TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

EXAMPLE A

COMBINED
NOTICE OF PUBLIC MEETING
AND
NOTICE OF APPLICATION AND PRELIMINARY DECISION
FOR AIR QUALITY PERMITS

PROPOSED AIR QUALITY PERMIT NUMBERS 144729, PSDTX1514, AND GHGPSDTX165

APPLICATION AND PRELIMINARY DECISION. US CEMENT LLC, 8316 East Freeway, Houston, Texas 77029-1612, has applied to the Texas Commission on Environmental Quality (TCEQ) for issuance of proposed State Air Quality Permit 144729, issuance of Prevention of Significant Deterioration (PSD) Air Quality Permit PSDTX1514, and issuance of Greenhouse Gas (GHG) PSD Air Quality Permit GHGPSDTX165 for emissions of GHGs, which would authorize construction of the Brady Cement Plant located at 6.5 miles north on US 377 from the intersection of 100 West Main Street and US 377, Brady, McCulloch County, Texas 76825. This application was processed in an expedited manner, as allowed by the commission's rules in 30 Texas Administrative Code, Chapter 101, Subchapter J. The proposed facility will emit the following air contaminants in a significant amount: carbon monoxide, nitrogen oxides, organic compounds, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less, sulfur dioxide, and greenhouse gases. In addition, the facility will emit the following air contaminants: ammonia and hazardous air pollutants.

The degree of PSD increment predicted to be consumed by the proposed facility and other increment-consuming sources in the area is as follows:

PM_{10}

Maximum Averaging Time	Maximum Increment Consumed ($\mu g/m^3$)	Allowable Increment ($\mu g/m^3$)
24-hour	24	30
Annual	4	17

$PM_{2.5}$

Maximum Averaging Time	Maximum Increment Consumed ($\mu g/m^3$)	Allowable Increment ($\mu g/m^3$)
24-hour	5	9
Annual	1	4

This application was submitted to the TCEQ on January 9, 2017. The executive director has determined that the emissions of air contaminants from the proposed facility which are subject to PSD review will not violate any state or federal air quality regulations and will not have any significant adverse impact on soils, vegetation, or visibility. All air contaminants have been evaluated, and "best available control technology" will be used for the control of these contaminants.

The executive director has completed the technical review of the application and prepared a draft permit which, if approved, would establish the conditions under which the facility must operate. The permit application, executive

director's preliminary decision, draft permit, and the executive director's preliminary determination summary and executive director's air quality analysis, will be available for viewing and copying at the TCEQ central office, the TCEQ San Angelo regional office, and at the F.M. Richards Memorial Library, 1106 South Blackburn Street, Brady, McCulloch County, Texas, beginning the first day of publication of this notice. The facility's compliance file, if any exists, is available for public review at the TCEQ San Angelo Regional Office, 622 South Oakes, Suite K, San Angelo, Texas.

INFORMATION AVAILABLE ONLINE. These documents are accessible through the Commission's Web site at www.tceq.texas.gov/goto/cid: the executive director's preliminary decision which includes the draft permit, the executive director's preliminary determination summary, air quality analysis, and, once available, the executive director's response to comments and the final decision on this application. Access the Commissioners' Integrated Database (CID) using the above link and enter the permit number for this application. The public location mentioned above, the F.M. Richards Memorial Library, provides public access to the internet. This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For exact location, refer to application. http://www.tceq.texas.gov/assets/public/hb610/index.html?lat=31.21863&lng=-99.29291&zoom=13&type=r.

PUBLIC COMMENT/PUBLIC MEETING. The TCEQ will hold a public meeting for this application. You may submit public comments on this application or request a contested case hearing to the TCEQ Office of the Chief Clerk at the address below. The purpose of a public meeting is to provide the opportunity to submit comments or to ask questions about the application. A public meeting is not a contested case hearing. The TCEQ will consider all public comments in developing a final decision on the application. The public meeting will consist of two parts, an Informal Discussion Period and a Formal Comment Period. During the Informal Discussion Period, the public is encouraged to ask questions of the applicant and TCEQ staff concerning the application. However, informal comments made during the Informal Discussion Period will not be considered by the TCEQ Commissioners before reaching a decision on the permit and no formal response will be made to the informal comments. During the Formal Comment Period, members of the public may state their formal comments into the official record. A written response to all formal comments will be prepared by the Executive Director and considered by the Commissioners before they reach a decision on the permit. A copy of the response will be sent to each person who submits a formal comment or who requested to be on the mailing list for this application and who provides a mailing address. Only relevant and material issues raised during the formal comment period can be considered if a contested case hearing is granted.

