ADEQ CLASS I PERMIT RENEWAL APPLICATION

Air Quality Permit No. 81660

Lhoist of North America, Inc.
Douglas, Arizona

Prepared By:

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1. EXECUTIVE SUMMARY

Lhoist North America of Arizona, Inc. (Lhoist) owns the Douglas Lime Plant, which is authorized by Air Quality Class I Permit No. 81660, issued by the Arizona Department of Environmental Quality (ADEQ) on October 16, 2020. The plant is located at Paul Spur, approximately 10 miles west of Douglas, Arizona. Permit No. 81660 expires on October 15, 2025, for the Douglas Lime Plant. Per the Arizona Administrative Code (A.A.C.) R18-2-304.D(2) of the, a timely application is one that is submitted at least six months, but not more than 18 months, prior to the date of the permit expiration. As such, Lhoist must submit a permit renewal application by April 15, 2025. Lhoist is therefore submitting this application to meet the required timeline. The following sections in this document provide all of the information required by A.A.C. R18-2-304 for a Class I permit renewal application.

The Douglas Lime Plant consists of a quarry, a crushing and screening plant, and lime manufacturing operations. Authorized operations at the Douglas Lime Plant include mining activities, limestone processing, two rotary kilns, one vertical kiln, post-kiln lime handling, and truck and rail loadout facilities. Auxiliary equipment includes mobile equipment and storage tanks. Three kilns are utilized to convert crushed limestone ore into quicklime. These operations have the potential to emit regulated air pollutant emissions including: particulate matter (PM); particulate matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}); particulate matter less than or equal to 2.5 microns in aerodynamic diameter ($PM_{2.5}$); carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); volatile organic compounds (VOCs); hazardous air pollutants (HAPs); and greenhouse gases (GHGs or CO_2e), including carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O).

The Douglas Lime Plant is a major source under the Title V program and a major source under the New Source Review (NSR) program. The Douglas Lime Plant is a categorical source pursuant to A.A.C. R18-2-101.23 and is therefore subject to a 100 tons per year (tpy) Potential-to-Emit (PTE) threshold for determining whether it is a major source[1]. Lhoist is not proposing to make any physical changes or changes in the method of operation at the Douglas Lime Plant as part of this renewal application, and the facility-wide PTE remains consistent with the representation in Permit 81660, as presented in Table 6.1. Therefore, the Douglas Lime Plant anticipates remaining regulated under a Class I air quality permit.

[1] "Major source" as defined in A.A.C. R18-2-101.75

2. ADEQ PERMIT STANDARD APPLICATION FORM AND COMPLETENESS CHECKLIST

SECTION 2.1

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality Division

1110 West Washington • Phoenix, AZ 85007 • Phone: (602) 771-2338

STANDARD CLASS I PERMIT APPLICATION FORM

(As required by A.R.S. § 49-426, and Chapter 2, Article 3, Arizona Administrative Code)

1. Permit to be issued to (Business license name of organization that is to receive permit):
   Lhoist of North America Inc.

2. Mailing Address: 4753 W. Paul Spur Road
   City: Douglas State: Arizona ZIP: 85607

3. Name (or names) of Owners/ Principals: Lhoist North America
   Phone: 520-364-2429 Fax: 520-364-2706 Email:

4. Name of Owner's Agent:
   Phone: Fax: Email:

5. Plant/Site Manager/ Contact Person and Title: Duane Surman, Regional Terminal Manager
   Phone: 520-364-2429 Fax: Email: duane,surman@lhoist.com

6. Plant Site Name: Douglas Lime Plant

7. Plant Site Location Address: 4753 W. Paul Spur Road
   City: Douglas County: Cochise Zip Code: 85607
   Indian Reservation (if applicable, which one): N/A
   Latitude/ Longitude, Elevation: 31.350833°, -109.735833°, 4,225 ft
   Section/ Township/ Range: S7 T24S R26E

8. General Nature of Business: Limestone processing and lime production

9. Type of Organization:
   ☒ Corporation ☐ Individual Owner ☐ Partnership ☐ Government Entity (Government Facility Code----------)
   ☐ Other

8. Permit Application Basis: ☐ New Source ☐ Revision ☒ Renewal of Existing Permit
   (Check all that apply.)
   For renewal or modification, include existing permit number (and exp. date): Permit No. 81660, Exp. 10/15/2025
   Date of Commencement of Construction or Modification: N/A
   Primary Standard Industrial Classification Code: 1422 and 3274

9. I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by ADEQ as public record. I also attest that I am in compliance with the applicable requirements of the Permit and will continue to comply with such requirements and any future requirements that become effective during the life of the Permit. I will present a certification of compliance to ADEQ no less than annually and more frequently if specified by ADEQ. I further state that I will assume responsibility for the construction, modification,

or operation of the source in accordance with Arizona Administrative Code, Title 18, Chapter 2 and any permit issued thereof.

Signature of Responsible Official: Duane L Surman

Official Title of Signer: Western Region Terminal Manager

Typed or Printed Name of Signer: Duane L Surman

Date: 02 April, 2025 Telephone Number: 205-260-7946

SECTION 4.0 - APPLICATION ADMINISTRATIVE COMPLETENESS CHECKLIST

	REQUIREMENT	MEETS REQUIREMENTS			COMMENT
		YES	NO	N/A	
1	Has the standard application form been completed?	X			Section 2
2	Has the responsible official signed the standard application form?	X			Section 2
3	Has a process description been provided?	X			Section 3
4	Are the facility's emissions documented with all appropriate supporting information?	X			Section 6 and Appendix B
5	Is the facility subject to Minor NSR requirements? If the answer is "YES", answer 6a, 6b and 6c as applicable. If the answer is "NO", skip to 7.		X		
6.a	If the facility chooses to implement RACT, is the RACT determination included for the affected pollutants for all affected emission units?			X	
6.b	If the facility chooses to demonstrate compliance with NAAQS by screen modeling, is the modeling analysis included?			X	
6.c	If refined modeling has been conducted, is a comprehensive modeling report along with all modeling files included?			X	
7	Does the application include an equipment list with the type, name, make, model, serial number, maximum rated capacity, and date of manufacture?	X			Appendix A
8	Does the application include an identification and description of Pollution Controls? (if applicable)	X			Section 9
9	For any application component claimed as confidential, are the requirements of AR.S. 49-432 and A.A.C. R18-2-305 addressed?			X	
10	For any current non-compliance issue, is a compliance schedule attached?			X	
11	For minor permit revision that will make a modification upon submittal of application, has a suggested draft permit been attached?			X	
12	For major sources, have all applicable requirements been identified?	X			Section 7
13	For major sources, has a CAM applicability analysis been provided? For CAM applicable units, have CAM plans been provided?	X			Section 10, Appendix E and F
14	For major sources subject to requirements under Article 4 of the A.A.C., have all necessary New Source Review analyses identified in the application been presented?			X	

3. PROCESS DESCRIPTION

Descriptions of all major and supporting operations at the Douglas Lime Plant facility are presented in the following sections. Process flow diagrams of all operations at the Douglas Lime Plant are presented in Section 4. The limestone processing operations consist of two quarry pits, a crushing and screening plant, and auxiliary operations. The limestone processing operations produce: (a) crushed and sized limestone for the adjacent lime manufacturing operations and (b) crushed and sized limestone products for aggregate sales.

3.1 Quarry Operations

The quarry operations recover stone from two pits: the Francisco and the Gomez Pits. The limestone ore zone for these pits dip from 16 to 25 degrees toward the southeast in the Francisco Pit and at an average of 15 degrees to the west in the Gomez pit. Mining of these zones requires the development of multiple mining benches in each pit to remove the overburden and the ore. Quarry operations include: (a) drilling and blasting to fracture the overburden and stone; (b) loading the overburden, waste rock (low-grade limestone) and limestone to haul trucks; (c) hauling limestone to the primary crusher and the adjacent storage area (the plaza); (d) hauling and transferring overburden and waste rock to in-pit and above-pit storage areas; and (e) hauling and transferring kiln dust and off-spec lime from the lime manufacturing facility to storage areas. Emissions from dumping kiln dust to the storage areas are negligible since the kiln dust is pugged[2] with water as it is loaded into the haul trucks and regularly capped with native soil.

Contractors may be used on occasion for mining activities. Potential emissions generated by contractor activity are included in the PTE of the facility presented in Section 6.

Operations in the limestone quarry include drilling, blasting, loading, hauling, and other related mining activities necessary for preparing limestone ore for additional processing. Mining operations begin with drilling and blasting of ore and waste rock. At the anticipated mining location, blast holes are drilled to a specific depth using mobile drills. The blast holes are filled with an ammonium nitrate and fuel oil mixture (ANFO) while stemming is used to cap the holes. The blast area is then evacuated for the blast. Following a blast, loaders are used to load the blasted material into haul trucks. Limestone ore mined in the quarry is hauled by haul trucks to the limestone processing system. The haul trucks either dump the ore directly into the primary hopper or stockpile the material on the nearby rock plaza. Front-end loaders are used to transfer the stockpiled material to the hopper as necessary. Various grades of rock and overburden from the quarry are also transferred to storage areas within the Douglas Lime Plant facility. All grades of rock can also be sold to customers. Emissions from haul trucks and other vehicles traveling on mine roads are controlled by watering and the application of chemical dust suppressants.

3.2 Limestone Processing System

A process flow diagram of the crushing and screening plant is shown in Section 4.2. The high-grade limestone is hauled to the crushing and screening plant where it is crushed and separated into five material sizes. The three largest stone sizes are used as kiln feed material for the adjoining lime manufacturing operations. The two smallest sizes are stockpiled and either sold to customers, depending upon local demand, or used internally, generally as gravel, road fill material, or future use. Kiln feed material may also be used internally or sold to various customers, as needed.

[2] "ran through the pug mill"

The stone sizes referenced in the following process description represent nominal sizes. The actual stone sizes may vary from these numbers, depending on the screen mesh sizes. The general flow of material through the crushing and screening plant begins with dumping stone from the quarry into a hopper/apron feeder. The stone is then fed into a grizzly with the oversize going to a primary (jaw) crusher, followed by a primary screen where the crushed material is separated into three nominal sizes (oversize - plus 5", 2" to 5" and minus 2"). Oversized rock from the screen is re-crushed with a secondary (cone) crusher and then recombined with the material from the primary crusher. Over-sized rock from the screen may also be conveyed back to the primary crusher.

The middle-size stone (2" to 5") from Primary Screen 104 is conveyed directly to the No. 3 Kiln Feed Stockpile. The fines (minus 2") from the primary screen are sent to one of two secondary screen systems. The secondary screens separate the stone into four remaining sizes. The various sized stones are then conveyed to the respective stockpiles (No. 1 Kiln Feed Stockpile (1" to 2"), No. 2 Kiln Feed Stockpile (3/8" to 1"), the Flux Stockpile (minus 1/8") and the Chat Stockpile (1/8" to 3/8"). Air emissions from the crushing and screening plant are controlled by three dust collectors (DC-120, DC-121 and DC-122). On occasion, off-spec limestone is processed through the crushing and screening plant. This limestone is loaded from the stockpiles and hauled to the waste rock storage areas.

Maintenance or repairs on equipment in the crushing and screening plant sometimes requires releasing the material from the conveyors and other equipment to the ground. This material is loaded back into the process with a shovel, loader, bobcat or other piece of loading equipment on a timely basis. Maintenance of air pollution control equipment is usually conducted with the process equipment idled.

In addition to the dust collectors, water sprays are used to control emissions at the following locations of the crushing and screening plant as shown in Figure 4.7.

- Material transfer point from the haul trucks to Hopper 100;
- Material transfer point from Apron Feeder 101 to Primary Crusher 102 via a grizzly;
- Material transfer point from 2nd Flux Belt 117 to Flux Stockpile.; and,
- Material transfer point from Screw Conveyer 127 to Slurry Pond.

3.3 Kiln Systems

The lime manufacturing operations consists of pre-kiln limestone handling, solid fuel handling, three lime kilns, post-kiln lime handling, and truck and rail loadout facilities, and support activities. Process flow diagrams of the Kiln Systems are presented in Figures 4.8, 4.9, and 4.11 of Section 4.2.

The lime kilns are used to convert the crushed limestone ($CaCO_3$) into quicklime (CaO). The adjacent limestone processing operations provide crushed limestone in three separate stockpiles: the No. 1 Kiln Feed Stockpile (1" to 2" nominal size), the No. 2 Kiln Feed Stockpile (3/8" to 1" nominal size) and the No. 3 Kiln Feed Stockpile (2" to 5" nominal size). Limestone from any of these three stockpiles may be transported to any other stockpile, using a truck, front end loader or dozer. Limestone may also be received from outside suppliers. This material is normally discharged directly onto one of the existing stockpiles.

3.3.1 Rotary Kiln 1

Crushed limestone from the No. 1 Kiln Feed Stockpile is transferred to the K1 Transfer Stockpile via Belt Conveyor BC-205 (see Figure 4.8). This material is reclaimed from underneath the K1 Transfer Stockpile in the reclaim tunnel and conveyed to the Kiln 1 Preheater Screen 211 via Belt Conveyor BC-210.

The oversized material from Preheater Screen 211 goes to the Kiln 1 Stone Bin 301 and Preheater 302, and then to Kiln 1. The undersize screen material (fines) is combined with dust generated by the kiln and cyclone and placed in Dust Pod 308.

Kiln 1, manufactured by Kennedy Van Saun, is a gravity feed type kiln equipped with a stone preheater that was installed in December 1967. The kiln has the capability of being fired with natural gas, coal, petroleum coke, or any combination of these fuels. Kiln 1 has a diameter of 10 feet, a length of 150 feet, and has a daily production capacity of 200 short tons of quicklime.

Particulate emissions from the kiln are controlled with the use of a cyclone and a Rexnord gravel-bed dust collector. In case of a malfunction or emergency, the kiln bypass stack will be used as necessary. Kiln dust collected in the gravel bed modules is transported to the Dust Bucket Elevator 314 via Center Screw 311 and three drag screw conveyors (Collect Drag 310, Cross Drag 312, and Collect Drag 313). From Dust Bucket Elevator 314, the dust enters Dust Pod 315 and is then combined with dust from Dust Pod 308 and transported to Bucket Elevator BE-319 via a series of screw conveyors (SC-316, SC-317 and SC-318) and then to Dust Bin BN-320, which is controlled by Dust Collector DC-321. The dust from Dust Bin BN-320 is pugged (mixed with water in Pug Mill 323) and transported to the quarry storage areas or loaded (dry) into trucks for sale. In the rare case that the pug mill is not functioning properly, the material will be loaded directly into a truck without being pugged. The product from the kiln passes through Product Cooler 306 and then to the lime handling area via Lime Discharge Screw Conveyor 400, and belt conveyors BC-401, BC-402, and BC-403. The transfer from BC-402 to BC-403 is controlled by Dust Collector DC-403. Off-spec lime generated by the kiln is loaded into trucks and hauled to the waste lime pit in the quarry. Waste materials from the kiln, such as scale, ash ring material, refractory material, lime, stone and fused rock, are discharged directly to a haul truck or to the ground (and loaded to a truck on a timely basis) during equipment cleaning and maintenance. This material is transported to quarry storage areas.

3.3.2 Rotary Kiln 2

Kiln 2 is capable of using kiln feed from either the No. 1 Kiln Feed Stockpile or the No. 2 Kiln Feed Stockpile (see Figure 4.9). The crushed limestone from the No. 1 Kiln Feed Stockpile is conveyed to a screen via 4 conveyors (Crossover Tunnel Belt 215, Crossover Belt 216, Crossover Belt 217, and Tunnel Belt 223). The crushed limestone from the No. 2 Kiln Feed Stockpile is conveyed to Screen 224 via Tunnel Belt 223. Oversize from the screen is transferred to Stone Bin 350 via Conveyor 225. Undersize from the screen is conveyed to a stockpile via Reject Screw 226 and Reject Belt 227. From Stone Bin 350, the material is conveyed to Kiln 2 via a Weigh Belt 351. Soil containing petroleum products may also be used as kiln feed material (at a maximum rate of 2% of the total kiln feed).

Kiln 2, a gravity feed rotary kiln manufactured by Traylor, was installed in December 1970. This kiln has the capability of being fired with natural gas, coal, petroleum coke, on-specification used oil, or any combination of such fuels. The kiln has a diameter of ten feet and a length of 300 feet and has a daily capacity of 550 short tons of quicklime. The kiln is controlled by a baghouse (DC-358).

Kiln dust collected from both the kiln and the pollution control equipment is transported to Bucket Elevator 366 via four screw conveyors (Screw Conveyor 358, Screw Conveyor 359, Dust Screw Conveyor 360, and Dust Screw 365). Kiln 2 also utilizes an air/air heat exchanger that collects dust, which is transported to Dust Screw 365 via HX Screw 361 and HX Screw 363. Dust directly from Kiln 2 is also transported to Dust Screw 365 via Dust Screw 364. Dust from Bucket Elevator 366 is transferred to Kiln 2 Dust Bin 368 via Tank Screw Conveyor 367. From the dust bin, the kiln dust is pugged (mixed with water in Pug Mill 371) and transported to the quarry storage areas or loaded (dry) into trucks for sale. In the rare case that the pug mill is not functioning properly, the material will be loaded directly into a truck without being pugged.

A pneumatic dust system can also be used to pneumatically convey dust from Dust Screw Conveyor 360 to the Kiln 1 Dust Bin BN-320 (see Figure 4.8), the Kiln 3 Dust Blend System Bin (see Figure 4.11) and Bin T-410 (see Figure 4.9). The pneumatic transfer of Kiln 2 dust to the Kiln 1 Dust Bin BN-320 allows for the storage of the Kiln 2 dust in a larger bin with its own pug mill. The pneumatic transfer of Kiln 2 dust to the Kiln 3 Dust Blend System and Bin T-410 allows for the blending of kiln dust with product lime.

The product from Kiln 2 passes through Product Cooler 353 and then to Belt Conveyor BC-404 via Vibrating Feeders 353. Belt Conveyor BC-404 also receives material from Bin T-410 via Screw Conveyor 412. Material from Belt Conveyor BC-404 is then transported to the Rotary Kiln Lime Handling Area as discussed below. A baghouse (DC-404) is used to control dust from these material transfers after Product Cooler 353.

Off-spec lime generated by Kiln 2 is loaded into trucks and hauled to the waste lime pit located in the quarry. Waste materials from the kiln, such as scale, ash ring material, refractory material, lime, stone and fused rock, are discharged directly to a haul truck or to the ground (and subsequently loaded to a truck on a timely basis) during equipment cleaning and maintenance. This material is transported to the quarry storage areas. In addition to the dust collectors, water sprays are used to control emissions at the following locations of the crushing and screening plant as shown in Figure 4.9: Material transfer point from Reject Belt 227 to Stockpile and Pug Mill 371 to trucks.

3.3.3 Vertical Kiln 3

Kiln 3 is capable of using crushed limestone from the No. 1 Kiln Feed Stockpile and the No. 3 Kiln Feed Stockpile (see Figure 4.11). Crushed limestone from the No. 3 Kiln Feed Stockpile is conveyed to the Stone Screen via vibrating feeders and the Reclaim Belt. Crushed limestone from the No. 1 Kiln Feed Stockpile is conveyed to the Stone Screen via the -2" Belt shown in Figure 4.8. The Stone Screen separates out the fines which are loaded into a reject truck. The fines may also occasionally be discharged to a temporary stockpile, from which the fines are loaded into a truck with a front-end loader and hauled away on a timely basis. The screen oversize material drops into the Stone Bin. From the Stone Bin, the material is transferred to a belt conveyor via a vibrating feeder and then into a weigh hopper. From the weigh hopper, the material is then transferred into a skip hoist. The skip hoist batch transfers the material from ground level to a stone hopper on the top of Kiln 3, which feeds both shafts of the vertical kiln.

Kiln 3 is a twin shaft vertical kiln, fired with natural gas and/or oil, which was manufactured by Maerz and installed in 1979. The kiln is approximately 120 feet tall and has a production rate of 460 short tons of quicklime per day. The kiln operates in a continuous mode and utilizes kiln gases to preheat the raw feed stone. The limestone placed into the top of the kiln heats up and changes into quicklime as it travels vertically down the kiln. Lime is discharged from the shafts by internal material support tables at the bottom of the kiln. Product cooling air and combustion air are generated by positive displacement blowers.

Particulate emissions are controlled with a Ducon wet scrubber. The water stream from the wet scrubber is discharged through a discharge pipe and transfer trench into two settling ponds. Periodically, the settling ponds are dredged to remove the kiln dust sludge material, which is then loaded into a dump truck and hauled to storage areas in the quarry. In case of a malfunction or emergency, the kiln bypass stacks will be used as necessary.

3.4 Lime Handling

3.4.1 Kilns 1 and 2 Lime Handling

Lime produced in Kiln 1 and Kiln 2 is conveyed to the lime handling area by a series of diverter gates, conveyors, and crushers (see Figure 4.10). The crushers create multiple sizes of quicklime product, which is then sent to one of seven storage bins (Bin 401 thru Bin 407). A total of ten dust collectors (DC-401, DC-402, DC-406, DC-431, DC-481, DC-482, DC-483, DC-485, DC-486, and DC-487) are or will be used in this area to control emissions from the various crushers and transfer points. The sized material is loaded into trucks from the storage bins for transportation off-site. Supersacks may also be used to transport product material. Loadout to supersacks is not shown in Figure 4.10 to avoid congestion in the figure. Occasionally, lime product trucks may be overloaded. The lime from these trucks is recycled into storage bins or discharged onto the ground. Some overload lime has to be wasted and is transferred to the off-spec lime area. Lime used for lab samples is collected in barrels after sampling, which are loaded into haul trucks and taken to the off-spec lime area. The barrels are unloaded then returned to the lab for reuse.

3.4.2 Kiln 3 Lime Handling

The lime product from Kiln 3 is transferred to a roll crusher via the Product Conveyor, where it is reduced in size and then transferred via a bucket elevator to either the Large Bin or a screen (see Figure 4.11). Undersize material from the screen is transferred to the Small Bin and the oversize material is transferred to the Large Bin. From these bins, the material is loaded onto either the Truck Belt or the Rail Belt and then loaded to trucks or railcars for delivery to customers. Emissions in the product handling area of Kiln 3 are controlled with six dust collectors (DC-779, DC-850, DC-851, DC-852, DC-853, and DC-854). Supersacks may also be used to transport product material. Loadout to supersacks is not shown in Figure 4.11 to avoid congestion in the figure. Off-spec lime from Kiln 3 is loaded into haul trucks and transported to the waste lime area. Waste materials from the kiln, such as scale, ash ring material, refractory material, lime, stone and fused rock, are discharged directly to a haul truck or to the ground (to be loaded to a truck on a timely basis) during equipment cleaning and maintenance. This material is transported to the quarry storage areas.

3.5 Solid Fuel Handling

Solid fuel, consisting of both coal and petroleum coke, is used in Kilns 1 and 2 only (see Figure 4.12). Solid fuels received by commercial trucks are unloaded to either the Lower Stockpiles (2), located north of the office, or to the Plaza Stockpiles (2), located northwest of the kilns. Fuel from the Lower Stockpiles is also transferred to the Plaza Stockpiles via front end loaders and haul trucks. The coal is then loaded into Coal Hopper 503-1 and coke into Coke Hopper 503-2 via front end loaders. The fuel from each hopper is then conveyed via weigh feeders to, and mixed in, Crusher 506. Coal and coke are also mixed and placed in the Mixed Stockpile via front end loaders during hopper malfunctions. Under these conditions, coal/coke mixture from the Mixed Stockpile is loaded into either Coal Hopper 503-1 or Coke Hopper 503-2 via front end loaders.

From Crusher 506, the fuel is conveyed to Solid Fuel Bin 508 feeding Kiln 1 and Solid Fuel Bin 515 feeding Kiln 2 via Solid Fuel Belt 507. From the solid fuel bins, the fuel is sent via Weigh Belts 509 and 516 to Solid Fuel Mills 510 and 517, respectively where the fuel is reduced in size, then blown pneumatically into the kiln burner pipes. Oversize material from the solid fuel mills is rejected to wheelbarrows, which are then loaded to a stockpile. This material is either reclaimed or sent to the quarry storage areas.

3.6 Alternate Operating Scenarios

Lhoist proposes to retain the Alternate Operating Scenarios (AOS) contained in Permit No. 81660 as part of this renewal application. These are further described below.

3.6.1 AOS-1

Under Alternate Operating Scenario 1 (AOS-1), Lhoist will suspend quarry, crushing and kiln operations due to insufficient demand for lime. All process equipment not in operation will be maintained in good operating order, which will require periodic, temporary operation to perform maintenance. This maintenance will involve mechanical operation of the equipment without any process material.

The lime handling systems for Kilns 1, 2, and 3 will be used as a transfer terminal under AOS-1. Process rates for the lime handling will be 400 tons per day and 50,000 tons per year. Lime will be received and shipped via 25-ton capacity trucks. All truck traffic will be on paved roads except for an unpaved 50-foot-long section leading to the Kiln 3 lime storage silos. Other vehicular traffic will consist of security personnel patrolling the plant 8 to 12 times per day and maintenance personnel occasionally traveling to various locations within the plant. The U.S. Border Patrol and state ADEQ personnel may also use plant roadways.

All applicable monitoring and recordkeeping requirements listed in Table 7.1 of this application will be suspended during AOS-1 except those which apply to the lime handling systems for Kilns 1, 2 and 3.

3.6.2 AOS-2

AOS-2 corresponds to AOS-1 without any lime handling operations. Under AOS-2, all daily operations at the quarry and lime plant will be in "Care and Maintenance" mode. During this operating scenario, all equipment will be maintained in good operating order which will require periodic, temporary operation to perform maintenance. This maintenance will involve mechanical operation of the equipment, but without any process material.

Mobile traffic will consist of security personnel patrolling the plant site 8 to 12 times per day and maintenance personnel occasionally traveling to various locations within the plant. The U.S. Border Patrol and state ADEQ personnel may also use plant roadways.

All applicable monitoring and recordkeeping requirements listed in Table 7.1 of this application will be suspended during AOS-2. The Douglas site has been operating under AOS-2 for several years and continues to operate under AOS-2 at the time of this permit renewal application.

3.6.3 AOS-3

AOS-3 entails the startup and operation of one or more process areas after implementation of AOS-1 or AOS-2. For any given process area that is brought into operation, Lhoist will implement all applicable monitoring and recordkeeping as required in Table 7.1 of this application.

4. SITE AND PROCESS FLOW DIAGRAMS

4.1 Site Diagrams

Site diagrams for the Douglas Lime Plant are presented in Figures 4.1 to 4.6. The subject matter of each diagram is described in Table 4-1.

Table 4-1. Subject Matter of Process Flow Diagrams

Figure Number	Subject Matter
4.1	Arizona map with location of the Douglas Lime Plant
4.2	Photo of the Gomez and Francisco pits and the kiln area at the Douglas Lime Plant
4.3	Plan view of the crushing and screening operations
4.4	Plan view of the Kiln 1 and 2 major equipment
4.5	Plan view of the Kiln 3 major equipment
4.6	Paved roadway sections at the Douglas Lime Plant

Figure 4-1. Arizona map showing location of the Douglas Lime Plant.

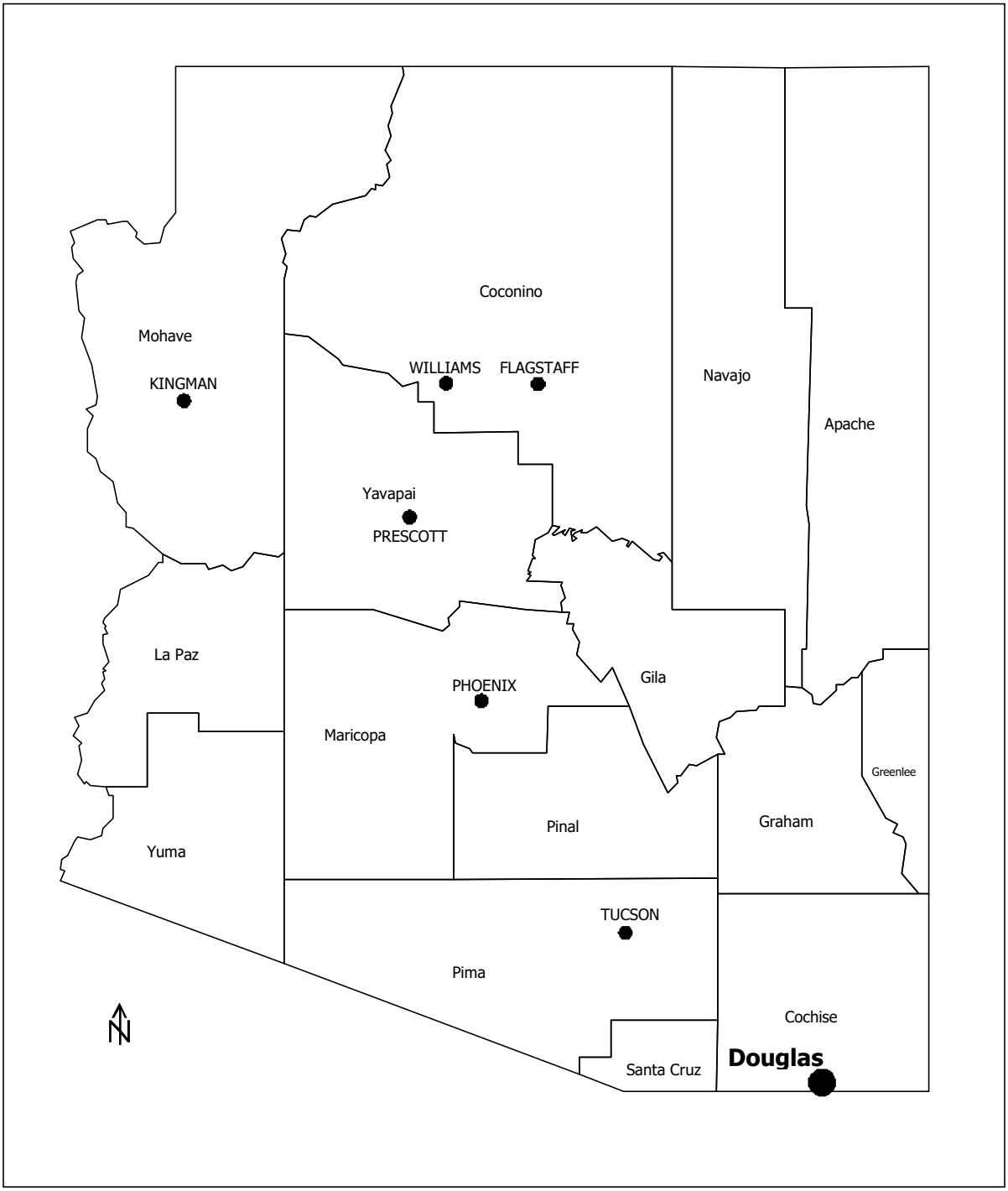


Figure 4-2. Aerial photograph showing the Gomez and Francisco pits and kiln area at the Douglas Lime Plant.

Figure 4-3. Plan view of the crushing and screening plant.

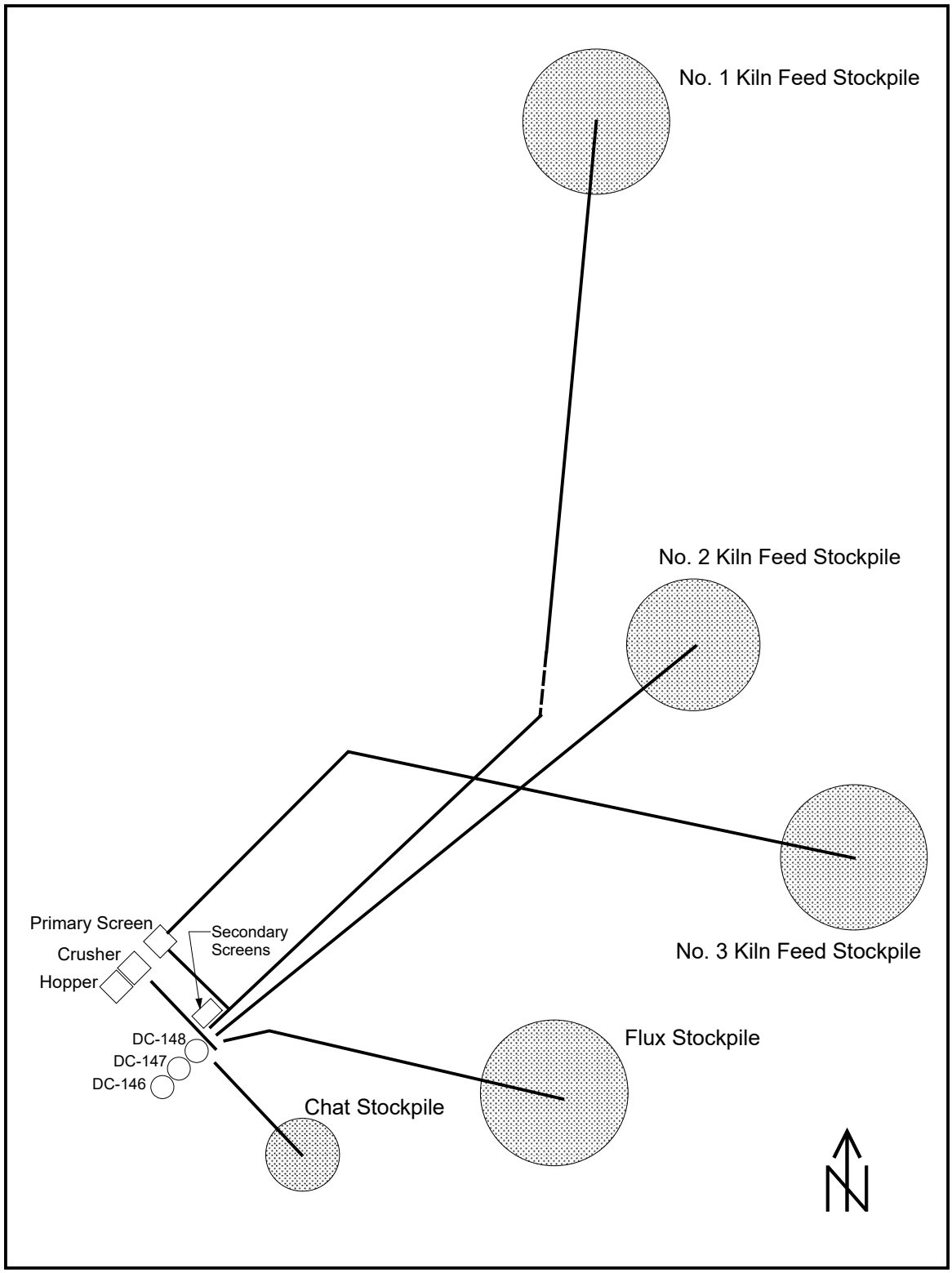


Figure 4-4. Plan view showing locations of major equipment in the Kiln 1 and Kiln 2 area.

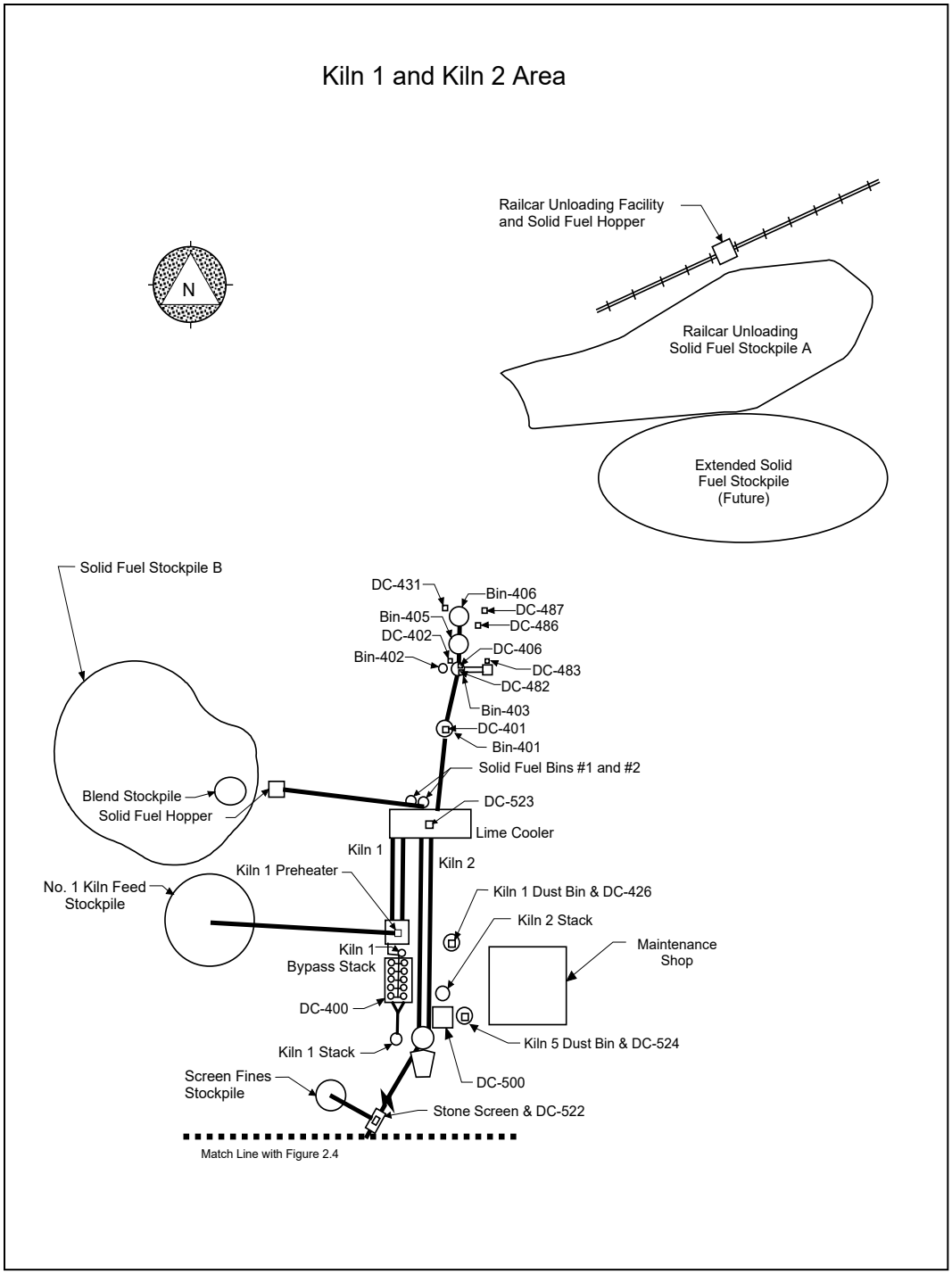


Figure 4-5. Plan view showing locations of major equipment in the Kiln 3 area

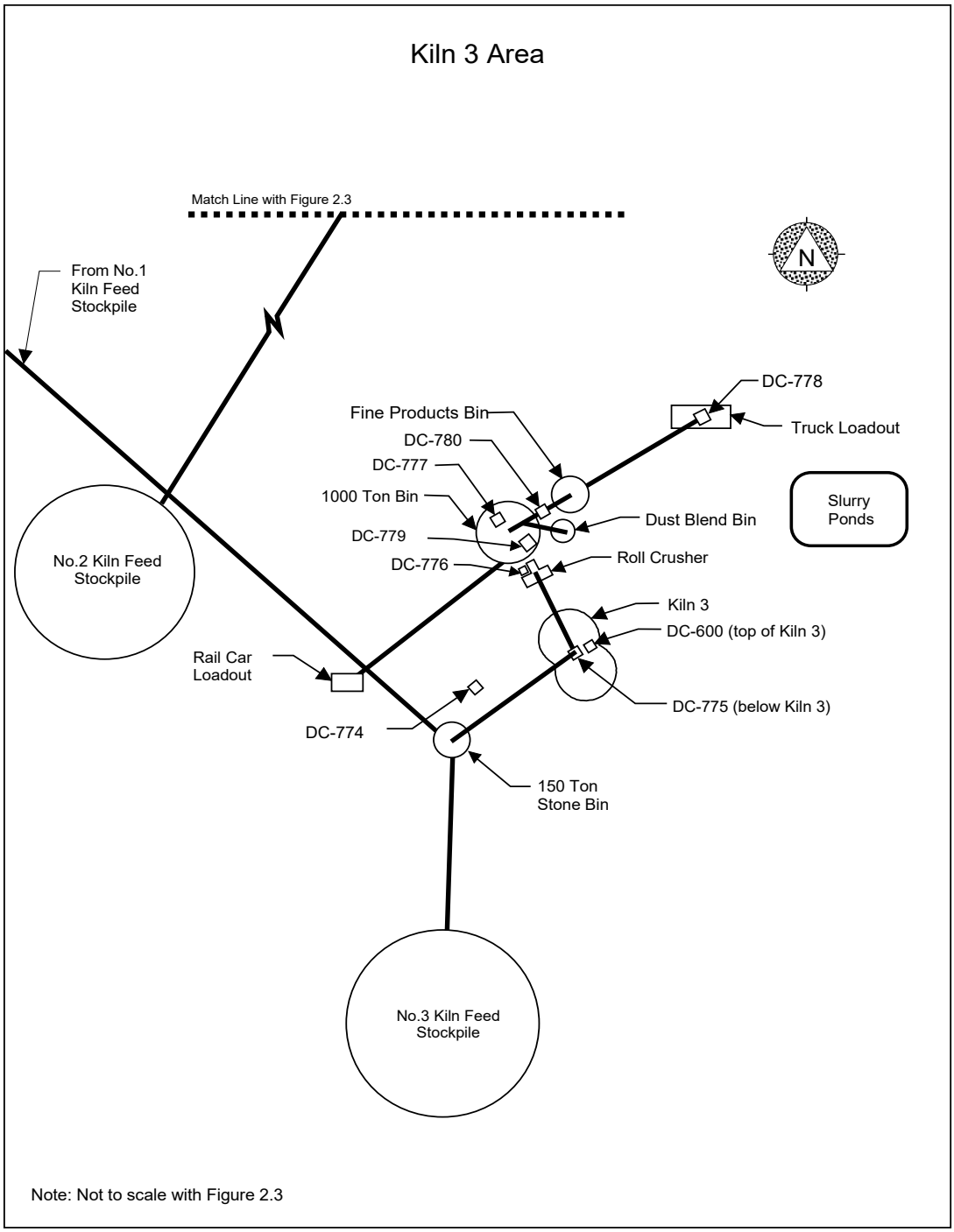
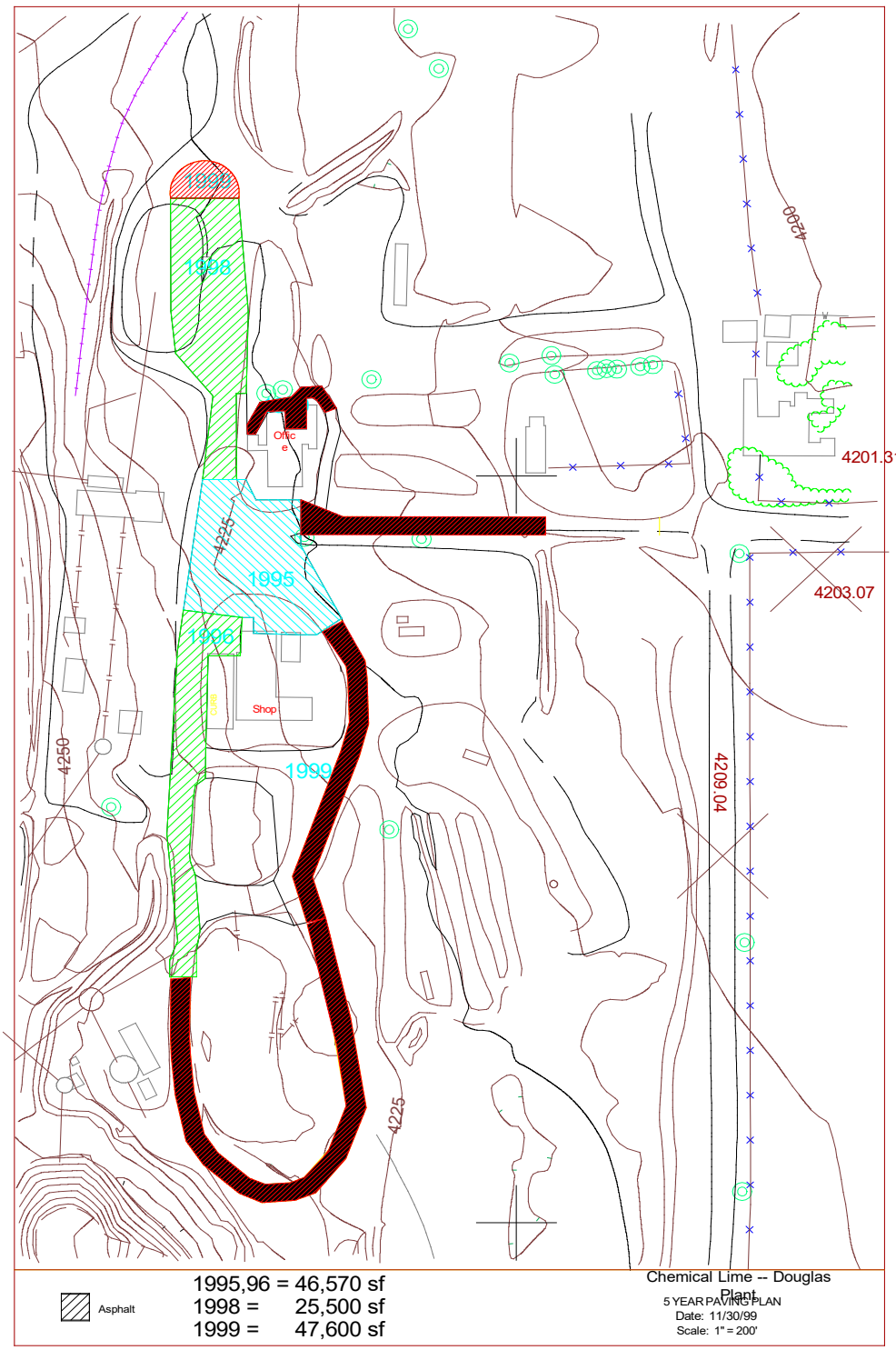


Figure 4-6. Paved sections of the roadways at the Douglas Lime Plant



4.2 Process Flow Diagrams

Process flow diagrams for the Douglas Lime Plant are presented in Figures 4.7 to 4.12. The subject matter of each diagram is described in Table 4.2.

Table 4-2. Subject Matter of Process Flow Diagrams

Figure Number	Subject Matter
4.7	Crushing and Screening Plant
4.8	Kiln 1 Operations
4.9	Kiln 2 Operations
4.10	Kiln 1 and Kiln 2 Lime Handling
4.11	Kiln 3 Operations, Including Lime Handling
4.12	Solid Fuel Handling System

Figure 4-7. Process flow diagram of the crushing and screening plant

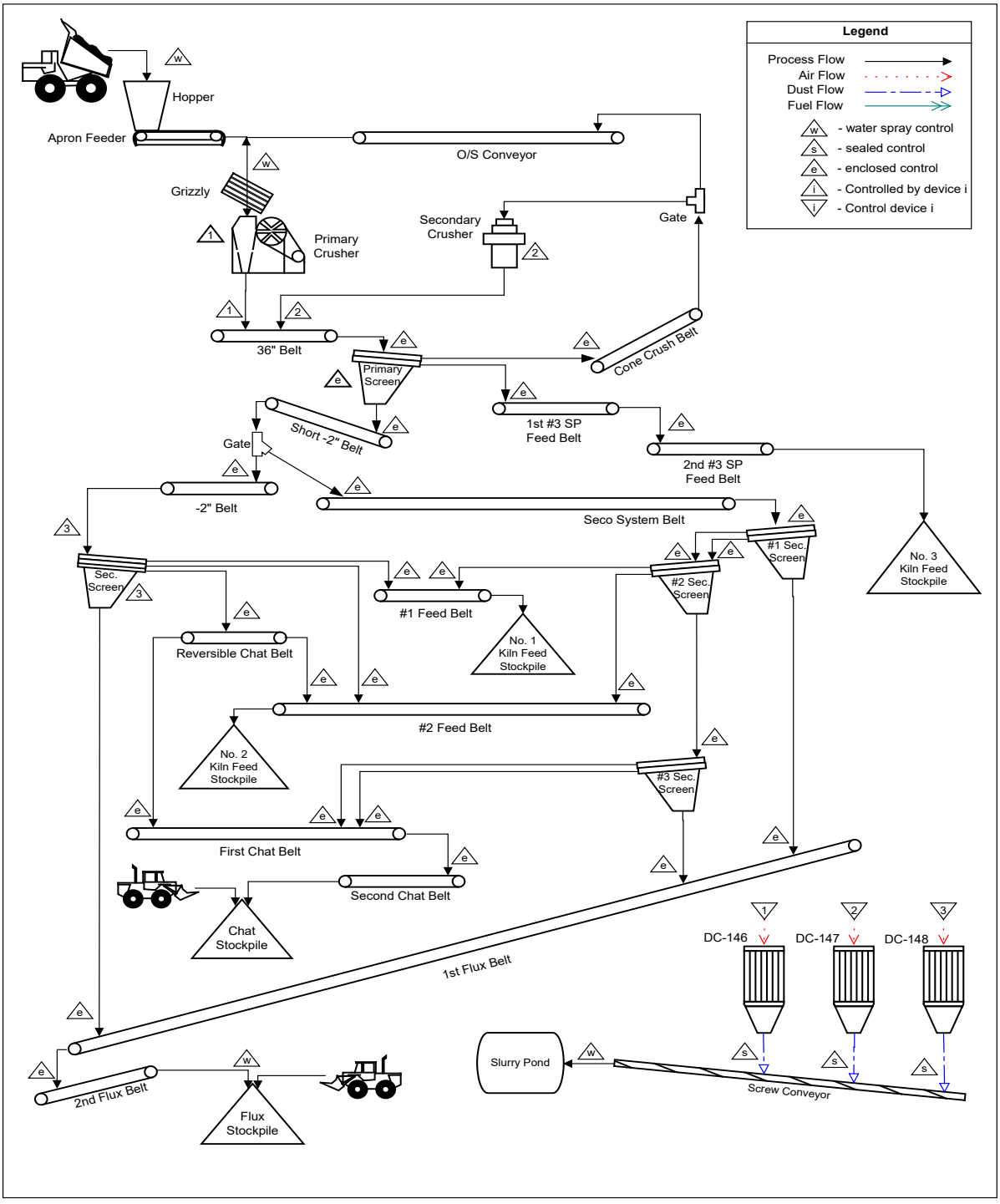


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Figure 4-8. Process flow diagram of Kiln 1 operations.

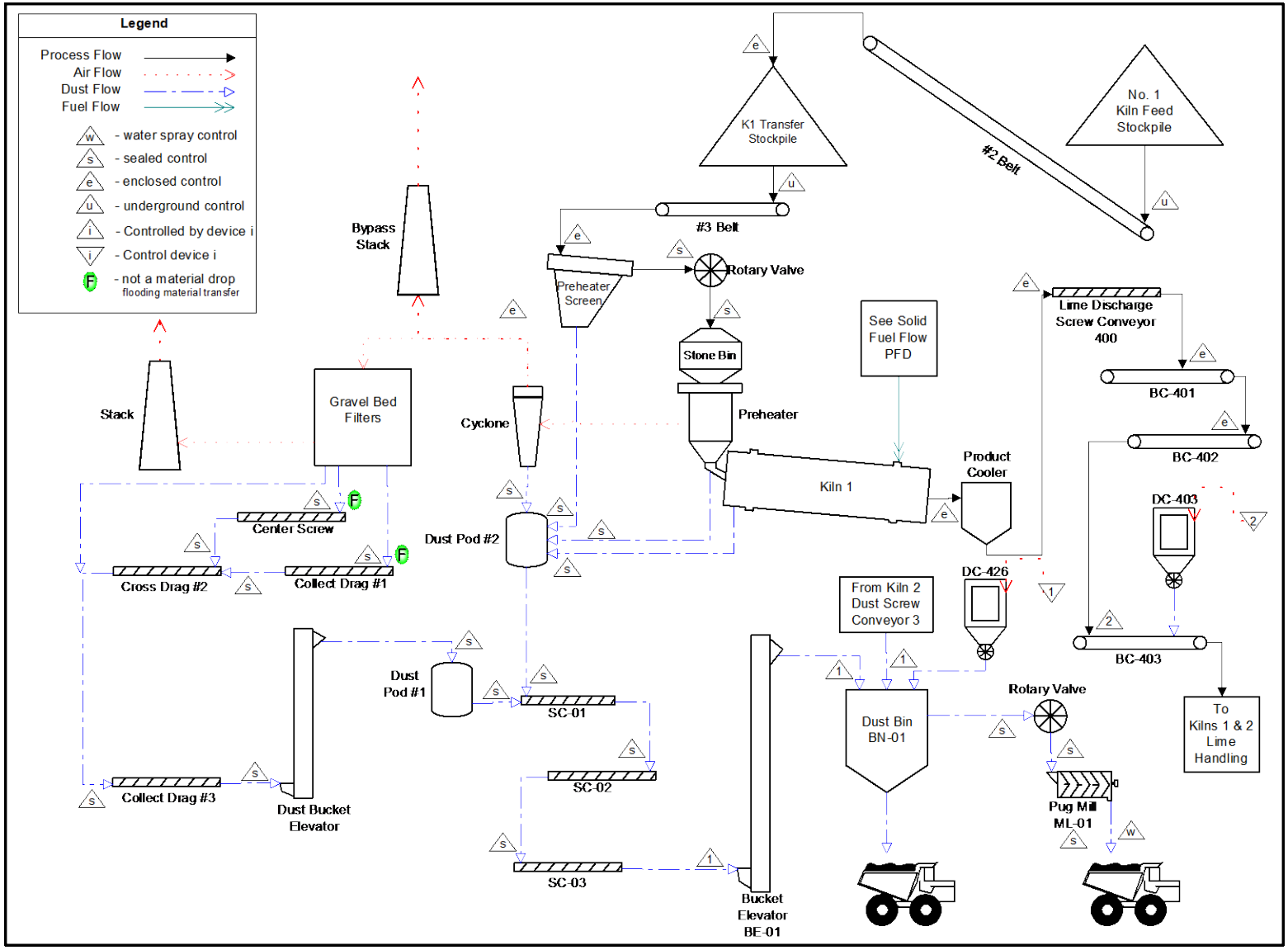


Figure 4-9. Process flow diagram of Kiln 2 operations.

