

Ramsey, Marguerita (DEQ)

From: Jim Donaldson <JDonaldson@trinityconsultants.com>
Sent: Wednesday, July 12, 2017 5:51 PM
To: DEQ-ROP
Cc: Gower Matt (Matthew.Gower@carmeusena.com); kris.milner@carmeusena.com
Subject: B2169 – ROP Renewal Application
Attachments: ROP Renewal Form - B2169.pdf; B2169 Final 1-15-13_Trinity Redline 0620_2017_Draft.docx; B2169 ROP Renewal Cover Letter.pdf; PTE Calcs - Carmuse River Rouge Facility.pdf; Final CAM Plan_2017.pdf; OMMP SSMP River Rouge 9-11-2007 version 2.pdf

To Whom It May Concern:

Please find the attached electronic ROP renewal application for Carmeuse Lime, Inc., located in River Rouge, MI (SRN B2169), including the ROP renewal application form, redlined version of the ROP, PTE calculations, and referenced plans. A hardcopy version of these same files is being delivered to the Detroit District office today as well, with all required signatures. A detailed description of all changes to the ROP conditions and referenced plans may be found in the attached cover letter. If you have any questions regarding the attached ROP renewal application, please contact me at 630-495-1470 or Kris Milner at 859-472-8100.

Best regards,

Jim Donaldson, PE
Senior Consultant

Trinity Consultants

1S660 Midwest Road, Suite 250 | Oakbrook Terrace, IL 60181

Office: **630-495-1470** | Mobile: 517-980-0926

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July 11, 2017

Michigan Department of Environmental Quality
Air Quality Division, Detroit District
Cadillac Place, Suite 2-300
3058 West Grand Blvd.
Detroit, MI 48202-6058

**RE: Renewable Operating Permit Renewal Application
Carmeuse Lime, Inc.
State Registration Number B2169
ROP No. MI-ROP-B2169-2013**

Dear Sir or Madam:

Pursuant to R 336.1210(7) (Rule 210) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451) and Condition A.35 of MI-ROP-B2169-2013, Carmeuse Lime, Inc. (Carmeuse) is submitting an application to renew the Renewable Operating Permit (ROP), for the lime manufacturing facility located at 25 Marion Ave. in River Rouge, Michigan (State Registration No. B2169). In accordance with Condition A.35, this application is being submitted in a timely manner at least six (6) months, but not more than eighteen (18) months prior to the permit's expiration date of January 15, 2018. This application is being submitted in accordance with MDEQ's published guidance for renewing ROPs, *Renewal Application Instructions (February 2011)*.

A copy of the ROP renewal form that was electronically submitted to MDEQ is attached to this letter as Attachment A. Pursuant to MDEQ guidance, a redline/strikeout version of the current ROP with Carmeuse's proposed changes to the ROP, as Attachment B, is also included with this letter. Compliance Assurance Monitoring (CAM) calculations and a CAM plan for specific units at the River Rouge Facility are included as Attachment C. As required by Items 5 and 6 in Part C of the ROP renewal form, facility-wide potential to emit (PTE) calculations are included as Attachment D. Finally, per Item 10 of Part C of the ROP renewal form, the Operation, Maintenance, and Monitoring Plan for the River Rouge Facility and Startup, Shutdown and Malfunction Plan for the lime kilns are included as Attachment E. Item 10 of Part C of the ROP renewal form also requires submittal of the Fugitive Dust Management Plan, this is included in Appendix 9 of the ROP for the River Rouge Facility as part of State and Federal SIP No. 22-1993 and no changes have been made to this plan since the previous renewal. Thus, the Fugitive Dust Management Plan is included in the ROP redline in Attachment B.

UPDATES TO EXEMPT/NON-EXEMPT UNITS

No new significant emission units or modifications to existing units have been brought onsite or carried out since the most recent issuance of the ROP on January 15, 2013. However, On March 18, 2016, MDEQ issued Carmeuse Permit to Install (PTI) No. PTI 193-14A, which allows Carmeuse to construct a new common stack for its two existing lime kilns. Additionally, PTI 193-14A also establishes a new sulfur dioxide (SO₂) emission rate for the combined exhaust from the kilns. The combined stack and new SO₂ emission rate were planned as a result of the new 1-hour SO₂ nonattainment State Implementation Plan (SIP) development. Therefore, the contents of PTI 193-14A have been rolled into the redline version

of MI-ROP-B2169-2013. Carmeuse would like to note that this project has not yet commenced and that the common stack does not yet exist. The two existing lime kilns still vent through two individual stacks.

Updates to MI-ROP-B2169-2013 resulting from incorporation of PTI 193-14A include the addition of a new Flexible Group ID "FG-Kilns 1&2". Emission units that compose FG-Kilns 1&2 include the two existing lime kilns (EUKILNNUMBER1 and EUKILNNUMBER2). As previously mentioned, FG-Kilns 1&2 establishes that EUKILNNUMBER1 and EUKILNNUMBER2 will share a common stack and also promulgates the new 1-hour SO₂ SIP emission limit for EUKILNNUMBER1 and EUKILNNUMBER2.

There have been no emission units installed at the River Rouge Facility since the last ROP renewal that are exempt from Permit to Install (PTI) applicability governed by R 336.1201 (Rule 201), per R 336.1277 through R 336.1290

Proposed Changes to ROP Conditions

As aforementioned, the only proposed change to the current conditions in MI-ROP-B2169-2013 is the incorporation of PTI 193-14A into the permit. The incorporation of PTI 193-14A will result in adding FG-Kilns 1&2.

Regulatory Applicability Updates

The following paragraphs provide a summary of the potentially applicable rules that were either promulgated during the term of the current ROP for the River Rouge Facility, or may be applicable upon renewal of the River Rouge Facility's ROP.

Compliance Assurance Monitoring (CAM)

The applicability and requirements of the CAM program, as set forth in 40 CFR Part 64, were reviewed and assessed as part of the River Rouge Facility's ROP renewal application effort. Per the applicability criteria in 40 CFR 64.2(a), CAM applies to any pollutant-specific emission unit (PSEU) at a major source, ROP facility that:

- Is subject to a federally enforceable emission limit or standard for a regulated air pollutant;
- Uses a control device to comply with that federally enforceable emission limit or standard; and
- Has a PTE for the applicable regulated pollutant, without taking into account the control device, in an amount (in tons per year) equal to or greater than 100 percent of the ROP major source threshold.

Under the current ROP conditions, EUKILNNUMBER1 and EUKILNNUMBER2 have emission limits on particulate matter (PM) and particulate matter less than 10 microns aerodynamic diameter (PM₁₀), opacity and SO₂. Emissions of PM/PM₁₀ and opacity are currently controlled by baghouses. Additionally, the current ROP also establishes PM/PM₁₀ emission limits for other ancillary lime manufacturing equipment (i.e., EUCONVEYOR/ELEV, EULIMELOADOUT, EUFDLOADOUT, EUFLUEDUSTTANK and EUNO6BINVENT), which also incorporate baghouses to control PM/PM₁₀ emissions.

Appendix C of this application contains a CAM applicability table comparing the potential pre-control emissions of each of these emission units to the ROP major source threshold for each controlled pollutant to determine whether CAM potentially applies.

From the CAM applicability calculations, it is clear that EUCONVEYOR/ELEV, EULIMELOADOUT, EUFDLOADOUT and EUFLUEDUSTTANK have uncontrolled PTEs that exceed major source thresholds for PM/PM₁₀ and are therefore subject to the CAM program. As such, Carmeuse has also prepared a CAM plan for EUCONVEYOR/ELEV, EULIMELOADOUT, EUFDLOADOUT EUFLUEDUSTTANK, and EUNO6BINVENT which is also provided in Appendix C of this letter.

Carmeuse would like to note that EUKILNNUMBER1, EUKILNNUMBER2 and EU FUGITIVE also generate PM/PM₁₀ emissions and have controls that reduce their PM/PM₁₀ emissions. However, these emission units are not subject to CAM. Pursuant to MI-ROP-B2169-2013, Lime Kilns EUKILNNUMBER1 and EUKILNNUMBER2 are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Lime Manufacturing Plants (40 CFR 63 Subpart AAAAA). The PM limits in Conditions I.1 and I.2 of FG-MACT AAAAA-LIME MANUFACTURING PLANTS are based on 40 CFR 63 Subpart AAAAA, which is a standard proposed after November 15, 1990 pursuant to section 112 of the Clean Air Act. Per 40 CFR 64.2(b)(1)(i), these limits are exempt from the requirements of CAM.

Emission unit EUFUGITIVE represents fugitive emissions of PM/PM₁₀ that are generated from storage piles and paved and unpaved roadways. Carmeuse controls fugitive PM/PM₁₀ emissions from roadways and storage piles by periodically applying a dust suppressant (e.g., water spray). Pursuant to 40 CFR 64.1, the CAM program defines a “control device” as:

“...equipment, other than inherent process equipment, that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere. The types of equipment that may commonly be used as control devices include, but are not limited to, fabric filters, mechanical collectors, electrostatic precipitators, inertial separators, afterburners, thermal or catalytic incinerators, adsorption devices (such as carbon beds), condensers, scrubbers (such as wet collection and gas absorption devices), selective catalytic or non-catalytic reduction systems, flue gas recirculation systems, spray dryers, spray towers, mist eliminators, acid plants, sulfur recovery plants, injection systems (such as water, steam, ammonia, sorbent or limestone injection), and combustion devices independent of the particular process being conducted at an emissions unit (e.g., the destruction of emissions achieved by venting process emission streams to flares, boilers or process heaters). For purposes of this part, a control device does not include passive control measures that act to prevent pollutants from forming, such as the use of seals, lids, or roofs to prevent the release of pollutants, use of low-polluting fuel or feedstocks, or the use of combustion or other process design features or characteristics.”

While the dust suppressant does act as a control for fugitive PM/PM₁₀ from storage piles and roadways, it does not meet the CAM program’s definition of a control device, as the dust suppressant is a passive control that is applied to prevent fugitive PM/PM₁₀ emissions from forming. Therefore, EUFUGITIVE is not subject to CAM.

As previously stated, the ROP renewal application forms are attached to this letter, along with a redline/strikeout version of the current ROP, a CAM plan and calculations, facility-wide PTE calculations, and the River Rouge Facility's startup, shutdown and malfunction and operations, maintenance and monitoring plan. As stated above, the fugitive dust management plan is included in Appendix 9 of the redlined ROP.

If you have any questions or comments regarding this renewal application, please feel free to call Kris Milner of Carmeuse at (859) 472-8100 or Mr. Jim Donaldson of Trinity Consultants at (630) 495-1470.

Sincerely,
CARMEUSE LIME, INC.

Matthew Gower
Site Operations Manager

Attachments

cc: Mr. Jim Donaldson, Trinity Consultants

ATTACHMENT A – ROP RENEWAL FORM

ATTACHMENT B – REDLINED CURRENT ROP

ATTACHMENT C – CAM CALCULATIONS/PLAN

ATTACHMENT D – FACILITY POTENTIAL TO EMIT CALCULATIONS

**ATTACHMENT E – STARTUP, SHUTDOWN AND MALFUNCTION AND OPERATION,
MAINTENANCE AND MONITORING PLANS**



RENEWABLE OPERATING PERMIT RENEWAL APPLICATION FORM

This information is required by Article II, Chapter 1, Part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Refer to instructions for additional information to complete the Renewable Operating Permit Renewal Application Form.

GENERAL INSTRUCTIONS

This application form should be submitted as part of an administratively complete application package for renewal of a Renewable Operating Permit (ROP). This application form consists of nine parts. Parts A – H must be completed for all applications and must also be completed for each section of a sectioned ROP. Answer all questions in all parts of the form unless directed otherwise. Detailed instructions for this application form can be found at <http://michigan.gov/air> (select the Permits Tab, "Renewable Operating Permits (ROP)/Title V", then "ROP Forms & Templates").

PART A: GENERAL INFORMATION

Enter information about the source, owner, contact person and the responsible official.

SOURCE INFORMATION

SRN B2169	SIC Code 3274	NAICS Code 327410	Existing ROP Number MI-ROP-B2169-2013 Carmeuse Lime, Inc.	Section Number (if applicable)
Source Name Carmeuse Lime, Inc.				
Street Address 25 Marion Ave.				
City River Rouge	State MI	ZIP Code 48218	County Wayne	
Section/Town/Range (if address not available)				
Source Description Lime manufacturing facility with two straight rotary kilns and other ancillary equipment used in the production of lime.				
<input type="checkbox"/> Check here if any of the above information is different than what appears in the existing ROP. Identify any changes on the marked-up copy of your existing ROP.				

OWNER INFORMATION

Owner Name Carmeuse Lime and Stone	Section Number (if applicable)			
Mailing address (<input type="checkbox"/> check if same as source address) 11 Stanwix Street 21 Floor				
City Pittsburgh	State PA	ZIP Code 15222	County	Country United States

<input type="checkbox"/> Check here if any information in this ROP renewal application is confidential. Confidential information should be identified on an Additional Information (AI-001) Form.

SRN: B2169	Section Number (if applicable):
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PART A: GENERAL INFORMATION (continued)

At least one contact and responsible official must be identified. Additional contacts and responsible officials may be included if necessary.

CONTACT INFORMATION

Contact 1 Name Matthew Gower		Title Site Operations Manager		
Mailing address (<input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number (313) 849-9268		E-mail address matthew.gower@carmeusena.com		

Contact 2 Name (optional) Kris Milner		Title Area Environmental Manager		
Mailing address (<input type="checkbox"/> check if same as source address) 9043 Highway 154				
City Butler	State KY	ZIP Code 41006	County Pendleton	Country USA
Phone number (859) 472-8100		E-mail address kris.milner@carmeusena.com		

RESPONSIBLE OFFICIAL INFORMATION

Responsible Official 1 Name Matthew Gower		Title Site Operations Manager		
Mailing address (<input checked="" type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number (313) 849-9268		E-mail address matthew.gower@carmeusena.com		

Responsible Official 2 Name (optional)		Title		
Mailing address (<input type="checkbox"/> check if same as source address)				
City	State	ZIP Code	County	Country
Phone number		E-mail address		

<input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part A. Enter AI-001 Form ID:

PART B: APPLICATION SUBMITTAL and CERTIFICATION by Responsible Official

Identify the items that are included as part of your administratively complete application in the checklist below. For your application to be complete, it must include information necessary to evaluate the source and to determine all applicable requirements. Answer the compliance statements as they pertain to all the applicable requirements to which the source is subject. The source's Responsible Official must sign and date this form.

Listing of ROP Application Contents. Check the box for the items included with your application.	
<input checked="" type="checkbox"/> Completed ROP Renewal Application Form (and any AI-001 Forms) (required)	<input type="checkbox"/> Compliance Plan/Schedule of Compliance
<input checked="" type="checkbox"/> Mark-up copy of existing ROP using official version from the AQD website (required)	<input type="checkbox"/> Stack information
<input checked="" type="checkbox"/> Copies of all Permit(s) to Install that have not been incorporated into existing ROP (required)	<input type="checkbox"/> Acid Rain Permit Initial/Renewal Application
<input checked="" type="checkbox"/> HAP/Criteria Pollutant Potential to Emit Calculations	<input type="checkbox"/> Cross State Air Pollution Rule (CSAPR) Information
<input type="checkbox"/> MAERS Forms (to report emissions not previously submitted)	<input type="checkbox"/> Confidential Information
<input type="checkbox"/> Copies of all Consent Order/Consent Judgments that have not been incorporated into existing ROP	<input checked="" type="checkbox"/> Paper copy of all documentation provided (required)
<input checked="" type="checkbox"/> Compliance Assurance Monitoring (CAM) Plan	<input checked="" type="checkbox"/> Electronic documents provided (optional)
<input checked="" type="checkbox"/> Other Plans (e.g. Malfunction Abatement, Fugitive Dust, Operation and Maintenance, etc.)	<input type="checkbox"/> Other, explain:

Compliance Statement	
This source is in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
This source will continue to be in compliance with all of its applicable requirements, including those contained in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and other applicable requirements not currently contained in the existing ROP.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
This source will meet in a timely manner applicable requirements that become effective during the permit term.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
The method(s) used to determine compliance for each applicable requirement is/are the method(s) specified in the existing ROP, Permits to Install that have not yet been incorporated into that ROP, and all other applicable requirements not currently contained in the existing ROP.	
If any of the above are checked No, identify the emission unit(s) or flexible group(s) affected and the specific condition number(s) or applicable requirement for which the source is or will be out of compliance at the time of issuance of the ROP renewal on an AI-001 Form. Provide a compliance plan and schedule of compliance on an AI-001 Form.	

Name and Title of the Responsible Official (Print or Type)	
Matthew Gower, Site Operations Manager	
<i>As a Responsible Official, I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.</i>	
_____ Signature of Responsible Official	_____ Date

PART C: SOURCE REQUIREMENT INFORMATION

Answer the questions below for specific requirements or programs to which the source may be subject.

C1. Actual emissions and associated data from all emission units with applicable requirements (including those identified in the existing ROP, Permits to Install and other equipment that have not yet been incorporated into the ROP) are required to be reported in MAERS. Are there any emissions and associated data that have not been reported in MAERS for the most recent emissions reporting year? If Yes, identify the emission unit(s) that was/were not reported in MAERS on an AI-001 Form. Applicable MAERS form(s) for unreported emission units must be included with this application.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C2. Is this source subject to the federal regulations on ozone-depleting substances? (40 CFR Part 82)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C3. Is this source subject to the federal Chemical Accident Prevention Provisions? (Section 112(r) of the Clean Air Act Amendments, 40 CFR Part 68) If Yes, a Risk Management Plan (RMP) and periodic updates must be submitted to the USEPA. Has an updated RMP been submitted to the USEPA?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C4. Does the source belong to one of the source categories that require quantification of fugitive emissions? If Yes, identify the category on an AI-001 Form and include the fugitive emissions in the PTE calculations for the source. <i>See ROP Renewal Application instructions.</i>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C5. Does this stationary source have the potential to emit (PTE) of 100 tons per year or more of any criteria pollutant (PM-10, PM 2.5, VOC, NOx, SO ₂ , CO, lead)? If Yes, include potential emission calculations for each identified pollutant on an AI-001 Form.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C6. Does this stationary source emit any hazardous air pollutants (HAPs) regulated by the federal Clean Air Act, Section 112? If Yes, include potential and actual emission calculations for HAPs on an AI-001 Form. Fugitive emissions must be included in HAP calculations.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C7. Are any emission units subject to the Cross State Air Pollution Rule (CSAPR)? If Yes, identify the specific emission unit(s) subject to CSAPR on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C8. Are any emission units subject to the federal Acid Rain Program? If Yes, identify the specific emission unit(s) subject to the Federal Acid Rain Program on an AI-001 Form. Is an Acid Rain Permit Renewal Application included with this application?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
C9. Are any emission units identified in the existing ROP subject to compliance assurance monitoring (CAM)? If Yes, identify the specific emission unit(s) subject to CAM on an AI-001 Form. If a CAM plan has not been previously submitted to the MDEQ, one must be included with the ROP renewal application on an AI-001 Form. Is a CAM plan included with this application?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C10. Does the source have any plans such as a malfunction abatement plan, fugitive dust plan, operation/maintenance plan, or any other monitoring plan that is referenced in an existing ROP, Permit to Install requirement, or any other applicable requirement? If Yes, then a copy must be submitted as part of the ROP renewal application.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C11. Are there any specific requirements that the source proposes to be identified in the ROP as non-applicable? If Yes, then a description of the requirement and justification must be submitted as part of the ROP renewal application on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input checked="" type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part C. Enter AI-001 Form ID: AI-	

PART D: PERMIT TO INSTALL (PTI) EXEMPT EMISSION UNIT INFORMATION

Review all emission units at the source and answer the question below.

D1. Does the source have any emission units that do not appear in the existing ROP but are required to be listed in the ROP application under R 336.1212(4) (Rule 212(4)) of the Michigan Air Pollution Control Rules? If Yes, identify the emission units in the table below. Yes No

If No, go to Part E.

Note: Emission units that are subject to process specific emission limitations or standards, even if identified in Rule 212, must be captured in either Part G or H of this application form. Identical emission units may be grouped (e.g. PTI exempt Storage Tanks).

Emission Unit ID	Emission Unit Description	Rule 201 Exemption Rule Citation [e.g. Rule 282(2)(b)(i)]	Rule 212(4) Citation [e.g. Rule 212(4)(c)]
EUDIESELTANK1	Storage tank for diesel fuel, <40,000 gallons	284(b)	Rule 212(4)(c)
EUDIESELTANK2	Storage tank for diesel fuel, <40,000 gallons	284(b)	Rule 212(4)(c)
EUGASOLINETANK	Storage tank for gasoline, <40,000 gallons	284(b)	Rule 212(4)(c)
EUPROPANETANK1	15 pound propane storage tank, <40,000	284(b)	Rule 212(4)(c)
EUPROPANETANK2	15 pound propane storage tank, <40,000	284(b)	Rule 212(4)(c)
EUPROPANETANK3	15 pound propane storage tank, <40,000	284(b)	Rule 212(4)(c)
EUPROPANETANK4	15 pound propane storage tank, <40,000	284(b)	Rule 212(4)(c)
EUPROPANETANK5	15 pound propane storage tank, <40,000	284(b)	Rule 212(4)(c)
EUPROPANETANK6	15 pound propane storage tank, <40,000	284(b)	Rule 212(4)(c)
EUPROPANETANK7	15 pound propane storage tank, <40,000	284(b)	Rule 212(4)(c)
EUPROPANETANK8	15 pound propane storage tank, <40,000	284(b)	Rule 212(4)(c)
EUPROPANETANK9	15 pound propane storage tank, <40,000	284(b)	Rule 212(4)(c)
EUPROPANETANK 10	15 pound propane storage tank, <40,000	284(b)	Rule 212(4)(c)

Comments:

Check here if an AI-001 Form is attached to provide more information for Part D. Enter AI-001 Form ID: **AI-**

PART E: EXISTING ROP INFORMATION

Review all emission units and applicable requirements (including any source wide requirements) in the existing ROP and answer the questions below as they pertain to all emission units and all applicable requirements in the existing ROP.

