup Event Emission Calculations	na	na	29.562	na	129.48	na
				na	na	10-04	0.23	N2O	1.189	Startup Event Emission Calculations	na	na	0.268	na	1.172	na
				na	na	10-04	0.23	PM10	15.109	Startup Event Emission Calculations	na	na	3.400	na	14.890	na
				na	na	10-04	0.23	PM2.5	13.993	Startup Event Emission Calculations	na	na	3.148	na	13.790	na
				na	na	10-04	0.23	SO2	1.399	Startup Event Emission Calculations	na	na	0.315	na	1.379	na
				na	na	10-04	0.23	PM	15.109	Startup Event Emission Calculations	na	na	3.400	na	14.890	na
				na	na	10-04	0.23	VOC	2.234	Startup Event Emission Calculations	na	na	0.503	na	2.201	na

Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential (lb/hr)	Controlled Potential (lb/hr)	Uncontrolled Potential (tons/yr)	Controlled Potential (tons/yr)
34 14	Kiln 4 BMS Emergency Generator	1	Kiln 4 BMS Emergency Generator	na	na	34-14	2.81E-04	PM	10.19	AP-42 Table 3.2-2, 07/2000	na	na	2.86E-03	na	7.16E-04	na
				na	na	34-14	2.81E-04	PM10	10.19	AP-42 Table 3.2-2, 07/2000	na	na	2.86E-03	na	7.16E-04	na
				na	na	34-14	2.81E-04	PM2.5	10.19	AP-42 Table 3.2-2, 07/2000	na	na	2.86E-03	na	7.16E-04	na
				na	na	34-14	2.81E-04	NOx	949.52	Manufacturer Emissions Data Sheet, THC+NOx	na	na	0.267	na	6.67E-02	na
				na	na	34-14	2.81E-04	SO2	0.600	AP-42 Table 3.2-2, 07/2000	na	na	1.69E-04	na	4.21E-05	na
				na	na	34-14	2.81E-04	VOC	458.96	Manufacturer Emissions Data Sheet, THC+NOx	na	na	0.129	na	3.22E-02	na
				na	na	34-14	2.81E-04	CO	21,066.95	Manufacturer Emissions Data Sheet, CO	na	na	5.920	na	1.480	na
				na	na	34-14	2.81E-04	CO2	90,342.41	40 CFR 98, Subpart C, Table C-1	na	na	25.386	na	6.347	na
				na	na	34-14	2.81E-04	N2O	0.225	40 CFR 98, Subpart C, Table C-2	na	na	6.32E-05	na	1.58E-05	na
				na	na	34-14	2.81E-04	CH4	2.249	40 CFR 98, Subpart C, Table C-2	na	na	6.32E-04	na	1.58E-04	na
				na	na	34-14	2.81E-04	Formaldehyde	53.856	AP-42 Table 3.2-2, 07/2000	na	na	1.51E-02	na	3.78E-03	na
				na	na	34-14	2.81E-04	Total HAPs	73.605	AP-42 Table 3.2-2, 07/2000	na	na	2.07E-02	na	5.17E-03	na

Section N.2: Stack Information**UTM Zone: 16**

Stack ID	Identify all Emission Units (with Process ID) and Control Devices that Feed to Stack	Stack Physical Data			Stack UTM Coordinates		Stack Gas Stream Data		
		Equivalent Diameter (ft)	Height (ft)	Base Elevation (ft)	Northing (m)	Easting (m)	Flowrate (acfm)	Temperature (°F)	Exit Velocity (ft/sec)
10-01	Rotary Kiln #4	7.5	120.0	520.0	4302042.48	739576.41	153,800	341.0	58.0
34-14	Kiln 4 BMS Emergency Generator	0.3	1.9	520.0	4302042.48	739576.41	47	500.0	11.1

Section N.3: Fugitive Information**UTM Zone: 16**

Emission Unit #	Emission Unit Name	Process ID	Area Physical Data		Area UTM Coordinates		Area Release Data	
			Length of the X Side (ft)	Length of the Y Side (ft)	Northing (m)	Easting (m)	Release Temperature (°F)	Release Height (ft)
No Fugitive Emissions Associated with this Project								

Section N.4: Notes, Comments, and Explanations

1. Emission factors for PM, PM10, PM2.5, and SO2 are controlled emission factors. Therefore no control efficiency is used in calculating the controlled limited potential value shown for Process ID 1.

Division for Air Quality 300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999		DEP7007EE Internal Combustion Engines ___ Section EE.1: General Information ___ Section EE.2: Operating Information ___ Section EE.3: Design Information ___ Section EE.4: Fuel Information ___ Section EE.5: Emission Factor Information ___ Section EE.6: Notes, Comments, and Explanations				Additional Documentation ___ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG ___ Attach EPA certification of the engine				
Source Name:		Carmeuse Lime & Stone, Inc.								
KY EIS (AFS) #:		21- 191-00002								
Permit #:		V-19-011								
Agency Interest (AI) ID:		3400								
Date:		November 30, 2023								
Section EE.1: General Information										
Emission Unit #	Emission Unit Name	Control Device ID	Stack ID	Manufacturer	Model Number	Model Year	Date of Manufacture	Proposed/Actual Date of Construction Commencement (MM/YYYY)	Date Reconstructed/Modified	List Applicable Regulations
34-14	Kiln 4 BMS Emergency Generator	na	na	Kohler	20RCA	2022	9/1/2022	12/2023	na	NESHAP ZZZZ / NSPS JJJJ

Section EE.2: Operating Information

Emission Unit #	Engine Purpose (Identify if Non-Emergency, Emergency, Fire/Water Pump, Black-start engine for combustion turbine, Engine Testing)	Hours Operated	Is this engine a rental? <i>(Yes/No)</i>	Rental Time Period <i>(hrs)</i>	Alternate Operating Scenarios (Describe any operating scenarios in which the engine may be used in a different configuration)
34-14	Emergency	500	No	na	na

Section EE.3: Design Information

Emission Unit #	Engine Type (Identify all that apply: Commercial, Institutional, Stationary, Non-Road)	Ignition Type (Identify if either Compression or Spark Ignition)	Engine Family (Identify all that apply: 2-stroke, 4-stroke, Rich Burn, Lean Burn)	Maximum Engine Power (<i>bhp</i>)	Maximum Engine Speed (<i>rpm</i>)	Total Displacement (<i>L</i>)	Number of Cylinders
34-14	Industrial	Spark	4-stroke	27.1	3600	1.0	2.0

Section EE.4: Fuel Information

Emission Unit #	Identify if Primary, Secondary, or Tertiary Fuel	Fuel Type (Identify if Diesel, Gasoline, Natural Gas, Liquefied Petroleum Gas (LPG), Landfill/Digester Gas, or Other)	Fuel Grade	Percent Time Used (%)	Maximum Fuel Consumption	Heat Content	Sulfur Content (%)	SCC Code	SCC Units
34-14	Primary	Natural Gas	na	100	281 scf/hr	1,020 Btu/scf	Neg.	20200254	MMscf Natural Gas Burned

Section EE.5: Emission Factor Information

Emission factors expressed here are based on the potential to emit.

Emission Unit #	Fuel	Pollutant	Emission Factor	Emission Factor Units	Source of Emission Factor
34-14	Natural Gas	PM	10.19	lb/MMscf Natural Gas Burned	AP-42 Table 3.2-2, 07/2000
34-14	Natural Gas	PM10	10.19	lb/MMscf Natural Gas Burned	AP-42 Table 3.2-2, 07/2000
34-14	Natural Gas	PM2.5	10.19	lb/MMscf Natural Gas Burned	AP-42 Table 3.2-2, 07/2000
34-14	Natural Gas	NOx	949.52	lb/MMscf Natural Gas Burned	Manufacturer Emissions Data Sheet, THC+NOx
34-14	Natural Gas	SO2	0.600	lb/MMscf Natural Gas Burned	AP-42 Table 3.2-2, 07/2000
34-14	Natural Gas	VOC	458.96	lb/MMscf Natural Gas Burned	Manufacturer Emissions Data Sheet, THC+NOx
34-14	Natural Gas	CO	21,066.95	lb/MMscf Natural Gas Burned	Manufacturer Emissions Data Sheet, CO
34-14	Natural Gas	CO2	90,342.41	lb/MMscf Natural Gas Burned	40 CFR 98, Subpart C, Table C-1
34-14	Natural Gas	N2O	0.225	lb/MMscf Natural Gas Burned	40 CFR 98, Subpart C, Table C-2
34-14	Natural Gas	CH4	2.249	lb/MMscf Natural Gas Burned	40 CFR 98, Subpart C, Table C-2
34-14	Natural Gas	Formaldehyde	53.856	lb/MMscf Natural Gas Burned	AP-42 Table 3.2-2, 07/2000
34-14	Natural Gas	Total HAPs	73.605	lb/MMscf Natural Gas Burned	AP-42 Table 3.2-2, 07/2000

Section EE.6: Notes, Comments, and Explanations	

ATTACHMENT 2

Supporting Emission Calculations

1. Kiln 4 Burner Change and Gas Conversion Project Emission Calculations

- > This spreadsheet tab documents how the actual-to-projected-actual (ATPA) emission changes are calculated for the Kiln 4 burner change and gas conversion project.
- > Note that a permit action was completed in 2017 to execute a burner change and gas conversion project for both Kiln 4 and Kiln 5. However, due to natural gas supply constraints at that time, the burner change was ultimately only completed for Kiln 5. Carmeuse is now returning with a new permit action to reauthorize the identical project for Kiln 4. The emission calculation methodologies presented are the same as those previously used and approved by the Division for the original project.

1.1 Baseline and Future Projected Production Rates

- > The production capacity of Kiln 4 can be expressed in terms of tons/hour of limestone feed or tons/hour of lime produced. The current permitted nameplate capacities are listed below for reference.

Kiln 4 Capacity

Limestone feed rate capacity from permit	110 tph limestone
Equivalent estimated maximum lime production rate	46 tph lime
Equivalent annual lime production capacity with no down time	402,960 ton lime/yr

- > The Kiln 4 burner change is planned for November 2023. Thus, the choice of 24-month baseline periods that can be used to define baseline actual emissions extends back to November 2013.
- > For all pollutants Carmeuse has selected the 24-month period from **May 2020 to April 2022** as the baseline period. This corresponds to the most recent 24-month period when Kiln 4 was in operation and thus would be most representative of current market conditions.
- > For the purposes of calculating the actual-to-projected-actual (ATPA) emissions in accordance with 401 KAR 51:017 Section 1(4), Carmeuse has considered the maximum production rate the kilns would be expected to reach in the next 5-10 years, taking into account all relevant information. The future production rates of the kilns is almost entirely driven by market demand. While the burner change and gas substitution may affect the quality of lime produced, the project does not affect kiln capacity nor kiln utilization, which will still be based on market conditions.
- > Although production rates in recent years have been depressed, Carmeuse has reasonably projected that Kiln 4 will reach production rates previously achieved in the future. Thus, the future projected actual production rate has been set to the same values as achieved in the recent May 2020 to April 2022 baseline period. This is consistent with the approach previously presented in the January 3, 2017 permit application for the previous sister version of this project for Kiln 5.

Actual Kiln 4 Production Rates During Selected Baseline Period

199,553

ton lime/yr

Future Projected Actual Production Rate

199,553

ton lime/yr

1.2 NOx Project Emission Increase Calculations

- > To calculate baseline actual emissions, the NOx emission factor for Kiln 4 from the 5-year performance test conducted in July 2020 is used. This emission factor is also the one currently in the KyEIS.
- > To calculate future projected actual emissions attributable to the planned substitution of gas for coal for Kiln 4, the NOx emission factor from the June 2018 performance test of Kiln 5 (during gas/coal co-firing) is used.

Baseline Actual Emissions (BAE)

Emission factor from Kiln 4 July 2020 Test (100% Coal)	3.095 lb/ton lime
Baseline Actual Emissions (BAE)	308.8 tpy

Calculation: $3.095 \text{ lb/ton} \times 199,553 \text{ ton lime/yr} / 2000 \text{ lb/ton} = 308.8 \text{ tpy}$

Future Projected Actual Emissions (FPA)

Emission factor from Kiln 5 June 2018 Test (18% Coal / 82% Gas)	1.930 lb/ton lime
Future Projected Actual Emissions (FPA)	192.6 tpy

Calculation: $1.930 \text{ lb/ton} \times 199,553 \text{ ton lime/yr} / 2000 \text{ lb/ton} = 192.6 \text{ tpy}$

ATPA Emissions Increase

-116.2 tpy

Calculation: $192.6 \text{ tpy} - 308.8 \text{ tpy} = -116.2 \text{ tpy}$

- > As shown above, the project results in a calculated ATPA decrease in NOx emissions and thus does not trigger PSD for NOx.

1.3 CO Project Emission Increase Calculations

- > To calculate baseline actual emissions, the CO emission factor for Kiln 4 from the 5-year performance test conducted in July 2020 is used. This emission factor is also the one currently in the KyEIS.
- > To calculate future projected actual emissions attributable to the planned substitution of gas for coal for Kiln 4, the CO emission factor from the June 2018 performance test of Kiln 5 (during gas/coal co-firing) is used.

Baseline Actual Emissions (BAE)

Emission factor from Kiln 4 July 2020 Test (100% Coal)	0.677 lb/ton lime
Baseline Actual Emissions (BAE)	67.5 tpy

Calculation: $0.677 \text{ lb/ton} \times 199,553 \text{ ton lime/yr} / 2000 \text{ lb/ton} = 67.5 \text{ tpy}$

Future Projected Actual Emissions (FPA)

Emission factor from Kiln 5 June 2018 Test (18% Coal / 82% Gas)	0.688 lb/ton lime
Future Projected Actual Emissions (FPA)	68.7 tpy

Calculation: $0.688 \text{ lb/ton} \times 199,553 \text{ ton lime/yr} / 2000 \text{ lb/ton} = 68.7 \text{ tpy}$

ATPA Emissions Increase

1.1 tpy

Calculation: $68.7 \text{ tpy} - 67.5 \text{ tpy} = 1.1 \text{ tpy}$

- > As shown above, the project results in a slight calculated ATPA increase in CO emissions. The increase in CO emissions for Kiln 4 is less than 5% of the 100 tpy PSD SER.

1.4 SO2 Project Emission Increase Calculations

- > To calculate baseline actual emissions, the SO2 emission factor for Kiln 4 from the 5-year performance test conducted in July 2020 is used. This emission factor is also the one currently in the KyEIS.
- > To calculate future projected actual emissions attributable to the planned substitution of gas for coal for Kiln 4, the SO2 emission factor from the June 2018 performance test of Kiln 5 (during gas/coal co-firing) is used.

Baseline Actual Emissions (BAE)

Emission factor from Kiln 4 July 2020 Test (100% Coal)	0.527 lb/ton lime
Baseline Actual Emissions (BAE)	52.6 tpy

Calculation: $0.527 \text{ lb/ton} \times 199,553 \text{ ton lime/yr} / 2000 \text{ lb/ton} = 52.6 \text{ tpy}$

Future Projected Actual Emissions (FPA)

Emission factor from Kiln 5 June 2018 Test (18% Coal / 82% Gas)	0.182 lb/ton lime
Future Projected Actual Emissions (FPA)	18.1 tpy

Calculation: $0.182 \text{ lb/ton} \times 199,553 \text{ ton lime/yr} / 2000 \text{ lb/ton} = 18.1 \text{ tpy}$

ATPA Emissions Increase

-34.5 tpy

Calculation: $18.1 \text{ tpy} - 52.6 \text{ tpy} = -34.5 \text{ tpy}$

- > As shown above, the project results in a calculated ATPA decrease in SO2 emissions and thus does not trigger PSD for SO2.

1.5 VOC Project Emission Increase Calculations

- > Testing conducted in June 2016 on Kiln 5 while firing with 100% coal revealed a VOC emission rate of 0.091 lb/ton lime. This emission factor is also the one currently in the KyEIS.
- > To calculate future projected actual emissions attributable to the planned substitution of gas for coal for Kiln 4, the VOC emission factor from the June 2018 performance test of Kiln 5 (during gas/coal co-firing) is used.

Baseline Actual Emissions (BAE)

Emission factor from Kiln 5 June 2016 Test (100% Coal)	0.091 lb/ton lime
Baseline Actual Emissions (BAE)	9.0 tpy

Calculation: $0.091 \text{ lb/ton} \times 199,553 \text{ ton lime/yr} / 2000 \text{ lb/ton} = 9.0 \text{ tpy}$

Future Projected Actual Emissions (FPA)

Emission factor from Kiln 5 June 2018 Test (18% Coal / 82% Gas)	0.16 lb/ton lime
Future Projected Actual Emissions (FPA)	15.9 tpy

Calculation: $0.160 \text{ lb/ton} \times 199,553 \text{ ton lime/yr} / 2000 \text{ lb/ton} = 15.9 \text{ tpy}$

ATPA Emissions Increase

6.9 tpy

Calculation: $15.9 \text{ tpy} - 9.0 \text{ tpy} = 6.9 \text{ tpy}$

- > Despite the unexpected but small increase in VOC emissions measured with partial gas substitution, as shown above, the project results in a calculated ATPA emissions increase for VOC well below the 40 tpy PSD SER.

1.6 PM, PM10 and PM2.5 Project Emission Increase Calculations

- > Due to the form of the PM emission standard under the Lime MACT, historical PM emission tests on Kiln 4 have been for filterable PM only.
- > As part of the engineering trial testing conducted in June 2016 on Kiln 5, both filterable and condensable PM emission rates were measured under the 100% coal firing condition. The condensable PM emission factor derived from this test is the best available estimate of the condensable PM emission rate for Kiln 4 during the baseline period.
- > To calculate baseline actual emissions from Kiln 4, the filterable PM emission factor from the July 2020 5-year performance test is added to the condensable PM emission factor from the June 2016 test on Kiln 5. All PM emissions are conservatively assumed to be in the PM10 size range or less.
- > To calculate future projected actual emissions attributable to the planned substitution of gas for coal in Kiln 4, the total PM emission factor from the June 2018 performance test of Kiln 5 is used. During this test, 82% of the heat input was provided by gas. All PM emissions are conservatively assumed to be in the PM10 size range or less.