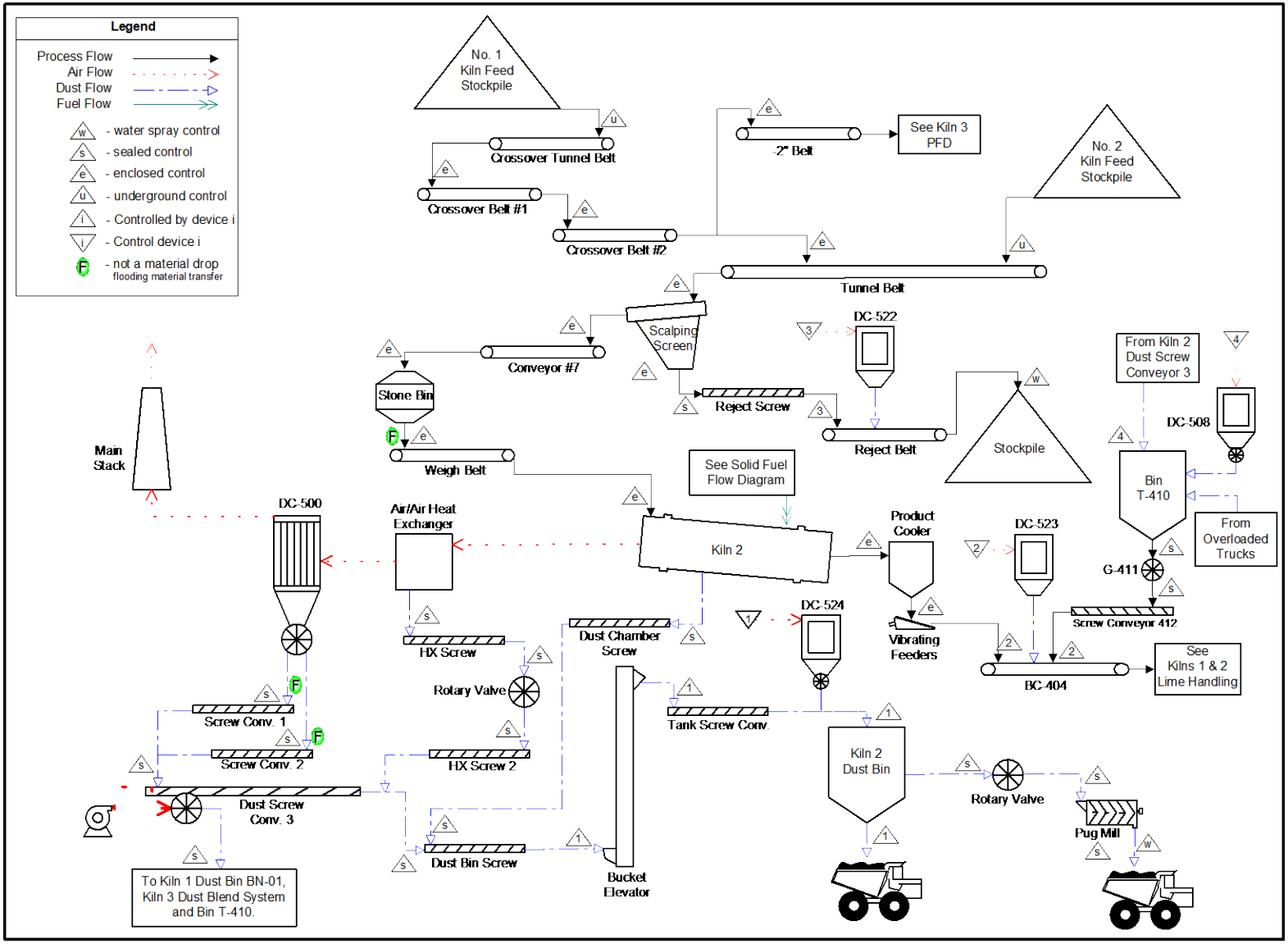


Figure 4-10. Process flow diagram of Kiln 1 and Kiln 2 lime handling operations.

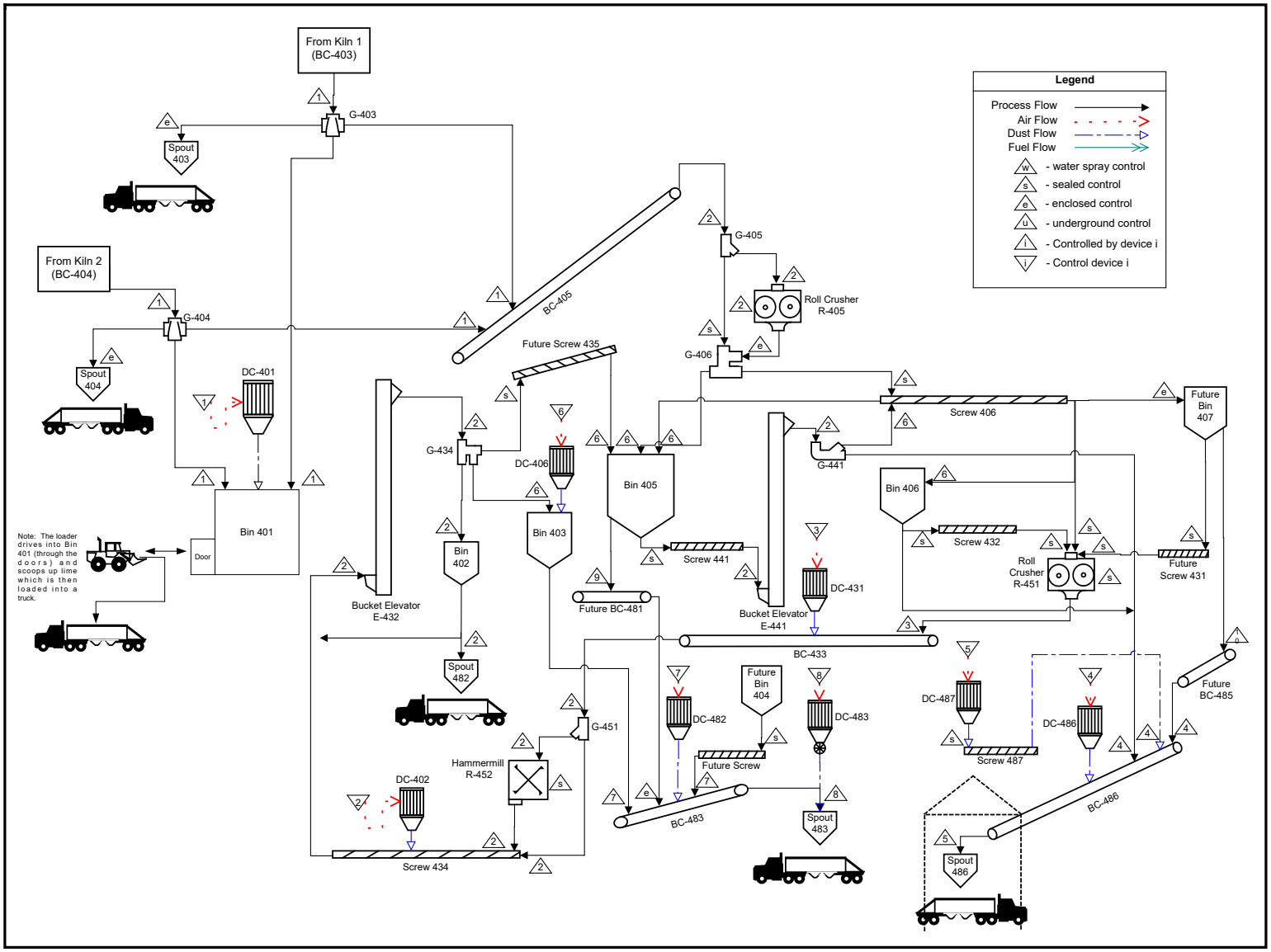


Figure 4-11. Process flow diagram of Kiln 3 operations, including lime handling.

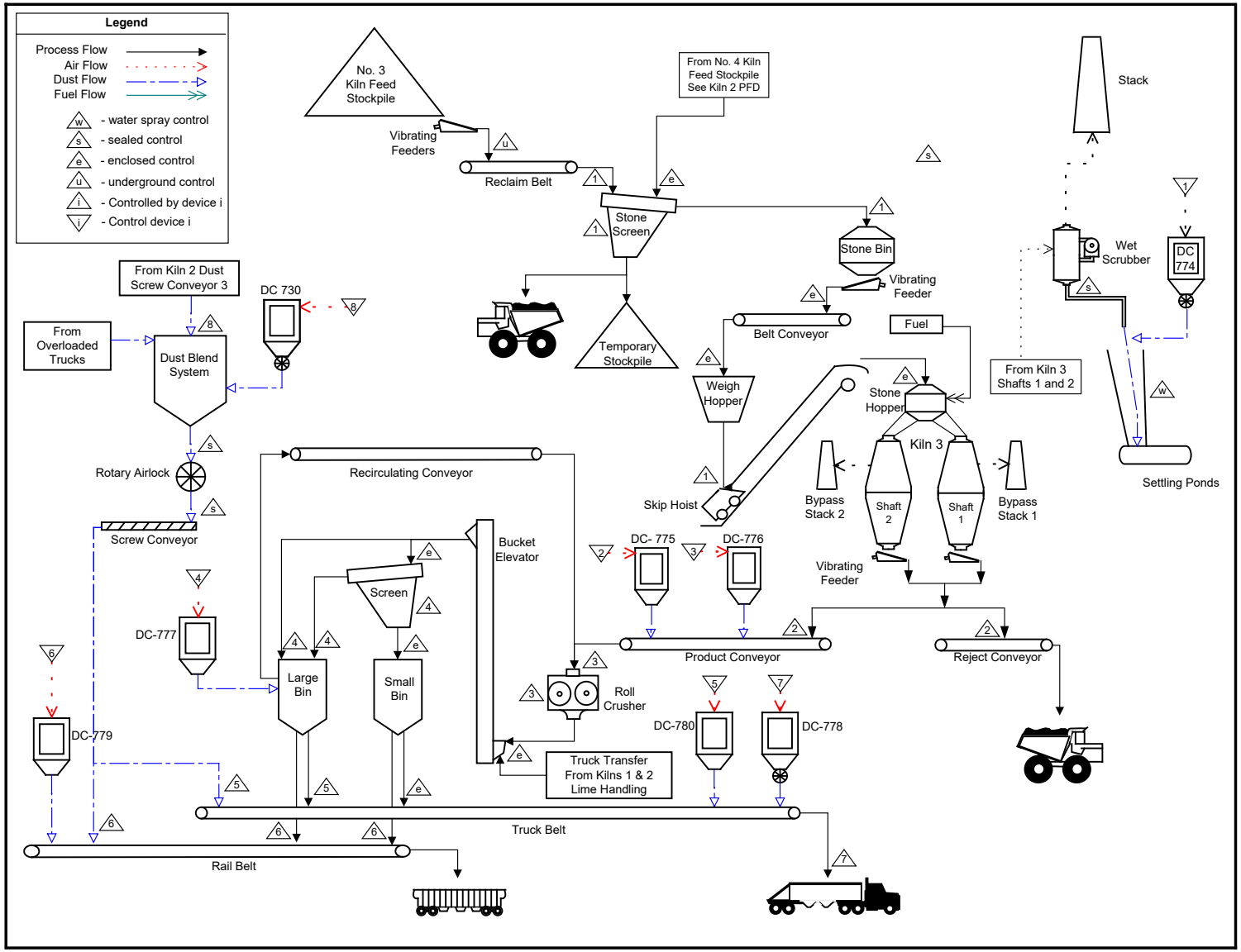
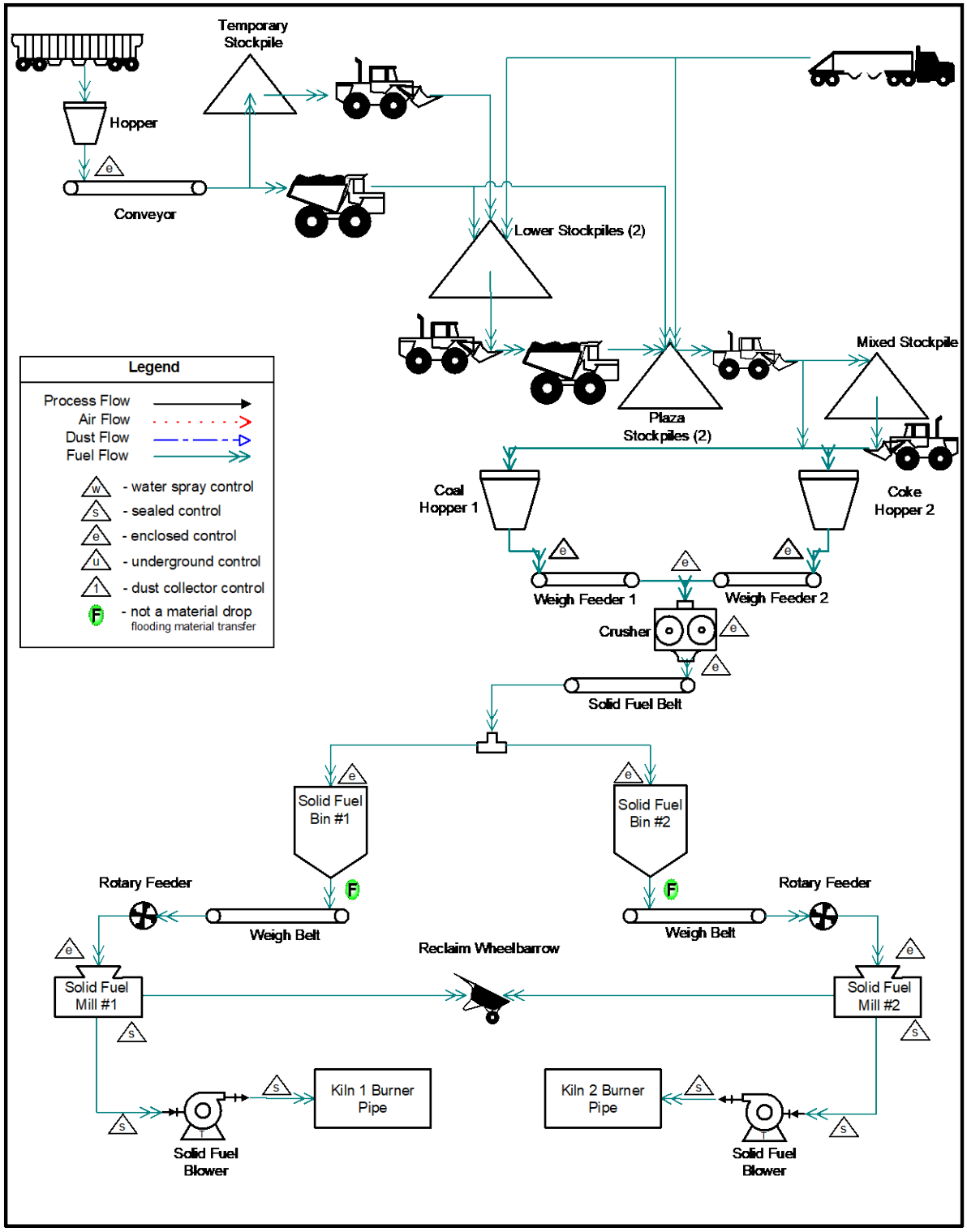


Figure 4-12. Process flow diagram of the Solid Fuel Handling System



5. PERMIT PROCESSING FEES

The Douglas Lime Plant understands that the total permit renewal processing fee is based on the total actual time spent by ADEQ processing the renewal application. Upon completion of the permit renewal review, ADEQ will send the Douglas Lime Plant a final bill for the processing fee, which will be paid by the Douglas Lime Plant in a timely manner.

6. EMISSIONS CALCULATION METHODOLOGY

The methodology used to calculate the potential emission rates presented in Appendix B of this application is explained in the following sections. The emission rates are calculated using maximum process rates, applicable control efficiencies, and emission factors from: (a) applicable emission standards; (b) voluntarily accepted emission limits; (c) the *Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources,* Fifth Edition (AP-42), U.S. EPA; (d) reference documents, and (e) manufacturer information. This Section describes the methodology used to calculate PM, PM_{10}, and $PM_{2.5}$ emissions. Section 6.2 describes the methodology used to calculate CO, NO_X, SO_2, VOC, H_2SO_4, CO_2, CH_4, N_2O, and CO_2e emissions. Section 6.3 describes the methodology used to calculate HAP emissions.

Table 6-1. Douglas Lime Plant PTE Summary

Regulated Air Pollutant	Non-Fugitive Emissions	Fugitive Emissions	PTE
	tons/year		
PM	371	1,563	1,934
PM_{10}	301	533	834
$PM_{2.5}$	258	57	315
CO	259	16	275
NO_X	456	0.73	456
SO_2	4,421	1.45E-03	4,421
VOC	11	0.00	11
Greatest Single HAP (HCl)	8	0.00	8
CO_2e	251,697	152	251,850
Total HAPs	16	0.01	16

The emission calculation methodologies used for all sources represented in the permit remain unchanged since the last permit renewal application, submitted in 2020.

6.1 Particulate Matter Emissions

6.1.1 DRILLING

6.1.1.1 Process Rates

The hourly process rate for drilling is based on the maximum number of holes drilled per hour (4.1 holes/hour). The annual process rate for drilling is calculated based on the average number drill holes per blast (40 holes/ blast) and the annual number of blasts per year (see Appendix B Table B.4) resulting in annual drilling process rate of 13,582 holes/year.

6.1.1.2 Emission Factors

Uncontrolled PM emissions from drilling are calculated using the emission factor of 1.3 lb/hole, from AP-42, Table 11.9-4 (10/98) for total suspended particulates (TSP) from drilling of overburden at western surface coal mines. The TSP emission factor is assumed to be applicable for PM, PM_{10} and $PM_{2.5}$ emissions from drilling are not listed in Table 11.9-4. Uncontrolled PM_{10} emissions are assumed to be equal to 44% of PM emissions based on the ratio of PM_{10} to PM emission factors for tertiary crushing in AP-42, Table 11.19.2-2 (08/04). Uncontrolled $PM_{2.5}$ emissions are estimated to be 8.3% of PM emissions based on the ratio of $PM_{2.5}$ to PM emission factors for tertiary crushing (controlled) in AP-42, Table 11.19.2-2(08/04). This is a higher than actual value because pollution control methods have a lower efficiency for smaller size particulates.

6.1.1.3 Capture/Control Efficiencies

Potential fugitive PM, PM_{10}, and $PM_{2.5}$ emissions from drilling may be controlled by the addition of water and by shrouds on an as-needed basis in order to inhibit the escape of particulate emissions from the top of the hole during the drilling process.

6.1.2 BLASTING

6.1.2.1 Process Rates

The annual and hourly process rates for blasting are based on the maximum number of blasts that can be performed on an annual and hourly basis with respect to the average and maximum horizontal blast area, respectively. Lhoist anticipates a maximum of 340 blasts occurring per year at the average blast area and one (1) blast occurring per hour at the maximum blast area.

6.1.2.2 Emission Factors

Uncontrolled PM, PM_{10}, and $PM_{2.5}$ emissions from blasting are calculated using the following emission factor equation from AP-42, Table 11.9-1 (10/98) for blasting at western surface coal mines:

$$EF = k\,(0.000014)(A)^{1.5}$$

where:

- EF = emission factor (lb/blast);
- k = particle size multiplier (1 for TSP, assumed to be equivalent to PM, 0.52 for PM_{10}, 0.03 for $PM_{2.5}$); and
- A = horizontal area of the blast (4,000 ft^2 average and 6,400 ft^2 maximum).

6.1.2.3 Capture/Control Efficiencies

Besides good operating practices, other pollution control methods cannot be implemented during blasting.

6.1.3 VEHICLE TRAVEL

6.1.3.1 Process Rates

At the Lhoist Lime Plant, there are two categories of vehicles which travel on unpaved and paved roads: (a) contractor vehicles and (b) company-owned vehicles. The annual and hourly process rate for vehicle use on unpaved and paved roads is calculated by summing the annual and hourly amount of VMT for each type of vehicle (see Table 6.2).

6.1.3.2 Emission Factors

Vehicle Travel on Unpaved Road

Uncontrolled PM, PM_{10}, and $PM_{2.5}$ emissions from vehicle travel on unpaved roads are calculated using the following equations from AP-42, Section 13.2.2 (11/06):

$$EF_h = k\left(\frac{s}{12}\right)^a\left(\frac{W}{3}\right)^b$$

$$EF_a = k\left(\frac{s}{12}\right)^a\left(\frac{W}{3}\right)^b\left(\frac{(365-p)}{365}\right)$$

where:

- EF_h = hourly emission factor (lb/VMT);
- EF_a = annual emission factor (lb/VMT);
- k = particle size multiplier (4.9 for PM, 1.5 for PM_{10}, 0.15 for $PM_{2.5}$);
- a = constant (0.7 for PM, 0.9 for PM_{10} and $PM_{2.5}$);
- b = constant (0.45 for PM, PM_{10}, and $PM_{2.5}$);
- s = surface material silt content (12.3% for the unpaved roads at the Douglas Lime Plant)
- W = mean weight of the vehicles traveling the unpaved roads [39.48 (see Table B.2.1)]; and
- p = number of days per year with precipitation greater than 0.01 inch (60 for the Douglas Lime Plant).

Vehicle Travel on Paved Road

Uncontrolled PM, PM_{10}, and $PM_{2.5}$ emissions from vehicle travel on paved roads are calculated using the following equations from AP-42, Section 13.2.1 (1/11):

$$EF_h = k(sL)^{0.91}(W)^{1.02}$$

$$EF_a = k(sL)^{0.91}(W)^{1.02}\left(\frac{(365-p)}{365}\right)$$

where:

- EF_h = hourly emission factor (lbs/VMT)
- EF_a = annual emission factor (lbs/VMT)
- k = particle size multiplier (0.016 for PM_{10})
- sL = road surface silt loading (70 g/m^2 from AP-42, Section 13.2.1, Table 13.2.1-4, sand and gravel processing)
- W = mean vehicle weight of fleet (2.0 tons)
- p = number of days with precipitation greater than 0.01 inches (60 for the Douglas Lime Plant)

6.1.3.3 Capture/Control Efficiencies

Emissions of PM, PM_{10}, and $PM_{2.5}$ resulting from vehicle travel on unpaved roads are controlled by the application of water and/or magnesium chloride to the road surface. It is assumed that watering of unpaved roads results in a control efficiency of 60%. This control efficiency is consistent with the PTE calculations submitted in the 2020 renewal application.

Table 6-2. Annual Vehicle Total VMT with Weighted Average

ID	Equipment Description	Mean Vehicle Weight (tons)	VMT Traveled (total)		Weight * VMT (VMT*tons)	
			Unpaved Road Travel	Paved Road Travel	Unpaved (tons)	Paved (tons)
Contractor Equipment						
V1	65 Ton Haul Trucks (5 total)	79.45	29,250	0	2,323,913	0
V2	11 yd loader (2 total)	81.00	4,290	0	347,490	0
V3	7.5 yd loader (1 total)	30.00	2,080	0	62,400	0
V4	Bulk Explosives Truck	17.50	390	0	6,825	0
V5	Blast Hole Drill	32.50	130	0	4,225	0
V6	Fuel/Lube Truck	17.50	975	0	17,063	0
V7	Water Truck	54.40	6,500	0	353,600	0
V8	Pickup Truck (3 total)	2.75	7,020	4,680	19,305	12,870
Chemical Lime Vehicles						
V9	Compressor	7.70	1,460	0	11,242	0
V10	Drill & Compressor	32.50	1,460	0	47,450	0
V11	Loader	53.00	3,011	0	159,583	0
V12	Loader	54.25	12,045	0	653,441	0
V13	Loader	34.20	11,680	0	399,456	0
V14	60 Ton Haul Trucks (3 total)	75.95	151,110	0	11,476,805	0
V15	Blasting Agent Truck	17.50	2,190	0	38,325	0
V16	Pickup Truck	2.63	13,140	8,760	34,558	23,039
V17	Powder Truck	4.75	21,900	0	104,025	0
V18	Water Truck	10.90	7,300	0	79,570	0
V19	Water Truck	10.90	29,200	0	318,280	0
V20	Water Truck	46.00	29,200	0	1,343,200	0
V21	Lube Truck	11.60	3,650	0	42,340	0
V22	Forklift	8.80	219	146	1,927	1,285
V23	Grove Crane	30.80	365	0	11,242	0
V24	Vacuum Truck	23.00	1,825	0	41,975	0
V25	Welder Miller Trailer	1.00	1,825	0	1,825	0
V26	Welding Truck	3.00	1,825	0	5,475	0

ID	Equipment Description	Mean Vehicle Weight (tons)	VMT Traveled (total)		Weight * VMT (VMT*tons)	
			Unpaved Road Travel	Paved Road Travel	Unpaved (tons)	Paved (tons)
V27	Flatbed Truck	3.00	1,095	730	3,285	2,190
V28	Boom Truck	8.80	365	0	3,212	0
V29	1/2-ton P/U	2.60	1,095	730	2,847	1,898
V30	Pickup	2.60	1,095	730	2,847	1,898
V31	Passenger Vehicle	1.80	219	146	394	263
V32	Passenger Vehicle	2.60	1,095	730	2,847	1,898
V33	Loader	8.00	2,190	1,460	17,520	11,680
V34	Loader	2.55	1,825	0	4,654	0
V35	Dump Truck	29.00	876	584	25,404	16,936
V36	Dump Truck	51.90	9,125	0	473,588	0
V37	Dump Truck	51.90	9,125	0	473,588	0
V38	Water Truck	10.90	7,300	0	79,570	0
V39	Water Truck	10.90	18,250	0	198,925	0
V40	Water Truck	46.00	18,250	0	839,500	0
V41	Lube Truck	11.60	3,650	0	42,340	0
V42	Forklift	8.80	219	146	1,927	1,285
V43	Grove Crane	30.80	365	0	11,242	0
V44	Vacuum Truck	28.25	1,095	730	30,934	20,623
V45	Welder Trailer	1.00	1,825	0	1,825	0
V46	Silotek Truck	20.00	1,825	0	36,500	0
V47	Welding Truck	3.00	1,825	0	5,475	0
V48	Flatbed Truck	3.00	1,095	730	3,285	2,190
V49	Boom Truck	8.80	365	0	3,212	0
V50	1/2-ton P/U	2.60	1,095	730	2,847	1,898
V51	Pickup	2.60	1,095	730	2,847	1,898
V52	3/4-ton Pickup	2.60	1,095	730	2,847	1,898
V53	Pickup	2.60	1,095	730	2,847	1,898
V54	Pickup	2.60	1,095	730	2,847	1,898
V55	Plant Sweeper	4.50	1,752	1,168	7,884	5,256
	Total:	1,109	435,436	25,120	20,192,578	112,800

6.1.4 POLLUTION CONTROL DEVICES

6.1.4.1 Process Rates

The annual and hourly process rates for the pollution control devices with emission limits are based on the hours of operation and/or the exhaust flow rate of the device. The pollution control devices are assumed to operate at maximum capacity and continuous operation even if the processes being controlled are operating at less than maximum capacity.

6.1.4.2 Emission Factors

PM emissions from the pollution control devices are based on maximum outlet grain loading assumed for the baghouses. PM_{10} and $PM_{2.5}$ emissions are assumed to equal PM emissions as a worst-case emission estimate. Emissions for the Kiln 2 stone screen (DC 228) and the Kiln 2 lime cooler (DC-404) were calculated assuming a maximum outlet grain loading of 0.01 grains/ACF (actual cubic feet air flow), as follows:

$$EF\left(\frac{lb}{hr}\right) = 0.01\left(\frac{grains}{acf}\right) * \left(\frac{ACF}{min}\right) * 60\left(\frac{min}{hr}\right) * \frac{1}{7000}\left(\frac{lb}{grain}\right)$$

Therefore, for the 1000 ACFM baghouse, the emission factor is calculated as follows:

$$EF\left(\frac{lb}{hr}\right) = 0.01\left(\frac{grains}{acf}\right) * 1{,}000\left(\frac{ACF}{min}\right) * 60\left(\frac{min}{hr}\right) * \frac{1}{7000}\left(\frac{lb}{grain}\right) = 0.09\ lb/hr$$

Emissions for all other baghouses were calculated assuming a maximum outlet grain loading of 0.05 grains/ACF. The emission factor for a 1000 ACF baghouse is calculated as follows:

$$EF\left(\frac{lb}{hr}\right) = 0.05\left(\frac{grains}{acf}\right) * 1{,}000\left(\frac{ACF}{min}\right) * 60\left(\frac{min}{hr}\right) * \frac{1}{7000}\left(\frac{lb}{grain}\right) = 0.43\ lb/hr$$

6.1.4.3 Capture/Control Efficiencies

Besides good operating practices, additional pollution control methods are not implemented on the pollution control devices with emission limits.

6.1.5 CRUSHING, SCREENING, MATERIAL TRANSFER, AND LOADOUT

6.1.5.1 Process Rates

The maximum hourly and annual process rates for operations at the Douglas Lime Plant are presented in Table 6.3. The maximum hourly and annual process rates for maintenance activities at the Douglas Lime Plant are presented in Table 6.4.

Table 6-3. Summary of Maximum Hourly and Annual Process Rates For the Douglas Lime Plant

Process	Maximum Process Rates (tons)	
	Hourly	Annual
Quarry		
Crushing and Screening Plant Feed Material	425	1,141,000
Overburden/Waste Rock	--	2,825,000
Kiln Dust	12.5	45,000
Off-spec Lime from Lime Manufacturing	25	7,000
Off-spec Limestone from Stockpiles	500	10,000
Crushing and Screening Plant		
Primary (Jaw) Crusher	425	1,141,000
Primary Screen	425	1,141,000
Secondary (Cone) Crusher	300	343,300
Secondary Screen	300	798,700
#1 Secondary Screen	300	798,700
#2 Secondary Screen	300	627,550
#3 Secondary Screen	300	228,200
Kiln Area		
Kiln 1 Stone Belts	100	171,765
Kiln 1 Preheater Screen (Stone)	16.67*	171,765
Preheater Screen Undersize	15	25,765
Kiln 1 (Lime)	8.33 *	73,000
Kiln 1 Dust Handling System	1.0*	8,760
Kiln 2 Stone Belts	100	449,470
Kiln 2 Screen	100	446,470
Screen Undersize	15	66,971
Kiln 2 (Lime)	22.92 *	189,750
Kiln 2 Dust Handling System	2.29 *	18,900
Kiln 3 Stone Belts	100	332,000
Kiln 3 Stone Screen	38.34 *	332,000
Stone Screen Undersize	15	58,588
Kiln 3 (Lime)	19.2 *	166,000
Kiln 3 Dust Handling System	2.3	19,920
Kiln 1 and Kiln 2 Lime Storage and Truck Loadout		
Roll Crusher R-405	50	262,750
Roll Crusher 451	50	438,000
Hammermill 452	50	438,000
Kiln 6 Lime Storage and Truck Loadout		
Lime Crusher	50	166,000
Lime Screen	19.2	166,000
Solid Fuel Handling		
Solid Fuel Crusher	50	175,985
Solid Fuel Mill #1	6.13	53,700
Solid Fuel Mill #2	10.22	89,500
Solid Fuel Mills Reject Material	1	450

Process	Maximum Process Rates (tons)	
	Hourly	Annual
* These hourly rates represent average values based on the daily process rate for these processes. Actual hourly rates may be greater than these values.		

Table 6-4. Summary of Maximum Hourly and Annual Maintenance Activities

Process	Maximum Process Rates (tons)	
	Hourly	Annual
Coal/Coke Spillage	125	400
Lime Conveyor Material Spillage	125	500
Kiln 1 Preheater Material Spillage	50	250
Kiln 2 Stone Bin Material Spillage	50	250
Kiln 1 Screen Fines Material Spillage	15	250
Kiln 2 Screen Fines Material Spillage	15	250
Kiln 3 Screen Fines Material Spillage	15	400
Kiln 1 Refractory	100	600
Kiln 1 Ash Ring, Scale	5	750
Kiln 1 Off-Spec Lime	100	1500
Kiln 2 Refractory	100	600
Kiln 2 Ash Ring, Scale	5	750
Kiln 2 Off-Spec Lime	100	4,000
Kiln 3 Refractory	100	800
Kiln 3 Off-Spec Lime	100	3,000
Stone Belt Material	100	500

6.1.5.2 Emission Factors

6.1.5.2.1 Crushers

Uncontrolled emissions of PM and PM_{10} from crushing limestone ore are calculated using emission factors of 0.054 lb/ton and 0.0024 lb/ton, respectively, for both primary and secondary crushing from AP-42, Section 11.19.2, Table 11.19.2-2 (08/04) for tertiary crushing. Uncontrolled $PM_{2.5}$ emissions are estimated to be 8.3% of PM emissions based on the ratio of $PM_{2.5}$ to PM controlled emissions for tertiary crushing in AP-42, Table 11.19.2-2 (08/04). Although Table 11.19.2-2 does not present emission factors for primary or secondary crushing, footnote "n" states that the tertiary crushing emission factors can be used as an upper limit for these operations.

Uncontrolled emissions of PM and PM_{10} from crushing quicklime are calculated using emission factors of 0.039 lb/ton and 0.015 lbs/ton, respectively, from AP-42, Section 11.19.2, Table 11.19.2-2 (08/04) for fines crushing. Uncontrolled $PM_{2.5}$ emissions are estimated to be 2.3% of PM emissions based on the ratio of $PM_{2.5}$ to PM controlled emissions for tertiary crushing in AP-42, Table 11.19.2-2 (08/04).

The Background Information for AP-42, Section 11.19.2 (05/03) explains that results from testing at various crushed stone processing plants were used to develop the emissions factors in AP-42, Section 11.19.2. The procedures for testing crushers included using quasi-stack systems to capture emissions. The captured emissions were ducted away using a forced air stream and an emission rate was measured. The material throughput rate is also measured during the test to determine emission factors in units of lb/ton of material processed. When using the quasi-stack test method, the total emissions measured must include both emissions from the material transfer to the crusher and emissions from the crushing process, due to testing being performed with a continuous material flow. Therefore, it is assumed that the tertiary crushing emission factors from AP-42, Section 11.19.2 include emissions from the transfer of material to the crusher.

6.1.5.2.2 Screens

Uncontrolled emissions of PM and PM_{10} from screening limestone are calculated using emission factors of 0.025 and 0.0087 lbs/ton, respectively, from AP-42, Section 11.19.2, Table 11.19.2-2 (08/04). Uncontrolled $PM_{2.5}$ emissions are estimated to be 2.3% of PM emissions based on the ratio of $PM_{2.5}$ to PM controlled emissions for screening in AP-42, Table 11.19.2-2 (08/04).

Uncontrolled emissions of PM and PM_{10} from screening quicklime are calculated using emission factors of 0.30 lb/ton and 0.072 lbs/ton, respectively, from AP-42, Section 11.19.2, Table 11.19.2-2 (08/04) for fines screening. $PM_{2.5}$ emissions were calculated using a $PM_{2.5}/PM_{10}$ ratio of 0.15 from Background Document for Revisions to Fine Fraction Ratios Used for AP-42 Fugitive Dust Emission Factors, MRI Project No. 110397.

The Background Information for AP-42, Section 11.19.2 (05/03) explains that results from testing at various crushed stone processing plants were used to develop the emissions factors in AP-42, Section 11.19.2. The procedures for testing screens included using track mounted hood systems to capture emissions. The captured emissions were ducted away using a forced air stream and an emission rate was measured. The material throughput rate is also measured during the test to determine emission factors in units of lb/ton of material processed. When using the track-mounted hood test method, the total emissions measured must include both emissions from the material transfer to the screen and emissions from the screening process, due to testing being performed with a continuous material flow. Therefore, it

is assumed that the screening emission factors from AP-42, Section 11.19.2 include emissions from the transfer of material to the screen.

6.1.5.2.3 *Material Transfer Points*

Uncontrolled PM, PM_{10}, and $PM_{2.5}$ emissions from the material transfer points are calculated using the following emission factor expression from AP-42, Section 13.2.4.3 (11/06) for aggregate drop processes:

$$EF_a = k(0.0032)\left(\frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}\right)$$

where:

- EF = emission factor (lb/ton);
- k = particle size multiplier (0.74 for PM, 0.35 for PM_{10}, 0.053 for $PM_{2.5}$);
- U = mean wind speed [5.6 mph for unprotected material transfer points subject to ambient winds and 1.3 mph (the lowest wind speed able to be used in the aggregate drop process equation to retain an A rating) for enclosed material transfer points].
- M = material moisture content (0.7% for limestone, 0.3% lime and overburden, and 7.0% for fuel).

The mean wind speed and material moisture content used in the aggregate drop process equation to calculate the emission factors for each material transfer point are presented in Table B.2.4.

6.1.5.2.4 Product Loading

Uncontrolled PM emissions from the lime loading are calculated using the emission factors of 0.61 lb/ton and 1.5 lb/ton, from AP-42, Table 11.17-4 (02/98) for lime product loading, enclosed truck and open truck, respectively. Uncontrolled PM_{10} and $PM_{2.5}$ emissions are estimated to be 47% and 7.2%, respectively, of PM emissions based on the particle size fractions in AP-42, Section 13.2.4.3 (11/06) for aggregate drop processes.

6.1.5.3 Capture/Control Efficiencies

A 90% pickup efficiency was assumed for all the dust collectors. A 99% pickup efficiency was assumed for all of the other dust collectors. Emissions from emission units operating underground are assumed to be zero as the wind speed for underground transfers is essentially zero. Based on AP-42, p. 11.19.1-5, Supplement A (11/95), the efficiency of water sprays is 70 - 95%. An average value of 82.5% efficiency was assumed for the emissions inventory for water sprays.

6.1.6 WIND EROSION OF CONTINUOUSLY ACTIVE STOCKPILES

6.1.6.1 Process Rates

The annual and hourly process rates for wind erosion of continuously active stockpiles are based on the maximum available storage areas of the piles and continuous operation (8,760 hours/year). The areas represent the maximum space available at the facility to store the various materials. This is typically much greater than the actual area of the stockpiles.

6.1.6.2 Emission Factors

Uncontrolled PM, PM_{10}, and $PM_{2.5}$ emissions due to wind erosion of the continuously active stockpiles at the Douglas Lime Plant are calculated using the following emission factor expression from the 4th Edition of AP-42, Section 11.2.3 (05/83) for wind erosion of active storage piles:

$$EF = k(1.7)\left(\frac{s}{1.5}\right)\left(\frac{365-p}{235}\right)\left(\frac{f}{15}\right)$$

where:

- EF = emission factor (lb/acre-day);
- k = particle size multiplier (1 for PM, 0.5 for PM_{10}, 0.075 for $PM_{2.5}$ from AP-42, Section 13.2.5 (11/06));
- s = silt content of surface material (1.6% for limestone piles and open areas, 80% for dust piles, 6.2% for coal/coke piles);
- p = number of days per year with precipitation greater than 0.01 inch (51 for the Bisbee - Douglas Airport – Averaged between 2016 and 2018); and
- f = percentage of time the mean wind speed is greater than 12 mph at the mean pile height (17.6% for the Bisbee – Douglas Airport – Averaged between 2016 and 2018).

6.1.6.3 Capture/Control Efficiencies

Besides good operating practices, other pollution control methods are not used to control emissions from the active stockpiles and open areas.

6.1.7 KILN 1

6.1.7.1 Process Rates

The hourly and maximum annual lime production rates for Kiln 1 are 8.33 tons/hr and 73,000 tons/year, as presented in Table B.2.2.

6.1.7.2 Emission Factors

Controlled PM emissions (filterable and condensable) from Kiln 1 are calculated using an emission factor of 3.5 lb/ton, which is the sum of controlled filterable PM emissions (1.2 lb/ton) for coal-fired rotary preheater kiln with gravel bed filter and uncontrolled condensable PM emissions (2.3 lb/ton) for coal-fired rotary kiln from AP-42, Table 11.17-2 (2/98). Controlled filterable PM_{10} and $PM_{2.5}$ emissions are estimated to be 50% and 14%, respectively, of PM emissions based on the particle size fractions in AP-42, Table 11.17-7 (2/98) for rotary kiln with ESP as a conservative estimate since Table 11.17-7 did not provide particle size fractions for rotary kilns controlled by a gravel bed filter. Condensable PM is assumed to be $PM_{2.5}$.

For Compliance Assurance Monitoring (CAM) analysis, uncontrolled PM emissions from Kiln 1 are calculated using an emission factor of 352.3 lb/ton, which is the sum of filterable PM emissions (350 lb/ton) and condensable PM emissions (2.3 lb/ton) for uncontrolled coal-fired rotary kilns from AP-42, Table 11.17-2 (2/98). Uncontrolled PM_{10} emissions from Kiln 1 are calculated using an emission factor of 44.3 lb/ton, which is the sum of filterable PM_{10} emissions (42 lb/ton) and condensable PM emissions (2.3 lb/ton) for uncontrolled coal-fired rotary kilns from AP-42, Table 11.17-2 (2/98). Uncontrolled filterable $PM_{2.5}$ emissions are estimated to be 2.9% of PM emissions based on the particle size fractions in AP-42, Table 11.17-7 (2/98) for uncontrolled rotary kilns. Condensable PM is assumed to be $PM_{2.5}$.

6.1.7.3 Capture/Control Efficiencies

PM emissions from Kiln 1 are controlled by the use of a cyclone and a Rexnord gravel bed filter dust collector. The filterable PM emission factor discussed in Section 6.1.7.2 already includes the control efficiency due to a gravel bed filter. Based on AP-42, Table B2-3 (9/90), a 0% control efficiency for condensable PM ($PM_{2.5}$) is assumed for use of a gravel bed filter. No additional control efficiency was assumed for PM emissions.

6.1.8 KILN 2

6.1.8.1 Process Rates

The hourly and maximum annual lime production rates for Kiln 2 are 22.92 tons/hr and 189,750 tons/year, as presented in Table 6.3.

6.1.8.2 Emission Factors

Controlled PM emissions (filterable and condensable) from Kiln 2 are calculated using an emission factor of 0.66 lb/ton, which is the sum of controlled filterable (0.28 lb/ton) and condensable (0.38 lb/ton) PM emissions for coal-fired rotary kiln with fabric filter from AP-42,Table 11.17-2 (2/98). Controlled PM emissions (filterable and condensable) from Kiln 2 are calculated using an emission factor of 0.53 lb/ton, which is the sum of controlled filterable (0.15 lb/ton) and condensable (0.38 lb/ton) PM emissions for coal-fired rotary kiln with fabric filter from AP-42, Table 11.17-2 (2/98). Controlled filterable $PM_{2.5}$ emissions are estimated to be 27% of PM emissions based on the particle size fractions in AP-42, Table 11.17-7 (2/98) for rotary kiln with fabric filter. Condensable PM is assumed to be $PM_{2.5}$. For CAM analysis, uncontrolled PM emissions from Kiln 2 are calculated using an emission factor of 352.3 lb/ton, which is the sum of filterable PM emissions (350 lb/ton) and condensable PM emissions (2.3 lb/ton) for uncontrolled coal-fired rotary kilns from AP-42, Table11.17-2 (2/98). Uncontrolled PM_{10} emissions from Kiln 2 are calculated using an emission factor of 44.3 lb/ton, which is the sum of filterable PM_{10} emissions (42 lb/ton) and condensable PM emissions (2.3 lb/ton) for uncontrolled coal-fired rotary kilns from AP-42, Table11.17-2 (2/98). Uncontrolled filterable $PM_{2.5}$ emissions are estimated to be 2.9% of PM emissions based on the particle size fractions in AP-42, Table 11.17-7 (2/98) for uncontrolled rotary kilns. Condensable PM is assumed to be $PM_{2.5}$.

6.1.8.3 Capture/Control Efficiencies

PM emissions from Kiln 2 are controlled by the use of a fabric filter dust collector. The filterable PM emission factor discussed in Section B.2.8.2 already includes the control efficiency due to a fabric filter dust collector. Therefore, no additional control efficiency is necessary.

6.1.9 KILN 3

6.1.9.1 Process Rates

The hourly and maximum annual lime production rates for Kiln 3 are 19.2 tons/hr and 166,000 tons/year, as presented in Table 6.3.

6.1.9.2 Emission Factors

Controlled PM and PM_{10} emissions from Kiln 3 are calculated using emission factors of 0.26 lb/ton and 0.23 lb/ton from EPA Installation Permit dated August 31, 1978, Condition VIII.B (PM emission limit of 5 lb/hr) and the Paul Spur SIP Inventory (PM_{10}). Controlled $PM_{2.5}$ emissions are assumed to equal PM_{10} emissions as a worst-case emission estimate.

For CAM analysis, uncontrolled PM and PM_{10} emissions from Kiln 3 are calculated using emission factors of 8 lb/ton and 5 lb/ton, respectively, from *AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants*, U.S. EPA, March 1990, p. 126. Uncontrolled $PM_{2.5}$ emissions are estimated to be 18% of PM emissions based on the particle size fractions in AP-42, Appendix B.2, Table B.2.2 (9/90), Category 5 for Calcining and Other Heat Reaction Processes.

6.1.9.3 Capture/Control Efficiencies

PM emissions from Kiln 3 are controlled by the use of a wet scrubber. Besides good operating practices, additional pollution control methods are not implemented on Kiln 3.

6.1.10 DIESEL PONY MOTORS

6.1.10.1 Process Rates

The annual and hourly process rates for the diesel pony motors are based on the power rating of the engines and their hours of operation. The hourly process rates are calculated, assuming one full hour of operation. The annual process rates are calculated assuming continuous operation (i.e., 8,760 hours/year).

6.1.10.2 Emission Factors

Uncontrolled PM emissions from the diesel pony motors are calculated using emission factors from AP-42, Table 3.3-1 (10/96) for small engines (≤ 600 hp) 0.0022 lb/hp-hr. Uncontrolled PM_{10} and $PM_{2.5}$ emissions from the diesel pony motors are assumed to equal PM emissions as a worst-case emission estimate.

6.1.10.3 Capture/Control Efficiencies

Besides good operating practices, other pollution control methods are not implemented during the use of the diesel pony motors.

6.2 Gaseous Emissions

6.2.1 BLASTING

6.2.1.1 Process Rates

The hourly process rate for blasting is based on the maximum usage rate per blast (2.37 tons of ANFO/blast). The annual process rate for blasting is based on an average usage rate of 2.37 tons of ANFO per blast and the 340 blasts per year.

6.2.1.2 Emission Factors

Uncontrolled CO emissions from blasting are calculated using an emission factor from the article titled "Factors Affecting ANFO Fumes Production" by The National Institute for Occupational Safety and Health (NIOSH) (2001). The emission factor is based on the datapoints in Figure 2 of the document for ANFO with a 6% fuel oil content. Uncontrolled NO_X emissions are calculated using the average emission factor from the journal article titled "NO_X Emissions from Blasting Operations in Open-Cut Coal Mining" from Atmospheric Environment 42 (2008), which presents the results of a more successful technique used to measure NO_X emissions from blasting. Uncontrolled SO_2 emissions are calculated assuming all the sulfur in the diesel fuel is converted to SO_2 emissions, the sulfur content of the diesel fuel is 0.0015%, and the ANFO contains 6% diesel fuel oil. Uncontrolled CO_2, CH_4, and N_2O emissions are calculated using the emission factors from 40 CFR 98, Tables C-1 and C-2 for distillate fuel oil No. 2. A diesel fuel oil to ANFO ratio of 6% and a diesel heating value of 19,300 Btu/pound of diesel fuel are used to express the CO_2, CH_4, and N_2O emission factors in terms of lb/ton of ANFO. The gaseous emission factors for blasting are presented in Table 6.5.

Table 6-5. Gaseous Emission Factors for Blasting

Gaseous Pollutant	Emission Factor	Reference
CO	40.64 lb/ton ANFO	"Factors Affecting ANFO Fumes Production" by NIOSH (2001)
NO_X	1.80 lb/ton ANFO	"NO_X Emissions from Blasting Operations in Open-Cut Coal Mining" from Atmospheric Environment 42 (2008)
SO_2	0.0036 lb/ton ANFO	Complete Sulfur Conversion
CO_2	378 lb/ton ANFO	40 CFR 98, Subpart C, Table C-1
CH_4	0.02 lb/ton ANFO	40 CFR 98, Subpart C, Table C-2
N_2O	0.003 lb/ton ANFO	40 CFR 98, Subpart C, Table C-2

6.2.1.3 Capture/Control Efficiencies

Besides good operating practices, other pollution control methods cannot be implemented during blasting.

6.2.2 KILN 1

6.2.2.1 Process Rates

The hourly and maximum annual lime production rates for Kiln 1 are 8.33 tons/hr and 73,000 tons/year, as presented in Table B.2.2. Hourly and annual fuel usage rates for Kiln 1 are calculated based on worst case values for the fuels: lowest heat content (8,000 Btu/lb for coal,12,500 Btu/lb for coke), maximum petroleum coke usage (90% Btu input from coke, 10% Btu input for coal), and a worst-case efficiency of 9.0 MMBtu/ton lime. The VOC emissions for Kiln 1 were calculated based on 100% coal used to heat the kiln, the lowest heating value of 8,000 Btu/lb, and a worst-case efficiency of 9.0 MMBtu/ton lime.

6.2.2.2 Emission Factors

Uncontrolled CO and NO_x emissions from Kiln 1 are calculated using an emission factor of 1.5 and 3.1 lbs/ton lime, respectively, taken from AP-42, Section 11.17, Table 11.17-6 (2/98) for a coal-fired rotary kiln.

Uncontrolled VOC emissions are calculated using an emission factor of 0.06 lb/ton lime produced from AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, March 1990, EPA 450/4-90-003, Lime Manufacturing, Calcining: Rotary Kiln.

Uncontrolled SO_2 emissions are calculated, assuming all the sulfur in the fuel is converted to SO_2 emissions and maximum fuel sulfur content of 1.4% for coal and 5.9% for petroleum coke, the major fuel sources to heat the kiln. SO_2 emissions were calculated assuming an inherent absorption efficiency of 25%.

Uncontrolled CO_2, CH_4, and N_2O emissions are calculated using the emission factors from 40 CFR 98, Subpart C, Tables C-1 and C-2 for coal and coke.

The gaseous emission factors for Kiln 1 are presented in Table 6.6.

Table 6-6. Gaseous Emission Factors for Kiln 1

Gaseous Pollutant	Emission Factor	Reference
CO	1.5 lb/ton of lime	AP-42, Section 11.17, Table 11.17-6 (2/98)
NO_X	3.1 lb/ton of lime	AP-42, Section 11.17, Table 11.17-6 (2/98)
SO_2	163.5 lb/ton of fuel	Complete Sulfur Conversion and 25% inherent absorption
VOC	0.06 lb/ton of lime	AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, March 1990
CO_2	5,392 lb/ton of fuel	40 CFR 98, Subpart C, Table C-1
CH_4	0.583 lb/ton of fuel	40 CFR 98, Subpart C, Table C-2
N_2O	0.085 lb/ton of fuel	40 CFR 98, Subpart C, Table C-2

6.2.2.3 Capture/Control Efficiencies

Besides good operating practices, other pollution control methods for gaseous emissions are not implemented during the use of Kiln 1.

6.2.3 KILN 2

6.2.3.1 Process Rates

The hourly and maximum annual lime production rates for Kiln 2 are 22.92 tons/hr and 189,750 tons/year, as presented in Table 6-3.
Hourly and annual fuel usage rates for Kiln 2 are calculated based on worst case values for the fuels: lowest heat content (8,000 Btu/lb for coal, 12,500 Btu/lb for coke), maximum petroleum coke usage (90% Btu input from coke, 10% Btu input for coal), and a worst-case efficiency of 6.6 MMBtu/ton lime.

6.2.3.2 Emission Factors

Uncontrolled CO and NO_x emissions from Kiln 2 are calculated using an emission factor of 1.5 and 3.1 lbs/ton lime, respectively, taken from AP-42, Section 11.17, Table 11.17-6 (2/98) for a coal-fired rotary kiln.