E1. Does the source propose to make any additions, changes or deletions to terms, conditions and underlying applicable requirements as they appear in the existing ROP? If Yes, identify changes and additions on Part F, Part G and/or Part H.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
E2. For each emission unit(s) identified in the existing ROP, <u>all</u> stacks with applicable requirements are to be reported in MAERS. Are there any stacks with applicable requirements for emission unit(s) identified in the existing ROP that were <u>not</u> reported in the most recent MAERS reporting year? If Yes, identify the stack(s) that was/were not reported on applicable MAERS form(s).	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
E3. Have any emission units identified in the existing ROP been modified or reconstructed that required a PTI? If Yes, complete Part F with the appropriate information.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
E4. Have any emission units identified in the existing ROP been dismantled? If Yes, identify the emission unit(s) and the dismantle date in the comment area below or on an AI-001 Form.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>Comments: E2 & E3: MDEQ issued Carmeuse with PTI 93-14A which allows the construction of a new combined stack for two (2) existing lime kilns. With this application, the conditions of PTI 93-14A will be rolled into the River Rouge Facility's ROP. However, the construction of the combined stack has not yet began and therefore cannot yet be reported/identified in MAERS. Additional details regarding PTI 93-14A can be found in Part F below.</p>	
<input type="checkbox"/> Check here if an AI-001 Form is attached to provide more information for Part E. Enter AI-001 Form ID: AI-	

PART F: PERMIT TO INSTALL (PTI) INFORMATION

Review all emission units and applicable requirements at the source and answer the following questions as they pertain to all emission units with PTIs. Any PTI(s) identified below must be attached to the application.

F1. Has the source obtained any PTIs where the applicable requirements from the PTI have not been incorporated into the existing ROP? If Yes, complete the following table. Yes No
 If No, go to Part G.

Permit to Install Number	Emission Units/Flexible Group ID(s)	Description (Include Process Equipment, Control Devices and Monitoring Devices)	Date Emission Unit was Installed/ Modified/ Reconstructed
193-14A	FG-Kilns 1&2	As part of the 1-hour SO2 Non-attainment SIP development, Carmeuse is constructing a new stack which will exhaust combine emissions from the two (2) kilns and establish a new SO2 emission rate for the combined exhaust.	N/A-construction has not started

F2. Do any of the PTIs listed above change, add, or delete terms/conditions to **established emission units** in the existing ROP? If Yes, identify the emission unit(s) or flexible group(s) affected in the comments area below or on an AI-001 Form and identify all changes, additions, and deletions in a mark-up of the existing ROP. Yes No

F3. Do any of the PTIs listed above identify **new emission units** that need to be incorporated into the ROP? If Yes, submit the PTIs as part of the ROP renewal application on an AI-001 Form, and include the new emission unit(s) or flexible group(s) in the mark-up of the existing ROP. Yes No

F4. Are there any stacks with applicable requirements for emission unit(s) identified in the PTIs listed above that were not reported in MAERS for the most recent emissions reporting year? If Yes, identify the stack(s) that were not reported on the applicable MAERS form(s). Yes No

F5. Are there any proposed administrative changes to any of the emission unit names, descriptions or control devices in the PTIs listed above for any emission units not already incorporated into the ROP? If Yes, describe the changes on an AI-001 Form. Yes No

Comments:

Check here if an AI-001 Form is attached to provide more information for Part F. Enter AI-001 Form ID: **AI-**

PART G: EMISSION UNITS MEETING THE CRITERIA OF RULES 281(2)(h), 285(2)(r)(iv), 287(2)(c), OR 290

Review all emission units and applicable requirements at the source and answer the following questions.

G1. Does the source have any new and/or existing emission units which do not already appear in the existing ROP and which meet the criteria of Rules 281(2)(h), 285(2)(r)(iv), 287(2)(c), or 290.
 If Yes, identify the emission units in the table below. If No, go to Part H. Yes No
Note: If several emission units were installed under the same rule above, provide a description of each and an installation/modification/reconstruction date for each.

Origin of Applicable Requirements	Emission Unit Description – Provide Emission Unit ID and a description of Process Equipment, Control Devices and Monitoring Devices	Date Emission Unit was Installed/ Modified/ Reconstructed
<input type="checkbox"/> Rule 281(2)(h) or 285(2)(r)(iv) cleaning operation		
<input type="checkbox"/> Rule 287(2)(c) surface coating line		
<input type="checkbox"/> Rule 290 process with limited emissions		

Comments:

Check here if an AI-001 Form is attached to provide more information for Part G. Enter AI-001 Form ID: **AI-**

PART H: REQUIREMENTS FOR ADDITION OR CHANGE

Complete this part of the application form for all proposed additions, changes or deletions to the existing ROP. This includes state or federal regulations that the source is subject to and that must be incorporated into the ROP or other proposed changes to the existing ROP. **Do not include additions or changes that have already been identified in Parts F or G of this application form.** If additional space is needed copy and complete an additional Part H.

Complete a separate Part H for each emission unit with proposed additions and/or changes.

H1. Are there changes that need to be incorporated into the ROP that have not been identified in Parts F and G? If Yes, answer the questions below.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
H2. Are there any proposed administrative changes to any of the existing emission unit names, descriptions or control devices in the ROP? If Yes, describe the changes in questions H8 – H16 below and in the affected Emission Unit Table(s) in the mark-up of the ROP.	<input type="checkbox"/> Yes <input type="checkbox"/> No
H3. Does the source propose to add a new emission unit or flexible group to the ROP not previously identified in Parts F or G? If Yes, identify and describe the emission unit name, process description, control device(s), monitoring device(s) and applicable requirements in questions H8 – H16 below and in a new Emission Unit Table in the mark-up of the ROP. See instructions on how to incorporate a new emission unit/flexible group into the ROP.	<input type="checkbox"/> Yes <input type="checkbox"/> No
H4. Does the source propose to add new state or federal regulations to the existing ROP? If Yes, on an AI-001 Form, identify each emission unit/flexible group that the new regulation applies to and identify <u>each</u> state or federal regulation that should be added. Also, describe the new requirements in questions H8 – H16 below and add the specific requirements to existing emission units/flexible groups in the mark-up of the ROP, create a new Emission Unit/Flexible Group Table, or add an AQD template table for the specific state or federal requirement.	<input type="checkbox"/> Yes <input type="checkbox"/> No
H5. Has a Consent Order/Consent Judgment (CO/CJ) been issued where the requirements were not incorporated into the existing ROP? If Yes, list the CO/CJ number(s) below and add or change the conditions and underlying applicable requirements in the appropriate Emission Unit/Flexible Group Tables in the mark-up of the ROP.	<input type="checkbox"/> Yes <input type="checkbox"/> No
H6. Does the source propose to add, change and/or delete source-wide requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input type="checkbox"/> No
H7. Are you proposing to streamline any requirements? If Yes, identify the streamlined and subsumed requirements and the EU ID, and provide a justification for streamlining the applicable requirement below.	<input type="checkbox"/> Yes <input type="checkbox"/> No

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H8. Does the source propose to add, change and/or delete emission limit requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input type="checkbox"/> No
H9. Does the source propose to add, change and/or delete material limit requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input type="checkbox"/> No
H10. Does the source propose to add, change and/or delete process/operational restriction requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input type="checkbox"/> No
H11. Does the source propose to add, change and/or delete design/equipment parameter requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input type="checkbox"/> No
H12. Does the source propose to add, change and/or delete testing/sampling requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input type="checkbox"/> No
H13. Does the source propose to add, change and/or delete monitoring/recordkeeping requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input type="checkbox"/> No
H14. Does the source propose to add, change and/or delete reporting requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below.	<input type="checkbox"/> Yes <input type="checkbox"/> No

PART H: REQUIREMENTS FOR ADDITION OR CHANGE – (continued)

H15. Does the source propose to add, change and/or delete **stack/vent restrictions**? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H16. Does the source propose to add, change and/or delete any **other** requirements? If Yes, identify the addition/change/deletion in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

H17. Does the source propose to add terms and conditions for an alternative operating scenario or intra-facility trading of emissions? If Yes, identify the proposed conditions in a mark-up of the corresponding section of the ROP and provide a justification below. Yes No

Check here if an AI-001 Form is attached to provide more information for Part H. Enter AI-001 Form ID: **AI-**



RENEWABLE OPERATING PERMIT APPLICATION

AI-001: ADDITIONAL INFORMATION

This information is required by Article II, Chapter 1, part 55 (Air Pollution Control) of P.A. 451 of 1994, as amended, and the Federal Clean Air Act of 1990. Failure to obtain a permit required by Part 55 may result in penalties and/or imprisonment. Please type or print clearly. Refer to instructions for additional information to complete this form.

SRN: B2169	Section Number (if applicable):
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1. Additional Information ID AI-001

Additional Information

2. Is This Information Confidential? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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See Appendices C and D of the application for the CAM plan, CAM applicability calculations and the facility-wide PTE calculations.

Michigan Department of Environmental Quality
Air Quality Division

EFFECTIVE DATE: January 15, 2013

ISSUED TO

Carmeuse Lime, Inc.

State Registration Number (SRN): B2169

LOCATED AT

25 Marion Ave., River Rouge, Michigan 48218

RENEWABLE OPERATING PERMIT

Permit Number: MI-ROP-B2169-2013

Expiration Date: January 15, 2018

Administratively Complete ROP Renewal Application Due Between July 15, 2016 and
July 15, 2017

This Renewable Operating Permit (ROP) is issued in accordance with and subject to Section 5506(3) of Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451). Pursuant to Michigan Air Pollution Control Rule 210(1), this ROP constitutes the permittee's authority to operate the stationary source identified above in accordance with the general conditions, special conditions and attachments contained herein. Operation of the stationary source and all emission units listed in the permit are subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

SOURCE-WIDE PERMIT TO INSTALL

Permit Number: MI-PTI-B2169-2013

This Permit to Install (PTI) is issued in accordance with and subject to Section 5505(5) of Act 451. Pursuant to Michigan Air Pollution Control Rule 214a, the terms and conditions herein, identified by the underlying applicable requirement citation of Rule 201(1)(a), constitute a federally enforceable PTI. The PTI terms and conditions do not expire and remain in effect unless the criteria of Rule 201(6) are met. Operation of all emission units identified in the PTI is subject to all applicable future or amended rules and regulations pursuant to Act 451 and the federal Clean Air Act.

Michigan Department of Environmental Quality

Wilhemina McLemore, Detroit District Supervisor

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AUTHORITY AND ENFORCEABILITY

For the purpose of this permit, the **permittee** is defined as any person who owns or operates an emission unit at a stationary source for which this permit has been issued. The **department** is defined in Rule 104(d) as the Director of the Michigan Department of Environmental Quality (MDEQ) or his or her designee.

The permittee shall comply with all specific details in the permit terms and conditions and the cited underlying applicable requirements. All terms and conditions in this ROP are both federally enforceable and state enforceable unless otherwise footnoted. Certain terms and conditions are applicable to most stationary sources for which an ROP has been issued. These general conditions are included in Part A of this ROP. Other terms and conditions may apply to a specific emission unit, several emission units which are represented as a flexible group, or the entire stationary source which is represented as a source-wide group. Special conditions are identified in Parts B, C, D and/or the appendices.

In accordance with Rule 213(2)(a), all underlying applicable requirements will be identified for each ROP term or condition. All terms and conditions that are included in a PTI, are streamlined or subsumed, or are state-only enforceable will be noted as such.

In accordance with Section 5507 of Act 451, the permittee has included in the ROP application a compliance certification, a schedule of compliance, and a compliance plan. For applicable requirements with which the source is in compliance, the source will continue to comply with these requirements. For applicable requirements with which the source is not in compliance, the source will comply with the detailed schedule of compliance requirements that are incorporated as an appendix in this ROP. Furthermore, for any applicable requirements effective after the date of issuance of this ROP, the stationary source will meet the requirements on a timely basis, unless the underlying applicable requirement requires a more detailed schedule of compliance.

Issuance of this permit does not obviate the necessity of obtaining such permits or approvals from other units of government as required by law.

A. GENERAL CONDITIONS

Permit Enforceability

- All conditions in this permit are both federally enforceable and state enforceable unless otherwise noted. **(R 336.1213(5))**
- Those conditions that are hereby incorporated in a state only enforceable Source-wide PTI pursuant to Rule 201(2)(d) are designated by footnote one. **(R 336.1213(5)(a), R336.1214a(5))**
- Those conditions that are hereby incorporated in federally enforceable Source-wide PTI No. MI-PTI-B2169-2013 pursuant to Rule 201(2)(c) are designated by footnote two. **(R 336.1213(5)(b), R 336.1214a(3))**

General Provisions

1. The permittee shall comply with all conditions of this ROP. Any ROP noncompliance constitutes a violation of Act 451, and is grounds for enforcement action, for ROP revocation or revision, or for denial of the renewal of the ROP. All terms and conditions of this ROP that are designated as federally enforceable are enforceable by the Administrator of the United States Environmental Protection Agency (USEPA) and by citizens under the provisions of the federal Clean Air Act (CAA). Any terms and conditions based on applicable requirements which are designated as "state only" are not enforceable by the USEPA or citizens pursuant to the CAA. **(R 336.1213(1)(a))**
2. It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this ROP. **(R 336.1213(1)(b))**
3. This ROP may be modified, revised, or revoked for cause. The filing of a request by the permittee for a permit modification, revision, or termination, or a notification of planned changes or anticipated noncompliance does not stay any ROP term or condition. This does not supersede or affect the ability of the permittee to make changes, at the permittee's own risk, pursuant to Rule 215 and Rule 216. **(R 336.1213(1)(c))**
4. The permittee shall allow the department, or an authorized representative of the department, upon presentation of credentials and other documents as may be required by law and upon stating the authority for and purpose of the investigation, to perform any of the following activities **(R 336.1213(1)(d))**:
 - a. Enter, at reasonable times, a stationary source or other premises where emissions-related activity is conducted or where records must be kept under the conditions of the ROP.
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the ROP.
 - c. Inspect, at reasonable times, any of the following:
 - i. Any stationary source.
 - ii. Any emission unit.
 - iii. Any equipment, including monitoring and air pollution control equipment.
 - iv. Any work practices or operations regulated or required under the ROP.
 - d. As authorized by Section 5526 of Act 451, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the ROP or applicable requirements.
5. The permittee shall furnish to the department, within a reasonable time, any information the department may request, in writing, to determine whether cause exists for modifying, revising, or revoking the ROP or to determine compliance with this ROP. Upon request, the permittee shall also furnish to the department copies of any records that are required to be kept as a term or condition of this ROP. For information which is claimed by the permittee to be confidential, consistent with the requirements of the 1976 PA 442, MCL §15.231 et seq., and known as the Freedom of Information Act, the person may also be required to furnish the records directly to the USEPA together with a claim of confidentiality. **(R 336.1213(1)(e))**

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6. A challenge by any person, the Administrator of the USEPA, or the department to a particular condition or a part of this ROP shall not set aside, delay, stay, or in any way affect the applicability or enforceability of any other condition or part of this ROP. **(R 336.1213(1)(f))**
7. The permittee shall pay fees consistent with the fee schedule and requirements pursuant to Section 5522 of Act 451. **(R 336.1213(1)(g))**
8. This ROP does not convey any property rights or any exclusive privilege. **(R 336.1213(1)(h))**

Equipment & Design

9. Any collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in Rule 370(2). **(R 336.1370)**
10. Any air cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with the Michigan Air Pollution Control rules and existing law. **(R 336.1910)**

Emission Limits

11. Except as provided in Subrules 2, 3, and 4 of Rule 301, states in part; "a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of a density greater than the most stringent of Rule 301(1)(a) or (b) unless otherwise specified in this ROP." The grading of visible emissions shall be determined in accordance with Rule 303. **(R 336.1301(1) in pertinent part):**
 - a. A 6-minute average of 20 percent opacity, except for one 6-minute average per hour of not more than 27 percent opacity.
 - b. A limit specified by an applicable federal new source performance standard.
12. The permittee shall not cause or permit the emission of an air contaminant or water vapor in quantities that cause, alone or in reaction with other air contaminants, either of the following:
 - a. Injurious effects to human health or safety, animal life, plant life of significant economic value, or property. **¹(R 336.1901(a))**
 - b. Unreasonable interference with the comfortable enjoyment of life and property. **¹(R 336.1901(b))**

Testing/Sampling

13. The department may require the owner or operator of any source of an air contaminant to conduct acceptable performance tests, at the owner's or operator's expense, in accordance with Rule 1001 and Rule 1003, under any of the conditions listed in Rule 1001(1). **(R 336.2001)**
14. Any required performance testing shall be conducted in accordance with Rule 1001(2), Rule 1001(3) and Rule 1003. **(R 336.2001(2), R 336.2001(3), R 336.2003(1))**
15. Any required test results shall be submitted to the Air Quality Division (AQD) in the format prescribed by the applicable reference test method within 60 days following the last date of the test. **(R 336.2001(4))**

Monitoring/Recordkeeping

- 16. Records of any periodic emission or parametric monitoring required in this ROP shall include the following information specified in Rule 213(3)(b)(i), where appropriate **(R 336.1213(3)(b))**:
 - a. The date, location, time, and method of sampling or measurements.
 - b. The dates the analyses of the samples were performed.
 - c. The company or entity that performed the analyses of the samples.
 - d. The analytical techniques or methods used.
 - e. The results of the analyses.
 - f. The related process operating conditions or parameters that existed at the time of sampling or measurement.
- 17. All required monitoring data, support information and all reports, including reports of all instances of deviation from permit requirements, shall be kept and furnished to the department upon request for a period of not less than 5 years from the date of the monitoring sample, measurement, report or application. Support information includes all calibration and maintenance records and all original strip-chart recordings, or other original data records, for continuous monitoring instrumentation and copies of all reports required by the ROP. **(R 336.1213(1)(e), R 336.1213(3)(b)(ii))**

Certification & Reporting

- 18. Except for the alternate certification schedule provided in Rule 213(3)(c)(iii)(B), any document required to be submitted to the department as a term or condition of this ROP shall contain an original certification by a responsible official which states that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. **(R 336.1213(3)(c))**
- 19. A responsible official shall certify to the appropriate AQD's District Office and to the USEPA that the stationary source is and has been in compliance with all terms and conditions contained in the ROP except for deviations that have been or are being reported to the appropriate AQD's District Office pursuant to Rule 213(3)(c). This certification shall include all the information specified in Rule 213(4)(c)(i) through (v) and shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the certification are true, accurate, and complete. The USEPA address is: USEPA, Air Compliance Data - Michigan, Air and Radiation Division, 77 West Jackson Boulevard, Chicago, Illinois 60604. **(R 336.1213(4)(c))**
- 20. The certification of compliance shall be submitted annually for the term of this ROP as detailed in the special conditions, or more frequently if specified in an applicable requirement or in this ROP. **(R 336.1213(4)(c))**
- 21. The permittee shall promptly report any deviations from ROP requirements and certify the reports. The prompt reporting of deviations from ROP requirements is defined in Rule 213(3)(c)(ii) as follows, unless otherwise described in this ROP. **(R 336.1213(3)(c))**
 - a. For deviations that exceed the emissions allowed under the ROP, prompt reporting means reporting consistent with the requirements of Rule 912 as detailed in Condition 25. All reports submitted pursuant to this paragraph shall be promptly certified as specified in Rule 213(3)(c)(iii).
 - b. For deviations which exceed the emissions allowed under the ROP and which are not reported pursuant to Rule 912 due to the duration of the deviation, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe reasons for each deviation and the actions taken to minimize or correct each deviation.
 - c. For deviations that do not exceed the emissions allowed under the ROP, prompt reporting means the reporting of all deviations in the semiannual reports required by Rule 213(3)(c)(i). The report shall describe the reasons for each deviation and the actions taken to minimize or correct each deviation.