Baseline Actual Emissions (BAE)

Filterable PM emission factor from July 2020 Test on Kiln 4 (100% Coal)	0.073 lb/ton lime
Condensable PM factor from June 2016 Test on Kiln 5 (100% Coal)	0.140 lb/ton lime
Total PM emission factor (filterable + condensable)	0.213 lb/ton lime
Baseline Actual Emissions (BAE)	21.2 tpy

Calculation: $0.213 \text{ lb/ton} \times 199,553 \text{ ton lime/yr} / 2000 \text{ lb/ton} = 21.2 \text{ tpy}$

Future Projected Actual Emissions (FPA)

Filterable PM factor from June 2018 Test on Kiln 5 (18% Coal / 82% Gas)	0.023 lb/ton lime
Condensable PM factor from June 2018 Test on Kiln 5 (18% Coal / 82% Gas)	0.147 lb/ton lime
Total PM emission factor (filterable + condensable)	0.170 lb/ton lime
Future Projected Actual Emissions (FPA)	16.9 tpy

Calculation: $0.170 \text{ lb/ton} \times 199,553 \text{ ton lime/yr} / 2000 \text{ lb/ton} = 16.9 \text{ tpy}$

ATPA Emissions Increase

-4.3 tpy

Calculation: $16.9 \text{ tpy} - 21.2 \text{ tpy} = -4.3 \text{ tpy}$

2. Emissions Associated with Kiln 4 BMS Emergency Generator

2.1 Generator Power and Fuel Consumption Data

- > Pertinent data on engine power and fuel usage taken from the technical data sheet for the Kohler 20RCA generator. Heat value of natural gas taken from AP-42 Appendix A.

Mechanical Power in bhp (100% load):	27.1 bhp	20.2 kW
Specific Fuel Consumption Rate in MMscf/hr (100% load):	0.0003 MMscf/hr	
Annual Operating Hours:	500 hrs	
Heat Content of Natural Gas (average):	1,020 Btu/scf	

2.2 Source Classification Code

- > Emissions are tied to the SCC code for natural gas fueled engines listed below.

SCC:	20200254
SCC Description:	Industrial (2-02)-Natural Gas (2-02-002)-4-cycle Lean Burn (2-02-002-54)
SCC Units:	Million Cubic Feet Natural Gas Burned

2.3 Emission Calculation Methodology and Emission Factors

- > Emission factors were taken from either the Manufacturer Emissions Data Sheet or AP-42 Section 3.2 (7/2000) Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines. An emissions data sheet for the exact model year engine being installed was not available from the manufacturer. As such, the emission factors were taken from an emissions data sheet from the same manufacturer for a generator engine with identical fuel consumption, engine power, and emission standards.

2.3.1 NMHC + NOx

Emission factor for NMHC + NOx:	8.2 g/kW-hr	Manufacturer Emissions Data Sheet
Emission factor for NOx:	4.080 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
Emission factor for TOC:	1.470 lb/MMBtu	AP-42 Table 3.2-2, 07/2000

A separate VOC and NOX emission factor which is representative of the manufacturer's emissions data can be derived based on the ratio of the TOC to NOX factor in AP42 Table 3.2-1 (07/2000 edition).

Sum of AP42 NOX and TOC emission factors:	5.550 lb/MMBtu	= 4.08 lb/MMBtu + 1.47 lb/MMBtu
Ratio of NOX factor to sum of NOX and TOC factors:	0.735	= 4.08 lb/MMBtu / 5.55 lb/MMBtu
Ratio of TOC factor to sum of NOX and TOC factors:	0.265	= 1.47 lb/MMBtu / 5.55 lb/MMBtu

2.3.2 NO_x

Emission factor for NO _x :	5.99 g/kW-hr	Manufacturer Emissions Data Sheet, THC+NO _x
NO _x emission factor in terms of SCC units:	950 lb/MMscf	= (5.99 g/kW-hr * 20.2 kW / 0.0003 MMscf/hr / 453.6 g/lb)

2.3.3 CO

Emission factor for CO:	132.93 g/kW-hr	Manufacturer Emissions Data Sheet, CO
CO emission factor in terms of SCC units:	21,067 lb/MMscf	= (132.93 g/kW-hr * 20.2 kW / 0.0003 MMscf/hr / 453.6 g/lb)

2.3.4 VOC

Emission factor for VOC:	2.16 g/kW-hr	Manufacturer Emissions Data Sheet, THC+NO _x
VOC emission factor in terms of SCC units:	458.96 lb/MMscf	= (2.16 g/kW-hr * 20.2 kW / 0.0003 MMscf/hr / 453.6 g/lb)

2.3.5 PM

Emission factor for PM:	0.010 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
PM emission factor in terms of SCC units:	10.19 lb/MMscf	= (0.00999 lb/MMBtu * 1,020 Btu/scf)

2.3.6 PM₁₀

Emission factor for PM ₁₀ :	0.010 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
PM ₁₀ emission factor in terms of SCC units:	10.19 lb/MMscf	= (0.00999 lb/MMBtu * 1,020 Btu/scf)

2.3.7 PM_{2.5}

Emission factor for PM _{2.5} :	0.010 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
PM _{2.5} emission factor in terms of SCC units:	10.19 lb/MMscf	= (0.00999 lb/MMBtu * 1,020 Btu/scf)

2.3.8 SO₂

Emission factor for SO ₂ :	5.88E-04 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
SO ₂ emission factor in terms of SCC units:	0.60 lb/MMscf	= (0.00059 lb/MMBtu * 1,020 Btu/scf)

2.3.9 HAP Emission Estimates

> Emission factors are from AP-42 Section 3.2 (7/2000) Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines.

	CAS #	HAP?	Emission Factor (lb/MMBtu)	Emission Factor (lb/MMscf)	Emission Factor Basis
Acenaphthene	83-32-9	Y	1.25E-06	1.28E-03	AP-42 Table 3.2-2, 07/2000
Acenaphthylene	208-96-8	Y	5.53E-06	5.64E-03	AP-42 Table 3.2-2, 07/2000
Acetaldehyde	75-07-0	Y	8.36E-03	8.53E+00	AP-42 Table 3.2-2, 07/2000
Acrolein	107-02-8	Y	5.14E-03	5.24E+00	AP-42 Table 3.2-2, 07/2000
Benzene	71-43-2	Y	4.40E-04	4.49E-01	AP-42 Table 3.2-2, 07/2000
Benzo(b)fluoranthene	205-99-2	Y	1.66E-07	1.69E-04	AP-42 Table 3.2-2, 07/2000
Benzo(e)pyrene	192-97-2	Y	4.15E-07	4.23E-04	AP-42 Table 3.2-2, 07/2000
Benzo(g,h,i)perylene	191-24-2	Y	4.14E-07	4.22E-04	AP-42 Table 3.2-2, 07/2000
Biphenyl	92-52-4	Y	2.12E-04	2.16E-01	AP-42 Table 3.2-2, 07/2000
1,3-Butadiene	106-99-0	Y	2.67E-04	2.72E-01	AP-42 Table 3.2-2, 07/2000
Carbon Tetrachloride	56-23-5	Y	3.67E-05	3.74E-02	AP-42 Table 3.2-2, 07/2000
Chlorobenzene	108-90-7	Y	3.04E-05	3.10E-02	AP-42 Table 3.2-2, 07/2000
Chloroform	67-66-3	Y	2.85E-05	2.91E-02	AP-42 Table 3.2-2, 07/2000
Chrysene	218-01-9	Y	6.93E-07	7.07E-04	AP-42 Table 3.2-2, 07/2000
1,3-Dichloropropene	542-75-6	Y	2.64E-05	2.69E-02	AP-42 Table 3.2-2, 07/2000
Ethylbenzene	100-41-4	Y	3.97E-05	4.05E-02	AP-42 Table 3.2-2, 07/2000
Ethylene Dibromide	106-93-4	Y	4.43E-05	4.52E-02	AP-42 Table 3.2-2, 07/2000
Fluoranthene	206-44-0	Y	1.11E-06	1.13E-03	AP-42 Table 3.2-2, 07/2000
Fluorene	86-73-7	Y	5.67E-06	5.78E-03	AP-42 Table 3.2-2, 07/2000
Formaldehyde	50-00-0	Y	5.28E-02	5.39E+01	AP-42 Table 3.2-2, 07/2000
2-Methylnaphthalene	91-57-6	Y	3.32E-05	3.39E-02	AP-42 Table 3.2-2, 07/2000
Methanol	67-56-1	Y	2.50E-03	2.55E+00	AP-42 Table 3.2-2, 07/2000
Methylene Chloride	75-09-2	Y	2.00E-05	2.04E-02	AP-42 Table 3.2-2, 07/2000
n-Hexane	110-54-3	Y	1.11E-03	1.13E+00	AP-42 Table 3.2-2, 07/2000
Naphthalene	91-20-3	Y	7.44E-05	7.59E-02	AP-42 Table 3.2-2, 07/2000
PAH	na	Y	2.69E-05	2.74E-02	AP-42 Table 3.2-2, 07/2000
Phenanthrene	85-01-8	Y	1.04E-05	1.06E-02	AP-42 Table 3.2-2, 07/2000
Phenol	108-95-2	Y	2.40E-05	2.45E-02	AP-42 Table 3.2-2, 07/2000
Pyrene	129-00-0	Y	1.36E-06	1.39E-03	AP-42 Table 3.2-2, 07/2000
Styrene	100-42-5	Y	2.36E-05	2.41E-02	AP-42 Table 3.2-2, 07/2000
Tetrachloroethane	79-34-5	Y	2.48E-06	2.53E-03	AP-42 Table 3.2-2, 07/2000
Toluene	108-88-3	Y	4.08E-04	4.16E-01	AP-42 Table 3.2-2, 07/2000
2,2,4-Trimethylpentane	540-84-1	Y	2.50E-04	2.55E-01	AP-42 Table 3.2-2, 07/2000
1,1,2,2-Tetrachloroethane	79-34-5	Y	4.00E-05	4.08E-02	AP-42 Table 3.2-2, 07/2000
1,1,2-Trichloroethane	79-00-5	Y	3.18E-05	3.24E-02	AP-42 Table 3.2-2, 07/2000
Vinyl Chloride	75-01-4	Y	1.49E-05	1.52E-02	AP-42 Table 3.2-2, 07/2000
Xylenes	1330-20-7	Y	1.84E-04	1.88E-01	AP-42 Table 3.2-2, 07/2000
Total HAPs			7.22E-02	73.60	

2.3.10 GHG Emission Factors

- > CH4 and N2O emissions for natural gas combustion are estimated using the natural gas emission factors published in 40 CFR 98, Subpart C, Table C-2. CO2 emissions are estimated using the emission factor provided in the manufacturer's emissions data sheet.

Global Warming Potentials of GHGs per 40 CFR 98 Subpart A, Table A-1.

CO2	1
CH4	25
N2O	298

CO2 Emission Factor	570.05 g/kW-hr	Manufacturer's Specification Sheet
CO2 Emission Factor	40.18 kg CO2/MMBtu	= 570.05 g/kW-hr * 0.001 kg/g * 20.20 kW / (0.000281 MMscf/hr * 1,020 Btu/scf)
CH4 Emission Factor	1.0E-03 kg CH4/MMBtu	40 CFR 98, Subpart C, Table C-2; Natural Gas
N2O Emission Factor	1.0E-04 kg N2O/MMBtu	40 CFR 98, Subpart C, Table C-2; Natural Gas

Pollutant	Emission Factor (kg/MMBtu)	Equivalent Factor (lb/MMscf)
CO2	40.18	90,342
CH4	1.00E-03	2.25
N2O	1.00E-04	0.22
CO2e	40.23	90,466

2.4 Summary of Engine Potential Emissions

Pollutant	Emission Factor (lb/MMscf)	Basis	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
NOx	949.52	Manufacturer Emissions Data Sheet, THC+NOx	0.2668	0.0667
CO	21,066.95	Manufacturer Emissions Data Sheet, CO	5.9198	1.4800
VOC	458.96	Manufacturer Emissions Data Sheet, THC+NOx	0.1290	0.0322
PM	10.19	AP-42 Table 3.2-2, 07/2000	0.0029	0.0007
PM10	10.19	AP-42 Table 3.2-2, 07/2000	0.0029	0.0007
PM2.5	10.19	AP-42 Table 3.2-2, 07/2000	0.0029	0.0007
SO2	0.60	AP-42 Table 3.2-2, 07/2000	0.0002	4.21E-05
Formaldehyde	53.86	AP-42 Table 3.2-2, 07/2000	0.0151	0.0038
Total HAPs	73.60	AP-42 Table 3.2-2, 07/2000	0.0207	0.0052
CO2	90,342	40 CFR 98, Subpart C, Table C-1	25.3862	6.3466
CH4	2.25	40 CFR 98, Subpart C, Table C-2	0.0006	1.58E-04
N2O	0.22	40 CFR 98, Subpart C, Table C-2	0.0001	1.58E-05
CO2e	90,466	40 CFR 98, Subpart C	25.4208	6.3552

ATTACHMENT 3

Suggested Permit Revisions

SECTION B – EMISSIONS UNITS, EMISSION POINTS, APPLICABLE REGULATIONS AND OPERATING CONDITIONS (CONTINUED)

ENGINE: EN03 –Stationary Emergency-Use SI Engines (NSPS Applicable)

EP	Description	Date Constructed
34 12	Kiln #5 BMS Emergency Generator; Kohler Model 20RESC, 27.1 bhp	2017
<u>34 14</u>	<u>Kiln #4 BMS Emergency Generator; Kohler Model 20RCA, 27.1 bhp</u>	<u>2022</u>

APPLICABLE REGULATIONS:

401 KAR 60:005, Section 2(2)(eeee) 40 C.F.R. 60.4230 to 60.4248, Tables 1 to 4 (Subpart JJJJ), Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

401 KAR 63:002, Section 2(4)(eeee) 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Note: D.C. Circuit Court [*Delaware v. EPA*, 785 F. 3d 1 (D.C. Cir. 2015)] has vacated the provisions in 40 CFR 40 CFR 60, Subpart JJJJ that contain the 100-hour exemption for operation of emergency engines for purposes of emergency demand response under 40 CFR 60.4243(d)(2)(ii)-(iii)]. The D.C. Circuit Court issued the mandate for the vacatur on May 4, 2016.

1. Operating Limitations:

- a. For engines built on or after July 1, 2008, the permittee must install a non-resettable hour meter prior to startup of the engine. [40 CFR 60.4237(c)]
- b. The permittee must operate the emergency stationary ICE according to the requirements in 40 CFR 60.4243(d)(1) through (3). In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in 40 CFR 60.4243(d)(1) through (3), is prohibited. If you do not operate the engine according to the requirements in 40 CFR 60.4243(d)(1) through (3), the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines. [40 CFR 60.4243(d)]
 - 1) There is no time limit on the use of emergency stationary ICE in emergency situations.
 - 2) The permittee may operate your emergency stationary ICE for any combination of the purposes specified in 40 CFR 60.4243(d)(2)(i) through (iii) for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by in 40 CFR 60.4243 (d)(3) counts as part of the 100 hours per calendar year allowed by this in 40 CFR 60.4243(d)(2).
 - i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the

SECTION B – EMISSIONS UNITS, EMISSION POINTS, APPLICABLE REGULATIONS AND OPERATING CONDITIONS (CONTINUED)

Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

- 3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in 40 CFR 60.4243(d)(2). Except as provided in 40 CFR 60.4243(d)(3)(i), the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.
- i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
- A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;
 - B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
 - C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
 - D) The power is provided only to the facility itself or to support the local transmission and distribution system.
 - E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.
- c. The permittee may operate the engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of 40 CFR 60.4233. [40 CFR 60.4243(e)]

2. Emission Limitations:

- a. The permittee shall comply with the applicable emission standards in Table 1 of 40 CFR 60, Subpart JJJJ. [40 CFR 60.4233(d), Table 1]

Emission Standards	NO _x +HC	CO
g/HP-hr	10	387

SECTION B – EMISSIONS UNITS, EMISSION POINTS, APPLICABLE REGULATIONS AND OPERATING CONDITIONS (CONTINUED)

- b. The permittee must operate and maintain stationary SI ICE that achieve the emission standards as required in 40 CFR 60.4233 over the entire life of the engine. [40 CFR 60.4234]

Compliance Demonstration Method:

1. The engines purchased must be certified to the emission standards in Table 1 of 40 CFR 60, Subpart JJJJ for the same engine class, maximum engine power, the same model year and demonstrating compliance according to one of the methods specified in 40 CFR 60.4243 (a). [40 CFR 60.4243(b)(1)]
2. The permittee must operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, the permittee must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required if you are an owner or operator. The permittee must also meet the requirements as specified in 40 CFR part 1068, subparts A through D, as they apply. If the permittee adjusts engine settings according to and consistent with the manufacturer's instructions, the stationary SI internal combustion engine will not be considered out of compliance. [40 CFR 60.4243 (a)(1)]

3. Testing Requirements:

Testing shall be conducted at such times as may be requested by the Cabinet. [401 KAR 50:045, Section 1]

4. Specific Monitoring Requirements:

The permittee shall monitor hours of operation for each unit on a monthly basis. [40 CFR 60.4245(b)]

5. Specific Recordkeeping Requirements:

- a. The permittee must keep records of the information in 40 CFR 60.4245(a)(1) through (4). [40 CFR 60.4245(a)]
 - 1) All notifications submitted to comply with 40 CFR, Subpart JJJJ and all documentation supporting any notification.
 - 2) Maintenance conducted on the engine.
 - 3) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable.
 - 4) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to 40 CFR 60.4243(a)(2), documentation that the engine meets the emission standards.
- b. The permittee must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The permittee must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. [40 CFR 60.4245(b)]

SECTION B – EMISSIONS UNITS, EMISSION POINTS, APPLICABLE REGULATIONS AND OPERATING CONDITIONS (CONTINUED)

- c. The permittee shall maintain records of the hours of operation each engine uses propane as an alternative fuel during emergency situations. [40 CFR 60.4243 (e)]

6. Specific Reporting Requirements:

See **Section F** - Monitoring, Recordkeeping, and Reporting Requirements.

