

**TECHNICAL REVIEW AND EVALUATION  
OF APPLICATION FOR  
AIR QUALITY PERMIT No. 85424**

**I. INTRODUCTION**

This Class I air quality permit is for the continued operation of CalPortland Company's Portland cement plant, including quarry and Twin Peak rock crushing and screening plant. The facility is located at 11115 N. Casa Grande Highway, Rillito, Pima County, Arizona. Permit No. 85424 renews and supersedes Permit No. 61522.

**A. Company Information**

Facility Name: CALPORTLAND - RILLITO CEMENT PLANT

Mailing Address: P.O. Box 338  
Rillito, AZ 85654

Facility Location: 11115 N. Casa Grande Highway  
Rillito, Pima County, Arizona 85654

**B. Attainment Classification**

The facility is located in an area that is classified as nonattainment with respect to particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM<sub>10</sub>) and is either classified attainment or unclassifiable with respect to all remaining criteria pollutants.

**II. PROCESS DESCRIPTION**

**A. Process Equipment**

The Rillito Cement Plant is comprised of a limestone quarry, a portland cement manufacturing plant, and the Twin Peaks Rock and Stone Aggregate Plant, in addition to other supporting operations. Rillito Cement plants produces portland cement as the primary product, with aggregate as a secondary product. The nominal design rate for kiln 4 is 207 tons of clinker per hour (tph) and for the Rillito facility (all four kilns combined) is 264 tph. The facility operates continuously for 24 hours per day and 365 days per year.

**1. Quarry/Mining Operations**

An open pit quarry is mined for limestone, shale, and dolomite for use in cement production. Operations at the quarry include drilling, blasting, truck loading, truck hauling, and truck unloading. Kiln grade material is hauled to the quarry crusher area for size reduction. Overburden/waste rock, unsuitable for use in cement manufacturing, is hauled to the waste rock/overburden storage area adjacent to the quarry. A portion of this material is processed at the Twin Peaks Rock and Stone Aggregate Plant which produce aggregate for sale in the local markets.

2. Primary Crushing/Screening and Overland Conveying Operations

Haul trucks rear-dump limestone from the quarry into the truck dump hopper at the Quarry Crusher Building. Rock is fed to a vibrating grizzly where oversize rock is sent to an impact crusher. Undersize rock from the vibrating grizzly along with the rock processed by the impact crusher is transported via the belt conveyor to the Screen Building for sizing by the primary screen. The undersize rock from the primary screen is then conveyed to the Surge Storage Building while oversize rock is returned to the impact crusher for further processing. From the Surge Storage Building, limestone is transported to the cement plant by an overland conveyor. The overland conveyor system is also used to convey various additives stored at the quarry to various locations at the cement plant.

3. Raw Material Transport/Storage and Reclaim

Material transported from the quarry by the overland conveyor is stored at the cement plant in either the Stacker/Reclaim Building or the Rock Storage Building. Material stored in the Stacker/Reclaim Building is transported to two 250-ton surge bins prior to being introduced to the Roller Mill. Material stored in the Rock Storage Building is processed by the 4 AC mills.

Various additives (iron oxide, alumina, silica etc.) are combined with limestone to produce raw cement mix. At the quarry, the additives are introduced into the process through a mixing process at the quarry face. At the cement plant, additives are introduced into the process through the raw mill system via four additive bins at the roller mill and two Feed Hoppers at the AC Mills.

4. Raw Materials Milling

Limestone and additives are mixed in desired quantities and are processed by the roller mill and 4 AC mills to produce raw mix for the kilns. The raw materials processed by the roller mill are dried using either the exhaust gas from the Kiln 4 preheater/precalciner or a natural gas heater. The raw materials processed by the AC mills are dried using natural gas heaters.

5. Kiln Feed Processes

Feed for Kilns 1, 2 and 3 – The raw mix from the 4 AC mills and some of the raw mix from the roller mill is stored in 12 proportioning silos. The raw mix is subsequently transferred to 6 kiln feed silos followed by the 3 kiln feed bins for delivery to Kilns 1, 2 and 3.

Feed for Kiln 4- The raw mix from the roller mill is delivered to a homogenizing silo. From the homogenizing silo, it is delivered to either 2 kiln feed storage silos for conveying to Kiln 4 or 12 proportioning silos for eventual processing by Kilns 1-3.

F2 Dust bin- The particulate matter emissions from Kiln 4 are controlled by the H5-GB baghouse. The collected kiln dust is stored in the H5 dust bin before being

recycled back to the kiln using the kiln dust processing system consisting of a 300 ton dust bin and associated transfer system. When the D4 mill is operating, the dust processing system feeds to the homogenizing silo where it is blended with raw mix. When the D4 mill is not operating, the kiln dust is stored in the 300 ton dust bin until the D4 mill commences operating again.

6. Kiln Systems

The facility currently includes three long rotary kilns (Kilns 1-3), installed in 1949, 1952, and 1955, and a preheater/precalciner kiln (Kiln 4) constructed in 1971. All four kiln systems include associated coolers and conveying systems used to transport the produced clinker to the Clinker Storage Building. The kilns are capable of using a variety of fuels, including solid fuels (coal, coke), fuel oils (diesel, No.2 fuel oil and bunker C oil) and natural gas. Kiln 4 is also designed to use, and has historically utilized, supplemental fuels such as on-spec used oil, jet fuel, shredded tires, wood chips, and/or pecan shells.

Note that if CalPortland decides to reactivate Kilns 1-3, the applicability of preconstruction permitting programs and other requirements under the federal Clean Air Act for these units must be evaluated prior to the reactivation.

7. Finish Mill Grinding

Cement is produced by milling a mixture of approximately 90-95% clinker, 5% gypsum, and up to 5% limestone. Finish milling commences with the reclaim and conveying of clinker, gypsum, and limestone from Clinker Storage Building to either: (a) storage bins associated with the D2 finish mill; or (b) hoppers that feed the seven CM finish mills and the D3 finish mill. The finish mills grind the clinker and the added materials into a powder product.

8. Cement Transport, Storage, and Shipment

Finished cement product is pneumatically conveyed from the finish mills to the cement storage silos. Cement shipping is conducted in bulk (via trucks or railcars) or by sacks. If sacks are used, they are filled and prepared for shipment in the Cement Packhouse.

**B. Control Devices**

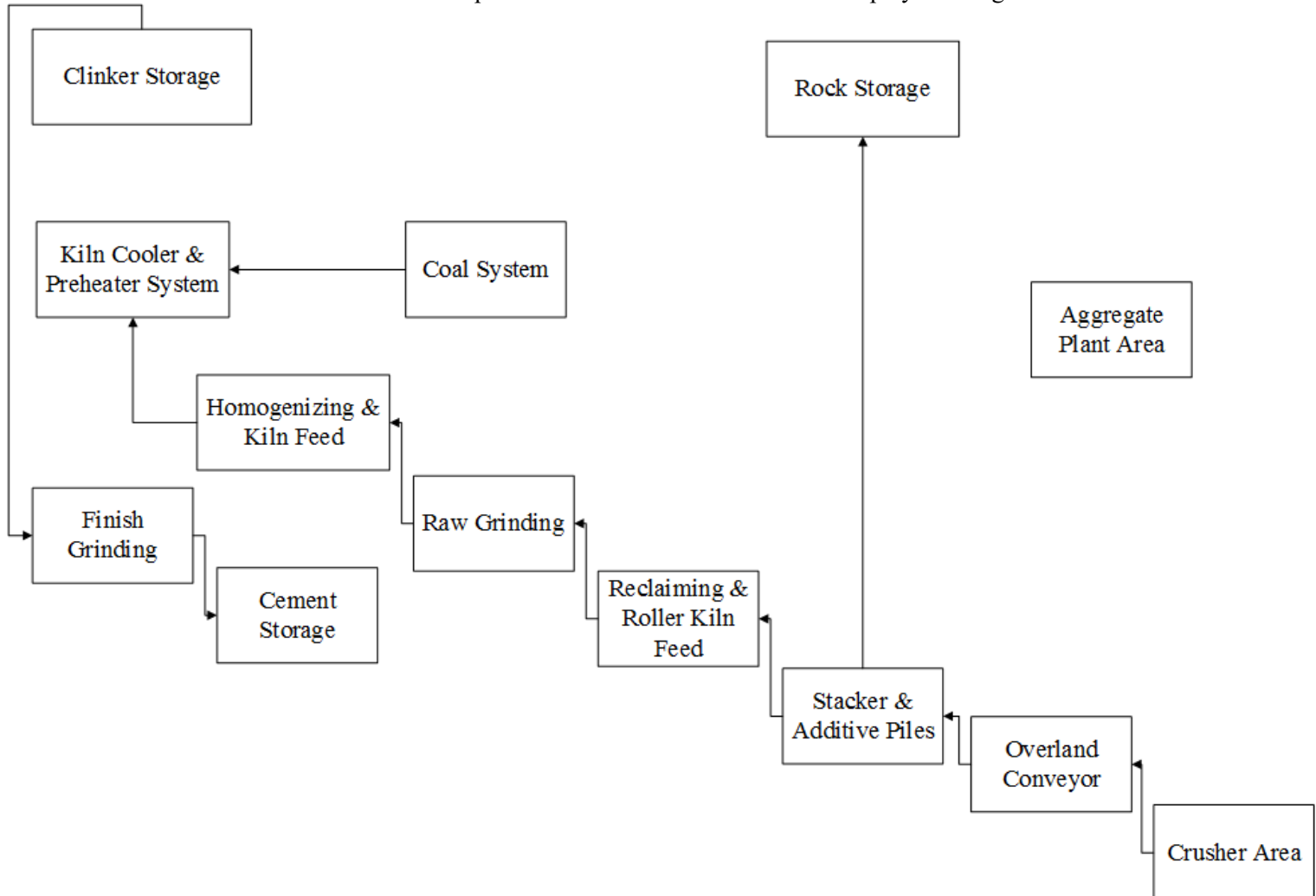
The Kiln, Raw Mill, Coal Mill, Finish Mill and other associated processes within the system generate PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>2</sub>, CO and THC emissions. In addition, this process also generates emissions of Mercury, HCl, and dioxins/furans.

The emissions from the Kiln and the Pre-Heater system are controlled by combustion and post-combustion controls. These controls include the kiln burner and pre-calciner designs that control and reduce the amount of air pollution emitted. The kiln/pre-heater system are equipped with low NO<sub>x</sub> calciner technologies. In addition, NO<sub>x</sub> emissions are further controlled by the use of a Selective Non-Catalytic Reduction (SNCR) system on Kiln 4. The Kiln 4 baghouse is equipped with a lime injection system to control HCl emissions.

The emissions from the kiln/raw mill, coal mill and clinker cooler are controlled by baghouses. Emissions from the finish mill, various silos and conveyor transfer points are controlled by dust collectors. Fugitive emissions from haul truck and loader travel on unpaved roads within the quarry are controlled by watering the roads.

### C. Process Flow Diagram

A flow chart for the process described in Section II.A is displayed in Figure 1 below.



**Figure 1 - Flow Chart Adapted from the CalPortland - Rillito Cement Plant Renewal Application**

### III. LEARNING SITE EVALUATION

This permit renewal will not result in any increase in emissions as there are no changes to any equipment. Hence the facility is exempt from the learning sites evaluations.