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22. For reports required pursuant to Rule 213(3)(c)(ii), prompt certification of the reports is described in Rule 213(3)(c)(iii) as either of the following **(R 336.1213(3)(c))**:
- Submitting a certification by a responsible official with each report which states that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
 - Submitting, within 30 days following the end of a calendar month during which one or more prompt reports of deviations from the emissions allowed under the ROP were submitted to the department pursuant to Rule 213(3)(c)(ii), a certification by a responsible official which states that, "based on information and belief formed after reasonable inquiry, the statements and information contained in each of the reports submitted during the previous month were true, accurate, and complete". The certification shall include a listing of the reports that are being certified. Any report submitted pursuant to Rule 213(3)(c)(ii) that will be certified on a monthly basis pursuant to this paragraph shall include a statement that certification of the report will be provided within 30 days following the end of the calendar month.
23. Semiannually for the term of the ROP as detailed in the special conditions, or more frequently if specified, the permittee shall submit certified reports of any required monitoring to the appropriate AQD District Office. All instances of deviations from ROP requirements during the reporting period shall be clearly identified in the reports. **(R 336.1213(3)(c)(i))**
24. On an annual basis, the permittee shall report the actual emissions, or the information necessary to determine the actual emissions, of each regulated air pollutant as defined in Rule 212(6) for each emission unit utilizing the emissions inventory forms provided by the department. **(R 336.1212(6))**
25. The permittee shall provide notice of an abnormal condition, start-up, shutdown, or malfunction that results in emissions of a hazardous or toxic air pollutant which continue for more than one hour in excess of any applicable standard or limitation, or emissions of any air contaminant continuing for more than two hours in excess of an applicable standard or limitation, as required in Rule 912, to the appropriate AQD District Office. The notice shall be provided not later than two business days after the start-up, shutdown, or discovery of the abnormal conditions or malfunction. Notice shall be by any reasonable means, including electronic, telephonic, or oral communication. Written reports, if required under Rule 912, must be submitted to the appropriate AQD District Supervisor within 10 days after the start-up or shutdown occurred, within 10 days after the abnormal conditions or malfunction has been corrected, or within 30 days of discovery of the abnormal conditions or malfunction, whichever is first. The written reports shall include all of the information required in Rule 912(5) and shall be certified by a responsible official in a manner consistent with the CAA. **(R 336.1912)**

Permit Shield

26. Compliance with the conditions of the ROP shall be considered compliance with any applicable requirements as of the date of ROP issuance, if either of the following provisions is satisfied. **(R 336.1213(6)(a)(i), R 336.1213(6)(a)(ii))**
- The applicable requirements are included and are specifically identified in the ROP.
 - The permit includes a determination or concise summary of the determination by the department that other specifically identified requirements are not applicable to the stationary source.
- Any requirements identified in Part E of this ROP have been identified as non-applicable to this ROP and are included in the permit shield.
27. Nothing in this ROP shall alter or affect any of the following:
- The provisions of Section 303 of the CAA, emergency orders, including the authority of the USEPA under Section 303 of the CAA. **(R 336.1213(6)(b)(i))**
 - The liability of the owner or operator of this source for any violation of applicable requirements prior to or at the time of this ROP issuance. **(R 336.1213(6)(b)(ii))**
 - The applicable requirements of the acid rain program, consistent with Section 408(a) of the CAA. **(R 336.1213(6)(b)(iii))**

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- d. The ability of the USEPA to obtain information from a source pursuant to Section 114 of the CAA. **(R 336.1213(6)(b)(iv))**
- 28. The permit shield shall not apply to provisions incorporated into this ROP through procedures for any of the following:
 - a. Operational flexibility changes made pursuant to Rule 215. **(R 336.1215(5))**
 - b. Administrative Amendments made pursuant to Rule 216(1)(a)(i)-(iv). **(R 336.1216(1)(b)(iii))**
 - c. Administrative Amendments made pursuant to Rule 216(1)(a)(v) until the amendment has been approved by the department. **(R 336.1216(1)(c)(iii))**
 - d. Minor Permit Modifications made pursuant to Rule 216(2). **(R 336.1216(2)(f))**
 - e. State-Only Modifications made pursuant to Rule 216(4) until the changes have been approved by the department. **(R 336.1216(4)(e))**
- 29. Expiration of this ROP results in the loss of the permit shield. If a timely and administratively complete application for renewal is submitted not more than 18 months, but not less than 6 months, before the expiration date of the ROP, but the department fails to take final action before the end of the ROP term, the existing ROP does not expire until the renewal is issued or denied, and the permit shield shall extend beyond the original ROP term until the department takes final action. **(R 336.1217(1)(c), R 336.1217(1)(a))**

Revisions

- 30. For changes to any process or process equipment covered by this ROP that do not require a revision of the ROP pursuant to Rule 216, the permittee must comply with Rule 215. **(R 336.1215, R 336.1216)**
- 31. A change in ownership or operational control of a stationary source covered by this ROP shall be made pursuant to Rule 216(1). **(R 336.1219(2))**
- 32. For revisions to this ROP, an administratively complete application shall be considered timely if it is received by the department in accordance with the time frames specified in Rule 216. **(R 336.1210(9))**
- 33. Pursuant to Rule 216(1)(b)(iii), Rule 216(2)(d) and Rule 216(4)(d), after a change has been made, and until the department takes final action, the permittee shall comply with both the applicable requirements governing the change and the ROP terms and conditions proposed in the application for the modification. During this time period, the permittee may choose to not comply with the existing ROP terms and conditions that the application seeks to change. However, if the permittee fails to comply with the ROP terms and conditions proposed in the application during this time period, the terms and conditions in the ROP are enforceable. **(R 336.1216(1)(c)(iii), R 336.1216(2)(d), R 336.1216(4)(d))**

Reopenings

- 34. A ROP shall be reopened by the department prior to the expiration date and revised by the department under any of the following circumstances:
 - a. If additional requirements become applicable to this stationary source with three or more years remaining in the term of the ROP, but not if the effective date of the new applicable requirement is later than the ROP expiration date. **(R 336.1217(2)(a)(i))**
 - b. If additional requirements pursuant to Title IV of the CAA become applicable to this stationary source. **(R 336.1217(2)(a)(ii))**
 - c. If the department determines that the ROP contains a material mistake, information required by any applicable requirement was omitted, or inaccurate statements were made in establishing emission limits or the terms or conditions of the ROP. **(R 336.1217(2)(a)(iii))**
 - d. If the department determines that the ROP must be revised to ensure compliance with the applicable requirements. **(R 336.1217(2)(a)(iv))**

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Renewals

35. For renewal of this ROP, an administratively complete application shall be considered timely if it is received by the department not more than 18 months, but not less than 6 months, before the expiration date of the ROP. **(R 336.1210(7))**

Stratospheric Ozone Protection

36. If the permittee is subject to Title 40 of the Code of Federal Regulations (CFR), Part 82 and services, maintains, or repairs appliances except for motor vehicle air conditioners (MVAC), or disposes of appliances containing refrigerant, including MVAC and small appliances, or if the permittee is a refrigerant reclaimer, appliance owner or a manufacturer of appliances or recycling and recovery equipment, the permittee shall comply with all applicable standards for recycling and emissions reduction pursuant to 40 CFR, Part 82, Subpart F.
37. If the permittee is subject to 40 CFR, Part 82, and performs a service on motor (fleet) vehicles when this service involves refrigerant in the MVAC, the permittee is subject to all the applicable requirements as specified in 40 CFR, Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners. The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed by the original equipment manufacturer. The term MVAC as used in Subpart B does not include the air-tight sealed refrigeration system used for refrigerated cargo or an air conditioning system on passenger buses using Hydrochlorofluorocarbon-22 refrigerant.

Risk Management Plan

38. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall register and submit to the USEPA the required data related to the risk management plan for reducing the probability of accidental releases of any regulated substances listed pursuant to Section 112(r)(3) of the CAA as amended in 40 CFR, Part 68.130. The list of substances, threshold quantities, and accident prevention regulations promulgated under 40 CFR, Part 68, do not limit in any way the general duty provisions under Section 112(r)(1).
39. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall comply with the requirements of 40 CFR, Part 68, no later than the latest of the following dates as provided in 40 CFR, Part 68.10(a):
- June 21, 1999,
 - Three years after the date on which a regulated substance is first listed under 40 CFR, Part 68.130, or
 - The date on which a regulated substance is first present above a threshold quantity in a process.
40. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall submit any additional relevant information requested by any regulatory agency necessary to ensure compliance with the requirements of 40 CFR, Part 68.
41. If subject to Section 112(r) of the CAA and 40 CFR, Part 68, the permittee shall annually certify compliance with all applicable requirements of Section 112(r) as detailed in Rule 213(4)(c). **(40 CFR, Part 68)**

Emission Trading

42. Emission averaging and emission reduction credit trading are allowed pursuant to any applicable interstate or regional emission trading program that has been approved by the Administrator of the USEPA as a part of Michigan's State Implementation Plan. Such activities must comply with Rule 215 and Rule 216. **(R 336.1213(12))**

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Permit To Install (PTI)

- 43. The process or process equipment included in this permit shall not be reconstructed, relocated, or modified unless a PTI authorizing such action is issued by the department, except to the extent such action is exempt from the PTI requirements by any applicable rule.² **(R 336.1201(1))**
- 44. The department may, after notice and opportunity for a hearing, revoke PTI terms or conditions if evidence indicates the process or process equipment is not performing in accordance with the terms and conditions of the PTI or is violating the department's rules or the CAA.² **(R 336.1201(8), Section 5510 of Act 451)**
- 45. The terms and conditions of a PTI shall apply to any person or legal entity that now or hereafter owns or operates the process or process equipment at the location authorized by the PTI. If a new owner or operator submits a written request to the department pursuant to Rule 219 and the department approves the request, this PTI will be amended to reflect the change of ownership or operational control. The request must include all of the information required by Subrules (1)(a), (b) and (c) of Rule 219. The written request shall be sent to the appropriate AQD District Supervisor, MDEQ.² **(R 336.1219)**
- 46. If the installation, reconstruction, relocation, or modification of the equipment for which PTI terms and conditions have been approved has not commenced within 18 months, or has been interrupted for 18 months, the applicable terms and conditions from that PTI shall become void unless otherwise authorized by the department. Furthermore, the person to whom that PTI was issued, or the designated authorized agent, shall notify the department via the Supervisor, Permit Section, MDEQ, AQD, P. O. Box 30260, Lansing, Michigan 48909, if it is decided not to pursue the installation, reconstruction, relocation, or modification of the equipment allowed by the terms and conditions from that PTI.² **(R 336.1201(4))**

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

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B. SOURCE-WIDE CONDITIONS

Part B outlines the Source-Wide Terms and Conditions that apply to this stationary source. The permittee is subject to these special conditions for the stationary source in addition to the general conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply to this source, NA (not applicable) has been used in the table. If there are no Source-Wide Conditions, this section will be left blank.

SOURCE-WIDE CONDITIONS

POLLUTION CONTROL EQUIPMENT

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Opacity	20 percent ²	Six-minute average	This limit applies to sources of fugitive dust at the facility other than material storage piles.	VI	Act 451, Part 55 324.5524(2)
2. Opacity	5 percent ²	Six-minute average	This limit applies to fugitive dust from material storage piles.	VI	Act 451, Part 55 324.5524(2)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall implement and comply with the Fugitive Dust Management Plan as found in Appendix 9.² (Consent Order SIP No. 22-1993, Act 451 Part 55 324.5524)

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

NA

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall perform monitoring and keep records relating to the management of fugitive dust emissions at the facility in accordance with the Fugitive Dust Management Plan as found in Appendix 9. The recordkeeping shall follow guidelines in the Addendum to the Fugitive Dust Management Plan, which is found in Appendix 4.² (Consent Order SIP No. 22-1993, Act 451 Part 55 324.5524)
2. The permittee shall monitor and record the following in relation to fugitive dust management.²
 - a. Visible emissions from roads, lots and storage piles on a weekly basis. These readings can be from a non-certified reader in relation to Method 9.
 - b. Opacity observations from roads, lots and storage piles by a Method 9 certified reader when visible emissions are observed during the weekly, non-certified monitoring required in 2.a.

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- c. Visible emissions from fugitive dust sources other than roads, lots or storage piles on a weekly basis. These readings can be from a non-certified reader in relation to Method 9.
- d. Opacity observations from fugitive dust sources other than roads, lots or storage piles by a Method 9 certified reader when visible emissions are observed during the weekly non-certified monitoring required in 2.c. **(R 336.1213(3))**

See Appendices 4 and 9

VII. REPORTING

- 1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. **(R 336.1213(3)(c)(ii))**
- 2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. **(R 336.1213(3)(c)(i))**
- 3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for the previous calendar year. **(R 336.1213(4)(c))**

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
NA	NA	NA	NA

IX. OTHER REQUIREMENT(S)

- 1. The permittee shall comply with the terms and conditions of Consent Order SIP No. 22-1993.² **(Consent Order SIP No. 22-1993)**
- 2. The permittee may change its operations or processes which are sources of particulate and fugitive dust provided the following conditions are met²:
 - a. The provisions of the Control Programs in Consent Order SIP No. 22-1993 continue to apply to the subject operation or process.
 - b. The change does not result in an increase in the level of fugitive dust or particulate emissions.
 - c. The change is approved. **(Consent Order SIP No. 22-1993)**
- 3. The permittee may revise the Control Programs in Consent Order SIP No. 22-1993 provided the following conditions are met²:
 - a. The permittee demonstrates, in writing, that the proposed revision does not result in an increase in the level of fugitive dust or particulate emissions and submits demonstration to MDEQ for approval.
 - b. The revision is approved. **(Consent Order SIP No. 22-1993)**
- 4. Demonstrations made pursuant to S.C. IX.3 and condition 13(B)(1)(a) of Consent Order SIP No. 22-1993 involving chemical dust suppressant applications on unpaved roads shall be made using only petroleum resins,

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asphalt emulsions, or acrylic cements unless otherwise explicitly provided for by the US EPA approved SIP or US EPA approved method.² (**Consent Order SIP No. 22-1993**)

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

C. EMISSION UNIT CONDITIONS

Part C outlines terms and conditions that are specific to individual emission units listed in the Emission Unit Summary Table. The permittee is subject to the special conditions for each emission unit in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no conditions specific to individual emission units, this section will be left blank.

EMISSION UNIT SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Emission Unit ID	Emission Unit Description (Including Process Equipment & Control Device(s))	Installation Date/ Modification Date	Flexible Group ID
EUKILNNUMBER1	Horizontal rotary lime kiln identified as Kiln No. 1. The kiln is 300 feet long with a 10.6 foot diameter. Exhaust from the kiln is vented through a positive pressure reverse air baghouse with a monovent-type ambient discharge.	1/1/1968	FG-MACT-AAAAA-LIME MANUFACTURING PLANTS FG-KILNS1&2
EUKILNNUMBER2	Horizontal rotary lime kiln identified as Kiln No. 2. The kiln is 300 feet long with a 10.6 foot diameter. Exhaust from the kiln is vented through a positive pressure reverse air baghouse with a monovent-type ambient discharge.	1/1/1968	FG-MACT-AAAAA-LIME MANUFACTURING PLANTS FG-KILNS1&2
EUCONVEYOR/ELEV	Conveyors, elevators, and rescreening operations for finished lime product.	1/1/1968	NA
EULIMELOADOUT	Lime loadout truck/lime loadout rail	1/1/1968	NA
EUFLUEDUSTTANK	Flue dust tank	1/1/1968 / 1/1/1986	NA
EUFUGITIVE	Open storage piles and haul roads – controlled by water sprays, dust suppressant (e.g. calcium chloride), or sweeping.	1/1/1968	NA
EUNO6BINVENT	Lime fines handling #6 vent.	1/1/1968 / 1/1/1986	NA
EUFDLOADOUT	Flue dust loadout equipment and associated air pollution control device.	1/1/1968	NA
EUPSHFUGITIVE	Equipment for handling of stone after the stone bin and prior to introduction to the lime kilns. The processed stone handling (PSH) equipment includes all conveyors prior to the lime kilns for which the only emissions are fugitive dust emissions.	1/1/1968	FG-MACT-AAAAA-LIME MANUFACTURING PLANTS

**EUCONVEYOR/ELEV
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Lime conveyors, elevators, and rescreening equipment.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Three baghouse units.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate Matter	0.10 pounds particulate matter per 1,000 pounds of exhaust gas ²	Test Protocol	EUCONVEYOR/ELEV	V.1, VI	R 336.1331(3)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

- The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R336.2001 and R336.2003, under any of the conditions listed in R336.2001, to determine the particulate matter emission rate from the baghouse vents associated with EUCONVEYOR/ELEV.² (R336.2001)

See Appendix 5

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VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

1. The permittee shall conduct regular inspections for the purpose of determining the operating condition of the baghouse and, if necessary, the reasons for the malfunction or failure, using monitoring and recordkeeping procedures outlined in Appendix 3 and 4.²
2. Permittee shall monitor and record weekly the pressure drop across the dust collector baghouse serving the conveyors and elevators.²
3. Permittee shall perform daily a visible emissions observation to determine the presence or absence of visible emissions associated with the equipment included as part of EUCONVEYOR/ELEV. This may be performed by either a certified or non-certified reader.²

See Appendices 3 and 4

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged, unobstructed, to the ambient air:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVALG126	13.9 x 13.9 ²	110.6 ²	R 336.1201(3)
2. SVALG200	19.8 ²	108.9 ²	R 336.1201(3)
3. SVALG716	21.8 ²	76.4 ²	R 336.1201(3)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**EULIMELOADOUT
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Lime loadout via truck and rail.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Two baghouse units.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate Matter	0.10 pounds particulate matter per 1,000 pounds of exhaust gas ²	Test Protocol	EULIMELOADOUT	V.1, VI	R 336.1331(3)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

- The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R336.2001 and R336.2003, under any of the conditions listed in R336.2001, to determine the particulate matter emission rate from the baghouse vents associated with EULIMELOADOUT.² (R336.2001)

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

- The permittee shall conduct regular inspections for the purpose of determining the operating condition of the baghouse and, if necessary, the reasons for the malfunction or failure, using monitoring and recordkeeping procedures outlined in Appendix 3 and 4.²

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2. Permittee shall monitor and record weekly the pressure drop across the dust collector baghouse serving the lime loadout truck and rail.²
3. Permittee shall perform daily a visible emissions observation to determine the presence or absence of visible emissions associated with the equipment included as part of EULIMELOADOUT. This may be performed by either a certified or non-certified reader.²

See Appendices 3 and 4

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged, unobstructed, to the ambient air:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVALG727	11.9 ²	46 ²	R 336.1201(3)
2. SVALG200	9.1 x 9.1 ²	46.3 ²	R 336.1201(3)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**EUFLUEDUSTTANK
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Flue dust tank.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Baghouse unit.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate Matter	0.10 pounds per hour. ²	Test Protocol	EUFLUEDUSTTANK	V.1, VI	R 336.1331(1)(c)
2. Particulate Matter	0.45 tons per year. ²	Test Protocol	EUFLUEDUSTTANK	V.1, VI	R 336.1331(1)(c)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

- The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R336.2001 and R336.2003, under any of the conditions listed in R336.2001, to determine the particulate matter emission rate from the baghouse vents associated with EUFLUEDUSTTANK.² (R 336.2001)

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

- The permittee shall conduct regular inspections for the purpose of determining the operating condition of the baghouse and, if necessary, the reasons for the malfunction or failure, using monitoring and recordkeeping procedures outlined in Appendices 3 and 4.²

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- 2. Permittee shall monitor and record weekly the pressure drop across the dust collector baghouse serving the flue dust tank.²
- 3. Permittee shall perform daily a visible emissions observation to determine the presence or absence of visible emissions associated with the equipment included as part of EUFLUEDUSTTANK. This may be performed by either a certified or non-certified reader.²

See Appendices 3 and 4

VII. REPORTING

- 1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
- 2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
- 3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged, unobstructed, to the ambient air:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVAKG141	12.9 x 12.9 ²	68.5 ²	R 336.1201(3)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**EUNO6BINVENT
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Bin vent (identified as #6) for handling lime fines.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Baghouse unit.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate Matter	0.10 pounds of particulate per 1,000 pounds of exhaust gas ²	Test Protocol	EUNO6BINVENT	V.1, VI	R 336.1331(3)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

- The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R336.2001 and R336.2003, under any of the conditions listed in R336.2001, to determine the particulate matter emission rate from the baghouse vents associated with EUNO6BINVENT.² (R 336.2001)

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

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1. The permittee shall conduct regular inspections for the purpose of determining the operating condition of the baghouse and, if necessary, the reasons for the malfunction or failure, using monitoring and recordkeeping procedures outlined in Appendix 3 and 4.²
2. Permittee shall monitor and record weekly the pressure drop across the dust collector baghouse serving the Lime Fines Handling Number 6 Bin Vent.²
3. Permittee shall perform daily a visible emissions observation to determine the presence or absence of visible emissions associated with the equipment included as part of EUNO6BINVENT. This may be performed by either a certified or non-certified reader.²

See Appendices 3 and 4

VII. REPORTING

1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVALG200	19.8 ²	108.9 ²	R 336.1201(3)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

**EUFDLOADOUT
 EMISSION UNIT CONDITIONS**

DESCRIPTION

Flue dust loadout equipment and associated air pollution control device.

Flexible Group ID: NA

POLLUTION CONTROL EQUIPMENT

Baghouse unit (the same one that EUFLUEDUSTTANK vents through).