ATTACHMENT 4

**Manufacturer Specification Sheet &
EPA Certificate of Conformity**



The Kohler® Advantage

- **High Quality Power**
Kohler home generators provide advanced voltage and frequency regulation along with ultra-low levels of harmonic distortion for excellent generator power quality to protect your valuable electronics.
- **Premium 5-yr/2000-hr Limited Warranty Included**
Kohler is known for extraordinary reliability and performance. Kohler's premium limited warranty covers parts, labor, and travel for the full warranty period.
- **Powerful Performance**
Exclusive Powerboost™ technology provides excellent starting power. §
- **Aluminum Enclosure**
 - Attractive aluminum enclosure allows installation as close as 18 inches from your home or small business. †
 - Enclosure panels can be removed without tools to allow easy access for maintenance and service.
- **Enclosure Options** for single-phase units
 - **Kohler® Exclusive Colors** are available. Go to KohlerGenerators.com to see the latest colors.
 - **Camouflage Enclosures** are available (optional). Go to KohlerGenerators.com/MossyOak to view the available patterns.

Mossy Oak is a trademark used under license from Haas Outdoors, Inc., by Kohler Co.

Generator Ratings

Model	Alt	Voltage	Ph	Hz	Standby Ratings				Line Circuit Breaker	
					Natural Gas	LPG			Amps	Poles
20RCA	2F7	120/240	1	60	18/18	75	20/20	84	100	2
20RCAL		120/208	3	60	17/21	59	17/21	59	70	3
20RCA	2G7	120/240	3	60	17/21	51	17/21	51	60	3
		277/480	3	60	17/21	26	17/21	26	30	3

Note: The line circuit breaker is automatically selected based on the generator set model and voltage configuration.

RATINGS: Standby ratings apply to installations served by a reliable utility source. All single-phase units are rated at 1.0 power factor. The standby rating is applicable to variable loads with an average load factor of 80% for the duration of the power outage. No overload capacity is specified at this rating. Ratings are in accordance with ISO-3046/1, BS5514, AS2789, and DIN 6271. **GENERAL GUIDELINES FOR DERATING:** **ALTITUDE:** Derate 4% per 305 m (1000 ft.) elevation above 153 m (500 ft.). **TEMPERATURE:** Derate 2% per 5.5°C (10°F) temperature increase above 16°C (60°F). Availability is subject to change without notice. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. Contact your local Kohler Co. generator dealer for availability.

§ Check the appliance manufacturer's specifications for actual power requirements. Consult a Kohler® Power Systems professional to calculate your exact residential power system requirements.

† Meets NFPA guidelines for 18 inch clearance to combustible materials. Check state and local codes for minimum distance required from a structure.

Standard Features

- **RDC2 Controller**
 - One digital controller manages both the generator set and transfer switch functions (with optional Model RXT).
 - Electronic speed control responds quickly to varying demand.
 - OnCue® Plus Generator Management System for remote monitoring is included with the generator.
- **Kohler Command PRO Engine Features**
 - Kohler Command PRO® OHV engine with hydraulic valve lifters for reliable performance without routine valve adjustment or lengthy break-in requirements.
- **Designed for Easy Installation**
 - Sturdy aluminum base can be mounted on gravel or a concrete mounting pad.
 - Fuel and electrical connections through the enclosure wall eliminate the need for stub-ups through the base.
 - Customer connection terminal block located near the controller allows easy access for field wiring.
 - Designed for outdoor installation only.
- **Certifications**
 - Meets emission regulations for U.S. Environmental Protection Agency (EPA) with both natural gas and LPG.
 - UL 2200/cUL listed.
 - Accepted by the Massachusetts Board of Registration of Plumbers and Gas Fitters.
 - Meets 181 mph wind rating.
- **Approved for stationary standby applications** in locations served by a reliable utility source (on-grid).
- **Exercise Modes**
 - Unloaded weekly exercise with complete system diagnostics (20 minutes).
 - Unloaded full-speed exercise (20 minutes).
 - Loaded full-speed exercise (20 minutes; Model RXT ATS required).
- **Model 20RCAL includes a model RXT automatic transfer switch.** See last page for more details.

Alternator Specifications

Alternator Specifications

Specifications		Alternator
Manufacturer		Kohler
Type		2-Pole, Rotating Field
Leads, quantity		
2F7		4
2G7		12
Voltage regulator		Digital
Insulation:		NEMA MG1-1.66
Material		Class H
Temperature rise		130°C Standby
Bearing: quantity, type		1, Sealed
Coupling		Direct
Amortisseur windings		Full
Voltage regulation, no-load to full-load RMS		±1.0%
One-step load acceptance		100% of Rating
Peak motor starting kVA: (35% dip for voltages below)		
240 V, 1 ph	2F7 (4 lead)	41 (60 Hz)
240 or 480 V, 3 ph	2G7 (12 lead)	69 (60 Hz)

Alternator Features

- Compliance with NEMA, IEEE, and ANSI standards for temperature rise.
- Self-ventilated and dripproof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform and minimum harmonic distortion from skewed alternator construction.
- Digital voltage regulator with ±1.0% no-load to full-load RMS regulation.
- Rotating-field alternator with static exciter for excellent load response.
- Total harmonic distortion (THD) from no load to full load with a linear load is less than 5%.

Application Data

Engine

Engine Specifications	
Manufacturer	Kohler
Engine: model, type	CH1000 4-Cycle
Cylinder arrangement	V-2
Displacement, cm ³ (cu. in.)	999 (61)
Bore and stroke, mm (in.)	90 x 78.5 (3.54 x 3.1)
Compression ratio	8.8:1
Main bearings: quantity, type	2, Heavy-Duty Sleeve Bearings
Rated RPM	3600
Max. engine power at rated rpm, kW (HP)	
LPG	23.0 (30.9)
Natural gas	20.2 (27.1)
Cylinder head material	Aluminum
Valve material	Steel/Stellite®
Piston type and material	Aluminum Alloy
Crankshaft material	Heat Treated, Ductile Iron
Governor: type	Electronic
Frequency regulation, no load to full load	Isochronous
Frequency regulation, steady state	±0.5%
Air cleaner type	Dry

Engine Electrical

Engine Electrical System	
Ignition system	Electronic, Capacitive Discharge
Starter motor rated voltage (DC)	12
Battery (purchased separately):	
Ground	Negative
Volts (DC)	12
Battery quantity	1
Recommended cold cranking amps:	
(CCA) rating for -18°C (0°F)	500
Group size	51

Exhaust

Exhaust System	
Exhaust temperature exiting the enclosure at rated kW, dry, °C (°F)	260 (500)

Lubrication

Lubricating System	
Type	Full Pressure
Oil capacity (with filter), L (qt.) §	1.9 (2.0)
Oil filter: quantity, type §	1, Cartridge
Oil cooler	Integral
§ Kohler recommends the use of Kohler Genuine oil and filters.	

Fuel Requirements

Fuel System	
Fuel types	Natural Gas or LPG
Fuel supply inlet	1/2 NPT
Fuel supply pressure, kPa (in. H ₂ O):	
Natural gas	0.9-2.7 (3.5-11)
LP	1.7-2.7 (7-11)

Fuel Composition Limits *	Nat. Gas	LPG
Methane, % by volume (minimum)	90 min.	—
Ethane, % by volume (maximum)	4.0 max.	—
Propane, % by volume	1.0 max.	85 min.
Propene, % by volume (maximum)	0.1 max.	5.0 max.
C ₄ and higher, % by volume	0.3 max.	2.5 max.
Sulfur, ppm mass (maximum)	25 max.	
Lower heating value, MJ/m ³ (Btu/ft ³), (minimum)		
	33.2 (890)	84.2 (2260)

* Contact your local dealer for suitability and rating derates based on fuel compositions outside these limits.

Fuel Pipe Size

Minimum Gas Pipe Size Recommendation, in. NPT		
Pipe Length, m (ft.)	Natural Gas 281,000 Btu/hr.	LPG 340,000 Btu/hr.
8 (25)	1	3/4
15 (50)	1	1
30 (100)	1 1/4	1
46 (150)	1 1/4	1 1/4
61 (200)	1 1/4	1 1/4

Generator Set Sound Data

Model 20RCA average sound levels are 66 dB(A) during weekly engine exercise and 70 dB(A) during full-speed generator diagnostics and normal operation.*

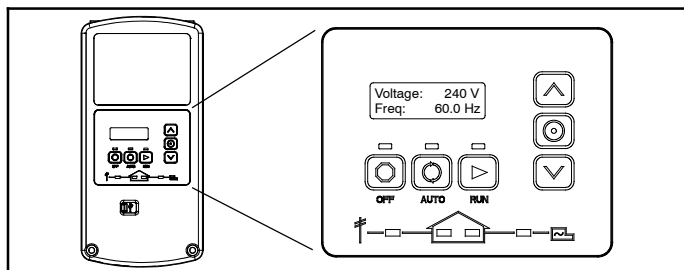
All sound levels are measured at a distance of 23 ft. (7 m) from the generator set.

* Lowest of 8 points measured around the generator. Sound levels at other points around generator may vary depending on installation parameters.

Operation Requirements

Fuel Consumption, m ³ /hr. (cfh) @ 60Hz				
% Load	Natural Gas		LPG	
100	8.0	(281)	3.9	(136)
75	6.9	(243)	3.1	(109)
50	4.6	(161)	2.3	(82)
25	3.6	(127)	1.7	(59)
Exercise	2.0	(71)	1.0	(35)
Nominal fuel rating: Natural gas: 37 MJ/m ³ (1000 Btu/ft. ³)				
LPG: 93 MJ/m ³ (2500 Btu/ft. ³)				
LPG conversion factors: 8.58 ft. ³ = 1 lb.				
0.535 m ³ = 1 kg				
36.39 ft. ³ = 1 gal.				

RDC2 Controller Features



The RDC2 controller provides integrated control for the generator set, Kohler® Model RXT transfer switch, programmable interface module (PIM), and load shed kit.

- Membrane keypad:
 - OFF, AUTO, and RUN pushbuttons
 - Select and arrow buttons for access to system configuration and adjustment menus
- LED indicators for OFF, AUTO, and RUN modes
- LED indicators for utility power and generator set source availability and ATS position (Model RXT transfer switch required)
- LCD display:
 - Two lines x 16 characters per line
 - Backlit display with adjustable contrast for excellent visibility in all lighting conditions
- Scrolling system status display:
 - Generator set status
 - Voltage and frequency
 - Engine temperature
 - Oil pressure
 - Battery voltage
 - Engine runtime hours
- Date and time displays
- Smart engine cooldown senses engine temperature
- Digital isochronous governor maintains steady-state speed at all loads
- Digital voltage regulation: $\pm 1.0\%$ RMS no-load to full-load
- Automatic start with programmed cranking cycle
- Built-in 2.5 amp battery charger
- Programmable exerciser can be set to start automatically on any future day and time
- Exercise modes:
 - Unloaded weekly 20-minute exercise with complete system diagnostics
 - Unloaded 20-minute full-speed exercise
 - Loaded 20-minute full-speed exercise (Model RXT ATS required)
- Weekly, bi-weekly, or new monthly exercise intervals
- Front-access mini USB connector for SiteTech™ or USB Utility connection
- Integral Ethernet connector for Kohler® OnCue® Plus
- Remote two-wire start/stop capability for optional connection of a Model RDT transfer switch
- Diagnostic messages: Displays diagnostic messages for the engine, generator, Model RXT transfer switch, programmable interface module (PIM), and load management device.
- Maintenance reminders
- System settings:
 - System voltage, frequency, and phase
 - Voltage adjustment
 - Measurement system, English or metric
- ATS status (Model RXT ATS required):
 - Source availability
 - ATS position (normal/utility or emergency/generator)
 - Source voltage and frequency
- ATS control (Model RXT ATS required):
 - Source voltage and frequency settings
 - Engine start time delay
 - Transfer time delays
 - Voltage calibration
 - Fixed pickup and dropout settings
- Programmable Interface Module (PIM) status displays:
 - Input status (active/inactive)
 - Output status (active/inactive)
- Load control menus:
 - Load status
 - Test function

Generator Set Standard Features

- Aluminum sound enclosure (cashmere color standard)
- Battery cables
- Critical silencer
- EPA certified fuel system
- Field-connection terminal block
- Fuel solenoid valve and secondary regulator
- Line circuit breaker
- Multi-fuel system, LPG/natural gas, field-convertible
- Oil drain extension with shutoff valve
- Oil pressure sensor
- OnCue® Plus Generator Management System
- Premium 5-year/2000 hour limited standby warranty. Covers parts, labor, and travel for the entire warranty period
- RDC2 generator set/ATS controller
- Rodent-resistant construction
- Sound-deadening, flame-retardant foam per UL 94, class HF-1

Available Options

Concrete Mounting Pads

- ☐ Concrete mounting pad, 3 in. thick
- ☐ Concrete mounting pad, 4 in. thick (recommended for storm-prone areas)

Electrical Accessories

- ☐ Battery
 - ☐ Battery heater, 120 VAC *
 - ☐ Carburetor heater, 120 VAC †
 - ☐ Cold weather package, 120 VAC †‡
 - Includes oil and breather tube heaters, fuel regulator heater, battery heater, alternator brush cover and pressure sensor cover
 - ☐ Emergency stop kit
 - ☐ PowerSync® Automatic Paralleling Module (APM) (single phase only; parallel two 20kW residential generator sets with the RDC2 controller)
 - ☐ Programmable interface module (PIM) (provides 2 digital inputs and 6 relay outputs)
- * Battery heater is recommended below - 17°C (0°F).
† Do not use a carburetor heater with a cold weather kit.
‡ Cold weather kit is recommended below 0°C (32°F).

Enclosure Options (single-phase only)

- ☐ Kohler® Exclusive Colors
Go to KohlerGenerators.com to see the latest colors.
- ☐ Mossy Oak® camouflage enclosures
Go to KohlerGenerators.com/MossyOak to see available patterns.

Mossy Oak is a trademark used under license from Haas Outdoors, Inc., by Kohler Co.

Fuel System Accessories

- ☐ Flexible fuel line (included on QS models)

Literature

- ☐ General maintenance literature kit
- ☐ Overhaul literature kit
- ☐ Production literature kit

Maintenance

- ☐ Maintenance kit (includes air filter, oil, oil filter, and spark plugs)

Automatic Transfer Switches and Accessories

- ☐ Model RDT ATS
- ☐ Model RXT ATS
- ☐ Model RXT ATS with combined interface/load management board
- ☐ Load shed kit for RXT or RDT
- ☐ Power relay modules (use up to 4 relay modules for each load management device)
- ☐ Other Kohler® ATS

20RCAL Model Package

- ☐ 20RCAL with 200 amp service entrance-rated RXT ATS with combined interface/load management board and corrosion-resistant NEMA 3R aluminum enclosure

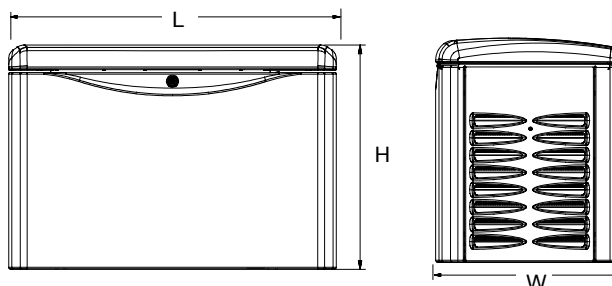
Warranty

- ☐ 7- Year Limited Warranty
 - ☐ 10- Year Limited Warranty
- Warranties cover parts, labor, and travel for the entire warranty period.

Generator Set Dimensions and Weights

Generator Set Size, L x W x H: 1193 x 660 x 820 mm
(47 x 26.0 x 32.3 in.)

Shipping Weights:
20RCA Generator Set: 252 kg (555 lb.)
20RCAL with 200 A RXT SE ATS: 272 kg (600 lb.)



NOTE: Dimensions are provided for reference only and should not be used for planning installation. Contact your local dealer for more detailed information.

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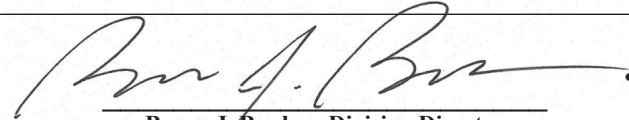


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2023 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION
AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: Kohler Co.
(U.S. Manufacturer or Importer)
Certificate Number: PKHXB.9992DA-009

Effective Date:
11/21/2022
Expiration Date:
12/31/2023


Byron J. Bunker, Division Director
Compliance Division

Issue Date:
11/21/2022
Revision Date:
N/A

Manufacturer: Kohler Co.
Engine Family: PKHXB.9992DA
Mobile/Stationary Certification Type: Stationary
Fuel : Natural Gas (CNG/LNG)
Emission Standards :
Part 90 Phase 1
NMHC + NOx (g/kW-hr) : 13.4
CO (g/kW-hr) : 519.0
Emergency Use Only : Y

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 60, 1065, 1068, and 60 (stationary only and combined stationary and mobile) and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new nonroad spark-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60. This certificate of conformity does not cover nonroad engines imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068.20 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover large nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.



Carmeuse Lime & Stone – Black River Operation

9043 Highway 154 • Butler, KY 41006

Phone: 859.472.8100 • Fax: 859.472.8110 • info@carmeusena.com

December 7, 2021

Mr. Julian Breckenridge
Mineral Section Supervisor
Division for Air Quality
300 Sower Blvd, 2nd Floor
Frankfort, Kentucky 40601

RE: **Section 502(b)(10) Notification for New Reject Lime Pile and Specialty Lime Operation**
Carmeuse Lime & Stone, Inc. – Black River Plant
(Source ID 21-191-00002, Agency Interest # 3400, Permit V-19-011)

Dear Mr. Breckenridge:

Carmeuse Lime & Stone, Inc. (Carmeuse) owns and operates a limestone mine, limestone processing operation, and lime manufacturing plant in Pendleton County, Kentucky (Black River Plant). Carmeuse is proposing to install a new reject lime pile at the Black River Plant to accommodate transfer of reject lime to the mine. The new reject lime pile will have the same applicable requirements as the existing reject lime piles represented in the current Title V permit (V-19-011) and therefore we have concluded that the installation can be handled as a 502(b)(10) notification and later be incorporated into the permit as part of the next permit revision or renewal. Included in this notification is a description of the reject lime disposal process and analysis of emission impacts for the new stockpile.