#### **IV. COMPLIANCE HISTORY**

##### **A. Facility Inspections.**

The Rillito Cement Plant was inspected six (6) times during the last permit term. The dates of inspection were May 11, 2016, August 2, 2017, November 14, 2018, September 18, 2019, August 7, 2020, and October 21, 2020. The inspections did not result in any violations of the permit Report Reviews.

During the last permit term, the facility submitted nine (9) semiannual compliance certifications to the Arizona Department of Environmental Quality (ADEQ) certifying compliance with the permit. In addition, the facility has submitted eleven (11) reports, this includes four (4) reports detailing the availability of the certified gases required for calibrations of Continuous Emission Monitors (CEMs); four (4) cylinder gas audit report for Kiln 4 CEMS (H5-GB); two (2) semiannual reports for the Selective Non-Catalytic Reduction (SNCR) system; and one (1) Periodic Startup, Shutdown and Malfunction Report. The report reviews did not document any violations of the permit.

##### **B. Excess Emissions and Permit Deviation Reports**

###### **1. Excess Emissions**

During the permit term, the facility has submitted thirteen (13) excess emission reports. All of the excess emission reports submitted during this compliance period were associated with exceedances of the opacity limits in the permit.

- a. Reports in relation to exceedances during material transfer were submitted by the facility on September 1, 2017, March 2, 2018, June 22, 2018, and October 1, 2018.
- b. Reports in relation to exceedances associated with the dampers were submitted by the facility on December 15, 2016 and September 19, 2019.
- c. Reports in relation to exceedances associated with mill activities were submitted on July 31, 2018 and August 4, 2020.
- d. Reports in relation to exceedances associated with the baghouses or dust collectors were submitted on October 18, 2018 and October 23, 2020.
- e. A report in relation to exceedances associated with excess opacity in an open area of the plant was submitted on June 17, 2020.

The facility took the proper corrective actions or preventative measures and no deficiencies were noted in the reports mentioned above.

On July 22, 2020, the facility submitted a report for the PM CPMS exceeding the 30-day rolling average mA range established during the performance test for the H2-GB Stack (clinker cooler stack). The facility conducted a performance test as

required by NESHAP Subpart LLL to re-establish the CPMS limit for the H2-GB Stack. No deficiencies were noted in the report.

On November 17, 2020 the facility submitted a report related to the discharge/trash chute of the Kiln 4 preheater tower on. A suspended thimble collapsed from the roof of process cyclone 2A, resulting in a plug in the cyclone. The feed was not able to exit and the cyclone was filled with hot feed. After emptying the cyclone, dust was generated and this resulted in the excess emissions (greater than 20% opacity). The facility updated their replacement schedule to replace cyclone thimbles one year earlier than the replacement schedule. No deficiencies were noted in the report.

The reviews of the excess emissions reports submitted did not result in any violations of the permit.

## 2. Permit Deviations

During the permit term, the facility has submitted three (3) permit deviations reports. On October 12, 2016, the facility reported a deviation from the permit requirement to perform daily Method 22 visible emissions observations (VEOs) at the Quarry and Twin Peaks Rock and Stone aggregate plant when there is activity at these sites. The facility provided training to employees and the daily VEOs were resumed. On October 4, 2018, the facility reported that the HCl CEMS missed CGA testing for the 3rd quarter. The facility implemented a tracking system to ensure that the CEMS quality assurance procedures were not missed. No further action resulted from these permit deviation reports.

On November 8, 2018 CalPortland reported a deviation because the weekly integrity check of the mercury (Hg) continuous emission monitoring system (CEMS) had been turned off in error, resulting in five missed weekly integrity check events. This report resulted in Case 179201 below.

## C. Informal Enforcement

### Case No. 179201

A Notice of Opportunity to Correct (NOC) was issued to Rillito Cement Plant on November 14, 2018 based on a permit deviation report submitted on November 8, 2018. The weekly integrity check for the Kiln 4 mercury (Hg) CEMS was not conducted for five (5) weeks beginning October 2, 2018 through November 6, 2018. The facility staff had turned off the weekly integrity check to avoid interference during the 2018 RATA. The operator did not turn the weekly integrity check back on which resulted in the missed event.

The facility submitted a response to the Department on November 19, 2018. The information provided by the facility was sufficient and the compliance conditions had been met. The case was closed on November 20, 2018.

## D. Performance Tests

The facility has conducted thirteen (13) performance tests during the permit term. There were four (4) tests performed on the low grade limestone storage pile, high grade limestone storage pile, raw mill hopper, raw mill reject bin using EPA Method 9. There was one (1) test performed on various dust collectors, using EPA Methods 1, 2, 4, 5, 9. Additionally, there were five (5) tests performed on the Kiln 4 baghouse (H5-GB), two (2) of which included the Clinker Cooler baghouse (H2-GB). These performance tests were done using EPA Methods 1, 2, 3, 3A, 4, 5, 6C, 23 and PS-6 when applicable. The results to the performance tests conducted during the permit term are presented in Table 1 below.

In addition, the facility also performed fifteen (15) Relative Accuracy Test Audits (RATA) and six (6) Cylinder Gas Audits (CGA) for quality assurance. All of the tests conducted resulted in passing results. No reporting deficiencies were noted in the reports.

**Table 1: Performance Test Results**

| Date of Test            | Emission Unit                     | Pollutant       | Limit         | Results of Performance Test |
|-------------------------|-----------------------------------|-----------------|---------------|-----------------------------|
| 08/23/2016 - 08/25/2016 | Kiln 4                            | PM              | 0.008 gr/dscf | PASS<br>0.00541 gr/dscf     |
|                         | Kiln 4                            | SO <sub>2</sub> | 6.0 lb/ton    | PASS<br>0.0059 lb/ton       |
|                         | Kiln 4 Cooler                     | PM              | 0.1 lb/ton    | PASS<br>0.0056 lb/ton       |
|                         | Kiln 4 Mill UP                    | PM              | 0.0525 lb/ton | PASS<br>0.0386 lb/ton       |
|                         | Kiln 4 Mill Down                  | PM              | 0.0525 lb/ton | PASS<br>0.0382 lb/ton       |
| 10/10/2016              | Low Grade Limestone Storage Pile  | Opacity         | 20%           | PASS<br>3%                  |
|                         | High Grade Limestone Storage Pile | Opacity         | 20%           | PASS<br>2%                  |
|                         | Raw Mill Hopper                   | Opacity         | 20%           | PASS<br>4%                  |
|                         | Raw Mill Reject Bin               | Opacity         | 20%           | PASS<br>20%                 |
| 09/26/2017 – 09/28/2017 | Kiln 4 Mill UP                    | PM              | 0.0525 lb/ton | PASS<br>0.0031 lb/ton       |
|                         | Kiln 4 Mill Down                  | PM              | 0.0525 lb/ton | PASS<br>0.0029 lb/ton       |

**Table 1: Performance Test Results**

| <b>Date of Test</b>     | <b>Emission Unit</b>              | <b>Pollutant</b> | <b>Limit</b>                    | <b>Results of Performance Test</b>        |
|-------------------------|-----------------------------------|------------------|---------------------------------|-------------------------------------------|
|                         | Kiln 4 Cooler                     | PM               | 0.0525 lb/ton                   | PASS<br>0.0116 lb/ton                     |
|                         | Kiln 4                            | PM               | 0.008 gr/dscf                   | PASS<br>0.00027 gr/dscf                   |
|                         | Kiln 4                            | PM               | 0.30 lb/ton feed                | PASS<br>0.0017 lb/ton feed                |
| 9/28/2017               | Low Grade Limestone Storage Pile  | Opacity          | 20%                             | PASS<br>4.38%                             |
|                         | High Grade Limestone Storage Pile | Opacity          | 20%                             | PASS<br>3.96%                             |
|                         | Raw Mill Hopper                   | Opacity          | 10%                             | PASS<br>3.96%                             |
|                         | Raw Mill Reject Bin               | Opacity          | 20%                             | PASS<br>8.13%                             |
| 10/18/2017 – 10/20/2017 | Kiln 4 Raw Mill ON                | Dioxins/Furans   | 0.20 ng/dscm @7% O <sub>2</sub> | PASS<br>0.0001 ng/dscm @7% O <sub>2</sub> |
|                         | Kiln 4 Raw Mill OFF               | Dioxins/Furans   | 0.20 ng/dscm @7% O <sub>2</sub> | PASS<br>0.0029 ng/dscm @7% O <sub>2</sub> |
| 08/21/2018 – 08/22/2018 | Low Grade Limestone Storage Pile  | Opacity          | 20%                             | PASS<br>3%                                |
|                         | High Grade Limestone Storage Pile | Opacity          | 20%                             | PASS<br>2%                                |
|                         | Raw Mill Hopper                   | Opacity          | 10%                             | PASS<br>5%                                |
|                         | Raw Mill Reject Bin               | Opacity          | 20%                             | PASS<br>8%                                |
| 08/20/2020 – 08/22/2018 | Kiln 4 Mill UP                    | PM               | 0.0525 lb/ton                   | PASS<br>0.0035 lb/ton                     |

**Table 1: Performance Test Results**

| <b>Date of Test</b>        | <b>Emission Unit</b> | <b>Pollutant</b>  | <b>Limit</b>             | <b>Results of Performance Test</b> |
|----------------------------|----------------------|-------------------|--------------------------|------------------------------------|
|                            | Kiln 4 Mill Down     | PM                | 0.0525 lb/ton            | PASS<br>0.0029 lb/ton              |
|                            | Kiln 4 Cooler        | PM                | 0.10 lb/ton feed         | PASS<br>0.0077 lb/ton feed         |
|                            | Kiln 4               | PM                | 0.008 gr/dscf            | PASS<br>0.00027 gr/dscf            |
|                            | Kiln 4               | PM                | 0.30 lb/ton feed         | PASS<br>0.0017 lb/ton feed         |
| 10/02/2018 –<br>08/04/2018 | H5-GB (Mill On)      | PM                | 0.0525 lb/ton of clinker | PASS<br>0.0034 lb/ton of clinker   |
|                            | H5-GB (Mill Off)     | PM                | 0.0525 lb/ton of clinker | PASS<br>0.0047 lb/ton of clinker   |
| 01/02/2019 –<br>01/30/2019 | B2-DC1               | PM                | 0.005 gr/dscf            | PASS<br>0.0030 gr/dscf             |
|                            |                      | Visible Emissions | 10%                      | PASS<br>0%                         |
|                            | B3-DC1               | PM                | 0.005 gr/dscf            | PASS<br>0.0044 gr/dscf             |
|                            |                      | Visible Emissions | 10%                      | PASS<br>0%                         |
|                            | B5-DC1               | PM                | 0.005 gr/dscf            | PASS<br>0.0010 gr/dscf             |
|                            |                      | Visible Emissions | 10%                      | PASS<br>0%                         |
|                            | B5-DC2               | Visible Emissions | 10%                      | PASS<br>0%                         |
|                            | B5-DC3               | Visible Emissions | 10%                      | PASS<br>0%                         |
|                            | B7-DC1               | Visible Emissions | 10%                      | PASS<br>0%                         |