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Particulate Matter	0.10 pounds of particulate per 1,000 pounds of exhaust gas ²	Test Protocol	EUFDLOADOUT	V.1, VI	R 336.1331(3)

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
NA	NA	NA	NA	NA	NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

- The Department may require the permittee to conduct acceptable performance tests, at the permittee's expense, in accordance with R336.2001 and R336.2003, under any of the conditions listed in R336.2001, to determine the particulate matter emission rate from the baghouse vents associated with EUFDLOADOUT.²
 (R 336.2001)

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii))

- The permittee shall conduct regular inspections for the purpose of determining the operating condition of the baghouse and, if necessary, the reasons for the malfunction or failure, using monitoring and recordkeeping procedures outlined in Appendix 3 and 4.²

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- 2. Permittee shall monitor and record weekly the pressure drop across the dust collector baghouse serving the flue dust loadout.²
- 3. Permittee shall perform daily a visible emissions observation to determine the presence or absence of visible emissions associated with the equipment included as part of EUFDLOADOUT. This may be performed by either a certified or non-certified reader.²

See Appendices 3 and 4

VII. REPORTING

- 1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
- 2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
- 3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD's District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVALG200	19.8 ²	108.9 ²	R 336.1201(3)

IX. OTHER REQUIREMENT(S)

NA

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

D. FLEXIBLE GROUP CONDITIONS

Part D outlines terms and conditions that apply to more than one emission unit. The permittee is subject to the special conditions for each flexible group in addition to the General Conditions in Part A and any other terms and conditions contained in this ROP.

The permittee shall comply with all specific details in the special conditions and the underlying applicable requirements cited. If a specific condition type does not apply, NA (not applicable) has been used in the table. If there are no special conditions that apply to more than one emission unit, this section will be left blank.

FLEXIBLE GROUP SUMMARY TABLE

The descriptions provided below are for informational purposes and do not constitute enforceable conditions.

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FG-MACT-AAAAA-LIME MANUFACTURING PLANTS	The affected source is an existing lime manufacturing plant (LMP), that is (or is part of) a major source of hazardous air pollutant (HAP) emissions. An existing affected source is a source that commences construction or reconstruction before December 23, 2002. A new affected source includes a new lime kiln (and, if applicable, its associated lime cooler), and a processed stone handling (PSH) operations system for which construction or reconstruction began after December 20, 2002. An existing lime kiln (and, if applicable, its associated lime cooler) and an existing PSH operations system are those that do not meet the definition of a new kiln or a new PSH operations system. The regulations cover the existing lime kilns and their associated coolers, and PSH operations located at a LMP that is a major source.	EUKILNNUMBER1, EUKILNNUMBER2, EUPSHFUGITIVE
FG-KILNS1&2	As part of the 1-hour SO2 Non-attainment SIP development, Carmeuse is constructing a new stack which will exhaust combine emissions from the two (2) kilns and establish a new SO2 emission rate for the combined exhaust.	EUKILNNUMBER1 , EUKILNNUMBER2

**FG-MACT AAAAA-LIME MANUFACTURING PLANTS
 FLEXIBLE UNIT CONDITIONS**

DESCRIPTION

The affected source is an existing lime manufacturing plant (LMP), that is (or is part of) a major source of hazardous air pollutant (HAP) emissions. An existing affected source is a source that commences construction or reconstruction before December 23, 2002. A new affected source includes a new lime kiln (and, if applicable, its associated lime cooler), and a processed stone handling (PSH) operations system for which construction or reconstruction began after December 20, 2002. An existing lime kiln (and, if applicable, its associated lime cooler) and an existing PSH operations system are those that do not meet the definition of a new kiln or a new PSH operations system. The regulations cover the existing lime kilns and their associated coolers, and PSH operations located at a LMP that is a major source.

The kilns have historically been fired using pulverized coal and natural gas. Permit to Install 330-07D was issued on February 17, 2012, which allowed the additions of syngas and glycerin as fuels. The syngas can be a substitute fuel for a portion of the coal currently used substituting coal at a rate of up to 24.9 MMBtu/hour total. Syngas fuel will be introduced to the kilns through an existing startup natural gas-fired removable lance or integrated into a multi-channel burner. High-Btu-glycerin and low-Btu-glycerin, with a combined rate of 2.5 tons per hour total, can also be substituted for a portion of the coal currently used, and will be introduced through a new separate removable lance or integrated into a multi-channel burner. There will also be a glycerin tank.

Emission Units: EUKILNNUMBER1, EUKILNNUMBER2, EUPSHFUGITIVE

POLLUTION CONTROL EQUIPMENT

Emissions from EUKILNNUMBER1 and EUKILNNUMBER2 are controlled by a positive pressure reverse air baghouse with a monovent-type ambient discharge.

I. EMISSION LIMIT(S)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. PM	0.12 pounds per ton of stone feed (lb/tsf)*2	Three 1 hour test runs	EUKILNNUMBER1, EUKILNNUMBER2	SC V.1	40 CFR 63.7090(a)
2. PM	0.05 grams per dry standard cubic meter ²	Three 1 hour test runs	Stack or building vent emissions from EUPSHFUGITIVE	SC V.I	40 CFR 63.7090(a)
3. Opacity	7 percent ²	Six-minute average	Stack or building vent emissions from EUPSHFUGITIVE	SC VI.6	40 CFR 63.7090(a)
4. Opacity	10 percent ²	Six-minute average	Fugitive emissions from operations associated with EUPSHFUGITIVE that are not enclosed in a building.	SC VI.6	40 CFR 63.7090(a)

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
5. Opacity	No visible emissions, or zero percent opacity ²	Instantaneous	Fugitive emissions from the building containing operations associated with EUPSHFUGITIVE, except for emissions from a vent.	SC VI.6	40 CFR 63.7090(a)
6. Sulfur Dioxide	300 ppm in exhaust gas corrected to 50% excess oxygen ^{**2}	Three 1 hour test runs	EUKILNNUMBER1, EUKILNNUMBER2	SC V.2	R 336.1402(1)
7. Sulfur Dioxide	2.4 pounds per million BTU of heat input when coal is used as a fuel ²	Three 1 hour test runs	EUKILNNUMBER1, EUKILNNUMBER2	SC V.2	R 336.1402(1)

* Compliance with this particulate matter limit shall be considered compliance with the limits of R 336.1331(1)(a) using coal and also the limits of Consent Order SIP No. 22-1993, Exhibit B specifying 0.5 lb/tsf, both of which have been subsumed under this streamlined requirement.

** Compliance with this limit shall be considered compliance with the limits of R 336.1402(3) using coal, which has been subsumed under this streamlined requirement.

II. MATERIAL LIMIT(S)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. Glycerin	2.5 tons per hour	Calendar day	EUKILNNUMBER1, EUKILNNUMBER2	SC VI.10	R 336.1205(1)(a)(ii)
2. Glycerin	21,900 tons per year	12-month rolling time period as determined at the end of each calendar month	EUKILNNUMBER1, EUKILNNUMBER2	SC VI.10	R 336.1205(1)(a)(ii), R 336.1205(3)
3. Glycerin	0.24% sulfur, by weight, on a dry basis	Instantaneous	EUKILNNUMBER1, EUKILNNUMBER2	SC VI.11	R 336.1205(1)(a)(ii), R 336.1205(3), R 336.2803, R 336.2804, 40 CFR 52.21(c)&(d)
4. Glycerin	4.25% ash content, on a dry basis	Instantaneous	EUKILNNUMBER1, EUKILNNUMBER2	SC VI.11	R 336.1205(1)(a)(ii), R 336.1205(3), R 336.2803, R 336.2804, 40 CFR 52.21(c)&(d)
5. Syngas	24.9 MMBTU per hour	Calendar day	EUKILNNUMBER1, EUKILNNUMBER2	SC VI.12	R 336.1205(1)(a)(ii)
6. Syngas	218,124 MMBTU per year	12-month rolling time period as determined at the end of each calendar month	EUKILNNUMBER1, EUKILNNUMBER2	SC VI.12	R 336.1205(1)(a)(ii), R 336.1205(3)

Material	Limit	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
7. Syngas	0.14% sulfur, by weight	Instantaneous	EUKILNNUMBER1, EUKILNNUMBER2	SC VI.13	R 336.1205(1)(a)(ii), R 336.1205(3), R 336.2803, R 336.2804, 40 CFR 52.21(c)&(d)

III. PROCESS/OPERATIONAL RESTRICTION(S)

1. The permittee shall comply with the emission limits above, and any other emission and operating limits put forth in 40 CFR Part 63 Subpart AAAAA, at all times, except during periods of startup, shutdown, or malfunction.² **(40 CFR 63.7100(a))**
2. The permittee shall not operate EUKILNNUMBER1 and EUKILNNUMBER2 unless the baghouses are installed, maintained, and operated in a satisfactory manner. **(R 336.1224, R 336.1225, R 336.1301, R 336.1331, R 336.1910, R 336.2803, R 336.2804, 40 CFR 52.21(c) and (d), 40 CFR Part 63, Act 451, Part 55 324.5524, Consent Order SIP No.22-1993, Exhibit B)**
3. In lieu of using a bag leak detection system (BLDS) or particulate matter (PM) detector, the permittee shall maintain the positive pressure reverse air baghouse such that the 6 minute average opacity for any 6 minute block period does not exceed 15 percent, and comply with the requirements in 40 CFR 63.7113(f) and SC VI.1.² **(40 CFR 63.7090(b))**
4. The permittee shall be in compliance with the opacity and visible emission limits in 40 CFR Part 63 Subpart AAAAA during the times specified in 40 CFR Part 63.6(h)(1).² **(40 CFR 63.6(h)(1), 40 CFR 63.7100(b))**
5. The permittee shall submit to the AQD District Supervisor, for review and approval, a written operations, maintenance and monitoring (OM&M) plan for the facility. Any subsequent changes to the plan must be submitted to the AQD District Supervisor for review and approval. The plan shall contain the following information²:
 - a. Process and control device parameters to be monitored to determine compliance, along with established operating limits or ranges, as applicable, for each emission unit. **(40 CFR 63.7100(d)(1))**
 - b. A monitoring schedule for each emission unit. **(40 CFR 63.7100(d)(2))**
 - c. Procedures for the proper operation and maintenance of each emission unit and each air pollution control device used to meet the applicable emission limitations and operating limits in Tables 1 and 2 of 40 CFR, Part 63 Subpart AAAAA, respectively. **(40 CFR 63.7100(d)(3))**
 - d. Procedures for the proper installation, operation and maintenance of monitoring devices or systems used to determine compliance, including:
 1. Calibration and certification of accuracy of each measuring device.
 2. Performance and equipment specifications for the sample interface, parametric signal analyzer, and the data collection and reduction systems.
 3. Ongoing operation and maintenance procedures in accordance with the general requirements of §63.8(c)(1), (3) and (4)(ii).
 4. Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d) **(40 CFR 63.7100(d)(4))**
 - e. Procedures for monitoring process and control device parameters. **(40 CFR 63.7100(d)(5))**
 - f. Corrective actions to be taken when process or operating parameters or add-on control device parameters deviate from the operating limits specified in Table 2 of 40 CFR, Part 63 Subpart AAAAA, including:

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1. Procedures to determine and record the cause of a deviation or excursion, and the time the deviation or excursion began and ended.
2. Procedures for recording the corrective action taken, the time corrective action was initiated, and the time and date the corrective action was completed.
(40 CFR 63.7100(d)(6))
- g. A maintenance schedule for each emission unit and control device that is consistent with the manufacturer's instructions and recommendations for routine and long-term maintenance.
(40 CFR 63.7100(d)(7))
6. The permittee shall develop and implement a written startup, shutdown and malfunction plan (SSMP) in accordance with 40 CFR 63.6(e)(3).² **(40 CFR 63.7100(e), 40 CFR 63.6(e)(3))**
7. For each emission unit equipped with an add-on air pollution control device, such as the positive pressure reverse air baghouses associated with EUKILNNUMBER1 and EUKILNNUMBER2, the permittee shall do the following²:
 - a. Vent captured emissions through a closed system, except that dilution air may be added to emission streams for the purpose of controlling temperature at the inlet to the baghouses.
 - b. Operate each capture/collection system according to the procedures and requirements in the OM&M plan in Special Condition III.5.
(40 FR 63.7090(b))
8. The permittee shall only fire coal, natural gas, syngas and/or glycerin fuels in EUKILNNUMBER1 and EUKILNNUMBER2.² **(R 336.1205(1)(a)(ii) & (3), R 336.1224, R 336.1225, R 336.1702(a), R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. **(R 336.1213(3)(b)(ii), 40 CFR 63.7753)**

1. The permittee shall conduct a performance test within five (5) years of the date of the last performance test to demonstrate compliance with the particulate matter emissions limit in 40 CFR 63.7090(a), following the test methods and procedures in 40 CFR 63.7112. Subsequent compliance testing shall be conducted no less frequently than every five years. No less than 60 days prior to testing, a complete test plan shall be submitted to the AQD Technical Programs Unit and the District Office. The AQD must approve the final plan prior to testing.²
(40 CFR 63.7111, 40 CFR 63.7130(d))
2. The permittee shall conduct a performance test within five (5) years of the date of the last performance test to demonstrate compliance with the sulfur dioxide emissions limit, following the test methods and procedures in Federal Reference Test Method 6, or any other test method approved by AQD. Subsequent compliance testing shall be conducted no less frequently than every five years.² **(R 336.1402(1))**
3. Within 180 days after the initial use of the glycerin fuel, the permittee shall confirm the CO emission factor in pounds per ton of lime for glycerin [high Btu] fuel from either EUKILNNUMBER1 or EUKILNNUMBER2 when burning coal and glycerin [high Btu] fuels used at the rate proposed during the review of Permit to Install 330-07D, by testing, at owner's expense, in accordance with Department requirements. The permittee shall also determine CO emissions from the same kiln tested above when firing only coal fuel, by testing, at owner's expense, in accordance with Department requirements. The results of the stack test shall be used in the determination of the CO emission factor in pounds per ton of lime for glycerin [high Btu] fuel. In the event that the supply of the glycerin [high Btu] fuel as allowed per this permit is not available within 180 days the permittee shall be limited to the level under which the test was performed until adequate supplies become available and retesting within 180 days of the higher level of use is performed. Subsequent compliance testing of the alternate kiln shall be conducted no less frequently than every five (5) years; thereafter, the permittee shall alternate testing between EUKILNNUMBER1 and EUKILNNUMBER2. No less than 60 days prior to testing, a complete test plan

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shall be submitted to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test.² (R 336.1205, R 336.2001, R 336.2003, R 336.2004)

4. Within 180 days after the initial use of the syngas fuel, the permittee shall confirm the CO emission factor in pounds per ton of lime for syngas fuel from either EUKILNNUMBER1 or EUKILNNUMBER2 when burning coal and syngas fuels used at the rate proposed during the review of Permit to Install 330-07D, by testing, at owner's expense, in accordance with Department requirements. The permittee shall also determine CO emissions from the same kiln tested above when firing only coal fuel, by testing, at owner's expense, in accordance with Department requirements. The results of the stack test shall be used in the determination of the CO emission factor in pound, per ton of lime for syngas fuel. In the event that the supply of the syngas fuel as allowed per this permit is not available within 180 days permittee shall be limited to the level under which the test was performed until adequate supplies become available and retesting within 180 days of the higher level of use is performed. Subsequent compliance testing of the alternate kiln shall be conducted no less frequently than every five (5) years; thereafter, the permittee shall alternate testing between EUKILNNUMBER1 and EUKILNNUMBER2. No less than 60 days prior to testing, a complete test plan shall be submitted to the AQD Technical Programs Unit and District Office. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test.² (R 336.1205, R 336.2001, R 336.2003, R 336.2004)
5. The permittee shall analyze glycerin and syngas fuels annually, when in use for a given year, for carbon content. This analysis shall be used to determine CO₂e emissions as prescribed by USEPA in the Green House Gas Monitoring Rule Subpart C in 40 CFR Part 98.30. The permittee shall verify the CO₂e emission factors in pounds per ton of lime for glycerin and syngas fuels at the rates proposed during the review of Permit to Install 330-07D. All records shall be kept on file for a period of at least five years and made available to the Department upon request.² (R 336.1205, 40 CFR Part 98.30)
6. The permittee shall determine the BTU content of the coal fuel for EUKILNNUMBER1 and EUKILNNUMBER2 whenever a coal shipment is received. The method of calculation shall be in accordance with the ASTM Standard D5865.² (R 336.1402(1), R 336.1402(3))

See Appendix 5

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1213(3)(b)(ii), 40 CFR 63.7133)

1. For each emission unit equipped with an add-on air pollution control device, the permittee shall inspect each capture/collection and closed vent system, at least once each calendar year to ensure that each system is operating in accordance with the operating requirements in Special Condition III.6 and record the results of each inspection.² (40 CFR 63.7113(f))
2. The permittee shall keep the following records²:
 - a. A copy of each notification and report that was submitted to comply with 40 CFR Part 63 Subpart AAAAA, including all documentation supporting and Initial Notification or Notification of Compliance Status that was submitted in accordance with the requirements of 40 CFR 63.10(b)(2)(xiv).
 - b. Records in accordance with 40 CFR 63.6(e)(3)(iii) through (v) related to startup, shutdown and malfunction.
 - c. Records of performance tests, performance evaluations, and opacity and visible emission observations as required in 40 CFR 63.10(b)(2)(viii).
 - d. Records of visible emission observations as required by 40 CFR 63.6(h)(6).
 - e. Records required by Tables 5 and 6 of 40 CFR Part 63 Subpart AAAAA that demonstrate continuous compliance of FG-MACT AAAAA-LIMEMANUFACTURING PLANTS with each applicable emission limitation in Subpart AAAAA.
 - f. Records which document the basis for the initial applicability determination as required by 40 CFR 63.7081.

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All of these records shall be kept for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record, and each record must be kept onsite for at least 2 years after the date of each occurrence, measurement, maintenance, corrective action, report or record in accordance with 40 CFR 63.10(b)(1).² **(40 CFR 63.7132, 40 CFR 63.7133)**

3. The permittee must install, operate and maintain each continuous parameter monitoring system (CPMS) according to the OM&M plan required by 40 CFR 63.7100(d) and 40 CFR 63.7113(a).² **(40 CFR 63.7113(a))**
4. For each flow measurement device, the permittee must meet the requirements in paragraphs (a)(1) through (5) and (b)(1) through (4) of 40 CFR 63.7113.² **(40 CFR 63.7113(b))**
5. For each pressure measurement device, the permittee must meet the requirements in paragraphs (a)(1) through (5) and (c)(1) through (7) of 40 CFR 63.7113.² **(40 CFR 63.7113(c))**
6. For each processed stone handling (PSH) operation subject to an opacity limit as specified in 40 CFR Part 63 Subpart AAAAA, and any vents from buildings at the facility subject to an opacity limit, the permittee must conduct a visible emissions check according to Item 1 of Table 6 of Subpart AAAAA, and as follows² :
 - a. Conduct visible inspections that consist of a visual survey of each stack or process emission point over the test period to identify if there are visible emissions, other than condensed water vapor.
 - b. Select a position at least 15 but not more than 1,320 feet from the affected emission point with the sun or other light source generally at your back.
 - c. The observer conducting the visible emission checks need not be certified to conduct EPA Method 9 in appendix A to Part 60 of this chapter, but must meet the training requirements as described in EPA Method 22 of appendix A to 40 CFR Part 60.
(40 CFR 63.7121(e))
7. The permittee shall continuously monitor and record, in a satisfactory manner, the daily limestone feed rate to EUKILNNUMBER1 and EUKILNNUMBER2.² **(R 336.1331(1)(a), Consent Order SIP No. 22-1993, Exhibit B)**
8. The permittee shall keep records of the determinations of the BTU/hr heat input rates of coal to EUKILNNUMBER1 and EUKILNNUMBER2. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1205, 40 CFR Part 63 Subpart AAAAA, R 336.1402(1))**
9. The permittee shall keep records of monthly coal consumption rates by EUKILNNUMBER1 and EUKILNNUMBER2. The permittee shall keep all records on file at the facility and make them available to the Department upon request.² **(R 336.1331(3))**
10. The permittee shall continuously monitor, in a satisfactory manner, the glycerin fuel usage rates for EUKILNNUMBER1 and EUKILNNUMBER2 using respective fuel flow meters on a daily, monthly and 12-month rolling time period basis. All records shall be kept on file for a period of at least five years and made available to the Department upon request.² **(R 336.1205 (1)(a)(ii) & (3); R 336.1224; R 336.1225; R 336.1702(a); R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**
11. The permittee shall keep records of the ash content and sulfur content, in percent by weight, of the glycerin fuels determined based on composite samples of all received glycerin fuels with such composite samples analyzed no less frequent than monthly in months where glycerin fuels is used. All records shall be kept on file for a period of at least five years and made available to the Department upon request.² **(R 336.1205(1)(a)(ii) & (3); R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))**
12. The permittee shall continuously monitor, in a satisfactory manner, the syngas fuel usage rates for for EUKILNNUMBER1 and EUKILNNUMBER2 using respective fuel flow meters on a daily, monthly and 12-month rolling time period basis. All records shall be kept on file for a period of at least five years and made available to the Department upon request.² **(R 336.1205 (1)(a)(ii) & (3); R 336.1224; R 336.1225; R 336.1702(a); R 336.2803, R 336.2804, 40 CFR 52.21(c) & (d))**

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13. The permittee shall keep records of the sulfur content, in percent by weight, of the syngas fuel. The permittee shall keep a separate record of the sulfur content of syngas fuel received no less frequent than monthly in months where syngas fuel is used. All records shall be kept on file for a period of at least five years and made available to the Department upon request.² (R 336.1205 (1)(a)(ii) & (3); R 336.2803, R 336.2804, 40 CFR 52.21 (c) & (d))

See Appendix 3

VII. REPORTING

- 1. Prompt reporting of deviations pursuant to General Conditions 21 and 22 of Part A. (R 336.1213(3)(c)(ii))
- 2. Semiannual reporting of monitoring and deviations pursuant to General Condition 23 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for reporting period July 1 to December 31 and September 15 for reporting period January 1 to June 30. (R 336.1213(3)(c)(i))
- 3. Annual certification of compliance pursuant to General Conditions 19 and 20 of Part A. The report shall be postmarked or received by the appropriate AQD District Office by March 15 for the previous calendar year. (R 336.1213(4)(c))
- 4. If a startup, shutdown, or malfunction occurs during the semiannual reporting period, that is not consistent with the SSMP, the permittee shall submit an immediate SSM report according to the requirements of 40 CFR 63.10(d)(5)(ii).² (40 CFR 63.10(d)(5)(ii), 40 CFR 63.7131(a))

See Appendix 8

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID*	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
SVAKG120	696 x 92.3 ²	70.9 ²	R 336.1201(3)
SVAKG220	696 x 92.3 ²	70.9 ²	R 336.1201(3)

* Upon completion of the new stack referenced in FG-KILNS 1&2, which will exhaust combine emissions from the two (2) kilns, these Stack & Vent IDs will no longer be valid. Details for the new stack are provided in the STACK/VENT RESTRICTION(S) section of FG-KILNS 1&2.