The Public Meeting is to be held:

Thursday, June 21, 2018 at 7:00 pm
Ed Davenport Civic Center
8163 San Angelo Highway
Brady, Texas 76825

You may submit additional written public comments within 30 days of the date of newspaper publication of this notice in the manner set forth in the AGENCY CONTACTS AND INFORMATION paragraph below. After the deadline for public comment, the executive director will consider the comments and prepare a response to all public comment. The response to comments, along with the executive director's decision on the application will be mailed to everyone who submitted public comments or is on a mailing list for this application.

OPPORTUNITY FOR A CONTESTED CASE HEARING. You may request a contested case hearing regarding the portions of the application for State Air Quality Permit Number 144729 and for PSD Air Quality Permit Number PSDTX1514. There is no opportunity to request a contested case hearing regarding the portion of the application for GHG PSD Air Quality Permit Number GHGPSDTX165. A contested case hearing is a legal proceeding similar to a civil trial in a state district court. A person who may be affected by emissions of air contaminants, other than GHGs, from the facility is entitled to request a hearing. A contested case hearing request must include the following: (1) your name (or for a group or association, an official representative), mailing address, daytime phone number; (2) applicant's name and permit number; (3) the statement "I/we request a contested case hearing;" (4) a specific description of how you would be adversely affected by the application and air emissions from the facility in a way not common to the general public; (5) the location and distance of your property relative to the facility; (6) a description of how you use the property which may be impacted by the facility; and (7) a list of all disputed issues of fact that you submit during the comment period. If the request is made by a group or association, one or more members who have standing to request a hearing must be identified by name and

physical address. The interests the group or association seeks to protect must also be identified. You may also submit your proposed adjustments to the application/permit which would satisfy your concerns. Requests for a contested case hearing must be submitted in writing within 30 days following this notice to the Office of the Chief Clerk, at the address provided in the information section below.

A contested case hearing will only be granted based on disputed issues of fact or mixed questions of fact and law that are relevant and material to the Commission's decisions on the application. The Commission may only grant a request for a contested case hearing on issues the requestor submitted in their timely comments that were not subsequently withdrawn. Issues that are not submitted in public comments may not be considered during a hearing.

EXECUTIVE DIRECTOR ACTION. The executive director may issue final approval of the application for the portion of the application for GHG PSD Air Quality Permit GHGPSDTX165. If a timely contested case hearing request is not received or if all timely contested case hearing requests are withdrawn regarding State Air Quality Permit Number 144729 and for PSD Air Quality Permit Number PSDTX1514, the executive director may issue final approval of the application. The response to comments, along with the executive director's decision on the application will be mailed to everyone who submitted public comments or is on a mailing list for this application, and will be posted electronically to the CID. If any timely hearing requests are received and not withdrawn, the executive director will not issue final approval of the State Air Quality Permit Number 144729 and for PSD Air Quality Permit Number PSDTX1514 and will forward the application and requests to the Commissioners for their consideration at a scheduled commission meeting.

MAILING LIST. You may ask to be placed on a mailing list to obtain additional information on this application by sending a request to the Office of the Chief Clerk at the address below.

AGENCY CONTACTS AND INFORMATION. Public comments and requests must be submitted either electronically at www.tceq.texas.gov/about/comments.html, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Please be aware that any contact information you provide, including your name, phone number, email address and physical address will become part of the agency's public record. For more information about this permit application or the permitting process, please call the Public Education Program toll free at 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from US Cement LLC at the address stated above or by calling Mr. Bruce Broberg, P.E., Gulf Business Unit Leader at (713) 244-1062.

Notice Issuance Date: May 4, 2018

Special Conditions

Permit Numbers 144729, PSDTX1514, and GHGPSDTX165

1. This permit authorizes a dry cement kiln and associated operations located on U. S. Highway 377, Brady, McCulloch County.

2. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," and those sources are limited to the emission limits and other conditions specified in the table. This permit authorizes planned maintenance, startup, and shutdown (MSS) activities which comply with the emission limits in the maximum allowable emission rates table (MAERT).

Federal Applicability

3. These facilities shall comply with all applicable requirements of the following regulations:

   A. The Texas Commission on Environmental Quality (TCEQ) regulations in Title 30 Texas Administrative Code (30 TAC) Chapter 117, Division 2 – Cement Kilns.

   B. The United States Environmental Protection Agency (EPA) Standards of Performance for New Stationary Sources (NSPS) in Title 40 Code of Federal Regulations (40 CFR) Part 60:

      (1) Subpart A – General Provisions; and

      (2) Subpart F - Portland Cement Plants; and

      (3) Subpart OOO – Nonmetallic Mineral Processing Plants; and

      (4) Subpart IIII - Stationary Compression Ignition Internal Combustion Engines.