In addition, Carmeuse is planning to receive a new specialty lime product on a temporary basis at the Black River Plant. The specialty lime will require a new dedicated stockpile, however only existing equipment will be used to convey the specialty lime once it is received. Consistent with determinations made previously by the Kentucky Division for Air Quality (the Division) for similar temporary projects, Carmeuse is submitting this 502(b)(10) change notification in accordance with 401 KAR 52:020, Section 18 to obtain authorization for the temporary operation. Included in this notification is a description of the proposed temporary specialty lime operation and analysis of emission impacts. Carmeuse is not seeking a revision to the existing Title V permit (V-19-011) given that the planned operation is temporary in nature.

PROPOSED REJECT LIME STOCKPILE

Due to various process instabilities or other causes, lime that is not suitable to use as product may be generated at both the hot and cold end of each kiln. At the hot end, this reject lime is separated when the product lime is transferred from the coolers. A large chamber at the feed end (cold end) of each kiln allows for larger dust particles to drop out before the exhaust gas is treated. Reject lime, dust, and yard material generated in the process is collected into one of four authorized lime containing material stockpiles (LM05) where it is stored for further disposal. A separate emission unit is defined for each of these reject lime stockpiles, since they have the potential to be a source of fugitive dust.

Reject lime from these stockpiles is reclaimed using front end loaders. The lime is transferred into a receiving hopper that is located within a partially enclosed shed. The receiving hopper feeds a wet screw system that is used to separate fines from reject lime. Dust generated from the transfer into the receiving hopper is minimized through use of a small dust collection system. Reject lime is then hydraulically transferred to a holding tank and then underground for disposal. Separated fines may also be collected by front end loaders and transferred into a high pH pond onsite, where they are mixed with water and sent underground for disposal. This reject lime processing operation is organized into emission grouping LM06.

Operations at the Black River Plant have recently necessitated the addition of a new bore hole into the underground mine for disposal of reject lime. The location of the new bore hole requires Carmeuse to create a new nearby reject lime stockpile. Reject lime will be moved from one of the existing reject lime storage/accumulation areas to the new stockpile via front-end loaders. Once sufficient reject lime has accumulated, front-end loaders will transfer the reject lime into the bore hole for disposal. The new reject lime stockpile will encompass an area of approximately 0.11 acres (5,000 sq. ft.). The approximate extent and location of the new reject lime stockpile are shown in Figure 1 below for reference.

Figure 1. Aerial Map of New Reject Lime Stockpile



All coordinates shown in UTM Coordinates,
UTM Zone 16, NAD 83 Datum

TEMPORARY SPECIALTY LIME OPERATION

In the clinker reclaim process (LM07), clinker and lime material recovered at various stages of the process is picked up in front end loaders and is transferred to a receiving hopper (EP 12 03). From this hopper, the material is transferred to the lime conveyer system serving Kilns #4 and #5. From here, it is conveyed to downstream lime screening, crushing, and storage system operations encompassed by LM01 and LM02.

Carmeuse is proposing to load a new specialty lime product to the existing Clinker Hopper (EP 12 03) on a temporary basis. The specialty lime product will be received at the Black River Plant via truck and transferred to a dedicated specialty lime stockpile. To make room for the specialty lime stockpile, Carmeuse is currently planning to clear out a portion an existing reclaim lime stockpile area. A temporary partial enclosure will also be erected to house the specialty lime stockpile and protect the lime product from precipitation.

Once the specialty lime product has been received and stockpiled, front-end loaders will transfer the product from the stockpile to the existing Clinker Hopper (EP 12 03). At this point, existing conveyor and storage systems will be used to transfer the lime product to loadout via barge, truck, or rail.

Carmeuse anticipates that the Black River Plant may accommodate up to 40,000 tons of the specialty lime product during the trial period. To complete the specialty lime product trial, Carmeuse is requesting authorization to conduct the specialty lime product operations until April 2022.

AIR EMISSIONS ASSOCIATED WITH PROPOSED PROJECTS

Reject Lime Stockpile

A small amount of particulate emissions will be generated from the new reject lime stockpile. Based on a potential area of 5,000 sq. ft. and the particulate emission factor for the existing reject lime stockpiles (0.05541 lb/acre-hr), the potential emissions from the new reject lime stockpile are 55.7 lbs per year (27.9 lbs/yr of PM₁₀ and 4.2 lbs/yr of PM_{2.5}, based on existing emission factors for LM05). As such, the potential emissions of all regulated pollutants from the new reject lime stockpile are below the threshold that qualifies the stockpile for classification as an Insignificant Activity under 401 KAR 52:020, Section 6 (0.5 tpy HAP and the 5 tpy non-hazardous regulated air pollutant). Normally, the new stockpile would be added to Section C of the permit, however the existing permit already has a designated Section B for reject lime stockpiles (LM05). Because the new stockpile will be subject to the same requirements as the existing stockpiles and for consistency, it is requested that the new reject lime stockpile be added to Section B during the next permit revision.

There will also be material handling processes associated with the new reject lime stockpile. For example, transfers of reject lime from an accumulation area to the reject lime stockpile and transfers of reject lime from the new stockpile to the bore hole for disposal. The reject lime material transferred to the stockpile will have a very high moisture content. As such, Carmeuse presumes negligible emissions associated with this transfer. Furthermore, the transfer to the bore hole will result in negligible emissions to the atmosphere due to the great distance between the surface and the bottom of the bore hole. Therefore, similar to the material handling for existing reject lime operations,

it is reasonable to conclude negligible emissions from material handling of the reject lime.

Temporary Specialty Lime Operation

Particulate emissions are expected to be generated from the specialty lime operation when transferring lime from the trucks to the stockpile, transferring from the stockpile to the Clinker Hopper (EP 12 03), and from wind erosion of the stockpile. The estimated size of the specialty lime stockpile is 3,000 sq. ft. Using the same emission calculations methodology applied above for the reject lime stockpile, this equates to a potential emission rate of 33.4 lbs per year of total PM (16.7 lbs/yr of PM₁₀ and 2.5 lbs/yr of PM_{2.5}, based on existing emission factors for LM05) from wind erosion.

Emissions resulting from the transfer of lime product can be estimated using the product transfer emission factor (2.2 lb/ton) presented in AP-42 Chapter 11.17-4 for Lime Manufacturing. As previously mentioned, there are two drop points associated with the specialty lime product operations. However, the emissions associated with the Clinker Hopper (EP 12 03) product transfer are already permitted based on the maximum capacity of the emission unit. As such, there will be no increase on a potentials-basis for the Clinker Hopper (EP 12 03).

The specialty lime stockpile will be located within a 3-sided partial enclosure. This partial enclosure will provide a reduction in particulate emissions released to the atmosphere when material is transferred from trucks to the stockpile. Based on the WRAP Fugitive Dust Handbook¹, this reduction has been approximated at 75% for PM₁₀. Assuming the same control efficiency applies for total PM, an approximate total process rate of 40,000 tons over the trial period, and applying the AP-42 emission factor of 2.2 lb/ton,² the total particulate emissions associated with the unpermitted material handling processes is 11.0 tons per year. Assuming the same reduction for PM_{2.5} and applying the existing uncontrolled PM₁₀ and PM_{2.5} emission factors for the Clinker Hopper (EP 12 03), yields emissions of 9.4 tons per year of PM₁₀ and 3.3 tons per year of PM_{2.5}.

Given the total quantity of material to be processed and the temporary nature of the operation, the annual emissions from the specialty lime product operations are relatively small. As operation of these emission units are temporary and the equipment will be removed from the facility once the trial period has concluded, Carmeuse is not requesting that these units be added to Section B of the current Title V permit and no suggested permit revisions are being submitted.

REGULATORY APPLICABILITY

NSPS Subpart OOO – Nonmetallic Mineral Processing Plants

NSPS Subpart OOO regulates PM emissions from each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, and enclosed truck or railcar loading operation at a nonmetallic mineral processing plant constructed, reconstructed, or modified after August 31, 1983. Pursuant to 40 CFR

¹ WRAP Fugitive Dust Handbook by Countess Environmental, Table 4-2. Control Efficiencies for Control Measures for Materials Handling, September 7, 2006
https://www.wrapair.org/forums/dej/fdh/content/FDHandbook_Rev_06.pdf

² AP-42 Section 11.17 for Lime Manufacturing. Table 11.17-4 for product transfer and conveying.



§60.671, a nonmetallic mineral processing plant means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located except as provided in 40 CFR §60.670 (b) and (c).

Lime is not included in the list of nonmetallic minerals covered by NSPS Subpart OOO. Furthermore, EPA has confirmed in applicability determination memos that NSPS Subpart OOO does not apply to lime handling operations.³ As such, NSPS Subpart OOO does not apply to the new reject lime stockpile or specialty lime product operations.

401 KAR 63:010 – Fugitive Emissions

The particulate emissions generated from the new reject lime stockpile and the specialty lime product operations will be fugitive. As such, the fugitive emissions generated by both emission units are covered under the generally applicable SIP rule for fugitive emissions, 401 KAR 63:010. 401 KAR 63:010 requires that reasonable precautions to prevent airborne PM emissions be taken by Carmeuse and that no visible fugitive dust emissions shall be discharged beyond the property line (for more than 5 minutes during any 60 minute period, or more than 20 minutes during any 24-hour period). Carmeuse will exercise reasonable precautions similar to those conducted for similar existing operations.

QUALIFICATION FOR 502(B)(10) CHANGE

401 KAR 52:001 defines a Section 502(b)(10) change as “changes that contravene an express permit term and does not include changes that would violate applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.” The specific criteria that qualify a particular project as a 502(b)(10) change and the corresponding procedures to follow are defined in 401 KAR 52:020 Section 18(1). An analysis of the new reject lime stockpile’s qualification for processing as a 502(b)(10) change is presented in the following bullets:

- The installation of the new reject lime stockpile without a permit would contravene the requirements in Section A of the existing Title V permit. However, the project will not result in a violation of any applicable requirements nor any federally enforceable compliance assurance conditions. Thus, the project falls within the definition of a 502(b)(10) change.
- The Black River plant is not subject to the Acid Rain Program and the installation of the new reject lime stockpile will not change that determination.
- The project does not constitute a modification under Title I of the Act. With regard to the Prevention of Significant Deterioration (PSD) permitting program, the calculated potential emissions from the reject lime stockpile are 55.7 lbs per year of PM, and thus are below the respective PSD triggering thresholds for PM, PM₁₀, and PM_{2.5}. No new PSD avoidance limits are required or necessary.

³ U.S. Environmental Protection Agency, Applicability Determination Index, Control Number: 0400016, “Subpart OOO and UUU Applicability to Lime Plants”, November 18, 2003



Mr. Julian Breckenridge – Page 6
December 7, 2021

There are no explicit provisions in Kentucky's air regulations for Title V sources to accommodate temporary sources. Regardless, the specialty lime product operations meet the same 502(b)(10) change qualification criteria as the new reject lime stockpile.

Based on the analysis of the new reject lime stockpile and specialty lime product operation's emission characteristics and applicable regulations, Carmeuse has concluded that the proposed projects satisfy the criteria for using the 502(b)(10) change procedures. Therefore, Carmeuse presumes that no permit revision shall be required before proceeding with the projects.

As required under 401 KAR 52:020, Section 18(2), this letter provides the required description of the proposed changes and emissions impacts. Carmeuse desires to commence with the projects and associated changes next week as soon as the 7-day notification requirement has been fulfilled.

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Thank you in advance for your prompt assistance in reviewing and responding to our request. Should you have any questions regarding this request, please do not hesitate to contact me at (205) 664-7129.

Sincerely,

*Jackie Padgett*

Jackie Padgett  
Senior Area Environmental Manager

cc: U.S. EPA Region 4  
Attn: Air Permits Section, Air and Radiation Technology Branch  
61 Forsyth St. (Mail Code 9T25)  
Atlanta, GA 30303

Mr. Michael R. Klenda, Site Surface Operations Manager, Carmeuse  
Mr. Paul J. Smith, P.E., Trinity Consultants  
Mr. Brian Otten, Trinity Consultants





## **Carmeuse Lime & Stone – Black River Operation**

9043 Highway 154 • Butler, KY 41006

Phone: 859.472.8100 • Fax: 859.472.8110 • [info@carmeusena.com](mailto:info@carmeusena.com)

October 18, 2022

Mr. Julian Breckenridge  
Mineral Section Supervisor  
Division for Air Quality  
300 Sower Blvd, 2nd Floor  
Frankfort, Kentucky 40601

RE: **Section 502(b)(10) Change Notification for Railcar Cleanout Operation**  
*Carmeuse Lime & Stone, Inc. – Black River Plant*  
(Source ID 21-191-00002, Agency Interest # 3400, Permit V-19-011)

Dear Mr. Breckenridge:

Carmeuse Lime & Stone, Inc. (Carmeuse) owns and operates a limestone mine, limestone processing, and lime manufacturing plant in Pendleton County, Kentucky (Black River Plant). Carmeuse is proposing to install a new portable conveyor at the Black River Plant to accommodate railcar cleanout activities. The new railcar cleanout operation equipment will have the same applicable requirements as other existing equipment represented in the current Title V permit (V-19-011) and therefore we have concluded that the equipment installation can be handled as a 502(b)(10) change notification and later be incorporated into the permit as part of the next permit revision or renewal. Included in this notification is a description of the railcar cleanout operation and analysis of emission impacts for the new equipment.

### **RAILCAR CLEANOUT OPERATION**

At the Black River Plant, different grades of lime product are stored in silos and product bins after being manufactured. The product is then shipped offsite for sale by means of railcar loadout, truck loadout, and barge loadout operations. Railcars returned to Carmeuse often retain up to 1 ton of residual lime product. Carmeuse is proposing to recover this lime product using a new portable conveyor (similar to the existing transloading conveyor).<sup>1</sup> The recovered lime product will either be reclaimed or disposed of on-site.

Carmeuse is proposing to install a portable conveyor at the Black River Plant to facilitate the lime material recovery during a railcar cleanout process. The conveyor currently planned for use was manufactured by Wilson Manufacturing & Design, Inc and has a serial number of 90519520. This conveyor is equipped with a diesel engine, loading spout, and can accommodate various sizes of aggregate. The conveyor can be hydraulically controlled to adjust both the unloading height for the railcar and loading height for the trucks. Depending on the material being processed, the unit can handle up to 60 tph of material. However, the actual projected amount of material recovered from railcars on an annual basis is estimated at only 2,000 tons per year. A pictorial representation of a similar portable conveyor is shown in Figure 1.

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<sup>1</sup> Refer to description of the existing transloading operation, which was authorized through a Section 502(b)(10) notification submitted on November 19, 2020.

**Figure 1. Picture of Example Portable Conveyor**



Lime material will first be transferred from the bottom of the railcar into the enclosed portable conveyor. The portable conveyor will be hydraulically compressed against the bottom of the railcar to prevent particulate matter from becoming airborne from the material drop. It is expected that the connection between the railcar and the portable conveyor will be sufficiently tight such that the transfer point can be considered enclosed. As such, the drop point from the railcar to the conveyor is not included in the emission calculations for the railcar cleanout operation. Once the lime has been received from the railcar, the lime is conveyed upward on the enclosed conveyor and then ejected through a loading spout into the bucket of a transport vehicle, which is expected to normally be a front-end loader. The front-end loader will carry the lime product either to the existing Clinker Receiving Hopper (12-01) for reclaim or taken to one of the existing reject lime piles (32-01, 02, 03, and 04) for eventual disposal. The particulate generated from transferring lime material from the portable conveyor into the front-end loader will be primarily captured by a small onboard dust collection system that is integrated with the operation of the conveyor.

### **AIR EMISSIONS ASSOCIATED WITH THE RAILCAR CLEANOUT OPERATION**

A small amount of particulate emissions will be generated from the railcar cleanout operation. Particulate emissions are expected to be generated from transferring lime material from the portable conveyor to the front-end loaders (or trucks, etc.). This transfer point will be controlled by the integrated dust collection system of the conveyor, which has a nominal flow of up to 600 cubic feet per minute. Based on the design of the system, it is expected that the dust collector will capture nearly all of the particulate emissions generated by the railcar cleanout operation. However, Carmeuse has historically assumed a capture efficiency of 99.9% for dust collectors serving lime material transfer points at the Black River Plant. As such, for consistency with current representations in the permit for other similar lime loadout operations, Carmeuse is proposing that both a new fugitive emission point (36-03) and a stack emission point (36-04) be added to the permit for the railcar cleanout operation.

The railcar cleanout conveyor relies upon an onboard diesel engine to generate power. This power is used for locomotion of the portable conveyor, operation of the onboard dust collector, and for movement of the conveyor belt to transfer the lime product. The railcar cleanout conveyor is portable and will be moved around to accommodate railcars parked in different areas. As such, the onboard diesel engine is classified as a non-road



engine and will not be regulated as a stationary source. As such, the small amount of emissions associated with the onboard diesel engine have not been quantified, although they would not alter the permitting requirements.

The emission factors used to derive the potential fugitive emissions for the railcar cleanout operation were retrieved from AP-42 Table 11.17-4 for lime product transfers and conveying (1.5 lb PM/ton).<sup>2</sup> This fugitive emission factor was then adjusted based on the expected capture efficiency of the dust collection system (99.9%). The emission factor was adjusted directly, rather than accounting for the capture efficiency in the potential emission calculations, because the onboard dust collection system is integral to the operation of the portable conveyor. Without the dust collection system, the railcar cleanout operation could potentially cause significant loss of lime product and create unsafe working conditions, thus preventing Carmeuse from operating the portable conveyor.

The potential stack emissions for the railcar cleanout operation were estimated based on a very conservative exit grain loading (0.01 gr/scf) and the nominal flow rate (600 cfm) for the dust collection system. The calculated stack emissions were then divided by the maximum process rate for the railcar cleanout operation to obtain emission factors consistent with the Source Classification Code (SCC) for the portable conveyor. The derivation of these emission factors is provided in greater detail in **Attachment 2**.