IX. OTHER REQUIREMENT(S)

- 1. The permittee shall comply with all applicable provisions of the National Emission Standards for Hazardous Air Pollutants, as specified in 40 CFR Part 63, Subpart A and Subpart AAAAA for Lime Manufacturing Plants by the compliance date.² (40 CFR Part 63, Subparts A and AAAAA)
- 2. Visible emissions from any coal processing and conveying equipment, coal storage system, or coal transfer and loading system processing coal associated with the equipment addressed by this Flexible Group shall not exceed 20 percent opacity, per the requirements specified in 40 CFR Part 60, Subpart Y (Standards of Performance for Coal Preparation and Processing Plants).² (40 CFR 60.254)

Footnotes:

¹This condition is state only enforceable and was established pursuant to Rule 201(1)(b).

²This condition is federally enforceable and was established pursuant to Rule 201(1)(a).

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FG- KILNS1&2
FLEXIBLE UNIT CONDITIONS

DESCRIPTION: As part of the 1-hour SO₂ nonattainment SIP development, Carmeuse is constructing a new stack which will exhaust combine emissions from the two (2) kilns and establish a new SO₂ emission rate for the combined exhaust.

Emission Units: EUKILNNUMBER1, EUKILNNUMBER2

POLLUTION CONTROL EQUIPMENT: NA

I. EMISSION LIMIT(S)

Pollutant	Limit*	Time Period/ Operating Scenario	Equipment	Monitoring/ Testing Method	Underlying Applicable Requirements
1. SO ₂	470 pph	Hourly	FG-KILNS1&2	SC. V.1. VI.1. VI.2	R 336.2804, 40 CFR 52.21(d), Section 110 CAA

*On and after October 1, 2018, the permittee shall compile hourly SO₂ emission rate calculations. The emission rate shall be determined on a 1-hour average, starting on the hour for each clock-hour, by applying an emission factor to the limestone feed rate. See method below:

$$SO_2 \text{ Emission Rate (pph)} = [(EUKILNNUMBER1 + EUKILNNUMBER2 \text{ total Limestone Feed Rate (tons/hr)}) * SO_2 \text{ Emission Factor (lbs SO}_2\text{/ton limestone feed)}]$$

Where:

Limestone Feed Rate (tons/hr) = recorded hourly limestone feedrate to both kilns
SO₂ Emission Factor (lbs/ton) = 2.15 lbs SO₂/ton limestone

The emission factor of 2.15 lbs SO₂/ton limestone shall be updated using the most recent stack test results, as required in SC V.1, after approval by the AQD, and the limestone feed rate shall be monitored and recorded hourly.

II. MATERIAL LIMIT(S)

NA

III. PROCESS/OPERATIONAL RESTRICTION(S)

NA

IV. DESIGN/EQUIPMENT PARAMETER(S)

NA

V. TESTING/SAMPLING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

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1. No later than April 1, 2019, the permittee shall determine an emission rate for SO₂ from FG-KILNS1&2 by testing at owner's expense, in accordance with Department requirements. The results of the stack test shall be used in the determination of a SO₂ emission factor in pounds per ton of limestone feed. No less than 60 days prior to testing, the permittee shall submit a complete test plan to the AQD Technical Programs Unit and District Office. Subsequent compliance testing shall be conducted no less than every five years for the purpose of updating the SO₂ emission factor. The AQD must approve the final plan prior to testing. Verification of emission rates includes the submittal of a complete report of the test results to the AQD Technical Programs Unit and District Office within 60 days following the last date of the test. (R 336.2001, R 336.2003, R 336.2004, R 336.2804, 40 CFR 52.21 (d), Section 110 of CAA)

VI. MONITORING/RECORDKEEPING

Records shall be maintained on file for a period of five years. (R 336.1201(3))

1. On and after October 1, 2018, the permittee shall calculate and record the average hourly SO₂ emission rate from FG-KILNS1&2, determined by applying the most current emission factor to the hourly limestone feed rate data, as specified in SC I.1. The permittee shall keep the records on file at the facility for a period of five years, in a format acceptable to the AQD, and make them available to the department upon request. (R 336.2804, 40 CFR 52.21 (d), Section 110 of CAA)

2. On and after October 1, 2018, the permittee shall continuously monitor and record, in a method acceptable to the department, the total hourly limestone feed rates from each kiln in FG-KILNS1&2. The permittee shall keep the records on file at the facility for a period of five years, in a format acceptable to the AQD, and make them available to the department upon request. (R 336.2804, 40 CFR 52.21 (d), Section 110 of CAA)

VII. REPORTING

1. On and after March 1, 2019, the company shall submit an excess emission report, for FG-KILNS1&2, in an acceptable format to the department within 30 days following the end of each calendar 6-month period. The excess emission report shall include the following information: a) A report of each exceedance above the SO₂ limitation. This includes the date, time, magnitude, cause and corrective actions for all occurrences during the reporting period. b) A report of all periods of limestone feed rate monitoring system downtime and corrective action. c) If no SO₂ limitation exceedances and no limestone feed rate monitoring system downtime occurred during the reporting period, the company shall report that fact. (R 336.2804, 40 CFR 52.21(d), Section 110 CAA)

2. No later than January 1, 2018, the permittee shall begin installation, construction, reconstruction, relocation, or modification of FG-KILNS1&2. Within 30 days, but no later than of FG-KILNS1&2, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. (R 336.1201(7)(a))

VIII. STACK/VENT RESTRICTION(S)

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

<u>Stack & Vent ID</u>	<u>Maximum Exhaust Dimensions (inches)</u>	<u>Minimum Height Above Ground (feet)</u>	<u>Underlying Applicable Requirements</u>
<u>1. SVKILN1&2</u>	<u>108</u>	<u>120</u>	<u>R 336.2804, 40 CFR 52.21(d), Section 110 CAA</u>

IX. OTHER REQUIREMENT(S)

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Carmeuse Lime, Inc.

ROP No: MI-ROP-B2169-2013
Expiration Date: January 15, 2018
PTI No: MI-PTI-B2169-2013

[NA](#)

Carmeuse Lime, Inc.

ROP No: MI-ROP-B2169-2013
Expiration Date: January 15, 2018
PTI No: MI-PTI-B2169-2013

E. NON-APPLICABLE REQUIREMENTS

At the time of the ROP issuance, the AQD has determined that no non-applicable requirements have been identified for incorporation into the permit shield provision set forth in the General Conditions in Part A pursuant to Rule 213(6)(a)(ii).

APPENDICES

Appendix 1. Abbreviations and Acronyms

The following is an alphabetical listing of abbreviations/acronyms that may be used in this permit.

AQD	Air Quality Division	MM	Million
acfm	Actual cubic feet per minute	MSDS	Material Safety Data Sheet
BACT	Best Available Control Technology	MW	Megawatts
BTU	British Thermal Unit	NA	Not Applicable
°C	Degrees Celsius	NAAQS	National Ambient Air Quality Standards
CAA	Federal Clean Air Act	NESHAP	National Emission Standard for Hazardous Air Pollutants
CAM	Compliance Assurance Monitoring	NMOC	Non-methane Organic Compounds
CEM	Continuous Emission Monitoring	NOx	Oxides of Nitrogen
CFR	Code of Federal Regulations	NSPS	New Source Performance Standards
CO	Carbon Monoxide	NSR	New Source Review
COM	Continuous Opacity Monitoring	PM	Particulate Matter
department	Michigan Department of Environmental Quality	PM-10	Particulate Matter less than 10 microns in diameter
dscf	Dry standard cubic foot	pph	Pound per hour
dscm	Dry standard cubic meter	ppm	Parts per million
EPA	United States Environmental Protection Agency	ppmv	Parts per million by volume
EU	Emission Unit	ppmw	Parts per million by weight
°F	Degrees Fahrenheit	PS	Performance Specification
FG	Flexible Group	PSD	Prevention of Significant Deterioration
GACS	Gallon of Applied Coating Solids	psia	Pounds per square inch absolute
gr	Grains	psig	Pounds per square inch gauge
HAP	Hazardous Air Pollutant	PeTE	Permanent Total Enclosure
Hg	Mercury	PTI	Permit to Install
hr	Hour	RACT	Reasonable Available Control Technology
HP	Horsepower	ROP	Renewable Operating Permit
H ₂ S	Hydrogen Sulfide	SC	Special Condition
HVLP	High Volume Low Pressure *	scf	Standard cubic feet
ID	Identification (Number)	sec	Seconds
IRSL	Initial Risk Screening Level	SCR	Selective Catalytic Reduction
ITSL	Initial Threshold Screening Level	SO ₂	Sulfur Dioxide
LAER	Lowest Achievable Emission Rate	SRN	State Registration Number
lb	Pound	TAC	Toxic Air Contaminant
m	Meter	Temp	Temperature
MACT	Maximum Achievable Control Technology	THC	Total Hydrocarbons
MAERS	Michigan Air Emissions Reporting System	tpy	Tons per year
MAP	Malfunction Abatement Plan	µg	Microgram
MDEQ	Michigan Department of Environmental Quality	VE	Visible Emissions
mg	Milligram	VOC	Volatile Organic Compounds
mm	Millimeter	yr	Year

*For HVLP applicators, the pressure measured at the gun air cap shall not exceed 10 pounds per square inch gauge (psig).

Carmeuse Lime, Inc.

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Appendix 2. Schedule of Compliance

The permittee certified in the ROP application that this stationary source is in compliance with all applicable requirements and the permittee shall continue to comply with all terms and conditions of this ROP. A Schedule of Compliance is not required. (R 336.1213(4)(a), R 336.1119(a)(ii))

Appendix 3. Monitoring Requirements

A. The following monitoring procedures, methods, or specifications are the details to the monitoring requirements identified and referenced in EUCONVEYOR/ELEV, EULIMELOADOUT, EUFLUEDUSTTANK, EUNO6BINVENT.

BAGHOUSE INSPECTIONS

1. Inspections shall be conducted during scheduled outages or downtimes, and immediately after observing visible emissions or pressure drops outside the normal range, but not less frequently than every six months.
 2. The operational condition, and if necessary, reasons for failure or malfunction of the bags, metal housings, fans, blowers, hopper bottom discharge valve, reverse air dampers or pulse jets (whichever is applicable), access doors and gaskets shall be determined during the inspection.
 3. Any repairs and corrective actions needed to address the causes of malfunction or failure shall be performed immediately.
- B. The following monitoring procedures, methods, or specifications are the details to the monitoring requirements identified for processed stone handling (PSH operations), and referenced in FG-MACT AAAAA-LIME MANUFACTURING PLANTS and Item 1 of Table 6 of 40 CFR Part 63, Subpart AAAAA.

To demonstrate ongoing compliance with the opacity limits for PSH operations in 63.7090(a), the permittee must do the following:

1. Conduct a monthly 1-minute visible emission (VE) check of each emission unit in accordance with the requirements of 40 CFR 63.7121(e) while the affected source is in operation.
2. If no VE are observed in 6 consecutive monthly checks for any emission unit, the permittee may decrease the frequency of VE checking from monthly to semi-annually for that emission unit. If VE are observed during any semi-annual check, then the permittee must resume VE checking of that emission unit on a monthly basis and maintain that schedule until no VE are observed in 6 consecutive monthly checks.
3. If no VE are observed during the semi-annual check for any emission unit, the permittee may decrease the frequency of VE checking from semi-annually to annually for that emission unit. If VE are observed during any annual check, then the permittee must resume VE checking of that emission unit on a monthly basis and maintain that schedule until no VE are observed in 6 consecutive monthly checks.
4. If VE are observed during any VE check, the permittee must conduct a 6-minute test of opacity in accordance with Method 9 of appendix A to Part 60. The permittee must begin the Method 9 test within 1 hour of any observation of VE and the 6-minute opacity reading must not exceed the applicable opacity limit.

Carmeuse Lime, Inc.

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Expiration Date: January 15, 2018
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Appendix 4. Recordkeeping

A. BAGHOUSE INSPECTIONS

The permittee shall use the following approved formats and procedures for the recordkeeping requirements referenced in EUCONVEYOR/ELEV, EULIMELOADOUT, EUFLUEDUSTTANK, EUNO6BINVENT. Alternative formats must be approved by the AQD's District Supervisor.

A log of the inspection, cause(s) of malfunction or failure, repairs made and corrective actions taken shall be maintained on file for a period of at least five years.

B. FUGITIVE DUST MANAGEMENT PLAN RECORDS

These records shall be kept on file for the most recent five-year period and be made available to the Air Quality Management Division upon request. The permittee shall use the following approved formats and procedures for the recordkeeping requirements referenced in the Source-Wide Conditions. Alternative formats or procedures must be approved by the AQD District Supervisor.

ADDENDUM

RECORDKEEPING FOR FUGITIVE DUST SOURCES

REQUIRED RECORDS

UNPAVED ROADS/LOTS

1. DATE OF TREATMENT
2. CONTROL MEASURE USED
3. RESPONSIBLE PERSON'S INITIALS
4. NAME OF PRODUCT APPLIED
5. AMOUNT OF SOLUTION/WATER APPLIED
6. DILUTION RATIO
7. ROAD SEGMENT/LOT IDENTIFICATION

PAVED ROADS/LOTS

1. DATE OF TREATMENT
2. CONTROL MEASURE USED
3. RESPONSIBLE PERSON'S INITIALS
4. ROAD SEGMENT/LOT IDENTIFICATION

STORAGE PILES/MATERIAL HANDLING

1. DATE OF TREATMENT
2. CONTROL MEASURE USED
3. RESPONSIBLE PERSON'S INITIALS
4. DILUTION RATIO (IF APPLICABLE)
5. AMOUNT OF DUST SUPPRESSANT/WATER APPLIED
6. IDENTIFICATION OF PILE/MATERIAL HANDLING OPERATION TREATED
7. EQUIPMENT USED

OPTIONAL RECORDS

Carmeuse Lime, Inc.

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WEATHER CONDITIONS

1. PRECIPITATION
2. TEMPERATURE
3. WIND DIRECTION AND VELOCITY

Appendix 5. Testing Procedures

Specific testing requirement plans, procedures, and averaging times are detailed in the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, this appendix is not applicable.

Appendix 6. Permits to Install

The following table lists any PTIs issued since the effective date of previously issued ROP No. 199700102:

Permit to Install Number	Description of Equipment	Corresponding Emission Unit(s) or Flexible Group(s)
330-07D	The PTI addresses the use of two additional fuels to fire the lime kilns – syngas and glycerin (high and low BTU).	EUKILNNUMBER1, EUKILNNUMBER2

Appendix 7. Emission Calculations

There are no specific emission calculations to be used for this ROP. Therefore, this appendix is not applicable.

Appendix 8. Reporting

A. Annual, Semiannual, and Deviation Certification Reporting

The permittee shall use the MDEQ Report Certification form (EQP 5736) and MDEQ Deviation Report form (EQP 5737) for the annual, semiannual and deviation certification reporting referenced in the Reporting Section of the Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Alternative formats must meet the provisions of Rule 213(4)(c) and Rule 213(3)(c)(i), respectively, and be approved by the AQD's District Supervisor.

B. Other Reporting

Specific reporting requirement formats and procedures are detailed in Part A or the appropriate Source-Wide, Emission Unit and/or Flexible Group Special Conditions. Therefore, Part B of this appendix is not applicable.

Appendix 9. Fugitive Dust Management Plan

The following is the Fugitive Dust Control Plan associated with State and Federal SIP No. 22-1993:

**EXHIBIT A
FUGITIVE DUST CONTROL PLAN
MARBLEHEAD LIME COMPANY - RIVER ROUGE PLANT**

1. Facility Name and Address:

Marblehead Lime Company
River Rouge Plant
25 Marion Avenue
P.O. Box 18118
River Rouge, Michigan 48218

2. Name and Address of Responsible Person:

Frank M. Werderitsch
Director, Environmental Services
Marblehead Lime Company
4226 Laundale Avenue
Lyons, Illinois 60534

3. Summary of Source Descriptions and Control Measures:

A. Loading or Unloading of Open Storage Piles:

1) Limestone - Limestone is crushed, sized and washed prior to shipment to the River Rouge facility. Consequently, the amount of material less than 200 mesh is less than 1%. This factor in addition to the fact that the material is wet when it is received eliminates fugitive emissions during the unloading sequence. The limestone is received in lake boats. The lake boats unload using adjustable height conveyors to minimize the drop distance of the material. Normal pile weathering further reduces the potential for fugitive emissions. Moisture causes aggregation of larger particles. Any significant rainfall soaks the interior of the stockpile, and the drying process is very slow. The material is moved by front-end loaders to a smaller pile which has underground feeders as described in outdoor conveying. During movement by the front-end loaders the material is wet. The limestone pile is inactive for only a small percentage of the time.

(Note: Limestone moisture content 3%. Water applied to pile at 10 gallons per minute.)

2) Coal - The inactive coal storage pile is treated with Rezsol S411-B crusting agent. The crusting agent is applied at such a frequency (quarterly for inactive area and within two weeks for disturbed area) so as to maintain a crust over the inactive area of the pile. The dilution ratio is 30:1. The coal storage pile is small in size, with a maximum of 28,000 tons at any one time and an average height of 18-20 feet.

(Note: Coal moisture 8%.)

-2-

B. Transporting of Bulk Materials:

Lime and Kiln By-Product - Both of these materials are transported from our facility in open bed haul trucks which are not the property of Marblehead Lime Company. These trucks are required to be equipped with tarpaulins to cover the bed of the truck. Covering of the truck is performed either prior to, during, or after weighing on the plant scales. The trucks are loaded in our loadout area which is equipped with telescoping hoods that are lowered over the truck bed. These devices have negative pressure pick-up ports vented to a dust collector which removes displaced air from the truck as material is loaded. The method used for cleaning the wheels and bodies of the trucks is water washing. The responsibility for this cleaning is the individual driver of the truck. It is also his responsibility to maintain the truck bodies in good condition to assure no leakage occurs during shipment. Truck wheel and body clean-up takes place in the truck wash area.

The loadout area housekeeping and maintenance is the responsibility of the individual operator for each shift. Spillage that occurs during loadout will be cleaned immediately. A sweeper/vacuum vehicle is located permanently at the plant for use in cleaning plant roadways. The supervisors of each department will assure the housekeeping procedures are followed. In addition to the open bodied trucks, there are some blower-type trucks hauling lime and kiln by-product from the Brennan Avenue facility. These trucks are loaded using a telescoping hood vented to a dust collector which controls the dust laden displaced air. Since these trucks are completely enclosed, no tarpaulin covers are required, otherwise the same clean-up procedures are performed. The plant roadway speed limit is 5 mph. Stop signs have been installed at various locations in the plant to assure that the speed limit is not exceeded.

C. Outdoor Conveying - Enclosures:

1) Limestone - This material originates from a conveyor with feeders located underneath the storage pile. The material has a high moisture content during conveying from the storage pile to the large bins in the plant area. The conveyor is underground and completely enclosed from the storage pile to a transfer point also located underground. From this transfer point to the plant storage bins the conveyor is covered with a 210 degree enclosure. Venting of the transfer points to a dust collector is not necessary due to the moisture content of the limestone.

2) Lime - All conveying of the lime product is completely enclosed. Transfer points are under negative pressure and vented to fabric filter dust collectors.

3) Material Collected by Kiln Gas Filter - This material is pneumatically conveyed to a storage bin. From the collection point to the storage bin this conveying system is completely enclosed. The displaced air in the storage bin is vented to a fabric filter dust collector.

D. Roads and Lots:

- 1) Paved areas - The 0.3 mile plant roadway loop that is used by all vehicles coming into the property is completely paved. An Elgin Pelican regenerative air with one gutter broom street sweeper/vacuum vehicle is located at the River Rouge plant and is used at least two (2) days per week to clean the plant roadway loop. In addition, the plant roadway loop is flushed with a high pressure water hose at least three (3) days per week. The parking lots on the premises which are used by plant employees are smaller in total size than the 500 square meter limitation requiring paving. Nevertheless the employee parking lots are paved and vacuum swept once per two (2) weeks.
- 2) Unpaved Roadways - The front-end loader is generally the only vehicle using the unpaved roadways in the stockpile area. They will be treated with a 38% solution of calcium chloride once every six (6) weeks.