**Table 1: Performance Test Results**

| <b>Date of Test</b> | <b>Emission Unit</b> | <b>Pollutant</b>  | <b>Limit</b>  | <b>Results of Performance Test</b> |
|---------------------|----------------------|-------------------|---------------|------------------------------------|
|                     | B9-DC1               | Visible Emissions | 10%           | PASS<br>0%                         |
|                     | B9-DC2               | PM                | 0.005 gr/dscf | PASS<br>0.0013 gr/dscf             |
|                     |                      | Visible Emissions | 10%           | PASS<br>0%                         |
|                     | B9-DC3               | Visible Emissions | 10%           | PASS<br>0%                         |
|                     | B9-DC5               | Visible Emissions | 10%           | PASS<br>0%                         |
|                     | C2-DC1               | PM                | 0.005 gr/dscf | PASS<br>0.0008 gr/dscf             |
|                     |                      | Visible Emissions | 10%           | PASS<br>0%                         |
|                     | H3-K4-DC1&DC2        | Visible Emissions | 10%           | PASS<br>0%                         |
|                     | C2-DC3               | PM                | 0.005 gr/dscf | PASS<br>0.0023 gr/dscf             |
|                     |                      |                   | 0.334 lb/hr   | PASS<br>0.110 lb/hr                |
|                     | D4-DC1               | PM                | 0.005 gr/dscf | PASS<br>0.0006 gr/dscf             |
|                     |                      |                   | 1.671 lb/hr   | PASS<br>0.050 lb/hr                |
|                     | D4-DC2               | PM                | 0.005 gr/dscf | PASS<br>0.0009 gr/dscf             |
|                     |                      |                   | 0.668 lb/hr   | PASS<br>0.040 lb/hr                |
|                     | F2-DC1               | PM                | 0.005 gr/dscf | PASS<br>0.0011 gr/dscf             |
|                     | H2-DC2               | PM                | 0.005 gr/dscf | PASS<br>0.0001 gr/dscf             |

**Table 1: Performance Test Results**

| <b>Date of Test</b> | <b>Emission Unit</b> | <b>Pollutant</b> | <b>Limit</b>  | <b>Results of Performance Test</b> |
|---------------------|----------------------|------------------|---------------|------------------------------------|
|                     |                      |                  | 0.01 lb/hr    | PASS<br>0.0095 lb/hr               |
|                     | C2-DC2               | PM               | 0.005 gr/dscf | PASS<br>0.0026 gr/dscf             |
|                     | C2-DC4               | PM               | 0.005 gr/dscf | PASS<br>0.0047 gr/dscf             |
|                     | C2-DC5               | PM               | 0.005 gr/dscf | PASS<br>0.0025 gr/dscf             |
|                     | C2-DC6               | PM               | 0.005 gr/dscf | PASS<br>0.0024 gr/dscf             |
|                     | C2-DC7               | PM               | 0.005 gr/dscf | PASS<br>0.0014 gr/dscf             |
|                     | C2-DC8               | PM               | 0.005 gr/dscf | PASS<br>0.0017 gr/dscf             |
|                     | C2-DC9               | PM               | 0.005 gr/dscf | PASS<br>0.0014 gr/dscf             |
|                     | C2-DC10              | PM               | 0.005 gr/dscf | PASS<br>0.0030 gr/dscf             |
|                     | C2-DC11              | PM               | 0.005 gr/dscf | PASS<br>0.0015 gr/dscf             |
|                     | C2-DC12              | PM               | 0.005 gr/dscf | PASS<br>0.0032 gr/dscf             |
|                     | C2-DC13              | PM               | 0.005 gr/dscf | PASS<br>0.0020 gr/dscf             |
|                     | D2-DC1               | PM               | 0.005 gr/dscf | PASS<br>0.0011 gr/dscf             |
|                     | D2-DC3               | PM               | 0.005 gr/dscf | PASS<br>0.0046 gr/dscf             |
|                     | D2-DC4               | PM               | 0.005 gr/dscf | PASS<br>0.0008 gr/dscf             |
|                     |                      |                  | 0.166 lb/hr   | PASS<br>0.012 lb/hr                |

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| <b>Date of Test</b>        | <b>Emission Unit</b> | <b>Pollutant</b> | <b>Limit</b>                            | <b>Results of Performance Test</b>        |
|----------------------------|----------------------|------------------|-----------------------------------------|-------------------------------------------|
|                            | D2-1-DC1             | PM               | 0.005 gr/dscf                           | PASS<br>0.0008 gr/dscf                    |
|                            | D2-DC5               | PM               | 0.005 gr/dscf                           | PASS<br>0.0009 gr/dscf                    |
|                            | D2-DC6               | PM               | 0.005 gr/dscf                           | PASS<br>0.0013 gr/dscf                    |
|                            | D2-DC7               | PM               | 0.005 gr/dscf                           | PASS<br>0.0009 gr/dscf                    |
|                            | CM-DC17              | PM               | 0.005 gr/dscf                           | PASS<br>0.0011 gr/dscf                    |
|                            |                      |                  | 0.497 lb/hr                             | PASS<br>0.050 lb/hr                       |
| 09/24/2019 –<br>09/26/2019 | H5-GB (Mill On)      | PM               | $\leq 0.008$ gr/dscf                    | PASS<br>$\leq 0.0014$ gr/dscf             |
|                            |                      |                  | $\leq 0.07$ lb/ton of clinker           | PASS<br>$\leq 0.018$ lb/ton of clinker    |
|                            | H5-GB (Mill Off)     | PM               | $\leq 0.008$ gr/dscf                    | PASS<br>$\leq 0.0011$ gr/dscf             |
|                            |                      |                  | $\leq 0.07$ lb/ton of clinker           | PASS<br>$\leq 0.013$ lb/ton of clinker    |
|                            | H2-GB                | PM               | $\leq 0.07$ lb/ton of clinker           | PASS<br>$\leq 0.014$ lb/ton of clinker    |
| 05/26/2020 –<br>05/28/2020 | Kiln 4 Mill On       | Dioxin/Furan     | $\leq 0.20$ ng/dscm @ 7% O <sub>2</sub> | PASS<br>0.012 ng/dscm @ 7% O <sub>2</sub> |
|                            | Kiln 4 Mill Off      | Dioxin/Furan     | $\leq 0.20$ ng/dscm @ 7% O <sub>2</sub> | PASS<br>0.012 ng/dscm @ 7% O <sub>2</sub> |
| 08/18/2020 –<br>08/20/2020 | H5-GB (Mill On)      | PM               | $\leq 0.008$ gr/dscf                    | PASS<br>0.0011 gr/dscf                    |

**Table 1: Performance Test Results**

| <b>Date of Test</b>     | <b>Emission Unit</b>       | <b>Pollutant</b>  | <b>Limit</b>                  | <b>Results of Performance Test</b> |
|-------------------------|----------------------------|-------------------|-------------------------------|------------------------------------|
|                         |                            |                   | $\leq 0.07$ lb/ton of clinker | PASS<br>0.013 lb/ton of clinker    |
|                         | H5-GB (Mill Off)           | PM                | $\leq 0.008$ gr/dscf          | PASS<br>0.00082 gr/dscf            |
|                         |                            |                   | $\leq 0.07$ lb/ton of clinker | PASS<br>0.0092 lb/ton of clinker   |
|                         | H2-GB                      | PM                | $\leq 0.07$ lb/ton of clinker | PASS<br>0.013 lb/ton of clinker    |
| 09/10/2020 – 09/11/2020 | Low Grade LS Storage Pile  | Visible Emissions | 20%                           | PASS<br>2.92%                      |
|                         | High Grade LS Storage Pile | Visible Emissions | 20%                           | PASS<br>2.50                       |
|                         | Raw Mill Feed Hopper       | Visible Emissions | 10%                           | PASS<br>6.25%                      |
|                         | Raw Mill Rejects Bin       | Visible Emissions | 20%                           | PASS<br>19.40%                     |

**V. EMISSIONS**

The Rillito Cement Plant has the potential-to-emit (PTE) nitrogen oxides (NO<sub>x</sub>), particulate matter nominally less than 10 micrometers (PM<sub>10</sub>), particulate matter nominally less than 2.5 micrometers (PM<sub>2.5</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), volatile organic compounds (VOC), hazardous air pollutants (HAPs), and greenhouse gases (GHGs).

The emission rates were calculated using the maximum process rates for the facility, applicable control efficiencies, and the corresponding emission factors. Emission factors were established using voluntarily accepted emission limits; the Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition (AP-42), U.S. EPA; reference documents, source test data, and engineering estimates from the CalPortland engineering team. Since the facility is a categorical source pursuant to Arizona Administrative Code (A.A.C.) R18-2-101.23, fugitive emissions were taken into account when calculating the PTE for the facility.

**A. Quarry Operations**

The quarry operations at the facility are limited by the amount of ore that is available to be mined. The process rate for drilling of blast holes is based on the number of holes per blast and the quantity of blasts on an hourly and annual basis. The process rate for blasting is based on the maximum number of blasts that can be performed on an annual and hourly basis. The facility is capable of performing a maximum of one (1) blast per hour and anticipates a maximum of 130 blasts occurring per year.

1. Drilling

The uncontrolled PM emissions from drilling were calculated using an emission factor from AP-42, Table 11.9-4 (10/98) for total suspended particulates (TSP) from drilling of overburden at western surface coal mines. The ratio of PM<sub>10</sub> to PM emission factors for tertiary crushing in AP-42, Table 11.19.2-2 (08/04) was used to calculate the uncontrolled PM<sub>10</sub> emissions. The ratio of PM<sub>2.5</sub> to PM emission factors for tertiary crushing (controlled) in AP-42, Table 11.19.2-2 (08/04) was used to calculate the uncontrolled PM<sub>2.5</sub> emissions.

2. Blasting

The uncontrolled PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from blasting were determined using an emission factor expression from AP-42, Table 11.9-1 (10/98) for blasting at western surface coal mines. The uncontrolled CO, NO<sub>x</sub>, and SO<sub>2</sub> emissions were calculated using emission factors from AP-42, Table 13.3-1 (02/80) for the detonation of Ammonium Nitrate Fuel Oil (ANFO).

The uncontrolled HAP emissions were calculated using emission factors from AP-42, Tables 1.3-8 and 1.3-10 (05/10) for distillate fuel oil combustion. The uncontrolled CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions were calculated using the emission factors from 40 CFR 98, Tables C-1 and C- 2 for distillate fuel oil No. 2. A ratio of diesel fuel oil to ammonium nitrate and the diesel heating values were used to express the GHG and HAP emission factors in terms of lb/ton of ANFO.

**B. Crushing and Screening**

The process rates for crushing operations are based on the maximum hourly process rates of the crushers and assume continuous operation. The process rates for screening operations are based on the maximum hourly process rates of the screens and assume continuous operation (8,760 hours/year).

1. Crushers

The emissions for PM, PM<sub>10</sub>, and PM<sub>2.5</sub> from the crushing operations were calculated using the emission factors from AP-42, Table 11.19.2-2 (08/04) for tertiary crushing (controlled). These factors are used in accordance to Table 11.19.2-2 footnote “n”, which states that the tertiary crushing emission factors can be used as an upper limit for primary and secondary crushing operations. In addition, the controlled emission factors are used in accordance with Table 11.19.2-2 footnote “b” since the crushers are used in the Crushing and Screening

Plant which has a water spray system and the process material has a moisture content of at least 3.2%.