Uncontrolled VOC emissions are calculated using an emission factor of 0.06 lb/ton lime produced from AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, March 1990, EPA 450/4-90-003, Lime Manufacturing, Calcining: Rotary Kiln.

Uncontrolled SO_2 emissions are calculated, assuming all the sulfur in the fuel is converted to SO_2 emissions and maximum fuel sulfur content of 1.4% for coal and 5.9% for petroleum coke, the major fuel sources to heat the kiln. SO_2 emissions were calculated assuming an inherent absorption efficiency of 61.3%. This

absorption efficiency is based on 1997 source testing of the Kiln 2 baghouse conducted following the replacement of the Kiln 2 gravel bed filter with the baghouse.

Uncontrolled CO_2, CH_4, and N_2O emissions are calculated using the emission factors from 40 CFR 98, Subpart C, Tables C-1 and C-2 for coal and coke. The gaseous emission factors for Kiln 2 are presented in Table 6.7.

Table 6-7. Gaseous Emission Factors for Kiln 2

Gaseous Pollutant	Emission Factor	Reference
CO	1.5 lb/ton of lime	AP-42, Section 11.17, Table 11.17-6 (2/98)
NO_X	3.1 lb/ton of lime	AP-42, Section 11.17, Table 11.17-6 (2/98)
SO_2	84.37 lb/ton of fuel	Complete Sulfur Conversion and 61.3% Inherent Absorption
VOC	0.06 lb/ton of lime	AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, March 1990
CO_2	5,392 lb/ton of fuel	40 CFR 98, Subpart C, Table C-1
CH_4	0.583 lb/ton of fuel	40 CFR 98, Subpart C, Table C-2
N_2O	0.085 lb/ton of fuel	40 CFR 98, Subpart C, Table C-2

6.2.3.3 Capture/Control Efficiencies

Besides good operating practices, other pollution control methods for gaseous emissions are not implemented during the use of Kiln 2.

6.2.4 KILN 3

6.2.4.1 Process Rates

The maximum hourly and annual lime production rates for Kiln 3 are 19.2 tons/hr and 166,000 tons/year.

6.2.4.2 Emission Factors

Uncontrolled CO and NO_x emissions from Kiln 3 were calculated using an emission factor of 0.7 and 0.38 lb/ton lime, respectively, taken from CEM data (mean + 1.645□). Uncontrolled VOC emissions are calculated using an emission factor of 0.02 lb/ton lime produced from AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, March 1990, EPA 450/4-90-003, Lime Manufacturing, Calcining: Vertical Kiln.

The SO_2 emission factor was calculated using a sulfur balance on natural gas, assuming a maximum sulfur grain loading of 2000 grains per million standard cubic feet (MMscf), the natural gas Btu content of 1030 Btu/scf, and the worst-case efficiency (3.9 MMBtu/ton lime). Uncontrolled CO_2, CH_4, and N_2O emissions are calculated using the emission factors from 40 CFR 98, Subpart C, Tables C-1 and C-2 for natural gas.

The gaseous emission factors for Kiln 3 are presented in Table 6.8.

Table 6-8. Gaseous Emission Factors for Kiln 3

Gaseous Pollutant	Emission Factor	Reference
CO	0.7 lb/ton of lime	CEM Data
NO_X	0.38 lb/ton of lime	CEM Data
SO_2	0.000114 lb/ton MMscf	Complete Sulfur Conversion
VOC	0.02 lb/ton of lime	AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, March 1990
CO_2	119,317 lb/ton MMscf	40 CFR 98, Subpart C, Table C-1
CH_4	2.25 lb/ton MMscf	40 CFR 98, Subpart C, Table C-2
N_2O	0.22 lb/ton MMscf	40 CFR 98, Subpart C, Table C-2

6.2.4.3 Capture/Control Efficiencies

Besides good operating practices, other pollution control methods for gaseous emissions are not implemented during the use of Kiln 3.

6.2.5 DIESEL PONY MOTORS

6.2.5.1 Process Rates

The process rates for the diesel pony motors are identical to those described in Section 6.1.10.1.

6.2.5.2 Emission Factors

Uncontrolled CO, NO_X, and VOC emissions from the diesel pony motors are calculated using emission factors from AP-42, Table 3.3-1 (10/96) for small engines (≤ 600 hp).

According to AP-42, Section 3.3.3.5, "Sulfur oxide (SO_X) emissions are a function of only the sulfur content in the fuel rather than any combustion variables. In fact, during the combustion process, essentially all the sulfur in the fuel is oxidized to SO_2." Therefore, the emission rate of SO_2 from the engine was calculated using the sulfur content of the fuel (0.0015%). Uncontrolled CO_2, CH_4, and N_2O emissions are calculated using the emission factors from 40 CFR 98, Subpart C, Tables C-1 and C-2 for distillate fuel oil No. 2. A diesel heating value of 19,300 Btu/pound of diesel fuel and an average brake-specific fuel consumption value of 7,000 Btu/hp-hr are used to calculate the SO_2, CO_2, CH_4, and N_2O emission factors in units of lb/hp-hr.

The gaseous emission factors for the diesel pony motors are presented in Table 6.9.

Table 6-9. Gaseous Emission Factors for Diesel Pony Motors

Gaseous Pollutant	Emission Factor	Reference
CO	0.00668 lb/hp-hr	AP-42, Table 3.3-1 (10/96)
NO_X	0.031 lb/hp-hr	AP-42, Table 3.3-1 (10/96)
SO_2	0.00001 lb/hp-hr	Complete Sulfur Conversion
VOC	0.00251 lb/hp-hr	AP-42, Table 3.3-1 (10/96)
CO_2	1.4 lb/hp-hr	40 CFR 98, Subpart C, Table C-1
CH_4	0.00005 lb/hp-hr	40 CFR 98, Subpart C, Table C-2
N_2O	0.000009 lb/hp-hr	40 CFR 98, Subpart C, Table C-2

6.2.5.3 Capture/Control Efficiencies

Besides good operating practices, other pollution control methods are not implemented during the use of the diesel pony motors.

6.3 HAP Emissions

6.3.1 BLASTING

6.3.1.1 Process Rates

The annual and hourly process rates for blasting are identical to those described in Section 6.2.1.1.

6.3.1.2 Emission Factors

Uncontrolled HAP emissions from blasting are calculated using emission factors from AP-42, Tables 1.3-8 and 1.3-10 (05/10) for distillate fuel oil combustion. The formaldehyde emission factor is assumed to be equal to the high-end value of the formaldehyde range as a worst-case emission estimate.

A diesel fuel oil to ANFO ratio of 6% and diesel heating values of 137,000 Btu/gallon (AP-42, Appendix A, page A-5 (09/85)) and 19,300 Btu/pound of diesel fuel are used to express the HAP emission factors in terms of lb/ton of ANFO.

6.3.1.3 Capture/Control Efficiencies

Besides good operating practices, other pollution control methods cannot be implemented during blasting.

6.3.2 KILN 1

6.3.2.1 Process Rates

The process rates for Kiln 1 are identical to those described in Section 6.2.2.1.

6.3.2.2 Emission Factors

Uncontrolled HAP emissions from Kiln 1 are calculated using the emission factors from AP- 42, Tables 1.1-12, 1.1-13, 1.1-14, 1.1-15, and 1.1-18 (09/98). Uncontrolled HCl emissions are calculated using an emission factor of 0.0205 lb/ton of lime based on test data for similar preheater kilns at other Lhoist facilities.

6.3.2.3 Capture/Control Efficiencies

Metal HAP emissions from Kiln 1 are controlled by the use of a cyclone and a Rexnord gravel bed filter dust collector. Besides good operating practices, other pollution control methods are not implemented during the use of Kiln 1.

6.3.3 KILN 2

6.3.3.1 Process Rates

The process rates for Kiln 2 are identical to those described in Section 6.2.3.1.

6.3.3.2 Emission Factors

Uncontrolled HAP emissions from Kiln 2 are calculated using the emission factors from AP- 42, Tables 1.1-12, 1.1-13, 1.1-14, 1.1-15, and 1.1-18 (09/98). Uncontrolled HCl emissions are calculated based on HCl emissions testing conducted for Kiln 2 on March 22, 2006.

6.3.3.3 Capture/Control Efficiencies

Metal HAP emissions from Kiln 2 are controlled by the use of a fabric filter. Besides good operating practices, other pollution control methods are not implemented during the use of Kiln 2.

6.3.4 KILN 3

6.3.4.1 Process Rates

The process rates for Kiln 3 are identical to those described in Section 6.2.4.1.

6.3.4.2 Emission Factors

Uncontrolled HAP emissions from Kiln 3 are calculated using the emission factors from AP- 42, Tables 1.4-2, 1.4-3, and 1.4-4 (07/98). Uncontrolled HCl emissions are calculated using an emission factor of 0.008 lb/ton of lime based on test data for similar vertical kilns at other Lhoist facilities.

6.3.4.3 Capture/Control Efficiencies

Metal HAP emissions from Kiln 3 are controlled by the use of a wet scrubber. Besides good operating practices, other pollution control methods are not implemented during the use of Kiln 3.

6.3.5 DIESEL PONY MOTORS

6.3.5.1 Process Rates

The process rates for the diesel pony motors are identical to those described in Section 6.2.5.1.

6.3.5.2 Emission Factors

Uncontrolled HAP emissions from the diesel pony motors are calculated using the emission factors from AP-42, AP-42, Table 3.3-2 (10/96) for small engines (≤ 600 hp).

6.3.5.3 Capture/Control Efficiencies

Besides good operating practices, other pollution control methods are not implemented during the use of the diesel pony motors.

7. REGULATORY APPPLICABILITY

The following section outlines the regulatory applicability and requirements for the Douglas Lime Plant.

7.1 Applicable Requirements

The regulatory requirements applicable to the equipment and processes at the Douglas Lime Plant are identified and described in Table 7-1. A reference to the specific regulatory requirements applicable to each piece of equipment is presented in Appendix A.

The NESHAP requirements of 40 CFR 63, Part AAAAA are applicable to lime manufacturing plants (LMPs) that are classified as a major source. A major HAP source is defined as an LMP that emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAPs at a rate of 25 tons or more per year from all emission sources at the plant site (see specific regulations for exemptions). Each LMP affected by the NESHAP rule must perform initial testing to determine if the plant is a major source. LMPs with HAP emissions below these thresholds are designated as area sources and are not subject to the NESHAP requirements.

Lhoist submitted a letter to the Arizona Department of Environmental Quality (ADEQ) in September 2006 (copy presented in Appendix D) requesting that Lhoist be allowed to postpone hydrogen chloride (HCl) testing of idle Kilns 1 and 3 for the purposes of determining if the Douglas Lime Plant is a major HAPs source. Lhoist further requested that ADEQ designate the Douglas Lime Plant as an area source based on the results of HCl testing of Kiln 2 at the Douglas Lime Plant and results of HCl testing of kilns at other Lhoist facilities similar to the Douglas Kilns 1 and 3. Based on the information provided by Lhoist, ADEQ has designated the Douglas Lime Plant as an area source, requiring that HCl testing of Kilns 1 and 3 must be conducted upon startup of these idle kilns (copy of ADEQ's designation is presented in Appendix F). Based on ADEQ's designation of the Douglas Lime Plant as an area source, the NESHAP requirements of 40 CFR 63, Part AAAAA are not applicable to the Douglas Lime Plant at this time. Refer to Appendix C to Lhoist's letter to ADEQ requesting area source designation and ADEQ's response.

Table 7-1. Applicable Regulatory Requirements and Methods for Demonstrating Compliance

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
Attachment A: Condition VII.A	A.A.C. R18-2-309.2.a	Submittal of semi-annual compliance certification not less frequently than semi-annually.	Submittal of certification.
Attachment A: Condition XI.A	A.A.C. R18-2-310.01	Requirements for reporting excess emissions including but not limited to: telephone or fax notification within 24 hours of first learning of excess emissions, and (b) submittal of a written report within 72 hours of the telephone or fax notification.	Maintenance of records; submittal of timely notifications and reports.
Attachment A: Condition IV	A.A.C. R18-2-315	Posting of permit or certificate of permit issuance at the equipment site in such a manner as to be clearly visible and accessible, and maintaining a complete copy of the permit on the site.	Posting of permit and maintenance of records
Attachment A: Condition V	A.A.C. R18-2-326	Payment of applicable fees.	Payment of fees.
Attachment A: Condition VI	A.A.C. R18-2-327.A	Submittal of annual emission inventory questionnaires.	Submittal of questionnaire.

Attachment A: Condition XI	Permit 0368-93, Attachment A, Condition IX(B)	Submittal of excess emissions and continuous monitoring system performance reports. The reports shall include the following: a. For each continuously monitored point, the following information shall be provided: (1) The total number of operating hours of the kiln. (2) For each opacity monitor, the number and duration of monitor downtime incidents in total and totalized for each of the following standard causes: (a) Monitor equipment malfunction, (b) Non-monitor equipment malfunction, (c) Quality assurance, (d) Other known cause, (e) Unknown cause. (3) For opacity, the number and duration of periods of excess emissions (i.e., periods in which the monitor records an average six-minute opacity in excess of 20 percent) in total and totalized for each of the following standard causes: (a) Start-up, (b) Shutdown, (c) Control equipment failure, (d) Process problems, (e) Other known causes, (f) Unknown cause. (4) The excess emissions and continuous monitoring system performance report shall include an attachment containing the following information: (a) The magnitude of the six-minute periods during which emissions exceed 20 percent, including any conversion factor(s) used; date, starting and ending time, nature, cause, and corrective action taken for each excess emissions, and a specific identification of each period of excess emissions that occurred during start-ups, shutdowns, and malfunctions and the corrective action taken. (b) The date, starting and ending times of each instance when any monitor was inoperative (except for zero and span checks, etc.), and the description of the nature, cause, and corrective action taken for each such period.	Submittal of excess emissions and continuous monitoring systems reports

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
		b. The excess emissions and continuous monitoring systems reports shall be submitted no later than 30 days after the end of the monitoring period. The first monitoring period shall correspond to the calendar quarter when the permit is issued. Subsequent monitoring periods shall be as follows: (1) Each quarter if the total duration of excess emissions is 1 percent or greater of the total operating time, or the total continuous monitoring system downtime is 5 percent or greater of the total operating time. (2) Each semiannual period if the total duration of excess emissions for each quarter in the semiannual period is less than 1 percent of the total operating time and the continuous monitoring system downtime for each quarter in the semiannual period is less than 5 percent of the total operating time.	
Facility-Wide Operations	40 CFR 98, Subpart A (General Provisions)	Requirements for reporting GHG emissions for sources meeting the qualifications of the source categories listed in Subpart A.	Maintenance of records; electronic submittal of Annual GHG Report.
Facility-Wide Operations	40 CFR 98, Subpart C (Stationary Combustion Sources)	Emissions calculation and reporting requirements for sources emitting more than 25,000 metric tons of CO_2e during any calendar year.	Maintenance of records; electronic submittal of Annual GHG Report.
Attachment B: Condition V.B.2	ARS 49-801(2)	Owner/Operator shall only use on specification used oil with contamination concentrations below the following levels: (i) Arsenic - 5 parts per million, (ii) Cadmium - 2 parts per million, (iii) Chromium - 10 parts per million, (iv) Lead - 100 parts per million, (v) PCB's - 2 parts per million, and (vi) Total Halogens - 1000 parts per million. Owner/Operator shall maintain on record, copies of the fuel analyses for each batch of used oil, and shall ensure that the analysis conforms to the contamination levels specified above.	Maintenance of records

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
Attachment B: Condition 1.D	Permit 0368-93, Attachment A, X(J); PM_{10} STATE IMPLEMENTATION PLAN (SIP) FOR THE PAUL SPUR GROUP I AREA (PSSIP)	No permit conditions that are based on the PM10 STATE IMPLEMENTATION PLAN FOR THE PAUL SPUR GROUP I AREA, dated July 1990, prepared by the Office of Air Quality, Arizona Department of Environmental Quality, hereinafter also referred to as "PSSIP" shall be modified or amended in any way without PSSIP being first amended to reflect or allow such a modification or amendment.	Maintenance of Records
Attachment B: Condition III.B.2.b	PSSIP 6.1	Enclose all conveyor belt transfer points, or alternatively, enclose and control by using an exhaust control system and dust collector, or use dust suppression chemicals.	Maintenance of Records
Attachment B: Condition XIV.B.1.a(7)	PSSIP 6.3	Ensure that all stacking and reclaiming machinery be either adjustable in order to provide minimum fall on storage piles or have sleeves.	Maintenance of Records
Attachment B: Condition VIII.C.1.e	PSSIP 6.4; Permit 0368-93, Attachment A, X(A)(1)	Enclose all screens. Maintain damper seals at Kilns 2 and 3 in an improved condition.	Maintenance of Records
Attachment B: Condition VII.B.2.a	PSSIP 6.5(a)	Utilize fully enclosed screw-type or equivalent conveyor with fully enclosed transfer points in Kiln 1 and 2 dust handling systems.	Maintenance of Records
Attachment B: Condition XIV.B.1.b(4)	PSSIP 6.6(a)	Operate and maintain a sufficient number of water trucks for the reduction of emissions of particulate matter for the areas indicated in Figure 6.1 of PSSIP. The water trucks shall be operated in such a manner as to allow all areas to be adequately wetted to the extent that an additional 60 percent control of PM_{10} emissions can be demonstrated by conductivity or silt testing.	Maintenance of Records
Attachment B: Condition XIV.B.1.b	PSSIP 6.6(c)	Post speed limit signs to limit travel speed to less than 20 miles per hour.	Maintenance of Records
Attachment B: Condition XIV.B.1.b(4)	PSSIP 6.6(c); PSSIP 6.7	Owner/Operator shall utilize chemical dust stabilizers to increase control of road emissions. The chemical stabilization of plant roads will be accomplished by the application of stabilizers at least three times annually to those areas shown on Figure 1 of Appendix G of this application. Owner/Operator shall maintain records to document the purchase and use of chemical stabilizers on plant roads.	Maintenance of Records
Attachment B: Condition XIV.B.1.b(8)	PSSIP 6.6(d)	Maintain a program to minimize particulate emissions from piles of process waste material and dust by removal of the piles, capping, revegetation, or chemical stabilization.	Maintenance of Records

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
Attachment B: Condition XIV.B.1.b(9)	PSSIP 6.6(e)	Implement the housekeeping plan described in Appendix E of this application.	Maintenance of Records
Attachment B: Condition XIV.B.1.b	(a) A.A.C. R18-2-604 (b) A.A.C. R18-2-605 (c) A.A.C. R18-2-606 (d) A.A.C. R18-2-607 (e) A.A.C. R18-2-608	Implementation of reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne from: (a) open spaces, (b) plant roads and streets, (c) material handling operations, (d) storage piles and (e) mineral tailings	Regular inspection, application of water or equivalent controls to regularly traveled unpaved roads, maintenance of roads, application of water as needed on material handling operations and storage piles.
Attachment B: Condition XIV.B.1.a	A.A.C. R18-2-614	Opacity ≤ 40%	Performance of EPA Reference Method 9 Test.
Attachment B: Condition II.B.1. a	A.A.C. R18-2-702.B.1	Opacity ≤ 20%	Performance of EPA Reference Method 9 Test.
Attachment B: Condition X.A.1	A.A.C. R18-2-710.B	Each gasoline storage tank shall be equipped with a submerged filling device or acceptable equivalent, for the control of hydrocarbon emissions.	Inspections, maintenance of records.
Attachment B: Condition X.A.2	A.A.C. R18-2-710.D	All pumps and compressors that handle volatile organic compounds shall be equipped with mechanical seals or other equipment of equal efficiency to prevent release of organic contaminants into the atmosphere.	Inspections, maintenance of records.
Attachment B: Condition X.B.1.a	A.A.C. R18-2-710.E.1	For the gasoline storage tanks, maintain a file of the typical Reid vapor pressure of gasoline stored and of dates of storage. Dates on which the storage vessel is empty shall be shown.	Inspections, maintenance of records.
Attachment B: Condition X.A.1.b	A.A.C. R18-2-710.E.2.b	For gasoline stored in a storage vessel other than one equipped with a vapor recovery system or its equivalent and the true vapor pressure is between 26 mm Hg and 78 mm Hg greater than 470 mm Hg (9.1 psia), the Permittee	Maintenance of records.

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
		shall record the average monthly temperature, and true vapor pressure of gasoline at such temperature.	

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
Attachment B: Condition X.A.1.c	A.A.C. R18-2-710.E.3	The average monthly storage temperature shall be an arithmetic average calculated for each calendar month, or portion thereof if storage is for less than a month, from bulk liquid storage temperatures determined at least once every seven days.	Maintenance of records.
Attachment B: Condition X.A.1.d	A.A.C. R18-2-710.E.4	The true vapor pressure shall be determined by the procedures in American Petroleum Institute Bulletin 2517, amended as of February 1980 (and no future editions). This procedure is dependent upon determination of the storage temperature and the Reid vapor pressure, which requires sampling of the petroleum liquids in the storage vessels. Unless the Director requires in specific cases that the stored petroleum liquid be sampled, the true vapor pressure may be determined by using the average monthly storage temperature and the typical Reid vapor pressure. For those liquids for which certified specifications limiting the Reid vapor pressure exist, the Reid vapor pressure may be used. For other liquids, supporting analytical data must be made available upon request to the Director when typical Reid vapor pressure is used.	Maintenance of records.
Attachment B: Condition XI.A	40 CFR 63.11111(e)	Upon request, demonstrate that the monthly throughput of the gasoline dispensing facility is less than 10,000 or 100,000 gallons, as applicable. Document the monthly throughput upon startup and maintain records for 5 years.	Maintenance of records.
Attachment B: Condition XI.B	40 CFR 63.11115(a)	Operate and maintain the source in a manner consistent with safety and good air pollution control practices for minimizing emissions.	Maintenance of records of the emission control methods used.
Attachment B: Condition XI.B.1	40 CFR 63.11116(a)	Facilities with monthly throughput of less than 10,000 gallons of gasoline: do not allow gasoline to be handled in a manner that would result in vapor releases to the atmosphere for extended periods of time. Measures to be taken include: Minimizing gasoline spills; Cleaning up spills as expeditiously as practicable; Covering all open gasoline containers and all gasoline storage tank fill pipes with a gasketed seal when not in use; and Minimizing gasoline sent to open waste collection systems that collect and transport gasoline to reclamation and recycling devices, such as oil/water separators.	Maintenance of records of measures taken.

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
Attachment B: Condition XI.B.2	40 CFR 63.11117(a)	Facilities with monthly throughput of greater than or equal to 10,000 gallons: comply with the requirements of 40 CFR 63.11116(a).	Maintenance of records of measures taken.
Attachment B: Condition XI.B.2.c	40 CFR 63.11116(b)	Make available records within 24 hours of a request to document gasoline throughput.	Maintenance of records.
Attachment B: Condition XI.B.2.b	40 CFR 63.11117(b) and A.A.C. R18-2-1101.B	Facilities with monthly throughput of greater than or equal to 10,000 gallons: only load gasoline into storage tanks by utilizing submerged filling. Fill pipes installed on or before November 9, 2006, must be no more than 12 inches from the bottom of the tank. Fill pipes installed after November 9, 2006, must be no more than 6 inches from the bottom of the tank.	Maintenance of records of filling methods.
Attachment B: Condition III.B.1.b	A.A.C. R18-2-716.B	$PM \leq 4.10\ P^{0.67}$, when $P \leq 30$ tph; $PM \leq 55.0\ P^{0.11} - 40$, when $P > 30$ tph (where PM = maximum emission rate in lb/hour, P = total process rate in tons/hour)	Performance of EPA Reference Method 5 Test.
Attachment B: Condition XI.B.2.b(3)	A.A.C. R18-2-716.D	The total process weight from all similar units employing a similar type of process shall be used in determining the maximum allowable emission of particulate matter.	Maintenance of records.
Attachment B: Condition IX.A.1.a	A.A.C. R18-2-719.B and A.A.C. R18-2-719.C.1	$PM \leq 1.02Q^{0.769}$, when $Q \leq 4{,}200$, $PM \leq 17.0Q^{0.432}$, when $Q \geq 4{,}200$ (where PM = emission limit in lb/hour, Q = heat input in MMBtu/hour). The total heat input of all operating fuel-burning units on a plant or premises shall be used for determining compliance with the emission limit.	Engineering Evaluation.

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
Attachment B: Condition IX.A.1.c	A.A.C. R18-2-719.E	No person shall cause, allow or permit to be emitted into the atmosphere from any stationary rotating machinery, smoke for any period greater than 10 consecutive seconds which exceeds 40% opacity. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes.	Performance of EPA Reference Method 9 Test.
Attachment B: Condition IX.B.1	A.A.C. R18-2-719.F	When low sulfur oil is fired, stationary rotating machinery installations shall burn fuel which limits the emission of sulfur dioxide to 1.0 pound per million Btu heat input.	Fuel supplier certification, maintenance of records.
Attachment B: Condition IX.B.2.a	A.A.C. R18-2-719.I	The owner or operator of any stationary rotating machinery subject to the provisions of this Section shall record daily the sulfur content and lower heating value of the fuel being fired in the machine.	Maintenance of Records.
Attachment B: Condition IX.B.2.b	A.A.C. R18-2-719.J	Report to the Director any daily period during which the sulfur content of the fuel being fired in the machine exceeds 0.8%.	Maintenance of Records.
Attachment B: Condition II.B.1.b	A.A.C. R18-2-720.B	$PM \leq 4.10P^{0.67}$, when $P \leq 30$ tph; $PM \leq 55.0P^{0.11} - 40$, when $P > 30$ tph (where PM = maximum emission rate in lb/hour, P = total process rate in tons/hour)	Performance of EPA Reference Method 5 Test.

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
Attachment B: Condition II.B.1.b(3)	A.A.C. R18-2-720.D	The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.	Maintenance of Records.
Attachment B: Condition V.C.2	A.A.C. R18-2-720.E	Fugitive emissions from lime plants shall be controlled in accordance with R18-2-604 through R18-2-607.	Maintenance of Records.
Attachment B: Condition V.C.3.a	A.A.C. R18-2-720.F	The owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system to monitor and record the opacity of gases discharged into the atmosphere from any rotary lime kiln. The span of this system shall be set at 70% opacity.	Proper operation and maintenance of COMS.
Attachment B: Condition VIII.C.1.C	A.A.C. R18-2-722.B	PM ≤ $55.0p^{0.11}$ -40 (p >30) or PM ≤ $4.10p^{0.67}$ (p ≤ 30) (PM represents the total emissions in lb/hour allowed for similar units, p = total process rate in tons/hour of all similar units.	Engineering Evaluation for Fugitive Sources
Attachment B: Condition II.B.3.c	A.A.C. R18-2-722.F	Calibration, maintenance, and operation of monitoring devices to determine the process weight of sand, gravel or crushed stone produced daily. The weighing devices shall have an accuracy of ± 5 percent over their operating range.	Maintenance of Records.
Attachment B: Condition V.C.1.d	A.A.C. R18-2-730.A.1 and A.A.C. R18-2-730.B	PM ≤ $4.10P^{0.67}$, when P ≤ 30 tph; PM ≤ $55.0P^{0.11}$ - 40, when P > 30 tph (where PM = maximum emission rate in lb/hour, P = total process rate in tons/hour)	Performance of EPA Reference Method 5 Test.
Attachment B: Condition IX.A.1.c	A.A.C. R18-2-719.E	No off-road machinery shall emit smoke or dust for any period greater than 10 consecutive seconds, the opacity of which exceeds 40% (except for the first 10 minutes of cold start operation).	Performance of EPA Reference Method 9 Test.
Attachment B: Condition XIV.B.1.a	A.A.C. R18-2-614	No roadway or site cleaning machinery shall emit smoke or dust for any period greater than 10 consecutive seconds, the opacity of which exceeds 40% (except for the first 10 minutes of cold start operation).	Performance of EPA Reference Method 9 Test.
Attachment B: Condition IX.C.2.b	40 CFR 63.6603(a) (Table 2d, Item 1)	The Permittee shall perform the following required maintenance on each engine: a. Change oil and filter every 1,000 hours of operation or within 1 year + 30 days of the previous change, whichever comes first b. Inspect air cleaner every 1,000 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary; and	Performance required maintenance; Maintenance of records.

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
		c. Inspect all hoses and belts every 500 hours of operation or within 1 year + 30 days of the previous inspection, whichever comes first, and replace as necessary	

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
Attachment B: Condition IX.C.2.c	40 CFR 63.6605(b)	Operate and maintain engines, including any associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.	Maintenance of records.
Attachment B: Condition IX.C.1.a	40 CFR 63.6625(e)	Operate and maintain engine and any after-treatment control device in accordance with manufacturer's emission-related written instructions OR develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.	Maintenance of records.
Attachment B: Condition IX.C.1.b	40 CFR 63.6625(h)	Minimize idle time of engine during startup and minimize startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.	Maintenance of records.
Attachment B: Condition IX.C.2.b	40 CFR 63.6625(i)	The Permittee has the option of utilizing an oil analysis program in order to extend the specified oil change requirement in 63.6603(a). The analysis must be performed at the same frequency specified for changing the oil and must at a minimum analyze the following three parameters: • Total Base Number, • Viscosity, and • Percent water content. The condemning limits for these parameters are as follows: • Total Base Number is less than 30 percent of the Total Base Number of the oil when new, • Viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new, or • Percent water content (by volume) is greater than 0.5.	Maintenance of records.
Attachment B: Condition IX.C.4(5)	40 CFR 63.6655(a)	Maintain records of the occurrence and duration of each malfunction of the engine, and any associated air pollution control and monitoring equipment, and records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b).	Maintenance of records.
Attachment B: Condition IX.C.4	40 CFR 63.6655(d)	Maintain records of required maintenance performed in accordance with Table 6 of 40 CFR 63 Subpart ZZZZ.	Maintenance of records.
Attachment B: Condition IX.C.4	40 CFR 63.6655(e)	Maintain records of the maintenance conducted on the engine, and any after-treatment control device, in order to demonstrate that the engine was operated and maintained according to your own maintenance plan.	Maintenance of records.

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
Attachment B: Condition IX.C.4	40 CFR 63.6660	Records shall be kept readily accessible in hard copy or electronic form for at least five years following the date of each maintenance activity, in accordance with §63.10(b)(1).	Maintenance of records.
Attachment B: Condition III.B.3.d	Permit 0368-93, Attachment A, Condition IX(A)(1)	Submittal of semiannual compliance reports containing the following information: (1) For each month, the number of days in which the limestone crushing plant crushed rock; and (2) For each month, the quantity of rocks (in tons) crushed by the limestone crushing plant.	
Attachment B: Condition V.C.1.c	Permit 0368-93, Attachment A, Condition X(A)(1)	Maintain damper seals for lime kilns in such a manner that fugitive emissions do not have opacity in excess of 5%.	Performance of EPA Reference Method 9 Test
Attachment B: Condition V.C.3.f	Permit 0368-93, Attachment A, Condition IX(A)(2)	Submittal of semiannual reports containing the following information: (1) For each month, the number of days in which each kiln produced lime. (2) For each month, the quantity of lime (in tons) produced by each kiln.	
Attachment B: Condition V.C.3.e	Installation Permit 1233, Attachment B, Condition IV(1)	Maintain daily records of the amount of dust generated and disposed from Kilns 1 and 2.	Maintenance of Records.
Attachment B: Condition V.C.3.D	R18-2-Appendix 9	Comply with all applicable requirements for monitoring systems outlined in R18-2-Appendix 9, for the continuous monitoring system operated pursuant to R18-2-720.F for Kilns 1 and 2.	Maintenance of records.
Attachment B: Condition V.C.2.c	R18-2-331(A)(3)(e), Installation Permit 1201	Operation of baghouse DC-356 using good air pollution control practices to minimize particulate emissions at all times that Kiln 2 is operated.	Maintenance of records.
Attachment B: Condition V.C.2.f	Installation Permit 1233 Attachment A, Condition III; Installation Permit 1233, Attachment B, Condition III(A)	Kiln1 Pug Mill 323 and Kiln 2 Pug Mill 371 shall be used to hydrate all lime dust collected by Kiln 1 and Kiln 2 dust collection systems. The pug mills shall at all times be maintained in good working order and be operated as efficiently as practicable so as to minimize air pollutant emissions.	Maintenance of records.
Attachment B: Condition V.C.1.a	Installation Permit 1233, Attachment B, Condition II(B)(2)	Owner/Operator shall not cause to be discharged into the atmosphere from Dust Bin BN-320 and Bucket Elevator BE- 319 any fugitive emissions which exhibit opacity greater than 10%.	Performance of EPA Reference Method 9 Test

Permit Condition	Regulatory Citation for Applicable Requirements	Description of Requirements	Methods Used to Demonstrate Compliance
Attachment B: Condition V.C.3.g	Installation Permit 1233, Attachment A, Condition III; Installation Permit 1233, Attachment B, Condition III(B)	Operation of DC-403 at all times that BC-403 is operated. Operation of DC-321 at all times that Dust Bin BN-320 and Bucket Elevator BE-319 are operated. DC-321 and DC-403 shall at all times be maintained in good working order and be operated as efficiently as practicable so as to minimize air pollutant emissions.	Maintenance of records.
Attachment B: Condition V.C.3.h	Operating Permit 1001154	Operation of DC-228, DC-404, DC- 369, and DC-408 in good working order and as efficiently as possible at all times that Reject Belt 227, Belt Conveyor BC-404, Kiln 2 Dust Bin 368, and Bin T-410 are operated	Maintenance of records.
Attachment B: Condition VII.B.2.b	Operating Permit 1001605; Operating Permit 1000376	Operation of dust collectors DC-401, DC-402, DC-406, DC-431, DC-481, DC-482, DC- 483, DC-485, DC-486, and DC-487, at all times when the respective emission units they control are in operation. All dust collectors shall at all times be maintained in good working order and be operated as efficiently as practicable so as to minimize air pollutant emissions.	Maintenance of records.
Attachment B: Condition VII.B.2.c	Installation Permit 1222	Operation of DC-406 to control emissions from Bin 403 and operation of DC-483 to control emissions from Spout 483.	Maintenance of records.
Attachment B: Condition VIII.C.1.b	EPA Installation Permit issued August 31, 1978, Condition VIII(B)	Owner/Operator shall not discharge or cause the discharge into the atmosphere particulate matter in excess of five (5) pounds per hour, maximum two (2) hour average from the Kiln 3 and Wet Scrubber DC-600 System.	Performance of EPA Reference Method 5 Test

8. INSIGNIFICANT AND TRIVIAL ACTIVITIES

The insignificant and trivial activities associated with the Douglas Lime Plant are presented in Table 8.1. An explanation of why the equipment and/or processes meet the definition of insignificant or trivial activities is also presented in Table 8.1. Pursuant to A.A.C. R18-2-101.144, trivial activities may be omitted from a permit application. Furthermore, pursuant to A.A.C. R18-2-304.E.9, insignificant activities shall be listed in a permit application, but the application need not provide emissions data. Therefore, the negligible emissions from the equipment/activities presented in Table 8.1 are not considered in this application.

Table 8-1. Insignificant and Trivial Activities

Equipment/Activity	Insignificant or Trivial	Reference	Reason for Being Considered Insignificant or Trivial
Petroleum product storage tanks containing the following substances, provided the applicant lists and identifies the contents of each tank with a volume of 350 gallons or more and provides threshold values for throughput or capacity or both for each such tank: diesel fuels and fuel oil in storage tanks with capacity of 40,000 gallons or less, lubricating oil, transformer oil, and used oil.	Insignificant	A.A.C. R18-2-101.68.a.i	A.A.C. Definition of Insignificant Activity
Gasoline storage tanks with a capacity of 10,000 gallons or less	Insignificant	A.A.C. R18-2-101.68.a.ii	A.A.C. Definition of Insignificant Activity.
Storage and piping of natural gas, butane, propane, or liquified petroleum gas, provided the applicant lists and identifies the contents of each stationary storage vessel with a volume of 350 gallons or more and provides threshold values for throughput or capacity or both for each such vessel.	Insignificant	A.A.C. R18-2-101.68.a.iii	A.A.C. Definition of Insignificant Activity
Piping of fuel oils, used oil and transformer oil provided the applicant includes a system description.	Insignificant	A.A.C. R18-2-101.68.a.iv	A.A.C. Definition of Insignificant Activity
Storage and handling of drums or other transportable containers where the containers are sealed during storage, and covered during loading and unloading, including containers of waste and used oil	Insignificant	A.A.C. R18-2-101.68.a.v	A.A.C. Definition of Insignificant Activity
Storage tanks containing exclusively soaps, detergents, waxes, greases, aqueous salt solutions, aqueous	Insignificant	A.A.C. R18-2-101.68.a.vi	A.A.C. Definition of Insignificant Activity

Equipment/Activity	Insignificant or Trivial	Reference	Reason for Being Considered Insignificant or Trivial
solutions of acids that are not regulated air pollutants, and aqueous caustic solutions			
Electrical transformer oil pumping, cleaning, filtering, drying and the re-installation of oil back into transformers.	Insignificant	A.A.C. R18-2-101.68.a.vii	A.A.C. Definition of Insignificant Activity
Internal combustion engine-driven compressors, internal combustion engine- driven electrical generator sets, and internal combustion engine-driven water pumps used for less than 500 hours per calendar year for emergency replacement or standby service	Insignificant	A.A.C. R18-2-101.68.b	A.A.C. Definition of Insignificant Activity
Low Emitting Processes: i. Batch mixers with rated capacity of 5 cubic feet or less. ii. Wet sand and gravel production facilities that obtain material from subterranean and subaqueous beds, whose production rate is 200 tons/hour or less, and who's permanent in-plant roads are paved and cleaned to control dust. This does not include activities in emissions units which are used to crush or grind any nonmetallic minerals. iii. Powder coating operations. iv. Equipment using water, water and soap or detergent, or a suspension of abrasives in water for purposes of cleaning or finishing. v. Blast-cleaning equipment using a suspension of abrasive in water and any exhaust system or collector serving them exclusively. vi. Plastic pipe welding.	Insignificant	A.A.C. R18-2-101.68.c	A.A.C. Definition of Insignificant Activity
Site Maintenance: i. Housekeeping activities and associated products used for cleaning purposes, including collecting spilled and accumulated materials at the source, including operation of fixed vacuum cleaning systems specifically for such purposes. ii. Sanding of streets and roads to abate traffic hazards caused by ice and snow.	Insignificant	A.A.C. R18-2-101.68.d	A.A.C. Definition of Insignificant Activity

Equipment/Activity	Insignificant or Trivial	Reference	Reason for Being Considered Insignificant or Trivial
iii. Street and parking lot striping. iv. Architectural painting and associated surface preparation for maintenance purposes at industrial or commercial facilities.			
Non-commercial (in-house) experimental, analytical laboratory equipment, which is bench scale in nature, including quality control/quality assurance laboratories supporting a stationary source and research and development laboratories	Insignificant	A.A.C. R18-2-101.68.e.i	A.A.C. Definition of Insignificant Activity
Individual sampling points, analyzers, and process instrumentation, whose operation may result in emissions but that are not regulated as emission units	Insignificant and Trivial	A.A.C. R18-2-101.68.e.ii and A.A.C. R18-2- 101.146.f.vii	A.A.C. Definitions of Insignificant and Trivial Activities
General office activities, such as paper shredding, copying, photographic activities, pencil sharpening, and blueprinting, but not to include incineration	Insignificant and Trivial	A.A.C. R18-2-101.68.f.i and A.A.C. R18-2-101.146.d.v	A.A.C. Definitions of Insignificant and Trivial Activities
Use of consumer products, including hazardous substances where the product is used at a source in the same manner as normal consumer use	Insignificant and Trivial	A.A.C. R18-2-101.68.f.ii and A.A.C. R18-2-101.146.d.ix	A.A.C. Definitions of Insignificant and Trivial Activities
Activities directly used in the diagnosis and treatment of disease, injury or other medical condition	Insignificant and Trivial	A.A.C. R18-2-101.68.f.iii and A.A.C. R18-2- 101.146.d.x	A.A.C. Definitions of Insignificant and Trivial Activities
Miscellaneous Activities: i. Installation and operation of potable, process and wastewater observation wells, including drilling, pumping, filtering apparatus. ii. Transformer vents.	Insignificant	A.A.C. R18-2-101.68.g	A.A.C. Definitions of Insignificant
Combustion emissions from propulsion of mobile sources	Trivial	A.A.C. R18-2-101.146.a.i	A.A.C. Definition of Trivial Activity
Portable electrical generators that can be moved by hand from one location to another	Trivial	A.A.C. R18-2-101.146.a.iii	A.A.C. Definition of Trivial Activity
Electric motors	Trivial	A.A.C. R18-2-101.146.b	A.A.C. Definition of Trivial Activity
Storage tanks, vessels, and containers holding or storing liquid substances that will not emit any VOC or HAP;	Trivial	A.A.C. R18-2-101.146.e.i	A.A.C. Definition of Trivial Activity

Equipment/Activity	Insignificant or Trivial	Reference	Reason for Being Considered Insignificant or Trivial
Chemical storage associated with water and wastewater treatment where the water is treated for consumption and/or use within the permitted facility;	Trivial	A.A.C. R18-2-101.146.e.iii	A.A.C. Definition of Trivial Activity
Storage cabinets for flammable products	Trivial	A.A.C. R18-2-101.146.e.v.b	A.A.C. Definition of Trivial Activity
Brazing, soldering, and welding equipment, and cutting torches related to manufacturing and construction activities that do not result in emission of HAP metals	Trivial	A.A.C. R18-2-101.146.b.iii	A.A.C. Definition of Trivial Activity
Air compressors and pneumatically operated equipment, including hand tools	Trivial	A.A.C. R18-2-101.146.b.v	A.A.C. Definition of Trivial Activity
Batteries and battery charging stations	Trivial	A.A.C. R18-2-101.146.b.vi	A.A.C. Definition of Trivial Activity
Equipment used for surface coating, painting, dipping, or spraying operations, except those that emit VOC or HAPs	Trivial	A.A.C. R18-2-101.146.b.x	A.A.C. Definition of Trivial Activity
Process water filtration systems and demineralizers	Trivial	A.A.C. R18-2-101.146.b.xv	A.A.C. Definition of Trivial Activity
Demineralized water tanks and demineralizer vents	Trivial	A.A.C. R18-2-101.146.b.xvi	A.A.C. Definition of Trivial Activity
Steam vents and safety relief valves	Trivial	A.A.C. R18-2-101.146.b.xix	A.A.C. Definition of Trivial Activity
Steam leaks	Trivial	A.A.C. R18-2-101.146.b.xx	A.A.C. Definition of Trivial Activity
Steam cleaning operations and steam sterilizers	Trivial	A.A.C. R18-2-101.146.b.xxi	A.A.C. Definition of Trivial Activity
Use of vacuum trucks and high-pressure washer/cleaning equipment within the facility boundaries for cleanup and transfer of liquids and slurried solids to waste water treatment units or conveyances	Trivial	A.A.C. R18-2-101.146.b.xxii	A.A.C. Definition of Trivial Activity
Equipment using water, water and soap or detergent, or a suspension of abrasives in water for purposes of cleaning or finishing	Trivial	A.A.C. R18-2-101.146.b.xxiii	A.A.C. Definition of Trivial Activity
Electric motors	Trivial	A.A.C. R18-2-101.146.b.xxiv	A.A.C. Definition of Trivial Activity
Plant and building maintenance and upkeep activities, including grounds-	Trivial	A.A.C. R18-2-101.146.c.i	A.A.C. Definition of Trivial Activity

Equipment/Activity	Insignificant or Trivial	Reference	Reason for Being Considered Insignificant or Trivial
keeping, general repairs, cleaning, painting, welding, plumbing, re-tarring roofs, installing insulation, and paving parking lots			
Repair or maintenance shop activities	Trivial	A.A.C. R18-2-101.146.c.ii	A.A.C. Definition of Trivial Activity
Janitorial services and consumer use of janitorial products	Trivial	A.A.C. R18-2-101.146.c.iii	A.A.C. Definition of Trivial Activity
Landscaping activities	Trivial	A.A.C. R18-2-101.146.c.iv	A.A.C. Definition of Trivial Activity
Routine calibration and maintenance of laboratory equipment or other analytical instruments	Trivial	A.A.C. R18-2-101.146.c.v	A.A.C. Definition of Trivial Activity
Air-conditioning units used for human comfort that do not have applicable requirements under Title VI of the Act	Trivial	A.A.C. R18-2-101.146.d.i	A.A.C. Definition of Trivial Activity
Ventilating units used for human comfort that do not exhaust air pollutants into the ambient air from any manufacturing, industrial or commercial process	Trivial	A.A.C. R18-2-101.146.d.ii	A.A.C. Definition of Trivial Activity
Tobacco smoking rooms and areas	Trivial	A.A.C. R18-2-101.146.d.iii	A.A.C. Definition of Trivial Activity
Non-commercial food preparation	Trivial	A.A.C. R18-2-101.146.d.iv	A.A.C. Definition of Trivial Activity
Laundry activities	Trivial	A.A.C. R18-2-101.146.d.vi	A.A.C. Definition of Trivial Activity
Bathroom and toilet vent emissions	Trivial	A.A.C. R18-2-101.146.d.vii	A.A.C. Definition of Trivial Activity
Other storage tanks, vessels, and containers holding or storing liquid substances that do not emit any VOC or HAP	Trivial	A.A.C. R18-2-101.146.e.i	A.A.C. Definition of Trivial Activity
Storage cabinets for flammable products	Trivial	A.A.C. R18-2-101.146.e.v	A.A.C. Definition of Trivial Activity
Natural gas pressure regulator vents	Trivial	A.A.C. R18-2-101.146.e.vi	A.A.C. Definition of Trivial Activity
Vents from continuous emissions monitors and other analyzers	Trivial	A.A.C. R18-2-101.146.f.i	A.A.C. Definition of Trivial Activity
Bench scale lab equipment used exclusively for chemical and physical analysis	Trivial	A.A.C. R18-2-101.146.f.ii	A.A.C. Definition of Trivial Activity
Equipment used for quality control, quality assurance, or inspection	Trivial	A.A.C. R18-2-101.146.f.iii	A.A.C. Definition of Trivial Activity

Equipment/Activity	Insignificant or Trivial	Reference	Reason for Being Considered Insignificant or Trivial
purposes, including sampling equipment used to withdraw materials for analysis			

9. AIR POLLUTION CONTROL INFORMATION

9.1 Description of Methods for Determining Compliance

The methods that are used to demonstrate compliance with applicable regulatory requirements are presented in Table 7-1.

9.2 Descriptions of Air Pollution Control Equipment

The pollution control equipment is listed in Table 9-1. Water sprays are also used at various material handling and transfer points as shown on the process flow diagrams in Section 4.

The locations of the pollution control equipment in the lime manufacturing areas of the facility are shown in Figures 4.3, 4.4, and 4.5.

Table 9-1. Summary of Air Pollution Control Equipment

Identification	Make	Model / Serial No.	CFM	Filter Area (ft^2)	Outlet Dimensions (ft)	Outlet Temperature (°F)	Rated / Operating Efficiency (%) *
Dust Collector 146	Mikropul	48S-8-20	2725	453	1.67	ambient	99+
Dust Collector 147	Mikropul	64S-8-20	3625	604	1.67	ambient	99+
Dust Collector 148	Mikropul	80S-8-20	4550	755	1.67	ambient	99+
Dust Collector 309	Rexnord	10 bed	36000-45000	--	3.5	340	95+
Dust Collector 401	Wheelabrator	33-36	3100	448	1.19	ambient	99+
Dust Collector 402	Wheelabrator	45-36	6240	996	1.42	ambient	99+
Dust Collector 403	WAM	FJA-110	600	110	4″ x 7″	ambient	99+
Dust Collector 406	DCE	DLMV12/10F2	800	129	6″ x 3″	ambient	99+
Dust Collector 426	Mikropul	25S-10-20C	1500	295	9″ x 20″	ambient	99+
Dust Collector 431	Mikropul	25N6-B	1000	177	7″ x 5″	ambient	99+
Dust Collector 481	Future	Future	400 (assumed)	Future	Future	Future	99+
Dust Collector 482	WAM	FJA-65	400	65	3.5″ x 6″	ambient	99+
Dust Collector 483	DCE	DU-30-F10	2000	323	12″ x 8″	ambient	99+
Dust Collector 485	Future	Future	1000 (assumed)	Future	Future	Future	99+
Dust Collector 486	Mikropul	25N6-B	1000	177	7″ x 5″	ambient	99+
Dust Collector 487	IAC	84TB-BHWT-144:S6	10000	1633	7″ x 5″	ambient	99+
Dust Collector 500	Fuller	4M300C14-6	84000	26000	6.5	350	99+
Dust Collector 508	I.A.C.	72-TB-BV1-22:S6	600	243	1.0	100	99+
Dust Collector 522	WAM	FJA-160	1000	160	4″ x 6″	ambient	99+
Dust Collector 523	WAM	FJA-250	1000	250	4″ x 6″	150	99+
Dust Collector 524	Mikropul	25S-8-30A	1200	236	8″ x 8″	ambient	99+
Dust Collector 600	Ducon	Size 96 UWA	30000-38000		4.2	110	95+
Dust Collector 730	I.A.C.	72-TB-BV1-25:S6	600	243	1.0	100	99+
Dust Collector 774	Mikropul	100S-10-20C	7500	1180	17″ x 19″	ambient	99+
Dust Collector 775	WAM	FJA110	600	110	3.5″ x 6″	ambient	99+
Dust Collector 776	Mikropul	16S-10-30B	1200	180	5.5	ambient	99+
Dust Collector 777	Mikropul	16S-10-30B	1200	180	5.5	ambient	99+
Dust Collector 778	Mikropul	25S-10-30B	1500	195	10″ x 9″	ambient	99+
Dust Collector 779	WAM	FJA-65	400	65	3.5″ x 6″	ambient	99+
Dust Collector 780	WAM	FJA-65	400	65	3.5″ x 6″	ambient	99+

Identification	Make	Model / Serial No.	CFM	Filter Area (ft^2)	Outlet Dimensions (ft)	Outlet Temperature (°F)	Rated / Operating Efficiency (%) *
*Rated/Operation efficiencies are based on typical published values for these types of equipment.							

10. CAM ANALYSIS

Pursuant to 40 Code of Federal Regulations (CFR) Part 64.2(a), compliance assurance monitoring (CAM) applies to pollutant-specific emission units (PSEUs) located at a Title V major source if all of the criteria summarized below are met:

- The PSEU is subject to an emission limitation or standard for the applicable regulated air pollutant (or surrogate thereof);
- The PSEU uses a control device to achieve compliance with any such emission limitation or standard; and
- The PSEU has potential pre-control device emissions (i.e., PTE without consideration of emission reductions due to the use of pollution control devices) of the applicable regulated air pollutants that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a Title V major source (100 tons per year).

PSEU is defined in 40 CFR 64 as "an emissions unit considered separately with respect to each regulated air pollutant." EPA notes in the preamble to the final CAM rule that the term "pollutant-specific emissions unit," defined in §64.1, is used in Part 64 to clarify that applicability for each pollutant is determined separately at each emission unit. For example, a coal-fired boiler emitting through a single stack could constitute several pollutant-specific emission units, such as for PM_{10}, SO_2, NO_X, and CO.

The PSEUs at the Douglas Lime Plant that are subject to an emission limitation or standard and use a control device to achieve compliance with the emission limitation or standard are presented in Table 10.1. Table 10.1 also presents the potential pre-control device emissions for each of the PSEUs. The PSEUs with potential pre-control device emissions of a regulated air pollutant greater than or equal to the applicable major source threshold, then the PSEU and corresponding pollution control device are subject to CAM requirements.

The PSEUs subject to CAM requirements are identified in Table 10.1. CAM plans for each of these PSEUs are provided in Appendix E.