E. Housekeeping Procedures:

- 1) High pressure water clean-up - A clean-up program will be instituted where water under high pressure is used to clean inside walls and other appropriate areas. Points of accumulation of dust on the outside of the firing building will be cleaned using this method.
- 2) Product conveyors, transfer points, etc. - A daily inspection will be performed with points of accumulation of dust cleaned immediately.
- 3) Screening and storage area - The screening and storage area will be inspected daily with points of accumulation of dust cleaned immediately.
- 4) Rotary kiln gas filter - The kiln gas filter will be inspected daily. Points of accumulation of dust will be cleaned immediately. A clean-up program will be instituted where water under high pressure is used to clean inside walls and other appropriate inside areas. Points of accumulation of dust on the outside of the building will be cleaned using this method.
- 5) Plant grounds - The roadways, scale area, and general grounds will be inspected daily. Points of accumulation of dust will be cleaned immediately.

(Note: See attached DNR required Recordkeeping for Fugitive Dust Sources Addendum for further information.)

CAM Plan - Carmeuse Lime, Inc. – River Rouge Facility

Carmeuse Lime, Inc. (Carmeuse) currently owns and operates a lime manufacturing facility in River Rouge, MI (River Rouge Facility). To control emissions of particulate matter less than 10 microns (PM₁₀) generated from manufacturing lime at the River Rouge Facility, Carmeuse installed baghouses at various stages of the lime manufacturing process. If these baghouses were not present and were not controlling PM₁₀ emissions from certain emission sources, the potential to emit from those sources would exceed the major source threshold for PM₁₀. As such, Carmeuse has developed the following Compliance Assurance Monitoring (CAM) plan for the River Rouge Facility which addresses emission sources with potential pre-control emissions of PM₁₀ greater than the major source threshold level.

I. Background

A. Emission Units

Description: Lime transfer conveyors, elevators, and rescreening equipment; lime loadout operations via truck and railcar; and a flue dust tank
Identification: EUCONVEYOR/ELEV, EULIMELOADOUT, EUFDLOADOUT, EUNO6BINVENT and EUFLUEDUSTTANK
Facility: Carmeuse Lime, Inc.
25 Marion Ave.
River Rouge, MI 48218

B. Applicable Regulation, Emission Limit and Monitoring Requirements

Permit No.: ROP B2169-2013

Emission Limits:

Emission Unit	Pollutant	Emission Limit
EUCONVEYOR/ELEV	PM ₁₀	0.1 lb/1000 lb dry exhaust gas
EULIMELOADOUT	PM ₁₀	0.1 lb/1000 lb dry exhaust gas
EUFDLOADOUT	PM ₁₀	0.1 lb/1000 lb dry exhaust gas
EUNO6BINVENT	PM ₁₀	0.1 lb/1000 lb dry exhaust gas
EUFLUEDUSTTANK	PM ₁₀	0.10 lb/hr & 0.45 tpy

Monitoring Requirements: Conduct regular inspections, monitor & record weekly pressure drop on the dust collector, conduct daily visible emission observations by either a certified or non-certified reader.

C. Control Technology

EUCONVEYOR/ELEV: Three (3) fabric filter baghouse units.

EULIMELOADOUT: Two (2) fabric filter baghouse units.

EUFLUEDUSTTANK/ EUFDLOADOUT: One (1) fabric filter baghouse unit.

EUNO6BINVENT: One (1) fabric filter baghouse unit.

II. Monitoring Approach

EUCONVEYOR/ELEV, EULIMELOADOUT, EUFDLOADOUT, EUNO6BINVENT and EUFLUEDUSTTANK

Indicator	Pressure Drop	Visible Emission Observations and Inspections
Monitoring Approach	Pressure drop across the baghouses will be monitored and recorded on a weekly basis.	Daily opacity observations will be made of the baghouses exhaust stacks according to Method 22 procedures. Inspections on baghouses (per established procedures) are completed on a weekly basis to note performance information and inspect the equipment.
Indicator Range	The pressure drop recorded across the baghouses should be within normal/acceptable operating range.	No visible emissions (opacity) should be present. The operational condition of the baghouses should be normal upon inspection.
QIP Threshold	Pressure drop readings outside normal/acceptable ranges more than 5% of the time in a 6 month reporting period.	5% of inspections and/or visible opacity observations missed over a 6-month period, on a per-unit basis.

III. Performance Criteria

EUCONVEYOR/ELEV, EULIMELOADOUT, EUFDLOADOUT, EUNO6BINVENT and EUFLUEDUSTTANK

Indicator	Pressure Drop	Visible Emission Observations and Inspections
Data Representativeness	Data is collected with a differential pressure sensor, which has one sensor before the baghouse and one after the baghouse. The meter then calculates the pressure drop between the two locations.	Visual observations of the stack discharge are made from a location with an unobstructed view consistent with Method 22 procedures. N/A – Inspections
Verification of Operational Status	N/A	N/A
QA/QC Practices and Criteria	Calibrate and/or replace bags as required per baghouse manufacturer recommendations.	Training opacity observer on Method 22 procedure. Training inspector on baghouse operation and maintenance.
Monitoring Frequency	At least once per week.	Once daily for the visual opacity observations and once per week for inspections; for each baghouse.
Data Collection Procedure	A log of weekly pressure drop readings for each of the baghouses will be taken. These log entries will be maintained on file for at least 5 years.	A log of daily opacity readings and weekly inspections for each of the baghouses will be taken. These log entries will be maintained on file for at least 5 years.
Averaging Period	No average; one reading per week.	Average of the opacity readings taken during the one observation per day. N/A – Inspections

IV. Justification

A. Rationale for Selection of Performance Indicators

Pressure drop and opacity observation readings were selected because they are generally indicative of proper baghouse operation. Inspections were also selected to be used in combination with the pressure drop and visible opacity observation readings to detect and correct equipment deficiencies in a proactive manner.

B. Rationale for Selection of Indicator Ranges

An indicator range of pressure drop readings outside of normal/acceptable levels and/or reading of any visible emissions per Method 22 were selected because pressure drop readings outside of normal/acceptable levels can likely lead to increased particulate emissions. Furthermore, visible emissions are generally indicative of an increase in particulate emissions. Weekly equipment inspections provide routine evaluation of equipment integrity and operation, allowing prompt determination of whether maintenance of the subject equipment is necessary



**CARMEUSE LIME, INC.
RIVER ROUGE OPERATION**

40 CFR Part 63, Subpart AAAAA – National Emissions Standards for
Hazardous Air Pollutants for Lime Manufacturing Plants

Operations, Maintenance, & Monitoring Plan

Prepared by:

Christopher Martin
Regional Environmental Manager
Carmeuse North America

Carmeuse Lime, Inc.
River Rouge Operation
25 Marion Ave
River Rouge, Mi 48218
(313) 849-9268

September 14, 2007



**CARMEUSE LIME, INC.
RIVER ROUGE OPERATION**

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CARMEUSE LIME, INC. RIVER ROUGE OPERATION

Carmeuse Lime, Inc. – River Rouge Operation has a lime manufacturing facility located in River Rouge, Michigan within Wayne County. There are two rotary lime kilns comprising the facility which are considered existing sources.

Since this source emits Hydrochloric Acid (HCl) emissions greater than 10 tons/year, the facility is considered a major source of hazardous air pollutants (HAPs) and is therefore subject to MACT (Maximum Achievable Control Technology) or 40 CFR Part 63, Subpart AAAAA National Emissions Standards for Hazardous Air Pollutants for Lime Manufacturing Plants.

This document contains the Operation, Maintenance, & Monitoring Plan as well as the Startup, Shutdown, and Malfunction Plan for the three existing units.



**CARMEUSE LIME, INC.
RIVER ROUGE OPERATION**

The matrix below indicates actions required as a result of the implementation of MACT (40CFR Part 63, Subpart AAAAA) and those persons responsible for carrying these out:

ACTION REQUIRED	PERSON RESPONSIBLE	EXPLANATION
Maintain written OM&M Plan.	Area Environmental Manager	Will maintain written OM&M Plan and make revisions as needed.
Submit OM&M Plan to regulatory agency ¹ for review.	Area Environmental Manager	Responsible for original submission of OM&M Plan to agency as well as subsequent revisions to OM&M for review and approval.
Maintain written SSMP.	Area Environmental Manager	Will maintain written SSMP and make revisions as needed.
Retain records on each startup/shutdown/malfunction.	Kiln Operator	Will retain records of each startup/shutdown/malfunction on worksheets attached hereinto.
Per 40CFR§63.10(d)(5)(i), submit periodic SSM reports.	Area Environmental Manager	Submission to agency detailing malfunctions occurring during reporting period. Required semi-annually by 03 15 and 09/15. Worksheet attached.
Per 40CFR§63.10(d)(5)(ii), submit SSM reports to agency.	Area Environmental Manager	Only applicable in instances where procedures as stated in SSM are not followed. Call or fax agency within 2 working days with full report to follow within 7 working days.

1. Michigan Department of Environmental Quality Southeast Michigan District Office Cadillac Place
3058 W.Grand Blvd., Suite 2-300
Detroit, MI 48202
phone: (313) 456-4688 (direct)



**CARMEUSE LIME, INC.
RIVER ROUGE OPERATION**

40 CFR § 63.7100(d) *You must prepare and implement for each lime manufacturing plant, a written operations, maintenance and monitoring plan (OM&M) plan. You must submit the plan to the applicable permitting authority for review and approval as part of the application for a 40CFR Part 70 or 40CFR Part 71 permit. Any subsequent changes to the plan must be submitted to the applicable permitting authority of an initial or amended plan, you must comply with the provisions of the submitted plan. Each plan must contain the following information:*

- (1) *Process and control device parameters to be monitored to determine compliance, along with established operating limits or ranges, as applicable for each emission unit.*

Emission Unit	Discussion
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	The opacity limit from the fabric filter dust collector is 15% (per Item 1 in Table 2 of MACT rule). Per MACT rule, a daily EPA Method 9 is required to exhibit compliance. ² Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9. In the instance that visible emissions are determined to be present in excess of applicable regulations, modules are isolated and fabric filters are inspected and replaced as necessary.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	The opacity limit from the fabric filter dust collector is 15% (per Item 1 in Table 2 of MACT rule). Per MACT rule, a daily EPA Method 9 is required to exhibit compliance. ² Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9. In the instance that visible emissions are determined to be present in excess of

² See Appendix C for Method 9 Form and Instructions.



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	applicable regulations, modules are isolated and fabric filters are inspected and replaced as necessary.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	This is an open conveyor transporting moist stone. There is no control device on this emission point. Per Item 7, Table 1 of 40 CFR63.7090 (a), the opacity limit for fugitive emissions is 10%.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	This is an open conveyor transporting moist stone. There is no control device on this emission point. Per Item 7, Table 1 of 40 CFR63.7090 (a), the opacity limit for fugitive emissions is 10%.

(2) A monitoring schedule for each emission unit.

Emission Unit	Discussion
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	MACT rule requires daily EPA Method 9. ² Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	MACT rule requires daily EPA Method 9. ² Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	No visible emission observations required, except as defined by 40CFR, Part 63, Table 6 to Subpart AAAAA.
Kiln #2 Weigh Belt Discharge to Kiln #2	No visible emission observations required,



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Stone Feed Conveyor (K2PSH1)	except as defined by 40CFR, Part 63, Table 6 to Subpart AAAAA.

(3) Procedures for the proper operation and maintenance of each emission unit and each air pollution control device used to meet the applicable emission limitations and operating limits in Tables 1 and 2 to this subpart, respectively.

Emission Unit	Discussion
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	This unit is subject to emission limit specified in Item 1 of Table 1, 40 CFR Part 63. This kiln does not operate in bypass of the baghouse. The baghouse configuration is comprised of twelve individual modules. There is one individual stack exhausting to the atmosphere. Daily EPA Method 9 is required by MACT to ensure compliance. Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	This unit is subject to emission limit specified in Item 1 of Table 1, 40 CFR Part 63. This kiln does not operate in bypass of the baghouse. The baghouse configuration is comprised of twelve individual modules. There is one individual stack exhausting to the atmosphere. Daily EPA Method 9 is required by MACT to ensure compliance. Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9.



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Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	The stone screening process has wet stone for dust suppression, thereby eliminating the potential for the presence of fugitive emissions. The operation is indoors.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	The stone screening process has wet stone for dust suppression, thereby eliminating the potential for the presence of fugitive emissions. The operation is indoors.

(4) Procedures for the proper installation, operation, and maintenance of monitoring devices or systems used to determine compliance, including:

- (i) Calibration and certification of accuracy of each monitoring device;*
- (ii) Performance and equipment specifications for the sample interface, parametric signal analyzer, and the data collection and reduction systems;*
- (iii) Ongoing operation and maintenance procedures in accordance with the general requirements of §63.8(c)(1), (3), and (4)(ii); and*
- (iv) Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d).*



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Emission Unit	Discussion
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	There is no monitoring device on this source. MACT rule required daily EPA Method 9. Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9. This Visible Emissions Observation Form is completed and kept on file.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Bag house (Source ID 111)	There is no monitoring device on this source. MACT rule required daily EPA Method 9. Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9. This Visible Emissions Observation Form is completed and kept on file.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	There are no monitoring devices on this fugitive emissions source.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	There are no monitoring devices on this fugitive emissions source.

(5) Procedures for monitoring process and control device parameters.

Emission Unit	Discussion
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	This unit is subject to emission limit specified in Item 1 of Table 1, 40 CFR Part 63. This kiln does not operate in bypass of the dust collection system. Daily EPA Method 9 readings are performed and kept on file. Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	This unit is subject to emission limit specified in Item 1 of Table 1, 40 CFR Part 63. This kiln does not operate in bypass



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	of the dust collection system. Daily EPA Method 9 readings are performed and kept on file. Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	No visible emission observations required, except as defined by 40CFR, Part 63, Table 6 to Subpart AAAAA. Observations recorded to exhibit compliance with this provision will be kept on file for a minimum of 5 years.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	No visible emission observations required, except as defined by 40CFR, Part 63, Table 6 to Subpart AAAAA. Observations recorded to exhibit compliance with this provision will be kept on file for a minimum of 5 years.

(6) Corrective actions to be taken when process or operating parameters or add-on control device parameters deviate from the operating limits specified in Table 2 to this subpart, including:

- i. Procedures to determine and record the cause of a deviation or excursion and the time the deviation or excursion began and ended; and*
- ii. Procedures for recording the corrective action taken, the time corrective action was initiated, and the time and date the corrective action was completed.*



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Emission Unit	Discussion
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	This unit is subject to emission limit specified in Item 1 of Table 2, 40 CFR Part 63. Emissions from this baghouse are required by MACT rule not to exceed 15% opacity as determined by EPA Method 9. Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9. Should this occur, the baghouse will be inspected as soon as is practicable.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	This unit is subject to emission limit specified in Item 1 of Table 2, 40 CFR Part 63. Emissions from this baghouse are required by MACT rule not to exceed 15% opacity as determined by EPA Method 9. Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9. Should this occur, the baghouse will be inspected as soon as is practicable.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	This is a fugitive emissions source in an enclosed building. The only applicable requirement for this source is established in Item 5, Table 2 of 40CFR, Part 63 (implementation and adherence to OM&M Plan).
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	This is a fugitive emissions source in an enclosed building. The only applicable requirement for this source is established in Item 5, Table 2 of 40CFR, Part 63 (implementation and adherence to OM&M Plan).



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(7) A maintenance schedule for each emission unit and control device that is consistent with the manufacturer's instructions and recommendations for routine and long-term maintenance.

Emission Unit	Discussion
Kiln #1 Rotary Straight Kiln with shared Reverse Air Fabric Filter Baghouse (Source ID 110)	<p>Preventative maintenance plans have been developed for each collector. Work orders are generated, and maintained within database to provide history of maintenance to the collector. Daily EPA Method 9 will also serve to indicate undesirable conditions present within the collector. Carmeuse will maintain visible emissions certification on person's responsible for conducting Method 9.</p> <p>Additionally, 40CFR§63.7113(f) requires an annual inspection of the ductwork leading to the fabric filter dust collector.</p>
Kiln #2 Rotary Straight Kiln with shared Reverse Air Fabric Filter Baghouse (Source ID 111)	<p>Preventative maintenance plans have been developed for each collector. Work orders are generated, and maintained within database to provide history of maintenance to the collector.</p> <p>Additionally, 40CFR§63.7113(f) requires an annual inspection of the ductwork leading to the fabric filter dust collector.</p>
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	Not Applicable.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	Not Applicable.



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40 CFR Part 63, Subpart AAAAA - National Emissions Standards for
Hazardous Air Pollutants for Lime Manufacturing Plants

Startup, Shutdown, & Malfunction Plan

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A startup, shutdown, and malfunction plan (SSMP) is required by 40 CFR§64.7100(e). The requirements of the Startup, Shutdown, and Malfunction Plan are contained in 40CFR§63.6(e)(3).

Startup, Shutdown, and Malfunction Requirements

ITEM	SUMMARY	DISCUSSION
§63.6(e)(3)(i)	Develop and implement a written SSMP.	Written SSMP attached.
§63.6(e)(3)(ii)	During periods of SSM, operate in accordance with SSMP.	
§63.6(e)(3)(iii)	Keep records of SSM events.	Forms attached within this document.
§63.6(e)(3)(iv)	Immediate reporting of unusual SSM events.	Forms attached within this document.
§63.6(e)(3)(v)	Maintain current and previous versions of SSMP.	Current and previous versions contained within this document.
§63.6(e)(3)(vi)	May use other documents to satisfy SSMP requirements.	
§63.6(e)(3)(vii)	Administrator may require changes in SSMP.	
§63.6(e)(3)(viii)	Permittee may periodically revise SSMP as necessary.	
§63.6(e)(3)(ix)	Major Source Operating Permit must address requirement for SSMP.	MDEQ is aware of this requirement.



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Startup, Shutdown and Malfunction Plan

Pursuant to 40CFR 63.6(e)(3):

- (3) *Startup, shutdown, and malfunction plan. (i) The owner or operator of an affected source must develop and implement a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction, and a program of corrective action for malfunctioning process and air pollution control and monitoring equipment used to comply with the relevant standard. This plan must be developed by the owner or operator by the source's compliance date for that relevant standard. The purpose of the startup, shutdown, and malfunction plan is to -*
- (A) *Ensure that, at all times, the owner or operator operates and maintains each affected source, including associated air pollution control and monitoring equipment, in a manner which satisfies the general duty to minimize emissions established by paragraph (e)(1)(i) of this section;*
- (B) *Ensure that owners or operators are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants; and*
- (C) *Reduce the reporting burden associated with periods of startup, shutdown, and malfunction (including corrective action taken to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation).*
- D) Kilns 1&2 do not have an opacity monitor and during startup a **visible emission observation (for one minute)** will be performed at the following times:
1. Within 1 hour of the start of solid fuel feed
 4. Within 1 hour of bag house being fully operational

In the event that visible emissions are witnessed a Method 9 will be performed within 1 hour to demonstrate that the emissions are below 15%. It will be deemed a compliant start up if at least two of the above readings are able to be taken and of those two, at least one reading was performed during events specified by 3 or 4 above, and all readings indicate no visible emissions present or the emissions are below 15% if a Method 9 reading was performed. Depending on the status of the kiln at startup, some of the above events may occur at the same time.



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During shutdown, a visible emission observation will be taken in the event that there is reason to believe there has been a violation of the opacity limit based on process information. In the event that the typical shut down procedures need to be deviated from due to equipment failure or pressure/flow loss. A VE will be taken within one hour of the deviation and if no emissions are witnessed the shutdown will be deemed compliant. If emissions are witnessed a Method 9 will be performed within 1 hour to verify the unit is below the allowable opacity limit of 15%.

For start ups and shutdowns that have been short in duration (i.e., kiln has not reached ambient temperature) VE will be witnessed at a reasonable frequency to ensure deviations of the opacity limit have not occurred Pursuant to 40CFR

63.6(e)(3):

- (4) *Startup, shutdown, and malfunction plan. (i) The owner or operator of an effected source must develop and implement a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction, and a program of corrective action for malfunctioning process and air pollution control and monitoring equipment used to comply with the relevant standard. This plan must be developed by the owner or operator by the source's compliance date for that relevant standard. The purpose of the startup, shutdown, and malfunction plan is to -*
 - (D) *Ensure that, at all times, the owner or operator operates and maintains each affected source, including associated air pollution control and monitoring equipment, in a manner which satisfies the general duty to minimize emissions established by paragraph (e)(1)(i) of this section;*
 - (E) *Ensure that owners or operators are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants; and*
 - (F) *Reduce the reporting burden associated with periods of startup, shutdown, and malfunction (including corrective action taken to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation).*



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Emission Unit	Startup and Shutdown Procedures
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	<p>Startup: Prior to starting kiln, ensure that the fabric filter dust collector is operating properly. Air is directed through the baghouse beginning with the startup of the ID fan. Kiln startup is completed in accordance with RR-KN(OP)-09.</p> <p>Shutdown: The ID fan continues to operate through the duration of kiln shutdown in an effort to cool the kiln, thereby directing all pollutants as a result of the process, through the baghouse. Kiln shutdown is completed in accordance with RR-KN(OP)-09.</p>
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	<p>Startup: Prior to starting kiln, ensure that the fabric filter dust collector is operating properly. Air is directed through the baghouse beginning with the startup of the ID fan. Kiln startup is completed in accordance with RR-KN(OP)-09.</p> <p>Shutdown: The ID fan continues to operate through the duration of kiln shutdown in an effort to cool the kiln, thereby directing all pollutants as a result of the process, through the baghouse. Kiln shutdown is completed in accordance with RR-KN(OP)-09.</p>
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	Not Applicable. Should fugitive emissions be noted upon startup, additional water will be applied so as to eliminate the presence of the emissions.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	Not Applicable. Should fugitive emissions be noted upon startup, additional water will be applied so as to eliminate the presence of the emissions.