No emissions were calculated for the existing emission units downstream of the railcar cleanout operations (i.e., the Clinker Receiving Hopper [12 01] and Reject Lime Stockpiles [32-01, 02, 03, and 04]) because the actual process rates for these emission units will remain well below their respective permitted process rates and any incremental impacts on their emissions are negligible. Additionally, these emission units by definition and as permitted already accommodates the type of activity that would be associated with receiving lime from the railcar cleanout operations.

The potential annual emissions from the lime railcar cleanout operation are relatively small. As shown in the DEP7007N form provided in **Attachment 1**, the total PM emissions estimated using the methodology described are 0.62 tpy (0.39 tpy fugitive emissions and 0.23 tpy stack emissions). The potential emissions of all regulated pollutants from the new railcar cleanout operation are below the threshold that qualifies the operation for classification as an Insignificant Activity under 401 KAR 52:020, Section 6 (0.5 tpy HAP and the 5 tpy non-hazardous regulated air pollutant). Normally, the new portable conveyor would be added to Section C of the permit, however the existing permit already has a designated Section B for dust collectors and lime handling/loadout operations (LM04 – Lime Dust Collection Systems [Non-PSD]). Because the new portable conveyor will be subject to the same requirements as the existing loading spouts and associated dust collections systems and for consistency, Carmeuse presumes that KDAQ will choose to add the new portable conveyor to Section B during the next permit revision.

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<sup>2</sup> AP-42, Compilation of Air Pollutant Emissions Factor, Volume I, Stationary Point and Area Sources, Chapter 11.17 Lime Manufacturing

## **REGULATORY APPLICABILITY**

### **NSPS Subpart OOO – Nonmetallic Mineral Processing Plants**

NSPS Subpart OOO regulates PM emissions from each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, and enclosed truck or railcar loading operation at a nonmetallic mineral processing plant constructed, reconstructed, or modified after August 31, 1983. Pursuant to 40 CFR §60.671, a nonmetallic mineral processing plant means any combination of equipment that is used to crush or grind any nonmetallic mineral wherever located except as provided in 40 CFR §60.670 (b) and (c). Lime is not included in the list of nonmetallic minerals covered by NSPS Subpart OOO. Furthermore, EPA has confirmed in applicability determination memos that NSPS Subpart OOO does not apply to lime handling operations.<sup>3</sup> Because the new portable conveyor will only handle lime product, NSPS Subpart OOO does not apply to the railcar cleanout operation.

### **401 KAR 59:010 – New Process Operations**

Particulate emissions from new process operations (commenced on or after July 2, 1975) not subject to other new source standards are regulated by 401 KAR 59:010. The affected facilities regulated by this standard include any “method, form, action, operation, or treatment of manufacturing or processing, and shall include any storage or handling of materials or products, before, during, or after manufacturing or processing.” The new railcar cleanout operation (with its integral dust collection system and exhaust point) will be installed at the Black River Plant in December 2022. As such, 401 KAR 59:010 will apply to the railcar cleanout operation.

Section 3 of the rule establishes opacity and PM mass emissions standards. Opacity of continuous emissions (visible emissions of particulate matter persisting for more than three minutes) shall not equal or exceed 20 percent from a control device or stack associated with an affected facility. The mass emission standard for particulate emissions into the open air from a control device or stack is limited based on the process weight rate. For the railcar cleanout operation, the associated PM emission limitation is 33.33 lbs/hr ( $= 17.31 \times 60^{0.16}$ ), which is well above the potential emission rate (0.09 lbs/hr) of the dust collection system.

### **401 KAR 63:010 – Fugitive Emissions**

It is assumed that the dust collection system will not completely capture the particulate emissions generated by the railcar cleanout operation. As such, the fugitive emissions generated by the railcar cleanout operation are covered under the generally applicable SIP rule for fugitive emissions, 401 KAR 63:010. 401 KAR 63:010 requires that reasonable precautions to prevent airborne PM emissions be taken by Carmeuse and that no visible fugitive dust emissions shall be discharged beyond the property line (for more than 5 minutes during any 60-minute period, or more than 20 minutes during any 24-hour period). Carmeuse will exercise reasonable precautions similar to those conducted for existing loadout operations.

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<sup>3</sup> U.S. Environmental Protection Agency, Applicability Determination Index, Control Number: 0400016, “Subpart OOO and UUU Applicability to Lime Plants”, November 18, 2003



## QUALIFICATION FOR 502(B)(10) CHANGE

401 KAR 52:001 defines a Section 502(b)(10) change as “changes that contravene an express permit term and does not include changes that would violate applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification requirements.” The specific criteria that qualify a particular project as a 502(b)(10) change and the corresponding procedures to follow are defined in 401 KAR 52:020 Section 18(1). An analysis of the railcar cleanout operation’s qualification for processing as a 502(b)(10) change is presented in the following bullets:

- The installation of the new portable conveyor without a permit would contravene the requirements in Section A of the existing Title V permit. However, the project will not result in a violation of any applicable requirements nor any federally enforceable compliance assurance conditions. Thus, the project falls within the definition of a 502(b)(10) change.
- The Black River plant is not subject to the Acid Rain Program and the installation of the new portable conveyor will not change that determination.
- The project does not constitute a modification under Title I of the Act. With regard to the Prevention of Significant Deterioration (PSD) permitting program, the calculated potential emissions from the railcar cleanout operation equipment are 0.62 tpy of PM, 0.52 tpy of PM<sub>10</sub>, and 0.22 tpy of PM<sub>2.5</sub>, and thus are below the respective PSD triggering thresholds for PM, PM<sub>10</sub>, and PM<sub>2.5</sub>. No new PSD avoidance limits are required or necessary.

Based on the analysis of the railcar cleanout operation’s emission characteristics and applicable regulations, Carmeuse has concluded that the proposed project satisfies the criteria for using the 502(b)(10) change procedures. Therefore, Carmeuse presumes that no permit revision shall be required before proceeding with the project.

As required under 401 KAR 52:020, Section 18(2), this letter provides the required description of the proposed change and emissions impacts. Additionally, although not explicitly required by the regulation, Attachment 1 contains DEP 7007 series forms to facilitate processing of this notification and to keep the permitting files for the plant up-to-date. Carmeuse desires to commence with the project and associated equipment changes next week as soon as the 7-day notification requirement has been fulfilled.



Mr. Julian Breckenridge – Page 6  
October 18, 2022

Thank you in advance for your prompt assistance in reviewing and responding to our request. Should you have any questions regarding this request, please do not hesitate to contact me at 219-293-2684.

Sincerely,

Sarah Langeliers  
Area Environmental Manager

cc: U.S. EPA Region 4  
Attn: Air Permits Section, Air and Radiation Technology Branch  
61 Forsyth St. (Mail Code 9T25)  
Atlanta, GA 30303

Mr. Michael R. Klenda, Site Surface Operations Manager, Carmeuse  
Mr. Paul J. Smith, P.E., Trinity Consultants  
Mr. Brian Otten, Trinity Consultants

## **ATTACHMENT 1. DEP7007 FORMS**

## Division for Air Quality

300 Sower Boulevard  
Frankfort, KY 40601  
(502) 564-3999

**DEP7007AI****Administrative Information**

- ☐ Section AI.1: Source Information  
☐ Section AI.2: Applicant Information  
☐ Section AI.3: Owner Information  
☐ Section AI.4: Type of Application  
☐ Section AI.5: Other Required Information  
☐ Section AI.6: Signature Block  
☐ Section AI.7: Notes, Comments, and Explanations

**Additional Documentation**

☐ Additional Documentation attached

Source Name: Carmeuse Lime & Stone, Inc.

KY EIS (AFS) #: 21-191-00002

Permit #: V-19-011

Agency Interest (AI) ID: 3400

Date: October 18, 2022

**Section AI.1: Source Information**

Physical Location Street: 9043 Highway 154

Address: City: Butler County: Pendleton Zip Code: 41006

Street or

Mailing Address: P.O. Box: 9043 Highway 154

City: Butler State: KY Zip Code: 41006

**Standard Coordinates for Source Physical Location**

Longitude: -84.2407 (decimal degrees) Latitude: 38.8371 (decimal degrees)

Primary (NAICS) Category: Lime Manufacturing

Primary NAICS #: 327410

## Classification (SIC) Category:

Lime

Primary SIC #:

3274

## Briefly discuss the type of business conducted at this site:

The Black River Plant manufactures high calcium lime through the calcination of limestone. The core process operations are mining raw limestone; preparing limestone by crushing and sizing; calcining limestone in kilns; and transfer, storage and loadout of lime and limestone. A portion of the lime is also conveyed to a hydrate plant at the site to produce hydrated lime products.

## Description of Area Surrounding Source:

☒ Rural Area☐ Industrial Park☐ Residential Area

Is any part of the source located on federal land?

☐ Yes☒ No

Number of Employees:

~200☐ Urban Area☐ Industrial Area☐ Commercial Area

## Approximate distance to nearest residence or commercial property:

< 0.5 miles

## Property Area:

1,200 Acres (Surface)Is this source portable? ☐ Yes ☒ No

## What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?

## NPDES/KPDES:

☒ Currently Hold☐ Need☐ N/A

## Solid Waste:

☐ Currently Hold☐ Need☒ N/A

## RCRA:

☐ Currently Hold☐ Need☒ N/A

## UST:

☐ Currently Hold☐ Need☒ N/A

## Type of Regulated Waste Activity:

☐ Mixed Waste Generator☐ Generator☐ Recycler☐ Other: \_\_\_\_\_☐ U.S. Importer of Hazardous Waste☐ Transporter☐ Treatment/Storage/Disposal Facility☒ N/A

**Section AI.2: Applicant Information**

**Applicant Name:** Carmeuse Lime & Stone, Inc.

**Title:** (if individual) N/A

**Mailing Address:** **Street or P.O. Box:** 9043 Highway 154  
**City:** Butler **State:** KY **Zip Code:** 41006

**Email:** (if individual) N/A

**Phone:** (859) 472-8100

**Technical Contact**

**Name:** Sarah Langeliers

**Title:** Area Environmental Manager

**Mailing Address:** **Street or P.O. Box:** 9043 Highway 154  
**City:** Butler **State:** KY **Zip Code:** 41006

**Email:** Sarah.Langeliers@carmeuse.com

**Phone:** (859) 472-7731

**Air Permit Contact for Source**

**Name:** Sarah Langeliers

**Title:** Area Environmental Manager

**Mailing Address:** **Street or P.O. Box:** 9043 Highway 154  
**City:** Butler **State:** KY **Zip Code:** 41006

**Email:** Sarah.Langeliers@carmeuse.com

**Phone:** (859) 472-7731

**Section AI.3: Owner Information**

☒ Owner same as applicant

Name:

Title:

Mailing Address:

Email:

Phone:

Street or P.O. Box:

City:

State:

Zip Code:

List names of owners and officers of the company who have an interest in the company of 5% or more.

| Name | Position |
|------|----------|
|      |          |
|      |          |
|      |          |

## Section AI.4: Type of Application

**Current Status:**      ☒ Title V    ☐ Conditional Major    ☐ State-Origin    ☐ General Permit    ☐ Registration    ☐ None

☐ Name Change    ☐ Initial Registration    ☐ Significant Revision    ☐ Administrative Permit Amendment

**Requested Action:**    ☐ Renewal Permit    ☐ Revised Registration    ☐ Minor Revision    ☐ Initial Source-wide Operating Permit

(check all that apply)    ☒ 502(b)(10) Change    ☐ Extension Request    ☒ Addition of New Facility    ☐ Portable Plant Relocation Notice

☐ Revision    ☐ Off Permit Change    ☐ Landfill Alternate Compliance Submittal    ☐ Modification of Existing Facilities

☐ Ownership Change    ☐ Closure

**Requested Status:**    ☒ Title V    ☐ Conditional Major    ☐ State-Origin    ☐ PSD    ☐ NSR    ☐ Other: \_\_\_\_\_

**Is the source requesting a limitation of potential emissions?**

☐ Yes    ☒ No

**Pollutant:**

**Requested Limit:**

☐ Particulate Matter

\_\_\_\_\_

☐ Volatile Organic Compounds (VOC)

\_\_\_\_\_

☐ Carbon Monoxide

\_\_\_\_\_

☐ Nitrogen Oxides

\_\_\_\_\_

☐ Sulfur Dioxide

\_\_\_\_\_

☐ Lead

\_\_\_\_\_

**Pollutant:**

**Requested Limit:**

☐ Single HAP

\_\_\_\_\_

☐ Combined HAPs

\_\_\_\_\_

☐ Air Toxics (40 CFR 68, Subpart F)

\_\_\_\_\_

☐ Carbon Dioxide

\_\_\_\_\_

☐ Greenhouse Gases (GHG)

\_\_\_\_\_

☐ Other

\_\_\_\_\_

**For New Construction:**

**Proposed Start Date of Construction:**

(MM/YYYY)

12/2022

**Proposed Operation Start-Up Date: (MM/YYYY)**

12/2022

**For Modifications:**

**Proposed Start Date of Modification:**

(MM/YYYY)

na

**Proposed Operation Start-Up Date: (MM/YYYY)**

na

**Applicant is seeking coverage under a permit shield.**

☐ Yes

☒ No

**Identify any non-applicable requirements for which permit shield is sought on a separate attachment to the application.**

**Section AI.5 Other Required Information**

Indicate the documents attached as part of this application:

- |                                                                                            |                                                                                    |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <input type="checkbox"/> DEP7007A Indirect Heat Exchangers and Turbines                    | <input type="checkbox"/> DEP7007CC Compliance Certification                        |
| <input checked="" type="checkbox"/> DEP7007B Manufacturing or Processing Operations        | <input type="checkbox"/> DEP7007DD Insignificant Activities                        |
| <input type="checkbox"/> DEP7007C Incinerators and Waste Burners                           | <input type="checkbox"/> DEP7007EE Internal Combustion Engines                     |
| <input type="checkbox"/> DEP7007F Episode Standby Plan                                     | <input type="checkbox"/> DEP7007FF Secondary Aluminum Processing                   |
| <input type="checkbox"/> DEP7007J Volatile Liquid Storage                                  | <input type="checkbox"/> DEP7007GG Control Equipment                               |
| <input type="checkbox"/> DEP7007K Surface Coating or Printing Operations                   | <input type="checkbox"/> DEP7007HH Haul Roads                                      |
| <input type="checkbox"/> DEP7007L Mineral Processes                                        | <input type="checkbox"/> Confidentiality Claim                                     |
| <input type="checkbox"/> DEP7007M Metal Cleaning Degreasers                                | <input type="checkbox"/> Ownership Change Form                                     |
| <input checked="" type="checkbox"/> DEP7007N Source Emissions Profile                      | <input type="checkbox"/> Secretary of State Certificate                            |
| <input type="checkbox"/> DEP7007P Perchloroethylene Dry Cleaning Systems                   | <input type="checkbox"/> Flowcharts or diagrams depicting process                  |
| <input type="checkbox"/> DEP7007R Emission Offset Credit                                   | <input type="checkbox"/> Digital Line Graphs (DLG) files of buildings, roads, etc. |
| <input type="checkbox"/> DEP7007S Service Stations                                         | <input type="checkbox"/> Site Map                                                  |
| <input type="checkbox"/> DEP7007T Metal Plating and Surface Treatment Operations           | <input type="checkbox"/> Map or drawing depicting location of facility             |
| <input type="checkbox"/> DEP7007V Applicable Requirements and Compliance Activities        | <input type="checkbox"/> Safety Data Sheet (SDS)                                   |
| <input type="checkbox"/> DEP7007Y Good Engineering Practice and Stack Height Determination | <input type="checkbox"/> Emergency Response Plan                                   |
| <input type="checkbox"/> DEP7007AA Compliance Schedule for Non-complying Emission Units    | <input type="checkbox"/> Other: _____                                              |
| <input type="checkbox"/> DEP7007BB Certified Progress Report                               |                                                                                    |

**Section AI.6: Signature Block**

I, the undersigned, hereby certify under penalty of law, that I am a responsible official\*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.



Authorized Signature



Date

Michael Klenda

Type or Printed Name of Signatory

Site Operations Manager

Title of Signatory

\*Responsible official as defined by 401 KAR 52:001.

|                                                        |
|--------------------------------------------------------|
| <b>Section AI.7: Notes, Comments, and Explanations</b> |
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|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Division for Air Quality<br><br>300 Sower Boulevard<br>Frankfort, KY 40601<br>(502) 564-3999 | <h2 style="margin: 0;">DEP7007B</h2> <h3 style="margin: 10px 0;">Manufacturing or Processing Operations</h3> <p>___ Section B.1: Process Information</p> <p>___ Section B.2: Materials and Fuel Information</p> <p>___ Section B.3: Notes, Comments, and Explanations</p> | <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <b>Additional Documentation</b> </div> <p>___ Complete DEP7007AI, DEP7007N, DEP7007V, and DEP7007GG.</p> <p>___ Attach a flow diagram</p> <p>___ Attach SDS</p> |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Source Name:** Carmeuse Lime & Stone, Inc.