Table 10.1. Potential Pre-Control Device Emissions and CAM Applicability

Process Number	Pollution Control Device	PSEU(s) Controlled	Uncontrolled Emissions (tpy)			Subject to CAM?
			PM	PM_{10}	$PM_{2.5}$	
Crushing and Screening Plant						
DC120	Dust Collector 120	Apron Feeder 101 to Grizzly/Primary Crusher 102 and Primary Crusher 102	3.08	1.37	0.26	No
		Primary Crusher 102 to Belt 103	6.81	3.22	0.49	No
DC121	Dust Collector 121	Secondary Crusher 106	4.29	1.49	0.10	No
		Secondary Crusher 106 to Belt 103	0.31	0.15	0.02	No
DC122	Dust Collector 122	-2" Belt 109 to Secondary Screen 110 and Secondary Screen 110	9.98	3.47	0.23	No

Process Number	Pollution Control Device	PSEU(s) Controlled	Uncontrolled Emissions (tpy)			Subject to CAM?
			PM	PM_{10}	$PM_{2.5}$	
Kiln 1 Operations						
309	Gravel Bed Filters	Kiln 1	12,859.0	1,617.0	180.0	Yes
DC321	Dust Collector 321	Screw 318 to Bucket Elevator 319	0.67	0.32	0.05	No
		Bucket Elevator 319 to Dust Bin BN-320	0.67	0.32	0.05	No
		Dust Screw 360 to Kiln 1 Dust Bin BN-320	0.36	0.17	0.03	No
DC403	Dust Collector 403	BC-402 to BC-403	1.43	0.67	0.10	No

Process Number	Pollution Control Device	PSEU(s) Controlled	Uncontrolled Emissions (tpy)			Subject to CAM?
			PM	PM_{10}	$PM_{2.5}$	
Kiln 2 Operations						
DC228	Dust Collector 228	Reject Screw 226 to Reject Belt 227	0.40	0.19	0.03	No
DC356	Dust Collector 356	Kiln 2	33,424.5	4,203.0	467.9	Yes
DC369	Dust Collector 369	Dust Screw 365 to Bucket Elevator 366	0.44	0.21	0.03	No
		Bucket Elevator 366 to Tank Screw 367	0.44	0.21	0.03	No
		Tank Screw 367 to Kiln 2 Dust Bin BN-368	0.44	0.21	0.03	No
		Kiln 2 Dust Bin BN-368 to Truck	0.22	0.11	0.02	No
DC404	Dust Collector 404	Vibrating Feeders 353 to BC-404	3.71	1.75	0.27	No
DC408	Dust Collector 408	Dust Screw 360 to Bin T-410	0.36	0.17	0.03	No

Process Number	*Pollution Control Device*	*PSEU(s) Controlled*	*Uncontrolled Emissions (tpy)*			*Subject to CAM?*
			PM	**PM_{10}**	**$PM_{2.5}$**	
Kiln 1 and Kiln 2 Lime Storage and Truck Loadout						
DC401	Dust Collectors 401	BC-403 to Gate G-403	1.43	0.67	0.10	No
		Gate G-403 to Bin 401	1.43	0.67	0.10	No
		Gate G-403 to BC-405	1.43	0.67	0.10	No
		BC-404 to Gate G-404	3.71	1.75	0.27	No
		Gate G-404 to Bin 401	3.71	1.75	0.27	No
		Gate G-404 to BC-405	3.71	1.75	0.27	No

Process Number	Pollution Control Device	PSEU(s) Controlled	Uncontrolled Emissions (tpy)			Subject to CAM?
			PM	PM_{10}	$PM_{2.5}$	
Kiln 1 and Kiln 2 Lime Storage and Truck Loadout, cont.						
DC402	Dust Collector 402	BC-405 to Gate G-405	5.13	2.43	0.37	No
		Gate G-405 to Roll Crusher R-405 and Roll Crusher R-405	5.12	1.97	0.12	No
		BC-433 to Gate G-451	8.56	4.05	0.61	No
		Gate G-451 to Hammermill 452	8.56	4.05	0.61	No
		Hammermill 452 to Screw 434	8.56	4.05	0.61	No
		Gate G-451 to Screw 434	8.56	4.05	0.61	No
		Screw 434 to Bucket Elevator E-432	8.56	4.05	0.61	No
		Gate G-434 to Bin 402	8.56	4.05	0.61	No
		Bin 402 to Bucket Elevator E-432	8.56	4.05	0.61	No
		Bin 402 to Truck via Spout 482	80.14	37.90	2.71	No
		Screw 441 to Bucket Elevator E-441	8.56	4.05	0.61	No
		Bucket Elevator E-441 to Gate G-441	8.56	4.05	0.61	No

Process Number	Pollution Control Device	PSEU(s) Controlled	Uncontrolled Emissions (tpy)			Subject to CAM?
			PM	PM_{10}	$PM_{2.5}$	
Kiln 1 and Kiln 2 Lime Storage and Truck Loadout, cont.						

DC406	Dust Collector 406	Gate G-406 to Bin 405	5.13	2.43	0.37	No
		Screw 435 to Bin 405 (Future)	8.56	4.05	0.61	No
		Gate G-441 to Screw 406	8.56	4.05	0.61	No
		Screw 406 to Bin 405	8.56	4.05	0.61	No
		Gate G-434 to Bin 403	5.13	2.43	0.37	No
DC431	Dust Collector 431	Screw 406, 432 and 431 (Future) to Roll Crusher R-451	8.56	4.05	0.61	No
		Roll Crusher R-451 to BC-433	8.56	4.05	0.61	No
DC481	Dust Collector 481 (future)	Bin 405 to BC-481 (Future)	0.77	0.36	0.06	No
DC482	Dust Collector 482	Bin 403 to BC-483	5.13	2.43	0.37	No
DC483	Dust Collector 483	BC-483 to Truck via Spout 483	96.84	45.80	3.28	No
DC485	Dust Collector 485 (future)	Bin 407 to BC-485 (Future)	5.13	2.43	0.37	No

Process Number	**Pollution Control Device**	**PSEU(s) Controlled**	**Uncontrolled Emissions (tpy)**			**Subject to CAM?**
			PM	**PM_{10}**	**$PM_{2.5}$**	
Kiln 1 and Kiln 2 Lime Storage and Truck Loadout, cont.						
DC486	Dust Collector 486	Gate G-441 to BC-486	5.13	2.43	0.37	No
		Bin 406 to BC-486	5.13	2.43	0.37	No
		BC-485 to BC-486 (Future)	5.13	2.43	0.37	No
		Screw 487 to BC-486	0.00187	0.00089	0.00013	No
DC487	Dust Collector 487	BC-486 to Truck via Spout 486	96.84	45.80	3.28	No

Process Number	Pollution Control Device	PSEU(s) Controlled	Uncontrolled Emissions (tpy)			Subject to CAM?
			PM	PM_{10}	$PM_{2.5}$	
Kiln 3 Operations						
DC241	Dust Collector 241	Reclaim Belt to Stone Screen and Stone Screen	4.88	1.70	0.11	No
		Stone Screen to Stone Bin	1.98	0.94	0.14	No
		Weigh Hopper to Skip Hoist	1.98	0.94	0.14	No
DC730	Dust Collector 730	Dust Screw 360 to Kiln 3 Dust Blend System Bin	0.36	0.17	0.03	No
DC779	Dust Collector 779	Large Bin to Rail Belt	1.62	0.77	0.12	No
		Small Bin to Rail Belt	1.62	0.77	0.12	No
		Screw Conveyor to Rail Belt	0.16	0.08	0.01	No
DC850	Dust Collector 850	Vibrating Feeders to Product Belt	3.24	1.53	0.23	No
		Vibrating Feeders to Reject Conveyor	3.24	1.53	0.23	No
DC851	Duct Collector 851	Product Belt to Lime Crusher and Lime Crusher	3.24	1.25	0.08	No

Process Number	Pollution Control Device	PSEU(s) Controlled	Uncontrolled Emissions (tpy)			Subject to CAM?
			PM	PM_{10}	$PM_{2.5}$	
Kiln 3 Operations, cont.						
DC852	Dust Collector 852	Bucket Elevator to Lime Screen and Lime Screen	24.90	5.98	0.57	No
		Lime Screen to Large Bin	2.43	1.15	0.17	No
		Bucket Elevator to Large Bin	3.24	1.53	0.23	No
DC853	Dust Collector 853	Truck Belt to Truck	53.16	25.14	1.80	No
DC854	Dust Collector 854	Large Bin to Truck Belt	3.24	1.53	0.23	No
		Screw Conveyor to Truck Belt	0.16	0.08	0.01	No
DC600	Wet Scrubber 600	Kiln 3	664.00	415.00	119.52	Yes

11. COMPLIANCE PLAN AND SCHEDULE

As required by Permit 81660, Lhoist is committed to maintaining compliance schedule as follows:

- For applicable requirements with which the source is in compliance at the time of permit issuance.

The facility will continue to comply with all existing applicable requirements.

- For applicable requirements that will become effective during the permit term.

The facility will meet in a timely manner applicable requirements that will become effective during the permit term. Lhoist is not presently aware of any particular applicable requirements requiring a more specific future schedule. Furthermore, Lhoist shall submit a compliance certification annually which describes the compliance status of the facility with respect to each permit condition.

- A schedule of compliance for sources that are not in compliance with all applicable requirements at the time of permit issuance. Such a schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the source will be in noncompliance at the time of permit issuance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based.

The facility is currently in compliance with all applicable requirements. Therefore, no compliance schedule is required.

- A schedule for the submission of certified progress reports no less frequently than every 6 months for sources required to have a schedule of compliance to remedy a violation.

Because a compliance schedule is not required, a schedule for submission of certified progress reports is likewise not required.

12. COMPLIANCE CERTIFICATION

As required by Attachment "A", Condition VII.A of the permit, the most recent compliance certification for Lhoist Douglas was submitted to the EPA and ADEQ by the due date of October 2nd, 2024. This certification identified Lhoist's compliance status with all applicable Title V requirements. Lhoist will continue to comply with all applicable requirements as described in this permit application, and will, in a timely manner, meet any additional applicable requirements that become effective during the permit term.

I certify that based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate, and complete.

Name: Duane L Surman

Title: Western Region Terminal Manager

Signature: Duane L. Surman Date: 02 April, 2025

Table B.1 Equipment List

Type of Equipment	Maximum Rated Capacity	Make	Model	Serial Number	Date of Manufacture	Equipment ID Number
Crushing and Screening Plant						
Primary Crusher 102	425 tph	KVS	42"x48" Jaw	N/A	1980	102
Primary Screen 104	425 tph	Simplicity	3616-M140A-4055	N/A	1994	104
Secondary Screen 110	300 tons	Simplicity	3616-M140B-4723	N/A	1998	110
Secondary Crusher 106	300 tph	El Jay	54" Cone	N/A	1976	106
SECO #1 Screen 124	300 tph	SECO	4'x12' 2-deck	N/A	Pre-1983	124
SECO #2 Screen 125	300 tph	SECO	4'x12' 2-deck	N/A	Pre-1983	125
SECO #3 Screen 126	300 tons	SECO	4'x12' 2-deck	N/A	Pre-1983	126
Hopper 100	<425 tph	N/A	N/A	N/A	Pre-1983	100
Apron Feeder 101	<425 tph	Portec	42 x 30	N/A	Pre-1983	101
Conveyor Belt 103	<425 tph	Open Trough	N/A	N/A	Pre-1983	103
Cone Crush Conveyor Belt 105	<425 tph	Open Trough	N/A	N/A	Pre-1983	105
O/S Conveyor Belt 107	<425 tph	Open Trough	N/A	N/A	Pre-1983	107
Short -2" Conveyor Belt 109	<425 tph	Open Trough	N/A	N/A	Pre-1983	109
#1 Feed Conveyor Belt 111	<425 tph	Open Trough	N/A	N/A	Pre-1983	111
#2 Feed Conveyor Belt 112	<425 tph	Open Trough	N/A	N/A	Pre-1983	112
Reversible Chat Conveyor Belt 113	<425 tph	Open Trough	N/A	N/A	Pre-1983	113
First Chat Conveyor Belt 114	<425 tph	Open Trough	N/A	N/A	Pre-1983	114

Type of Equipment	Maximum Rated Capacity	Make	Model	Serial Number	Date of Manufacture	Equipment ID Number
Second Chat Conveyor Belt 115	<425 tph	Open Trough	N/A	N/A	Pre-1983	115
1st Flux Conveyor Belt 116	<425 tph	Open Trough	N/A	N/A	Pre-1983	116
2nd Flux Conveyor Belt 117	<425 tph	Open Trough	N/A	N/A	Pre-1983	117
1st #3 SP Feed Belt 118	<425 tph	Open Trough	N/A	N/A	Pre-1983	118
2nd #3 SP Feed Belt 119	<425 tph	Open Trough	N/A	N/A	Pre-1983	119
SECO System Conveyor Belt 123	<425 tph	Open Trough	N/A	N/A	Pre-1983	123
Kiln 1 System						
Preheater Screen 211	100 tons	Kolberg	2359-366-86-1D	N/A	1986	211
Kiln 1	8.33 tph	KVS	Rotary Kiln	N/A	1967	N/A
Pug Mill 323	35 tph	United Conveyor	NA	N/A	1992	323
Belt Conveyor BC-210	N/A	N/A	N/A	N/A	N/A	BC-210
Stone Bin 301	N/A	N/A	N/A	N/A	N/A	301
Preheater 302	N/A	N/A	N/A	N/A	N/A	302
Product Cooler 306	N/A	KVS	N/A	N/A	N/A	306
Dust Pod 308	N/A	N/A	N/A	N/A	N/A	308
Collect Drag Screw Conveyor 310	N/A	Rexnord	N/A	N/A	N/A	310
Center Screw Conveyor 311	N/A	N/A	N/A	N/A	N/A	311
Cross Drag Screw Conveyor 312	N/A	Rexnord	N/A	N/A	N/A	312
Collect Drag Screw Conveyor 313	N/A	Rexnord	N/A	N/A	N/A	313
Dust Bucket Elevator 314	N/A	Rexnord	N/A	N/A	N/A	314
Dust Pod 315	N/A	N/A	N/A	N/A	N/A	315
Screw Conveyor 316	N/A	N/A	N/A	N/A	N/A	316

Type of Equipment	Maximum Rated Capacity	Make	Model	Serial Number	Date of Manufacture	Equipment ID Number
Screw Conveyor 317	N/A	N/A	N/A	N/A	N/A	317
Screw Conveyor 318	N/A	N/A	N/A	N/A	N/A	318
Bucket Elevator 319	16 tph	Rexnord	N/A	N/A	N/A	319
Dust Bin BN-320	16 tph	N/A	N/A	N/A	N/A	BN-320
Lime Discharge Screw Conveyor 400	N/A	KVS	N/A	N/A	N/A	400
Belt Conveyor 401	N/A	N/A	N/A	N/A	N/A	BC-401
Belt Conveyor 402	N/A	N/A	N/A	N/A	N/A	BC-402
Belt Conveyor 403	18.4 tph	N/A	N/A	N/A	N/A	BC-403
Kiln 2 System						
Screen 224	100 tph	N/A	4 ½′ x 10′	N/A	1995	224
Kiln 2	22.92 tph	Traylor	Rotary Kiln	N/A	1970	N/A
Pug Mill 371	35 tph	N/A	N/A	N/A	1992	371
Crossover Tunnel Belt 215	N/A	N/A	N/A	N/A	N/A	215
Crossover Belt 216	N/A	N/A	N/A	N/A	N/A	216
Crossover Belt 217	N/A	N/A	N/A	N/A	N/A	217
Tunnel Belt 223	N/A	N/A	N/A	N/A	N/A	223
-2″ Belt	N/A	N/A	N/A	N/A	N/A	N/A
Belt Conveyor 225	N/A	N/A	N/A	N/A	N/A	BC-225
Reject Screw Conveyor 226	N/A	N/A	N/A	N/A	N/A	226
Reject Belt 227	N/A	N/A	N/A	N/A	N/A	227
Stone Bin 350	N/A	N/A	N/A	N/A	N/A	350
Weigh Belt 351	N/A	Merrick	N/A	N/A	N/A	351
Product Cooler 353	N/A	Niems	N/A	N/A	N/A	353
Vibrating Feeders 353	N/A	Jeffrey	12 x 42	N/A	N/A	VF-353
Screw Conveyor 358	N/A	Martin	N/A	N/A	N/A	358
Screw Conveyor 359	N/A	Martin	N/A	N/A	N/A	359

Type of Equipment	Maximum Rated Capacity	Make	Model	Serial Number	Date of Manufacture	Equipment ID Number
Dust Screw Conveyor 360	N/A	Martin	N/A	N/A	N/A	360
HX Screw Conveyor 361	N/A	Martin	N/A	N/A	N/A	361
HX Screw Conveyor 363	N/A	Martin	N/A	N/A	N/A	363
Dust Screw Conveyor 364	N/A	N/A	N/A	N/A	N/A	364
Dust Screw Conveyor 365	N/A	N/A	N/A	N/A	N/A	365
Bucket Elevator 366	N/A	N/A	N/A	N/A	N/A	366
Tank Screw Conveyor 367	N/A	N/A	N/A	N/A	N/A	367
Kiln 2 Dust Bin BN-368	N/A	Free-Flow	N/A	N/A	N/A	BN-368
Dust Storage Bin T-410	20 tons	M-TEC	Type S 2415	2415019122	1991	T-410
Rotary Feeder Gate	N/A	Smoot, Co.	FT-9	N/A	N/A	G-411
Screw Conveyor 412	N/A	Thomas Conveyor Co.	9 inch	N/A	1994	SC-412
Kilns 1 and 2 Lime Handling System						
Roll Crusher R-405	50 tph	Gundlach	27SS	N/A	1978-1979	R-405
Roll Crusher R-451	50 tph	Gundlach	2030S-2193	N/A	1996	R-451
Hammermill R-452	50 tph	Williams	30-GA	N/A	1996	R-452
Product Bin 401	400 tons	N/A	N/A	N/A	1988	401
Product Bin 402	50 tons	N/A	N/A	N/A	Pre-1970	402
Product Bin 403	800 tons	N/A	N/A	N/A	1989	403
Product Bin 405	1,000 tons	N/A	N/A	N/A	1996	405
Product Bin 406	1,000 tons	N/A	N/A	N/A	1996	406
Product Bin 407 (Future)	1,000 tons	TBD	TBD	N/A	TBD	407
Bucket Elevator E-432	50 tph	Industrial Screw Conveyor	14X7X73	N/A	N/A	E-432
Diverter Gate	N/A	N/A	3P	N/A	N/A	G-403
Diverter Gate	N/A	N/A	3P	N/A	N/A	G-404

Type of Equipment	Maximum Rated Capacity	Make	Model	Serial Number	Date of Manufacture	Equipment ID Number
Loadout Spout	N/A	N/A	N/A	N/A	N/A	U-403
Loadout Spout	N/A	N/A	N/A	N/A	N/A	U-404
Belt Conveyor	60 tph	N/A	30″ x 154′	N/A	N/A	BC-405
Diverter Gate	N/A	N/A	N/A	N/A	N/A	G-405
Diverter Gate	N/A	N/A	N/A	N/A	N/A	G-406
Screw Conveyor	50 tph	Conveyors, Inc.	16″ x 58′	N/A	N/A	C-406
Screw Conveyor	50 tph	N/A	24″ x 65′	N/A	N/A	C-431
Screw Conveyor	50 tph	Conveyors, Inc.	18″ x 17′	N/A	N/A	C-432
Belt Conveyor	50 tph	N/A	24″ x 28′	N/A	N/A	BC-405
Diverter Gate	50 tph	N/A	N/A	N/A	N/A	G-451
Screw Conveyor	50 tph	Conveyors, Inc.	20″ x 28′	N/A	N/A	C-434
Diverter Gate	N/A	N/A	N/A	N/A	N/A	G-434
Loadout Spout	150 tph	Midwest Intl.	MC22-EV	MC 5171	N/A	U-482
Screw Conveyor (Future)	TBD	TBD	TBD	N/A	TBD	C-435
Screw Conveyor	52 tph	Conveyors, Inc.	18″ x 21′	N/A	N/A	C-441
Bucket Elevator	52 tph	Dricon	3007	JOB 1793	N/A	E-441
Diverter Gate	N/A	N/A	N/A	N/A	N/A	G-441
Belt Conveyor	100 tph	N/A	24″ x 52′	N/A	N/A	BC-485
Belt Conveyor	100 tph	N/A	24″ x 66′	N/A	N/A	BC-486
Loadout Spout	150 tph	Midwest Intl.	MC22-EV	MC 5170	N/A	U-486
Belt Conveyor	50 tph	N/A	24″ x 55′	N/A	N/A	BC-481
Kiln 3 System						
Stone Screen	100 tph	Kolberg	1723-366-79-1	N/A	1980	VS-234
Kiln 3	460 tph	Maerz	Twin Shaft Vertical	N/A	1979	N/A
Roll Crusher	50 tph	Gundlach	27-DA-1601	N/A	1979	RC-804
Lime Screen	50 tph	Kolberg	2359-366-86-1D	N/A	1986	VS-807
Large Bin	1,000 tons	N/A	N/A	N/A	N/A	BN-809
Small Bin	130 tons	N/A	N/A	N/A	N/A	BN-808
Vibrating Feeders	N/A	N/A	N/A	N/A	N/A	VS-231, VS-232
Reclaim Belt	N/A	N/A	N/A	N/A	N/A	BC-233

Type of Equipment	Maximum Rated Capacity	Make	Model	Serial Number	Date of Manufacture	Equipment ID Number
Stone Bin	N/A	N/A	N/A	N/A	N/A	BN-235
Vibrating Feeder	N/A	N/A	N/A	N/A	N/A	VF-236
Belt Conveyor	N/A	N/A	N/A	N/A	N/A	BC-237
Weigh Hopper	N/A	N/A	N/A	N/A	N/A	238
Stone Hopper	N/A	N/A	N/A	N/A	N/A	N/A
Vibrating Feeders	N/A	N/A	N/A	N/A	N/A	VF-801
Reject Conveyor	N/A	N/A	N/A	N/A	N/A	BC-802
Product Conveyor	N/A	N/A	N/A	N/A	N/A	BC-803
Recirculating Conveyor	N/A	N/A	N/A	N/A	N/A	N/A
Bucket Elevator	N/A	N/A	N/A	N/A	N/A	BE-805
Screw Conveyor	N/A	N/A	N/A	N/A	N/A	N/A
Dust Blend System Bin	20 tons	M-TEC	Type S 2415	N/A	N/A	N/A
Truck Belt	N/A	N/A	N/A	N/A	N/A	BC-810
Rail Belt	N/A	N/A	N/A	N/A	N/A	N/A
Solid Fuel Handling System						
Solid Fuel Crusher 506	50 tph	Gundlach	27SS	N/A	1979	RC-506
Solid Fuel Mill 510	6.13 tph	Raymond	453	N/A	1979	510
Solid Fuel Mill 517	10.23 tph	Raymond	533-A	N/A	1979	517
Solid Fuel Bin 508	45 tons	N/A	N/A	N/A	1990	508
Solid Fuel Bin 515	45 tons	Joe White Tank Company	N/A	N/A	2000	515
Coal Hopper 503-1	49 tons	Custom	N/A	N/A	2004	503-1
Coke Hopper 503-2	49 tons	Custom	N/A	N/A	2004	503-2
Weigh Feeder 504	21 tph	Merrick	455	455MM-27105	2004	504
Weigh Feeder 505	21 tph	Merrick	455	455MM-27106	2004	505
Solid Fuel Belt 507	N/A	N/A	N/A	N/A	N/A	507
Weigh Belt 509	N/A	Merrick	N/A	N/A	N/A	509
Weigh Belt 516	N/A	Merrick	N/A	N/A	N/A	516
Pony Kiln Motors						
Diesel K1 Pony Motor	41.9 hp	Continental	TMD27	N/A	1995	N/A

Type of Equipment	Maximum Rated Capacity	Make	Model	Serial Number	Date of Manufacture	Equipment ID Number
Diesel K2 Pony Motor	81.8 hp	Deutz	Deutz F5L	N/A	1995	N/A
Pollution Control Equipment						
Dust Collector 120	2,725 cfm	Mikropul	48S-8-20	N/A	N/A	DC-120
Dust Collector 121	3,625 cfm	Mikropul	64S-8-20	N/A	N/A	DC-121
Dust Collector 122	4,550 cfm	Mikropul	80S-8-20	N/A	N/A	DC-122
Dust Collector 228	1,000 cfm	WAM	FJA-160	N/A	N/A	DC-228
Dust Collector 241	7,500 cfm	Mikropul	100S-10-20C	N/A	N/A	DC-241
Cyclone 307	N/A	N/A	N/A	N/A	N/A	307
Gravel Bed Filters 309	N/A	Rexnord	N/A	N/A	N/A	309
Dust Collector 321	1,500 cfm	Mikropul	25S-10-20C	N/A	N/A	DC-321
Dust Collector 356	84,000 cfm	Fuller	4M300C14-6	N/A	N/A	DC-356
Dust Collector 369	1,200 cfm	Mikropul	25S-8-30A	N/A	N/A	DC-369
Dust Collector 401	3,100 acfm	Wheelabrator	33-36	20-3811A	N/A	DC-401
Dust Collector 402	6,240 cfm	Wheelabrator	45-36	N/A	N/A	DC-402
Dust Collector 403	600 acfm	WAM	FJA-110	N/A	N/A	DC-403
Dust Collector 404	1,000 cfm	WAM	FJA-250	N/A	N/A	DC-404
Dust Collector 406	800 cfm	DCE	DLMV12/10F2	N/A	N/A	DC-406
Dust Collector 408	600 cfm	I.A.C.	72-TB-BV1-22:56	N/A	N/A	DC-408
Dust Collector 431	1,000 cfm	Mikropul	25N6-B	N/A	N/A	DC-431
Dust Collector 481	400 cfm (assumed)	TBD	TBD	TBD	TBD	DC-481
Dust Collector 482	400 cfm	WAM	FJA-65	N/A	N/A	DC-482
Dust Collector 483	2,000 cfm	DCE	DU-30-F10	N/A	N/A	DC-483
Dust Collector 485	1,000 cfm (assumed)	TBD	TBD	TBD	TBD	DC-485
Dust Collector 486	1,000 cfm	Mikropul	25N6-B	N/A	N/A	DC-486
Dust Collector 487	10,000 cfm	IAC	84TB-BHWT-144:S6	N/A	N/A	DC-487
Dust Collector 600	30,000-38,000 cfm	Ducon	Size 96 UWA	N/A	N/A	DC-600
Dust Collector 730	600 cfm	I.A.C.	72-TB-BV1-25:56	N/A	N/A	DC-730
Dust Collector 779	400 cfm	WAM	FJA-65	N/A	N/A	DC-779
Dust Collector 850	600 cfm	WAM	FJA-110	N/A	N/A	DC-850
Dust Collector 851	1,200 cfm	Mikropul	16S-10-30B	N/A	N/A	DC-851
Dust Collector 852	1,200 cfm	Mikropul	16S-10-30B	N/A	N/A	DC-852

Type of Equipment	Maximum Rated Capacity	Make	Model	Serial Number	Date of Manufacture	Equipment ID Number
Dust Collector 853	1,500 cfm	Mikropul	25S-10-30B	N/A	N/A	DC-853
Dust Collector 854	400 cfm	WAM	FJA-65	N/A	N/A	DC-854

a Equipment List includes only affected equipment (i.e., subject to applicable regulations).
b N/A = Not Available, TBD = To Be Determined

EQUIPMENT RELATED TO INSIGNIFCANT ACTIVITIES						
Gasoline Storage Tank	2,000 gallons	Tyco	N/A	N/A	1999	N/A

APPENDIX B: PTE CALCULATIONS

Table B.1 Particulate Emission Factors - PTE Calculations

Process Code	Process Description	Emission Factors				Production Rate Units	Emission Factor Inputs											Emission Factor Reference
		PM	PM_{10}	$PM_{2.5}$	Units		k (PM)	k (PM_{10})	k ($PM_{2.5}$)	A (ft^2)	M (%)	U (mph)	s (%)	W (tons)	p (days)	f (%)	sL (g/m^2)	
Drilling	Drilling Holes - Limestone & Overburden	1.3	0.58	0.11	lbs/hole	holes	1	0.44	0.083									AP-42, Table 11.9-4 (10/98) and particle size fractions from AP-42, Table 11.19.2-2 (08/04), Tertiary Crushing
Blasting-A	Blasting - Limestone & Overburden - Annual	3.54	1.84	0.1063	lbs/blast	blasts	1	0.52	0.03	4000								AP-42, Table 11.9-1 (10/98)
Blasting-H	Blasting - Limestone & Overburden - Hourly	7.17	3.73	0.2150	lbs/blast	blasts	1	0.52	0.03	6400								AP-42, Table 11.9-1 (10/98)
Crusher	Primary/Secondary Crushing - Limestone/Fuel	0.0054	0.0024	0.00045	lb/ton	tons			0.083									AP-42, Table 11.19.2-2 (08/04), Tertiary Crushing, PM2.5 particle size fractions from Tertiary Crushing
Fines Crushing	Fines Crushing - Lime/Fuel	0.0390	0.0150	0.00091	lb/ton	tons			0.023									AP-42, Table 11.19.2-2 (08/04), Fines Crushing, PM2.5 particle size fractions from Fines Crushing
Screening	Vibrating Screen - Limestone/Lime	0.025	0.0087	0.00057	lb/ton	tons			0.023									AP-42, Table 11.19.2-2 (08/04), Screening, PM2.5 particle size fractions from Screening
Fines Screening	Fines Screening - Lime	0.300	0.0720	0.00682	lb/ton	tons			0.023									AP-42, Table 11.19.2-2 (08/04), Fines Screening, PM2.5 particle size fractions from Screening
Limestone Material Transfer	Unprotected Limestone/Overburden Material Drop	0.0119	0.0056	0.0009	lb/ton	tons	0.74	0.35	0.053		0.7	5.6						AP-42, Section 13.2.4, Expression 1 (11/06), M% from 13.2.4-1 (crushed limestone)
Protected Limestone Material Transfer	Protected Limestone Material Drop	0.0018	0.0008	0.0001	lb/ton	tons	0.74	0.35	0.053		0.7	1.3						AP-42, Section 13.2.4, Expression 1 (11/06)
Dry Transfer Point	Dry Limestone & Overburden Material Drop	0.0391	0.0185	0.0028	lb/ton	tons	0.74	0.35	0.053		0.3	5.6						AP-42, Section 13.2.4, Expression 1 (11/06)
Fuel Transfer Point	Material Drop Point - Fuel	0.0005	0.0002	0.0000	lb/ton	tons	0.74	0.35	0.053		7	5.6						AP-42, Section 13.2.4, Expression 1 (11/06), M% from 13.2.4-1 flue dust)
Lime Material Transfer	Unprotected Lime Material Drop - 0.3% Moisture	0.0391	0.0185	0.0028	lb/ton	tons	0.74	0.35	0.053		0.3	5.6						AP-42, Section 13.2.4, Expression 1 (11/06)
Protected Lime Material Transfer	Protected Lime Material Drop - 0.3% Moisture	0.00585	0.0028	0.0004	lb/ton	tons	0.74	0.35	0.053		0.3	1.3						AP-42, Section 13.2.4, Expression 1 (11/06)
Stack	Dust Collectors	0.050	0.050	0.050	gr/acf	acf/yr												Based on a max. grain loading of 0.05 grains/acf; Assume PM=PM10=PM2.5
Stack 2	Dust Collectors	0.010	0.010	0.010	gr/acf	acf/yr												Based on a max. grain loading of 0.01 grains/acf; Assume PM=PM10=PM2.5
Kiln 1	Rotary Kiln w/ Gravel Bed Filter	3.5000	2.9000	2.4680	lb/ton	tons												AP-42, Section 11.17, Table 11.17-2 (2/98)
Kiln 2	Rotary Kiln w/ Fabric Filter	0.6600	0.5300	0.4556	lb/ton	tons												AP-42, Section 11.17, Table 11.17-2 (2/98)
Kiln 3	Vertical kiln w/ Ducon wet scrubber	0.2604	0.2271	0.2271	lb/ton	tons												EPA Installation Permit 8/31/78, Paul Spur SIP Inventory
Kilns 1 and 2 (Uncontrolled)	Uncontrolled Coal-fired Rotary Kiln	352.3	44.3	4.9322	lb/ton	tons												AP-42, Section 11.17, Table 11.17-2 (2/98)
Kiln 3 (Uncontrolled)	Uncontrolled Vertical Kiln	8.0	5.0	1.44	lb/ton	tons												AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, U.S. EPA, March 1990, p. 126
DieselEngine	Kiln Pony Motors	0.0022	0.0022	0.0022	lb/hp-hr	hp												AP-42, Section 3.3, Table 3.3-1 (10/96); Assume PM=PM10=PM2.5
Enclosed Truck/Rail Loading	Enclosed Truck/Rail Loading - Lime, Hydrate, Dust	0.61	0.289	0.021	lb/ton	tons	1	0.47	0.072									AP-42, Table 11.17-4 (02/98) for product loading enclosed truck, particle size fractions from AP-42, Section 13.2.4, Expression 1 (11/06)
Open Truck/Rail Loading	Open Truck/Rail Loading - Lime, Hydrate, Dust	1.50	0.709	0.106	lb/ton	tons	1	0.47	0.072									AP-42, Table 11.17-4 (02/98) for product loading enclosed truck, particle size fractions from AP-42, Section 13.2.4, Expression 1 (11/06)
Unpav-A	Travel on Unpaved Roads - Annual	14.70	4.50	0.45	lb/VMT	VMT	4.9	1.5	0.15				12.3	46.37	51			AP-42, Section 13.2.2, Expressions 1a and 2 (11/06)
Unpav-H	Travel on Unpaved Roads - Hourly	17.09	5.23	0.52	lb/VMT	VMT	4.9	1.5	0.15				12.3	46.37				AP-42, Section 13.2.2, Expression 1a (11/06)
Pav-A	Travel on Paved Roads - Annual	0.36	0.07	0.02	lb/VMT	VMT	0.011	0.0022	0.00054					4.49	51		10	AP-42, Section 13.2.1, Expressions 1a and 2 (1/11)
Pav-H	Travel on Paved Roads - Hourly	0.41	0.08	0.02	lb/VMT	VMT	0.011	0.0022	0.00054					4.49			10	AP-42, Section 13.2.1, Expression 1a (1/11)
WindDustStorage	Kiln Dust Storage Areas	142.14	71.07	10.66	lb/acre-day	acres	1	0.5	0.075				80.00		51	17.6		4th Edition of AP-42, Section 11.2.3 (05/83), particle size fractions from AP-42, Section 13.2.5 (11/06)
WindPiles	Off-Spec Lime and Overburden Storage Areas and Kiln Feed, Flux, and Chat Stockpiles	2.84	1.42	0.21	lb/acre-day	acres	1	0.5	0.075				1.6		51	17.6		4th Edition of AP-42, Section 11.2.3 (05/83), particle size fractions from AP-42, Section 13.2.5 (11/06)
WindOpenAreas	Open Areas	2.84	1.42	0.21	lb/acre-day	acres	1	0.5	0.075				1.6		51	17.6		4th Edition of AP-42, Section 11.2.3 (05/83), particle size fractions from AP-42, Section 13.2.5 (11/06)
WindCoalCokePiles	Coal / Coke Stockpiles	11.02	5.51	0.83	lb/acre-day	acres	1	0.5	0.075				6.2		51	17.6		4th Edition of AP-42, Section 11.2.3 (05/83), particle size fractions from AP-42, Section 13.2.5 (11/06)

[a] k = particle size multipliers, U = mean wind speed, M = material moisture content, s = surface material silt content, f = percentage of time with mean wind speed greater than 12 mph at the mean pile height, p = number of days/year with precipitation ≥ 0.01 inches, A = horizontal area of blasting surface, W = mean vehicle weight, SL = silt loading

Table B.2 Douglas Lime Plant Control Efficiencies			
Control ID	**Control Description**	**Control Efficiency**	**Reference**
Enclosed	Enclosed	70.0%	Assumed Control Efficiency for wind protected processes
Sealed	Sealed	100.0%	Assumed Control Efficiency for sealed processes
Underground	Underground	100.0%	Assumed Control Efficiency for a process occurring underground
Partial Enclosure	Tube Enclosure	50.0%	Assumed Efficiency for Tube Enclosure
None	No Pollution Control	0.0%	Assumed
Water Spray	Use of Water Sprays	82.5%	AP-42, p. 11.19.1-5, Supplement A (11/95)
Water Slurry	Water Slurry	99.0%	Assumed Control Efficiency for a completely wet process
Dust Supr.	Dust Suppression	60.0%	Paul Spur SIP Information - Table 3.2
Water 1	Watered Roads	60.0%	Assumed Efficiency for Watered Roads
DC-120	Dust Collector 120	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-121	Dust Collector 121	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-122	Dust Collector 122	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-228	Dust Collector 228	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-241	Dust Collector 241	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-321	Dust Collector 321	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-369	Dust Collector 369	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-401	Dust Collector 401	99.0%	Assumed Control Efficiency for a Baghouse
DC-402	Dust Collector 402	99.0%	Assumed Control Efficiency for a Baghouse
DC-403	Dust Collector 403	99.0%	Assumed Control Efficiency for a Baghouse
DC-404	Dust Collector 404	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-406	Dust Collector 406	99.0%	Assumed Control Efficiency for a Baghouse
DC-408	Dust Collector 408	99.0%	Assumed Control Efficiency for a Baghouse
DC-431	Dust Collector 431	99.0%	Assumed Control Efficiency for a Baghouse
DC-481	Dust Collector 481	99.0%	Assumed Control Efficiency for a Baghouse
DC-482	Dust Collector 482	99.0%	Assumed Control Efficiency for a Baghouse
DC-483	Dust Collector 483	99.0%	Assumed Control Efficiency for a Baghouse
DC-485	Dust Collector 485	99.0%	Assumed Control Efficiency for a Baghouse
DC-486	Dust Collector 486	99.0%	Assumed Control Efficiency for a Baghouse
DC-487	Dust Collector 487	99.0%	Assumed Control Efficiency for a Baghouse
DC-730	Dust Collector 487	99.0%	Assumed Control Efficiency for a Baghouse
DC-779	Dust Collector 779	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-850	Dust Collector 850	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-851	Dust Collector 851	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-852	Dust Collector 852	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-853	Dust Collector 853	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)
DC-854	Dust Collector 854	90.0%	Retrofit dust collectors (lower pickup efficiency accounted for)

Table B.3 Average Parameter Calculations for the Douglas Lime Plant Mobile Equipment

ID	Equipment Description	Mean Vehicle Weight (tons)	Unpaved Road Travel		Paved Road Travel	Weight * VMT (VMT*tons)	
			Mean Vehicle Weight (tons)	Maximum Annual VMT	Maximum Annual Rate	Unpaved (tons)	Paved (tons)
Contractor Equipment							
V1	65 Ton Haul Trucks (5 total)	79.45	79.45000	29,250	0	2,323,913	0
V2	11 yd loader (2 total)	81.00	81.00000	4,290	0	347,490	0
V3	7.5 yd loader (1 total)	30.00	30.00000	2,080	0	62,400	0
V4	Bulk Explosives Truck	17.50	17.50000	390	0	6,825	0
V5	Blast Hole Drill	32.50	32.50000	130	0	4,225	0
V6	Fuel/Lube Truck	17.50	17.50000	975	0	17,063	0
V7	Water Truck	54.40	54.40000	6,500	0	353,600	0
V8	Pickup Truck (3 total)	2.75	2.75000	7,020	4,680	19,305	12,870
Chemical Lime Vehicles							
V9	Compressor	7.70	7.70000	1,460	0	11,242	0
V10	Drill & Compressor	32.50	32.50000	1,460	0	47,450	0
V11	Loader	53.00	53.00000	3,011	0	159,583	0
V12	Loader	54.25	54.25000	12,045	0	653,441	0
V13	Loader	34.20	34.20000	11,680	0	399,456	0
V14	60 Ton Haul Trucks (3 total)	75.95	75.95000	151,110	0	11,476,805	0
V15	Blasting Agent Truck	17.50	17.50000	2,190	0	38,325	0
V16	Pickup Truck	2.63	2.63000	13,140	8,760	34,558	23,039
V17	Powder Truck	4.75	4.75000	21,900	0	104,025	0
V18	Water Truck	10.90	10.90000	7,300	0	79,570	0
V19	Water Truck	10.90	10.90000	29,200	0	318,280	0
V20	Water Truck	46.00	46.00000	29,200	0	1,343,200	0
V21	Lube Truck	11.60	11.60000	3,650	0	42,340	0
V22	Fork Lift	8.80	8.80000	219	146	1,927	1,285
V23	Grove Crane	30.80	30.80000	365	0	11,242	0
V24	Vacuum Truck	23.00	23.00000	1,825	0	41,975	0
V25	Welder Miller Trailer	1.00	1.00000	1,825	0	1,825	0
V26	Welding Truck	3.00	3.00000	1,825	0	5,475	0
V27	Flatbed Truck	3.00	3.00000	1,095	730	3,285	2,190
V28	Boom Truck	8.80	8.80000	365	0	3,212	0
V29	1/2 ton P/U	2.60	2.60000	1,095	730	2,847	1,898
V30	Pickup	2.60	2.60000	1,095	730	2,847	1,898
V31	Passenger Vehicle	1.80	1.80000	219	146	394	263
V32	Passenger Vehicle	2.60	2.60000	1,095	730	2,847	1,898
V33	Loader	8.00	8.00000	2,190	1,460	17,520	11,680
V34	Loader	2.55	2.55000	1,825	0	4,654	0
V35	Dump Truck	29.00	29.00000	876	584	25,404	16,936
V36	Dump Truck	51.90	51.90000	9,125	0	473,588	0
V37	Dump Truck	51.90	51.90000	9,125	0	473,588	0
V38	Water Truck	10.90	10.90000	7,300	0	79,570	0
V39	Water Truck	10.90	10.90000	18,250	0	198,925	0
V40	Water Truck	46.00	46.00000	18,250	0	839,500	0
V41	Lube Truck	11.60	11.60000	3,650	0	42,340	0

Table B.3 Average Parameter Calculations for the Douglas Lime Plant Mobile Equipment

ID	Equipment Description	Mean Vehicle Weight (tons)	Unpaved Road Travel		Paved Road Travel	Weight * VMT (VMT*tons)	
			Mean Vehicle Weight (tons)	Maximum Annual VMT	Maximum Annual Rate	Unpaved (tons)	Paved (tons)
Chemical Lime Vehicles (cont.)							
V42	Fork Lift	8.80	8.80000	219	146	1,927	1,285
V43	Grove Crane	30.80	30.80000	365	0	11,242	0
V44	Vacuum Truck	28.25	28.25000	1,095	730	30,934	20,623
V45	Welder Trailer	1.00	1.00000	1,825	0	1,825	0
V46	Silotek Truck	20.00	20.00000	1,825	0	36,500	0
V47	Welding Truck	3.00	3.00000	1,825	0	5,475	0
V48	Flatbed Truck	3.00	3.00000	1,095	730	3,285	2,190
V49	Boom Truck	8.80	8.80000	365	0	3,212	0
V50	1/2 ton P/U	2.60	2.60000	1,095	730	2,847	1,898
V51	Pickup	2.60	2.60000	1,095	730	2,847	1,898
V52	3/4 ton Pickup	2.60	2.60000	1,095	730	2,847	1,898
V53	Pickup	2.60	2.60000	1,095	730	2,847	1,898
V54	Pickup	2.60	2.60000	1,095	730	2,847	1,898
V55	Plant Sweeper	4.50	4.50000	1,752	1,168	7,884	5,256
	Total:	**1,109**	**1,109**	**435,436**	**25,120**	**20,192,578**	**112,800**
		Weighted Average (Unpaved)	**46.37**				
		Weighted Average (Paved)	**4.49**				

Table B.4 Annual Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Annual Process Rate	Rate Units	Emission Factors				Control Code	Pick-up or Control Eff.	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Rock Quarry																		
M001	Drilling Stone/Overburden	Drilling	3-05-040-02	F	13,582	holes	1.3000	0.5778	0.1083	lbs/hole	Enclosed	70%	8.83	2.65	3.92	1.18	0.74	0.22
M002	Blasting Stone/Overburden	Blasting-A	3-05-040-01	F	340	blasts	3.5418	1.8417	0.1063	lbs/blast	None	0%	0.60	0.60	0.31	0.31	0.02	0.02
M003	Loading Trucks	Limestone Material Transfer	3-05-040-20	F	3,966,000	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	23.66	23.66	11.19	11.19	1.69	1.69
M004	Unloading to Storage Areas	Limestone Material Transfer	3-05-104-05	F	2,825,000	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	16.85	16.85	7.97	7.97	1.21	1.21
M005	Unload Off-spec to Piles	Dry Transfer Point	3-05-104-05	F	9,500	tons	0.0391	0.0185	0.0028	lb/ton	None	0%	0.19	0.19	0.09	0.09	0.01	0.01
												Non-Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Fugitive Emissions Subtotal	50.13	43.95	23.49	20.74	3.67	3.15
												Subtotal	50.13	43.95	23.49	20.74	3.67	3.15
Crushing Plant																		
C001	Truck to Hopper 100	Limestone Material Transfer	3-05-040-20	F	1,141,000	tons	0.0119	0.0056	0.0009	lb/ton	Water Spray	82.5%	6.81	1.19	3.22	0.56	0.49	0.09
C002	Hopper 100 to Apron Feeder 101	Limestone Material Transfer	3-05-040-21	NF	1,141,000	tons	0.0119	0.0056	0.0009	lb/ton	Water Spray	82.5%	6.81	1.19	3.22	0.56	0.49	0.09
C003	Apron Feeder 101 to Grizzly/Primary Crusher 102 and Primary Crusher 102	Crusher	3-05-040-30	NF	1,141,000	tons	0.0054	0.0024	0.0005	lb/ton	DC-120	90%	3.08	0.31	1.37	0.14	0.26	0.03
C003a	Primary Crusher 102 to Belt 103	Limestone Material Transfer	3-05-103-05	NF	1,141,000	tons	0.0119	0.0056	0.0009	lb/ton	DC-120	90%	6.81	0.68	3.22	0.32	0.49	0.05
C004	Belt 103 to Primary Screen 104 and Primary Screen 104	Screening	3-05-040-34	NF	1,141,000	tons	0.0250	0.0087	0.0006	lb/ton	Enclosed	70%	14.26	4.28	4.96	1.49	0.32	0.10
C004a	Primary Screen 104 to Cone Crush Belt 105, Short -2" Belt 108, and 1st #3 SP Feed Belt 118**	Protected Limestone Material Transfer	3-05-040-21	NF	1,141,000	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	1.02	1.02	0.48	0.48	0.07	0.07
C005	Cone Crush Belt 105 to O/S Conveyor 107	Protected Limestone Material Transfer	3-05-040-21	NF	343,300	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.31	0.31	0.15	0.15	0.02	0.02
C006	Secondary Crusher 106	Crusher	3-05-040-31	NF	343,300	tons	0.0054	0.0024	0.0005	lb/ton	DC-121	90%	0.93	0.09	0.41	0.04	0.08	0.01
C006a	Secondary Crusher 106 to Belt 103	Limestone Material Transfer	3-05-103-05	NF	343,300	tons	0.0119	0.0056	0.0009	lb/ton	DC-121	90%	2.05	0.20	0.97	0.10	0.15	0.01
C007	1st #3 SP Feed Belt 118 to 2nd #3 SP Feed Belt 119**	Protected Limestone Material Transfer	3-05-040-21	NF	684,600	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.61	0.61	0.29	0.29	0.04	0.04
C008	2nd #3 SP Feed Belt 119 to #3 Kiln Feed Stockpile	Limestone Material Transfer	3-05-103-05	F	684,600	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	4.08	4.08	1.93	1.93	0.29	0.29
C009	Short -2" Belt 108 to -2" Belt 109**	Protected Limestone Material Transfer	3-05-040-21	NF	798,700	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.71	0.71	0.34	0.34	0.05	0.05
C010	-2" Belt 109 to Secondary Screen 110 and Secondary Screen 110	Screening	3-05-040-34	NF	798,700	tons	0.0250	0.0087	0.0006	lb/ton	DC-122	90%	9.98	1.00	3.47	0.35	0.23	0.02
C010a	Feed Belt 112, Reversible Chat Belt 113, and 1st Flux Belt 116**	Protected Limestone Material Transfer	3-05-040-21	NF	798,700	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.71	0.71	0.34	0.34	0.05	0.05
C011	Reversible Chat Belt 113 to #2 Feed Belt 112**	Protected Limestone Material Transfer	3-05-040-21	NF	228,200	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.20	0.20	0.10	0.10	0.01	0.01
C012	Reversible Chat Belt 113 to First Chat Belt 114**	Protected Limestone Material Transfer	3-05-040-21	NF	228,200	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.20	0.20	0.10	0.10	0.01	0.01
C013	First Chat Belt 114 to Second Chat Belt 115**	Protected Limestone Material Transfer	3-05-040-21	NF	228,200	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.20	0.20	0.10	0.10	0.01	0.01
C014	Second Chat Belt 115 to Chat Stockpile	Limestone Material Transfer	3-05-103-05	F	228,200	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	1.36	1.36	0.64	0.64	0.10	0.10
C015	#2 Feed Belt 112 to #2 Kiln Feed Stockpile	Protected Limestone Material Transfer	3-05-103-05	F	399,350	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.36	0.36	0.17	0.17	0.03	0.03
C016	#1 Feed Belt 111 to #1 Kiln Feed Stockpile	Limestone Material Transfer	3-05-103-05	F	456,400	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	2.72	2.72	1.29	1.29	0.19	0.19
C017	Short -2" Belt 108 to SECO System Belt 123**	Protected Limestone Material Transfer	3-05-040-21	NF	798,700	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.71	0.71	0.34	0.34	0.05	0.05
C018	SECO System Belt 123 to SECO #1 Screen 124 and SECO #1 Screen 124	Screening	3-05-040-34	NF	798,700	tons	0.0250	0.0087	0.0006	lb/ton	None	0%	9.98	9.98	3.47	3.47	0.23	0.23
C018a	SECO #1 Screen 124 to 1st Flux Belt 116**	Protected Limestone Material Transfer	3-05-040-21	NF	171,150	tons	0.0018	0.0008	0.0001	lb/ton	None	0%					0.01	0.01
C019	1st Flux Belt 116 to 2nd Flux Belt 117**	Protected Limestone Material Transfer	3-05-040-21	NF	171,150	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.15	0.15	0.07	0.07	0.01	0.01
C020	2nd Flux Belt 117 to Flux Stockpile	Limestone Material Transfer	3-05-103-05	F	171,150	tons	0.0119	0.0056	0.0009	lb/ton	Water Spray	82.5%	1.02	0.18	0.48	0.08	0.07	0.01
C021	SECO #1 Screen 124 to SECO #2 Screen 125 and SECO #2 Screen 125	Screening	3-05-040-34	NF	627,550	tons	0.0250	0.0087	0.0006	lb/ton	None	0%	7.84	7.84	2.73	2.73	0.18	0.18
C021a	SECO #2 Screen 125 to #1 Feed Belt 111 and #2 Feed Belt 112**	Protected Limestone Material Transfer	3-05-040-21	NF	399,350	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.36	0.36	0.17	0.17	0.03	0.03
C022	SECO #2 Screeb 125 to SECO #3 Screen 126 and SECO #3 Screen 126	Screening	3-05-040-34	NF	228,200	tons	0.0250	0.0087	0.0006	lb/ton	None	0%	2.85	2.85	0.99	0.99	0.06	0.06
C022a	SECO #3 Screen 126 to First Chat Belt 114 and 1st Flux Belt 116**	Protected Limestone Material Transfer	3-05-040-21	NF	228,200	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.20	0.20	0.10	0.10	0.01	0.01
C023	DC-120 to Screw Conveyor 127	Limestone Material Transfer	3-05-040-21	NF	8.90	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	0.00005	0.00	0.00003	0.00	0.00	0.00
C024	DC-121 to Screw Conveyor 127	Limestone Material Transfer	3-05-040-21	NF	2.68	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	0.000016	0.00	0.000008	0.00	0.00	0.00
C025	DC-122 to Screw Conveyor 127	Limestone Material Transfer	3-05-040-21	NF	8.99	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	0.0001	0.00	0.00003	0.00	0.00	0.00
C026	Screw Conveyor 127 to Slurry Pond	Limestone Material Transfer	3-05-040-21	NF	20.56	tons	0.0119	0.0056	0.0009	lb/ton	Water Spray	82.5%	0.0001	0.00	0.00006	0.00	0.00	0.00
C027	Front End Loader to Flux Stockpile	Limestone Material Transfer	3-05-103-05	F	171,150	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	1.02	1.02	0.48	0.48	0.07	0.07
C028	Front End Loader to Chat Stockpile	Limestone Material Transfer	3-05-103-05	F	228,200	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	1.36	1.36	0.64	0.64	0.10	0.10
												Non-Fugitive Emissions Subtotal	70.00	33.84	27.38	12.75	2.87	1.17
												Fugitive Emissions Subtotal	18.73	12.28	8.86	5.81	1.34	0.88
												Subtotal	88.73	46.12	36.24	18.56	4.22	2.05