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Emission Unit	Malfunction Procedures
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	Dust Collector Malfunction: Should the dust collector malfunction resulting in the opacity limit to be exceeded, the dust collector should be inspected as soon as safely practicable. Individual dust collector modules will be isolated, allowing for compartment inspection. Bags will be replaced as necessary.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	Dust Collector Malfunction: Should the dust collector malfunction resulting in the opacity limit to be exceeded, the dust collector should be inspected as soon as safely practicable. Individual dust collector modules will be isolated, allowing for compartment inspection. Bags will be replaced as necessary.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	Not Applicable. Should fugitive emissions be noted upon startup, additional water will be applied so as to eliminate the presence of the emissions.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	Not Applicable. Should fugitive emissions be noted upon startup, additional water will be applied so as to eliminate the presence of the emissions.

- (ii) During periods of startup, shutdown, and malfunction, the owner or operator of an affected source must operate and maintain such source (including associated air pollution control and monitoring equipment) in accordance with the



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procedures specified in the startup, shutdown, and malfunction plan developed under paragraph (e)(3)(i) of this section.

Emission Unit	Startup and Shutdown Procedures
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	During periods of Startup, Shutdown and Malfunction, the kiln and associated Process Stone Handling (PSH) Systems shall be operated in accordance with the SSMP.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	During periods of Startup, Shutdown and Malfunction, the kiln and associated Process Stone Handling (PSH) Systems shall be operated in accordance with the SSMP.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	During periods of Startup, Shutdown and Malfunction, the kiln and associated Process Stone Handling (PSH) Systems shall be operated in accordance with the SSMP.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	During periods of Startup, Shutdown and Malfunction, the kiln and associated Process Stone Handling (PSH) Systems shall be operated in accordance with the SSMP.

- (iii) When actions taken by the owner or operator during a startup, shutdown, or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the owner or operator must keep records for that event which demonstrate that the procedures specified in the plan were followed. These records may take the form of a "checklist," or other effective form of recordkeeping that confirms conformance with



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the startup, shutdown, and malfunction plan for that event. In addition, the owner or operator must keep records of these events as specified in §63.10(b), including records of the occurrence and duration of each startup, shutdown, or malfunction of operation and each malfunction of the air pollution control and monitoring equipment. Furthermore, the owner or operator shall confirm that actions taken during the relevant reporting period during periods of startup, shutdown, and malfunction were consistent with the affected source’s startup, shutdown and malfunction plan in the semiannual (or more frequent) startup, shutdown, and malfunction report required in §63.10(d)(5).

Emission Unit	Startup and Shutdown Procedures
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	During periods of Startup, Shutdown and Malfunction, opacity exceedances, should they occur will be documented, as well as actions taken to reduce opacity, and maintenance activities taken to correct malfunctions.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	During periods of Startup, Shutdown and Malfunction, opacity exceedances, should they occur will be documented, as well as actions taken to reduce opacity, and maintenance activities taken to correct malfunctions.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	During periods of Startup, Shutdown and Malfunction, opacity exceedances, should they occur will be documented, as well as actions taken to reduce opacity, and maintenance activities taken to correct malfunctions.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	During periods of Startup, Shutdown and Malfunction, opacity exceedances, should they occur will be documented, as well as



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	actions taken to reduce opacity, and maintenance activities taken to correct malfunctions.

- (iv) If an action taken by the owner or operator during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, and the source exceeds any applicable emission limitation in the relevant emission standard, then the owner or operator must record the actions taken for that event and must report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event, in accordance with §63.10(d)(5) (unless the owner or operator makes alternative reporting arrangements, in advance, with the Administrator).

Emission Unit	Startup and Shutdown Procedures
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Bag house (Source ID 110)	During periods of Startup, Shutdown and Malfunction, opacity exceedances, should they occur will be documented, as well as actions taken to reduce opacity, and maintenance activities taken to correct malfunctions. Should an opacity standard be exceeded, and corrective actions are any other than those listed in the SSMP, a verbal report will be filed within 2 working days followed by a written description of the event within 7 working days.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Bag house (Source ID 111)	During periods of Startup, Shutdown and Malfunction, opacity exceedances, should they occur will be documented, as well as



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	<p>actions taken to reduce opacity, and maintenance activities taken to correct malfunctions. Should an opacity standard be exceeded, and corrective actions are any other than those listed in the SSMP, a verbal report will be filed within 2 working days followed by a written description of the event within 7 working days.</p>
<p>Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)</p>	<p>During periods of Startup, Shutdown and Malfunction, opacity exceedances, should they occur will be documented, as well as actions taken to reduce opacity, and maintenance activities taken to correct malfunctions. Should an opacity standard be exceeded, and corrective actions are any other than those listed in the SSMP, a verbal report will be filed within 2 working days followed by a written description of the event within 7 working days.</p>
<p>Kiln #2 Belt Feeder Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)</p>	<p>During periods of Startup, Shutdown and Malfunction, opacity exceedances, should they occur will be documented, as well as actions taken to reduce opacity, and maintenance activities taken to correct malfunctions. Should an opacity standard be exceeded, and corrective actions are any other than those listed in the SSMP, a verbal report will be filed within 2 working days followed by a written description of the event within 7 working days.</p>

- (v) The owner or operator must maintain at the affected source a current startup, shutdown, and malfunction plan and must make the plan available upon request for inspection and copying by the Administrator.



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In addition, if the startup, shutdown, and malfunction plan is subsequently revised as provided in paragraph (e) (3) (viii) of this section, the owner or operator must maintain at the affected source each previous (i.e., superseded) version of the startup, shutdown, and malfunction plan, and must make each such previous version available for inspection and copying by the Administrator for a period of 5 years after revision of the plan. If at any time after adoption of a startup, shutdown, and malfunction plan the affected source ceases operation or is otherwise no longer subject to the provisions of this part, the owner or operator must retain a copy of the most recent plan for 5 years from the date the source ceases operation or is no longer subject to this part and must make the plan available upon request for inspection and copying by the Administrator. The Administrator may at any time request in writing that the owner or operator submit a copy of any startup, shutdown, or malfunction plan to the Administrator. Upon receipt of such a request, the owner or operator must promptly submit a copy of the requested plan (or a portion thereof) to the Administrator. The Administrator must request that the owner or operator submit a particular startup, shutdown, or malfunction plan (or a portion thereof) whenever a member of the public submits a specific and reasonable request to examine or to receive a copy of that plan or portion of a plan. The owner or operator may elect to submit the required copy of any startup, shutdown, and malfunction plan to the Administrator in an electronic format. If the owner or operator claims that any portion of such a startup, shutdown, and malfunction plan is confidential business information entitled to protection from disclosure under section 114© of the Act or 40 CFR 2.301, the material which is claimed as confidential must be clearly designated in the submission.



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Emission Unit	Startup and Shutdown Procedures
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	Current and previous copies of the SSMP will be kept electronically, and available for review upon request.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	Current and previous copies of the SSMP will be kept electronically, and available for review upon request.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	Current and previous copies of the SSMP will be kept electronically, and available for review upon request.
Kiln #2 Weigh Belt Discharge to Kiln #4 Stone Feed Conveyor (K4PSH1)	Current and previous copies of the SSMP will be kept electronically, and available for review upon request.

- (vi) To satisfy the requirements of this section to develop a startup, shutdown, and malfunction plan, the owner or operator may use the affected source's standard operating procedures (SOP) manual, or an Occupational Safety and Health Administration (OSHA) or other plan, provided the alternative plans meet all the requirements of this section are made available for inspection or submitted when requested by the Administrator.



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Emission Unit	Startup and Shutdown Procedures
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	In addition to the SSMP, the facility has additional documents and procedures which pertain to specific pieces of equipment, activities and processes. These documents will control the safety of personnel and prevention of damage to equipment, and may take precedents over the SSMP in the event of imminent danger to personnel.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	In addition to the SSMP, the facility has additional documents and procedures which pertain to specific pieces of equipment, activities and processes. These documents will control the safety of personnel and prevention of damage to equipment, and may take precedents over the SSMP in the event of imminent danger to personnel.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	In addition to the SSMP, the facility has additional documents and procedures which pertain to specific pieces of equipment, activities and processes. These documents will control the safety of personnel and prevention of damage to equipment, and may take precedents over the SSMP in the event of imminent danger to personnel.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	In addition to the SSMP, the facility has additional documents and procedures which pertain to specific pieces of equipment, activities and processes. These documents will control the safety of personnel and prevention of damage to equipment, and may take precedents over



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	the SSMP in the event of imminent danger to personnel.
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- (vii) Based on the results of a determination made under paragraph (e)(1)(i) of this section, the Administrator may require that an owner or operator of an affected source make changes to the startup shutdown, and malfunction plan for that source. The Administrator must require appropriate revisions to a startup, shutdown, and malfunction plan, if the Administrator finds that the plan:
- (A) Does not address a startup, shutdown or malfunction event that has occurred;
 - (B) Fails to provide for the operation of the source (including associated air pollution control and monitoring equipment) during a startup, shutdown, or malfunction event in a manner consistent with the general duty to minimize emissions established by paragraph (e)(1)(i) of this section;
 - (C) Does not provide adequate procedures for correcting malfunctioning process and/or air pollution control and monitoring equipment as quickly as practicable; or
 - (D) Includes an event that does not meet the definition of startup, shutdown, or malfunction listed in §63.2.



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Emission Unit	Startup and Shutdown Procedures
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	Appropriate revisions will be made under advisory of the Administrator.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	Appropriate revisions will be made under advisory of the Administrator.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	Appropriate revisions will be made under advisory of the Administrator.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	Appropriate revisions will be made under advisory of the Administrator.

(viii) The owner or operator may periodically revise the startup, shutdown, and malfunction plan for the affected source as necessary to satisfy the requirements of this part or to reflect changes in equipment or procedures at the affected source. Unless the permitting authority provides otherwise, the owner or operator may make such revisions to the startup, shutdown, and malfunction plan without prior approval by the Administrator or the permitting authority. However, each such revision to a startup, shutdown, and malfunction plan must be reported in the semiannual report required by §63.10(d) (5). If the startup, shutdown, and malfunction plan fails to address or inadequately addresses an event that meets the characteristics of a malfunction but was not included in the startup, shutdown, and malfunction plan at the time the owner or operator developed the plan, the owner or operator must revise the startup, shutdown, and malfunction plan within 45 days after the event to include detailed procedures for operating and maintaining the source during similar malfunction events and a program of corrective action for similar malfunctions of process or air pollution control and monitoring equipment. In the event that the owner or operator makes any revision to the startup, shutdown, and malfunction plan which alters the scope of the activities at the source which are deemed to be a startup, shutdown, or malfunction, or otherwise modifies the applicability of any emission limit, work practice



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requirement of other requirement in a standard established under this part, the revised plan shall not take effect until after the owner or operator has provided a written notice describing the revision to the permitting authority.

Emission Unit	Startup and Shutdown Procedures
Kiln #1 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 110)	Should the company identify changes to be made to the SSMP which can improve the Plan, or address a recurring situation that should be included in the plan, those changes will be made, and a written notification will be sent to the permitting authority. The approved, modified plan will be added to the archived plans and maintained on file for five (5) years.
Kiln #2 Rotary Straight Kiln with Reverse Air Fabric Filter Baghouse (Source ID 111)	Should the company identify changes to be made to the SSMP which can improve the Plan, or address a recurring situation that should be included in the plan, those changes will be made, and a written notification will be sent to the permitting authority. The approved, modified plan will be added to the archived plans and maintained on file for five (5) years.
Kiln #1 Weigh Belt Discharge to Kiln #1 Stone Feed Conveyor (K1PSH1)	Should the company identify changes to be made to the SSMP which can improve the Plan, or address a recurring situation that should be included in the plan, those changes will be made, and a written notification will be sent to the permitting authority. The approved, modified plan will be added to the archived plans and maintained on file for five (5) years.
Kiln #2 Weigh Belt Discharge to Kiln #2 Stone Feed Conveyor (K2PSH1)	Should the company identify changes to be made to the SSMP which can improve that Plan, or address a recurring situation that



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	should be included in the plan, those changes will be made, and a written notification will be sent to the permitting authority. The approved, modified plan will be added to the archived plans and maintained on file for five (5) years.



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Appendix A

40 CFR Part 63, Subpart A
National Emissions Standards for Hazardous Air Pollutants (NESHAP) General Provisions

FOR REGULATORY REFERENCE ONLY



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Appendix B

40 CFR Part 63, Subpart AAAAA
National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Lime Manufacturing
Facilities

FOR REGULATORY REFERENCE ONLY



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Appendix C

Method 9 Form and Instructions

VISIBLE EMISSION OBSERVATION FORM

This form is designed to be used in conjunction with EPA Method 9, “Visual Determination of the Opacity of Emissions from Stationary Sources.” Temporal changes in emission color, plume water droplet content, background color, sky conditions, observer position, etc. should be noted in the comments section adjacent to each minute of readings. Any information not dealt with elsewhere on the form should be noted under additional information. Following are brief descriptions of the type of information that needs to be entered on the form: for a more detailed discussion of each part of the form, refer to “Instructions for Use of Visible Emissions Observation Form.”

- Source Name: full company name, parent company or division or subsidiary information, if necessary.
- Address: street (not mailing or home office) address of facility where VE observation is being made.
- Phone (key contact): number for appropriate contact.
- Source ID Number: number from NEDS, agency file, etc.
- Process equipment, Operating Mode: brief description of process equipment (include type of facility) and operating rate, % capacity, and/or mode (e.g. charging, tapping, shutdown).
- Control Equipment, Operating Mode: specify type of control device(s) and % utilization, control efficiency.
- Describe Emission Point: for identification purposes, stack or emission point appearance, location, and geometry; and whether emission are confined (have a specifically designed outlet) or unconfined (fugitive).
- Height Above Ground Level: stack or emission point height relative to ground level; can use engineering drawings, Abney level or clinometer.
- Height Relative to Observer: indicate height of emission point relative to the observation point.
- Distance from Observer: distance to emission point; can use rangefinder or map.
- Direction from Observer: direction plume is traveling from observer.
- Describe Emissions and Color: include physical characteristics, plume behavior (e.g., looping, lacy, condensing, fumigating, secondary particle formation, distance plume visible, etc.) and color of emissions (gray, brown, white, red, black, etc.). Note color changes in comments section.
- Visible Water Vapor Present? check “yes” if visible water vapor is present.
- If Present, is Plume...check “attached” if water droplet plume forms prior to exiting stack, and “detached” if water droplet plume forms after exiting stack.
- Point in Plume at Which Opacity was Determined: describe physical location in plume where readings were made (e.g., 1 ft above stack exit or 10 ft. after dissipation of water plume).
- Describe Plume Background: object plume is read against, include texture and atmospheric conditions (e.g., hazy).
- Background Color: sky blue, gray white, new leaf green, etc.
- Sky Conditions: indicate cloud cover by percentage or by description (clear scattered, broken, overcast).
- Wind Speed: record wind speed; can use Beaufort wind scale or hand-held anemometer to estimate.
- Wind Direction From: direction from which wind is blowing; can use compass to estimate to eight points.



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- Ambient Temperature: in degrees Fahrenheit or Celsius.
- Source Layout Sketch: include wind direction, sun position, associated stacks, roads, and other landmarks to fully identify location of emission point and observer position.
 - Draw North Arrow: to determine, point line of sight in direction of emission point, place compass beside circle, and draw in arrow parallel to compass needle.
 - Sun's Location: point line of sight in direction of emission point, move pen upright along sun location line, mark location of sun when pen's shadow crosses the observer's position.
- Observation Date: date observations conducted.
- Start Time, End Time: beginning and end times of observation period (e.g., 1635 or 4:35 p.m.).
- Data Set: percent opacity to nearest 5%; enter from left to right starting in left column. Use a second (third, etc.) form, if readings continue beyond 30 minutes. Use dash (-) for readings not made; explain in adjacent comments section.
 - Comments: note changing observation conditions, plume characteristics, and/or reasons for missed readings.
 - Range of Opacity: note highest and lowest opacity number.
- Observer's Name: print in full.
 - Observer's Signature, Date: sign and date after performing VE observation.
- Organization: observer's employer.
- Certified By, Date: name of "smoke school" certifying observer and date of most recent certification.



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VISIBLE EMISSION OBSERVATION EVALUATION

Kiln # _____

Page 1

Facility: 25 Marion Avenue, River Rouge, MI 48218

Date: _____

Observer: _____

Certification
Date: _____

Observation Point: _____

Distance from source: _____ ft

Source Height: 75 feet

Color of emission: _____

Background: _____

Sky Condition: _____

Sun Position: _____

Temperature: _____

Wind Direction: _____

Wind Velocity: _____

Start Time: _____ Stop Time: _____

Minutes	Seconds				
	XX	0	15	30	45
0					
1					
2					
3					
4					
5					

Average Reading: _____

All symbols are required on Diagram

- o Emission
- Source
- Wind Direction
- ☼ Sun
- ≈ Plume
- Flow
- × Observer
- Location
- North
- Arrow



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Reading Conditions: _____

General Comments: _____

Signature: _____



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Appendix D

Previous Versions of Startup, Shutdown, & Malfunction Plan

All copies are electronic, see Environmental Manager for previous copies.



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Appendix E

Startup, Shutdown, & Malfunction Plan Reports & Notifications

Lime Kiln Startup / Shutdown Report

Note: This report should only be completed for the startup and shutdown of any lime kiln.

Unit Description (Kiln 1 or Kiln 2) _____

Person Completing Report _____

Date & Time of Startup & Shutdown _____

Reason for Startup or Shutdown _____

Were the procedures in the Startup, Shutdown, & Malfunction Plan followed?

_____ Yes

_____ No (Follow "Immediate Reporting" provisions. Contact MDEQ within 2 working days. Provide written report within 7 working days.)



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Lime Kiln Malfunction Report

Unit Description (Kiln 1 or kiln 2) _____

Person Completing Report _____

Date _____

Starting and Ending Times of the Malfunction and Corrective Actions:

Malfunction Starting Time / Date: _____

Corrective Action Starting Time / Date: _____

Corrective Action Ending Time / Date: _____

Malfunction Ending Time / Date: _____

Description of Malfunction and Corrective Actions: _____

Is this specific malfunction listed in the Startup, Shutdown, and Malfunction Plan?

_____ Yes

_____ No (Report to Regional Environmental Manager Immediately. Updating of Startup, Shutdown, and Malfunction Plan may be necessary.)

Were the corrective actions listed in the malfunction plan followed?

_____ Yes

_____ No ("Immediate Reporting" provisions must be followed. Contact ADEM³ within 2 working days. Provide written report within 7 working days.)



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Appendix F

Completed Startup, Shutdown, & Malfunction Plan Reports & Notifications



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Appendix G

RR-KN(OP)-09

Start up

- Use the gas torch to preheat the kiln.
 - Open the gas valve about 50% so that the back end temperature increases 100 degrees per hour.
 - Set the ID fan just high enough to keep the flame off the bricks at the top of the kiln.
 - As the kiln heats up, continue to open the gas valve to maintain a steady temperature rise (100 degrees per hour) at the back end.
- Once the back end temperature is 200 deg, begin making 1/4 turns every 30 min.
- When the back-end temperature levels out and remains constant with the gas valve fully open, hold that temperature for 2 hours.
- Begin turning continuously at minimum.
- Start the stone feed system with the ratio set for normal production (0.48)
- Begin feeding coal at 1.0 TPH (or as low as possible) with the suction damper open about 50%.
- Position the gas torch in the coal stream to aid in igniting the coal. Look at the flame with the welding goggles to see if the coal is igniting.
- Increase ID fan speed to keep approx ~1" negative pressure at the hood.
- Monitor oxygen levels and check the dust chamber discharge to ensure no combustibles to the baghouse.
- Keep the coal feed rate constant until the back-end temperature stays constant
- Begin adding coal (and opening suction damper) to bring the back end temperature up at 100 degrees per hour.
- When the back-end temperature reaches 1000 degrees, bring the kiln up to production rate.
- Begin testing and recording the quality of material after the back end reaches 800 degrees. Ensure you route to scrap until quality meets bin specifications.



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Shut down RR-KN(OP)-11

Running empty prior to a planned outage

- Stop stone weigh belt
- Put the plate in the feed pipe
- Stop the coal weigh belt 30 minutes after stopping stone (what about the mill and then the fan)
- Slow the ID fan to the minimum speed necessary to keep the hood negative
- Slow the kiln to 50 RPH until material no longer crossing discharge dam
 - As material in the kiln cools, test product quality and route according to spec
- Once kiln is empty, slow to 10 RPH
- Continue to run cooler feeders, and shut down cooler fan once cooler empty
- Continue to turn continuously for 4 hours
- Make ¼ turns with the pony every 15 minutes for 2 hours. If raining, do not go to the pony but continue at 5 RPH for 2 hours.
- Make ¼ turns with the pony every 30 minutes until shell temperature at pier 1 is 200 degrees.