2. Screens

The PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from screening operations are calculated using the emission factors, from AP-42, Table 11.19.2-2 (08/04) for screening (controlled). Based on the methods for determining the emission factors, the facility assumed that the screening emission factors from AP-42, Section 11.19.2 include emissions from the transfer of material to the screen. In addition, a conservative moisture content of 1.77% was assumed based on Table 11.19.2-2 footnote “b”.

C. Vehicle Travel

The Rillito Cement Plant has a variety of vehicles in use including cement import/export trucks, haul trucks, and front-end loaders. To determine the process rate of vehicle travel the following is taken into account, the average vehicle miles traveled (VMT) by each type of vehicle on an annual basis in addition to the weight, payload capacity and distances traveled for each material and vehicle type in use at the facility on paved and unpaved surfaces. The hourly process rates were calculated by dividing the annual VMT by the quantity of hours per year vehicles operate (8,760 hours/year).

The uncontrolled PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from haul truck and other vehicle travel on unpaved roads were determined using the applicable equations from AP-42, Section 13.2.2 (11/06). The uncontrolled PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from haul truck and other vehicle travel on paved roads were determined using Expression 2 from AP-42, Section 13.2.1 (01/11).

D. Material Transfer & Storage

The process rates for the material transfer points were based on the maximum hourly process rates of the transfer and assuming continuous operation. The maximum process rate of the transfer was determined using the maximum capacity of the equipment making the transfer of the material. By using the maximum capacity of the equipment, there is no risk in exceeding the maximum process rates due to worst-case scenarios or future modifications.

For the majority of the material transfer points, the uncontrolled PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions were calculated using the applicable emission factor expression from AP-42, Section 13.2.4.3 (11/06) for aggregate drop processes.

1. Cement

The controlled PM and PM<sub>10</sub> emissions from the material transfer of cement were calculated using the emission factors from AP-42, Table 11.12-2 (06/06) for cement unloading to an elevated storage silo (pneumatic). The controlled PM<sub>2.5</sub> emissions were estimated to be 7.2% of the PM emissions based on the particle size fractions in AP- 42, Section 13.2.4.3 (11/06) for aggregate drop processes.

The uncontrolled HAP emissions from the material transfer of cement were calculated using the emission factors from AP-42, Table 11.12-8 (06/06) for cement silo filling (uncontrolled).

2. Ash And Hydrated Lime

The controlled PM and PM<sub>10</sub> emissions for the material transfer of fly ash were calculated using the emission factors from AP-42, Table 11.12-2 (06/06) for cement supplement unloading to an elevated storage silo (pneumatic). The controlled PM<sub>2.5</sub> emissions were estimated to be 7.2% of the PM emissions based on the particle size fractions in AP-42, Section 13.2.4.3 (11/06) for aggregate drop processes. The uncontrolled HAP emissions from the material transfer of fly ash were calculated using the emission factors from AP-42, Table 11.12-8 (06/06) for cement supplement silo filling (with fabric filter).

3. Wind Erosion Of Stockpiles And Storage Piles

The storage areas of the stockpiles and storage piles at the facility which are subject to wind erosion include stockpiles at the Plant, Quarry, and the Twin Peaks Plant. The uncontrolled PM, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions due to wind erosion of these areas were calculated using the applicable emission factor expression from the 4th Edition of AP-42, Section 11.2. 3 (05/83) for wind erosion of active storage piles. The area used to determine the emissions due to wind erosion represents the maximum space available at the facility to store the various materials.

E. Baghouses

The baghouses at the Rillito Cement plant are assumed to operate continuously (8,760 hours/year). The exception to this is the clinker (H2-DC3) bypass bin, which is only permitted to operate up to 100 hours per year. The emission factors for each baghouse were calculated by multiplying the assumed grain loading of each baghouse by the corresponding flow rate. The assumption was made that the PM emissions are equivalent to the PM<sub>10</sub> emissions. The fractions of PM<sub>2.5</sub> emissions were estimated based on the information provided in AP-42, Tables 11.19.2-2 and 11.19.2-4, and B.2-3.

F. Natural Gas External Combustion Sources

The external combustion sources at the facility are assumed to operate continuously (8,760 hours/year). The process rates for the natural gas external combustion sources are based on the heat input rates of the combustion sources and any restrictions on fuel use.

The uncontrolled PM emissions were calculated using the applicable emission factor from AP-42, Table 1.4-2 (07/98) for natural gas combustion. The assumption was made that the uncontrolled PM<sub>10</sub> and PM<sub>2.5</sub> emissions were equal to the PM emissions based on footnote "c" in AP-42, Table 1.4-2 (07/98).

The uncontrolled CO, NO<sub>x</sub>, SO<sub>2</sub>, and VOC emissions were calculated using the emission factors from AP-42, Tables 1.4-1 and 1.4-2 (07/98) for uncontrolled natural gas combustion less than 100 MMBtu/hr. The uncontrolled CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions were calculated

using the emission factors from 40 CFR 98, Subpart C, Tables C-1 and C-2 for natural gas. The uncontrolled HAP emissions were calculated using the emission factors from AP-42, Tables 1.4-3 and 1.4-4 (07/98) for uncontrolled natural gas combustion.

## **G. Engines**

Rillito Cement Plant employs three emergency engines. The process rates for the engines are based on the horsepower of the combustion sources and their fuel source.

### **1. Natural-Gas Fired Engine**

For natural-gas fired engines, the PM<sub>10</sub>/PM<sub>2.5</sub> filterable and PM condensable emission factors from AP-42, Section 3.2, Table 3.2-3 (08/00) were used. The CO, NO<sub>x</sub>, SO<sub>2</sub>, and VOC emission factors were obtained from AP-42, Tables 3.2-2 3.3-3 for 4-Stroke Lean Burn and Rich-Burn Engines (the worst-case emission factor was used). The GHG emission factors were obtained from 40 CFR 98, Subpart C, Tables C-1 and C-2. The uncontrolled HAP emissions were calculated using the emission factors from AP-42, Table 3.2-2 (7/00).

### **2. Diesel-Fired Engine**

For diesel-fired engines less than 600 hp, the emission factors from AP-42, Table 3.3-1 were used. The PM<sub>10</sub> emission factor was applied to both PM and PM<sub>2.5</sub>, as all particulate matter was assumed to be less than or equal to 1 µm in size.

The CO, NO<sub>x</sub>, and VOC emission factors were obtained from AP-42 Table 3.3-1 for diesel-fired engines less than 600 hp. The SO<sub>x</sub> emission factor was derived by using an assumed sulfur content of 0.05%, a brake-specific fuel consumption of 7,000 Btu/hp-hr, and an energy density of 19,300 Btu/lb. Complete sulfur conversion was assumed. The GHG emission factors were obtained from 40 CFR 98, Subpart C, Tables C-1 and C-2. The uncontrolled HAP emissions were calculated using the emission factors from AP-42, Tables 3.4-3 and 3.4-4 (10/96) for stationary, diesel engines less than 600 hp in size.

## **H. Storage Tanks (Diesel, Gasoline, Lube Oil, and Used Oil)**

The uncontrolled VOC and HAP emissions from the diesel, gasoline, lube oil, and used oil storage tanks were determined using the EPA's TANKS program. The hourly emission rates are estimated from the annual emission values produced by the EPA TANKS program by assuming continuous operation (8,760 hours/year).

## **I. Kiln Emissions**

To determine NO<sub>x</sub>, CO, SO<sub>2</sub>, and VOC emissions for the Kilns, the facility derived emission factors from the following sources. For NO<sub>x</sub>, the emission factor was derived from the NO<sub>x</sub> permit limit of 5,144 tons per year for continuous operation of the four kilns. For CO, the emission factor was derived from the CO permit limit of 5,069 tons per year for continuous operation of the four kilns. For SO<sub>2</sub>, the emission factor was derived from the SO<sub>2</sub> permit limit of 6 pounds per ton of clinker produced. For Kilns 1, 2, and 3, the kiln

feed to clinker ratio was assumed at 1.58:1 (or 0.63 tons clinker per ton of kiln feed). For Kiln 4, the kiln feed to clinker ratio was assumed at 1.65:1 (or 0.606 tons clinker per ton of kiln feed). For VOCs, the average emission factor was calculated from the VOC results of all fuels tested during a 1991 source test on Kiln 4.

To determine GHG emissions for Kilns 1, 2, and 3, the following was assumed: a fuel mixture of 40% Coke and 60% Coal and a maximum hourly firing rate of 130 MMBtu/hr. To determine GHG emissions for Kiln 4, the following was assumed: a fuel mixture of 12% Coke and 88% Coal and a maximum hourly firing rate of 518 MMBtu/hr. For all of the kilns, the default high heat value and CO<sub>2</sub> emission factors for Coke and Coal were used from 40 CFR 98, Subpart C, Table C-1 for Anthracite Coal and Coal Coke. The CH<sub>4</sub> and N<sub>2</sub>O emission factors were from 40 CFR 98, Subpart C, Table C-2 for Coal and Coke.

The HAP emissions were determined using factors from various sources. The sources include a 1991 Source Test by Engineering Science; an April 2002 Source Testing; AP-42, Section 11.6 (01/95), Table 11.6-9 (Fabric Filter); the California Air Toxic Emission Factors (CATEF) Database; a 1996 Hydrochloric Acid Source Testing; a 2007 Source Testing by Delta Air Quality Services; and a December 2010 NESHAP Compliance Testing (for Kiln 4 Only).

In addition, Kiln 4 has different emission factors for formaldehyde, hydrochloric acid, and mercury when the associated Roller Mill is on and when the Roller Mill is off. The higher emission factor for each of these pollutants was used to calculate emissions.

Rillito Cement Plant has a PTE more than the major source thresholds of NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, SO<sub>2</sub>, and HAPs. The facility is considered a categorical source for Prevention of Significant Deterioration (PSD) purposes pursuant to A.A.C. R18-2-101.23, therefore fugitive emissions were taken into account when calculating the PTE for the facility. The facility's PTE is provided in Table 2 below:

**Table 2: Potential to Emit (tpy)**

| <b>Pollutant</b>  | <b>Emissions</b> |
|-------------------|------------------|
| NO <sub>x</sub>   | 5210.78          |
| PM                | 3237.06          |
| PM <sub>10</sub>  | 1857.75          |
| PM <sub>2.5</sub> | 619.44           |
| CO                | 5165.47          |
| SO <sub>2</sub>   | 11347.37         |
| VOC               | 14.85            |
| Pb                | 0.05             |
| HAPs              | 134.99           |

|                         |         |
|-------------------------|---------|
| GHG (CO <sub>2</sub> e) | 243,963 |
|-------------------------|---------|

## **VI. MINOR NEW SOURCE REVIEW (NSR)**

Minor new source review is required if the emissions of a new source have the potential to emit any regulated air pollutant at an amount greater than or equal to the permitting exemption thresholds (PET). The facility does not meet the definition of a new source. The permit renewal application does not propose to make any physical changes or changes in the method of operation that would increase potential to emit in excess of the permitting exemption thresholds. In addition, the application does not propose the construction of any new emission units. As a result, minor NSR does not apply.