Table B.4 Annual Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Annual Process Rate	Rate Units	Emission Factors				Control Code	Pick-up or Control Eff.	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Kilns																		
Kiln1	Lime Kiln 1**	Kiln 1	3-05-016-04	NF	73,000	tons	3.5000	2.9000	2.4680	lb/ton	None	0%	127.75	127.75	105.85	105.85	90.08	90.08
Kiln2	Lime Kiln 2**	Kiln 2	3-05-016-04	NF	189,750	tons	0.6600	0.5300	0.4556	lb/ton	None	0%	62.62	62.62	50.28	50.28	43.23	43.23
Kiln3	Lime Kiln 3**	Kiln 3	3-05-016-03	NF	166,000	tons	0.2604	0.2271	0.2271	lb/ton	None	0%	21.61	21.61	18.85	18.85	18.85	18.85
												Non-Fugitive Emissions Subtotal	211.98	211.98	174.98	174.98	152.15	152.15
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	211.98	211.98	174.98	174.98	152.15	152.15
Kiln Pony Motors																		
K1PM	Kiln 1 Pony Motor	DieselEngine	2-02-001-02	NF	367,044	hp	0.0022	0.0022	0.0022	lb/hp-hr	None	0%	4.04E-01	4.04E-01	4.04E-01	4.04E-01	4.04E-01	4.04E-01
K2PM	Kiln 2 Pony Motor	DieselEngine	2-02-001-02	NF	716,568	hp	0.0022	0.0022	0.0022	lb/hp-hr	None	0%	7.88E-01	7.88E-01	7.88E-01	7.88E-01	7.88E-01	7.88E-01
												Non-Fugitive Emissions Subtotal	1.19	1.19	1.19	1.19	1.19	1.19
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	1.19	1.19	1.19	1.19	1.19	1.19
Kiln 1 Stone Handling																		
4001	#1 Kiln Feed Stockpile to BC-205	Limestone Material Transfer	3-05-016-07	NF	171,765	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	1.02	0.00	0.48	0.00	0.07	0.00
4002	BC-205 to K1 Transfer Stockpile**	Protected Limestone Material Transfer	3-05-016-07	F	171,765	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.15	0.15	0.07	0.07	0.01	0.01
4003	K1 Transfer Stockpile to BC-210	Limestone Material Transfer	3-05-016-07	NF	171,765	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	1.02	0.00	0.48	0.00	0.07	0.00
4004	BC-210 to Preheater Screen 211 and Preheater Screen 211	Screening	3-05-016-16	NF	171,765	tons	0.0250	0.0087	0.0006	lb/ton	Enclosed	70%	2.15	0.64	0.75	0.22	0.05	0.01
4004a	Preheater Screen 211 to Rotary Valve	Limestone Material Transfer	3-05-016-07	NF	171,765	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	1.02	0.00	0.48	0.00	0.07	0.00
4005	Rotary Valve to Stone Bin 301	Limestone Material Transfer	3-05-016-07	NF	171,765	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	1.02	0.00	0.48	0.00	0.07	0.00
												Non-Fugitive Emissions Subtotal	6.25	0.64	2.69	0.22	0.34	0.015
												Fugitive Emissions Subtotal	0.15	0.15	0.07	0.07	0.01	0.011
												Subtotal	6.40	0.80	2.76	0.30	0.35	0.026
Kiln 1 Dust Handling																		
4006	Gravel Bed Filter to Center Screw 311	Lime Material Transfer	3-05-016-15	NF	2,190	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.04	0.00	0.020	0.00	0.00	0.00
4007	Gravel Bed Filter to Collect Drag 310	Lime Material Transfer	3-05-016-15	NF	2,190	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.04	0.00	0.020	0.00	0.00	0.00
4008	Center Screw 311 to Cross Drag 312	Lime Material Transfer	3-05-016-15	NF	2,190	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.04	0.00	0.020	0.00	0.00	0.00
4009	Collect Drag 310 to Cross Drag 312	Lime Material Transfer	3-05-016-15	NF	2,190	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.04	0.00	0.020	0.00	0.00	0.00
4010	Cross Drag 312 to Collect Drag 313	Lime Material Transfer	3-05-016-15	NF	4,380	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.09	0.00	0.04	0.00	0.01	0.00
4011	Gravel Bed Filter to Collect Drag 313	Lime Material Transfer	3-05-016-15	NF	2,190	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.04	0.00	0.020	0.00	0.00	0.00
4012	Collect Drag 313 to Dust Bucket Elevator 314	Lime Material Transfer	3-05-016-15	NF	6,570	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.13	0.00	0.06	0.00	0.01	0.00
4013	Dust Bucket Elevator 314 to Dust Pod 315	Lime Material Transfer	3-05-016-15	NF	6,570	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.13	0.00	0.06	0.00	0.01	0.00
4014	Dust Pod 315 to Screw 316	Lime Material Transfer	3-05-016-15	NF	6,570	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.13	0.00	0.06	0.00	0.01	0.00
4015	Preheater Dribble to Dust Pod 308	Lime Material Transfer	3-05-016-15	NF	438	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.009	0.00	0.004	0.00	0.00	0.00
4016	Kiln Dust Chamber to Dust Pod 308	Lime Material Transfer	3-05-016-15	NF	1,314	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.026	0.00	0.012	0.00	0.00	0.00
4017	Cyclone 307 to Dust Pod 308	Lime Material Transfer	3-05-016-15	NF	2,190	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.04	0.00	0.020	0.00	0.00	0.00
4018	Dust Pod 308 to Screw 316	Lime Material Transfer	3-05-016-15	NF	5,694	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.11	0.00	0.05	0.00	0.01	0.00
4019	Screw 316 to Screw 317	Lime Material Transfer	3-05-016-15	NF	34,525	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.67	0.00	0.32	0.00	0.05	0.00
4020	Screw 317 to Screw 318	Lime Material Transfer	3-05-016-15	NF	34,525	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.67	0.00	0.32	0.00	0.05	0.00
4021	Screw 318 to Bucket Elevator 319	Lime Material Transfer	3-05-016-15	NF	34,525	tons	0.0391	0.0185	0.0028	lb/ton	DC-321	90%	0.67	0.07	0.32	0.032	0.05	0.00
4022	Bucket Elevator 319 to Dust Bin BN-320	Lime Material Transfer	3-05-016-15	NF	34,525	tons	0.0391	0.0185	0.0028	lb/ton	DC-321	90%	0.67	0.07	0.32	0.032	0.05	0.00
4023	Dust Bin 320 to Pug Mill 323 via Rotary Valve	Lime Material Transfer	3-05-016-15	NF	34,525	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.67	0.00	0.32	0.00	0.05	0.00
4024	Pug Mill 323 to Haul Truck	Lime Material Transfer	3-05-016-27	NF	34,525	tons	0.0391	0.0185	0.0028	lb/ton	Water Spray	82.5%	0.67	0.12	0.32	0.06	0.05	0.01
4025	Dust Bin 320 to Haul Truck	Lime Material Transfer	3-05-016-15	NF	34,525	tons	0.0391	0.0185	0.0028	lb/ton	None	0%	0.67	0.67	0.32	0.32	0.05	0.05
												Non-Fugitive Emissions Subtotal	5.59	0.93	2.65	0.44	0.40	0.07
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	5.59	0.93	2.65	0.44	0.40	0.07
Kiln 1 Lime Handling																		
4026	Kiln 1 to Product Cooler 306	Lime Material Transfer	3-05-016-11	NF	73,000	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	1.43	0.43	0.67	0.20	0.10	0.03
4027	Product Cooler 306 to Lime Discharge Screw 400	Lime Material Transfer	3-05-016-15	NF	73,000	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	1.43	0.43	0.67	0.20	0.10	0.03
4028	Lime Discharge Screw 400 to BC-401**	Protected Lime Material Transfer	3-05-016-15	NF	73,000	tons	0.0059	0.0028	0.0004	lb/ton	None	0%	0.21	0.21	0.10	0.10	0.02	0.02
4029	BC-401 to BC-402**	Protected Lime Material Transfer	3-05-016-15	NF	73,000	tons	0.0059	0.0028	0.0004	lb/ton	None	0%	0.21	0.21	0.10	0.10	0.02	0.02
4030	BC-402 to BC-403	Lime Material Transfer	3-05-016-15	NF	73,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-403	99%	1.43	0.01	0.67	0.01	0.10	0.00
4031	DC-321 to Dust Bin BN-320	Lime Material Transfer	3-05-016-15	NF	1.53	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	3.00E-05	0.00	1.42E-05	0.00	2.15E-06	0.00
4032	DC-403 to BC-403	Lime Material Transfer	3-05-016-16	NF	1.41	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	2.76E-05	0.00	1.30E-05	0.00	1.98E-06	0.00
												Non-Fugitive Emissions Subtotal	4.71	1.30	2.23	0.61	0.34	0.09
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	4.71	1.30	2.23	0.61	0.34	0.09

Table B.4 Annual Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Annual Process Rate	Rate Units	Emission Factors				Control Code	Pick-up or Control Eff.	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Kiln 2 Stone Handling																		
5001	#1 Kiln Feed Stockpile to Crossover Tunnel Belt 215	Limestone Material Transfer	3-05-016-07	NF	312,529	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	1.86	0.00	0.88	0.00	0.13	0.00
5002	Crossover Tunnel Belt 215 to Crossover Belt 216**	Protected Limestone Material Transfer	3-05-016-07	NF	312,529	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.28	0.28	0.13	0.13	0.02	0.02
5003	Crossover Belt 216 to Crossover Belt 217**	Protected Limestone Material Transfer	3-05-016-07	NF	312,529	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.28	0.28	0.13	0.13	0.02	0.02
5004	Crossover Belt 217 to Tunnel Belt 223**	Protected Limestone Material Transfer	3-05-016-07	NF	312,529	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.28	0.28	0.13	0.13	0.02	0.02
5005	Crossover Belt 217 to -2" Belt**	Protected Limestone Material Transfer	3-05-016-07	NF	312,529	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.28	0.28	0.13	0.13	0.02	0.02
5006	#2 Kiln Feed Stockpile to Tunnel Belt 223	Limestone Material Transfer	3-05-016-07	NF	133,941	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	0.80	0.00	0.38	0.00	0.06	0.00
5007	Tunnel Belt 223 to Screen 224 and Screen 224	Screening	3-05-016-16	NF	446,470	tons	0.0250	0.0087	0.0006	lb/ton	Enclosed	70%	5.58	1.67	1.94	0.58	0.13	0.04
5007a	Screen 224 to BC-225**	Protected Limestone Material Transfer	3-05-016-07	NF	379,500	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.34	0.34	0.16	0.16	0.02	0.02
5007b	Screen 224 to Reject Screw 226	Limestone Material Transfer	3-05-016-07	NF	66,971	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	0.40	0.00	0.19	0.00	0.03	0.00
5008	Reject Screw 226 to Reject Belt 227	Limestone Material Transfer	3-05-016-07	NF	66,971	tons	0.0119	0.0056	0.0009	lb/ton	DC-228	90%	0.40	0.04	0.19	0.02	0.03	0.00
5009	Reject Belt 227 to Chat Stockpile	Limestone Material Transfer	3-05-016-10	F	66,971	tons	0.0119	0.0056	0.0009	lb/ton	Water Spray	82.5%	0.40	0.07	0.19	0.03	0.03	0.01
5010	BC-225 to Kiln 2 Stone Bin 350**	Protected Limestone Material Transfer	3-05-016-07	NF	379,500	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.34	0.34	0.16	0.16	0.02	0.02
5011	Kiln 2 Stone Bin 350 to Weigh Belt 351**	Protected Limestone Material Transfer	3-05-016-07	NF	379,500	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.34	0.34	0.16	0.16	0.02	0.02
5012	Weigh Belt 351 to Kiln 2**	Protected Limestone Material Transfer	3-05-016-07	NF	379,500	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.34	0.34	0.16	0.16	0.02	0.02
5013	DC-228 to Reject Belt 227	Lime Material Transfer	3-05-016-16	NF	0.36	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	7.02E-06	0.00	3.32E-06	0.00	5.03E-07	0.00
												Non-Fugitive Emissions Subtotal	11.52	4.19	4.75	1.77	0.55	0.22
												Fugitive Emissions Subtotal	0.40	0.07	0.19	0.03	0.03	0.01
												Subtotal	11.92	4.26	4.94	1.80	0.58	0.22
Kiln 2 Dust Handling																		
5014	Kiln 2 Dust Chamber to Dust Screw 364	Lime Material Transfer	3-05-016-15	NF	4,554	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.09	0.00	0.04	0.00	0.01	0.00
5015	Dust Screw 364 to Dust Screw 365	Lime Material Transfer	3-05-016-15	NF	4,554	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.09	0.00	0.04	0.00	0.01	0.00
5016	Air/Air Heat Exchanger to HX Screw 361	Lime Material Transfer	3-05-016-15	NF	4,554	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.09	0.00	0.04	0.00	0.01	0.00
5017	HX Screw 361 to HX Screw 363 via Rotary Valve	Lime Material Transfer	3-05-016-15	NF	4,554	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.09	0.00	0.04	0.00	0.01	0.00
5018	HX Screw 363 to Dust Screw 365	Lime Material Transfer	3-05-016-15	NF	4,554	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.09	0.00	0.04	0.00	0.01	0.00
5019	DC-356 to Screw 358	Lime Material Transfer	3-05-016-15	NF	9,108	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.18	0.00	0.08	0.00	0.01	0.00
5020	DC-356 to Screw 359	Lime Material Transfer	3-05-016-15	NF	9,108	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.18	0.00	0.08	0.00	0.01	0.00
5021	Screw 358 to Dust Screw 360	Lime Material Transfer	3-05-016-15	NF	9,108	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.18	0.00	0.08	0.00	0.01	0.00
5022	Screw 359 to Dust Screw 360	Lime Material Transfer	3-05-016-15	NF	9,108	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.18	0.00	0.08	0.00	0.01	0.00
5023	Dust Screw 360 to Dust Screw 365	Lime Material Transfer	3-05-016-15	NF	18,216	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.36	0.00	0.17	0.00	0.03	0.00
5024	Dust Screw 360 to Bin T-410	Lime Material Transfer	3-05-016-15	NF	18,216	tons	0.0391	0.0185	0.0028	lb/ton	DC-408	99%	0.36	0.004	0.17	0.002	0.03	0.00
5025	Dust Screw 360 to Kiln 1 Dust Bin BN-320	Lime Material Transfer	3-05-016-15	NF	18,216	tons	0.0391	0.0185	0.0028	lb/ton	DC-321	90%	0.36	0.04	0.17	0.02	0.03	0.00
5026	Dust Screw 360 to Kiln 2 Dust Blend System Bin	Lime Material Transfer	3-05-016-15	NF	18,216	tons	0.0391	0.0185	0.0028	lb/ton	DC-730	99%	0.36	0.004	0.17	0.002	0.03	0.00
5027	Bin T-410 to Screw 412	Lime Material Transfer	3-05-016-15	NF	18,216	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.36	0.00	0.17	0.00	0.03	0.00
5028	Screw 412 to BC-404	Lime Material Transfer	3-05-016-15	NF	18,216	tons	0.0391	0.0185	0.0028	lb/ton	DC-404	90%	0.36	0.04	0.17	0.02	0.03	0.00
5029	Dust Screw 365 to Bucket Elevator 366	Lime Material Transfer	3-05-016-15	NF	22,770	tons	0.0391	0.0185	0.0028	lb/ton	DC-369	90%	0.44	0.04	0.21	0.02	0.03	0.00
5030	Bucket Elevator 366 to Tank Screw 367	Lime Material Transfer	3-05-016-15	NF	22,770	tons	0.0391	0.0185	0.0028	lb/ton	DC-369	90%	0.44	0.04	0.21	0.02	0.03	0.00
5031	Tank Screw 367 to Kiln 2 Dust Bin BN-368	Lime Material Transfer	3-05-016-15	NF	22,770	tons	0.0391	0.0185	0.0028	lb/ton	DC-369	90%	0.44	0.04	0.21	0.02	0.03	0.00
5032	Kiln 2 Dust Bin BN-368 to Truck	Lime Material Transfer	3-05-016-27	F	11,385	tons	0.0391	0.0185	0.0028	lb/ton	DC-369	90%	0.22	0.02	0.11	0.01	0.02	0.00
5033	Kiln 2 Dust Bin BN-368 to Pug Mill 371 via Rotary Valve	Lime Material Transfer	3-05-016-15	NF	22,770	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.44	0.00	0.21	0.00	0.03	0.00
5034	Pug Mill 371 to Truck	Lime Material Transfer	3-05-016-27	F	22,770	tons	0.0391	0.0185	0.0028	lb/ton	Water Spray	82.5%	0.44	0.08	0.21	0.04	0.03	0.01
5035	DC-408 to Bin T-410	Lime Material Transfer	3-05-016-16	NF	0.35	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	6.88E-06	0.00	3.25E-06	0.00	4.93E-07	0.00
5036	DC-369 to Kiln 2 Dust Bin	Lime Material Transfer	3-05-016-16	NF	1.40	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	2.74E-05	0.00	1.29E-05	0.00	1.96E-06	0.00
												Non-Fugitive Emissions Subtotal	5.07	0.21	2.40	0.10	0.36	0.015
												Fugitive Emissions Subtotal	0.67	0.10	0.32	0.05	0.05	0.007
												Subtotal	5.74	0.31	2.71	0.15	0.41	0.02
Kiln 2 Lime Handling																		
5037	Kiln 2 to Product Cooler 353	Lime Material Transfer	3-05-016-11	NF	189,750	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	3.71	1.11	1.75	0.53	0.27	0.08
5038	Product Cooler 353 to Vibrating Feeders 353	Lime Material Transfer	3-05-016-15	NF	189,750	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	3.71	1.11	1.75	0.53	0.27	0.08
5039	Vibrating Feeders 353 to BC-404	Lime Material Transfer	3-05-016-15	NF	189,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-404	90%	3.71	0.37	1.75	0.18	0.27	0.03
5040	DC-404 to BC-404	Lime Material Transfer	3-05-016-16	NF	3.66	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	7.14E-05	0.00	3.38E-05	0.00	5.12E-06	0.00
												Non-Fugitive Emissions Subtotal	11.12	2.59	5.26	1.23	0.80	0.19
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	11.12	2.59	5.26	1.23	0.80	0.19

Table B.4 Annual Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Annual Process Rate	Rate Units	Emission Factors				Control Code	Pick-up or Control Eff.	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Kiln 1 and Kiln 2 Lime Storage & Truck Loadout																		
SL001	BC-403 to Gate G-403	Lime Material Transfer	3-05-016-15	NF	73,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	1.43	0.01	0.67	0.01	0.10	0.00
SL002	Gate G-403 to Truck via Spout 403**	Enclosed Truck/Rail Loading	3-05-016-27	F	73,000	tons	0.6100	0.2885	0.0207	lb/ton	None	0%	22.27	22.27	10.53	10.53	0.75	0.75
SL003	Gate G-403 to Bin 401	Lime Material Transfer	3-05-016-15	NF	73,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	1.43	0.01	0.67	0.01	0.10	0.00
SL004	Gate G-403 to BC-405	Lime Material Transfer	3-05-016-15	NF	73,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	1.43	0.01	0.67	0.01	0.10	0.00
SL005	BC-404 to Gate G-404	Lime Material Transfer	3-05-016-15	NF	189,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	3.71	0.04	1.75	0.02	0.27	0.00
SL006	Gate G-404 to Truck via Spout 404**	Enclosed Truck/Rail Loading	3-05-016-27	F	189,750	tons	0.6100	0.2885	0.0207	lb/ton	None	0%	57.87	57.87	27.37	27.37	1.96	1.96
SL007	Gate G-404 to Bin 401	Lime Material Transfer	3-05-016-15	NF	189,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	3.71	0.04	1.75	0.02	0.27	0.00
SL008	Gate G-404 to BC-405	Lime Material Transfer	3-05-016-15	NF	189,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	3.71	0.04	1.75	0.02	0.27	0.00
SL009	BC-405 to Gate G-405	Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	5.13	0.05	2.43	0.02	0.37	0.00
SL010	Gate G-405 to Roll Crusher R-405 and Roll Crusher R-405	Fines Crushing	3-05-016-31	NF	262,750	tons	0.0390	0.0150	0.0009	lb/ton	DC-402	99%	5.12	0.05	1.97	0.02	0.12	0.00
SL010a	Roll Crusher R-405 to G-406	Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	5.13	1.54	2.43	0.73	0.37	0.11
SL011	Gate G-405 to Gate G-406	Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	5.13	0.00	2.43	0.00	0.37	0.00
SL012	Gate G-406 to Bin 405	Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-406	99%	5.13	0.05	2.43	0.02	0.37	0.00
SL013	Gate G-406 to Screw 406	Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	5.13	0.00	2.43	0.00	0.37	0.00
SL014	Screw 406 to Bin 406	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	8.56	0.00	4.05	0.00	0.61	0.00
SL015	Screw 406 to Bin 407 (Future)	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	8.56	2.57	4.05	1.21	0.61	0.18
SL016	Bin 406 to Screw 432	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	8.56	0.00	4.05	0.00	0.61	0.00
SL017	Bin 407 to Screw 431 (Future)	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	8.56	0.00	4.05	0.00	0.61	0.00
SL018	Screw 406, 432 and 431 (Future) to Roll Crusher R-451 and Roll Crusher R-451	Fines Crushing	3-05-016-31	NF	438,000	tons	0.0390	0.0150	0.0009	lb/ton	Sealed	100%	8.54	0.00	3.29	0.00	0.20	0.00
SL018a	Roll Crusher R-451 to BC-433	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-431	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL019	BC-433 to Gate G-451	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL020	G-451 to Hammermill 452 and Hammermill 452	Fines Crushing	3-05-016-31	NF	438,000	tons	0.0390	0.0150	0.0009	lb/ton	Sealed	100%	8.54	0.00	3.29	0.00	0.20	0.00
SL020a	Hammermill 452 to Screw 434	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL021	Gate G-451 to Screw 434	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL022	Screw 434 to Bucket Elevator E-432	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL023	Bucket Elevator E-432 to Gate G-434	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL024	Gate G-434 to Bin 402	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL025	Bin 402 to Bucket Elevator E-432	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL026	Bin 402 to Truck via Spout 482**	Enclosed Truck/Rail Loading	3-05-016-27	F	262,750	tons	0.6100	0.2885	0.0207	lb/ton	DC-402	99%	80.14	0.80	37.90	0.38	2.71	0.03
SL027	Gate G-434 to Screw 435 (Future)	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	8.56	0.00	4.05	0.00	0.61	0.00
SL028	Screw 435 to Bin 405 (Future)	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-406	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL029	Bin 405 to Screw 441	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	8.56	0.00	4.05	0.00	0.61	0.00
SL030	Screw 441 to Bucket Elevator E-441	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL031	Bucket Elevator E-441 to Gate G-441	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL032	Gate G-441 to Screw 406	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-406	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL033	Gate G-441 to BC-486	Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-486	99%	5.13	0.05	2.43	0.02	0.37	0.00
SL034	Bin 406 to BC-486	Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-486	99%	5.13	0.05	2.43	0.02	0.37	0.00
SL035	Bin 407 to BC-485 (Future)	Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-485	99%	5.13	0.05	2.43	0.02	0.37	0.00
SL036	BC-485 to BC-486 (Future)	Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-486	99%	5.13	0.05	2.43	0.02	0.37	0.00
SL037	Screw 487 to BC-486	Lime Material Transfer	3-05-016-15	NF	95.87	tons	0.0391	0.0185	0.0028	lb/ton	DC-486	99%	0.002	0.00	0.001	0.00	0.00	0.00
SL038	BC-486 to Truck via Spout 486**	Enclosed Truck/Rail Loading	3-05-016-27	F	317,500	tons	0.6100	0.2885	0.0207	lb/ton	DC-487	99%	96.84	0.97	45.80	0.46	3.28	0.03
SL039	Bin 405 to BC-481** (Future)	Protected Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0059	0.0028	0.0004	lb/ton	DC-481	99%	0.77	0.01	0.36	0.00	0.06	0.00
SL040	BC-481 to BC-483** (Future)	Protected Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0059	0.0028	0.0004	lb/ton	Enclosed	70%	0.77	0.23	0.36	0.11	0.06	0.02
SL041	Screw 406 to Bin 405	Lime Material Transfer	3-05-016-15	NF	438,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-406	99%	8.56	0.09	4.05	0.04	0.61	0.01
SL042	Gate G-434 to Bin 403	Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-406	99%	5.13	0.05	2.43	0.02	0.37	0.00
SL043	Bin 403 to BC-483	Lime Material Transfer	3-05-016-15	NF	262,750	tons	0.0391	0.0185	0.0028	lb/ton	DC-482	99%	5.13	0.05	2.43	0.02	0.37	0.00
SL044	BC-483 to Truck via Spout 483**	Enclosed Truck/Rail Loading	3-05-016-27	F	317,500	tons	0.6100	0.2885	0.0207	lb/ton	DC-483	99%	96.84	0.97	45.80	0.46	3.28	0.03
SL045	Bin 401 to Front-End Loader	Lime Material Transfer	3-05-016-27	F	262,750	tons	0.0391	0.0185	0.0028	lb/ton	None	0%	5.13	5.13	2.43	2.43	0.37	0.37
SL046	Front-End Loader to Truck	Lime Material Transfer	3-05-016-27	F	262,750	tons	0.0391	0.0185	0.0028	lb/ton	None	0%	5.13	5.13	2.43	2.43	0.37	0.37
SL047	DC-401 to Bin 401	Lime Material Transfer	3-05-016-16	NF	15.24	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0003	0.00	0.0001	0.00	0.00	0.00
SL048	DC-402 to Screw 434	Lime Material Transfer	3-05-016-16	NF	165.73	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0032	0.00	0.0015	0.00	0.00	0.00
SL049	DC-406 to Bin 403	Lime Material Transfer	3-05-016-16	NF	35.57	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0007	0.00	0.0003	0.00	0.00	0.00
SL050	DC-431 to BC-433	Lime Material Transfer	3-05-016-16	NF	8.47	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0002	0.00	0.0001	0.00	0.00	0.00
SL051	DC-482 to BC-483	Lime Material Transfer	3-05-016-16	NF	5.08	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0001	0.00	0.0000	0.00	0.00	0.00
SL052	DC-483 to Spout-483	Lime Material Transfer	3-05-016-16	NF	95.87	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0019	0.00	0.0009	0.00	0.00	0.00
SL053	DC-486 to BC-486	Lime Material Transfer	3-05-016-16	NF	15.25	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0003	0.00	0.0001	0.00	0.00	0.00
SL054	DC-487 to Screw 487	Lime Material Transfer	3-05-016-16	NF	95.87	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0019	0.00	0.0009	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	258.18	6.07	120.15	2.87	17.42	0.43
												Fugitive Emissions Subtotal	364.22	93.14	172.27	44.05	12.73	3.54
												Subtotal	622.40	99.22	292.42	46.92	30.14	3.98

Table B.4 Annual Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Annual Process Rate	Rate Units	Emission Factors				Control Code	Pick-up or Control Eff.	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Kiln 3 Stone Handling																		
6001	#3 Kiln Feed Stockpile to Vibrating Feeders	Limestone Material Transfer	3-05-016-07	NF	390,588	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	2.33	0.00	1.10	0.00	0.17	0.00
6002	Vibrating Feeders to Reclaim Belt	Limestone Material Transfer	3-05-016-07	NF	390,588	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	2.33	0.00	1.10	0.00	0.17	0.00
6003	Reclaim Belt and -2" Belt to Stone Screen and Stone Screen	Screening	3-05-016-02	NF	390,588	tons	0.0250	0.0087	0.0006	lb/ton	DC-241	90%	4.88	0.49	1.70	0.17	0.11	0.01
6004	Stone Screen to Truck or Temporary Stockpile	Limestone Material Transfer	3-05-040-20	F	58,588	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	0.35	0.35	0.17	0.17	0.03	0.03
6004a	Stone Screen to Stone Bin	Limestone Material Transfer	3-05-016-07	NF	332,000	tons	0.0119	0.0056	0.0009	lb/ton	DC-241	90%	1.98	0.20	0.94	0.09	0.14	0.01
6005	Stone Bin to Vibrating Feeder**	Transfer	3-05-016-07	NF	332,000	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.30	0.30	0.14	0.14	0.02	0.02
6006	Vibrating Feeder to Belt Conveyor**	Protected Limestone Material Transfer	3-05-016-07	NF	332,000	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.30	0.30	0.14	0.14	0.02	0.02
6007	Belt Conveyor to Weigh Hopper**	Protected Limestone Material Transfer	3-05-016-07	NF	332,000	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.30	0.30	0.14	0.14	0.02	0.02
6008	Weigh Hopper to Skip Hoist	Limestone Material Transfer	3-05-016-07	F	332,000	tons	0.0119	0.0056	0.0009	lb/ton	DC-241	90%	1.98	0.20	0.94	0.09	0.14	0.01
6009	Skip Hoist to Stone Hopper**	Protected Limestone Material Transfer	3-05-016-07	NF	332,000	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.30	0.30	0.14	0.14	0.02	0.02
6010	Stone Hopper to Kiln 3	Limestone Material Transfer	3-05-016-07	NF	332,000	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	1.98	0.00	0.94	0.00	0.14	0.00
6011	DC-241 to Discharge Pipe	Lime Material Transfer	3-05-016-16	NF	7.96	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0002	0.00	0.0001	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	14.69	1.87	6.34	0.82	0.81	0.11
												Fugitive Emissions Subtotal	2.33	0.55	1.10	0.26	0.17	0.04
												Subtotal	17.02	2.42	7.44	1.08	0.98	0.15
Kiln 3 Dust Handling																		
6012	Kiln 3 Exhaust to Wet Scrubber DC-600	Lime Material Transfer	3-05-016-15	NF	19,920	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.39	0.00E+00	0.18	0.00E+00	0.03	0.00E+00
6013	Wet Scrubber DC-600 to Discharge Pipe	Lime Material Transfer	3-05-016-15	NF	19,920	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.39	0.00E+00	0.18	0.00E+00	0.03	0.00E+00
6014	Discharge Pipe to Settling Pond	Lime Material Transfer	3-05-016-15	NF	19,920	tons	0.0391	0.0185	0.0028	lb/ton	Water Slurry	99%	0.39	3.89E-03	0.18	1.84E-03	0.03	2.79E-04
												Non-Fugitive Emissions Subtotal	1.17	3.89E-03	0.55	1.84E-03	0.08	2.79E-04
												Fugitive Emissions Subtotal	0.00	0.00E+00	0.00	0.00E+00	0.00	0.00E+00
												Subtotal	1.17	3.89E-03	0.55	1.84E-03	0.08	2.79E-04
Kiln 3 Lime Handling																		
6015	Vibrating Feeders to Product Belt	Lime Material Transfer	3-05-016-15	NF	166,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-850	90.0%	3.24	0.32	1.53	0.15	0.23	0.02
6016	Vibrating Feeders to Reject Conveyor	Lime Material Transfer	3-05-016-15	NF	166,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-850	90.0%	3.24	0.32	1.53	0.15	0.23	0.02
6017	Reject Conveyor to Truck	Lime Material Transfer	3-05-016-27	F	166,000	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.24	3.24	1.53	1.53	0.23	0.23
6018	Product Belt to Lime Crusher and Lime Crusher	Fines Crushing	3-05-016-02	F	166,000	tons	0.0390	0.0150	0.0009	lb/ton	DC-851	90.0%	3.24	0.32	1.25	0.12	0.08	0.01
6018a	Lime Crusher to Bucket Elevator	Lime Material Transfer	3-05-016-15	NF	166,000	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	3.24	0.97	1.53	0.46	0.23	0.07
6019	Bucket Elevator to Lime Screen and Lime Screen	Fines Screening	3-05-016-02	F	166,000	tons	0.3000	0.0720	0.0068	lb/ton	DC-852	90.0%	24.90	2.49	5.98	0.60	0.57	0.06
6019a	Lime Screen to Large Bin	Lime Material Transfer	3-05-016-27	NF	124,500	tons	0.0391	0.0185	0.0028	lb/ton	DC-852	90.0%	2.43	0.24	1.15	0.12	0.17	0.02
6019b	Lime Screen to Small Bin	Lime Material Transfer	3-05-016-15	NF	166,000	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	3.24	0.97	1.53	0.46	0.23	0.07
6020	Bucket Elevator to Large Bin	Lime Material Transfer	3-05-016-15	F	166,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-852	90.0%	3.24	0.32	1.53	0.15	0.23	0.02
6021	Large Bin to Recirculating Conveyor**	Protected Lime Material Transfer	3-05-016-15	NF	41,500	tons	0.0059	0.0028	0.0004	lb/ton	None	0.0%	0.12	0.12	0.06	0.06	0.01	0.01
6022	DC-850 to Product Conveyor	Lime Material Transfer	3-05-016-16	NF	0.00	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0000	0.00	0.00	0.00	0.00	0.00
6023	DC-851 to Product Conveyor	Lime Material Transfer	3-05-016-16	NF	0.00	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0000	0.00	0.00	0.00	0.00	0.00
6024	DC-852 to Large Bin	Lime Material Transfer	3-05-016-16	NF	27.52	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.0005	0.00	2.54E-04	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	15.53	2.96	7.34	1.40	1.11	0.21
												Fugitive Emissions Subtotal	34.62	6.38	10.29	2.41	1.11	0.32
												Subtotal	50.148	9.340	17.631	3.809	2.218	0.532
Kiln 3 Lime Storage and Truck Loadout																		
6025	Large Bin to Truck Belt	Lime Material Transfer	3-05-016-15	F	166,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-854	90.0%	3.24	0.324	1.53	0.153	0.23	0.02
6026	Large Bin to Rail Belt	Lime Material Transfer	3-05-016-15	F	83,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-779	90.0%	1.62	0.162	0.77	0.077	0.12	0.01
6027	Small Bin to Truck Belt**	Protected Lime Material Transfer	3-05-016-15	F	83,000	tons	0.0059	0.0028	0.0004	lb/ton	None	0.0%	0.2429	0.243	0.1149	0.115	0.02	0.02
6028	Small Bin to Rail Belt	Lime Material Transfer	3-05-016-15	F	83,000	tons	0.0391	0.0185	0.0028	lb/ton	DC-779	90.0%	1.6214	0.162	0.7669	0.077	0.12	0.01
6029	Dust Blend System Bin to Rotary Air Lock	Lime Material Transfer	3-05-016-15	NF	8,300	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100.0%	0.16	0.00E+00	0.08	0.00E+00	0.01	0.00E+00
6030	Rotary Air Lock to Screw Conveyor	Lime Material Transfer	3-05-016-16	NF	8,300	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100.0%	0.16	0.00E+00	0.08	0.00E+00	0.01	0.00E+00
6031	Screw Conveyor to Truck Belt	Lime Material Transfer	3-05-016-15	F	8,300	tons	0.0391	0.0185	0.0028	lb/ton	DC-854	90.0%	0.16	0.016	0.08	0.008	0.01	1.16E-03
6032	Screw Conveyor to Rail Belt	Lime Material Transfer	3-05-016-15	F	8,300	tons	0.0391	0.0185	0.0028	lb/ton	DC-779	90.0%	0.16	0.016	0.08	0.008	0.01	1.16E-03
6033	Rail Belt to Rail Car**	Enclosed Truck/Rail Loading	3-05-016-14	F	83,000	tons	0.6100	0.2885	0.0207	lb/ton	None	0.0%	25.32	25.315	11.97	11.973	0.86	0.86
6034	Truck Belt to Truck**	Enclosed Truck/Rail Loading	3-05-016-27	F	174,300	tons	0.6100	0.2885	0.0207	lb/ton	DC-853	90.0%	53.16	5.316	25.14	2.514	1.80	0.18
6035	DC-730 to Dust Blend System Bin	Lime Material Transfer	3-05-016-16	NF	0.32	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	6.26E-06	0.00E+00	2.96E-06	0.00E+00	4.48E-07	0.00E+00
6035	DC-853 to Truck Belt	Lime Material Transfer	3-05-016-16	NF	47.85	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	9.35E-04	0.00E+00	4.42E-04	0.00E+00	6.69E-05	0.00E+00
6036	DC-779 to Rail Belt	Lime Material Transfer	3-05-016-16	NF	3.06	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	5.99E-05	0.00E+00	2.83E-05	0.00E+00	4.29E-06	0.00E+00
6037	DC-854 to Truck Belt	Lime Material Transfer	3-05-016-16	NF	3.06	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	5.99E-05	0.00E+00	2.83E-05	0.00E+00	4.29E-06	0.00E+00
												Non-Fugitive Emissions Subtotal	0.33	0.00	0.15	0.00	0.02	0.00
												Fugitive Emissions Subtotal	85.53	31.55	40.45	14.92	3.16	1.10
												Subtotal	85.85	31.55	40.61	14.92	3.19	1.10

Table B.4 Annual Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Annual Process Rate	Rate Units	Emission Factors				Control Code	Pick-up or Control Eff.	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Solid Fuel Handling																		
3001	Truck to Plaza Stockpile	Fuel Transfer Point	3-05-010-11	F	175,985	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.04	0.04	0.02	0.02	0.00	0.00
3002	Truck to Lower Stockpile	Fuel Transfer Point	3-05-010-11	F	175,985	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.04	0.04	0.02	0.02	0.00	0.00
3003	Loader to Truck	Fuel Transfer Point	3-05-010-38	F	175,985	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.04	0.04	0.02	0.02	0.00	0.00
3004	Truck to Plaza Stockpile from Lower Stockpile	Fuel Transfer Point	3-05-010-11	F	175,985	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.04	0.04	0.02	0.02	0.00	0.00
3005	Delivery Truck to Lower Stockpile	Fuel Transfer Point	3-05-010-11	F	175,985	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.04	0.04	0.02	0.02	0.00	0.00
3006	Delivery Truck to Plaza Stockpile	Fuel Transfer Point	3-05-010-11	F	175,985	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.04	0.04	0.02	0.02	0.00	0.00
3007	Loader to Mixed Stockpile	Fuel Transfer Point	3-05-010-11	F	175,985	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.04	0.04	0.02	0.02	0.00	0.00
3008	Loaders to Coal and Coke Hoppers 503-1 & 503-2	Fuel Transfer Point	3-05-010-11	NF	175,985	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.04	0.04	0.02	0.02	0.00	0.00
3009	Coal and Coke Hoppers 503-1 & 503-2 to Weigh Feeders 504 & 505	Fuel Transfer Point	3-05-010-11	NF	175,985	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.04	0.01	0.02	0.006	0.00	0.00
3010	Weigh Feeders 504 & 505 to Solid Fuel Crusher 506 and Solid Fuel Crusher 506	Fines Crushing	3-05-010-10	NF	175,985	tons	0.0390	0.0150	0.0009	lb/ton	Enclosed	70%	3.43	1.03	1.32	0.40	0.08	0.02
3010a	Solid Fuel Crusher 506 to Solid Fuel Belt 507	Fuel Transfer Point	3-05-010-11	NF	175,985	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.04	0.01	0.02	0.01	0.00	0.00
3011	Solid Fuel Belt 507 to Solid Fuel Bin 508	Fuel Transfer Point	3-05-010-11	NF	53,700	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.01	0.004	0.01	0.002	0.00	0.00
3012	Solid Fuel Belt 507 to Solid Fuel Bin 515	Fuel Transfer Point	3-05-010-11	NF	89,500	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.02	0.01	0.01	0.003	0.00	0.00
3013	Solid Fuel Bin 508 to Weigh Belt 509	Fuel Transfer Point	3-05-010-11	NF	53,700	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.01	0.004	0.01	0.002	0.00	0.00
3014	Weigh Belt 509 to Solid Fuel Mill 510 via Rotary Feeder	Fuel Transfer Point	3-05-010-11	NF	53,700	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.01	0.004	0.01	0.002	0.00	0.00
3015	Solid Fuel Mill 510	Fines Crushing	3-05-010-10	NF	53,700	tons	0.0390	0.0150	0.0009	lb/ton	Sealed	100%	1.05	0.00	0.40	0.00	0.02	0.00
3016	Solid Fuel Mill 510 to Kiln 1 Burner Pipe	Fuel Transfer Point	3-05-010-11	NF	41,063	tons	0.0005	0.0002	0.0000	lb/ton	Sealed	100%	0.01	0.00	0.005	0.00	0.00	0.00
3017	Solid Fuel Bin 515 to Weigh Belt 516	Fuel Transfer Point	3-05-010-11	NF	89,500	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.02	0.01	0.01	0.00	0.00	0.00
3018	Weigh Belt 516 to Solid Fuel Mill 517 via Rotary Feeder	Fuel Transfer Point	3-05-010-11	NF	89,500	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.02	0.01	0.01	0.00	0.00	0.00
3019	Solid Fuel Mill 517	Fuel Transfer Point	3-05-010-11	NF	89,500	tons	0.0005	0.0002	0.0000	lb/ton	Sealed	100%	0.02	0.00	0.01	0.00	0.00	0.00
3020	Solid Fuel Mill 517 to Kiln 2 Burner Pipe	Fines Crushing	3-05-010-10	NF	78,272	tons	0.0390	0.0150	0.0009	lb/ton	Sealed	100%	1.53	0.00	0.59	0.00	0.04	0.00
3021	Solid Fuel Mill Rejects to Wheelbarrow	Fuel Transfer Point	3-05-010-11	F	450	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.0001	0.0001	0.0001	0.0001	0.00	0.00
3022	Wheelbarrow to Reclaim	Fuel Transfer Point	3-05-010-11	F	450	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.0001	0.0001	0.0001	0.0001	0.00	0.00
												Non-Fugitive Emissions Subtotal	6.26	1.13	2.43	0.44	0.16	0.03
												Fugitive Emissions Subtotal	0.29	0.29	0.14	0.14	0.02	0.02
												Subtotal	6.56	1.42	2.57	0.58	0.18	0.05
Dust Collectors:																		
DC120	Dust Collector 120	Stack		NF	1,432,260,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	5.12	5.12	5.12	5.12	5.12	5.12
DC121	Dust Collector 121	Stack		NF	1,905,300,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	6.80	6.80	6.80	6.80	6.80	6.80
DC122	Dust Collector 122	Stack		NF	2,391,480,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	8.54	8.54	8.54	8.54	8.54	8.54
DC228	Dust Collector 228	Stack 2		NF	525,600,000	acf/yr	0.0100	0.0100	0.0100	gr/acf	None	0.0%	0.38	0.38	0.38	0.38	0.38	0.38
DC241	Dust Collector 241	Stack		NF	3,942,000,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	14.08	14.08	14.08	14.08	14.08	14.08
DC321	Dust Collector 321	Stack		NF	788,400,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	2.82	2.82	2.82	2.82	2.82	2.82
DC369	Dust Collector 369	Stack		NF	630,720,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	2.25	2.25	2.25	2.25	2.25	2.25
DC401	Dust Collector 401	Stack		NF	1,629,360,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	5.82	5.82	5.82	5.82	5.82	5.82
DC402	Dust Collector 402	Stack		NF	3,279,744,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	11.71	11.71	11.71	11.71	11.71	11.71
DC403	Dust Collector 403	Stack		NF	315,360,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.13	1.13	1.13	1.13	1.13	1.13
DC404	Dust Collector 404	Stack 2		NF	525,600,000	acf/yr	0.0100	0.0100	0.0100	gr/acf	None	0.0%	0.38	0.38	0.38	0.38	0.38	0.38
DC406	Dust Collector 406	Stack		NF	420,480,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.50	1.50	1.50	1.50	1.50	1.50
DC408	Dust Collector 408	Stack		NF	315,360,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.13	1.13	1.13	1.13	1.13	1.13
DC431	Dust Collector 431	Stack		NF	525,600,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.88	1.88	1.88	1.88	1.88	1.88
DC481	Dust Collector 481	Stack		NF	210,240,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.75	0.75	0.75	0.75	0.75	0.75
DC482	Dust Collector 482	Stack		NF	210,240,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.75	0.75	0.75	0.75	0.75	0.75
DC483	Dust Collector 483	Stack		NF	1,051,200,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	3.75	3.75	3.75	3.75	3.75	3.75
DC485	Dust Collector 485	Stack		NF	525,600,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.88	1.88	1.88	1.88	1.88	1.88
DC486	Dust Collector 486	Stack		NF	525,600,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.88	1.88	1.88	1.88	1.88	1.88
DC487	Dust Collector 487	Stack		NF	5,256,000,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	18.77	18.77	18.77	18.77	18.77	18.77
DC730	Dust Collector 730	Stack		NF	315,360,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.13	1.13	1.13	1.13	1.13	1.13
DC779	Dust Collector 779	Stack		NF	210,240,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.75	0.75	0.75	0.75	0.75	0.75
DC850	Dust Collector 850	Stack		NF	315,360,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.13	1.13	1.13	1.13	1.13	1.13
DC851	Dust Collector 851	Stack		NF	630,720,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	2.25	2.25	2.25	2.25	2.25	2.25
DC852	Dust Collector 852	Stack		NF	630,720,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	2.25	2.25	2.25	2.25	2.25	2.25
DC853	Dust Collector 853	Stack		NF	788,400,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	2.82	2.82	2.82	2.82	2.82	2.82
DC854	Dust Collector 854	Stack		NF	210,240,000	acf/yr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.75	0.75	0.75	0.75	0.75	0.75
												Non-Fugitive Emissions Subtotal	102.38	102.38	102.38	102.38	102.38	102.38
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	102.38	102.38	102.38	102.38	102.38	102.38

Table B.4 Annual Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Annual Process Rate	Rate Units	Emission Factors				Control Code	Pick-up or Control Eff.	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Maintenance and Repair Emissions																		
Maint1	Coal / Coke spillage	Fuel Transfer Point	3-05-010-11	F	400	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	9.50E-05	9.50E-05	4.49E-05	4.49E-05	6.80E-06	6.80E-06
Maint2	Coal / Coke spillage reclaim	Fuel Transfer Point	3-05-010-11	F	400	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	9.50E-05	9.50E-05	4.49E-05	4.49E-05	6.80E-06	6.80E-06
Maint3	Lime conveyors spillage	Lime Material Transfer	3-05-016-15	F	1,000	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.95E-02	1.95E-02	9.24E-03	9.24E-03	1.40E-03	1.40E-03
Maint4	Lime conveyor spillage reclaim	Lime Material Transfer	3-05-016-15	F	1,000	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.95E-02	1.95E-02	9.24E-03	9.24E-03	1.40E-03	1.40E-03
Maint5	Kiln 1 preheater spillage	Limestone Material Transfer	3-05-016-07	F	1,000	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	5.97E-03	5.97E-03	2.82E-03	2.82E-03	4.27E-04	4.27E-04
Maint6	Kiln 1 preheater spillage reclaim	Limestone Material Transfer	3-05-016-07	F	1,000	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	5.97E-03	5.97E-03	2.82E-03	2.82E-03	4.27E-04	4.27E-04
Maint7	Kiln 2 stone bin spillage	Limestone Material Transfer	3-05-016-07	F	1,000	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	5.97E-03	5.97E-03	2.82E-03	2.82E-03	4.27E-04	4.27E-04
Maint8	Kiln 2 stone bin spillage reclaim	Limestone Material Transfer	3-05-016-07	F	1,000	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	5.97E-03	5.97E-03	2.82E-03	2.82E-03	4.27E-04	4.27E-04
Maint9	Kiln 1 screen fines spillage	Limestone Material Transfer	3-05-016-07	F	1,000	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	5.97E-03	5.97E-03	2.82E-03	2.82E-03	4.27E-04	4.27E-04
Maint10	Kiln 1 screen fines spillage reclaim	Limestone Material Transfer	3-05-016-07	F	1,000	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	5.97E-03	5.97E-03	2.82E-03	2.82E-03	4.27E-04	4.27E-04
Maint11	Kiln 2 screen fines spillage	Limestone Material Transfer	3-05-016-07	F	2,500	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	1.49E-02	1.49E-02	7.05E-03	7.05E-03	1.07E-03	1.07E-03
Maint12	Kiln 2 screen fines reclaim	Limestone Material Transfer	3-05-016-07	F	2,500	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	1.49E-02	1.49E-02	7.05E-03	7.05E-03	1.07E-03	1.07E-03
Maint13	Kiln 3 screen fines spillage	Limestone Material Transfer	3-05-016-07	F	1,500	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	8.95E-03	8.95E-03	4.23E-03	4.23E-03	6.41E-04	6.41E-04
Maint14	Kiln 3 screen fines reclaim	Limestone Material Transfer	3-05-016-07	F	1,500	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	8.95E-03	8.95E-03	4.23E-03	4.23E-03	6.41E-04	6.41E-04
Maint15	Kiln 1 refractory spillage	Lime Material Transfer	3-05-016-15	F	600	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.17E-02	1.17E-02	5.54E-03	5.54E-03	8.39E-04	8.39E-04
Maint16	Kiln 1 refractory reclaim	Lime Material Transfer	3-05-016-15	F	600	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.17E-02	1.17E-02	5.54E-03	5.54E-03	8.39E-04	8.39E-04
Maint17	Kiln 1 ash ring, scale spillage	Lime Material Transfer	3-05-016-15	F	750	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.47E-02	1.47E-02	6.93E-03	6.93E-03	1.05E-03	1.05E-03
Maint18	Kiln 1 ash ring, scale reclaim	Lime Material Transfer	3-05-016-15	F	750	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.47E-02	1.47E-02	6.93E-03	6.93E-03	1.05E-03	1.05E-03
Maint19	Kiln 1 off-spec lime spillage	Lime Material Transfer	3-05-016-15	F	1,500	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	2.93E-02	2.93E-02	1.39E-02	1.39E-02	2.10E-03	2.10E-03
Maint20	Kiln 1 off-spec lime rclaim	Lime Material Transfer	3-05-016-15	F	1,500	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	2.93E-02	2.93E-02	1.39E-02	1.39E-02	2.10E-03	2.10E-03
Maint21	Kiln 2 refractory spillage	Lime Material Transfer	3-05-016-15	F	600	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.17E-02	1.17E-02	5.54E-03	5.54E-03	8.39E-04	8.39E-04
Maint22	Kiln 2 refractory reclaim	Lime Material Transfer	3-05-016-15	F	600	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.17E-02	1.17E-02	5.54E-03	5.54E-03	8.39E-04	8.39E-04
Maint23	Kiln 2 scale, ash ring spillage	Lime Material Transfer	3-05-016-15	F	750	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.47E-02	1.47E-02	6.93E-03	6.93E-03	1.05E-03	1.05E-03
Maint24	Kiln 2 scale, ash ring reclaim	Lime Material Transfer	3-05-016-15	F	750	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.47E-02	1.47E-02	6.93E-03	6.93E-03	1.05E-03	1.05E-03
Maint25	Kiln 2 off-spec lime spillage	Lime Material Transfer	3-05-016-15	F	4,000	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	7.81E-02	7.81E-02	3.70E-02	3.70E-02	5.60E-03	5.60E-03
Maint26	Kiln 2 off-spec reclaim	Lime Material Transfer	3-05-016-15	F	4,000	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	7.81E-02	7.81E-02	3.70E-02	3.70E-02	5.60E-03	5.60E-03
Maint27	Kiln 3 refractory spillage	Lime Material Transfer	3-05-016-15	F	800	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.56E-02	1.56E-02	7.39E-03	7.39E-03	1.12E-03	1.12E-03
Maint28	Kiln 3 refractory reclaim	Lime Material Transfer	3-05-016-15	F	800	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	1.56E-02	1.56E-02	7.39E-03	7.39E-03	1.12E-03	1.12E-03
Maint29	Kiln 3 off-spec lime spillage	Lime Material Transfer	3-05-016-15	F	4,000	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	7.81E-02	7.81E-02	3.70E-02	3.70E-02	5.60E-03	5.60E-03
Maint30	Kiln 3 off-spec lime reclaim	Lime Material Transfer	3-05-016-15	F	4,000	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	7.81E-02	7.81E-02	3.70E-02	3.70E-02	5.60E-03	5.60E-03
Maint31	Stone Belts spillage	Limestone Material Transfer	3-05-016-07	F	500	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	2.98E-03	2.98E-03	1.41E-03	1.41E-03	2.14E-04	2.14E-04
Maint32	Stone belt reclaim	Limestone Material Transfer	3-05-016-07	F	500	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	2.98E-03	2.98E-03	1.41E-03	1.41E-03	2.14E-04	2.14E-04
												Non-Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Fugitive Emissions Subtotal	0.637	0.637	0.301	0.301	0.046	0.046
												Subtotal	0.637	0.637	0.301	0.301	0.046	0.046

Table B.4 Annual Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Annual Process Rate	Rate Units	Emission Factors				Control Code	Pick-up or Control Eff.	PM Emissions (tpy)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Vehicle Travel																		
Unpav	Travel on Unpaved Roads	Unpav-A	3-05-040-99	F	435,436	VMT	14.7047	4.5014	0.4501	lb/VMT	Water 1	60.0%	3,201.472	1,280.589	980.042	392.017	98.00424	39.20170
Pav	Travel on Paved Roads	Pav-A	3-05-040-99	F	25,120	VMT	0.3559	0.0712	0.0175	lb/VMT	None	0.0%	4.470	4.470	0.894	0.894	0.21946	0.21946
												Non-Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Fugitive Emissions Subtotal	3,205.94	1,285.06	980.94	392.91	98.22	39.42
												Subtotal	3,205.94	1,285.06	980.94	392.91	98.22	39.42
Wind Erosion																		
W010	Kiln Dust Storage Areas	WindDustStorage	3-05-103-05	F	2.60	acres	142.1	71.0724	10.6609	lb/acre-day	None	0.0%	67.448	67.448	33.724	33.724	5.059	5.05858
W011	Off-Spec Lime Storage Areas	WindPiles	3-05-103-05	F	1.40	acres	2.8	1.4214	0.2132	lb/acre-day	None	0.0%	0.726	0.726	0.363	0.363	0.054	0.05448
W012	Overburden Storage Areas	WindPiles	3-05-103-05	F	16.50	acres	2.8	1.4214	0.2132	lb/acre-day	None	0.0%	8.561	8.561	4.280	4.280	0.642	0.64205
W013	#1 Kiln Feed Stockpile	WindPiles	3-05-103-05	F	1.00	acres	2.8	1.4214	0.2132	lb/acre-day	None	0.0%	0.519	0.519	0.259	0.259	0.039	0.03891
W014	#2 Kiln Feed Stockpile	WindPiles	3-05-103-05	F	1.50	acres	2.8	1.4214	0.2132	lb/acre-day	None	0.0%	0.778	0.778	0.389	0.389	0.058	0.05837
W015	#3 Kiln Feed Stockpile	WindPiles	3-05-103-05	F	2.20	acres	2.8	1.4214	0.2132	lb/acre-day	None	0.0%	1.141	1.141	0.571	0.571	0.086	0.08561
W016	Flux Stockpile	WindPiles	3-05-103-05	F	2.90	acres	2.8	1.4214	0.2132	lb/acre-day	None	0.0%	1.505	1.505	0.752	0.752	0.113	0.11285
W017	Chat Stockpile	WindPiles	3-05-103-05	F	0.72	acres	2.8	1.4214	0.2132	lb/acre-day	None	0.0%	0.374	0.374	0.187	0.187	0.028	0.02802
W018	17 Acre Roadway Open Area	WindOpenAreas	3-05-103-05	F	17.00	acres	2.8	1.4214	0.2132	lb/acre-day	None	0.0%	8.820	8.820	4.410	4.410	0.662	0.66151
W019	34 Acre Open Area	WindOpenAreas	3-05-103-05	F	34.00	acres	2.8	1.4214	0.2132	lb/acre-day	None	0.0%	17.640	17.640	8.820	8.820	1.323	1.32301
W020	Coal / Coke Stockpiles - Kiln Area	WindCoalCokePiles	3-05-103-03	F	0.69	acres	11.0	5.5081	0.8262	lb/acre-day	None	0.0%	1.387	1.387	0.694	0.694	0.104	0.10404
W021	Coal / Coke Stockpiles	WindCoalCokePiles	3-05-103-04	F	0.57	acres	11.0	5.5081	0.8262	lb/acre-day	None	0.0%	1.146	1.146	0.573	0.573	0.086	0.08595
W022	Coal / Coke Stockpiles (future)	WindCoalCokePiles	3-05-103-05	F	1.84	acres	11.0	5.5081	0.8262	lb/acre-day	None	0.0%	3.699	3.699	1.850	1.850	0.277	0.27744
												Non-Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Fugitive Emissions Subtotal	113.74	113.74	56.87	56.87	8.53	8.53
												Subtotal	113.74	113.74	56.87	56.87	8.53	8.53
												Total Non-Fugitive Emissions:	**725.96**	**371.29**	**462.87**	**301.21**	**281.00**	**258.28**
												Total Fugitive Emissions:	**3877.40**	**1587.91**	**1295.28**	**538.57**	**129.08**	**57.08**
												Total Emissions:	**4603.36**	**1959.20**	**1758.15**	**839.78**	**410.08**	**315.36**

* * These processes are controlled, but the control efficiency is taken into account in the emission factor so "0%" is shown in the "control or capture efficiency" column.