Conserving heat during an unplanned outage

- Slow the kiln to 10 RPH (DO NOT STOP THE KILN)
- Stop stone feed
- Put the plate in the feed pipe
- Stop the coal weigh belt
- Run the mill empty and shut down the mill
- Slow the ID fan to the minimum speed necessary to keep the hood negative
- Continue to run cooler feeders, and shut down cooler fan once cooler empty
- Close doors on the hood
- Shut down the ID Fan
- Continue to turn continuously for 4 hours
- Bypass the interlock to keep #4/ #7 belt running
- Make ¼ turns with the pony every 15 minutes for 2 hours. If raining, do not go to the pony but continue at 5 RPH for 2 hours
- Make ¼ turns with the pony every 30 minutes until shell temperature at pier 1 is 200 degrees



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Kiln 1 & 2 Reverse Air (RA) Baghouse Operating Instructions

General Instructions

Start-up Procedure for Lime Kiln Reverse Air Baghouses (fiberglass filter bags).

When fire is put in the kiln and the baghouse fan is started, have only the two compartments furthest from the kiln on-line (modules 11 and 12). As the overall differential pressure rises to 5" or the inlet temperature in the baghouse rises to 250 F, add the next two compartments in line. Repeat until all the compartments are on-line.

The cleaning system should be in the off mode until feed is put to the kiln. The cleaning set points should be set to clean based on tube sheet differential pressure set points identified by process engineer. This is for the current operation and should be lowered as improvements are made. Only clean the number of compartments necessary to drop the differential pressure and make sure when cleaning starts again it starts where it left off.

I am excerpting information out of the RR-KN(OP)-9 to input in this area. I will forward this information as it is completed.

- 1.1 Keep all doors closed. Top, bottom, and screw level.
- 1.2 Keep the screw floor clean.
- 1.3 Keep the screws wrapped and attend to leaks immediately.
- 1.4 Keep the rotary feeder pit clean.
- 1.5 Ensure that all guards are on and secure.
- 1.6 Keep the baghouse compartments as clean and dust free as possible.
- 1.7 Cap bags and patch or stuff them when they emit dust from a hole or tear.
- 1.8 Tie off bags when they have been capped off. Make sure that the bags are not slapping other bags and creating dust.
- 1.9 When down time occurs: drop new bags, replacing the bags that are capped off or need replacing.



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- 4.9.1 When changing out bags, new and used bags shall be placed in a container and safely lowered to the ground without willfully causing opacity or harm to employees on the ground. No bags will be dropped from any tier of either baghouse.

- 1.10 When opacity is an issue, notify a foreman immediately if you cannot resolve the issue yourself.

- 1.11 Make sure that gate cylinders are moving properly and freely.

- 1.12 Load flue dust trucks in a timely manner, keeping the chute in the truck loading hole as long as possible to ensure that all the dust has been loaded from the chute after closing the gate.

- 1.13 The condition of the baghouse rooms and information on bags capped or replaced shall be recorded daily on the Baghouse Room Report.

Facility-wide PTE Summary

Unit ID	Emission Unit Description	Potential Emissions (tons per year)									
		NO _x	CO	VOM	SO ₂	Lead	PM ₁₀	PM _{2.5}	Total HAPs	Max HAP	
RG-Kiln #1 and #2	Horizontal Lime Rotary Kilns	918.24	118.93	4.58	2,058.60	0.001	102.79	102.79	84.95	75.01	
EU FUGITIVE	Roadway & Storage Pile Fugitives	-	-	-	-	-	21.34	-	-	-	
EUCONVEYOR/ELEV	Lime Transferring Equipment	-	-	-	-	-	0.51	-	-	-	
EULMELOADOUT	Lime Loadout - Truck and Railcar	-	-	-	-	-	0.04	-	-	-	
EUFLUEDUSTTANK	Flue Dust Tank	-	-	-	-	-	0.45	-	-	-	
EUNO6BINVENT	Lime Fines Handling - #6 Vent	-	-	-	-	-	27.56	-	-	-	
EUFDLOADOUT	Flue Dust Loadout	-	-	-	-	-	N/A	-	-	-	
Total Emissions (tpy)		918.24	118.93	4.58	2,058.60	0.001	152.69	102.79	84.95	75.01	

Potential Emissions Burning Coal

	Potential Lime Production (ton/yr)	Potential Lime Production (ton/hr)	Heat Input (mmBtu/ton)	Max Heat Input (mmBtu/hr)	Emission Factors Coal Firing ¹ (lb/ton Lime)	Emission Factor, Coal (lb/mmBtu)	Potential Emissions Coal Firing (TPY)
CO	423,400	48.3	7.50	362.5	0.562	0.075	118.9
NO _x	423,400	48.3	7.50	362.5	4.337	0.578	918.2
SO ₂	423,400	--	--	--	--	--	2,058.6
Lead	423,400	48.3	7.50	362.5	2.52E-06	3.4E-07	5.3E-04
THC	423,400	48.3	7.50	362.5	0.022	0.003	4.6
PM/PM ₁₀ /PM _{2.5}	423,400	48.3	7.50	362.5	0.486	0.065	102.8

Lime Kilns--Bituminous Coal

Ton per year (total) 125,020
 Ton per hour (total) 14.3
 MMBTU per hour 3.63E+02
 mmbTU per Ton* 25.4
 Hours per Year (per unit) 8760
 MMBtu/ton lime produced 7.50
 Tons lime per hour 48.33
 Tons lime per year 423,400
 % Fuel Input 100.00%
 *Fuel testing data (12,700 Btu/lb)

TAC	CAS Number	Emission Factor	Units	Emission Rate		Emission Factor based on.....
				Lbs/hr	Tons/yr	
Acetaldehyde	75-07-0	5.70E-04	lb/ton	8.13E-03	3.56E-02	AP-42 Table 1.1-14
Acetophenone	98-86-2	1.50E-05	lb/ton	2.14E-04	9.38E-04	AP-42 Table 1.1-14
Acrolein	107-02-8	2.90E-04	lb/ton	4.14E-03	1.81E-02	AP-42 Table 1.1-14
Benzene	71-43-2	1.30E-03	lb/ton	1.86E-02	8.13E-02	AP-42 Table 1.1-14
Benzyl Chloride	100-44-7	7.00E-04	lb/ton	9.99E-03	4.38E-02	AP-42 Table 1.1-14
Bis(2-ethylhexyl)phthalate	117-81-7	7.30E-05	lb/ton	1.04E-03	4.56E-03	AP-42 Table 1.1-14
Bromoform	75-25-2	3.90E-05	lb/ton	5.57E-04	2.44E-03	AP-42 Table 1.1-14
Carbon Disulfide	75-15-0	1.30E-04	lb/ton	1.86E-03	8.13E-03	AP-42 Table 1.1-14
2-Chloroacetophenone	532-27-4	7.00E-06	lb/ton	9.99E-05	4.38E-04	AP-42 Table 1.1-14
Chlorobenzene	108-90-7	2.20E-05	lb/ton	3.14E-04	1.38E-03	AP-42 Table 1.1-14
Chloroform	67-66-3	5.90E-05	lb/ton	8.42E-04	3.69E-03	AP-42 Table 1.1-14
Cumene	98-82-8	5.30E-06	lb/ton	7.56E-05	3.31E-04	AP-42 Table 1.1-14
Cyanide	57-12-5	2.50E-03	lb/ton	3.57E-02	1.56E-01	AP-42 Table 1.1-14
2,4-Dinitrotoluene	121-14-2	2.80E-07	lb/ton	4.00E-06	1.75E-05	AP-42 Table 1.1-14
Dimethyl sulfate	77-78-1	4.80E-05	lb/ton	6.85E-04	3.00E-03	AP-42 Table 1.1-14
Ethylbenzene	100-41-4	9.40E-05	lb/ton	1.34E-03	5.88E-03	AP-42 Table 1.1-14
Ethyl chloride	75-00-3	4.20E-05	lb/ton	5.99E-04	2.63E-03	AP-42 Table 1.1-14
Ethylene dibromide	106-93-4	1.20E-06	lb/ton	1.71E-05	7.50E-05	AP-42 Table 1.1-14
Ethylene dichloride	107-06-2	4.00E-05	lb/ton	5.71E-04	2.50E-03	AP-42 Table 1.1-14
Formaldehyde	50-00-0	2.40E-04	lb/ton	3.43E-03	1.50E-02	AP-42 Table 1.1-14
Hexane	110-54-3	6.70E-05	lb/ton	9.56E-04	4.19E-03	AP-42 Table 1.1-14
Hydrogen Chloride	7647-01-0	1.20E+00	lb/ton	1.71E+01	7.50E+01	AP-42 Table 1.1-14
Hydrogen Fluoride	7664-39-3	1.50E-01	lb/ton	2.14E+00	9.38E+00	AP-42 Table 1.1-14
Isophorone	78-59-1	5.80E-04	lb/ton	8.28E-03	3.63E-02	AP-42 Table 1.1-14
Methyl bromide	74-83-9	1.60E-04	lb/ton	2.28E-03	1.00E-02	AP-42 Table 1.1-14
Methyl chloride	74-87-3	5.30E-04	lb/ton	7.56E-03	3.31E-02	AP-42 Table 1.1-14
Methyl hydrazine	60-34-4	1.70E-04	lb/ton	2.43E-03	1.06E-02	AP-42 Table 1.1-14
Methyl methacrylate	80-62-6	2.00E-05	lb/ton	2.85E-04	1.25E-03	AP-42 Table 1.1-14
Methyl tert butyl ether	1634-04-4	3.50E-05	lb/ton	5.00E-04	2.19E-03	AP-42 Table 1.1-14
Methylene chloride	75-09-2	2.90E-04	lb/ton	4.14E-03	1.81E-02	AP-42 Table 1.1-14
Phenol	108-95-2	1.60E-05	lb/ton	2.28E-04	1.00E-03	AP-42 Table 1.1-14
Propionaldehyde	123-38-6	3.80E-04	lb/ton	5.42E-03	2.38E-02	AP-42 Table 1.1-14
Tetrachloroethylene	127-18-4	4.30E-05	lb/ton	6.14E-04	2.69E-03	AP-42 Table 1.1-14
Toluene	108-88-3	2.40E-04	lb/ton	3.43E-03	1.50E-02	AP-42 Table 1.1-14
1,1,1-Trichloroethane	71-55-6	2.00E-05	lb/ton	2.85E-04	1.25E-03	AP-42 Table 1.1-14
Styrene	100-42-5	2.50E-05	lb/ton	3.57E-04	1.56E-03	AP-42 Table 1.1-14
Xylene	1330-20-7	3.70E-05	lb/ton	5.28E-04	2.31E-03	AP-42 Table 1.1-14
Acenaphthene	83-32-9	5.10E-07	lb/ton	7.28E-06	3.19E-05	AP-42 Table 1.1-13
Acenaphthylene	208-96-8	2.50E-07	lb/ton	3.57E-06	1.56E-05	AP-42 Table 1.1-13
Anthracene	120-12-7	2.10E-07	lb/ton	3.00E-06	1.31E-05	AP-42 Table 1.1-13
Benz(a)anthracene	56-55-3	8.00E-08	lb/ton	1.14E-06	5.00E-06	AP-42 Table 1.1-13
Benzo(a)pyrene	50-32-8	3.80E-08	lb/ton	5.42E-07	2.38E-06	AP-42 Table 1.1-13
Benzo(b)fluoranthene	205-99-2	1.10E-07	lb/ton	1.57E-06	6.88E-06	AP-42 Table 1.1-13
Benzo(k)fluoranthene	207-08-9	1.10E-07	lb/ton	1.57E-06	6.88E-06	AP-42 Table 1.1-13
Benzo(j)fluoranthene	205-82-3	1.10E-07	lb/ton	1.57E-06	6.88E-06	AP-42 Table 1.1-13
Chrysene	218-01-9	1.00E-07	lb/ton	1.43E-06	6.25E-06	AP-42 Table 1.1-13
Indeno(1,2,3-cd)pyrene	193-39-5	6.10E-08	lb/ton	8.71E-07	3.81E-06	AP-42 Table 1.1-13
5-Methylchrysene	3697-24-3	2.20E-08	lb/ton	3.14E-07	1.38E-06	AP-42 Table 1.1-13
3-Methylchoranthene	56-49-5	6.70E-05	lb/ton	9.56E-04	4.19E-03	AP-42 Table 1.1-13
Benzo(g,h,i)perylene	191-24-2	2.70E-08	lb/ton	3.85E-07	1.69E-06	AP-42 Table 1.1-13
Biphenyl	92-52-4	1.70E-06	lb/ton	2.43E-05	1.06E-04	AP-42 Table 1.1-13
Fluoranthene	206-44-0	7.10E-07	lb/ton	1.01E-05	4.44E-05	AP-42 Table 1.1-13
Fluorene	86-73-7	9.10E-07	lb/ton	1.30E-05	5.69E-05	AP-42 Table 1.1-13
Naphthalene	91-20-3	1.30E-05	lb/ton	1.86E-04	8.13E-04	AP-42 Table 1.1-13
Phenanthrene	85-01-8	2.70E-06	lb/ton	3.85E-05	1.69E-04	AP-42 Table 1.1-13
Pyrene	129-00-0	3.30E-07	lb/ton	4.71E-06	2.06E-05	AP-42 Table 1.1-13
2,3,7,8-TCDD	1746-01-6	1.43E-11	lb/ton	2.04E-10	8.94E-10	AP-42 Table 1.1-12
Total TCDD	41903-57-5	9.28E-11	lb/ton	1.32E-09	5.80E-09	AP-42 Table 1.1-12
Total PeCDD	36088-22-9	4.47E-11	lb/ton	6.38E-10	2.79E-09	AP-42 Table 1.1-12
Total HxCDD	34465-46-8	2.87E-11	lb/ton	4.10E-10	1.79E-09	AP-42 Table 1.1-12
Total HpCDD	37871-00-4	8.34E-11	lb/ton	1.19E-09	5.21E-09	AP-42 Table 1.1-12
Total OCDD	3268-87-9	4.16E-10	lb/ton	5.94E-09	2.60E-08	AP-42 Table 1.1-12
2,3,7,8-TCDF	51207-31-9	5.10E-11	lb/ton	7.28E-10	3.19E-09	AP-42 Table 1.1-12
Total TCDF	30402-14-3	4.04E-10	lb/ton	5.77E-09	2.53E-08	AP-42 Table 1.1-12
Total PeCDF	30402-15-4	3.53E-10	lb/ton	5.04E-09	2.21E-08	AP-42 Table 1.1-12
Total HxCDF	55684-94-1	1.92E-10	lb/ton	2.74E-09	1.20E-08	AP-42 Table 1.1-12
Total HpCDF	38998-75-3	7.68E-11	lb/ton	1.10E-09	4.80E-09	AP-42 Table 1.1-12
Total OCDF	39001-02-0	6.63E-11	lb/ton	9.46E-10	4.14E-09	AP-42 Table 1.1-12
Antimony	7440-36-0	2.20E-03	lb/ton	2.54E-05	1.11E-04	Fuel analysis - maximum value
Arsenic	7440-38-2	3.94E-03	lb/ton	4.54E-05	1.99E-04	Fuel analysis - maximum value
Beryllium	7440-41-7	4.56E-03	lb/ton	2.39E-05	1.04E-04	Fuel analysis - maximum value
Cadmium	7440-43-9	4.00E-03	lb/ton	4.61E-05	2.02E-04	Fuel analysis - maximum value
Chromium	7440-47-3	2.60E-02	lb/ton	2.36E-04	1.03E-03	Fuel analysis - maximum value
Cobalt	7440-48-4	1.05E-02	lb/ton	1.21E-04	5.29E-04	Fuel analysis - maximum value
Manganese	7439-96-5	1.40E-02	lb/ton	3.59E-05	1.57E-04	Fuel analysis - maximum value
Mercury	7439-97-6	1.10E-04	lb/ton	5.29E-04	2.32E-03	Fuel analysis - maximum value
Nickel	7440-02-0	2.40E-02	lb/ton	2.77E-04	1.21E-03	Fuel analysis - maximum value
Selenium	7782-49-2	4.00E-03	lb/ton	1.17E-04	5.12E-04	Fuel analysis - maximum value

Total HAP: 84.9

ROP Emission Unit	Control Equipment	Control Efficiency (%)	Potential Lime Production	2016 MAERS PM10 Primary Emission Factor (lb/ton_lime-produced)	Calculated PM10 Primary PTE (lbs)	Total PM10 PTE (tons)
EU FUGITIVE - Roadway & Storage Pile Fugitives	Water Spray / Dust Suppressant/Sweeping	50.0	423,400.0	1.4	42,681.6	21.34
EUCONVEYOR/ELEV	Baghouse Unit No. 1	99.89		2.2	1,024.6	0.51
EUCONVEYOR/ELEV	Baghouse Unit No. 2			0.61	77.5	0.04
EUCONVEYOR/ELEV	Baghouse Unit No. 3					
EULIMELOADOUT	Baghouse Unit No. 1	99.97	2.2	1,024.6	0.45	
EULIMELOADOUT	Baghouse Unit No. 2					
EUFLEDDUSTTANK	Baghouse Unit	99.89	55,119.8	27.56		
EUNO6BINVENT	Baghouse Unit	90				
EUFDLLOADOUT			Same baghouse as EUFLEDDUSTTANK			

ROP Emission Unit	Control Equipment	Control Efficiency (%)	Potential Lime Production	2016 MAERS PM ₁₀ Primary Emission Factor (lb/ton_lime-produced)	Calculated PM ₁₀ Primary PTE (lbs)	Total PM ₁₀ PTE (tons)	Uncontrolled PM ₁₀ PTE Tons	Over PM ₁₀ Major Source Threshold?	Current ROP PM Limits
EUCONVEYOR/ELEV	Baghouse Unit No. 1	99.89	423,400.0	2.2	1,024.6	0.51	465.7	Yes	0.10 lbs PM/1,000 lbs of exhaust gas
EUCONVEYOR/ELEV	Baghouse Unit No. 2								
EUCONVEYOR/ELEV	Baghouse Unit No. 3								
EULIMELOADOUT	Baghouse Unit No. 1	99.97	423,400.0	0.61	77.5	0.04	129.137	Yes	0.10 lbs PM/1,000 lbs of exhaust gas
EULIMELOADOUT	Baghouse Unit No. 2								
EUFLUEDUSTTANK	Baghouse Unit	99.89		2.2	1,024.6	0.45	409.1	Yes	0.10 lb/hr & 0.45 Tpyr
EUNO6BINVENT	Baghouse Unit	90			55,119.8	27.56	275.60	Yes	0.10 lbs PM/1,000 lbs of exhaust gas
EUFDLOADOUT					Same baghouse as EUFLUEDUSTTANK				

EUNO6BINVENT Emission Calculations

Unit	Dust Collector Exhaust Rate (cfm) ¹	Dust Collector Outlet Grain Loading (gr/cf) ²	Dust Collector Outlet PM Emission Rate (lb/hour)	Annual Time (hours)	Annual PM Emissions (tpy) ⁴
EUNO6BINVENT	1,400	0.052	0.63	8,760	2.76

1. Exhaust rate of 1,400 cfm was provided via email on June 29, 2017.
2. Actual outlet grain loading was not available from the dust collector manufacturer. However, the unit is assumed to be in compliance with the applicable Michigan Department of Environmental Quality (MDEQ) particulate matter limitations specified in Table 31 of Rule 336.1331. In particular, it is assumed that the unit is in compliance with Item J of the table (exhaust systems serving material handling equipment not otherwise listed in Table 31) which specifies a limit of 0.1 lb/1,000 lb exhaust air. Emissions were conservatively calculated using this limit.
4. Emissions from PM, PM_{1.0}, and PM_{2.5} are conservatively assumed to be equal.

Calculation Methodology:

$$\begin{aligned}
 &\text{Molecular Weight of Air} = \frac{0.21 \text{ mol O}_2}{1 \text{ mol air}} + \frac{32 \text{ lb O}_2}{1 \text{ mol O}_2} = \frac{0.79 \text{ mol N}_2}{1 \text{ mol air}} + \frac{28.02 \text{ lb N}_2}{1 \text{ mol N}_2} = \frac{28.86 \text{ lb air}}{\text{mol air}} \\
 &\text{Grain Loading Rule 331} = \frac{0.1 \text{ lb PM}}{1000 \text{ lb air}} = \frac{1 \text{ lb PM}}{1000 \text{ lb air}} = \frac{14.7 \text{ psi}}{527.67 \text{ }^\circ\text{R}} = \frac{1 \text{ }^\circ\text{R-mol}}{1073159 \text{ cf-psi}} = \frac{1 \text{ gr}}{7000 \text{ lb}} \\
 &\text{PM Emission Rate} = \frac{0.052 \text{ gr}}{\text{cf}} = \frac{1,400 \text{ cf}}{1 \text{ min}} = \frac{1 \text{ lb}}{7,000 \text{ gr}} = \frac{60 \text{ min}}{1 \text{ hr}} = \frac{0.63 \text{ lb}}{\text{hr}} \\
 &\text{Annual Emissions} = \frac{0.63 \text{ lb}}{\text{hr}} = \frac{8,760 \text{ hr}}{1 \text{ year}} = \frac{1 \text{ ton}}{2,000 \text{ lb}} = \frac{2.76 \text{ tons}}{\text{yr}} \\
 &= \frac{0.052 \text{ gr}}{\text{cf}} = \frac{7000 \text{ lb}}{1} = 0.052 \text{ gr}
 \end{aligned}$$