## **VII. VOLUNTARILY ACCEPTED EMISSION LIMITATIONS AND STANDARDS**

The permit contains the following voluntary emission limitations and standards:

### **A. Fugitive Dust Requirements**

The facility has accepted the following voluntary operational limitations:

1. The facility will maintain the plant road segments paved in 1991, 1992, 1995, and 1996 in a paved condition. The requirement for the roads paved in 1991 and 1992 was incorporated in Minor Permit Revision No. 1000387 in October 20, 1999. The requirement for the roads paved in 1995 and 1996 in Significant Revision No. 100054 in December 16, 1999.
2. The facility will operate at all times in conformance with the Dust Control Plan approved by ADEQ. The facility submitted the dust control plan ADEQ on July 5, 1999, pursuant to Significant Revision No. 100054.

The limitations were accepted by the facility to avoid triggering PSD for PM emissions.

### **B. Rock Crushing And Screening Activities**

1. Twin Peaks Rock and Stone Aggregate Plant

The facility has accepted the voluntary throughput limitation on the Twin Peaks Rock and Stone Aggregate to process no more than 800,000 tons per 12-month rolling period.

2. Crushers and Screens Subject to NSPS Requirements

The facility has accepted the voluntary operational limitation on all crushers and screens associated with rock crushing and screening activities subject to the New Source Performance Standards (NSPS) requirements the facility will use water spray bars or equivalent control equipment.

These limitations were accepted by the facility and incorporated into Significant Revision No. 39066, in January 31, 2007.

**C. Fuel Burning Equipment**

The facility has accepted a voluntary fuel limitation to burn natural gas in all the heaters and boilers. This condition was accepted in Permit Renewal No. 47259 in June 1, 2010.

**D. Kilns And Clinker Coolers**

The facility has accepted the following voluntary emission limitations for 1, 2, 3, and Kiln 4 in-line kiln/raw mill:

- Limit total emissions of CO to no more than 5,069 tons per year (rolling 12-month total).
- Limit total emissions of NO<sub>x</sub> to no more than 5,144 tons per year (rolling 12-month total).

The limitations on CO and NO<sub>x</sub> emissions were accepted by the facility to avoid triggering major new source review. The limitations were incorporated into Significant Revision No. 100054 in December 16, 1999.

**E. Other Facilities (Except Kilns And Clinker Coolers)**

The facility has accepted the emission limitations for various dust collectors according Condition VII.B.1.c of Attachment “C”: These conditions are present in Permit No. M190310P1-00.

**F. Regional Haze Requirements**

The facility has accepted the voluntary operational limitation to operate and maintain the Iron Stockpile three-sided windbreak in a manner consistent with safety and good air pollution control practices for minimizing emissions. This limit was incorporated into the current Renewal Permit No. 85424 to satisfy the requirements of the Regional Haze program.

In addition to the voluntary emission limitations and standards, the permit also contains limitations previously accepted by the facility through Consent Decree 4:10-CV-00573-DCB. The facility proposes to retain all previously accepted voluntary limitations.

**VIII. APPLICABLE REGULATIONS**

Table 3 identifies applicable regulations and verification as to why that standard applies. The table also contains a discussion of any regulations the emission unit is exempt from.

**Table 3: Applicable Regulations**

| <b>Unit &amp; year</b>                                                                                                                                                                                               | <b>Control Device</b>         | <b>Rule</b>                                                                                                                        | <b>Discussion</b>                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Rock Crushing and Screening Activities</p> <p>(including the Twin Peaks Rock Crushing and Screening Plant; quarry and limestone processing; and the portable screen when used for screening gypsum/limestone)</p> | Dust collectors, water sprays | <p>P.C.C. §§ 17.16.370.B, P.C.C §§ 17.16.130.B,</p> <p>A.A.C. R18-2-702.B, 722.D and 722.E, 722.G</p> <p>40 CFR 60 Subpart OOO</p> | <p>The affected facilities constructed on or before August 31, 1983 are subject to Pima County rules 17.16.370.B &amp; 130.B.</p> <p>The Pima County rules are more stringent than the applicable A.A.C. requirements (i.e., particulate matter (PM) process weight rate equations). Affected facilities constructed after August 31, 1983 and after-April 22, 2008 are subject to NSPS requirements under 40 CFR 60, Subpart OOO.</p> |
| <p>Portable Grizzly Screen</p> <p>(when used for screening iron/clinker and Coke Processing Equipment)</p>                                                                                                           |                               | <p>P.C.C. §§ 17.16.430.</p> <p>A.A.C. R18-2-702.B</p>                                                                              | <p>This equipment is subject to Pima County rules 17.16.430.A.</p> <p>The Pima County rule is more stringent than the applicable A.A.C. requirements (i.e., particulate matter (PM) process weight rate equations).</p>                                                                                                                                                                                                                |
| Coal Mill System                                                                                                                                                                                                     | Dust collectors               | <p>P.C.C. §§ 17.16.310.B</p> <p>A.A.C. R18-2-702.B.1, 716.E</p>                                                                    | <p>Affected facilities in the coal mill system constructed/modified on or before October 27, 1974 are subject to Pima County rule P.C.C. 17.16.310.B. The PM process weight rate equations in the Pima county rules are more stringent than the process weight rate equations in the A.A.C. The opacity limit in A.A.C. R18-2-702.B.1 is also applicable to this equipment.</p>                                                        |

**Table 3: Applicable Regulations**

| Unit & year                                             | Control Device  | Rule                                                                 | Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------|-----------------|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                         |                 | 40 CFR 60 Subpart Y                                                  | Affected facilities in the coal mill system constructed/modified after October 27, 1974 (except for the separator) are subject to NSPS requirements under 40 CFR 60 Subpart Y. The separator is an integral part of the coal mill and although it was replaced in 2002, it was considered a routine replacement and is therefore not subject to 40 CFR 60 Subpart Y.                                                                                                                                                                                                                                            |
|                                                         |                 | 40 CFR 63 Subpart LLL                                                | As per 40 CFR 63.1340(b)(7), conveying system transfer points from the mill to the kiln are subject to NESHAPS requirements under 40 CFR 63 Subpart LLL.                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Open Clinker Storage Piles                              |                 | 40 CFR 63 Subpart LLL                                                | Open clinker storage piles are subject to the NESHAP requirements under 40 CFR 63 Subpart LLL for control of fugitive dust emissions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Kilns 1-3, and In-line Kiln-4/Raw Mill, Clinker Coolers | Dust collectors | 40 CFR 60 Subpart F<br>A.A.C. R18-2-705<br><br>40 CFR 63 Subpart LLL | <p>Kilns and clinker coolers constructed on or before August 17, 1971 are subject to A.A.C. R18-2-705 requirements.</p> <p>The facility is a major source of Hazardous Air Pollutant (HAP) emissions. Kilns 1-3, In-line Kiln-4/Raw Mill, and Clinker Coolers are subject to the NESHAP requirements under 40 CFR 63 Subpart LLL.</p> <p>The In-line Kiln-4/Raw Mill and the Kiln 4 clinker cooler constructed after August 17, 1971 are subject to 40 CFR 60 Subpart F. However, emission standards under NESHAP 40 CFR 63 Subpart LLL are applicable as they are more stringent than 40 CFR 60 Subpart F.</p> |

**Table 3: Applicable Regulations**

| Unit & year                                                                                                                                                                      | Control Device  | Rule                                                                                                                                          | Discussion                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                  |                 | Consent Decree 4:10-CV-00573-DCB                                                                                                              | Dust Collector H5-5-GB for Kilns 1, 2 and 3, and H5-GB for in-line kiln/raw mill Kiln 4 are subject to a PM <sub>10</sub> emission limit from Consent Decree 4:10-CV-00573-DCB.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Raw Mills, Finish Mills, Kiln Feed Silos, Proportioning Silos, Raw Material, Clinker, and Finished Product Storage and Handling, Bulk Unloading and Loading, and Bagging Systems | Dust collectors | <p>A.A.C R18-2-705</p> <p>40 CFR 60 Subpart F</p> <p>40 CFR 63 Subpart LLL</p> <p>Consent Decree 4:10-CV-00573-DCB</p> <p>40 CFR 64 (CAM)</p> | <p>Facilities constructed on or before August 17, 1971 are subject to A.A.C R18-2-705.</p> <p>40 CFR 60 Subpart F is applicable to any facility constructed after August 17, 1971.</p> <p>The facility is a major source of Hazardous Air Pollutant (HAP) emissions, and thus subject to the NESHAP requirements under 40 CFR 63 Subpart LLL.</p> <p>Dust collectors and equipment identified in the Consent Decree 4:10-CV-00573-DCB are subject to the emission and opacity limits specified in the consent decree.</p> <p>40 CFR 64 Compliance Assurance Monitoring (CAM) requirements are applicable to various emission units as the potential pre-control particulate matter emissions for these units are greater than 100 tons per year.</p> |
| Natural Gas-Fired Auxiliary Engines                                                                                                                                              |                 | <p>A.A.C. R18-2-719</p> <p>40 CFR 63 Subpart ZZZZ.</p> <p>40 CFR 60 Subpart JJJJ</p>                                                          | <p>Existing stationary rotating machinery is subject to requirements under A.A.C. R18-2-719.</p> <p>Existing emergency stationary RICE are also subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP) requirements under 40 CFR 63 Subpart ZZZZ.</p> <p>Engine H4-MG1 is subject to NSPS Subpart JJJJ because it is a gasoline engine <math>\geq</math> 500 hp constructed after June 12, 2006</p>                                                                                                                                                                                                                                                                                                                         |

**Table 3: Applicable Regulations**

| Unit & year                           | Control Device                                                  | Rule                                       | Discussion                                                                                                                                                                                  |
|---------------------------------------|-----------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Natural Gas-fired Heaters and Boilers |                                                                 | A.A.C. R18-2-724                           | The natural gas-fired heaters and boilers are subject to the requirements under A.A.C. R18-2-724. Process Heater D4-RM1-HTR is not subject to NSPS requirements under 40 CFR 60 Subpart Dc. |
|                                       |                                                                 | 40 CFR 63 Subpart DDDDD                    | Bunker C boiler and heater D4-RM1 are subject to NESHAP requirements under 40 CFR 63 Subpart DDDDD.                                                                                         |
| Diesel and Used Oil Storage Tanks     | None                                                            | A.A.C. R18-2-730                           | These requirements are applicable to unclassified sources.                                                                                                                                  |
| Gasoline Storage Tank                 | None                                                            | A.A.C. R18-2-710                           | These requirements are applicable to tanks storing petroleum liquids.                                                                                                                       |
| Fugitive Dust Sources                 | Water trucks, Dust suppressants                                 | A.A.C. R18-2 Article 6<br>A.A.C. R18-2-702 | These standards are applicable to all fugitive dust sources at the facility.                                                                                                                |
| Abrasive Blasting                     | Wet blasting; Dust collecting equipment; Other approved methods | A.A.C. R-18-2-702<br>A.A.C. R-18-2-726     | These standards are applicable to any abrasive blasting operation.                                                                                                                          |
| Spray Painting                        | Enclosures                                                      | A.A.C. R18-2-702<br>A.A.C. R-18-2-727      | These standards are applicable to any spray painting operation.                                                                                                                             |
| Demolition/Renovation Operations      | N/A                                                             | A.A.C. R18-2-1101.A.8                      | This standard is applicable to any asbestos related demolition or renovation operations.                                                                                                    |

**IX. PREVIOUS PERMIT REVISIONS AND CONDITIONS****A. Previous Permit Revisions**

Table 4 provides a description of the permit revisions made to Permit No. 61522 during the previous permit term.