Table B.5 Hourly Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Hourly Process Rate	Units	Emission Factors				Control Method	Control or Capture Eff.	PM Emissions (lbs/hr)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Rock Quarry																		
M001	Drilling Stone/Overburden	Drilling	3-05-040-02	F	4.1	holes	1.3000	0.5778	0.1083	lbs/hole	Enclosed	70%	5.33	1.60	2.37	0.71	0.44	0.13
M002	Blasting Stone/Overburden	Blasting-H	3-05-040-01	F	1	blasts	7.1680	3.7274	0.2150	lbs/blast	None	0%	7.17	7.17	3.73	3.73	0.22	0.22
M003	Loading Trucks	Limestone Material Transfer	3-05-040-20	F	1,281	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	15.28	15.28	7.23	7.23	1.09	1.09
M004	Unloading to Storage Areas	Limestone Material Transfer	3-05-104-05	F	856	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	10.21	10.21	4.83	4.83	0.73	0.73
M005	Unload Off-spec to Piles	Dry Transfer Point	3-05-104-05	F	51	tons	0.0391	0.0185	0.0028	lb/ton	None	0%	1.99	1.99	0.94	0.94	0.14	0.14
												Non-Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Fugitive Emissions Subtotal	39.99	36.26	19.10	17.44	2.63	2.32
												Subtotal	39.99	36.26	19.10	17.44	2.63	2.32
Crushing Plant																		
C001	Truck to Hopper 100	Limestone Material Transfer	3-05-040-20	F	425	tons	0.0119	0.0056	0.0009	lb/ton	Water Spray	82.5%	5.07	0.89	2.40	0.42	0.36	0.06
C002	Hopper 100 to Apron Feeder 101	Limestone Material Transfer	3-05-040-21	NF	425	tons	0.0119	0.0056	0.0009	lb/ton	Water Spray	82.5%	5.07	0.89	2.40	0.42	0.36	0.06
C003	Apron Feeder 101 to Grizzly/Primary Crusher 102 and Primary Crusher 102	Crusher	3-05-040-30	NF	425	tons	0.0054	0.0024	0.0005	lb/ton	DC-120	90%	2.30	0.23	1.02	0.10	0.19	0.02
C003a	Primary Crusher 102 to Belt 103	Limestone Material Transfer	3-05-103-05	NF	425	tons	0.0119	0.0056	0.0009	lb/ton	DC-120	90%	5.07	0.51	2.40	0.24	0.36	0.04
C004	Belt 103 to Primary Screen 104 and Primary Screen 104	Screening	3-05-040-34	NF	425	tons	0.0250	0.0087	0.0006	lb/ton	Enclosed	70%	10.63	3.19	3.70	1.11	0.24	0.07
C004a	Primary Screen 104 to Cone Crush Belt 105, Short -2" Belt 108, and 1st #3 SP Feed Belt 118**	Protected Limestone Material Transfer	3-05-040-21	NF	425	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.76	0.76	0.36	0.36	0.05	0.05
C005	Cone Crush Belt 105 to O/S Conveyor 107	Protected Limestone Material Transfer	3-05-040-21	NF	128	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.23	0.23	0.11	0.11	0.02	0.02
C006	Secondary Crusher 106	Crusher	3-05-040-31	NF	128	tons	0.0054	0.0024	0.0005	lb/ton	DC-121	90%	0.69	0.07	0.31	0.03	0.06	0.01
C006a	Secondary Crusher 106 to Belt 103	Limestone Material Transfer	3-05-103-05	NF	128	tons	0.0119	0.0056	0.0009	lb/ton	DC-121	90%	1.52	0.15	0.72	0.07	0.11	0.01
C007	1st #3 SP Feed Belt 118 to 2nd #3 SP Feed Belt 119**	Protected Limestone Material Transfer	3-05-040-21	NF	255	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.46	0.46	0.22	0.22	0.03	0.03
C008	2nd #3 SP Feed Belt 119 to #3 Kiln Feed Stockpile	Limestone Material Transfer	3-05-103-05	F	255	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	3.04	3.04	1.44	1.44	0.22	0.22
C009	Short -2" Belt 108 to -2" Belt 109**	Protected Limestone Material Transfer	3-05-040-21	NF	298	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.53	0.53	0.25	0.25	0.04	0.04
C010	-2" Belt 109 to Secondary Screen 110 and Secondary Screen 110	Screening	3-05-040-34	NF	298	tons	0.0250	0.0087	0.0006	lb/ton	DC-122	90%	7.44	0.74	2.59	0.26	0.17	0.02
C010a	Feed Belt 112, Reversible Chat Belt 113, and 1st Flux Belt 116**	Protected Limestone Material Transfer	3-05-040-21	NF	298	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.53	0.53	0.25	0.25	0.04	0.04
C011	Reversible Chat Belt 113 to #2 Feed Belt 112**	Protected Limestone Material Transfer	3-05-040-21	NF	85	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.15	0.15	0.07	0.07	0.01	0.01
C012	Reversible Chat Belt 113 to First Chat Belt 114**	Protected Limestone Material Transfer	3-05-040-21	NF	85	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.15	0.15	0.07	0.07	0.01	0.01
C013	First Chat Belt 114 to Second Chat Belt 115**	Protected Limestone Material Transfer	3-05-040-21	NF	85	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.15	0.15	0.07	0.07	0.01	0.01
C014	Second Chat Belt 115 to Chat Stockpile	Limestone Material Transfer	3-05-103-05	F	85	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	1.01	1.01	0.48	0.48	0.07	0.07
C015	#2 Feed Belt 112 to #2 Kiln Feed Stockpile	Protected Limestone Material Transfer	3-05-103-05	F	149	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.27	0.27	0.13	0.13	0.02	0.02
C016	#1 Feed Belt 111 to #1 Kiln Feed Stockpile	Limestone Material Transfer	3-05-103-05	F	170	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	2.03	2.03	0.96	0.96	0.15	0.15
C017	Short -2" Belt 108 to SECO System Belt 123**	Protected Limestone Material Transfer	3-05-040-21	NF	298	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.53	0.53	0.25	0.25	0.04	0.04
C018	SECO System Belt 123 to SECO #1 Screen 124 and SECO #1 Screen 124	Screening	3-05-040-34	NF	298	tons	0.0250	0.0087	0.0006	lb/ton	None	0%	7.44	7.44	2.59	2.59	0.17	0.17
C018a	SECO #1 Screen 124 to 1st Flux Belt 116**	Protected Limestone Material Transfer	3-05-040-21	NF	298	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.53	0.53	0.25	0.25	0.04	0.04
C019	1st Flux Belt 116 to 2nd Flux Belt 117**	Protected Limestone Material Transfer	3-05-040-21	NF	64	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.11	0.11	0.05	0.05	0.01	0.01
C020	2nd Flux Belt 117 to Flux Stockpile	Limestone Material Transfer	3-05-103-05	F	64	tons	0.0119	0.0056	0.0009	lb/ton	Water Spray	82.5%	0.76	0.13	0.36	0.06	0.05	0.01
C021	SECO #1 Screen 124 to SECO #2 Screen 125 and SECO #2 Screen 125	Screening	3-05-040-34	NF	234	tons	0.0250	0.0087	0.0006	lb/ton	None	0%	5.84	5.84	2.03	2.03	0.13	0.13
C021a	SECO #2 Screen 125 to #1 Feed Belt 111 and #2 Feed Belt 112**	Protected Limestone Material Transfer	3-05-040-21	NF	149	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.27	0.27	0.13	0.13	0.02	0.02
C022	SECO #2 Screeb 125 to SECO #3 Screen 126 and SECO #3 Screen 126	Screening	3-05-040-34	NF	85	tons	0.0250	0.0087	0.0006	lb/ton	None	0%	2.13	2.13	0.74	0.74	0.05	0.05
C022a	SECO #3 Screen 126 to First Chat Belt 114 and 1st Flux Belt 116**	Protected Limestone Material Transfer	3-05-040-21	NF	85	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.15	0.15	0.07	0.07	0.01	0.01
C023	DC-120 to Screw Conveyor 127	Limestone Material Transfer	3-05-040-21	NF	0.003	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	0.000040	0.00	0.000019	0.00	0.0000028	0.00
C024	DC-121 to Screw Conveyor 127	Limestone Material Transfer	3-05-040-21	NF	0.0010	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	0.000012	0.00	0.000006	0.00	0.0000008	0.00
C025	DC-122 to Screw Conveyor 127	Limestone Material Transfer	3-05-040-21	NF	0.003	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	0.000040	0.00	0.000019	0.00	0.0000029	0.00
C026	Screw Conveyor 127 to Slurry Pond	Limestone Material Transfer	3-05-040-21	NF	0.10	tons	0.0119	0.0056	0.0009	lb/ton	Water Spray	82.5%	0.001205	0.00	0.000570	0.00	0.0000863	0.00
C027	Front End Loader to Flux Stockpile	Limestone Material Transfer	3-05-103-05	F	64	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	0.76	0.76	0.36	0.36	0.05	0.05
C028	Front End Loader to Chat Stockpile	Limestone Material Transfer	3-05-103-05	F	85	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	1.01	1.01	0.48	0.48	0.07	0.07
												Non-Fugitive Emissions Subtotal	52.67	25.74	20.65	9.75	2.17	0.90
												Fugitive Emissions Subtotal	13.96	9.15	6.60	4.33	1.00	0.66
												Subtotal	66.63	34.89	27.25	14.07	3.17	1.56

Table B.5 Hourly Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Hourly Process Rate	Units	Emission Factors				Control Method	Control or Capture Eff.	PM Emissions (lbs/hr)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Kilns																		
Kiln1	Lime Kiln 1**	Kiln 1	3-05-016-04	NF	8.33	tons	3.5000	2.9000	2.4680	lb/ton	None	0%	29.16	29.16	24.16	24.16	20.56	20.56
Kiln2	Lime Kiln 2**	Kiln 2	3-05-016-04	NF	22.92	tons	0.6600	0.5300	0.4556	lb/ton	None	0%	15.13	15.13	12.15	12.15	10.44	10.44
Kiln3	Lime Kiln 3**	Kiln 3	3-05-016-03	NF	19.2	tons	0.2604	0.2271	0.2271	lb/ton	None	0%	5.00	5.00	4.36	4.36	4.36	4.36
												Non-Fugitive Emissions Subtotal	49.28	49.28	40.66	40.66	35.36	35.36
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	49.28	49.28	40.66	40.66	35.36	35.36
K1PM	Kiln 1 Pony Motor	DieselEngine	2-02-001-02	NF	41.9	hp	0.0022	0.0022	0.0022	lb/hp-hr	None	0%	0.09	0.09	0.09	0.09	0.09	0.09
K2PM	Kiln 2 Pony Motor	DieselEngine	2-02-001-02	NF	81.8	hp	0.0022	0.0022	0.0022	lb/hp-hr	None	0%	0.18	0.18	0.18	0.18	0.18	0.18
												Non-Fugitive Emissions Subtotal	0.27	0.27	0.27	0.27	0.27	0.27
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	0.27	0.27	0.27	0.27	0.27	0.27
Kiln 1 Stone Handling																		
4001	#1 Kiln Feed Stockpile to BC-205	Limestone Material Transfer	3-05-016-07	NF	100	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	1.19	0.00	0.56	0.00	0.09	0.00
4002	BC-205 to K1 Transfer Stockpile**	Protected Limestone Material Transfer	3-05-016-07	F	100	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.18	0.18	0.08	0.08	0.01	0.01
4003	K1 Transfer Stockpile to BC-210	Limestone Material Transfer	3-05-016-07	NF	100	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	1.19	0.00	0.56	0.00	0.09	0.00
4004	BC-210 to Preheater Screen 211 and Preheater Screen 211	Screening	3-05-016-16	NF	100	tons	0.0250	0.0087	0.0006	lb/ton	Enclosed	70%	2.50	0.75	0.87	0.26	0.06	0.02
4004a	Preheater Screen 211 to Rotary Valve	Limestone Material Transfer	3-05-016-07	NF	100	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	1.19	0.00	0.56	0.00	0.09	0.00
4005	Rotary Valve to Stone Bin 301	Limestone Material Transfer	3-05-016-07	NF	100	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	1.19	0.00	0.56	0.00	0.09	0.00
												Non-Fugitive Emissions Subtotal	7.27	0.75	3.13	0.26	0.40	0.017
												Fugitive Emissions Subtotal	0.18	0.18	0.08	0.08	0.01	0.013
												Subtotal	7.45	0.93	3.21	0.35	0.41	0.03
Kiln 1 Dust Handling																		
4006	Gravel Bed Filter to Center Screw 311	Lime Material Transfer	3-05-016-15	NF	0.25	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.01	0.00	0.00	0.00	0.00	0.00
4007	Gravel Bed Filter to Collect Drag 310	Lime Material Transfer	3-05-016-15	NF	0.25	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.01	0.00	0.00	0.00	0.00	0.00
4008	Center Screw 311 to Cross Drag 312	Lime Material Transfer	3-05-016-15	NF	0.25	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.01	0.00	0.00	0.00	0.00	0.00
4009	Collect Drag 310 to Cross Drag 312	Lime Material Transfer	3-05-016-15	NF	0.25	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.01	0.00	0.00	0.00	0.00	0.00
4010	Cross Drag 312 to Collect Drag 313	Lime Material Transfer	3-05-016-15	NF	0.50	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.02	0.00	0.01	0.00	0.00	0.00
4011	Gravel Bed Filter to Collect Drag 313	Lime Material Transfer	3-05-016-15	NF	0.25	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.01	0.00	0.00	0.00	0.00	0.00
4012	Collect Drag 313 to Dust Bucket Elevator 314	Lime Material Transfer	3-05-016-15	NF	0.75	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.03	0.00	0.01	0.00	0.00	0.00
4013	Dust Bucket Elevator 314 to Dust Pod 315	Lime Material Transfer	3-05-016-15	C	0.75	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.03	0.00	0.01	0.00	0.00	0.00
4014	Dust Pod 315 to Screw 316	Lime Material Transfer	3-05-016-15	NF	0.75	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.03	0.00	0.01	0.00	0.00	0.00
4015	Preheater Dribble to Dust Pod 308	Lime Material Transfer	3-05-016-15	NF	0.05	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
4016	Kiln Dust Chamber to Dust Pod 308	Lime Material Transfer	3-05-016-15	NF	0.15	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.01	0.00	0.00	0.00	0.00	0.00
4017	Cyclone 307 to Dust Pod 308	Lime Material Transfer	3-05-016-15	NF	0.25	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.01	0.00	0.00	0.00	0.00	0.00
4018	Dust Pod 308 to Screw 316	Lime Material Transfer	3-05-016-15	NF	0.65	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.03	0.00	0.01	0.00	0.00	0.00
4019	Screw 316 to Screw 317	Lime Material Transfer	3-05-016-15	NF	16.00	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.63	0.00	0.30	0.00	0.04	0.00
4020	Screw 317 to Screw 318	Lime Material Transfer	3-05-016-15	NF	16.00	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.63	0.00	0.30	0.00	0.04	0.00
4021	Screw 318 to Bucket Elevator 319	Lime Material Transfer	3-05-016-15	NF	16.00	tons	0.0391	0.0185	0.0028	lb/ton	DC-321	90%	0.63	0.06	0.30	0.03	0.04	0.00
4022	Bucket Elevator 319 to Dust Bin BN-320	Lime Material Transfer	3-05-016-15	NF	16.00	tons	0.0391	0.0185	0.0028	lb/ton	DC-321	90%	0.63	0.06	0.30	0.03	0.04	0.00
4023	Dust Bin 320 to Pug Mill 323 via Rotary Valve	Lime Material Transfer	3-05-016-15	NF	16.00	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.63	0.00	0.30	0.00	0.04	0.00
4024	Pug Mill 323 to Haul Truck	Lime Material Transfer	3-05-016-27	NF	16.00	tons	0.0391	0.0185	0.0028	lb/ton	Water Spray	82.5%	0.63	0.11	0.30	0.05	0.04	0.01
4025	Dust Bin 320 to Haul Truck	Lime Material Transfer	3-05-016-15	NF	16.00	tons	0.0391	0.0185	0.0028	lb/ton	None	0%	0.63	0.63	0.30	0.30	0.04	0.04
												Non-Fugitive Emissions Subtotal	4.58	0.86	2.16	0.41	0.33	0.06
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	4.58	0.86	2.16	0.41	0.33	0.06
Kiln 1 Lime Handling																		
4026	Kiln 1 to Product Cooler 306	Lime Material Transfer	3-05-016-11	NF	8.33	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	0.33	0.10	0.15	0.05	0.02	0.01
4027	Product Cooler 306 to Lime Discharge Screw 400	Lime Material Transfer	3-05-016-15	NF	8.33	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	0.33	0.10	0.15	0.05	0.02	0.01
4028	Lime Discharge Screw 400 to BC-401**	Protected Lime Material Transfer	3-05-016-15	NF	8.33	tons	0.0059	0.0028	0.0004	lb/ton	None	0%	0.05	0.05	0.02	0.02	0.00	0.00
4029	BC-401 to BC-402**	Protected Lime Material Transfer	3-05-016-15	NF	8.33	tons	0.0059	0.0028	0.0004	lb/ton	None	0%	0.05	0.05	0.02	0.02	0.00	0.00
4030	BC-402 to BC-403	Lime Material Transfer	3-05-016-15	NF	8.33	tons	0.0391	0.0185	0.0028	lb/ton	DC-403	99%	0.33	0.00	0.15	0.00	0.02	0.00
4031	DC-321 to Dust Bin BN-320	Lime Material Transfer	3-05-016-15	NF	0.001	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
4032	DC-403 to BC-403	Lime Material Transfer	3-05-016-16	NF	0.0002	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	1.07	0.30	0.51	0.14	0.08	0.02
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	1.07	0.30	0.51	0.14	0.08	0.02

Table B.5 Hourly Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Hourly Process Rate	Units	Emission Factors				Control Method	Control or Capture Eff.	PM Emissions (lbs/hr)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Kiln 2 Stone Handling																		
5001	#1 Kiln Feed Stockpile to Crossover Tunnel Belt 215	Limestone Material Transfer	3-05-016-07	NF	70	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	0.84	0.00	0.40	0.00	0.06	0.00
5002	Crossover Tunnel Belt 215 to Crossover Belt 216**	Protected Limestone Material Transfer	3-05-016-07	NF	70	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.13	0.13	0.06	0.06	0.01	0.01
5003	Crossover Belt 216 to Crossover Belt 217**	Protected Limestone Material Transfer	3-05-016-07	NF	70	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.13	0.13	0.06	0.06	0.01	0.01
5004	Crossover Belt 217 to Tunnel Belt 223**	Protected Limestone Material Transfer	3-05-016-07	NF	70	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.13	0.13	0.06	0.06	0.01	0.01
5005	Crossover Belt 217 to -2" Belt**	Protected Limestone Material Transfer	3-05-016-07	NF	70	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.13	0.13	0.06	0.06	0.01	0.01
5006	#2 Kiln Feed Stockpile to Tunnel Belt 223	Limestone Material Transfer	3-05-016-07	NF	30	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	0.36	0.00	0.17	0.00	0.03	0.00
5007	Tunnel Belt 223 to Screen 224 and Screen 224	Screening	3-05-016-16	NF	100	tons	0.0250	0.0087	0.0006	lb/ton	Enclosed	70%	2.50	0.75	0.87	0.26	0.06	0.02
5007a	Screen 224 to BC-225**	Protected Limestone Material Transfer	3-05-016-07	NF	100	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.18	0.18	0.08	0.08	0.01	0.01
5007b	Screen 224 to Reject Screw 226	Limestone Material Transfer	3-05-016-07	NF	15	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	0.18	0.00	0.08	0.00	0.01	0.00
5008	Reject Screw 226 to Reject Belt 227	Limestone Material Transfer	3-05-016-07	NF	15	tons	0.0119	0.0056	0.0009	lb/ton	DC-228	90%	0.18	0.02	0.08	0.01	0.01	0.00
5009	Reject Belt 227 to Chat Stockpile	Limestone Material Transfer	3-05-016-10	F	15	tons	0.0119	0.0056	0.0009	lb/ton	Water Spray	82.5%	0.18	0.03	0.08	0.01	0.01	0.00
5010	BC-225 to Kiln 2 Stone Bin 350**	Protected Limestone Material Transfer	3-05-016-07	NF	100	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.18	0.18	0.08	0.08	0.01	0.01
5011	Kiln 2 Stone Bin 350 to Weigh Belt 351**	Protected Limestone Material Transfer	3-05-016-07	NF	46	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.08	0.08	0.04	0.04	0.01	0.01
5012	Weigh Belt 351 to Kiln 2**	Protected Limestone Material Transfer	3-05-016-07	NF	46	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.08	0.08	0.04	0.04	0.01	0.01
5013	DC-228 to Reject Belt 227	Lime Material Transfer	3-05-016-16	NF	0.16	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.01	0.00	0.00	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	5.08	1.79	2.09	0.75	0.24	0.09
												Fugitive Emissions Subtotal	0.18	0.03	0.08	0.01	0.01	0.00
												Subtotal	5.26	1.82	2.17	0.77	0.25	0.09
Kiln 2 Dust Handling																		
5014	Kiln 2 Dust Chamber to Dust Screw 364	Lime Material Transfer	3-05-016-15	NF	0.56	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.02	0.00	0.01	0.00	0.00	0.00
5015	Dust Screw 364 to Dust Screw 365	Lime Material Transfer	3-05-016-15	NF	0.56	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.02	0.00	0.01	0.00	0.00	0.00
5016	Air/Air Heat Exchanger to HX Screw 361	Lime Material Transfer	3-05-016-15	NF	0.56	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.02	0.00	0.01	0.00	0.00	0.00
5017	HX Screw 361 to HX Screw 363 via Rotary Valve	Lime Material Transfer	3-05-016-15	NF	0.56	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.02	0.00	0.01	0.00	0.00	0.00
5018	HX Screw 363 to Dust Screw 365	Lime Material Transfer	3-05-016-15	NF	0.56	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.02	0.00	0.01	0.00	0.00	0.00
5019	DC-356 to Screw 358	Lime Material Transfer	3-05-016-15	NF	1.1	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.04	0.00	0.02	0.00	0.00	0.00
5020	DC-356 to Screw 359	Lime Material Transfer	3-05-016-15	NF	1.1	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.04	0.00	0.02	0.00	0.00	0.00
5021	Screw 358 to Dust Screw 360	Lime Material Transfer	3-05-016-15	NF	1.1	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.04	0.00	0.02	0.00	0.00	0.00
5022	Screw 359 to Dust Screw 360	Lime Material Transfer	3-05-016-15	NF	1.1	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.04	0.00	0.02	0.00	0.00	0.00
5023	Dust Screw 360 to Dust Screw 365	Lime Material Transfer	3-05-016-15	NF	2.2	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.09	0.00	0.04	0.00	0.01	0.00
5024	Dust Screw 360 to Bin T-410	Lime Material Transfer	3-05-016-15	NF	2.2	tons	0.0391	0.0185	0.0028	lb/ton	DC-408	99%	0.09	0.00	0.04	0.00	0.01	0.00
5025	Dust Screw 360 to Kiln 1 Dust Bin BN-320	Lime Material Transfer	3-05-016-15	NF	2.2	tons	0.0391	0.0185	0.0028	lb/ton	DC-321	90%	0.09	0.01	0.04	0.00	0.01	0.00
5026	Dust Screw 360 to Kiln 3 Dust Blend System Bin	Lime Material Transfer	3-05-016-15	NF	2.2	tons	0.0391	0.0185	0.0028	lb/ton	DC-730	99%	0.09	0.00	0.04	0.00	0.01	0.00
5027	Bin T-410 to Screw 412	Lime Material Transfer	3-05-016-15	NF	2.2	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.09	0.00	0.04	0.00	0.01	0.00
5028	Screw 412 to BC-404	Lime Material Transfer	3-05-016-15	NF	2.2	tons	0.0391	0.0185	0.0028	lb/ton	DC-404	90%	0.09	0.01	0.04	0.00	0.01	0.00
5029	Dust Screw 365 to Bucket Elevator 366	Lime Material Transfer	3-05-016-15	NF	2.8	tons	0.0391	0.0185	0.0028	lb/ton	DC-369	90%	0.11	0.01	0.05	0.01	0.01	0.00
5030	Bucket Elevator 366 to Tank Screw 367	Lime Material Transfer	3-05-016-15	NF	2.8	tons	0.0391	0.0185	0.0028	lb/ton	DC-369	90%	0.11	0.01	0.05	0.01	0.01	0.00
5031	Tank Screw 367 to Kiln 2 Dust Bin BN-368	Lime Material Transfer	3-05-016-15	NF	2.8	tons	0.0391	0.0185	0.0028	lb/ton	DC-369	90%	0.11	0.01	0.05	0.01	0.01	0.00
5032	Kiln 2 Dust Bin BN-368 to Truck	Lime Material Transfer	3-05-016-27	F	1.4	tons	0.0391	0.0185	0.0028	lb/ton	DC-369	90%	0.05	0.01	0.03	0.00	0.00	0.00
5033	Kiln 2 Dust Bin BN-368 to Pug Mill 371 via Rotary Valve	Lime Material Transfer	3-05-016-15	NF	10.0	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.39	0.00	0.18	0.00	0.03	0.00
5034	Pug Mill 371 to Truck	Lime Material Transfer	3-05-016-27	F	10.0	tons	0.0391	0.0185	0.0028	lb/ton	Water Spray	82.5%	0.39	0.07	0.18	0.03	0.03	0.00
5035.	DC-408 to Bin T-410	Lime Material Transfer	3-05-016-16	NF	0.09	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
5036.	DC-369 to Kiln 2 Dust Bin	Lime Material Transfer	3-05-016-16	NF	0.34	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.01	0.00	0.01	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	1.55	0.05	0.73	0.02	0.11	0.00
												Fugitive Emissions Subtotal	0.45	0.07	0.21	0.03	0.03	0.01
												Subtotal	1.99	0.13	0.94	0.06	0.14	0.01
Kiln 2 Lime Handling																		
5037	Kiln 2 to Product Cooler 353	Lime Material Transfer	3-05-016-11	NF	22.92	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	0.90	0.27	0.42	0.13	0.06	0.02
5038	Product Cooler 353 to Vibrating Feeders 353	Lime Material Transfer	3-05-016-15	NF	22.92	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	0.90	0.27	0.42	0.13	0.06	0.02
5039	Vibrating Feeders 353 to BC-404	Lime Material Transfer	3-05-016-15	NF	22.92	tons	0.0391	0.0185	0.0028	lb/ton	DC-404	90%	0.90	0.09	0.42	0.04	0.06	0.01
5040	DC-404 to BC-404	Lime Material Transfer	3-05-016-16	NF	0.0004	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	2.69	0.63	1.27	0.30	0.19	0.04
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	2.69	0.63	1.27	0.30	0.19	0.04

Table B.5 Hourly Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Hourly Process Rate	Units	Emission Factors				Control Method	Control or Capture Eff.	PM Emissions (lbs/hr)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Kiln 1 and Kiln 2 Lime Storage & Truck Loadout																		
SL001	BC-403 to Gate G-403	Lime Material Transfer	3-05-016-15	NF	18.4	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	0.72	0.01	0.34	0.00	0.05	0.00
SL002	Gate G-403 to Truck via Spout 403**	Enclosed Truck/Rail Loading	3-05-016-27	F	18.4	tons	0.6100	0.2885	0.0207	lb/ton	None	0%	11.22	11.22	5.31	5.31	0.38	0.38
SL003	Gate G-403 to Bin 401	Lime Material Transfer	3-05-016-15	NF	18.4	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	0.72	0.01	0.34	0.00	0.05	0.00
SL004	Gate G-403 to BC-405	Lime Material Transfer	3-05-016-15	NF	18.4	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	0.72	0.01	0.34	0.00	0.05	0.00
SL005	BC-404 to Gate G-404	Lime Material Transfer	3-05-016-15	NF	41.6	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	1.63	0.02	0.77	0.01	0.12	0.00
SL006	Gate G-404 to Truck via Spout 404**	Enclosed Truck/Rail Loading	3-05-016-27	F	41.6	tons	0.6100	0.2885	0.0207	lb/ton	None	0%	25.38	25.38	12.00	12.00	0.86	0.86
SL007	Gate G-404 to Bin 401	Lime Material Transfer	3-05-016-15	NF	41.6	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	1.63	0.02	0.77	0.01	0.12	0.00
SL008	Gate G-404 to BC-405	Lime Material Transfer	3-05-016-15	NF	41.6	tons	0.0391	0.0185	0.0028	lb/ton	DC-401	99%	1.63	0.02	0.77	0.01	0.12	0.00
SL009	BC-405 to Gate G-405	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL010	Gate G-405 to Roll Crusher R-405 and Roll Crusher R-405	Fines Crushing	3-05-016-31	NF	50.0	tons	0.0390	0.0150	0.0009	lb/ton	DC-402	99%	1.95	0.02	0.75	0.01	0.05	0.00
SL010a	Roll Crusher R-405 to G-406	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	1.95	0.59	0.92	0.28	0.14	0.04
SL011	Gate G-405 to Gate G-406	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	1.95	0.00	0.92	0.00	0.14	0.00
SL012	Gate G-406 to Bin 405	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-406	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL013	Gate G-406 to Screw 406	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	1.95	0.00	0.92	0.00	0.14	0.00
SL014	Screw 406 to Bin 406	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	1.95	0.00	0.92	0.00	0.14	0.00
SL015	Screw 406 to Bin 407 (Future)	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	1.95	0.59	0.92	0.28	0.14	0.04
SL016	Bin 406 to Screw 432	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	1.95	0.00	0.92	0.00	0.14	0.00
SL017	Bin 407 to Screw 431 (Future)	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	1.95	0.00	0.92	0.00	0.14	0.00
SL018	Screw 406, 432 and 431 (Future) to Roll Crusher R-451 and Roll Crusher R-451	Fines Crushing	3-05-016-31	NF	50.0	tons	0.0390	0.0150	0.0009	lb/ton	Sealed	100%	1.95	0.00	0.75	0.00	0.05	0.00
SL018a	Roll Crusher R-451 to BC-433	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-431	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL019	BC-433 to Gate G-451	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL020	G-451 to Hammermill 452 and Hammermill 452	Fines Crushing	3-05-016-31	NF	50.0	tons	0.0390	0.0150	0.0009	lb/ton	Sealed	100%	1.95	0.00	0.75	0.00	0.05	0.00
SL020a	Hammermill 452 to Screw 434	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL021	Gate G-451 to Screw 434	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL022	Screw 434 to Bucket Elevator E-432	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL023	Bucket Elevator E-432 to Gate G-434	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL024	Gate G-434 to Bin 402	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL025	Bin 402 to Bucket Elevator E-432	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL026	Bin 402 to Truck via Spout 482**	Enclosed Truck/Rail Loading	3-05-016-27	F	50.0	tons	0.6100	0.2885	0.0207	lb/ton	DC-402	99%	30.50	0.31	14.43	0.14	1.03	0.01
SL027	Gate G-434 to Screw 435 (Future)	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	1.95	0.00	0.92	0.00	0.14	0.00
SL028	Screw 435 to Bin 405 (Future)	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-406	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL029	Bin 405 to Screw 441	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	1.95	0.00	0.92	0.00	0.14	0.00
SL030	Screw 441 to Bucket Elevator E-441	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL031	Bucket Elevator E-441 to Gate G-441	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-402	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL032	Gate G-441 to Screw 406	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-406	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL033	Gate G-441 to BC-486	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-486	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL034	Bin 406 to BC-486	Lime Material Transfer	3-05-016-15	NF	100.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-486	99%	3.91	0.04	1.85	0.02	0.28	0.00
SL035	Bin 407 to BC-485 (Future)	Lime Material Transfer	3-05-016-15	NF	100.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-485	99%	3.91	0.04	1.85	0.02	0.28	0.00
SL036	BC-485 to BC-486 (Future)	Lime Material Transfer	3-05-016-15	NF	100.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-486	99%	3.91	0.04	1.85	0.02	0.28	0.00
SL037	Screw 487 to BC-486	Lime Material Transfer	3-05-016-15	NF	0.03	tons	0.0391	0.0185	0.0028	lb/ton	DC-486	99%	0.00	0.00	0.00	0.00	0.00	0.00
SL038	BC-486 to Truck via Spout 486**	Enclosed Truck/Rail Loading	3-05-016-27	F	100.0	tons	0.6100	0.2885	0.0207	lb/ton	DC-487	99%	61.00	0.61	28.85	0.29	2.07	0.02
SL039	Bin 405 to BC-481** (Future)	Protected Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0059	0.0028	0.0004	lb/ton	DC-481	99%	0.29	0.00	0.14	0.00	0.02	0.00
SL040	BC-481 to BC-483** (Future)	Protected Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0059	0.0028	0.0004	lb/ton	Enclosed	70%	0.29	0.09	0.14	0.04	0.02	0.01
SL041	Screw 406 to Bin 405	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-406	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL042	Gate G-434 to Bin 403	Lime Material Transfer	3-05-016-15	NF	50.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-406	99%	1.95	0.02	0.92	0.01	0.14	0.00
SL043	Bin 403 to BC-483	Lime Material Transfer	3-05-016-15	NF	100.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-482	99%	3.91	0.04	1.85	0.02	0.28	0.00
SL044	BC-483 to Truck via Spout 483**	Enclosed Truck/Rail Loading	3-05-016-27	F	100.0	tons	0.6100	0.2885	0.0207	lb/ton	DC-483	99%	61.00	0.61	28.85	0.29	2.07	0.02
SL045	Bin 401 to Front-End Loader	Lime Material Transfer	3-05-016-27	F	60.00	tons	0.0391	0.0185	0.0028	lb/ton	None	0%	2.34	2.34	1.11	1.11	0.17	0.17
SL046	Front-End Loader to Truck	Lime Material Transfer	3-05-016-27	F	60.00	tons	0.0391	0.0185	0.0028	lb/ton	None	0%	2.34	2.34	1.11	1.11	0.17	0.17
SL047	DC-401 to Bin 401	Lime Material Transfer	3-05-016-16	NF	0.003	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
SL048	DC-402 to Screw 434	Lime Material Transfer	3-05-016-16	NF	0.03	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
SL049	DC-406 to Bin 403	Lime Material Transfer	3-05-016-16	NF	0.005	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
SL050	DC-431 to BC-433	Lime Material Transfer	3-05-016-16	NF	0.001	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
SL051	DC-482 to BC-483	Lime Material Transfer	3-05-016-16	NF	0.002	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
SL052	DC-483 to Spout-483	Lime Material Transfer	3-05-016-16	NF	0.03	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
SL053	DC-486 to BC-486	Lime Material Transfer	3-05-016-16	NF	0.00	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
SL054	DC-487 to Screw 487	Lime Material Transfer	3-05-016-16	NF	0.03	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	79.89	1.84	37.27	0.87	5.44	0.13
												Fugitive Emissions Subtotal	193.79	42.81	91.66	20.25	6.74	1.63
												Subtotal	273.68	44.65	128.93	21.12	12.18	1.76

Table B.5 Hourly Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Hourly Process Rate	Units	Emission Factors				Control Method	Control or Capture Eff.	PM Emissions (lbs/hr)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Kiln 3 Stone Handling																		
6001	#3 Kiln Feed Stockpile to Vibrating Feeders	Limestone Material Transfer	3-05-016-07	NF	100	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	1.19	0.00	0.56	0.00	0.09	0.00
6002	Vibrating Feeders to Reclaim Belt	Limestone Material Transfer	3-05-016-07	NF	100	tons	0.0119	0.0056	0.0009	lb/ton	Underground	100%	1.19	0.00	0.56	0.00	0.09	0.00
6003	Reclaim Belt and -2" Belt to Stone Screen and Stone Screen	Screening	3-05-016-02	NF	100	tons	0.0250	0.0087	0.0006	lb/ton	DC-241	90%	2.50	0.25	0.87	0.09	0.06	0.01
6004	Stone Screen to Truck or Temporary Stockpile	Limestone Material Transfer	3-05-040-20	F	15.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0%	0.18	0.18	0.08	0.08	0.01	0.01
6004a	Stone Screen to Stone Bin	Limestone Material Transfer	3-05-016-07	NF	85.0	tons	0.0119	0.0056	0.0009	lb/ton	DC-241	90%	1.01	0.10	0.48	0.05	0.07	0.01
6005	Stone Bin to Vibrating Feeder**	Transfer	3-05-016-07	NF	35.8	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.06	0.06	0.03	0.03	0.00	0.00
6006	Vibrating Feeder to Belt Conveyor**	Protected Limestone Material Transfer	3-05-016-07	NF	35.8	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.06	0.06	0.03	0.03	0.00	0.00
6007	Belt Conveyor to Weigh Hopper**	Protected Limestone Material Transfer	3-05-016-07	C	35.8	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.06	0.06	0.03	0.03	0.00	0.00
6008	Weigh Hopper to Skip Hoist	Limestone Material Transfer	3-05-016-07	C	35.8	tons	0.0119	0.0056	0.0009	lb/ton	DC-241	90%	0.43	0.04	0.20	0.02	0.03	0.00
6009	Skip Hoist to Stone Hopper**	Protected Limestone Material Transfer	3-05-016-07	C	35.8	tons	0.0018	0.0008	0.0001	lb/ton	None	0%	0.06	0.06	0.03	0.03	0.00	0.00
6010	Stone Hopper to Kiln 3	Limestone Material Transfer	3-05-016-07	NF	35.8	tons	0.0119	0.0056	0.0009	lb/ton	Sealed	100%	0.43	0.00	0.20	0.00	0.03	0.00
6011	DC-241 to Discharge Pipe	Lime Material Transfer	3-05-016-16	NF	0.002	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	6.58	0.61	2.80	0.26	0.35	0.03
												Fugitive Emissions Subtotal	0.61	0.22	0.29	0.10	0.04	0.02
												Subtotal	7.19	0.83	3.09	0.36	0.39	0.05
Kiln 3 Dust Handling																		
6012	Kiln 3 Exhaust to Wet Scrubber DC-600	Lime Material Transfer	3-05-016-15	C	2.3	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.09	0.00	0.04	0.00	0.01	0.00
6013	Wet Scrubber DC-600 to Discharge Pipe	Lime Material Transfer	3-05-016-15	C	2.3	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.09	0.00	0.04	0.00	0.01	0.00
6014	Discharge Pipe to Settling Pond	Lime Material Transfer	3-05-016-15	NF	2.3	tons	0.0391	0.0185	0.0028	lb/ton	Water Slurry	99%	0.09	0.00	0.04	0.00	0.01	0.00
												Non-Fugitive Emissions Subtotal	0.27	0.00	0.13	0.00	0.02	0.00
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	0.27	0.00	0.13	0.00	0.02	0.00
Kiln 3 Lime Handling																		
6015	Vibrating Feeders to Product Belt	Lime Material Transfer	3-05-016-15	C	19.2	tons	0.0391	0.0185	0.0028	lb/ton	DC-850	90.0%	0.75	0.08	0.35	0.04	0.05	0.01
6016	Vibrating Feeders to Reject Conveyor	Lime Material Transfer	3-05-016-15	C	19.2	tons	0.0391	0.0185	0.0028	lb/ton	DC-850	90.0%	0.75	0.08	0.35	0.04	0.05	0.01
6017	Reject Conveyor to Truck	Lime Material Transfer	3-05-016-27	C	19.2	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	0.75	0.75	0.35	0.35	0.05	0.05
6018	Product Belt to Lime Crusher and Lime Crusher	Fines Crushing	3-05-016-02	C	19.2	tons	0.0390	0.0150	0.0009	lb/ton	DC-851	90.0%	0.75	0.07	0.29	0.03	0.02	0.00
6018a	Lime Crusher to Bucket Elevator	Lime Material Transfer	3-05-016-15	NF	19.2	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	0.75	0.23	0.35	0.11	0.05	0.02
6019	Bucket Elevator to Lime Screen and Lime Screen	Fines Screening	3-05-016-02	F	19.2	tons	0.3000	0.0720	0.0068	lb/ton	DC-852	90.0%	5.76	0.58	1.38	0.14	0.13	0.01
6019a	Lime Screen to Large Bin	Lime Material Transfer	3-05-016-27	NF	236	tons	0.0391	0.0185	0.0028	lb/ton	DC-852	90%	9.20	0.92	4.35	0.44	0.66	0.07
6019b	Lime Screen to Small Bin	Lime Material Transfer	3-05-016-15	NF	250	tons	0.0391	0.0185	0.0028	lb/ton	Enclosed	70%	9.77	2.93	4.62	1.39	0.70	0.21
6020	Bucket Elevator to Large Bin	Lime Material Transfer	3-05-016-15	F	19.2	tons	0.0391	0.0185	0.0028	lb/ton	DC-852	90.0%	0.75	0.08	0.35	0.04	0.05	0.01
6021	Large Bin to Recirculating Conveyor**	Protected Lime Material Transfer	3-05-016-15	NF	4.8	tons	0.0059	0.0028	0.0004	lb/ton	None	0.0%	0.03	0.03	0.01	0.01	0.00	0.00
6022	DC-850 to Product Conveyor	Lime Material Transfer	3-05-016-16	NF	0.000	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
6023	DC-851 to Product Conveyor	Lime Material Transfer	3-05-016-16	NF	0.0000	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
6024	DC-852 to Large Bin	Lime Material Transfer	3-05-016-16	NF	0.007	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	21.25	4.25	10.05	2.01	1.52	0.30
												Fugitive Emissions Subtotal	8.01	1.48	2.38	0.56	0.26	0.07
												Subtotal	29.26	5.73	12.43	2.57	1.78	0.38
Kiln 3 Lime Storage and Truck Loadout																		
6025	Large Bin to Truck Belt	Lime Material Transfer	3-05-016-15	F	125.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-854	90.0%	4.88	0.49	2.31	0.23	0.35	0.03
6026	Large Bin to Rail Belt	Lime Material Transfer	3-05-016-15	F	125.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-779	90.0%	4.88	0.49	2.31	0.23	0.35	0.03
6027	Small Bin to Truck Belt**	Protected Lime Material Transfer	3-05-016-15	F	125.0	tons	0.0059	0.0028	0.0004	lb/ton	None	0.0%	0.73	0.73	0.35	0.35	0.05	0.05
6028	Small Bin to Rail Belt	Lime Material Transfer	3-05-016-15	F	125.0	tons	0.0391	0.0185	0.0028	lb/ton	DC-779	90.0%	4.88	0.49	2.31	0.23	0.35	0.03
6029	Dust Blend System Bin to Rotary Air Lock	Lime Material Transfer	3-05-016-15	NF	6.25	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100.0%	0.24	0.00	0.12	0.00	0.02	0.00
6030	Rotary Air Lock to Screw Conveyor	Lime Material Transfer	3-05-016-16	NF	6.30	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100.0%	0.25	0.00	0.12	0.00	0.02	0.00
6031	Screw Conveyor to Truck Belt	Lime Material Transfer	3-05-016-15	F	6.25	tons	0.0391	0.0185	0.0028	lb/ton	DC-854	90.0%	0.24	0.02	0.12	0.01	0.02	0.00
6032	Screw Conveyor to Rail Belt	Lime Material Transfer	3-05-016-15	F	6.25	tons	0.0391	0.0185	0.0028	lb/ton	DC-779	90.0%	0.24	0.02	0.12	0.01	0.02	0.00
6033	Rail Belt to Rail Car**	Enclosed Truck/Rail Loading	3-05-016-14	F	125.0	tons	0.6100	0.2885	0.0207	lb/ton	None	0.0%	76.25	76.25	36.06	36.06	2.58	2.58
6034	Truck Belt to Truck**	Enclosed Truck/Rail Loading	3-05-016-27	F	125.0	tons	0.6100	0.2885	0.0207	lb/ton	DC-853	90.0%	76.25	7.63	36.06	3.61	2.58	0.26
6035	DC-730 to Dust Blend System Bin	Lime Material Transfer	3-05-016-16	NF	0.00004	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
6035	DC-853 to Truck Belt	Lime Material Transfer	3-05-016-16	NF	0.03	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
6036	DC-779 to Rail Belt	Lime Material Transfer	3-05-016-16	NF	0.005	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
6037	DC-854 to Truck Belt	Lime Material Transfer	3-05-016-16	NF	0.002	tons	0.0391	0.0185	0.0028	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	0.49	0.00	0.23	0.00	0.04	0.00
												Fugitive Emissions Subtotal	168.37	86.12	79.63	40.73	6.30	3.00
												Subtotal	168.86	86.12	79.87	40.73	6.34	3.00

Table B.5 Hourly Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Hourly Process Rate	Units	Emission Factors				Control Method	Control or Capture Eff.	PM Emissions (lbs/hr)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Solid Fuel Handling																		
3001.	Truck to Plaza Stockpile	Fuel Transfer Point	3-05-010-11	F	125.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	0.06	0.06	0.03	0.03	0.00	0.00
3002.	Truck to Lower Stockpile	Fuel Transfer Point	3-05-010-11	F	125.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	0.06	0.06	0.03	0.03	0.00	0.00
3003.	Loader to Truck	Fuel Transfer Point	3-05-010-38	F	125.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	0.06	0.06	0.03	0.03	0.00	0.00
3004.	Truck to Plaza Stockpile from Lower Stockpile	Fuel Transfer Point	3-05-010-11	F	125.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	0.06	0.06	0.03	0.03	0.00	0.00
3005.	Delivery Truck to Lower Stockpile	Fuel Transfer Point	3-05-010-11	F	125.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	0.06	0.06	0.03	0.03	0.00	0.00
3006.	Delivery Truck to Plaza Stockpile	Fuel Transfer Point	3-05-010-11	F	125.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	0.06	0.06	0.03	0.03	0.00	0.00
3007.	Loader to Mixed Stockpile	Fuel Transfer Point	3-05-010-11	F	125.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	0.06	0.06	0.03	0.03	0.00	0.00
3008.	Loaders to Coal and Coke Hoppers 503-1 & 503-2	Fuel Transfer Point	3-05-010-11	NF	50.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	0.02	0.02	0.01	0.01	0.00	0.00
3009.	Coal and Coke Hoppers 503-1 & 503-2 to Weigh Feeders 504 & 505	Fuel Transfer Point	3-05-010-11	NF	50.0	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.02	0.01	0.01	0.00	0.00	0.00
3010.	Weigh Feeders 504 & 505 to Solid Fuel Crusher 506 and Solid Fuel Crusher 506	Fines Crushing	3-05-010-10	NF	50.0	tons	0.0390	0.0150	0.0009	lb/ton	Enclosed	70%	1.95	0.59	0.75	0.23	0.05	0.01
3011.	Solid Fuel Belt 507 to Solid Fuel Bin 508	Fuel Transfer Point	3-05-010-11	NF	22.5	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.01	0.00	0.01	0.00	0.00	0.00
3012.	Solid Fuel Belt 507 to Solid Fuel Bin 515	Fuel Transfer Point	3-05-010-11	NF	37.5	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.02	0.01	0.01	0.00	0.00	0.00
3013.	Solid Fuel Bin 508 to Weigh Belt 509	Fuel Transfer Point	3-05-010-11	NF	6.13	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.00	0.00	0.00	0.00	0.00	0.00
3014.	Weigh Belt 509 to Solid Fuel Mill 510 via Rotary Feeder	Fuel Transfer Point	3-05-010-11	NF	6.13	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.00	0.00	0.00	0.00	0.00	0.00
3015.	Solid Fuel Mill 510	Fines Crushing	3-05-010-10	NF	6.13	tons	0.0390	0.0150	0.0009	lb/ton	Sealed	100%	0.24	0.00	0.09	0.00	0.01	0.00
3016.	Solid Fuel Mill 510 to Kiln 1 Burner Pipe	Fuel Transfer Point	3-05-010-11	NF	4.69	tons	0.0005	0.0002	0.0000	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
3017.	Solid Fuel Bin 515 to Weigh Belt 516	Fuel Transfer Point	3-05-010-11	NF	10.22	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.00	0.00	0.00	0.00	0.00	0.00
3018.	Weigh Belt 516 to Solid Fuel Mill 517 via Rotary Feeder	Fuel Transfer Point	3-05-010-11	NF	10.22	tons	0.0005	0.0002	0.0000	lb/ton	Enclosed	70%	0.00	0.00	0.00	0.00	0.00	0.00
3019.	Solid Fuel Mill 517	Fuel Transfer Point	3-05-010-11	NF	10.22	tons	0.0005	0.0002	0.0000	lb/ton	Sealed	100%	0.00	0.00	0.00	0.00	0.00	0.00
3020.	Solid Fuel Mill 517 to Kiln 2 Burner Pipe	Fines Crushing	3-05-010-10	NF	9.45	tons	0.0390	0.0150	0.0009	lb/ton	Sealed	100%	0.37	0.00	0.14	0.00	0.01	0.00
3021.	Solid Fuel Mill Rejects to Wheelbarrow	Fuel Transfer Point	3-05-010-11	F	1.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.00	0.00	0.00	0.00	0.00	0.00
3022.	Wheelbarrow to Reclaim	Fuel Transfer Point	3-05-010-11	F	1.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0%	0.00	0.00	0.00	0.00	0.00	0.00
												Non-Fugitive Emissions Subtotal	2.66	0.63	1.03	0.25	0.07	0.02
												Fugitive Emissions Subtotal	0.42	0.42	0.20	0.20	0.03	0.03
												Subtotal	3.07	1.05	1.23	0.44	0.10	0.05
Dust Collectors:																		
DC120	Dust Collector 120	Stack		NF	163,500	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.17	1.17	1.17	1.17	1.17	1.17
DC121	Dust Collector 121	Stack		NF	217,500	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.55	1.55	1.55	1.55	1.55	1.55
DC122	Dust Collector 122	Stack		NF	273,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.95	1.95	1.95	1.95	1.95	1.95
DC228	Dust Collector 228	Stack 2		NF	60,000	acf/hr	0.0100	0.0100	0.0100	gr/acf	None	0.0%	0.09	0.09	0.09	0.09	0.09	0.09
DC241	Dust Collector 241	Stack		NF	450,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	3.21	3.21	3.21	3.21	3.21	3.21
DC321	Dust Collector 321	Stack		NF	90,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.64	0.64	0.64	0.64	0.64	0.64
DC369	Dust Collector 369	Stack		NF	72,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.51	0.51	0.51	0.51	0.51	0.51
DC401	Dust Collector 401	Stack		NF	186,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	1.33	1.33	1.33	1.33	1.33	1.33
DC402	Dust Collector 402	Stack		NF	374,400	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	2.67	2.67	2.67	2.67	2.67	2.67
DC403	Dust Collector 403	Stack		NF	36,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.26	0.26	0.26	0.26	0.26	0.26
DC404	Dust Collector 404	Stack 2		NF	60,000	acf/hr	0.0100	0.0100	0.0100	gr/acf	None	0.0%	0.09	0.09	0.09	0.09	0.09	0.09
DC406	Dust Collector 406	Stack		NF	48,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.34	0.34	0.34	0.34	0.34	0.34
DC408	Dust Collector 408	Stack		NF	36,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.26	0.26	0.26	0.26	0.26	0.26
DC431	Dust Collector 431	Stack		NF	60,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.43	0.43	0.43	0.43	0.43	0.43
DC481	Dust Collector 481	Stack		NF	24,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.17	0.17	0.17	0.17	0.17	0.17
DC482	Dust Collector 482	Stack		NF	24,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.17	0.17	0.17	0.17	0.17	0.17
DC483	Dust Collector 483	Stack		NF	120,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.86	0.86	0.86	0.86	0.86	0.86
DC485	Dust Collector 485	Stack		NF	60,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.43	0.43	0.43	0.43	0.43	0.43
DC486	Dust Collector 486	Stack		NF	60,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.43	0.43	0.43	0.43	0.43	0.43
DC487	Dust Collector 487	Stack		NF	600,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	4.29	4.29	4.29	4.29	4.29	4.29
DC730	Dust Collector 730	Stack		NF	36,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.26	0.26	0.26	0.26	0.26	0.26
DC779	Dust Collector 779	Stack		NF	24,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.17	0.17	0.17	0.17	0.17	0.17
DC850	Dust Collector 850	Stack		NF	36,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.26	0.26	0.26	0.26	0.26	0.26
DC851	Dust Collector 851	Stack		NF	72,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.51	0.51	0.51	0.51	0.51	0.51
DC852	Dust Collector 852	Stack		NF	72,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.51	0.51	0.51	0.51	0.51	0.51
DC853	Dust Collector 853	Stack		NF	90,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.64	0.64	0.64	0.64	0.64	0.64
DC854	Dust Collector 854	Stack		NF	24,000	acf/hr	0.0500	0.0500	0.0500	gr/acf	None	0.0%	0.17	0.17	0.17	0.17	0.17	0.17
												Non-Fugitive Emissions Subtotal	23.37	23.37	23.37	23.37	23.37	23.37
												Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Subtotal	23.37	23.37	23.37	23.37	23.37	23.37