**KY EIS (AFS) #:** 21- 191-00002

**Permit #:** V-19-011

**Agency Interest (AI) ID:** 3400

**Date:** October 18, 2022

### Section B.1: Process Information

| Emission Unit # | Emission Unit Name                                | Describe Emission Unit                 | Process ID | Process Name                                      | Manufacturer                        | Model No.        | Proposed/Actual Date of Construction Commencement (MM/YYYY) | Is the Process <u>Continuous</u> or <u>Batch</u> ? | Number of Batches per 24 Hours (if applicable) | Hours per Batch (if applicable) |
|-----------------|---------------------------------------------------|----------------------------------------|------------|---------------------------------------------------|-------------------------------------|------------------|-------------------------------------------------------------|----------------------------------------------------|------------------------------------------------|---------------------------------|
| 36-03           | Railcar Cleanout Operation Loading Spout          | Lime Dust Collection Systems (Non PSD) | 1          | Railcar Cleanout Operation Loading Spout          | Wilson Manufacturing & Design, Inc. | Serial# 90519520 | 12/2022                                                     | Continuous                                         | na                                             | na                              |
| 36-04           | Railcar Cleanout Operation Dust Collection System | Lime Dust Collection Systems (Non PSD) | 1          | Railcar Cleanout Operation Dust Collection System | Wilson Manufacturing & Design, Inc. | Serial# 90519520 | 12/2022                                                     | Continuous                                         | na                                             | na                              |

## Section B.2: Materials and Fuel Information

*\*Maximum yearly fuel usage rate only applies if applicant request operating restrictions through federally enforceable limitations.*

| Emission Unit # | Emission Unit Name                                | Name of Raw Materials Input | Maximum Quantity of Each Raw Material Input |                    | Total Process Weight Rate for Emission Unit (tons/hr) | Name of Finished Materials | Maximum Quantity of Each Finished Material Output |                    | Fuel Type  | Maximum Hourly Fuel Usage Rate |                 | Maximum Yearly Fuel Usage Rate |                 | Sulfur Content (%) | Ash Content (%) |
|-----------------|---------------------------------------------------|-----------------------------|---------------------------------------------|--------------------|-------------------------------------------------------|----------------------------|---------------------------------------------------|--------------------|------------|--------------------------------|-----------------|--------------------------------|-----------------|--------------------|-----------------|
|                 |                                                   |                             |                                             | (Specify Units/hr) |                                                       |                            |                                                   | (Specify Units/hr) |            |                                | (Specify Units) |                                | (Specify Units) |                    |                 |
| 36-03           | Railcar Cleanout Operation Loading Spout          | Pulverized Lime             | 60                                          | tons/hr            | 60                                                    | Pulverized Lime            | 60                                                | tons/hr            | See Note 1 | na                             | na              | na                             | na              | na                 | na              |
| 36-04           | Railcar Cleanout Operation Dust Collection System | Pulverized Lime             | 60                                          | tons/hr            | 60                                                    | Pulverized Lime            | 60                                                | tons/hr            | See Note 1 | na                             | na              | na                             | na              | na                 | na              |

**Section B.3: Notes, Comments, and Explanations**

1. The railcar cleanout conveyor relies upon an onboard diesel engine to generate power. This power is used for locomotion of the portable conveyor, operation of the onboard dust collector, and for movement of the conveyor belt to transfer the lime product. The railcar cleanout conveyor is portable and will be moved around the Black River plant to accomodate railcar cleanout in different areas. As such, the onboard diesel engine should not be regulated as a stationary source and it is unnecessary to provide fuel consumption and fuel specification data for the railcar cleanout operation.

| <div>Division for Air Quality</div> <div>300 Sower Boulevard</div> <div>Frankfort, KY 40601</div> <div>(502) 564-3999</div> |                                                   |            |                                                   | <div>DEP7007N</div> <div>Source Emissions Profile</div> <div><div><div>___ Section N.1: Emission Summary</div><div>___ Section N.2: Stack Information</div><div>___ Section N.3: Fugitive Information</div><div>___ Section N.4: Notes, Comments, and Explanations</div></div><div><div>Additional Documentation</div><div>___ Complete DEP7007AI</div></div></div> |                   |          |                                             |           |                                                |                                                                  |                        |                        |                                   |                                 |                                     |                                   |  |
|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|------------|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|---------------------------------------------|-----------|------------------------------------------------|------------------------------------------------------------------|------------------------|------------------------|-----------------------------------|---------------------------------|-------------------------------------|-----------------------------------|--|
| Source Name:                                                                                                                |                                                   |            |                                                   | Carmeuse Lime & Stone, Inc.                                                                                                                                                                                                                                                                                                                                         |                   |          |                                             |           |                                                |                                                                  |                        |                        |                                   |                                 |                                     |                                   |  |
| KY EIS (AFS) #:                                                                                                             |                                                   |            |                                                   | 21- 191-00002                                                                                                                                                                                                                                                                                                                                                       |                   |          |                                             |           |                                                |                                                                  |                        |                        |                                   |                                 |                                     |                                   |  |
| Permit #:                                                                                                                   |                                                   |            |                                                   | V-19-011                                                                                                                                                                                                                                                                                                                                                            |                   |          |                                             |           |                                                |                                                                  |                        |                        |                                   |                                 |                                     |                                   |  |
| Agency Interest (AI) ID:                                                                                                    |                                                   |            |                                                   | 3400                                                                                                                                                                                                                                                                                                                                                                |                   |          |                                             |           |                                                |                                                                  |                        |                        |                                   |                                 |                                     |                                   |  |
| Date:                                                                                                                       |                                                   |            |                                                   | October 18, 2022                                                                                                                                                                                                                                                                                                                                                    |                   |          |                                             |           |                                                |                                                                  |                        |                        |                                   |                                 |                                     |                                   |  |
| N.1: Emission Summary                                                                                                       |                                                   |            |                                                   |                                                                                                                                                                                                                                                                                                                                                                     |                   |          |                                             |           |                                                |                                                                  |                        |                        |                                   |                                 |                                     |                                   |  |
| Emission Unit #                                                                                                             | Emission Unit Name                                | Process ID | Process Name                                      | Control Device Name                                                                                                                                                                                                                                                                                                                                                 | Control Device ID | Stack ID | Maximum Design Capacity<br>(SCC Units/hour) | Pollutant | Uncontrolled Emission Factor<br>(lb/SCC Units) | Emission Factor Source<br>(e.g. AP-42, Stack Test, Mass Balance) | Capture Efficiency (%) | Control Efficiency (%) | Hourly Emissions                  |                                 | Annual Emissions                    |                                   |  |
|                                                                                                                             |                                                   |            |                                                   |                                                                                                                                                                                                                                                                                                                                                                     |                   |          |                                             |           |                                                |                                                                  |                        |                        | Uncontrolled Potential<br>(lb/hr) | Controlled Potential<br>(lb/hr) | Uncontrolled Potential<br>(tons/yr) | Controlled Potential<br>(tons/yr) |  |
| 36-03                                                                                                                       | Railcar Cleanout Operation Loading Spout          | 1          | Railcar Cleanout Operation Loading Spout          | na                                                                                                                                                                                                                                                                                                                                                                  | na                | na       | 60                                          | PM        | 0.0015                                         | AP42 Tbl 11.17-4                                                 | na                     | na                     | 0.090                             | na                              | 0.394                               | na                                |  |
|                                                                                                                             |                                                   |            |                                                   |                                                                                                                                                                                                                                                                                                                                                                     |                   |          |                                             | PM10      | 0.0013                                         | 85% of PM                                                        | na                     | na                     | 0.077                             | na                              | 0.335                               | na                                |  |
|                                                                                                                             |                                                   |            |                                                   |                                                                                                                                                                                                                                                                                                                                                                     |                   |          |                                             | PM2.5     | 0.0005                                         | 30% of PM                                                        | na                     | na                     | 0.027                             | na                              | 0.118                               | na                                |  |
| 36-04                                                                                                                       | Railcar Cleanout Operation Dust Collection System | 1          | Railcar Cleanout Operation Dust Collection System | na                                                                                                                                                                                                                                                                                                                                                                  | na                | na       | 60                                          | PM        | 0.00086                                        | 0.01 gr/dscf Exit Loading                                        | na                     | na                     | 0.051                             | na                              | 0.225                               | na                                |  |
|                                                                                                                             |                                                   |            |                                                   |                                                                                                                                                                                                                                                                                                                                                                     |                   |          |                                             | PM10      | 0.00072                                        | 84% of PM                                                        | na                     | na                     | 0.043                             | na                              | 0.189                               | na                                |  |
|                                                                                                                             |                                                   |            |                                                   |                                                                                                                                                                                                                                                                                                                                                                     |                   |          |                                             | PM2.5     | 0.00039                                        | 45% of PM                                                        | na                     | na                     | 0.023                             | na                              | 0.101                               | na                                |  |

## Section N.2: Stack Information

UTM Zone: 16

| Stack ID | Identify all Emission Units<br>(with Process ID) and<br>Control Devices that Feed<br>to Stack | Stack Physical Data            |                |                           | Stack UTM Coordinates |                | Stack Gas Stream Data |                      |                           |
|----------|-----------------------------------------------------------------------------------------------|--------------------------------|----------------|---------------------------|-----------------------|----------------|-----------------------|----------------------|---------------------------|
|          |                                                                                               | Equivalent<br>Diameter<br>(ft) | Height<br>(ft) | Base<br>Elevation<br>(ft) | Northing<br>(m)       | Easting<br>(m) | Flowrate<br>(acfm)    | Temperature<br>( °F) | Exit Velocity<br>(ft/sec) |
| 36-04    | Railcar Cleanout Operation Dust<br>Collection System                                          | 1.2                            | 12             | 525.5                     | 4,302,093.4           | 739,728.6      | 600                   | Ambient              | 9.07                      |

**Section N.3: Fugitive Information****UTM Zone: 16**

| Emission Unit # | Emission Unit Name                          | Process ID | Area Physical Data           |                              | Area UTM Coordinates |                | Area Release Data           |                        |
|-----------------|---------------------------------------------|------------|------------------------------|------------------------------|----------------------|----------------|-----------------------------|------------------------|
|                 |                                             |            | Length of the X Side<br>(ft) | Length of the Y Side<br>(ft) | Northing<br>(m)      | Easting<br>(m) | Release Temperature<br>(°F) | Release Height<br>(ft) |
| 36-03           | Railcar Cleanout Operation<br>Loading Spout | 1          | 1                            | 1                            | 4,302,093.4          | 739,728.6      | Ambient                     | 10                     |

**Section N.4: Notes, Comments, and Explanations**

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## **ATTACHMENT 2. EMISSION FACTOR DERIVATION**

## 1. Emission Factors for Railcar Cleanout Operation

- > The new railcar cleanout operation at the Black River Plant will remove residual lime product from returned railcars. The actual amount of material expected to be recovered from railcars is small (less than 2,000 tons per year). Regardless, the material handling will generate particulate emissions and the conveyor will be a potential source of emissions. This section documents the emission factors used to calculate the emissions from the railcar cleanout operation, as shown on the 7007N form.

### 1.1 Conveying Lime Product

- > The uncontrolled fugitive PM emissions from the railcar cleanout operation transfer points are calculated using the same emission factors used for the existing lime conveying and transfer operations at the Black River plant. The portable conveyor is controlled by an onboard dust collector. Fugitive emissions are estimated assuming an overall capture efficiency of 99.9%. Emissions from captured exhaust streams sent to the dust collector are separately tallied under the dust collector section.
- > PM emission factors are taken from AP-42 Table 11.17-4 (2/98 Edition) for Lime Manufacturing. The AP-42 Emission Factors are uncontrolled factors.
- > PM10 emissions are estimated as 85% of PM for consistency with prior applications.
- > PM2.5 emissions are estimated as 30% of PM for consistency with prior applications.

#### 1.1.1 Lime Loadout Emission Factors

| Uncontrolled Emission Factors | PM       | PM10     | PM2.5    |
|-------------------------------|----------|----------|----------|
| Process Description           | (lb/ton) | (lb/ton) | (lb/ton) |
| Lime Loading (Open Truck)     | 1.50     | 1.28     | 0.45     |

| Uncaptured Emission Factors |          |          |          |
|-----------------------------|----------|----------|----------|
| Process Description         | (lb/ton) | (lb/ton) | (lb/ton) |
| Lime Loading (Open Truck)   | 0.0015   | 0.0013   | 0.0005   |

Sample Calculation (PM):

$$0.0015 \text{ lb/ton} = 1.5 \text{ lb/ton} * (100\% - 99.9\%)$$

#### 1.1.2 Dust Collection System Emission Factors

- > The portable railcar unloading conveyor is equipped with an integrated dust collection system with a fabric filter to control PM emissions. The dust collection system will capture exhaust air from the loading spout providing PM control for this transfer point.
- > PM mass emission rates (lb/hr) associated with fabric filter systems can be calculated based on the exit loading specification of the filter.  
Emissions (lb/hr) = Exhaust Flowrate (acfm) x Exit Grain Loading (gr/cf) x (60 min / 1 hour) x (1 lb / 7,000 gr).
- > PM10 emissions are estimated as 84% of PM for consistency with prior applications.
- > PM2.5 emissions are estimated as 45% of PM for consistency with prior applications.
- > Emissions from dust collection systems are calculated by multiplying the appropriate exit grain loading (based on the type of filter material) by the system's exhaust flowrate. For dust collectors with standard filter materials, a 0.01 gr/scf grain loading is used.

| Emission Grouping / Emission Unit                 | Suggested<br>KyEIS<br>Source ID | Grain<br>Loading<br>(gr/scf) | Flowrate<br>(scfm) | PM Emissions<br>(lb/hr) | (tpy) |
|---------------------------------------------------|---------------------------------|------------------------------|--------------------|-------------------------|-------|
| Railcar Cleanout Operation Dust Collection System | 36 04                           | 0.01                         | 600                | 0.05                    | 0.23  |

- > Because the underlying units of the SCC assigned to the dust collection system emission units is "tons", a lb/ton emission factor shown on the 7007N form is back-calculated by dividing the emission rate by the process rate (tons/hr) of the underlying process(s) served by the dust collection system. Note, the lb/ton factor is used only to accommodate the requirements of the KyEIS system. In actuality, PM emissions from the dust collection systems are not proportional to process rate, but instead are more directly tied to exhaust flowrate (which is set at a fixed value when the unit is operating).

| Emission Grouping / Emission Unit                 | Suggested<br>KyEIS<br>Source ID | Process<br>Rate<br>(tons/hr) | PM<br>(lb/ton) | PM10<br>(lb/ton) | PM2.5<br>(lb/ton) |
|---------------------------------------------------|---------------------------------|------------------------------|----------------|------------------|-------------------|
| Railcar Cleanout Operation Dust Collection System | 36 04                           | 60                           | 0.0009         | 0.0007           | 0.0004            |



## Carmeuse Lime & Stone – Black River Operation

9043 Highway 154 • Butler, KY 41006

Phone: 859 472 8100 • Fax: 859 472 8110 • [info@carmeusena.com](mailto:info@carmeusena.com)

October 22, 2024

Mr. Julian Breckenridge  
Mineral Section Supervisor  
Division for Air Quality  
300 Sower Blvd, 2nd Floor  
Frankfort, Kentucky 40601

RE: **Section 502(b)(10) Change Notification for Reject Landfill**  
*Carmeuse Lime & Stone, Inc. – Black River Plant*  
*(Source ID 21-191-00002, Agency Interest # 3400, Permit V-19-011)*

Dear Mr. Breckenridge:

Carmeuse Lime & Stone, Inc. (Carmeuse) operates a limestone mine, limestone processing facility, and lime manufacturing plant in Pendleton County, Kentucky (Black River Plant). The Black River Plant is currently regulated as a Title V source and operates under the authority of Title V permit V-19-011, issued by the Kentucky Division for Air Quality (KDAQ) on November 13, 2020.

Carmeuse has prepared this section 502(b)(10) change notification to incorporate an on-site landfill into the Title V permit (V-19-011). Included in this notification is a description of the landfill operations, a summary of the air emissions impacts, and a review of regulatory applicability. The requisite DEP7007 series forms (AI and N) are provided in **Attachment 1**, and supporting emission calculations are provided for reference in **Attachment 2**.

### LANDFILL OPERATION

At the Black River Plant, high calcium lime is manufactured through the calcination of limestone. Due to various process instabilities in the calcination of the limestone or other causes, lime that is not suitable to use as a product may be generated. The majority of this reject lime, limestone, or other unusable material is disposed of to the underground mine through the Reject Lime Processing Operations (LM06). Under certain circumstances, Carmeuse is unable to dispose of these materials underground and instead will dispose of them in an on-site landfill.

Reject lime and limestone generated from process operations are collected by truck and deposited into the landfill. Once deposited, wind erosion will generate a small quantity of particulate emissions from the landfill. These landfill operations are herein designated as EU 32-17.

### AIR EMISSIONS ASSOCIATED WITH LANDFILL OPERATIONS

The processes of depositing lime and limestone into the landfill and wind erosion from the landfill will generate fugitive particulate matter (PM) emissions. Fugitive PM emissions resulting from the transfer of material into the landfill have been estimated using reference emissions factors for Lime Manufacturing (Chapter 11.17) and Crushed



Stone Processing and Pulverized Mineral Processing (Chapter 11.19.2) published in EPA's AP-42 compilation resource (August 2004 edition). AP-42 Chapter 11.17 does not provide a "Truck Unloading" emission factor for lime material. However, AP-42 Chapter 11.19 does provide an emission factor for "Truck Unloading". As such, a "Truck Unloading" emission factor was derived for unloading lime by assuming the ratios between the conveyor transfer point emission factors (i.e., lime in Table 11.17-4 and crushed stone in Table 11.19.2-2) are the same as the ratio between truck unloading emission factors. The detailed emission factor derivation calculations are provided in **Attachment 2**. Once the material is transferred to the landfill, the material is generally not moved and as such only one transfer point is accounted for in the supporting emission calculations.

Emissions releases resulting from wind erosion to the landfill have been estimated using the reference guide *Control of Open Fugitive Dust Sources*, published by the EPA in September 1988. Under this methodology, the annual quantity of emissions generated can be expressed as a function of the silt content of the material stored, the moisture of the pile, and the percentage of hours per year that wind speed exceeds the threshold speed of 12 miles per hour. To estimate emissions using this method, National Weather Service (NWS) wind and precipitation data were used from the Cincinnati/Northern Kentucky International Airport (CVG).

The potential emissions from landfill operations are relatively small. The total fugitive PM emissions estimated using the methodology above is 1.42 tons PM per year (0.84 tons from the dumping process operation and 0.58 tons from stockpile wind erosion). These emission calculations conservatively assume that the entire area of the landfill is covered with material and exposed to the wind. In reality, Carmeuse will intermittently close sections of the landfill by covering it with topsoil. It is expected that over time vegetation will naturally grow on the topsoil and wind erosion will effectively be reduced to negligible emissions in the closed sections.

As provided in the August 2021 Title V Air Permit Application for the Black River Plant, the haul road (and associated vehicle traffic) associated with the landfill operations is accounted for in the existing haul road emission units (23-01 and 25-01). As such, air emissions associated with the landfill haul road are not provided in this notification.