**Table 4: Permit Revisions to Permit No. 61522**

| Permit Revision No. | Permit Revision Type | Brief Description                                                                                                                                                                                                                                     |
|---------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 73015               | MPR                  | This permit revision added an SNCR system on Kiln 4 to comply with the Arizona Regional Haze FIP. It also added a lime injection system on the Kiln 4 baghouse and an emergency generator.                                                            |
| 85849               | MPR                  | This permit revision authorized the facility to relocate the Twin Peaks Rock and Stone Aggregate Plant. It also allowed for the replacement of the Kiln 4 Lime Bin and Lime Injection System associated with the Portland cement manufacturing plant. |

**B. Changes to Current Renewal**

Table 5 addresses the changes made to the sections and conditions from Permit No. 61522:

**Table 5: Previous Permit Conditions**

| Section No.            | Determination |         |         | Comments                                                                                                                                                                                                                                                                       |
|------------------------|---------------|---------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | Added         | Revised | Deleted |                                                                                                                                                                                                                                                                                |
| Att. "A"               |               | X       |         | General Provisions:<br>Revised to represent the most recent template language                                                                                                                                                                                                  |
| Att. "B"<br>Section I  |               | X       |         | Facility Wide Requirements:<br>Renamed from General Requirements and revised to represent the most recent template language                                                                                                                                                    |
| Att "B"<br>Section II  |               | X       |         | Fugitive Dust Requirements:<br>Revised to represent the most recent template language.                                                                                                                                                                                         |
| Att "B"<br>Section III |               | X       |         | Rock Crushing And Screening Activities: <ul style="list-style-type: none"> <li>Visible emission protocol has been removed and replaced with a reference to Condition I.A.2 of Attachment "B".</li> <li>Conditions added to reflect updates from MPR No. 85849.</li> </ul>      |
| Att "B"<br>Section IV  |               | X       |         | Portable Grizzly Screen For Processing Iron/Clinker And Coke Processing Equipment: <ul style="list-style-type: none"> <li>Visible emission protocol has been removed and replaced with a reference to Condition I.A.2 of Attachment "B".</li> </ul>                            |
| Att "B"<br>Section V   |               | X       |         | Emergency Engines: <ul style="list-style-type: none"> <li>Visible emission protocol has been removed and replaced with a reference to Condition I.A.2 of Attachment "B".</li> <li>Incorporated applicable requirements for the generator subject to 40 CFR 60 JJJJ.</li> </ul> |
| Att "B"<br>Section IX  |               |         | X       | Mobile Source Requirements:<br>Removed from the permit because this section no longer applies to facility.                                                                                                                                                                     |

**Table 5: Previous Permit Conditions**

| Section No.             | Determination |         |         | Comments                                                                                                                                                                                                           |
|-------------------------|---------------|---------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | Added         | Revised | Deleted |                                                                                                                                                                                                                    |
| Att "B"<br>Section X    |               | X       |         | Other Periodic Activities:<br>Updated to reflect template language                                                                                                                                                 |
| Att "C"<br>Section II   |               | X       |         | General NESHAP Requirements <ul style="list-style-type: none"> <li>Updated permit language for more clarity.</li> <li>Updated citations to make clear what regulations applied.</li> </ul>                         |
| Att "C"<br>Section III  |               | X       |         | Coal Preparation/Coal Mill Systems <ul style="list-style-type: none"> <li>Updated permit language for more clarity.</li> <li>Updated citations to make clear what regulations applied.</li> </ul>                  |
| Att "C"<br>Section VI   |               | X       |         | Kilns And Clinker Coolers<br>Updated Citations<br>Clarified language & updated to reflect updates to applicable regulations                                                                                        |
| Att "C"<br>Section VII  |               | X       |         | Other Facilities (Except Kilns And Clinker Coolers) <ul style="list-style-type: none"> <li>Updated permit language for more clarity.</li> <li>Updated citations to make clear what regulations applied.</li> </ul> |
| Att "C"<br>Section VIII |               | X       |         | Secondary Materials Utilization Procedures<br>Formatting updates to the tables                                                                                                                                     |
| Att "C"<br>Section IX   |               | X       |         | Alternate Raw Material Screening Assessment For Dioxins, Furans And Precursors<br>Formatting updates to the tables                                                                                                 |
| Att "C"<br>Section X    | X             |         |         | Unclassified Systems<br>Conditions added to reflect updates from MPR No. 85849.                                                                                                                                    |
| Att "C"<br>Section XI   | X             |         |         | Regional Haze Requirements<br>Regional haze requirements incorporated to fulfill Regional Haze Round 2 requirements.                                                                                               |
| Att. "D"                |               | X       |         | Equipment List:<br>Revised to reflect the most recent equipment operating at the facility and to include equipment information provided.                                                                           |

**X. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS**

Table 6 contains an inclusive but not an exhaustive list of the monitoring, recordkeeping and reporting requirements prescribed by the air quality permit. The table below is intended to provide insight to the public for how the Permittee is required to demonstrate compliance with the emission limits in the permit.

**Table 6: Permit No. 85424**

| <b>Emission Unit</b>                                            | <b>Pollutant</b> | <b>Emission Limit</b>                                                                                                                                                                                  | <b>Monitoring Requirements</b>                          | <b>Recordkeeping Requirements</b>                                                                                                             | <b>Reporting Requirements</b> |
|-----------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Rock Crushing and Screening Operations<br>(Not Subject to NSPS) | PM               | 20% Opacity                                                                                                                                                                                            | Conduct periodic opacity monitoring on a monthly basis. | Maintain a record of daily production rates of gravel or crushed stone produced.                                                              |                               |
| Rock Crushing and Screening Operations<br>(Subject to NSPS)     | PM               | On or before April 28, 2008:<br><ul style="list-style-type: none"> <li>• 0.05 g/dscm and 7% Opacity</li> <li>• Fugitive – 10% Opacity</li> <li>• Crusher w/ no capture system – 15% Opacity</li> </ul> |                                                         |                                                                                                                                               |                               |
|                                                                 |                  | After April 28, 2008:<br><ul style="list-style-type: none"> <li>• 0.032 g/dscm</li> <li>• Fugitive – 7% Opacity</li> </ul>                                                                             |                                                         | Conduct Quarterly 30-minute visible emissions inspections using EPA Method 22.<br><br><i>Note: The Permittee may use a bag leak detection</i> |                               |
|                                                                 |                  |                                                                                                                                                                                                        |                                                         | Record each Method 22 test in the logbook required under Condition III.E.5.e. of Attachment “B”.                                              |                               |

Table 6: Permit No. 85424

| Emission Unit                          | Pollutant       | Emission Limit                                                                       | Monitoring Requirements                                                            | Recordkeeping Requirements                                                                                                     | Reporting Requirements                                                                                             |
|----------------------------------------|-----------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
|                                        |                 | <ul style="list-style-type: none"> <li>Crusher w/ no capture system – 12%</li> </ul> | <i>system for any affected facility that uses a baghouse to control emissions.</i> |                                                                                                                                |                                                                                                                    |
| Engines (Subject to State Regulations) | PM              | 40% opacity – for any period greater than 10 seconds                                 | Conduct periodic opacity monitoring on a monthly basis.                            | Maintain records of the lower heating value of the fuel.                                                                       |                                                                                                                    |
|                                        | SO <sub>2</sub> | 1.0 lb/MMBtu                                                                         |                                                                                    | Record the daily sulfur content of the fuel used in the engines.                                                               | Report to the Director any daily period which the sulfur content exceeds 0.8%.                                     |
| Engines (Subject to ZZZZ)              | HAPs            |                                                                                      |                                                                                    | Keep the records to show continuous compliance with each emission or operating limitation.                                     | Submit an annual report for the engines. The report must contain the information in Condition V.E.5.b of Att. “B”. |
|                                        |                 |                                                                                      |                                                                                    | Keep records of the maintenance on the ICE in order to demonstrate compliance with the operation and maintenance requirements. |                                                                                                                    |
|                                        |                 |                                                                                      |                                                                                    | Keep records of the hours of operation of the engines recorded through                                                         |                                                                                                                    |

Table 6: Permit No. 85424

| Emission Unit                          | Pollutant | Emission Limit | Monitoring Requirements                                                          | Recordkeeping Requirements                                                                                                        | Reporting Requirements                                       |
|----------------------------------------|-----------|----------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
|                                        |           |                |                                                                                  | the non-resettable hour meter -emergency operation.                                                                               |                                                              |
|                                        |           |                |                                                                                  | Keep records of the parameters that are analyzed and the results of the oil analysis, if any, and the oil changes for the engine. |                                                              |
| Engines<br>(Subject to JJJJ)           |           |                |                                                                                  | Keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter.                      | Submit an annual report according to V.5.e of Attachment “B” |
| Boilers (Subject to State Regulations) | PM        | 15% opacity    | Conduct monthly opacity monitoring of the stacks of all boilers.                 | Records of the fuel used in all the boilers.                                                                                      | 6-min periods where opacity exceeds 15%                      |
| Boilers (Subject to DDDDD)             |           |                | Conduct a boiler tune-up every five years per Condition VI.D.2.c(1) of Att. “B”. | Keep a copy of each notification and report submitted.                                                                            |                                                              |
|                                        |           |                |                                                                                  | Keep a copy of compliance demonstrations and performance evaluations                                                              |                                                              |

Table 6: Permit No. 85424

| Emission Unit                                                    | Pollutant | Emission Limit               | Monitoring Requirements                                 | Recordkeeping Requirements                                                                  | Reporting Requirements |
|------------------------------------------------------------------|-----------|------------------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------|
|                                                                  |           |                              |                                                         | as required in 40 CFR 63.10(b)(2)(viii).                                                    |                        |
|                                                                  |           |                              |                                                         | Keep a copy of the calendar date, time, occurrence and duration of each startup/shutdown.   |                        |
|                                                                  |           |                              |                                                         | Keep a copy of the type and amount of fuels used during each startup and shutdown.          |                        |
| Gasoline Storage Tank                                            |           |                              |                                                         | Keep a file, of the typical Reid vapor pressure of gasoline stored and of dates of storage. |                        |
| Coal Mill System<br>(Equipment Subject to Non-NSPS Requirements) | PM        | 20% Opacity                  | Conduct periodic opacity monitoring on a monthly basis. |                                                                                             |                        |
| Coal Mill System                                                 | PM        | On or before April 28, 2008: | Conduct a monthly 10-minute visible emissions           |                                                                                             |                        |