Table B.5 Hourly Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Hourly Process Rate	Units	Emission Factors				Control Method	Control or Capture Eff.	PM Emissions (lbs/hr)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Maintenance and Repair Emissions																		
Maint1	Coal / Coke spillage	Fuel Transfer Point	3-05-010-11	F	125.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	0.06	0.06	0.03	0.03	0.00	0.00
Maint2	Coal / Coke spillage reclaim	Fuel Transfer Point	3-05-010-11	F	125.0	tons	0.0005	0.0002	0.0000	lb/ton	None	0.0%	0.06	0.06	0.03	0.03	0.00	0.00
Maint3	Lime conveyors spillage	Lime Material Transfer	3-05-016-15	F	125.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	4.88	4.88	2.31	2.31	0.35	0.35
Maint4	Lime conveyor spillage reclaim	Lime Material Transfer	3-05-016-15	F	125.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	4.88	4.88	2.31	2.31	0.35	0.35
Maint5	Kiln 1 preheater spillage	Limestone Material Transfer	3-05-016-07	F	50.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	0.60	0.60	0.28	0.28	0.04	0.04
Maint6	Kiln 1 preheater spillage reclaim	Limestone Material Transfer	3-05-016-07	F	50.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	0.60	0.60	0.28	0.28	0.04	0.04
Maint7	Kiln 2 stone bin spillage	Limestone Material Transfer	3-05-016-07	F	50.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	0.60	0.60	0.28	0.28	0.04	0.04
Maint8	Kiln 2 stone bin spillage reclaim	Limestone Material Transfer	3-05-016-07	F	50.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	0.60	0.60	0.28	0.28	0.04	0.04
Maint9	Kiln 1 screen fines spillage	Limestone Material Transfer	3-05-016-07	F	15.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	0.18	0.18	0.08	0.08	0.01	0.01
Maint10	Kiln 1 screen fines spillage reclaim	Limestone Material Transfer	3-05-016-07	F	15.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	0.18	0.18	0.08	0.08	0.01	0.01
Maint11	Kiln 2 screen fines spillage	Limestone Material Transfer	3-05-016-07	F	15.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	0.18	0.18	0.08	0.08	0.01	0.01
Maint12	Kiln 2 screen fines reclaim	Limestone Material Transfer	3-05-016-07	F	15.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	0.18	0.18	0.08	0.08	0.01	0.01
Maint13	Kiln 3 screen fines spillage	Limestone Material Transfer	3-05-016-07	F	15.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	0.18	0.18	0.08	0.08	0.01	0.01
Maint14	Kiln 3 screen fines reclaim	Limestone Material Transfer	3-05-016-07	F	15.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	0.18	0.18	0.08	0.08	0.01	0.01
Maint15	Kiln 1 refractory spillage	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint16	Kiln 1 refractory reclaim	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint17	Kiln 1 ash ring, scale spillage	Lime Material Transfer	3-05-016-15	F	5.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	0.20	0.20	0.09	0.09	0.01	0.01
Maint18	Kiln 1 ash ring, scale reclaim	Lime Material Transfer	3-05-016-15	F	5.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	0.20	0.20	0.09	0.09	0.01	0.01
Maint19	Kiln 1 off-spec lime spillage	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint20	Kiln 1 off-spec lime rclaim	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint21	Kiln 2 refractory spillage	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint22	Kiln 2 refractory reclaim	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint23	Kiln 2 scale, ash ring spillage	Lime Material Transfer	3-05-016-15	F	5.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	0.20	0.20	0.09	0.09	0.01	0.01
Maint24	Kiln 2 scale, ash ring reclaim	Lime Material Transfer	3-05-016-15	F	5.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	0.20	0.20	0.09	0.09	0.01	0.01
Maint25	Kiln 2 off-spec lime spillage	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint26	Kiln 2 off-spec reclaim	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint27	Kiln 3 refractory spillage	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint28	Kiln 3 refractory reclaim	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint29	Kiln 3 off-spec lime spillage	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint30	Kiln 3 off-spec lime reclaim	Lime Material Transfer	3-05-016-15	F	100.0	tons	0.0391	0.0185	0.0028	lb/ton	None	0.0%	3.91	3.91	1.85	1.85	0.28	0.28
Maint31	Stone Belts spillage	Limestone Material Transfer	3-05-016-07	F	100.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	1.19	1.19	0.56	0.56	0.09	0.09
Maint32	Stone belt reclaim	Limestone Material Transfer	3-05-016-07	F	100.0	tons	0.0119	0.0056	0.0009	lb/ton	None	0.0%	1.19	1.19	0.56	0.56	0.09	0.09
												Non-Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Fugitive Emissions Subtotal	63.397	63.397	29.985	29.985	4.541	4.541
												Subtotal	63.40	63.40	29.99	29.99	4.54	4.54

Table B.5 Hourly Particulate Emissions - PTE Calculations

Process ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fugitive (F)	Hourly Process Rate	Units	Emission Factors				Control Method	Control or Capture Eff.	PM Emissions (lbs/hr)		PM_{10} Emissions (tpy)		$PM_{2.5}$ Emissions (tpy)	
							PM	PM_{10}	$PM_{2.5}$	Units			Uncontrolled	Controlled	Uncontrolled	Controlled	Uncontrolled	Controlled
Vehicle Travel																		
Unpav	Travel on Unpaved Roads	Unpav-H	3-05-040-99	F	49.7	VMT	17.0930	5.2326	0.5233	lb/VMT	Water 1	60.0%	849.65	339.86	260.10	104.04	26.01	10.40
Pav	Travel on Paved Roads	Pav-A	3-05-040-99	F	2.9	VMT	0.3559	0.0712	0.0175	lb/VMT	None	0.0%	1.02	1.02	0.20	0.20	0.05	0.05
												Non-Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Fugitive Emissions Subtotal	850.67	340.88	260.30	104.24	26.06	10.45
												Subtotal	850.67	340.88	260.30	104.24	26.06	10.45
Wind Erosion																		
W010	Kiln Dust Storage Areas	WindDustStorage	3-05-103-05	F	2.6	acres	142.1448	71.0724	10.6609	lb/acre-day	None	0.0%	15.40	15.40	7.70	7.70	1.15	1.15
W011	Off-Spec Lime Storage Areas	WindPiles	3-05-103-05	F	1.4	acres	2.8429	1.4214	0.2132	lb/acre-day	None	0.0%	0.17	0.17	0.08	0.08	0.01	0.01
W012	Overburden Storage Areas	WindPiles	3-05-103-05	F	16.5	acres	2.8429	1.4214	0.2132	lb/acre-day	None	0.0%	1.95	1.95	0.98	0.98	0.15	0.15
W013	#1 Kiln Feed Stockpile	WindPiles	3-05-103-05	F	1.0	acres	2.8429	1.4214	0.2132	lb/acre-day	None	0.0%	0.12	0.12	0.06	0.06	0.01	0.01
W014	#2 Kiln Feed Stockpile	WindPiles	3-05-103-05	F	1.5	acres	2.8429	1.4214	0.2132	lb/acre-day	None	0.0%	0.18	0.18	0.09	0.09	0.01	0.01
W015	#3 Kiln Feed Stockpile	WindPiles	3-05-103-05	F	2.2	acres	2.8429	1.4214	0.2132	lb/acre-day	None	0.0%	0.26	0.26	0.13	0.13	0.02	0.02
W016	Flux Stockpile	WindPiles	3-05-103-05	F	2.9	acres	2.8429	1.4214	0.2132	lb/acre-day	None	0.0%	0.34	0.34	0.17	0.17	0.03	0.03
W017	Chat Stockpile	WindPiles	3-05-103-05	F	0.7	acres	2.8429	1.4214	0.2132	lb/acre-day	None	0.0%	0.09	0.09	0.04	0.04	0.01	0.01
W018	17 Acre Roadway Open Area	WindOpenAreas	3-05-103-05	F	17.0	acres	2.8429	1.4214	0.2132	lb/acre-day	None	0.0%	2.01	2.01	1.01	1.01	0.15	0.15
W019	34 Acre Open Area	WindOpenAreas	3-05-103-05	F	34.0	acres	2.8429	1.4214	0.2132	lb/acre-day	None	0.0%	4.03	4.03	2.01	2.01	0.30	0.30
W020	Coal / Coke Stockpiles - Kiln Area	WindCoalCokePiles	3-05-103-03	F	0.7	acres	11.0162	5.5081	0.8262	lb/acre-day	None	0.0%	0.32	0.32	0.16	0.16	0.02	0.02
W021	Coal / Coke Stockpiles	WindCoalCokePiles	3-05-103-04	F	0.6	acres	11.0162	5.5081	0.8262	lb/acre-day	None	0.0%	0.26	0.26	0.13	0.13	0.02	0.02
W022	Coal / Coke Stockpiles (future)	WindCoalCokePiles	3-05-103-05	F	1.8	acres	11.0162	5.5081	0.8262	lb/acre-day	None	0.0%	0.84	0.84	0.42	0.42	0.06	0.06
												Non-Fugitive Emissions Subtotal	0.00	0.00	0.00	0.00	0.00	0.00
												Fugitive Emissions Subtotal	25.97	25.97	12.98	12.98	1.95	1.95
												Subtotal	25.97	25.97	12.98	12.98	1.95	1.95
												Total Point Emissions:	**258.98**	**110.37**	**146.36**	**79.32**	**69.96**	**60.63**
												Total Fugitive Emissions:	**1365.97**	**606.98**	**503.50**	**230.95**	**49.61**	**24.68**
												Total Emissions:	**1624.95**	**717.36**	**649.86**	**310.28**	**119.56**	**85.32**

* * These processes are controlled, but the control efficiency is taken into account in the emission factor so "0%" is shown in the "control or capture efficiency" column.

Table B.6 Gaseous Emission Factors - PTE Calculations

Process Code	Process Description	SCC Code	Emission Factor								Process Rate Units	Reference
			CO	NO_X	SO_2	VOC	CO_2	CH_4	N_2O	Units		
Mining Operations												
Blasting	Blasting	3-05-020-09	40.64	1.80	0.0036	0	378	0.02	0.003	lb/tons ANFO	tons ANFO	"Factors Affecting ANFO Fumes Production" from NIOSH (2001), "NO_X Emissions from Blasting Operations in Open-Cut Coal Mining" from *Atmospheric Environment 42* (2008), Complete Sulfur Conversion Using a Diesel Sulfur Content of 15 ppm, 40 CFR 98, Tables C-1 and C-2, assuming a fuel oil to ammonium nitrate ratio of 6.0%, and 19,300 Btu/lb diesel
Kilns												
Kiln 1	Lime Kiln 1	3-05-016-04	1.5	3.1		0.06				lb/ton lime	tons lime	AP-42, Table 11.17-6 (02/98), AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, March 1990, EPA 450/4-90-003, Lime Manufacturing, Calcining: Rotary Kiln
					163.5		5392	0.583	0.085	lb/ton fuel	tons fuel	Mass balance assuming lowest heat content for coal of 8,000 Btu/lb and coke of 12,500 Btu/lb, highest sulfur content for coal of 1.4% and coke 5.9%, maximum petroleum coke usage (90% Btu input from coke, 10% Btu input from coal), a worst-case efficiency of 9.0 MMBtu/ton lime, and an inherent absorption effiency of 25%; AP-42, Table 1.1-19 (09/98); and 40 CFR 98, Tables C-1 and C-2.
Kiln 2	Lime Kiln 2	3-05-016-04	1.5	3.1		0.06				lb/ton lime	tons lime	AP-42, Table 11.17-6 (02/98), AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, March 1990, EPA 450/4-90-003, Lime Manufacturing, Calcining: Rotary Kiln
					84.37		5392	0.583	0.085	lb/ton fuel	tons fuel	Mass balance assuming lowest heat content for coal of 8,000 Btu/lb and coke of 12,500 Btu/lb, highest sulfur content for coal of 1.4% and coke 5.9%, maximum petroleum coke usage (90% Btu input from coke, 10% Btu input from coal), a worst-case efficiency of 6.6 MMBtu/ton lime, and an inherent absorption effiency of 61.3%; AP-42, Table 1.1-19 (09/98); and 40 CFR 98, Tables C-1 and C-2.
Kiln 3	Lime Kiln 3	3-05-016-04	0.7	0.38		0.02				lb/ton lime	tons lime	CEM data; AIRS Facility Subsystem Source Classification Codes and Emission Factor Listing for Criteria Air Pollutants, March 1990, EPA 450/4-90-003, Lime Manufacturing, Calcining: Vertical Kiln
					0.001143		119,317	2.25	0.22	lb/MMscf	MMscf	Mass balance assuming a maximum sulfur grain loading of 2000 grains/MMscf, a high heat value of 1,030 Btu/scf, and a worst-case efficency of 3.9 MMBtu/ton lime; and 40 CFR 98, Subpart C, Tables C-1 and C-2
Kiln Pony Motors												
DieselEngine	Kiln Pony Motor	2-02-001-02	0.00668	0.031	0.000011	0.00251	1.14	0.00005	0.000009	lb/hp-hr	hp-hr	AP-42, Section 3.3, Table 3.3-1, Complete Sulfur Conversion Using a Diesel Sulfur Content of 15 ppm, and 40 CFR 98, Tables C-1 and C-2, 7,000 Btu/hp-hr, and 19,300 Btu/lb diesel

Table B.7 Annual Gaseous Emissions - PTE Calculations

Emission Unit ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	Emission Factors							EF Units	Emissions (tpy)						
							CO	NO_X	SO_2	VOC	CO_2	CH_4	N_2O		CO	NO_X	SO_2	VOC	CO_2[a]	CH_4[a]	N_2O[a]
Mining Operations																					
M002	Blasting	Blasting	3-05-040-01	F	806	tons ANFO	40.64	1.80	0.00	0.00	377.63	0.02	0.00	lb/tons ANFO	16.38	0.73	1.45E-03	0.00	152	0.01	0.00
Kilns																					
Kiln 1	Lime Kiln 1	Kiln 1	3-05-016-04	NF	73,000	tons lime	1.50	3.10		0.06				lb/ton lime	55	113		2.19			
				NF	27,261	tons fuel (90% coke)			163.5		5391.68	0.58	0.08	lb/ton fuel			2,228.6		73,492	7.95	1.16
Kiln 2	Lime Kiln 2	Kiln 2	3-05-016-04	NF	189,750	tons lime	1.50	3.10		0.06				lb/ton lime	142	294		5.69			
				NF	51,965	tons fuel (90% coke)			84.37		5391.68	0.58	0.08	lb/ton fuel			2,192.0		140,089	15.15	2.20
Kiln 3	Lime Kiln 3	Kiln 3	3-05-016-04	NF	166,000	tons lime	0.70	0.38		0.02				lb/ton lime	58	32		1.66			
				NF	629	MMscf			0.00114		119317	2.249	0.225	lb/MMscf			3.59E-04		37,497.9	0.707	0.071
														Subtotal	255	439	4,421	10	251,079	24	3
Kiln Pony Motors																					
K1PM	Kiln 1 Pony Motor	DieselEngine	2-02-001-02	NF	367,044	hp-hr	0.00668	0.0310	0.000011	0.00251	1.14	0.00	0.00	lb/hp-hr	1.23	5.69	0.0020	0.46	209	0.01	0.00
K2PM	Kiln 2 Pony Motor	DieselEngine	2-02-001-02	NF	716,568	hp-hr	0.00668	0.0310	0.000011	0.00251	1.14	0.00	0.00	lb/hp-hr	2.39	11.11	0.0039	0.90	409	0.017	0.003
														Subtotal	3.62	16.80	0.01	1.36	618.41	0.03	0.01
Total of Non-Fugitive Emissions:															**258.78**	**455.60**	**4,420.65**	**10.90**	**251,697**	**23.83**	**3.44**
Total of Fugitive Emissions:															**16.38**	**0.73**	**1.45E-03**	**0.00**	**152**	**0.01**	**0.00**
Total of Non-Fugitive and Fugitive Emissions:															**275.16**	**456.32**	**4,420.66**	**10.90**	**251,850**	**23.84**	**3.44**

[a] CO_2e emissions are calculated by summing the individual greenhouse gas emissions multiplied by their global warming potential (GWP). GWP of CO_2 = 1, GWP of CH_4 = 25, GWP of N_2O = 298.

Table B.8 Hourly Gaseous Emissions - PTE Calculations

Emission Unit ID	Emission Unit Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	Emission Factors							EF Units	Emissions (lb/hr)						
							CO	NO_X	SO_2	VOC	CO_2	CH_4	N_2O		CO	NO_X	SO_2	VOC	CO_2[a]	CH_4[a]	N_2O[a]
Mining Operations																					
M002	Blasting	Blasting	3-05-040-01	F	2.37	tons ANFO	40.64	1.80	0.00360	0.00	377.63	0.02	0.00	lb/tons ANFO	96.33	4.27	8.52E-03	0	895	0.04	0.01
Kilns																					
Kiln 1	Lime Kiln 1	Kiln 1	3-05-016-04	NF	8.33	tons lime	1.50	3.10		0.06				lb/ton lime	12	26		0.50			
				NF	3.11	tons fuel (90% coke)			163.5		5391.68	0.58	0.08	lb/ton fuel			508.6		16,772	1.81	0.26
Kiln 2	Lime Kiln 2	Kiln 2	3-05-016-04	NF	22.92	tons lime	1.50	3.10		0.06				lb/ton lime	34	71		1.38			
				NF	6.28	tons fuel (90% coke)			84.37		5391.68	0.58	0.08	lb/ton fuel			529.6		33,843	3.66	0.53
Kiln 3	Lime Kiln 3	Kiln 3	3-05-016-04	NF	38.34	tons lime	0.70	0.38		0.02				lb/ton lime	27	15		0.77			
				NF	0.145	MMscf			0.00114		119317	2.249	0.225	lb/MMscf			0.00017		17,321	0.33	0.033
														Subtotal	73.71	111.44	1,038	2.64	67,936	5.80	0.83
Kiln Pony Motors																					
K1PM	Kiln 1 Pony Motor	DieselEngine	2-02-001-02	NF	41.9	hp-hr	0.00668	0.0310	0.000011	0.00251	1.14	0.000046	0.000009	lb/hp-hr	0.28	1.30	4.55E-04	0.11	48	1.94E-03	3.88E-04
K2PM	Kiln 2 Pony Motor	DieselEngine	2-02-001-02	NF	81.8	hp-hr	0.00668	0.0310	0.000011	0.00251	1.14	0.000046	0.000009	lb/hp-hr	0.55	2.54	8.89E-04	0.21	93	3.79E-03	7.57E-04
														Subtotal	0.83	3.83	1.34E-03	0.31	141.19	5.73E-03	1.15E-03
Total of Non-Fugitive Emissions:															**74.54**	**115.28**	**1038.17**	**2.95**	**68,078**	**5.81**	**0.83**
Total of Fugitive Emissions:															**96.33**	**4.27**	**8.52E-03**	**0.00**	**895**	**0.04**	**0.01**
Total of Non-Fugitive and Fugitive Emissions:															**170.87**	**119.54**	**1038.18**	**2.95**	**68,973**	**5.84**	**0.84**

[a] CO_2e emissions are calculated by summing the individual greenhouse gas emissions multiplied by their global warming potential (GWP). GWP of CO_2 = 1, GWP of CH_4 = 25, GWP of N_2O = 298.

Table B.9 HAP Emission Factors - PTE Calculations						
Process Code	Process Description	HAP Information			Emission Rate Units	Reference
		Name	EF	EF Units		
Mining Operations						
Blasting	Blasting	Lead	2.08E-05	lb/ton ANFO	tons ANFO	AP-42, Tables 1.3-8 and 1.3-10 (05/10), assuming a fuel oil to ANFO ratio of 6.0%, 137,000 Btu/gallon, and 19,300 Btu/lb diesel
		POM	5.58E-05	lb/ton ANFO		
		Formaldehyde	1.03E-03	lb/ton ANFO		
		Arsenic	9.26E-06	lb/ton ANFO		
		Beryllium	6.95E-06	lb/ton ANFO		
		Cadmium	6.95E-06	lb/ton ANFO		
		Chromium	6.95E-06	lb/ton ANFO		
		Mercury	6.95E-06	lb/ton ANFO		
		Manganese	1.39E-05	lb/ton ANFO		
		Nickel	6.95E-06	lb/ton ANFO		
		Selenium	3.47E-05	lb/ton ANFO		
		Total HAPs	1.20E-03	lb/ton ANFO		
Material Processing and Handling, Wind Erosion, and Roads						
Lime and Limestone Processing	Lime and Limestone Processing, Handling, and Wind Erosion	Lead	1.83	ppm_w	tons	SARA Form R calculations
		Mercury	1.40E-02	ppm_w		
		Nickel	4.09	ppm_w		
Solid Fuel Handling	Solid Fuel Handling and Wind Erosion	Lead	2.00	ppm_w	tons	SARA Form R calculations
		Mercury	5.00E-02	ppm_w		
		Nickel	181.00	ppm_w		
Roads	Roads	Lead	1.83	ppm_w	tons	SARA Form R calculations
		Mercury	1.40E-02	ppm_w		
		Nickel	4.09	ppm_w		
Kilns						
Kiln 1	Lime Kiln 1	2,3,7,8-TCDD	1.43E-11	lb/ton	tons (coal+coke)	AP-42, Tables 1.1-12, 1.1-13, 1.1-14,1.1-15, and 1.1-18 (09/98)
		Biphenyl	1.70E-06	lb/ton		
		Acenaphthene	5.10E-07	lb/ton		
		Acenaphthylene	2.50E-07	lb/ton		
		Anthracene	2.10E-07	lb/ton		
		Benz(a)anthracene	8.00E-08	lb/ton		
		Benzo(b,k)fluoranthene	3.80E-08	lb/ton		
		Benzo(g,h,i)perylene	1.10E-07	lb/ton		
		Benzo(a)pyrene	2.70E-08	lb/ton		
		Chrysene	1.00E-07	lb/ton		
		Fluoranthene	7.10E-07	lb/ton		
		Fluorene	9.10E-07	lb/ton		
		Indeno(1,2,3-cd)pyrene	6.10E-08	lb/ton		
		Naphthalene	1.30E-05	lb/ton		
		Phenanthrene	2.70E-06	lb/ton		
		Pyrene	3.30E-07	lb/ton		
		5-Methyl chrysene	2.20E-08	lb/ton		
		Acetaldehyde	5.70E-04	lb/ton		
		Acetophenone	1.50E-05	lb/ton		
		Acrolein	2.90E-04	lb/ton		
		Benzene	1.30E-03	lb/ton		
		Benzyl chloride	7.00E-04	lb/ton		
		Bis(2-ethylhexyl)phthalate (DEHP)	7.30E-05	lb/ton		
		Bromoform	3.90E-05	lb/ton		
		Carbon disulfide	1.30E-04	lb/ton		
		2-Chloroacetophenone	7.00E-06	lb/ton		
		Chlorobenzene	2.20E-05	lb/ton		

Table B.9 HAP Emission Factors - PTE Calculations						
Process Code	Process Description	HAP Information			Emission Rate Units	Reference
		Name	EF	EF Units		
Kiln 1 (cont'd)	Lime Kiln 1 (cont'd)	Chloroform	5.90E-05	lb/ton	tons (coal+coke)	AP-42, Tables 1.1-12, 1.1-13, 1.1-14,1.1-15, and 1.1-18 (09/98)
		Cumene	5.30E-06	lb/ton		
		Cyanide	2.50E-03	lb/ton		
		2,4-Dinitrotoluene	2.80E-07	lb/ton		
		Dimethyl sulfate	4.80E-05	lb/ton		
		Ethylbenzene	9.40E-05	lb/ton		
		Ethyl chloride	4.20E-05	lb/ton		
		Ethylene dichloride	4.00E-05	lb/ton		
		Ethylene dibromide	1.20E-06	lb/ton		
		Formaldehyde	2.40E-04	lb/ton		
		Hexane	6.70E-05	lb/ton		
		Isophorone	5.80E-04	lb/ton		
		Methyl bromide	1.60E-04	lb/ton		
		Methyl chloride	5.30E-04	lb/ton		
		Methyl hydrazine	1.70E-04	lb/ton		
		Methyl methacrylate	2.00E-05	lb/ton		
		Methyl tert butyl ether	3.50E-05	lb/ton		
		methylene chloride	2.90E-04	lb/ton		
		Phenol	1.60E-05	lb/ton		
		Propionaldehyde	3.80E-04	lb/ton		
		Tetrachloroethylene	4.30E-05	lb/ton		
		Toluene	2.40E-04	lb/ton		
		1,1,1-Trichloroethane	2.00E-05	lb/ton		
		Styrene	2.50E-05	lb/ton		
		Xylenes	3.70E-05	lb/ton		
		Vinyl acetate	7.60E-06	lb/ton		
		HF	1.50E-01	lb/ton		
		Antimony	1.80E-05	lb/ton		
		Arsenic	4.10E-04	lb/ton		
		Beryllium	2.10E-05	lb/ton		
		Cadmium	5.10E-05	lb/ton		
		Chromium	2.60E-04	lb/ton		
		Chromium IV	7.90E-05	lb/ton		
		Cobalt	1.00E-04	lb/ton		
		Lead	4.20E-04	lb/ton		
		Manganese	4.90E-04	lb/ton		
		Mercury	8.30E-05	lb/ton		
		Nickel	2.80E-04	lb/ton		
		Selenium	1.30E-03	lb/ton		
		Total HAPs	1.62E-01	lb/ton		
		HCl	0.074	lb/ton	tons (lime)	Testing of similar kilns
Kiln 2	Lime Kiln 2	2,3,7,8-TCDD	1.43E-11	lb/ton	tons (coal+coke)	AP-42, Tables 1.1-12, 1.1-13, 1.1-14,1.1-15, and 1.1-18 (09/98)
		Biphenyl	1.70E-06	lb/ton		
		Acenaphthene	5.10E-07	lb/ton		
		Acenaphthylene	2.50E-07	lb/ton		
		Anthracene	2.10E-07	lb/ton		
		Benz(a)anthracene	8.00E-08	lb/ton		
		Benzo(b,k)fluoranthene	3.80E-08	lb/ton		
		Benzo(g,h,i)perylene	1.10E-07	lb/ton		
		Benzo(a)pyrene	2.70E-08	lb/ton		
		Chrysene	1.00E-07	lb/ton		

Table B.9 HAP Emission Factors - PTE Calculations						
Process Code	Process Description	HAP Information			Emission Rate Units	Reference
		Name	EF	EF Units		
Kiln 2 (cont'd)	Lime Kiln 2 (cont'd)	Fluoranthene	7.10E-07	lb/ton	tons (coal+coke)	AP-42, Tables 1.1-12, 1.1-13, 1.1-14,1.1-15, and 1.1-18 (09/98)
		Fluorene	9.10E-07	lb/ton		
		Indeno(1,2,3-cd)pyrene	6.10E-08	lb/ton		
		Naphthalene	1.30E-05	lb/ton		
		Phenanthrene	2.70E-06	lb/ton		
		Pyrene	3.30E-07	lb/ton		
		5-Methyl chrysene	2.20E-08	lb/ton		
		Acetaldehyde	5.70E-04	lb/ton		
		Acetophenone	1.50E-05	lb/ton		
		Acrolein	2.90E-04	lb/ton		
		Benzene	1.30E-03	lb/ton		
		Benzyl chloride	7.00E-04	lb/ton		
		Bis(2-ethylhexyl)phthalate (DEHP)	7.30E-05	lb/ton		
		Bromoform	3.90E-05	lb/ton		
		Carbon disulfide	1.30E-04	lb/ton		
		2-Chloroacetophenone	7.00E-06	lb/ton		
		Chlorobenzene	2.20E-05	lb/ton		
		Chloroform	5.90E-05	lb/ton		
		Cumene	5.30E-06	lb/ton		
		Cyanide	2.50E-03	lb/ton		
		2,4-Dinitrotoluene	2.80E-07	lb/ton		
		Dimethyl sulfate	4.80E-05	lb/ton		
		Ethylbenzene	9.40E-05	lb/ton		
		Ethyl chloride	4.20E-05	lb/ton		
		Ethylene dichloride	4.00E-05	lb/ton		
		Ethylene dibromide	1.20E-06	lb/ton		
		Formaldehyde	2.40E-04	lb/ton		
		Hexane	6.70E-05	lb/ton		
		Isophorone	5.80E-04	lb/ton		
		Methyl bromide	1.60E-04	lb/ton		
		Methyl chloride	5.30E-04	lb/ton		
		Methyl hydrazine	1.70E-04	lb/ton		
		Methyl methacrylate	2.00E-05	lb/ton		
		Methyl tert butyl ether	3.50E-05	lb/ton		
		methylene chloride	2.90E-04	lb/ton		
		Phenol	1.60E-05	lb/ton		
		Propionaldehyde	3.80E-04	lb/ton		
		Tetrachloroethylene	4.30E-05	lb/ton		
		Toluene	2.40E-04	lb/ton		
		1,1,1-Trichloroethane	2.00E-05	lb/ton		
		Styrene	2.50E-05	lb/ton		
		Xylenes	3.70E-05	lb/ton		
		Vinyl acetate	7.60E-06	lb/ton		
		HF	1.50E-01	lb/ton		
		Antimony	1.80E-05	lb/ton		
		Arsenic	4.10E-04	lb/ton		
		Beryllium	2.10E-05	lb/ton		
		Cadmium	5.10E-05	lb/ton		
		Chromium	2.60E-04	lb/ton		
		Chromium IV	7.90E-05	lb/ton		
		Cobalt	1.00E-04	lb/ton		

Table B.9 HAP Emission Factors - PTE Calculations						
Process Code	Process Description	HAP Information			Emission Rate Units	Reference
		Name	EF	EF Units		
Kiln 2 (cont'd)	Lime Kiln 2 (cont'd)	Lead	4.20E-04	lb/ton	tons (coal+coke)	AP-42, Tables 1.1-12, 1.1-13, 1.1-14,1.1-15, and 1.1-18 (09/98)
		Manganese	4.90E-04	lb/ton		
		Mercury	8.30E-05	lb/ton		
		Nickel	2.80E-04	lb/ton		
		Selenium	1.30E-03	lb/ton		
		Total HAPs	1.62E-01	lb/ton		
		HCl	0.074	lb/ton	tons (lime)	FTIR testing conducted 3/22/2006
Kiln 3	Kiln 3	Lead	4.90E-07	lb/MMBtu	MMBtu	AP-42, Tables 1.4-2, 1.4-3 and 1.4-4 (07/98) and a natural gas heating value of 1,020 Btu/scf
		2-Methylnaphthalene	2.35E-08	lb/MMBtu		
		3-Methylchloranthrene	1.76E-09	lb/MMBtu		
		7,12-Dimethylbenz(a)anthracene	1.57E-08	lb/MMBtu		
		Acenaphthene	1.76E-09	lb/MMBtu		
		Acenaphthylene	1.76E-09	lb/MMBtu		
		Anthracene	2.35E-09	lb/MMBtu		
		Benz(a)anthracene	1.76E-09	lb/MMBtu		
		Benzene	2.06E-06	lb/MMBtu		
		Benzo(a)pyrene	1.18E-09	lb/MMBtu		
		Benzo(b)fluoranthene	1.76E-09	lb/MMBtu		
		Benzo(g,h,i)perylene	1.18E-09	lb/MMBtu		
		Benzo(k)fluoranthene	1.76E-09	lb/MMBtu		
		Chrysene	1.76E-09	lb/MMBtu		
		Dibenz(a,h)anthracene	1.18E-09	lb/MMBtu		
		Dichlorobenzene	1.18E-06	lb/MMBtu		
		Fluoranthene	2.94E-09	lb/MMBtu		
		Fluorene	2.75E-09	lb/MMBtu		
		Formaldehyde	7.35E-05	lb/MMBtu		
		Hexane	1.76E-03	lb/MMBtu		
		Indeno(1,2,3-cd)pyrene	1.76E-09	lb/MMBtu		
		Naphthalene	5.98E-07	lb/MMBtu		
		Phenanthrene	1.67E-08	lb/MMBtu		
		Pyrene	4.90E-09	lb/MMBtu		
		Toluene	3.33E-06	lb/MMBtu		
		Arsenic	1.96E-07	lb/MMBtu		
		Beryllium	1.18E-08	lb/MMBtu		
		Cadmium	1.08E-06	lb/MMBtu		
		Chromium	1.37E-06	lb/MMBtu		
		Cobalt	8.24E-08	lb/MMBtu		
		Manganese	3.73E-07	lb/MMBtu		
		Mercury	2.55E-07	lb/MMBtu		
		Nickel	2.06E-06	lb/MMBtu		
		Selenium	2.35E-08	lb/MMBtu		
		Total HAPs	1.85E-03	lb/MMBtu		
		HCl	8.00E-03	lb/ton	tons (lime)	Testing of similar kilns

Table B.9 HAP Emission Factors - PTE Calculations						
Process Code	Process Description	HAP Information			Emission Rate Units	Reference
		Name	EF	EF Units		
Kiln Pony Motors						
DieselEngine	Kiln Pony Motors	Benzene	6.53E-06	lb/hp-hr	hp-hr	AP-42, Table 3.3-2 (10/96), and a diesel brake-pecific fuel consumption of 7,000 Btu/hp-hr
		Toluene	2.86E-06	lb/hp-hr		
		Xylenes	2.00E-06	lb/hp-hr		
		1,3-Butadiene	2.74E-07	lb/hp-hr		
		Formaldehyde	8.26E-06	lb/hp-hr		
		Acetaldehyde	5.37E-06	lb/hp-hr		
		Acrolein	6.48E-07	lb/hp-hr		
		Naphthalene	5.94E-07	lb/hp-hr		
		Acenaphthylene	3.54E-08	lb/hp-hr		
		Acenaphthene	9.94E-09	lb/hp-hr		
		Fluorene	2.04E-07	lb/hp-hr		
		Phenanthrene	2.06E-07	lb/hp-hr		
		Anthracene	1.31E-08	lb/hp-hr		
		Fluoranthene	5.33E-08	lb/hp-hr		
		Pyrene	3.35E-08	lb/hp-hr		
		Benz(a)anthracene	1.18E-08	lb/hp-hr		
		Chrysene	2.47E-09	lb/hp-hr		
		Benzo(b)fluoranthene	6.94E-10	lb/hp-hr		
		Benzo(k)fluoranthene	1.09E-09	lb/hp-hr		
		Benzo(a)pyrene	1.32E-09	lb/hp-hr		
		Indeno(1,2,3-cd)pyrene	2.63E-09	lb/hp-hr		
		Dibenz(a,h)anthracene	4.08E-09	lb/hp-hr		
		Benzo(g,h,i)perylene	3.42E-09	lb/hp-hr		
		Total HAPs	2.71E-05	lb/hp-hr		

Table B.10 Annual HAP Emissions - PTE Calculations

Emission Unit ID	Process Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	HAP Information			Emissions (tpy)
							Name	EF	EF Units	
Mining Operations										
M002	Blasting	Blasting	3-05-040-01	F	806	tons ANFO	Lead	2.08E-05	lb/ton ANFO	8.40E-06
							POM	5.58E-05	lb/ton ANFO	2.25E-05
							Formaldehyde	1.03E-03	lb/ton ANFO	4.15E-04
							Arsenic	9.26E-06	lb/ton ANFO	3.73E-06
							Beryllium	6.95E-06	lb/ton ANFO	2.80E-06
							Cadmium	6.95E-06	lb/ton ANFO	2.80E-06
							Chromium	6.95E-06	lb/ton ANFO	2.80E-06
							Mercury	6.95E-06	lb/ton ANFO	2.80E-06
							Manganese	1.39E-05	lb/ton ANFO	5.60E-06
							Nickel	6.95E-06	lb/ton ANFO	2.80E-06
							Selenium	3.47E-05	lb/ton ANFO	1.40E-05
							Total HAPs	1.20E-03	lb/ton ANFO	4.84E-04
Material Handling and Roads										
--	Lime and Limestone Processing - Material Handling	Lime and Limestone Processing	--	NF	156.99	tons	Lead	1.83	ppm_w	2.87E-04
							Mercury	1.40E-02	ppm_w	2.20E-06
							Nickel	4.09	ppm_w	6.42E-04
				F	188.81	tons	Lead	1.83	ppm_w	3.46E-04
							Mercury	1.40E-02	ppm_w	2.64E-06
							Nickel	4.09	ppm_w	7.72E-04
--	Solid Fuel Handling	Solid Fuel Handling	--	NF	1.13	tons	Lead	2.00	ppm_w	2.25E-06
							Mercury	5.00E-02	ppm_w	5.63E-08
							Nickel	181.00	ppm_w	2.04E-04
				F	0.29	tons	Lead	2.00	ppm_w	5.86E-07
							Mercury	5.00E-02	ppm_w	1.46E-08
							Nickel	181.00	ppm_w	5.30E-05
--	Roads	Roads	--	F	1285.06	tons	Lead	1.83	ppm_w	2.35E-03
							Mercury	1.40E-02	ppm_w	1.80E-05
							Nickel	4.09	ppm_w	5.26E-03
--	Wind Erosion of Off-Spec Lime and Overburden Storage Areas, Open Areas, and Kiln Feed, Flux, and Chat Stockpiles	Wind Erosion	--	F	107.51	tons	Lead	1.83	ppm_w	1.97E-04
							Mercury	1.40E-02	ppm_w	1.51E-06
							Nickel	4.09	ppm_w	4.40E-04
--	Wind Erosion of Fuel Storage Piles	Wind Erosion - Fuel Piles	--	F	6.23	tons	Lead	2.00	ppm_w	1.25E-05
							Mercury	5.00E-02	ppm_w	3.12E-07
							Nickel	181.00	ppm_w	1.13E-03
							Total HAPs	--	--	1.17E-02
Kilns										
Kiln 1	Lime Kiln 1	Kiln 1	3-05-016-04	NF	27,261	tons (coal+coke)	2,3,7,8-TCDD	1.43E-11	lb/ton	1.95E-10
							Biphenyl	1.70E-06	lb/ton	2.32E-05
							Acenaphthene	5.10E-07	lb/ton	6.95E-06
							Acenaphthylene	2.50E-07	lb/ton	3.41E-06
							Anthracene	2.10E-07	lb/ton	2.86E-06
							Benz(a)anthracene	8.00E-08	lb/ton	1.09E-06
							Benzo(b,j,k)fluoranthene	3.80E-08	lb/ton	5.18E-07
							Benzo(g,h,i)perylene	1.10E-07	lb/ton	1.50E-06
							Benzo(a)pyrene	2.70E-08	lb/ton	3.68E-07
							Chrysene	1.00E-07	lb/ton	1.36E-06
							Fluoranthene	7.10E-07	lb/ton	9.68E-06
							Fluorene	1.18E-09	lb/ton	1.60E-08
							Indeno(1,2,3-cd)pyrene	1.76E-09	lb/ton	2.41E-08
							Naphthalene	1.30E-05	lb/ton	1.77E-04
							Phenanthrene	2.70E-06	lb/ton	3.68E-05
							Pyrene	3.30E-07	lb/ton	4.50E-06

Table B.10 Annual HAP Emissions - PTE Calculations

Emission Unit ID	Process Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	HAP Information			Emissions (tpy)
							Name	EF	EF Units	
Kiln 1 (cont'd)	Lime Kiln 1 (cont'd)	Kiln 1	3-05-016-04	NF	27,261	tons (coal+coke)	5-Methyl chrysene	2.20E-08	lb/ton	3.00E-07
							Acetaldehyde	5.70E-04	lb/ton	7.77E-03
							Acetophenone	1.50E-05	lb/ton	2.04E-04
							Acrolein	2.90E-04	lb/ton	3.95E-03
							Benzene	1.30E-03	lb/ton	1.77E-02
							Benzyl chloride	7.00E-04	lb/ton	9.54E-03
							Bis(2-ethylhexyl)phthalate (DEHP)	7.30E-05	lb/ton	9.95E-04
							Bromoform	3.90E-05	lb/ton	5.32E-04
							Carbon disulfide	1.30E-04	lb/ton	1.77E-03
							2-Chloroacetophenone	7.00E-06	lb/ton	9.54E-05
							Chlorobenzene	2.20E-05	lb/ton	3.00E-04
							Chloroform	5.90E-05	lb/ton	8.04E-04
							Cumene	5.30E-06	lb/ton	7.22E-05
							Cyanide	2.50E-03	lb/ton	3.41E-02
							2,4-Dinitrotoluene	2.80E-07	lb/ton	3.82E-06
							Dimethyl sulfate	4.80E-05	lb/ton	6.54E-04
							Ethylbenzene	9.40E-05	lb/ton	1.28E-03
							Ethyl chloride	4.20E-05	lb/ton	5.72E-04
							Ethylene dichloride	4.00E-05	lb/ton	5.45E-04
							Ethylene dibromide	1.20E-06	lb/ton	1.64E-05
							Formaldehyde	2.40E-04	lb/ton	3.27E-03
							Hexane	6.70E-05	lb/ton	9.13E-04
							Isophorone	5.80E-04	lb/ton	7.91E-03
							Methyl bromide	1.60E-04	lb/ton	2.18E-03
							Methyl chloride	5.30E-04	lb/ton	7.22E-03
							Methyl hydrazine	1.70E-04	lb/ton	2.32E-03
							Methyl methacrylate	2.00E-05	lb/ton	2.73E-04
							Methyl tert butyl ether	3.50E-05	lb/ton	4.77E-04
							methylene chloride	2.90E-04	lb/ton	3.95E-03
							Phenol	1.60E-05	lb/ton	2.18E-04
							Propionaldehyde	3.80E-04	lb/ton	5.18E-03
							Tetrachloroethylene	4.30E-05	lb/ton	5.86E-04
							Toluene	2.40E-04	lb/ton	3.27E-03
							1,1,1-Trichloroethane	2.00E-05	lb/ton	2.73E-04
							Styrene	2.50E-05	lb/ton	3.41E-04
							Xylenes	3.70E-05	lb/ton	5.04E-04
							Vinyl acetate	7.60E-06	lb/ton	1.04E-04
							HF	1.50E-01	lb/ton	2.04E+00
							Antimony	1.80E-05	lb/ton	2.45E-04
							Arsenic	4.10E-04	lb/ton	5.59E-03
							Beryllium	2.10E-05	lb/ton	2.86E-04
							Cadmium	5.10E-05	lb/ton	6.95E-04
							Chromium	2.60E-04	lb/ton	3.54E-03
							Chromium IV	7.90E-05	lb/ton	1.08E-03
							Cobalt	1.00E-04	lb/ton	1.36E-03
							Lead	4.20E-04	lb/ton	5.72E-03
							Manganese	4.90E-04	lb/ton	6.68E-03
							Mercury	8.30E-05	lb/ton	1.13E-03
							Nickel	2.80E-04	lb/ton	3.82E-03
							Selenium	1.30E-03	lb/ton	1.77E-02
					73,000	tons (lime)	HCl	0.0205	lb/ton	7.48E-01

Table B.10 Annual HAP Emissions - PTE Calculations

Emission Unit ID	Process Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	HAP Information			Emissions (tpy)
							Name	EF	EF Units	
Kiln 2	Lime Kiln 2	Kiln 2	3-05-016-04	NF	51,965	tons (coal+coke)	2,3,7,8-TCDD	1.43E-11	lb/ton	3.72E-10
							Biphenyl	1.70E-06	lb/ton	4.42E-05
							Acenaphthene	5.10E-07	lb/ton	1.33E-05
							Acenaphthylene	2.50E-07	lb/ton	6.50E-06
							Anthracene	2.10E-07	lb/ton	5.46E-06
							Benz(a)anthracene	8.00E-08	lb/ton	2.08E-06
							Benzo(b,j,k)fluoranthene	3.80E-08	lb/ton	9.87E-07
							Benzo(g,h,i)perylene	1.10E-07	lb/ton	2.86E-06
							Benzo(a)pyrene	2.70E-08	lb/ton	7.02E-07
							Chrysene	1.00E-07	lb/ton	2.60E-06
							Fluoranthene	7.10E-07	lb/ton	1.84E-05
							Fluorene	1.18E-09	lb/ton	3.06E-08
							Indeno(1,2,3-cd)pyrene	1.76E-09	lb/ton	4.59E-08
							Naphthalene	1.30E-05	lb/ton	3.38E-04
							Phenanthrene	2.70E-06	lb/ton	7.02E-05
							Pyrene	3.30E-07	lb/ton	8.57E-06
							5-Methyl chrysene	2.20E-08	lb/ton	5.72E-07
							Acetaldehyde	5.70E-04	lb/ton	1.48E-02
							Acetophenone	1.50E-05	lb/ton	3.90E-04
							Acrolein	2.90E-04	lb/ton	7.53E-03
							Benzene	1.30E-03	lb/ton	3.38E-02
							Benzyl chloride	7.00E-04	lb/ton	1.82E-02
							Bis(2-ethylhexyl)phthalate (DEHP)	7.30E-05	lb/ton	1.90E-03
							Bromoform	3.90E-05	lb/ton	1.01E-03
							Carbon disulfide	1.30E-04	lb/ton	3.38E-03
							2-Chloroacetophenone	7.00E-06	lb/ton	1.82E-04
							Chlorobenzene	2.20E-05	lb/ton	5.72E-04
							Chloroform	5.90E-05	lb/ton	1.53E-03
							Cumene	5.30E-06	lb/ton	1.38E-04
							Cyanide	2.50E-03	lb/ton	6.50E-02
							2,4-Dinitrotoluene	2.80E-07	lb/ton	7.28E-06
							Dimethyl sulfate	4.80E-05	lb/ton	1.25E-03
							Ethylbenzene	9.40E-05	lb/ton	2.44E-03
							Ethyl chloride	4.20E-05	lb/ton	1.09E-03
							Ethylene dichloride	4.00E-05	lb/ton	1.04E-03
							Ethylene dibromide	1.20E-06	lb/ton	3.12E-05
							Formaldehyde	2.40E-04	lb/ton	6.24E-03
							Hexane	6.70E-05	lb/ton	1.74E-03
							Isophorone	5.80E-04	lb/ton	1.51E-02
							Methyl bromide	1.60E-04	lb/ton	4.16E-03
							Methyl chloride	5.30E-04	lb/ton	1.38E-02
							Methyl hydrazine	1.70E-04	lb/ton	4.42E-03
							Methyl methacrylate	2.00E-05	lb/ton	5.20E-04
							Methyl tert butyl ether	3.50E-05	lb/ton	9.09E-04
							methylene chloride	2.90E-04	lb/ton	7.53E-03
							Phenol	1.60E-05	lb/ton	4.16E-04
							Propionaldehyde	3.80E-04	lb/ton	9.87E-03
							Tetrachloroethylene	4.30E-05	lb/ton	1.12E-03
							Toluene	2.40E-04	lb/ton	6.24E-03
							1,1,1-Trichloroethane	2.00E-05	lb/ton	5.20E-04
							Styrene	2.50E-05	lb/ton	6.50E-04
							Xylenes	3.70E-05	lb/ton	9.61E-04
							Vinyl acetate	7.60E-06	lb/ton	1.97E-04

Table B.10 Annual HAP Emissions - PTE Calculations

Emission Unit ID	Process Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	HAP Information			Emissions (tpy)
							Name	EF	EF Units	
Kiln 2 (cont'd)	Lime Kiln 2 (cont'd)	Kiln 2	3-05-016-04	NF	51,965	tons (coal+coke)	HF	1.50E-01	lb/ton	3.90E+00
							Antimony	1.80E-05	lb/ton	4.68E-04
							Arsenic	4.10E-04	lb/ton	1.07E-02
							Beryllium	2.10E-05	lb/ton	5.46E-04
							Cadmium	5.10E-05	lb/ton	1.33E-03
							Chromium	2.60E-04	lb/ton	6.76E-03
							Chromium IV	7.90E-05	lb/ton	2.05E-03
							Cobalt	1.00E-04	lb/ton	2.60E-03
							Lead	4.20E-04	lb/ton	1.09E-02
							Manganese	4.90E-04	lb/ton	1.27E-02
							Mercury	8.30E-05	lb/ton	2.16E-03
							Nickel	2.80E-04	lb/ton	7.28E-03
							Selenium	1.30E-03	lb/ton	3.38E-02
					189,750	tons (lime)	HCl	0.074	lb/ton	7.02E+00
Kiln 3	Lime Kiln 3	Kiln 3	3-05-016-03	NF	647,400	MMBtu	Lead	4.90E-07	lb/MMBtu	1.59E-04
							2-Methylnaphthalene	2.35E-08	lb/MMBtu	7.62E-06
							3-Methylchloranthrene	1.76E-09	lb/MMBtu	5.71E-07
							7,12-Dimethylbenz(a)anthracene	1.57E-08	lb/MMBtu	5.08E-06
							Acenaphthene	1.76E-09	lb/MMBtu	5.71E-07
							Acenaphthylene	1.76E-09	lb/MMBtu	5.71E-07
							Anthracene	2.35E-09	lb/MMBtu	7.62E-07
							Benz(a)anthracene	1.76E-09	lb/MMBtu	5.71E-07
							Benzene	2.06E-06	lb/MMBtu	6.66E-04
							Benzo(a)pyrene	1.18E-09	lb/MMBtu	3.81E-07
							Benzo(b)fluoranthene	1.76E-09	lb/MMBtu	5.71E-07
							Benzo(g,h,i)perylene	1.18E-09	lb/MMBtu	3.81E-07
							Benzo(k)fluoranthene	1.76E-09	lb/MMBtu	5.71E-07
							Chrysene	1.76E-09	lb/MMBtu	5.71E-07
							Dibenz(a,h)anthracene	1.18E-09	lb/MMBtu	3.81E-07
							Dichlorobenzene	1.18E-06	lb/MMBtu	3.81E-04
							Fluoranthene	2.94E-09	lb/MMBtu	9.52E-07
							Fluorene	2.75E-09	lb/MMBtu	8.89E-07
							Formaldehyde	7.35E-05	lb/MMBtu	2.38E-02
							Hexane	1.76E-03	lb/MMBtu	5.71E-01
							Indeno(1,2,3-cd)pyrene	1.76E-09	lb/MMBtu	5.71E-07
							Naphthalene	5.98E-07	lb/MMBtu	1.94E-04
							Phenanthrene	1.67E-08	lb/MMBtu	5.40E-06
							Pyrene	4.90E-09	lb/MMBtu	1.59E-06
							Toluene	3.33E-06	lb/MMBtu	1.08E-03
							Arsenic	1.96E-07	lb/MMBtu	6.35E-05
							Beryllium	1.18E-08	lb/MMBtu	3.81E-06
							Cadmium	1.08E-06	lb/MMBtu	3.49E-04
							Chromium	1.37E-06	lb/MMBtu	4.44E-04
							Cobalt	8.24E-08	lb/MMBtu	2.67E-05
							Manganese	3.73E-07	lb/MMBtu	1.21E-04
							Mercury	2.55E-07	lb/MMBtu	8.25E-05
							Nickel	2.06E-06	lb/MMBtu	6.66E-04
							Selenium	2.35E-08	lb/MMBtu	7.62E-06
					166,000	tons (lime)	HCl	8.00E-03	lb/ton	6.64E-01
							Total HAPs	--	--	15.46