The potential emissions of all regulated pollutants from the landfill are below the threshold that qualifies the operation for classification as an Insignificant Activity under 401 KAR 52:020, Section 6 (0.5 tpy HAP and the 5 tpy non-hazardous regulated air pollutant). Normally, the landfill would be added to Section C of the permit, however the existing permit already has a designated Section B for reject lime stockpiles. In the interest of permit consistency, it is requested that the landfill be added to Section B during the next permit revision and be subject to the same regulations as existing reject lime stockpiles.

## REGULATORY APPLICABILITY

### NSPS Subpart OOO – Nonmetallic Mineral Processing Plants

Pursuant to 40 CFR 60.670(a)(1), the New Source Performance Standards for Nonmetallic Mineral Processing Plants (40 CFR 60, Subpart OOO) are applicable to the following affected facilities in fixed or portable nonmetallic mineral processing plants: each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, or enclosed truck or railcar loading station. Pursuant to 40 CFR 60.671, a nonmetallic mineral processing plant is defined as any combination of



equipment that is used to crush or grind any nonmetallic mineral wherever located except as provided in 40 CFR §60.670 (b) and (c). Limestone is included in the list of nonmetallic minerals covered by the rule.

Portions of the Black River Plant are classified as a nonmetallic mineral processing plant under Subpart OOO. However, neither the reject lime emission units (LM05) nor the limestone stockpiles (LS02) are subject to Subpart OOO since they are not part of the nonmetallic mineral processing plant as defined in this rule. As such, the landfill is similarly not subject to Subpart OOO.

Pursuant to 40 CFR 60.672, truck dumping of nonmetallic minerals is exempt from particulate matter emission standards under Subpart OOO. Regardless, landfill trucks only transport reject lime and reject limestone material, which are not part of a nonmetallic mineral processing plant. As such, Subpart OOO does not apply to the lime and limestone truck dumping to the landfill.

### **NESHAP Subpart AAAAA – Lime Manufacturing Plants**

NESHAP Subpart AAAAA applies to each lime kiln, their associated coolers, and processed stone handling operations located at lime manufacturing plants located at a major source of HAP. Processed stone handling (PSH) is defined in §63.7143 as equipment or transfer points between equipment used to transport processed stone (limestone processed to a size suitable for feeding to a lime kiln), and includes storage bins, conveying system transfer points, bulk loading or unloading systems, screening operations, bucket elevators, and belt conveyors, ending where the processed material is fed to the kiln.

Since the PSH affected facility ends where the processed material is fed to the kiln, it is reasonable to conclude that the PSH would also end when limestone is rejected from further processing. As such, Subpart AAAAA would not apply to reject limestone transfers to the landfill regardless of what part of the Black River Plant the limestone was rejected from.

### **Kentucky SIP Requirements**

The landfill and the associated truck dumping will be sources of fugitive PM emissions. The fugitive emissions from these processes are covered under the generally applicable SIP rule for fugitive emissions, 401 KAR 63:010. 401 KAR 63:010 requires that reasonable precautions to prevent airborne PM emissions be taken by Carmeuse and that no visible fugitive dust emissions shall be discharged beyond the property line.

The landfill emissions unit will have the same applicable requirements as existing reject lime stockpile emission units (EP 32 01 through 32 04). Carmeuse plans to exercise the same reasonable precautions currently employed for the reject lime stockpiles for the reject landfill. As such, incorporating the landfill operations into the Title V permit will not require any changes to permit requirements.

### **QUALIFICATION FOR 502(B)(10) CHANGE**

401 KAR 52:001 defines a Section 502(b)(10) change as “changes that contravene an express permit term and does not include changes that would violate applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), recordkeeping, reporting, or compliance certification



Mr. Julian Breckenridge – Page 4  
October 22, 2024

requirements.” The specific criteria that qualify a particular project as a 502(b)(10) change and the corresponding procedures to follow are defined in 401 KAR 52:020 Section 18(1). An analysis of incorporating the reject landfill into the Title V permit as a section 502(b)(10) change is presented in the following bullets:

- Incorporating the reject landfill will not result in a violation of any applicable requirements nor any federally enforceable compliance assurance conditions. Thus, permitting the landfill falls within the definition of a section 502(b)(10) change.
- The Black River plant is not subject to the Acid Rain Program and the landfill operations will not change that determination.
- Incorporating the landfill operations does not constitute a modification under Title I of the Act. With regard to the Prevention of Significant Deterioration (PSD) permitting program, the calculated potential emissions from the landfill are 1.42 tpy of PM, 1.01 tpy of PM<sub>10</sub>, and 0.30 tpy of PM<sub>2.5</sub>, and thus are below the respective PSD triggering thresholds for PM, PM<sub>10</sub>, and PM<sub>2.5</sub>. No new PSD avoidance limits are required or necessary.

Based on the analysis of the landfill emission characteristics and applicable regulations, Carmeuse has concluded that the proposed project satisfies the criteria for using the section 502(b)(10) change procedures. Therefore, Carmeuse presumes that no minor or major permit revision shall be required before proceeding with operation of the landfill.

As required under 401 KAR 52:020, Section 18(2), this letter provides the required description of the proposed change and emissions impacts.

Thank you in advance for your prompt assistance in reviewing and responding to our request. Should you have any questions regarding this request, please do not hesitate to contact me at 859-472-8100.

Sincerely,

Ryan Hopkins  
Area Environmental Manager

cc: U.S. EPA Region 4  
Attn: Air Permits Section, Air and Radiation Technology Branch  
61 Forsyth St. (Mail Code 9T25)  
Atlanta, GA 30303

Mr. Michael R. Klenda, Site Surface Operations Manager, Carmeuse  
Ms. Jackie Padgett, Senior Area Environmental Manager, Carmeuse  
Mr. Brian Otten, Trinity Consultants

## **ATTACHMENT 1. DEP7007 FORMS**

## Division for Air Quality

300 Sower Boulevard  
Frankfort, KY 40601  
(502) 564-3999

## DEP7007AI

## Administrative Information

- ☐ Section AI.1: Source Information  
☐ Section AI.2: Applicant Information  
☐ Section AI.3: Owner Information  
☐ Section AI.4: Type of Application  
☐ Section AI.5: Other Required Information  
☐ Section AI.6: Signature Block  
☐ Section AI.7: Notes, Comments, and Explanations

## Additional Documentation

☐ Additional Documentation attached

Source Name: Carmeuse Lime & Stone, Inc.

KY EIS (AFS) #: 21-191-00002

Permit #: V-19-011

Agency Interest (AI) ID: 3400

Date: October 22, 2024

## Section AI.1: Source Information

|                   |           |                         |           |                  |
|-------------------|-----------|-------------------------|-----------|------------------|
| Physical Location | Street:   | <u>9043 Highway 154</u> |           |                  |
| Address:          | City:     | <u>Butler</u>           | County:   | <u>Pendleton</u> |
|                   | Street or |                         |           |                  |
| Mailing Address:  | P.O. Box: | <u>9043 Highway 154</u> |           |                  |
|                   | City:     | <u>Butler</u>           | State:    | <u>KY</u>        |
|                   |           |                         | Zip Code: | <u>41006</u>     |

## Standard Coordinates for Source Physical Location

Longitude: -84.2407 (decimal degrees)      Latitude: 38.8371 (decimal degrees)

Primary (NAICS) Category: Lime Manufacturing

Primary NAICS #: 327410

Classification (SIC) Category:

Lime

Primary SIC #:

3274

Briefly discuss the type of business conducted at this site:

The Black River Plant manufactures high calcium lime through the calcination of limestone. The core process operations are mining raw limestone; preparing limestone by crushing and sizing; calcining limestone in kilns; and transfer, storage and loadout of lime and limestone. A portion of the lime is also conveyed to a hydrate plant at the site to produce hydrated lime products.

Description of Area

Surrounding

☒ Rural Area☐ Industrial Park☐ Residential Area

Is any part of the source located on federal land?

☐ Yes

Number of Employees:

~200

Source:

☐ Urban Area☐ Industrial Area☐ Commercial Area☒ No

Approximate distance to nearest residence or commercial property:

< 0.5 miles

Property

Area:

1,200 Acres (Surface)Is this source portable? ☐ Yes ☒ No

What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?

NPDES/KPDES:

☒ Currently Hold☐ Need☐ N/A

Solid Waste:

☐ Currently Hold☐ Need☒ N/A

RCRA:

☐ Currently Hold☐ Need☒ N/A

UST:

☐ Currently Hold☐ Need☒ N/A

Type of Regulated Waste Activity:

☐ Mixed Waste Generator☐ Generator☐ Recycler☐ Other: \_\_\_\_\_☐ U.S. Importer of Hazardous Waste☐ Transporter☐ Treatment/Storage/Disposal Facility☒ N/A

**Section AI.2: Applicant Information**

**Applicant Name:** Carmeuse Lime & Stone, Inc.

**Title:** (if individual) N/A

**Mailing Address:** **Street or P.O. Box:** 9043 Highway 154  
**City:** Butler **State:** KY **Zip Code:** 41006

**Email:** (if individual) N/A

**Phone:** (859) 472-8100

**Technical Contact**

**Name:** Ryan Hopkins

**Title:** Area Environmental Manager

**Mailing Address:** **Street or P.O. Box:** 9043 Highway 154  
**City:** Butler **State:** KY **Zip Code:** 41006

**Email:** Ryan.Hopkins@carmeuse.com

**Phone:** (859) 472-8100

**Air Permit Contact for Source**

**Name:** Ryan Hopkins

**Title:** Area Environmental Manager

**Mailing Address:** **Street or P.O. Box:** 9043 Highway 154  
**City:** Butler **State:** KY **Zip Code:** 41006

**Email:** Ryan.Hopkins@carmeuse.com

**Phone:** (859) 472-8100

**Section AI.3: Owner Information**

  X   **Owner same as applicant**

**Name:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Mailing Address:** **Street or P.O. Box:** \_\_\_\_\_  
**City:** \_\_\_\_\_ **State:** \_\_\_\_\_ **Zip Code:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**Phone:** \_\_\_\_\_

**List names of owners and officers of the company who have an interest in the company of 5% or more.**

| Name | Position |
|------|----------|
|------|----------|

|       |       |
|-------|-------|
| _____ | _____ |
| _____ | _____ |
| _____ | _____ |

**Section AI.4: Type of Application**

**Current Status:** ☒ Title V ☐ Conditional Major ☐ State-Origin ☐ General Permit ☐ Registration ☐ None

☐ Name Change ☐ Initial Registration ☐ Significant Revision ☐ Administrative Permit Amendment  
☐ Renewal Permit ☐ Revised Registration ☐ Minor Revision ☐ Initial Source-wide Operating Permit  
**Requested Action:**  
*(check all that apply)* ☒ 502(b)(10) Change ☐ Extension Request ☒ Addition of New Facility ☐ Portable Plant Relocation Notice  
☐ Revision ☐ Off Permit Change ☐ Landfill Alternate Compliance Submittal ☐ Modification of Existing Facilities  
☐ Ownership Change ☐ Closure

**Requested Status:** ☒ Title V ☐ Conditional Major ☐ State-Origin ☐ PSD ☐ NSR ☐ Other: \_\_\_\_\_

**Is the source requesting a limitation of potential emissions?** ☐ Yes ☒ No

| Pollutant:                                                | Requested Limit: | Pollutant:                                                 | Requested Limit: |
|-----------------------------------------------------------|------------------|------------------------------------------------------------|------------------|
| <input type="checkbox"/> Particulate Matter               | _____            | <input type="checkbox"/> Single HAP                        | _____            |
| <input type="checkbox"/> Volatile Organic Compounds (VOC) | _____            | <input type="checkbox"/> Combined HAPs                     | _____            |
| <input type="checkbox"/> Carbon Monoxide                  | _____            | <input type="checkbox"/> Air Toxics (40 CFR 68, Subpart F) | _____            |
| <input type="checkbox"/> Nitrogen Oxides                  | _____            | <input type="checkbox"/> Carbon Dioxide                    | _____            |
| <input type="checkbox"/> Sulfur Dioxide                   | _____            | <input type="checkbox"/> Greenhouse Gases (GHG)            | _____            |
| <input type="checkbox"/> Lead                             | _____            | <input type="checkbox"/> Other                             | _____            |

**For New Construction:**

**Proposed Start Date of Construction:**  
*(MM/YYYY)*

N/A

**Proposed Operation Start-Up Date:** *(MM/YYYY)*

N/A

**For Modifications:**

**Proposed Start Date of Modification:**  
*(MM/YYYY)*

N/A

**Proposed Operation Start-Up Date:** *(MM/YYYY)*

N/A

**Applicant is seeking coverage under a permit shield.** ☐ Yes ☒ No

**Identify any non-applicable requirements for which permit shield is sought on a separate attachment to the application.**

## Section AI.5 Other Required Information

### Indicate the documents attached as part of this application:

- |                                                                                            |                                                                                   |
|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <input type="checkbox"/> DEP7007A Indirect Heat Exchangers and Turbines                    | <input type="checkbox"/> DEP7007CC Compliance Certification                       |
| <input type="checkbox"/> DEP7007B Manufacturing or Processing Operations                   | <input type="checkbox"/> DEP7007DD Insignificant Activities                       |
| <input type="checkbox"/> DEP7007C Incinerators and Waste Burners                           | <input type="checkbox"/> DEP7007EE Internal Combustion Engines                    |
| <input type="checkbox"/> DEP7007F Episode Standby Plan                                     | <input type="checkbox"/> DEP7007FF Secondary Aluminum Processing                  |
| <input type="checkbox"/> DEP7007J Volatile Liquid Storage                                  | <input type="checkbox"/> DEP7007GG Control Equipment                              |
| <input type="checkbox"/> DEP7007K Surface Coating or Printing Operations                   | <input type="checkbox"/> DEP7007HH Haul Roads                                     |
| <input type="checkbox"/> DEP7007L Mineral Processes                                        | <input type="checkbox"/> Confidentiality Claim                                    |
| <input type="checkbox"/> DEP7007M Metal Cleaning Degreasers                                | <input type="checkbox"/> Ownership Change Form                                    |
| <input checked="" type="checkbox"/> DEP7007N Source Emissions Profile                      | <input type="checkbox"/> Secretary of State Certificate                           |
| <input type="checkbox"/> DEP7007P Perchloroethylene Dry Cleaning Systems                   | <input type="checkbox"/> Flowcharts or diagrams depicting process                 |
| <input type="checkbox"/> DEP7007R Emission Offset Credit                                   | <input type="checkbox"/> Digital Line Graphs (DLG) files of buldings, roads, etc. |
| <input type="checkbox"/> DEP7007S Service Stations                                         | <input type="checkbox"/> Site Map                                                 |
| <input type="checkbox"/> DEP7007T Metal Plating and Surface Treatment Operations           | <input type="checkbox"/> Map or drawing depicting location of facility            |
| <input type="checkbox"/> DEP7007V Applicable Requirements and Compliance Activities        | <input type="checkbox"/> Safety Data Sheet (SDS)                                  |
| <input type="checkbox"/> DEP7007Y Good Engineering Practice and Stack Height Determination | <input type="checkbox"/> Emergency Response Plan                                  |
| <input type="checkbox"/> DEP7007AA Compliance Schedule for Non-complying Emission Units    | <input type="checkbox"/> Other: _____                                             |
| <input type="checkbox"/> DEP7007BB Certified Progress Report                               |                                                                                   |

## Section AI.6: Signature Block

I, the undersigned, hereby certify under penalty of law, that I am a responsible official\*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.



Authorized Signature

10-29-2024

Date

Michael Klenda

Type or Printed Name of Signatory

Site Operations Manager

Title of Signatory

\*Responsible official as defined by 401 KAR 52:001.

|                                                        |
|--------------------------------------------------------|
| <b>Section AI.7: Notes, Comments, and Explanations</b> |
|                                                        |
|                                                        |
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| <div>Division for Air Quality</div> <div>300 Sower Boulevard</div> <div>Frankfort, KY 40601</div> <div>(502) 564-3999</div> |                    |            |               | <div>DEP7007N</div> <div>Source Emissions Profile</div> <div><div><div>___ Section N.1: Emission Summary</div><div>___ Section N.2: Stack Information</div><div>___ Section N.3: Fugitive Information</div><div>___ Section N.4: Notes, Comments, and Explanations</div></div><div><div>Additional Documentation</div><div>___ Complete DEP7007A1</div></div></div> |                   |          |                                          |           |                                             |                                                               |                        |                        |                                                 |                                               |                                                   |                                                 |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------|------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|------------------------------------------|-----------|---------------------------------------------|---------------------------------------------------------------|------------------------|------------------------|-------------------------------------------------|-----------------------------------------------|---------------------------------------------------|-------------------------------------------------|
| Source Name:                                                                                                                |                    |            |               | Carmeuse Lime & Stone, Inc.                                                                                                                                                                                                                                                                                                                                         |                   |          |                                          |           |                                             |                                                               |                        |                        |                                                 |                                               |                                                   |                                                 |
| KY EIS (AFS) #:                                                                                                             |                    |            |               | 21- 191-00002                                                                                                                                                                                                                                                                                                                                                       |                   |          |                                          |           |                                             |                                                               |                        |                        |                                                 |                                               |                                                   |                                                 |
| Permit #:                                                                                                                   |                    |            |               | V-19-011                                                                                                                                                                                                                                                                                                                                                            |                   |          |                                          |           |                                             |                                                               |                        |                        |                                                 |                                               |                                                   |                                                 |
| Agency Interest (AI) ID:                                                                                                    |                    |            |               | 3400                                                                                                                                                                                                                                                                                                                                                                |                   |          |                                          |           |                                             |                                                               |                        |                        |                                                 |                                               |                                                   |                                                 |
| Date:                                                                                                                       |                    |            |               | October 22, 2024                                                                                                                                                                                                                                                                                                                                                    |                   |          |                                          |           |                                             |                                                               |                        |                        |                                                 |                                               |                                                   |                                                 |
| N.1: Emission Summary                                                                                                       |                    |            |               |                                                                                                                                                                                                                                                                                                                                                                     |                   |          |                                          |           |                                             |                                                               |                        |                        |                                                 |                                               |                                                   |                                                 |
| Emission Unit #                                                                                                             | Emission Unit Name | Process ID | Process Name  | Control Device Name                                                                                                                                                                                                                                                                                                                                                 | Control Device ID | Stack ID | Maximum Design Capacity (SCC Units/hour) | Pollutant | Uncontrolled Emission Factor (lb SCC Units) | Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance) | Capture Efficiency (%) | Control Efficiency (%) | Hourly Emissions Uncontrolled Potential (lb/hr) | Hourly Emissions Controlled Potential (lb/hr) | Annual Emissions Uncontrolled Potential (tons/yr) | Annual Emissions Controlled Potential (tons/yr) |
| 32 17                                                                                                                       | Reject Landfill    | 1          | Truck Dumping | Wet Suppression                                                                                                                                                                                                                                                                                                                                                     | na                | na       | 20.00                                    | PM        | 0.032                                       | Engineering Estimate                                          | 100%                   | 70%                    | 0.640                                           | 0.192                                         | 2.803                                             | 0.841                                           |
|                                                                                                                             |                    |            |               | Wet Suppression                                                                                                                                                                                                                                                                                                                                                     | na                | na       | 20.00                                    | PM10      | 0.027                                       | Engineering Estimate                                          | 100%                   | 70%                    | 0.544                                           | 0.163                                         | 2.383                                             | 0.715                                           |
|                                                                                                                             |                    |            |               | Wet Suppression                                                                                                                                                                                                                                                                                                                                                     | na                | na       | 20.00                                    | PM2.5     | 0.010                                       | Engineering Estimate                                          | 100%                   | 70%                    | 0.192                                           | 5.76E-02                                      | 0.841                                             | 0.252                                           |
| 32 17                                                                                                                       | Reject Landfill    | 2          | Wind Erosion  | Wet Suppression                                                                                                                                                                                                                                                                                                                                                     | na                | na       | 8.00                                     | PM        | 0.055                                       | EPA-450/3-88-008                                              | 100%                   | 70%                    | 0.443                                           | 0.133                                         | 1.941                                             | 0.582                                           |
|                                                                                                                             |                    |            |               | Wet Suppression                                                                                                                                                                                                                                                                                                                                                     | na                | na       | 8.00                                     | PM10      | 0.028                                       | EPA-450/3-88-008                                              | 100%                   | 70%                    | 0.222                                           | 6.65E-02                                      | 0.971                                             | 0.291                                           |
|                                                                                                                             |                    |            |               | Wet Suppression                                                                                                                                                                                                                                                                                                                                                     | na                | na       | 8.00                                     | PM2.5     | 0.004                                       | EPA-450/3-88-008                                              | 100%                   | 70%                    | 3.32E-02                                        | 9.97E-03                                      | 0.146                                             | 4.37E-02                                        |