Table 6: Permit No. 85424

| Emission Unit                            | Pollutant                   | Emission Limit                                                                                                                                                                                                                          | Monitoring Requirements                                                                                                                   | Recordkeeping Requirements                                                                                  | Reporting Requirements |
|------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------|
| (Equipment Subject to NSPS Requirements) |                             | 20% Opacity                                                                                                                                                                                                                             | test of each affected source in accordance with Method 22.                                                                                |                                                                                                             |                        |
|                                          |                             | After April 28, 2008: <ul style="list-style-type: none"> <li>• 10% Opacity</li> <li>• Mechanical vent - 0.023 g/dscm</li> </ul>                                                                                                         |                                                                                                                                           |                                                                                                             |                        |
| Kilns and Clinker Coolers                | PM                          | Any Kiln & Clinker Coolers - 0.07 pounds per ton clinker<br><br>Kilns 1, 2, and 3 – 20% Opacity<br><br>Dust Collector H5-5-GB for Kilns 1, 2 and 3, and H5-GB - 0.008 gr/dscf<br><br>Clinker coolers for Kilns 1, 2 and 3 - 20% Opacity | Install and operate PM CPMS on the Kiln 1-3 stack, the Kiln 4 in-line kiln/ raw mill stack, and the Clinker Coolers 1, 2, 3 and 4 stacks. |                                                                                                             |                        |
|                                          | Dioxins/<br>Furans<br>(D/F) | 0.2 ng/dscm TEQ<br>(If $T_{avg} < 400$ °F during the D/F performance test,                                                                                                                                                              | Monitor, record and maintain the temperature of the exhaust gases from Kilns 1, 2, 3 and Kiln 4 in-line kiln/ raw                         | Record the calculated rolling three-hour average temperature using the average of 180 successive one-minute |                        |

Table 6: Permit No. 85424

| Emission Unit | Pollutant | Emission Limit                                                                                                                         | Monitoring Requirements                                                                                                                                                                 | Recordkeeping Requirements      | Reporting Requirements |
|---------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------------|
|               |           | then 0.4 ng/dscm TEQ)<br><i>Note: TEQ is the international method of expressing toxicity equivalents for dioxins and furans</i>        | mill at the inlet to, or upstream of the particulate matter control devices                                                                                                             | average temperatures every hour |                        |
|               |           |                                                                                                                                        | For Sorbent injection:<br>Monitor, record and maintain the activated sorbent injection rate equal to or greater than the sorbent injection rate determined during the performance test. |                                 |                        |
|               | THC       | 24 ppmvd (measured as propane)<br><i>Note: The Permittee may elect to meet an alternative limit of 12 ppmvd for total organic HAP.</i> | Install and operate a THC CEMS on the Kiln 1-3 stacks and the Kiln 4 in-line kiln/ raw mill stack.                                                                                      |                                 |                        |
|               | Mercury   | 5 pounds/MM Tons of clinker based on rolling 30-day average                                                                            | Install and operate either a Hg CEMS on the kiln stacks or an integrated sorbent trap monitoring system in accordance.                                                                  |                                 |                        |

Table 6: Permit No. 85424

| Emission Unit                                          | Pollutant       | Emission Limit                                                                                                                             | Monitoring Requirements                                                                                            | Recordkeeping Requirements                                                                                                                            | Reporting Requirements |
|--------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
|                                                        | HCl             | 7.0 ppmvd on dry basis                                                                                                                     | Install and operate an HCl CEMS, certified under PS 15.                                                            |                                                                                                                                                       |                        |
|                                                        | CO              | 5,069 tons per year (rolling 12-month total)                                                                                               | Operate CEMS to measure CO and NO <sub>x</sub> mass emissions from Kilns 1, 2, 3 and Kiln 4 in-line kiln/raw mill. |                                                                                                                                                       |                        |
|                                                        | NO <sub>x</sub> | 5,144 tons per year (rolling 12-month total)                                                                                               |                                                                                                                    |                                                                                                                                                       |                        |
|                                                        | SO <sub>2</sub> | 6 pounds of SO <sub>x</sub> , calculated as SO <sub>2</sub> , per ton cement kiln feed                                                     | Perform an annual EPA Reference Method 6C performance test on all kilns.                                           |                                                                                                                                                       |                        |
| Other Facilities<br>(Except Kilns and Clinker coolers) | PM              | For dust collectors - the applicable rate in Condition VII.B.1.c of Attachment "C"<br><br>Dust collector D2-1-DC1 & Condition VII.B.1.c of | Dust Collectors under Condition VII.B.1.e:<br>Conduct a monthly 1-minute visible emission test with Method 22      | Keep records of rolling 12-month total of limestone added in the D3 mill.<br><br>Keep records of periods of operations of Clinker Bypass Bin, H2-SB1. |                        |

**Table 6: Permit No. 85424**

| <b>Emission Unit</b> | <b>Pollutant</b> | <b>Emission Limit</b>                                                                                                                                                                                                                          | <b>Monitoring Requirements</b>                                                                                                                                                                                                                                                  | <b>Recordkeeping Requirements</b>                                                                          | <b>Reporting Requirements</b> |
|----------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-------------------------------|
|                      |                  | Attachment “C” - 0.005 gr/dscf                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                 |                                                                                                            |                               |
|                      | Opacity          | Kiln Feed Silos, Proportioning Silos, Bagging System, Bulk Loading and Unloading systems and Transfer points - 10% Opacity<br><br>D4 Raw Mill Additive Feed Hopper, D4-HOP – 10% opacity.<br><br>D4 Raw Mill Rejects Bin, D4-SB1 - 20% opacity | Kiln Feed Silos, Proportioning Silos, Bagging System, Bulk Loading and Unloading systems and Transfer points: Conduct a monthly 10-minute visible emissions test with Method 22.<br><br>Raw Mills and Finish Mills: Conduct daily visual emissions observations with Method 22. |                                                                                                            |                               |
| Iron Stockpile       | PM <sub>10</sub> |                                                                                                                                                                                                                                                | Perform monthly inspections of the Iron Stockpile three-sided windbreak to ensure it is in proper working condition.                                                                                                                                                            | Keep a record of the date, the name of the inspector, and the results. Any corrective action if necessary. |                               |

**Table 6: Permit No. 85424**

| <b>Emission Unit</b> | <b>Pollutant</b> | <b>Emission Limit</b>                                                                                                     | <b>Monitoring Requirements</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Recordkeeping Requirements</b>                                                                                                                                                                                                                                                                                           | <b>Reporting Requirements</b> |
|----------------------|------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Fugitive Dust        | PM               | <p>Fugitive dust non-point source - 40% Opacity</p> <p>Low-grade and high-grade limestone storage piles - 20% opacity</p> | <p>A Method 9 observer is required to conduct a monthly survey of visible emissions.</p> <p>Property Boundary Line with the Rillito Community</p> <p>Coal unloading activity: Conduct daily two (2) visible emissions surveys with EPA Reference Method 22 during coal unloading in the daylight hours.</p> <p>No coal unloading: Conduct daily two (2) visible emissions survey with EPA Reference Method 22 anytime during daylight hours.</p> <p>Other Property Boundary lines</p> <p>Conduct a daily visible emissions survey with</p> | <p>Maintain records of each instance of operation not consistent with the current Dust Control Plan.</p> <p>Record of the dates and types of dust control measures employed, and if applicable, the results of any Method 9 observations, and any corrective action taken to lower the opacity of any excess emissions.</p> |                               |

**Table 6: Permit No. 85424**

| <b>Emission Unit</b>      | <b>Pollutant</b> | <b>Emission Limit</b>                       | <b>Monitoring Requirements</b>                  | <b>Recordkeeping Requirements</b>                                                                                                                                                         | <b>Reporting Requirements</b> |
|---------------------------|------------------|---------------------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
|                           |                  |                                             | EPA Reference Method 22 when there is activity. |                                                                                                                                                                                           |                               |
| Abrasive Blasting         | PM               | 20% Opacity                                 |                                                 | Record the date, duration and pollution control measures of any abrasive blasting project.                                                                                                |                               |
| Spray Painting            | VOC              | 20% Opacity<br>Control 96% of the overspray |                                                 | Maintain records of the date, duration, quantity of paint used, any applicable MSDS, and pollution control measures of any spray painting project.                                        |                               |
| Demolition/<br>Renovation | Asbestos         |                                             |                                                 | Maintain records of all asbestos related demolition or renovation projects including the “NESHAP Notification for Renovation and Demolition Activities” form and all supporting documents |                               |

**XI. COMPLIANCE ASSURANCE MONITORING (CAM)****A. Equipment Subject to CAM**

The Compliance Assurance Monitoring (CAM) rule applies to pollutant-specific emission units (PSEU) located at a major Title V source if the unit meets all of the following criteria:

- The unit is subject to an emission limit or standard for the applicable regulated air pollutant other than an emission limitation or standard that is exempt under 40 CFR Part 64.2(b)(1);
- The unit uses a control device to achieve compliance with the emission limit or standard; and
- The unit has "potential pre-control device emissions" of the applicable regulated air pollutant equal to or greater than 100% of the amount (tons/year) required for a source to be classified as a major source. "Potential pre-control device emissions" means potential to emit (PTE, as defined in Title V) except emissions reductions achieved by the applicable control device are not taken into account.

The purpose of the monitoring required by the CAM rule is to assure compliance with emission standards by ensuring that control devices meet and maintain the assumed control efficiencies. Compliance is ensured through requiring monitoring of the operation and maintenance of the control equipment and, if applicable, operating conditions of the pollutant-specific emissions unit.

For the PSEUs that have post control potential to emit equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source, for each parameter monitored, the owner shall collect four or more data values equally spaced over each hour. Such units are defined as "large" PSEUs. For all other PSEUs ("small" PSEUs), the monitoring shall include some data collection at least once per 24-hour period.

Table 7 provides a list of the CAM Applicable Units at Rillito Cement Facility. For the emission limitations that include multiple emission units, the PSEU is the combination of the emission units.

**Table 7: CAM Applicable Units**

| <b>ID</b> | <b>Equipment</b>                                       | <b>Process Code</b> | <b>Control Device</b>  |
|-----------|--------------------------------------------------------|---------------------|------------------------|
| VI.1      | Air Slide D4-AS3 to Homogenizing Silo F2-SB1           | CTrStn              | Dust Collector F2-DC1  |
| VI.2      | Air Slide F2-AS5 to Pneumatic Conveyance System F2-POD | CTrStn              | Dust Collector F2-DC4  |
| VIII.7    | AC1-Mill                                               | RMill               | Dust Collector AC1-DC1 |
| VIII.8    | Screw Conveyor AC1-SC1 to Bucket Elevator AC1-BE1      | CTrStn              |                        |