Table B.10 Annual HAP Emissions - PTE Calculations

Emission Unit ID	Process Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	HAP Information			Emissions (tpy)
							Name	EF	EF Units	
Kiln Pony Motors										
K1PM & K2PM	Kiln 1 and 2 Pony Motors	DieselEngine	2-02-001-02	NF	1,083,612	hp-hr	Benzene	6.53E-06	lb/hp-hr	3.54E-03
							Toluene	2.86E-06	lb/hp-hr	1.55E-03
							Xylenes	2.00E-06	lb/hp-hr	1.08E-03
							1,3-Butadiene	2.74E-07	lb/hp-hr	1.48E-04
							Formaldehyde	8.26E-06	lb/hp-hr	4.48E-03
							Acetaldehyde	5.37E-06	lb/hp-hr	2.91E-03
							Acrolein	6.48E-07	lb/hp-hr	3.51E-04
							Naphthalene	5.94E-07	lb/hp-hr	3.22E-04
							Acenaphthylene	3.54E-08	lb/hp-hr	1.92E-05
							Acenaphthene	9.94E-09	lb/hp-hr	5.39E-06
							Fluorene	2.04E-07	lb/hp-hr	1.11E-04
							Phenanthrene	2.06E-07	lb/hp-hr	1.12E-04
							Anthracene	1.31E-08	lb/hp-hr	7.09E-06
							Fluoranthene	5.33E-08	lb/hp-hr	2.89E-05
							Pyrene	3.35E-08	lb/hp-hr	1.81E-05
							Benz(a)anthracene	1.18E-08	lb/hp-hr	6.37E-06
							Chrysene	2.47E-09	lb/hp-hr	1.34E-06
							Benzo(b)fluoranthene	6.94E-10	lb/hp-hr	3.76E-07
							Benzo(k)fluoranthene	1.09E-09	lb/hp-hr	5.88E-07
							Benzo(a)pyrene	1.32E-09	lb/hp-hr	7.13E-07
							Indeno(1,2,3-cd)pyrene	2.63E-09	lb/hp-hr	1.42E-06
							Dibenz(a,h)anthracene	4.08E-09	lb/hp-hr	2.21E-06
							Benzo(g,h,i)perylene	3.42E-09	lb/hp-hr	1.85E-06
							Total HAPs	2.71E-05	lb/hp-hr	1.47E-02
Greatest Single HAP Emissions:							**HCl**			**8.43**
Total of Non-Fugitive Emissions:										**15.478**
Total of Fugitive Emissions:										**0.011**
Total of Non-Fugitive and Fugitive Emissions:										**15.490**

Table B.11 Hourly HAP Emissions - PTE Calculations										
Emission Unit ID	Process Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	HAP Information			Emissions (lb/hr)
							Name	EF	EF Units	
Mining Operations										
M002	Blasting	Blasting	3-05-040-01	F	2.37	tons ANFO	Lead	2.08E-05	lb/ton ANFO	4.94E-05
							POM	5.58E-05	lb/ton ANFO	1.32E-04
							Formaldehyde	1.03E-03	lb/ton ANFO	2.44E-03
							Arsenic	9.26E-06	lb/ton ANFO	2.20E-05
							Beryllium	6.95E-06	lb/ton ANFO	1.65E-05
							Cadmium	6.95E-06	lb/ton ANFO	1.65E-05
							Chromium	6.95E-06	lb/ton ANFO	1.65E-05
							Mercury	6.95E-06	lb/ton ANFO	1.65E-05
							Manganese	1.39E-05	lb/ton ANFO	3.29E-05
							Nickel	6.95E-06	lb/ton ANFO	1.65E-05
							Selenium	3.47E-05	lb/ton ANFO	8.23E-05
							Total HAPs	1.20E-03	lb/ton ANFO	2.85E-03
Material Handling and Roads										
--	Lime and Limestone Processing - Material Handling	Lime and Limestone Processing	--	NF	60.19	lb	Lead	1.83	ppm_w	1.10E-04
							Mercury	1.40E-02	ppm_w	8.43E-07
							Nickel	4.09	ppm_w	2.46E-04
				F	239.72	lb	Lead	1.83	ppm_w	4.39E-04
							Mercury	1.40E-02	ppm_w	3.36E-06
							Nickel	4.09	ppm_w	9.80E-04
--	Solid Fuel Handling	Solid Fuel Handling	--	NF	0.63	lb	Lead	2.00	ppm_w	1.26E-06
							Mercury	5.00E-02	ppm_w	3.15E-08
							Nickel	181.00	ppm_w	1.14E-04
				F	0.42	lb	Lead	1.83	ppm_w	7.62E-07
							Mercury	1.40E-02	ppm_w	5.83E-09
							Nickel	4.09	ppm_w	1.70E-06
--	Roads	Roads	--	F	340.88	lb	Lead	1.83	ppm_w	6.24E-04
							Mercury	1.40E-02	ppm_w	4.77E-06
							Nickel	4.09	ppm_w	1.39E-03
--	Wind Erosion of Off-Spec Lime and Overburden Storage Areas, Open Areas, and Kiln Feed, Flux, and Chat Stockpiles	Wind Erosion	--	F	24.55	lb	Lead	1.83	ppm_w	4.49E-05
							Mercury	1.40E-02	ppm_w	3.44E-07
							Nickel	4.09	ppm_w	1.00E-04
--	Wind Erosion of Fuel Storage Piles	Wind Erosion - Fuel Piles	--	F	1.42	lb	Lead	2.00	ppm_w	2.85E-06
							Mercury	5.00E-02	ppm_w	7.11E-08
							Nickel	181.00	ppm_w	2.58E-04
							Total HAPs	--	--	4.33E-03
Kilns										
Kiln 1	Lime Kiln 1	Kiln 1	3-05-016-04	NF	3.11	tons (coal+coke)	2,3,7,8-TCDD	1.43E-11	lb/ton	4.45E-11
							Biphenyl	1.70E-06	lb/ton	5.29E-06
							Acenaphthene	5.10E-07	lb/ton	1.59E-06
							Acenaphthylene	2.50E-07	lb/ton	7.78E-07
							Anthracene	2.10E-07	lb/ton	6.53E-07
							Benz(a)anthracene	8.00E-08	lb/ton	2.49E-07
							Benzo(b,j,k)fluoranthene	3.80E-08	lb/ton	1.18E-07
							Benzo(g,h,i)perylene	1.10E-07	lb/ton	3.42E-07
							Benzo(a)pyrene	2.70E-08	lb/ton	8.40E-08
							Chrysene	1.00E-07	lb/ton	3.11E-07
							Fluoranthene	7.10E-07	lb/ton	2.21E-06
							Fluorene	1.18E-09	lb/ton	3.66E-09
							Indeno(1,2,3-cd)pyrene	1.76E-09	lb/ton	5.49E-09
							Naphthalene	1.30E-05	lb/ton	4.04E-05
							Phenanthrene	2.70E-06	lb/ton	8.40E-06
							Pyrene	3.30E-07	lb/ton	1.03E-06
							5-Methyl chrysene	2.20E-08	lb/ton	6.84E-08
							Acetaldehyde	5.70E-04	lb/ton	1.77E-03
							Acetophenone	1.50E-05	lb/ton	4.67E-05
							Acrolein	2.90E-04	lb/ton	9.02E-04
							Benzene	1.30E-03	lb/ton	4.04E-03
							Benzyl chloride	7.00E-04	lb/ton	2.18E-03
							Bis(2-ethylhexyl)phthalate (DEHP)	7.30E-05	lb/ton	2.27E-04
							Bromoform	3.90E-05	lb/ton	1.21E-04

Table B.11 Hourly HAP Emissions - PTE Calculations										
Emission Unit ID	Process Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	HAP Information			Emissions (lb/hr)
							Name	EF	EF Units	
Kiln 1 (cont'd)	Lime Kiln 1 (cont'd)	Kiln 1	3-05-016-04	NF	3.11	tons (coal+coke)	Carbon disulfide	1.30E-04	lb/ton	4.04E-04
							2-Chloroacetophenone	7.00E-06	lb/ton	2.18E-05
							Chlorobenzene	2.20E-05	lb/ton	6.84E-05
							Chloroform	5.90E-05	lb/ton	1.84E-04
							Cumene	5.30E-06	lb/ton	1.65E-05
							Cyanide	2.50E-03	lb/ton	7.78E-03
							2,4-Dinitrotoluene	2.80E-07	lb/ton	8.71E-07
							Dimethyl sulfate	4.80E-05	lb/ton	1.49E-04
							Ethylbenzene	9.40E-05	lb/ton	2.92E-04
							Ethyl chloride	4.20E-05	lb/ton	1.31E-04
							Ethylene dichloride	4.00E-05	lb/ton	1.24E-04
							Ethylene dibromide	1.20E-06	lb/ton	3.73E-06
							Formaldehyde	2.40E-04	lb/ton	7.47E-04
							Hexane	6.70E-05	lb/ton	2.08E-04
							Isophorone	5.80E-04	lb/ton	1.80E-03
							Methyl bromide	1.60E-04	lb/ton	4.98E-04
							Methyl chloride	5.30E-04	lb/ton	1.65E-03
							Methyl hydrazine	1.70E-04	lb/ton	5.29E-04
							Methyl methacrylate	2.00E-05	lb/ton	6.22E-05
							Methyl tert butyl ether	3.50E-05	lb/ton	1.09E-04
							methylene chloride	2.90E-04	lb/ton	9.02E-04
							Phenol	1.60E-05	lb/ton	4.98E-05
							Propionaldehyde	3.80E-04	lb/ton	1.18E-03
							Tetrachloroethylene	4.30E-05	lb/ton	1.34E-04
							Toluene	2.40E-04	lb/ton	7.47E-04
							1,1,1-Trichloroethane	2.00E-05	lb/ton	6.22E-05
							Styrene	2.50E-05	lb/ton	7.78E-05
							Xylenes	3.70E-05	lb/ton	1.15E-04
							Vinyl acetate	7.60E-06	lb/ton	2.36E-05
							HF	1.50E-01	lb/ton	4.67E-01
							Antimony	1.80E-05	lb/ton	5.60E-05
							Arsenic	4.10E-04	lb/ton	1.28E-03
							Beryllium	2.10E-05	lb/ton	6.53E-05
							Cadmium	5.10E-05	lb/ton	1.59E-04
							Chromium	2.60E-04	lb/ton	8.09E-04
							Chromium IV	7.90E-05	lb/ton	2.46E-04
							Cobalt	1.00E-04	lb/ton	3.11E-04
							Lead	4.20E-04	lb/ton	1.31E-03
							Manganese	4.90E-04	lb/ton	1.52E-03
							Mercury	8.30E-05	lb/ton	2.58E-04
							Nickel	2.80E-04	lb/ton	8.71E-04
							Selenium	1.30E-03	lb/ton	4.04E-03
					8.3	tons (lime)	HCl	0.0205	lb/ton	1.71E-01
Kiln 2	Kiln 2	Kiln 2	3-05-016-04	NF	6.28	tons (coal+coke)	2,3,7,8-TCDD	1.43E-11	lb/ton	8.98E-11
							Biphenyl	1.70E-06	lb/ton	1.07E-05
							Acenaphthene	5.10E-07	lb/ton	3.20E-06
							Acenaphthylene	2.50E-07	lb/ton	1.57E-06
							Anthracene	2.10E-07	lb/ton	1.32E-06
							Benz(a)anthracene	8.00E-08	lb/ton	5.02E-07
							Benzo(b,j,k)fluoranthene	3.80E-08	lb/ton	2.39E-07
							Benzo(g,h,i)perylene	1.10E-07	lb/ton	6.90E-07
							Benzo(a)pyrene	2.70E-08	lb/ton	1.69E-07
							Chrysene	1.00E-07	lb/ton	6.28E-07
							Fluoranthene	7.10E-07	lb/ton	4.46E-06
							Fluorene	1.18E-09	lb/ton	7.38E-09
							Indeno(1,2,3-cd)pyrene	1.76E-09	lb/ton	1.11E-08
							Naphthalene	1.30E-05	lb/ton	8.16E-05
							Phenanthrene	2.70E-06	lb/ton	1.69E-05
							Pyrene	3.30E-07	lb/ton	2.07E-06
							5-Methyl chrysene	2.20E-08	lb/ton	1.38E-07
							Acetaldehyde	5.70E-04	lb/ton	3.58E-03

Table B.11 Hourly HAP Emissions - PTE Calculations										
Emission Unit ID	Process Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	HAP Information			Emissions (lb/hr)
							Name	EF	EF Units	
Kiln 2 (cont'd)	Lime Kiln 2 (cont'd)	Kiln 2	3-05-016-04	NF	6.28	tons (coal+coke)	Acetophenone	1.50E-05	lb/ton	9.42E-05
							Acrolein	2.90E-04	lb/ton	1.82E-03
							Benzene	1.30E-03	lb/ton	8.16E-03
							Benzyl chloride	7.00E-04	lb/ton	4.39E-03
							Bis(2-ethylhexyl)phthalate (DEHP)	7.30E-05	lb/ton	4.58E-04
							Bromoform	3.90E-05	lb/ton	2.45E-04
							Carbon disulfide	1.30E-04	lb/ton	8.16E-04
							2-Chloroacetophenone	7.00E-06	lb/ton	4.39E-05
							Chlorobenzene	2.20E-05	lb/ton	1.38E-04
							Chloroform	5.90E-05	lb/ton	3.70E-04
							Cumene	5.30E-06	lb/ton	3.33E-05
							Cyanide	2.50E-03	lb/ton	1.57E-02
							2,4-Dinitrotoluene	2.80E-07	lb/ton	1.76E-06
							Dimethyl sulfate	4.80E-05	lb/ton	3.01E-04
							Ethylbenzene	9.40E-05	lb/ton	5.90E-04
							Ethyl chloride	4.20E-05	lb/ton	2.64E-04
							Ethylene dichloride	4.00E-05	lb/ton	2.51E-04
							Ethylene dibromide	1.20E-06	lb/ton	7.53E-06
							Formaldehyde	2.40E-04	lb/ton	1.51E-03
							Hexane	6.70E-05	lb/ton	4.21E-04
							Isophorone	5.80E-04	lb/ton	3.64E-03
							Methyl bromide	1.60E-04	lb/ton	1.00E-03
							Methyl chloride	5.30E-04	lb/ton	3.33E-03
							Methyl hydrazine	1.70E-04	lb/ton	1.07E-03
							Methyl methacrylate	2.00E-05	lb/ton	1.26E-04
							Methyl tert butyl ether	3.50E-05	lb/ton	2.20E-04
							methylene chloride	2.90E-04	lb/ton	1.82E-03
							Phenol	1.60E-05	lb/ton	1.00E-04
							Propionaldehyde	3.80E-04	lb/ton	2.39E-03
							Tetrachloroethylene	4.30E-05	lb/ton	2.70E-04
							Toluene	2.40E-04	lb/ton	1.51E-03
							1,1,1-Trichloroethane	2.00E-05	lb/ton	1.26E-04
							Styrene	2.50E-05	lb/ton	1.57E-04
							Xylenes	3.70E-05	lb/ton	2.32E-04
							Vinyl acetate	7.60E-06	lb/ton	4.77E-05
							HF	1.50E-01	lb/ton	9.42E-01
							Antimony	1.80E-05	lb/ton	1.13E-04
							Arsenic	4.10E-04	lb/ton	2.57E-03
							Beryllium	2.10E-05	lb/ton	1.32E-04
							Cadmium	5.10E-05	lb/ton	3.20E-04
							Chromium	2.60E-04	lb/ton	1.63E-03
							Chromium IV	7.90E-05	lb/ton	4.96E-04
							Cobalt	1.00E-04	lb/ton	6.28E-04
							Lead	4.20E-04	lb/ton	2.64E-03
							Manganese	4.90E-04	lb/ton	3.08E-03
							Mercury	8.30E-05	lb/ton	5.21E-04
							Nickel	2.80E-04	lb/ton	1.76E-03
							Selenium	1.30E-03	lb/ton	8.16E-03
					22.92	tons (lime)	HCl	0.074	lb/ton	1.70E+00

Table B.11 Hourly HAP Emissions - PTE Calculations

Emission Unit ID	Process Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	HAP Information			Emissions (lb/hr)
							Name	EF	EF Units	
Kiln 3	Lime Kiln 3	Kiln 3	3-05-016-03	NF	150	MMBtu	Lead	4.90E-07	lb/MMBtu	7.33E-05
							2-Methylnaphthalene	2.35E-08	lb/MMBtu	3.52E-06
							3-Methylchloranthrene	1.76E-09	lb/MMBtu	2.64E-07
							7,12-Dimethylbenz(a)anthracene	1.57E-08	lb/MMBtu	2.35E-06
							Acenaphthene	1.76E-09	lb/MMBtu	2.64E-07
							Acenaphthylene	1.76E-09	lb/MMBtu	2.64E-07
							Anthracene	2.35E-09	lb/MMBtu	3.52E-07
							Benz(a)anthracene	1.76E-09	lb/MMBtu	2.64E-07
							Benzene	2.06E-06	lb/MMBtu	3.08E-04
							Benzo(a)pyrene	1.18E-09	lb/MMBtu	1.76E-07
							Benzo(b)fluoranthene	1.76E-09	lb/MMBtu	2.64E-07
							Benzo(g,h,i)perylene	1.18E-09	lb/MMBtu	1.76E-07
							Benzo(k)fluoranthene	1.76E-09	lb/MMBtu	2.64E-07
							Chrysene	1.76E-09	lb/MMBtu	2.64E-07
							Dibenz(a,h)anthracene	1.18E-09	lb/MMBtu	1.76E-07
							Dichlorobenzene	1.18E-06	lb/MMBtu	1.76E-04
							Fluoranthene	2.94E-09	lb/MMBtu	4.40E-07
							Fluorene	2.75E-09	lb/MMBtu	4.10E-07
							Formaldehyde	7.35E-05	lb/MMBtu	1.10E-02
							Hexane	1.76E-03	lb/MMBtu	2.64E-01
							Indeno(1,2,3-cd)pyrene	1.76E-09	lb/MMBtu	2.64E-07
							Naphthalene	5.98E-07	lb/MMBtu	8.94E-05
							Phenanthrene	1.67E-08	lb/MMBtu	2.49E-06
							Pyrene	4.90E-09	lb/MMBtu	7.33E-07
							Toluene	3.33E-06	lb/MMBtu	4.98E-04
							Arsenic	1.96E-07	lb/MMBtu	2.93E-05
							Beryllium	1.18E-08	lb/MMBtu	1.76E-06
							Cadmium	1.08E-06	lb/MMBtu	1.61E-04
							Chromium	1.37E-06	lb/MMBtu	2.05E-04
							Cobalt	8.24E-08	lb/MMBtu	1.23E-05
							Manganese	3.73E-07	lb/MMBtu	5.57E-05
							Mercury	2.55E-07	lb/MMBtu	3.81E-05
							Nickel	2.06E-06	lb/MMBtu	3.08E-04
							Selenium	2.35E-08	lb/MMBtu	3.52E-06
					38.34	tons (lime)	HCl	8.00E-03	lb/ton	3.07E-01
							Total HAPs	--	--	3.97E+00
Kiln Pony Motors										
K1PM & K2PM	Kiln 1 and 2 Pony Motors	DieselEngine	2-02-001-02	NF	124	hp-hr	Benzene	6.53E-06	lb/hp-hr	8.08E-04
							Toluene	2.86E-06	lb/hp-hr	3.54E-04
							Xylenes	2.00E-06	lb/hp-hr	2.47E-04
							1,3-Butadiene	2.74E-07	lb/hp-hr	3.39E-05
							Formaldehyde	8.26E-06	lb/hp-hr	1.02E-03
							Acetaldehyde	5.37E-06	lb/hp-hr	6.64E-04
							Acrolein	6.48E-07	lb/hp-hr	8.01E-05
							Naphthalene	5.94E-07	lb/hp-hr	7.34E-05
							Acenaphthylene	3.54E-08	lb/hp-hr	4.38E-06
							Acenaphthene	9.94E-09	lb/hp-hr	1.23E-06
							Fluorene	2.04E-07	lb/hp-hr	2.53E-05
							Phenanthrene	2.06E-07	lb/hp-hr	2.55E-05
							Anthracene	1.31E-08	lb/hp-hr	1.62E-06
							Fluoranthene	5.33E-08	lb/hp-hr	6.59E-06
							Pyrene	3.35E-08	lb/hp-hr	4.14E-06
							Benz(a)anthracene	1.18E-08	lb/hp-hr	1.45E-06
							Chrysene	2.47E-09	lb/hp-hr	3.06E-07
							Benzo(b)fluoranthene	6.94E-10	lb/hp-hr	8.58E-08
							Benzo(k)fluoranthene	1.09E-09	lb/hp-hr	1.34E-07
							Benzo(a)pyrene	1.32E-09	lb/hp-hr	1.63E-07
							Indeno(1,2,3-cd)pyrene	2.63E-09	lb/hp-hr	3.25E-07
							Dibenz(a,h)anthracene	4.08E-09	lb/hp-hr	5.05E-07
							Benzo(g,h,i)perylene	3.42E-09	lb/hp-hr	4.23E-07
							Total HAPs	2.71E-05	lb/hp-hr	3.35E-03

Table B.11 Hourly HAP Emissions - PTE Calculations										
Emission Unit ID	Process Description	Process Code	SCC	Non-Fug. (NF) / Fug. (F)	Annual Process Rate	Rate Units	HAP Information			Emissions (lb/hr)
							Name	EF	EF Units	
Greatest Single HAP Emissions:							**HCl**			**2.17**
Total of Non-Fugitive Emissions:										**3.98**
Total of Fugitive Emissions:										**0.01**
Total of Non-Fugitive and Fugitive Emissions:										**3.98**

APPENDIX C: LHOIST'S LETTER TO ADEQ REQUESTING AREA SOURCE DESIGNATION AND ADEQ'S RESPONSE

Chemical Lime
A Lhoist Group Company

September 14, 2006

Nancy Wrona, Director
Air Quality Division
Arizona Department of Environmental Quality
1110 West Washington St.
Phoenix, AZ 85007

Re: Hydrogen Chloride (HCl) Testing
Douglas Lime Plant

Dear Ms. Wrona:

This letter is to request the Arizona Department of Environmental Quality (ADEQ) to exercise its discretion under 40 C.F.R. §63.7142(c) and allow Chemical Lime Company (CLC) to postpone the testing for HCl emissions at Kiln #1 (formerly known as Kiln #4) and Kiln #3 (formerly known as Kiln #6) of the Douglas Lime Plant until CLC recommences lime production at these units. In support of this request, CLC offers the following information.

BACKGROUND

As ADEQ is aware, CLC, due to market conditions, temporarily suspended operations of the three kilns at the Douglas Lime Plant in December 2001. Subsequently, the plant was maintained pursuant to Alternative Operating Scenario #2 set out in Air Quality Permit No. 000044, Attachment B, Condition IX. The reasons for the suspension were discussed in CLC's letters dated January 8, 2002 and October 28, 2004. In October 2004, following notice to ADEQ, CLC resumed operation of Kiln #2 (formerly known as Kiln #5). Kiln #1 and Kiln #3 remained in a temporarily idled condition, which is their current status.

NESHAP

On January 5, 2004, EPA promulgated the NESHAP for the lime manufacturing source category. The final NESHAP regulates hazardous air pollutant (HAP) emissions from all new and existing lime manufacturing plants that are major sources. The compliance date for existing affected sources, and the date by when an existing affected source must complete all applicable performance tests, is January 5, 2007. 40 C.F.R. §§63.7083(b), 63.7110(a).

It is incumbent upon each lime manufacturing owner or operator to determine whether their plant is a major or an area source. The Clean Air Act defines a major source as a stationary source that has the potential to emit, considering controls, 10 TPY

Chemical Lime Company
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Douglas, Arizona 85607
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or more of any single HAP or 25 TPY or more of any combination of HAPs. As discussed by EPA in the preamble to the final rule, HCl typically accounts for the largest quantity of HAP emissions from a lime manufacturing plant. Therefore, for a source that wishes to claim area source status, EPA requires that the source demonstrate with an emissions test that the plant emits less than 10 TPY of HCl. 69 Fed. Reg. 393, 400 (January 5, 2004).

HCl TESTING

CLC conducted HCl emission testing for Kiln #2 at the Douglas Lime Plant on March 22, 2006. A report of the test results was submitted to ADEQ by letter dated May 19, 2006. As documented in the report, HCl emissions from Kiln #2 were determined to be 7.05 TPY. Based on this result and HCl testing at CLC-owned kilns similar to Kiln #1 and Kiln #3 in other states, we consider it likely that the Douglas Lime Plant is an area source of HAPs. In particular, emissions testing conducted at three preheater kilns similar to Kiln #1 resulted in a mean HCl emission factor of 0.0205 lb/ton lime. Emissions testing of three vertical kilns similar to Kiln #3 resulted in a mean HCl emission factor of 0.008 lb/ton lime. Applying these emission factors to Kiln #1 and Kiln #3 yields estimated HCl emissions of 0.748 TPY and 0.664 TPY, respectively. Using these figures, total HCl emissions at the Douglas Lime Plant are estimated to be 8.43 TPY, which would qualify the Douglas Lime Plant as an area source.

CLC acknowledges that in order to confirm that the Douglas Lime Plant is an area source of HAPs, it is necessary to test the two temporarily idled kilns for HCl emissions. Reactivating the two kilns solely to conduct such tests, however, would require significant expenditures. The issue of testing idled kilns affects numerous other companies in the lime manufacturing industry. For this reason, EPA was requested to address the issue at the time that it promulgated the final NESHAP for lime manufacturing. EPA responded as follows:

> Several commentators stated the final rule should not require HCl testing of all kilns. Commentators note that in recent years, many lime plants have been forced to idle or infrequently operate kilns at operating plants due to increased fuel cost, reduced customer demand, etc., and start up of every kiln for the purpose of conducting HCl testing will require significant expenditures. This will also result in PM and other emissions that otherwise would not be generated. As a result it was requested that the final rule be written to provide state agencies with the discretion to determine whether testing of all kilns at a lime plant is necessary in order to demonstrate that a plant is an area source.

69 Fed. Reg. at 410. Based on this comment, EPA added language to the final NESHAP allowing the permitting authority discretion concerning whether idled kilns must be tested. The specific language in the rule is as follows: "It is left to the discretion of the permitting authority whether or not idled kilns must be tested for HCl to claim area source status." 40 C.F.R. §63.7142(c). This language is the basis for the request being made by CLC in this letter.

Please note that we are not requesting ADEQ to grant the Douglas Lime Plant permanent area source status without actual testing of the two idled kilns. Rather, we are requesting ADEQ to allow CLC to postpone such testing until the two kilns are reactivated. CLC currently intends to reactivate Kiln #1 and Kiln #3 as market demand returns to previous levels in the Douglas market area. Once the two kilns are operating, HCl emissions testing would be conducted to confirm the status of the Douglas Lime Plant as either a major source or an area source. If the testing confirms that the plant is an area source of HAPs, which is what we anticipate, none of the three kilns would be subject to the NESHAP requirements. If, on the other hand, the testing shows that the plant is a major source, each of the three kilns would be subject to the lime manufacturing NESHAP. In that event, CLC would conduct performance testing of each operating kiln to demonstrate compliance with the applicable NESHAP emission limit for particulate matter, and would install the required continuous opacity monitor on Kiln #1 and the required pressure drop and scrubber liquid flow monitor on Kiln #3. If any kiln fails to comply with the applicable standard, CLC would take appropriate steps to come into compliance promptly. Such steps would include submission of an appropriate compliance plan.

In summary, based on HCl emissions testing of Kiln #2 and kilns that are similar to Kilns #1 and #3, we consider it likely that the Douglas Lime Plant is an area source of HAPs. Accordingly, and in order to avoid the significant cost associated with startup of Kiln #1 and Kiln #3 at this time simply to conduct HCl testing, we respectfully request that ADEQ exercise its discretion and permit us to postpone HCl testing until the two kilns are reactivated. We will, of course, notify you prior to the time that the two kilns are reactivated, as well as prior to the time when the HCl emissions testing would be performed.

Thank you for your consideration of this request. If you have any questions, please contact Ed Barry at (480) 368-4239 or me at (520) 364-2429.

Sincerely,

Jerry Young

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Chemical Lime Compay
4753 W. Paul Spur Road
Douglas, AZ 85607

Jerry Young
10/18/2006 08:10 AM

To: Edward.Barry@chemicallime.com@Lhoist
cc: Patrick Morgan/DOU/CLC/Lhoist@Lhoist
Subject: HCL Testing at the Douglas Plant

----- Forwarded by Jerry Young/APX/CLC/Lhoist on 10/18/2006 08:08 AM -----

"Wayne W. Hunt" <Hunt.Wayne@azdeq.gov>
10/17/2006 03:35 PM

To: <jerry.young@chemicallime.com>
cc: "Chandra P. Chithaluru" <Chithaluru.Chandra@azdeq.gov>
Subject: HCL Testing at the Douglas Plant

Jerry,

In response to your September 14, 2006 letter concerning the HCL testing for the inactive kilns. We concur that there in no reason to activate the two idle kilns to only test for HCL. Testing will be required once these two kilns are reactivated.

If there any questions give me a call at 602-771-2327.

Wayne Hunt

HOUSEKEEPING PLAN WHILE OPERATING UNDER AOS-1

The accumulation of dust in the various plant areas shall be removed by plant employees with the use of a vacuum truck, manual sweeping, and manual shoveling methods. This work shall be completed on a daily routine basis, when employees are present, on the catwalks, railings, buildings, around transfer points, and process equipment.

The supervisors in each department shall assign their workers to inspect, and clean as needed, the areas for which they are responsible. On a daily basis, when employees are present, each area of the plant shall be inspected by the assigned workers and a "DAILY HOUSEKEEPING INSPECTION AND ACTIVITY REPORT" (Tables D-1, D-2, D-3, and D-4 of this Attachment) shall be filed. This report shall record the findings of the inspection and the cleanup work performed in the different areas. After recording on the daily report what activity took place in each area, the assigned worker shall sign his (or her) initials next to each of the specified areas listed on the report signifying for the record that the areas were inspected and the cleanup work was performed.

The cleanup activity shall be on an on-going basis and the general practice shall be to clean up identified areas within a 24 hour period. The supervisors shall routinely monitor the plant housekeeping and the daily reports, and manage the cleanup activities to ensure that all areas are being maintained. On a weekly basis the supervisors shall complete the "SUPERVISORS WEEKLY HOUSEKEEPING REPORT" (Tables D-5, D-6, and D-7) to record the main cleanup efforts in the various areas of the plant. The supervisors shall maintain both the daily and weekly reports on file for inspection.

The following descriptions of housekeeping activities use the term "loose dust" to describe the material to be cleaned up. For the purposes of the housekeeping plan, loose dust is defined as the accumulation of fine particulate process material that is capable of becoming airborne.

HOUSEKEEPING PLAN EQUIPMENT AND AREA DESCRIPTIONS
1 Rotary Kiln Areas

1.1 Kiln #1 Dust Collector Area: Clean the loose dust off the dust collector pod discharges, drag conveyors, and the ground below this equipment. Also clean the dust from the top of the dust collector pods and the platform structure.

1.2 Kiln #1 Pier Area: Remove the loose dust from the kiln piers' catwalk, the area below the kiln, and around the kiln piers.

1.3 Kiln #1 Preheater Area: Clean the loose dust off of the preheater platform levels, stone screen, feed belt, and the area below the preheater at ground level.

1.4 Kiln #1 Main Blower Area: Clean the loose dust off the main blower, associated equipment, and the ground surrounding the main blower assembly.

1.5 Kiln #1 Cooler Area: Clean the loose dust off the discharge screw and belt conveyor structures, belt conveyor pit, and the concrete pad.

1.6 Kiln #1 Dust Bin Area: Remove the loose dust from and below dust screw conveyors, and the area surrounding the bucket elevator. Also clean the dust bin platform levels, stairs, pugmill, and the truck loading concrete pad below the dust bin.

1.7 Kiln #2 Dust Collection Area: Clean the loose dust off of the hopper rotary airlocks, the screw conveyors, and ground below this equipment.

1.8 Kiln #2 Pier Area: remove the loose dust from the kiln piers' catwalk, the area below the kiln, and around the kiln piers.

1.9 Kiln #2 Dust Chamber Area: Remove the loose dust from the top of the dust chamber screw conveyor, the surrounding structure, and the ground level area below this equipment.

1.10 Kiln #2 ID Fan Area: Clean the loose dust from the equipment, structure, and ground level areas surrounding the ID fan.

1.11 Kiln #2 Cooler Area: Clean the loose dust off discharge vibrators and belt conveyor structures, and the concrete pad.

1.12 Kiln #2 Dust Bin Area: Clean or vacuum the loose dust on or below the dust screw conveyor, and the area surrounding the bucket elevator. Remove loose dust off the dust bin platforms, pugmill, and the ground level truck loading areas.

1.13 Kiln #2 Stone Feed Areas: Clean up the loose dust out of stone feed tunnels, and off and below the stone feed conveyor structures and catwalks.

1.14 #1 and #2 Coal Ring Dump Area: Remove the loose dust from kiln coal ring collection areas south of the cooler area concrete pads, and north of the first piers.

1.15 #1 and #2 Coal Mill Area: Dispose of the loose dust from the ground level areas surrounding the coal mills. Clean the dust from the coal bin discharge level platform and related equipment, and the conveyor head pulley and on top of the coal bins.

1.16 #1 and #2 Firedeck Area: Clean up the loose dust off the firedeck platform area at the rotary kilns' discharge.

1.17 Air Compressor Area: Remove the loose dust off the rotary kilns' air compressor and related structures. Clean the dust from the ground on the compressor shelter and surrounding area.

2 Rotary Kiln Lime Storage Areas

2.1 Bin T-402 Open Area: Remove the loose dust from the ground level area surrounding Bin T-402.

2.2 Bin T-403 Open Area: Dispose of the loose dust from the area surrounding Bin T-403.

2.3 Bin T-403/DC-483 Tuck Loadout Area: Clean the loose dust off of the top of the bin, stairs, loadout platform, discharge conveyor, and the loose dust at the ground level near or below the bucket elevator, discharge conveyor, and the truck loading concrete pad.

2.4 Kiln Discharge Conveyors: Remove the loose dust off and below the rotary kilns' discharge conveyor structures and catwalks.

3 Vertical Kiln #3 Areas

3.1 Stone Reclaim Area: Clean up the loose dust on the stone reclaim tunnel, and on and below the stone conveyor structure.

3.2 Stone Bin Area: Remove the loose dust from the top of the stone bin, screen structure, bin discharge platform equipment, and the surrounding ground level area.

3.3 Kiln Discharge Area: Clean the loose dust off the discharge feeders, product conveyor structure, and the surrounding concrete pad.

3.4 Product Crushing Area: Remove the loose dust off the crusher equipment and platform level, and off the ground level around and below the bucket elevator and crusher.

3.5 Rail Loadout Belt Area: Clean off the loose dust on and below the rail loadout conveyor belt structure.

3.6 Rail Loading Area: Clean up the loose dust from the rail loadout platform structure and surrounding area.

3.7 Truck Loadout Belt Area: Clean off the loose dust on and below the truck loadout conveyor structure.

3.8 Truck Loading Area: Clean the loose dust off the truck loading platform structure, stairs, and the surrounding ground level area.

3.9 Local Control Room Area: Remove the loose dust from the ground level areas surrounding the local kiln control room.

3.10 Top of Storage Bins: Remove the loose dust from the top elevator platform structure, lime screen structure, top surface of the #6 lime storage bins, and the related catwalks.

3.11 Kiln Levels: Clean up the loose dust off the floors, catwalks, stairs, and related equipment, on each level of #3 vertical kiln.

4 Crushing and Screening Plant Areas

4.1 Area Below Apron feeder: Clean the loose dust off the apron feeder structure and off the concrete floor below.

4.2 Jaw Crusher Area: Clean up the loose dust off the jaw crusher, the upper catwalk and control room, on and below the jaw crusher discharge conveyor belt, and the surrounding ground level floor.

4.3 Cone Crusher Area: Remove the loose dust on and below the cone crusher feed conveyor structure, the cone crusher, the associated catwalk, and the ground level concrete floor.

4.4 Primary Screen Area: Clean the loose dust off the primary screen structure, including the catwalk and ladder, and lower ground level areas.

4.5 Area Below Kiln #3 Belts: remove the loose dust on and below the two kiln #6 stone feed conveyor belt structures.

4.6 Area Below Second -2" Belt: Remove the loose dust on and below the two conveyor belt structures, and associated catwalks and platforms. Also clean the loose dust off the dust collector structures, and the lower dust collector discharge equipment and concrete floor.

4.7 Secondary Screening Area: Clean the loose dust off the secondary screens and associated platforms and catwalks. Also remove the surrounding ground level loose dust below the secondary screens.

4.8 Area Below the #1 Feed Conveyor: Remove the loose dust on and below the #1 feed conveyor structure.

4.9 Area Below #2 Feed Conveyor: Remove the loose dust on and below the #2 feed conveyor structure.

4.10 Areas Below Flux Conveyors: Remove the loose dust on and below the flux conveyor structures.

4.11 Area Below Chat Conveyor: remove the loose dust on and below the Chat Conveyor structures.

Table D-1. Daily Housekeeping Inspection and Activity Report - Rotary Kiln Areas

Date:
I=Inspected C = Cleaned

Areas	I/C	Initials	Comments
1.1 Kiln #1 Dust Collector Area			
1.2 Kiln #1 Pier Area			
1.3 Kiln #1 Preheater Area			
1.4 Kiln #1 Main Blower Area			
1.5 Kiln #1 Cooler Area			
1.6 Kiln #1 Dust Bin Area			
1.7 Kiln #2 Dust Collector Area			
1.8 Kiln #2 Pier Area			
1.9 Kiln #2 Dust Chamber Area			
1.10 Kiln #2 ID Fan Area			
1.11 Kiln #2 Cooler Area			
1.12 Kiln #2 Dust Bin Area			
1.13 Kiln #2 Stone Feed Areas			
1.14 #1 and #2 Coal Ring Dump Areas			
1.15 #1 and #2 Coal Mill Areas			
1.16 #1 and #2 Firedeck Areas			
1.17 #2 Air Compressor Area			
Other :			

Table. D-2. Daily Housekeeping Inspection and Activity Report – Rotary Kiln Lime Storage Areas

Date:
I=Inspected C = Cleaned

Areas	I/C	Initials	Comments
2.1 Bin T-402 Open Area			
2.2 Bin T-403 Open Area			
2.3 Bin T-403/C-483 Truck Load out Area			
2.4 Kiln Discharge Conveyors			
Other :			

Comments:

N/A: Equipment and/or Process was not active during inspection.
O/S: Equipment and/or Process has not been reactivated as part of Douglas operation.

Table. D-3. Daily Housekeeping Inspection and Activity Report – Vertical Kiln #3 Areas

Date:
I=Inspected C = Cleaned

Areas	I/C	Initials	Comments
3.1 Stone Reclaim Area			
3.2 Stone Bin Area			
3.3 Kiln Discharge Area			
3.4 Product Crushing Area			
3.5 Rail Load out Belt Area			
3.6 Rail Loading Area			
3.7 Truck Load out Belt Area			
3.8 Truck Loading Area			
3.9 Local Control Room Area			
3.10 Tops of Storage Bins			
3.11 Kiln Levels			
Other :			

Comments:

N/A: Equipment and/or Process was not active during inspection.
O/S: Equipment and/or Process has not been reactivated as part of Douglas operation.

Table D-4. Daily Housekeeping Inspection and Activity Report – Crushing and Screening Plant Areas

Date:
I=Inspected C = Cleaned

Areas	I/C	Initials	Comments
4.1 Area Below Apron Feeder			
4.2 Jaw Crusher Pit Area			
4.3 Cone Crusher Area			
4.4 Primary Screen Area			
4.5 Area Below Kiln #6 Belts			
4.6 Area Below Second - 2" Belt			
4.7 Secondary Screening Area			
4.8 Area Below #1 Feed Conveyor			
4.9 Area Below #2 Feed Conveyor			
4.10 Area Below Flux Conveyors			
4.11 Area Below Chat Conveyor			
Other :			

Comments:

N/A: Equipment and/or Process was not active during inspection.
O/S: Equipment and/or Process has not been reactivated as part of Douglas operation.

Table D-5. Supervisor's Weekly Housekeeping Report – Rotary Kilns and Lime Storage Areas

Week Beginning:

Day	Activities
Monday	Initial:
Tuesday	Initial:
Wednesday	Initial:
Thursday	Initial:
Friday	Initial:
Saturday	Initial:
Sunday	Initial:

Supervisor's Signature:

Table D-6. Supervisor's Weekly Housekeeping Report – Vertical Kiln #3 and Lime Storage Areas

Week Beginning:

Day	Activities
Monday	Initial:
Tuesday	Initial:
Wednesday	Initial:
Thursday	Initial:
Friday	Initial:
Saturday	Initial:
Sunday	Initial:

Supervisor's Signature:

Table D-7. Supervisor's Weekly Housekeeping Report – Crushing and Screening Plant Areas

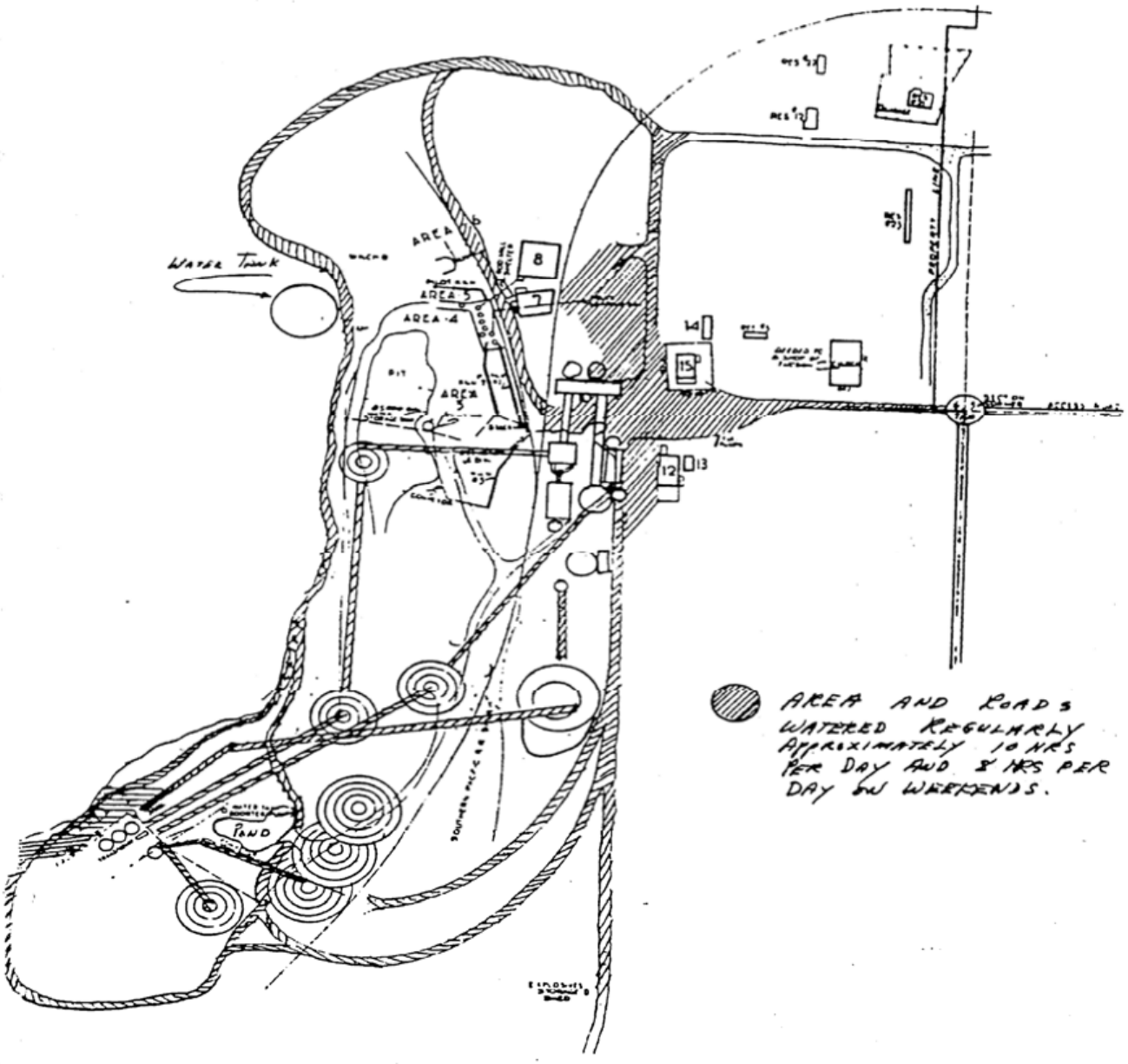
Week Beginning:

Day	Activities
Monday	Initial:
Tuesday	Initial:
Wednesday	Initial:
Thursday	Initial:
Friday	Initial:
Saturday	Initial:
Sunday	Initial:

Supervisor's Signature:

Figure D-1 Plant Fugitive Dust Areas

Figure 6.1



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12.1.1 CAM Plan for KILN 1 Gravel Bed Filter

1. Primary Indicators

The primary indicators of the gravel bed filter performance shall be as follows:

a. COMS Opacity Readings;

b. Control device maintenance procedure as described in Section 2.b below.

2. Monitoring, Reporting, and Recordkeeping Requirements

a. COMS Requirements

i. A COMS shall be used to monitor opacity. The COMS shall be installed and operated in accordance with the requirements of 40 CFR 60, Appendix B, Performance Specification 1 and Appendix 9 of the Arizona Administrative Code Title 18, Chapter 2. The span of the system shall be set at 70% opacity.

ii. Calibrate the COMS in accordance with the manufacturer's instructions on an annual basis.

iii. Using COMS data, calculate block 1-hour average opacities comprised of individual six minute averages excluding periods of startup, shutdown, and malfunction.

iv. Maintain a record of calibration and maintenance of the monitoring systems in accordance with recordkeeping requirements in Section XIII of Attachment "A" of the Permit.

b. Maintenance Procedure Requirements

Visually inspect the gravel bed filter for deterioration on a monthly basis, only during months when Kiln 1 has been operating, in accordance with the procedures below. The results of the visual inspections shall be recorded.

Maintenance procedure of the gravel bed filter shall include:

i. Inspection of the level of "pea gravel" in the bed of each of the ten modules;

ii. Inspection of the tipping gates under each module;

iii. Inspection of pneumatic isolating valves and lines;

iv. Inspection of the external drive system for the media rake;

v. Inspection of proper cycling of each module;

vi. Inspection of poppet valves, hopper discharge gates, and the module rakes and screen sections;

vii. The Permittee shall record the various components of the system that have been inspected.

viii. Inspection of the media rake itself shall be completed at least once per year while the Kiln is not in operation.

3. Excursion Determination

a. An excursion is defined as:

i. Block 1-hour average opacities of 15% or greater. For any such excursion event, a mandatory investigation shall be initiated within 30 minutes, including inspection of the gravel bed filter in accordance with maintenance procedures described in Section 2.b above. Maintain records of the investigation conducted with details of any corrective action taken.

ii. Failure to perform monthly maintenance procedure on the gravel bed filter during months that Kiln 1 has operated.

b. If an excursion is detected, then an investigation of the gravel bed filter shall be initiated within 24 hours of the first discovery of the excursion incident and take corrective action as soon as practicable to adjust or repair the gravel bed filter to minimize possible exceedances of the following particulate matter standards:

$E = 4.10\ P^{0.67}$ when P is less than or equal to 30 tons per hour;
or

$E = 55.0\ P^{0.11} - 40$ when P is greater than 30 tons per hour

where:

E = the maximum allowable particulate emissions in pounds-mass per hour from Kilns 1 and 2 stacks combined, and

P = the process weight rate in tons-mass per hour.

c. In the case of any excursion incident, the record shall include an identification of the date and time of the excursion, its cause, and an explanation of the corrective actions taken, if any.

12.1.2 CAM Plan for KILN 2 Baghouse

1. Primary Indicators

   The primary indicators of the baghouse performance shall be as follows:

   a. COMS Opacity Readings;

   b. Control device maintenance procedure as described in Section 2.b below.

2. Monitoring, Reporting, and Recordkeeping Requirements

   a. COMS Requirements

      i. A COMS shall be used to monitor opacity. The COMS shall be installed and operated in accordance with the requirements of 40 CFR 60, Appendix B, Performance Specification 1 and Appendix 9 of the Arizona Administrative Code Title 18, Chapter 2. The span of the system shall be set at 70% opacity.

      ii. Calibrate the COMS in accordance with the manufacturer's instructions on an annual basis.

      iii. Using COMS data, calculate block 1-hour average opacities comprised of individual six minute averages excluding periods of startup, shutdown, and malfunction.

      iv. Maintain a record of calibration and maintenance of the monitoring systems in accordance with recordkeeping requirements in Section XIII of Attachment "A" of the Permit.

   b. Maintenance Procedure Requirements

      The Permittee shall conduct a control device maintenance procedure that includes an internal inspection of the baghouse including bag sampling in accordance with procedures described below, to be performed during a scheduled major outage, at least once per year. The results of the inspections shall be recorded on a log book using indelible ink.

      i. Monitoring of the Baghouse shall include:

         (a) Verification of the pulse timing sequence for the baghouse.

      ii. Maintenance Procedure of the Baghouse Shall Include:

         (a) Inspection of baghouse cleaning system and fan;

         (b) Internal inspection of the baghouse components including bags, hoppers, and shell;

         (c) The Permittee shall record the various components of the system that

have been inspected.

iii. Sampling and analysis of representative bag samples.

The analysis of representative bag samples shall be used as a factor in determining when bag replacement is scheduled. Any known broken bags shall be replaced or capped off until they can be replaced. Compartments with one or more broken bags shall be isolated until the broken bags can be replaced or capped off.

3. Excursion Determination

a. An excursion is defined as:

i. Block 1-hour average opacities of 10% or greater. For any such excursion event, a mandatory investigation shall be initiated within 30 minutes, including inspection of the clean side of each baghouse compartment for signs of dusting. If dusting is observed, maintenance activities should be performed

expeditiously. Maintain records of the investigation conducted with details of any corrective action taken.

ii. Failure to perform the sampling and analysis of representative bag samples at least once per year in accordance with the procedures described above in Section 2.b.iii.

iii. Failure to perform a baghouse inspection in accordance with the procedures described above in Sections 2.b.i and 2.b.ii.

b. If an excursion is detected, then an investigation of the baghouse shall be initiated within 24 hours of the first discovery of the excursion incident and take corrective action as soon as practicable to adjust or repair the baghouse to minimize possible exceedances of the following particulate matter standards:

$E = 4.10\ P^{0.67}$ when P is less than or equal to 30 tons per hour; or

$E = 55.0\ P^{0.11} - 40$ when P is greater than 30 tons per hour

where:

E = the maximum allowable particulate emissions in pounds-mass per hour from Kilns 1 and 2 stacks combined, and

P = the process weight rate in tons-mass per hour.

c. In the case of any excursion incident, the record shall include an identification of the date and time of the excursion, its cause, and an explanation of the corrective actions taken, if any.

12.1.3 CAM Plan for KILN 3 Wet Scrubber

1. Primary Indicators

   The primary indicators of the wet scrubber performance shall be as follows:

   a. Wet scrubber differential pressure;

   b. Wet scrubber water flow rate;

   c. Control device maintenance procedure as described in Section 2 below.

2. Monitoring, Reporting, and Recordkeeping Requirements

   a. Wet Scrubber Monitoring Shall Include:

      i. Recording of differential pressure across the wet scrubber on a continuous basis using an electronic pressure transmitter;

      ii. Recording of water flow rate through the scrubber using a certified flow meter at least 4 times per hour.

   b. Maintenance Procedure Requirements

      Visually inspect the wet scrubber for deterioration on a monthly basis, only during months when Kiln 3 has been operating, in accordance with the procedures below. The results of the visual inspections shall be recorded.

      Maintenance procedure of the wet scrubber shall include:

      i. Inspection of the water nozzles (look for plugging from debris);

      ii. Inspection of the motor and drive belts for the fan;

      iii. Inspection of the slurry path;

      iv. Inspection of the screen section at the stack;

      v. Record the various components of the system that have been inspected.

3. Excursion Determination

   a. An excursion is defined as:

      i. Any 1-hour block average differential pressure measurement across the wet scrubber which is either greater than 5" H2O or less than 3" H2O.

      ii. Any water flow rate across the wet scrubber which is less than 90 gallons per minute;

      iii. Failure to perform monthly inspection on the wet scrubber.

   b. If an excursion is detected, then an investigation of the wet scrubber shall be initiated within

24 hours of the first discovery of the excursion incident and take corrective action as soon as practicable to adjust or repair the wet scrubber to minimize possible exceedances of the following particulate matter standards:

$E = 4.10\ P^{0.67}$ when P is less than or equal to 30 tons per hour; or

$E = 55.0\ P^{0.11} - 40$ when P is greater than 30 tons per hour

where:

E = the maximum allowable particulate emissions in pounds-mass per hour from Kilns 1 and 2 stacks combined, and

P = the process weight rate in tons-mass per hour.

c. In the case of any excursion incident, the record shall include an identification of the date and time of the excursion, its cause, and an explanation of the corrective actions taken, if any.