**Section N.2: Stack Information****UTM Zone: 16**

| Stack ID                                         | Identify all Emission Units<br>(with Process ID) and<br>Control Devices that Feed<br>to Stack | Stack Physical Data            |                |                           | Stack UTM Coordinates |                | Stack Gas Stream Data |                     |                           |  |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------------|----------------|---------------------------|-----------------------|----------------|-----------------------|---------------------|---------------------------|--|
|                                                  |                                                                                               | Equivalent<br>Diameter<br>(ft) | Height<br>(ft) | Base<br>Elevation<br>(ft) | Northing<br>(m)       | Easting<br>(m) | Flowrate<br>(acfm)    | Temperature<br>(°F) | Exit Velocity<br>(ft/sec) |  |
| No Stack Emission Points Affected By The Project |                                                                                               |                                |                |                           |                       |                |                       |                     |                           |  |

**Section N.3: Fugitive Information****UTM Zone: 16**

| Emission Unit # | Emission Unit Name | Process ID | Area Physical Data           |                              | Area UTM Coordinates |                | Area Release Data           |                        |
|-----------------|--------------------|------------|------------------------------|------------------------------|----------------------|----------------|-----------------------------|------------------------|
|                 |                    |            | Length of the X Side<br>(ft) | Length of the Y Side<br>(ft) | Northing<br>(m)      | Easting<br>(m) | Release Temperature<br>(°F) | Release Height<br>(ft) |
| 32-17           | Reject Landfill    | 1          | 600                          | 700                          | 4,301,790            | 739,074        | Ambient                     | 10                     |
| 32-17           | Reject Landfill    | 2          | 600                          | 700                          | 4,301,790            | 739,074        | Ambient                     | 10                     |

**Section N.4: Notes, Comments, and Explanations**

Fugitive area is based off a rectangular area containing the most distant geographical points of the landfill.

## **ATTACHMENT 2. SUPPORTING EMISSION CALCULATIONS**

## 1. Reject Landfill (EU 32-17)

- > The process units that make up the Reject Landfill at the Black River Plant include the dumping of rejected material by truck and the emissions that arise from the wind erosion of the landfill. This section documents the emission factors derived to calculate the emissions from each type of fugitive emission source, as provided on the 7007N forms.

### 1.1 Landfill Throughput and Capacities

- > The maximum processing throughput for material deposited to the landfill by truck is based on the maximum processing rate for the CM Screw Receiving Hopper (32-05), which is used to transfer reject material to the underground mine. Carmeuse only sends reject materials to the landfill when necessary and the vast majority of reject material will continue to be deposited to the underground mine. As such, the selection of this processing rate is conservative. Actual processing rates will vary as they are dependent on the quantity of material rejected.

| Process Description        | Maximum Processing Rate (ton/hr) | Operating Hours (hrs/yr) | Maximum Processing Rate (ton/yr) |
|----------------------------|----------------------------------|--------------------------|----------------------------------|
| Landfill Material Transfer | 20                               | 8,760                    | 175,200                          |

### 1.2 Truck Dumping

- > Reject lime and limestone that is not suitable for use in product is collected by truck and dumped into the reject landfill. PM/PM10/PM2.5 emissions are calculated based on emission factors from AP-42 Table 11.19.2-2 (08/04 Edition) for Crushed Stone Processing and AP-42 Table 11.17-4 (02/98 Edition) for Lime Manufacturing. Although both limestone and lime are deposited into the landfill, Carmeuse has conservatively assumed only lime will be deposited for the potential emission calculations. AP-42 Chapter 11.17 does not provide a "Truck Unloading" emission factor for lime material. However, AP-42 Chapter 11.19 does provide an emission factor for "Truck Unloading". As such, a "Truck Unloading" emission factor was derived for unloading lime by assuming the ratios between the conveyor transfer point emission factors (i.e., lime in Table 11.17-4 and crushed stone in Table 11.19.2-2) are the same as the ratio between truck unloading emission factors.

#### 1.2.1 Material Transfer Emission Factors

| Process Description             | PM (lb/ton) | PM10 (lb/ton) | PM2.5 (lb/ton) | Basis                                                      |
|---------------------------------|-------------|---------------|----------------|------------------------------------------------------------|
| Conveyor and Transfer Point     | 2.2000      | 1.8700        | 0.6600         | AP-42, Table 11.17-4 for "Product transfer and conveying"  |
| Conveyor and Transfer Point     | 0.0030      | 0.0011        | 0.0003         | AP-42, Table 11.19.2-2 for "Conveyor Transfer Point"       |
| Truck Unloading                 | 4.36E-05    | 1.60E-05      | 4.51E-06       | AP-42, Table 11.19.2-2 for "Truck Unloading"               |
| Reject Landfill Truck Unloading | 0.03200     | 0.02720       | 0.00960        | = 4.36E-05 lb PM/ton x (2.200 lb PM/ton / 0.003 lb PM/ton) |

<sup>1</sup> The truck unloading entry in AP-42 Table 11.19.2-2 only provides a PM10 emission factor. PM and PM2.5 emission factors were derived assuming that the same ratios of PM:PM10 and PM2.5:PM10 provided for the conveyor transfer points in AP-42 Table 11.19.2-2 apply.

Annual emissions based on maximum material transfer volume:  
Emissions from Reject Landfill Truck Dumping:

| Number of Drop Points | PM   | PM10 | PM2.5 Units |
|-----------------------|------|------|-------------|
| 1                     | 2.80 | 2.38 | 0.84 tpy    |

### 1.2.2 Reject Landfill Wind Erosion Emission Factors

- > Fugitive PM emissions may be generated through wind erosion of the landfill. This results when gusts of wind cause loose dust on the surface of the landfill to become airborne. These emissions are calculated on a pounds per day per acre basis using the method from the EPA document "Control of Open Fugitive Dust Sources". Under this methodology, the annual quantity of emissions can be expressed as a function of the silt content of the limestone stored, the moisture of the pile (predicted by the number of days per year with measurable precipitation), and the percentage of hours per year that wind speed exceeds the threshold speed of 12 miles per hour. This methodology is considered sufficiently conservative that it would also encompass fugitive emissions associated with normal landfill maintenance activities.
- > For consistency, the wind erosion emission factors presented below for the reject landfill are the same emission factors in the current KyEIS for the existing reject lime stockpiles. Refer to the Black River Plant Title V Air Permit Application, submitted to the Division in August 2012 for emission factor derivation calculations.

| Emission Unit   | PM<br>(lb/hr/acre) | PM10<br>(lb/hr/acre) | PM2.5<br>(lb/hr/acre) |
|-----------------|--------------------|----------------------|-----------------------|
| Reject Landfill | 0.055              | 0.028                | 0.004                 |

Maximum surface area of Reject Landfill:

8.0 acres

Annual emissions based on maximum landfill area:

Emissions from Landfill Wind Erosion:

| PM    | PM10  | PM2.5 | Units |
|-------|-------|-------|-------|
| 1.941 | 0.971 | 0.146 | tpy   |

### 1.3 Summary of Total Project Potential Emissions

- > As indicated in the summary table below, the emissions from the new Reject Landfill operation are relatively small and under the threshold for an insignificant activity (IA). However, in the interest of conservatism and permit consistency for Reject Lime Stockpiles (LM05), Carmeuse is electing not to classify this emission unit as an IA.

| Pollutant | Dry Material<br>Transfer<br>Emissions<br>(tpy) | Dry Wind<br>Erosion<br>Emissions<br>(tpy) | Wet<br>Suppressio<br>n Control<br>Efficiency <sup>1</sup><br>(%) | Total Project<br>Related<br>Emissions<br>(tpy) |
|-----------|------------------------------------------------|-------------------------------------------|------------------------------------------------------------------|------------------------------------------------|
| PM        | 2.80                                           | 1.941                                     | 70.0                                                             | 1.42                                           |
| PM10      | 2.38                                           | 0.971                                     | 70.0                                                             | 1.01                                           |
| PM2.5     | 0.84                                           | 0.146                                     | 70.0                                                             | 0.30                                           |

<sup>1</sup> Consistent with the existing reject lime stockpile operations, a control efficiency of 70% is applied to account for moisture in the reject lime and limestone.

## Reilley, Kristy (EEC)

---

**From:** Hopkins Ryan <[ryan.hopkins@carmeuse.com](mailto:ryan.hopkins@carmeuse.com)>  
**Sent:** Monday, August 18, 2025 1:38 PM  
**To:** Reilley, Kristy (EEC)  
**Cc:** Breckenridge, Julian D (EEC); Brian Otten  
**Subject:** RE: AI 3400 Title V Permit Renewal

**This Message Originated from Outside the Organization**

[Report Suspicious](#)

This Message Is From an External Sender.

Good Afternoon Kristy,

We have reviewed the following permit actions and determined that neither of these processes are currently in operation, therefore the permit actions will not be needed.

1. March 2020, Minor Revision: Pulverized Lime Railcar Loadout
2. November 2020, 502(b)(10) Change: Transloading Operation

Please let me know if you have any questions,  
Thanks!

---

**From:** Reilley, Kristy (EEC) <[kristy.reilley@ky.gov](mailto:kristy.reilley@ky.gov)>  
**Sent:** Monday, June 30, 2025 1:52 PM  
**To:** Hopkins Ryan <[ryan.hopkins@carmeuse.com](mailto:ryan.hopkins@carmeuse.com)>  
**Cc:** Breckenridge, Julian D (EEC) <[Julian.Breckenridge@ky.gov](mailto:Julian.Breckenridge@ky.gov)>  
**Subject:** RE: AI 3400 Title V Permit Renewal

Good afternoon Ryan,

After further review of the renewal application, we have discovered that there are two permit actions listed in Table 1-1 of the application that the Division has no record of ever receiving. Could you please re-submit the following:

1. March 2020, Minor Revision: Pulverized Lime Railcar Loadout
2. November 2020, 502(b)(10) Change: Transloading Operation

Thank you,

*Kristy Reilley*

Environmental Engineer Technologist II  
Permit Review Branch  
Division for Air Quality  
300 Sower Blvd  
Frankfort KY 40601

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**From:** Hopkins Ryan <[ryan.hopkins@carmeuse.com](mailto:ryan.hopkins@carmeuse.com)>  
**Sent:** Wednesday, May 28, 2025 9:58 AM  
**To:** Reilley, Kristy (EEC) <[kristy.reilley@ky.gov](mailto:kristy.reilley@ky.gov)>

**Cc:** Breckenridge, Julian D (EEC) <[Julian.Breckenridge@ky.gov](mailto:Julian.Breckenridge@ky.gov)>

**Subject:** RE: AI 3400 Title V Permit Renewal

Kristy,

I have confirmed that we would like to withdraw the significant revision relating to the DSI systems for the kilns.

Due to the recent and ongoing changes in the political and regulatory arena, Carmeuse has opted to not proceed with the installation of the DSI systems on the kilns at this time.

Please let me know if any additional information is needed.

Thank you!

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**From:** Hopkins Ryan

**Sent:** Wednesday, May 28, 2025 8:30 AM

**To:** Reilley, Kristy (EEC) <[kristy.reilley@ky.gov](mailto:kristy.reilley@ky.gov)>

**Cc:** Breckenridge, Julian D (EEC) <[Julian.Breckenridge@ky.gov](mailto:Julian.Breckenridge@ky.gov)>

**Subject:** RE: AI 3400 Title V Permit Renewal

Good Morning Kristy,

I apologize for the delay.

Yes I will get you an answer on this before the end of this week.

Thank you!

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**From:** Reilley, Kristy (EEC) <[kristy.reilley@ky.gov](mailto:kristy.reilley@ky.gov)>

**Sent:** Wednesday, May 28, 2025 8:28 AM

**To:** Hopkins Ryan <[ryan.hopkins@carmeuse.com](mailto:ryan.hopkins@carmeuse.com)>

**Cc:** Breckenridge, Julian D (EEC) <[Julian.Breckenridge@ky.gov](mailto:Julian.Breckenridge@ky.gov)>

**Subject:** RE: AI 3400 Title V Permit Renewal

You don't often get email from [kristy.reilley@ky.gov](mailto:kristy.reilley@ky.gov). [Learn why this is important](#)

Good morning Mr. Hopkins,

I wanted to follow up on the status of the request below since I have not yet heard back from you. Will you be able to provide a formal withdrawal statement by the end of this week?

Thank you

*Kristy Reilley*

Environmental Engineer Technologist II

Permit Review Branch

Division for Air Quality

300 Sower Blvd

Frankfort KY 40601

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**From:** Reilley, Kristy (EEC)  
**Sent:** Tuesday, May 20, 2025 7:41 AM  
**To:** [ryan.hopkins@carmeuse.com](mailto:ryan.hopkins@carmeuse.com)  
**Subject:** AI 3400 Title V Permit Renewal

Good morning Mr. Hopkins,

The Division is in the process of reviewing the Title V Permit renewal application that was recently submitted for the Carmeuse Black River Plant. In the application summary, there is a footnote to Table 1-1 that states the significant revision application that was submitted in October 2024 for this location was withdrawn. However, the Division has not yet received an official withdrawal of this application. If Carmeuse's intention is to not proceed with the installation of the DSI systems as control technology for the kilns, please submit a written statement to that effect so that the permit activity can be withdrawn.

Thank you,

*Kristy Reilley*

Environmental Engineer Technologist II  
Permit Review Branch  
Division for Air Quality  
300 Sower Blvd  
Frankfort KY 40601

## Kiln #4 Monthly Production Data for Baseline Period

This table provides the actual monthly production data for Kiln #4 during the baseline period (May 2020 through April 2022) used in the emissions calculations for the December 2023 Minor Permit Revision Application for Burner Change in Rotary Kiln #4.

| Month        | Monthly<br>Lime<br>Production<br>(tons) | Rolling<br>24-Month<br>Average<br>Production<br>(tons/yr) |
|--------------|-----------------------------------------|-----------------------------------------------------------|
| January 20   | 0                                       | --                                                        |
| February 20  | 0                                       | --                                                        |
| March 20     | 1,632                                   | --                                                        |
| April 20     | 0                                       | --                                                        |
| May 20       | 0                                       | --                                                        |
| June 20      | 15,471                                  | --                                                        |
| July 20      | 26,524                                  | --                                                        |
| August 20    | 24,189                                  | --                                                        |
| September 20 | 24,659                                  | --                                                        |
| October 20   | 25,750                                  | --                                                        |
| November 20  | 22,464                                  | --                                                        |
| December 20  | 26,945                                  | --                                                        |
| January 21   | 7,200                                   | --                                                        |
| February 21  | 7,738                                   | --                                                        |
| March 21     | 23,505                                  | --                                                        |
| April 21     | 14,850                                  | --                                                        |
| May 21       | 5,583                                   | --                                                        |
| June 21      | 20,101                                  | --                                                        |
| July 21      | 8,761                                   | --                                                        |
| August 21    | 17,290                                  | --                                                        |
| September 21 | 13,246                                  | --                                                        |
| October 21   | 13,355                                  | --                                                        |
| November 21  | 18,389                                  | --                                                        |
| December 21  | 20,963                                  | 169,308                                                   |
| January 22   | 15,995                                  | 177,305                                                   |
| February 22  | 19,261                                  | 186,936                                                   |
| March 22     | 6,653                                   | 189,446                                                   |
| April 22     | 20,213                                  | <b>199,553</b>                                            |
| May 22       | 0                                       | 199,553                                                   |
| June 22      | 0                                       | 191,817                                                   |
| July 22      | 0                                       | 178,555                                                   |
| August 22    | 0                                       | 166,461                                                   |
| September 22 | 0                                       | 154,131                                                   |
| October 22   | 0                                       | 141,256                                                   |
| November 22  | 0                                       | 130,024                                                   |
| December 22  | 0                                       | 116,552                                                   |