|         |                                                        |          |                          |
|---------|--------------------------------------------------------|----------|--------------------------|
| VIII.9  | Bucket Elevator AC1-BE1 to Separator AC1-SS            | RMillSep |                          |
| VIII.10 | AC2-Mill                                               | RMill    | Dust Collector AC2-DC1   |
| VIII.11 | Screw Conveyor AC2-SC1 to Bucket Elevator AC2-BE1      | CTrStn   |                          |
| VIII.12 | Bucket Elevator AC2-BE1 to Separator AC2-SS            | RMillSep |                          |
| VIII.13 | AC3-Mill                                               | RMill    | Dust Collector AC3-DC1   |
| VIII.14 | Screw Conveyor AC3-SC1 to Bucket Elevator AC3-BE1      | CTrStn   |                          |
| VIII.15 | Bucket Elevator AC3-BE1 to Separator AC3-SS            | RMillSep |                          |
| VIII.16 | AC4-Mill                                               | RMill    | Dust Collector AC4-DC1   |
| VIII.17 | Screw Conveyor AC4-SC1 to Bucket Elevator AC4-BE1      | CTrStn   |                          |
| VIII.18 | Bucket Elevator AC4-BE1 to Separator AC4-SS            | RMillSep |                          |
| IX.1    | Screw Conveyor AC-SC3 to Bucket Elevator AC-BE2        | CTrStn   | Dust Collector AC-BE2-DC |
| IX.2    | Bucket Elevator AC-BE2 to Screw Conveyor AC-SC4        | CTrStn   |                          |
| IX.3    | Pneumatic Conveyance System F2-POD to Alleviator AC-A1 | CTrStn   | Dust Collector AC-DC1    |
| IX.4    | Screw Conveyor AC-SC6 to Storage Bin F2-PS-SB1         | CTrStn   | Dust Collector F2-PS-DC1 |
| IX.5    | Screw Conveyor AC-SC6 to Storage Bin F2-PS-SB3         | CTrStn   |                          |
| IX.6    | Screw Conveyor AC-SC6 to Storage Bin F2-PS-SB5         | CTrStn   |                          |
| IX.7    | Screw Conveyor AC-SC6 to Storage Bin F2-PS-SB7         | CTrStn   |                          |
| IX.8    | Screw Conveyor AC-SC6 to Storage Bin F2-PS-SB9         | CTrStn   |                          |
| IX.9    | Screw Conveyor AC-SC6 to Storage Bin F2-PS-SB11        | CTrStn   |                          |
| IX.10   | Screw Conveyor AC-SC5 to Storage Bin F2-PS-SB2         | CTrStn   | Dust Collector F2-PS-DC2 |

|       |                                                       |        |                          |
|-------|-------------------------------------------------------|--------|--------------------------|
| IX.11 | Screw Conveyor AC-SC5 to Storage Bin F2-PS-SB4        | CTrStn |                          |
| IX.12 | Screw Conveyor AC-SC5 to Storage Bin F2-PS-SB6        | CTrStn |                          |
| IX.13 | Screw Conveyor AC-SC5 to Storage Bin F2-PS-SB8        | CTrStn |                          |
| IX.14 | Screw Conveyor AC-SC5 to Storage Bin F2-PS-SB10       | CTrStn |                          |
| IX.15 | Screw Conveyor AC-SC5 to Storage Bin F2-PS-SB12       | CTrStn |                          |
| IX.16 | Screw Conveyor F2-PS-SC4 to Bucket Elevator F2-PS-BE1 | CTrStn | Dust Collector F2-PS-DC3 |
| IX.17 | Bucket Elevator F2-PS-BE1 to Screw Conveyor F2-PS-SC5 | CTrStn |                          |
| X.1   | Screw Conveyor F2-PS-SC9 to Silo F3-KS-SB1            | CTrStn | Dust Collector F3-KS-DC1 |
| X.2   | Screw Conveyor F2-PS-SC9 to Silo F3-KS-SB2            | CTrStn |                          |
| X.3   | Screw Conveyor F2-PS-SC10 to Silo F3-KS-SB3           | CTrStn |                          |
| X.4   | Screw Conveyor F2-PS-SC10 to Silo F3-KS-SB4           | CTrStn |                          |
| X.5   | Screw Conveyor F2-PS-SC11 to Silo F3-KS-SB5           | CTrStn |                          |
| X.6   | Screw Conveyor F2-PS-SC11 to Silo F3-KS-SB6           | CTrStn |                          |
| XI.1  | Screw Conveyor F3-KS-SC5 to Kiln #1 Bin               | CTrStn | Dust Collector H4-K1-DC  |
| XI.2  | Screw Conveyor F3-KS-SC5 to Kiln #2 Bin               | CTrStn | Dust Collector H4-K2-DC  |
| XI.3  | Screw Conveyor F3-KS-SC5 to Kiln #3 Bin               | CTrStn | Dust Collector H4-K3-DC  |
| XIV.4 | Pan Feeder H2-PF2 to Rock Storage                     | CTrStn | Dust Collector H2-DC2    |
| XV.2  | Belt Conveyor C2-BC8 to Belt Conveyor C2-BC9          | CTrStn | Dust Collector C2-DC4    |
| XV.9  | Belt Conveyor C2-BC9 to Belt Conveyor C2-BC10         | CTrStn | Dust Collector C2-DC11   |

|        |                                                |        |                         |
|--------|------------------------------------------------|--------|-------------------------|
| XV.10  | Belt Conveyor C2-BC10 to Belt Conveyor C2-BC11 | CTrStn | Dust Collector C2-DC12  |
| XV.14  | Belt Conveyor D2-BC1 to Belt Conveyor D2-BC2   | CTrStn | Dust Collector D2-DC1   |
| XV.15  | Belt Conveyor D2-BC2 to Belt Conveyor D2-BC6   | CTrStn | Dust Collector D2-DC3   |
| XVI.20 | Bucket Elevator CM-BE4 to Drag Conveyor CM-DR1 | CTrStn | Dust Collector CM-DC5   |
| XVI.21 | Belt Scale CM-BS3 to Belt Conveyor CM-BC1      | CTrStn |                         |
| XVI.22 | CM-BC1 to CM-DR                                | CTrStn |                         |
| XVI.23 | CM-DR to CM-BE4                                | CTrStn |                         |
| XVI.24 | Bucket Elevator CM-BE4 to Drag Conveyor CM-DR2 | CTrStn |                         |
| XVII.1 | Air Slide D2-AS1 to Pump D2-FP1                | CTrStn | Dust Collector D2-DC4   |
| XVII.2 | Finish Mill D2-1-M                             | FMill  | Dust Collector D2-1-DC1 |
| XIX.1  | Belt Conveyor BL-SC2 to Belt Conveyor BL-SC4   | CTrStn | Dust Collector BL-DC1   |
| XIX.2  | Belt Conveyor BL-SC3 to Belt Conveyor BL-SC5   | CTrStn | Dust Collector BL-DC2   |
| XIX.3  | Storage Bin BL-SB1 to Bucket Elevator BL-BE1   | CTrStn | Dust Collector BL-DC3   |
| XIX.4  | Storage Bin BL-SB1 to Bucket Elevator BL-BE2   | CTrStn | Dust Collector BL-DC4   |
| XIX.6  | Air Slide BL-AS2A to Truck                     | CTrStn | Dust Collector BL-DC6   |
| XIX.7  | Air Slide BL-AS2B to Truck                     | CTrStn |                         |
| XX.6   | Bucket Elevator PH-BE2 to Rotary Screen PH-RS2 | CTrStn | Dust Collector PH-DC2   |
| XX.7   | Rotary Screen PH-RS2 to Storage Bin PH-SB2     | CTrStn |                         |
| XX.8   | Cement Packer PH-PK4 to Bag                    | CTrStn |                         |
| XX.9   | Spill Bin.                                     | CTrStn |                         |
| XX.10  | Spill Bin to Screw Conveyor PH-SC4             | CTrStn |                         |

At the Rillito Cement Plant there are 30 PSEUs that have PM<sub>10</sub> emissions greater than 100 tpy and are subject to CAM requirements. Since the PSEUs subject to CAM requirements use similar air pollution controls (dust collectors), the facility submitted a single CAM plant to represent the units.

## B. Monitoring Approach

Rillito Cement plant uses dust collectors (baghouses) as the control devices for controlling the emissions of the PSEUs subject to CAM. The monitoring approach for these devices is detailed in Table 8 below.

**Table 8: Monitoring Approach for Dust Collectors**

| Indicator                    | Visible Emissions                                                                                                                                                                                 |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Indicator Range              | No visible emissions.                                                                                                                                                                             |
| Measurement Approach         | Visible emissions from the control device exhaust will be monitored daily using EPA Reference Method 22.<br>Bags, seals, and baghouse compartments shall be inspected annually for each baghouse. |
| QA/QC Practices and Criteria | Operate and maintain the control device in a manner consistent with good air pollution control practice.                                                                                          |
| Excursion Range              | Any opacity observed during the visible emission survey.<br>Any bags or seals in poor condition, or accumulation of dust in the baghouse compartment during annual inspection.                    |

Visible emissions from the dust collector exhaust are used as the indicator range because the visible emissions are directly related to the efficiency of the control device. Therefore, the daily EPA Reference Method 22 visible emission surveys are sufficient to determine that the dust collectors are operating properly. If the dust collectors are operating at their design efficiency, then there will be no visible emissions.

## XII. REGIONAL HAZE REQUIREMENTS

ADEQ's initial determination is to find that it is reasonable to require additional controls on CPC Rillito Cement Plant during this planning period in order to make reasonable progress toward natural visibility conditions. One of the emission sources evaluated was the Iron Stockpile. This emission source's evaluation yielded that a windbreak would be an effective control. The iron stockpile was moved to a location with an artificial windbreak prior to the evaluation. However, this was previously not an enforceable requirement. CPC accepted to maintain the three-sided windbreak as a voluntarily accepted emission limitation as part of the permit renewal.

## XIII. LIST OF ABBREVIATIONS

|                   |                                                                  |
|-------------------|------------------------------------------------------------------|
| A.A.C.            | Arizona Administrative Code                                      |
| ANFO              | Ammonium Nitrate Fuel Oil                                        |
| ADEQ              | Arizona Department of Environmental Quality                      |
| CAM               | Compliance Assurance Monitoring                                  |
| CEMS              | Continuous Emissions Monitoring System                           |
| CFR               | Code of Federal Regulations                                      |
| CH <sub>4</sub>   | Methane                                                          |
| CO                | Carbon Monoxide                                                  |
| CO <sub>2</sub>   | Carbon Dioxide                                                   |
| CO <sub>2</sub> e | CO <sub>2</sub> equivalent basis                                 |
| dscfm             | Dry Standard Cubic Foot Per Minute                               |
| EPA               | Environmental Protection Agency                                  |
| GHG               | Greenhouse Gases                                                 |
| gr/dscf           | Grains Per Dry Standard Cubic Foot                               |
| HAP               | Hazardous Air Pollutant                                          |
| hp                | Horsepower                                                       |
| hr                | Hour                                                             |
| NESHAP            | National Emission Standards for Hazardous Air Pollutant          |
| NO <sub>x</sub>   | Nitrogen Oxides                                                  |
| N <sub>2</sub> O  | Nitrous Oxide                                                    |
| NSPS              | New Source Performance Standards                                 |
| Pb                | Lead                                                             |
| P.C.C.            | Pima County Code                                                 |
| PM                | Particulate Matter                                               |
| PM <sub>10</sub>  | Particulate Matter less than 10 µm nominal aerodynamic diameter  |
| PM <sub>2.5</sub> | Particulate Matter less than 2.5 µm nominal aerodynamic diameter |
| PSD               | Prevention of Significant Deterioration                          |
| PSEU              | Pollutant-Specific Emission Units                                |
| PTE               | Potential to Emit                                                |
| SO <sub>2</sub>   | Sulfur Dioxide Significant Impact Levels                         |
| TPY               | Tons per Year                                                    |
| TSP               | Total Suspended Particulates                                     |
| VEO               | Visible Emissions Observation                                    |
| VMT               | Vehicle Miles Traveled                                           |
| VOC               | Volatile Organic Compound                                        |
| yr                | Year                                                             |