   C. The EPA National Emission Standards for Hazardous Air Pollutants (NESHAPS) for Source Categories in 40 CFR Part 63:

      (1) Subpart A - General Provisions; and

      (2) Subpart LLL - Portland Cement Manufacturing Industry; and

      (3) Subpart ZZZZ - Stationary Reciprocating Internal Combustion Engines (RICE). For stationary RICE subject to regulations under 40 CFR Part 60, a new or reconstructed stationary RICE located at an area source must meet the requirements of this subpart by meeting the requirements of 40 CFR Part 60 Subpart IIII, for compression ignition engines. No further requirements apply for such engines under this subpart.

   D. If any condition of this permit is more stringent than the regulations so incorporated, then for the purposes of complying with this permit, the permit condition shall govern and be the standard by which compliance shall be demonstrated.

Emissions Standards, Fuel Specifications, and Operating Specifications

4. The facility shall be limited to the following hourly and annual throughput rates:

Table 1: Hourly and Annual Throughput Limits

Source	Maximum tons per hour (tph)	Tons per year (tpy) in any rolling 12-month period

Source	Maximum tons per hour (tph)	Tons per year (tpy) in any rolling 12-month period
Limestone / Kaolin Crusher capacity	95	830,340
Kiln Clinker Production	69	496,040

5. Authorized kiln and precalciner fuel is limited to pipeline-quality natural gas with sulfur content less than 1 grain (gr) sulfur per 100 dry standard cubic feet (dscf).

6. The natural gas shall be sampled annually to determine total sulfur and net heating values. Test results from the fuel supplier may be used to satisfy this requirement. Additionally, upon written request by the Executive Director of the Texas Commission on Environmental Quality (TCEQ), EPA, or any local air pollution control program having jurisdiction, the holder of this permit shall provide a sample and/or analysis of the fuel utilized at this facility at the time the request is made or shall allow air pollution control agency representatives to obtain a sample for analysis.

7. During normal operations, emissions from the kiln and clinker cooler shall not exceed the following:

   A. Concentration limits:

Pollutant	Kiln [EPN 202BF01] Limit	Averaging Period
Particulate Matter (PM) filterable ($PM/PM_{10}/PM_{2.5}$)	0.00291 gr/dscf with raw mill on 0.002 gr/dscf with raw mill off	30 operating day rolling average excluding periods of startup and shutdown
Total Hydrocarbons (THC)	24 parts per million THC (as propane) by volume dry (ppmvd) corrected to 7% O_2	
Nitrogen Oxides (NO_x)	1.5 pounds per ton of clinker	
Sulfur dioxide (SO_2)	0.4 pounds per ton of clinker	
Hydrogen Chloride (HCl)	3 ppmvd corrected to 7% O_2	
Ammonia (NH_3)	10 ppmvd corrected to 7% O_2	24 hour rolling average
Pollutant	**Clinker Cooler [EPN 303BF01] Limit**	**Averaging Period**
Particulate Matter (PM) filterable ($PM/PM_{10}/PM_{2.5}$)	0.00292 gr/dscf (alternative PM emission limit for commingled sources per 40 CFR 63.1343(b)(2))	30 operating day rolling average excluding periods of kiln startup and shutdown

B. Special Condition No. 7.A. does not apply during the modes of kiln operation identified in (1) – (2) below. During these periods, the facility shall comply with the emissions limits in the MAERT.

(1) During initial and planned maintenance activities. Planned maintenance activities include scheduled events that occur after the completion of initial construction, major repairs to the kiln or calciner, and other similar circumstances.

(2) During periods of startup or shutdown activities as defined in Special Condition No. 36.

8. Limestone will be quarried on site. Raw feed shall be comprised of limestone, gypsum, kaolin, sand, and additives as represented in the January 2017 application.

9. The 200 brake horsepower emergency engine is limited to:

A. 24 hours of non-emergency operation per year as represented;

B. diesel fuel containing no more than 0.0015 percent sulfur by weight;

C. a non-resettable run time meter shall be installed on each engine.

Selective Non-catalytic Reduction (SNCR)

10. For the kiln, SNCR NO_x control technology must be operated as required to comply with the NOx emissions limits in Special Condition 7 and the MAERT during all periods of normal kiln operation. Normal kiln operation does not include the following circumstances:

A. Maintenance, Startup, and Shutdown (MSS) activity when the precalciner operating temperature is too low (i.e., below 1562°F) for proper SNCR operation; and

B. an imminent or actual breakdown or excursion of the process, or other process that results in unauthorized emissions; or when a detached or secondary plume is observed by using EPA Test Method (TM) 22 of Appendix A-7 in 40 CFR Part 60. The permit holder must notify the TCEQ Regional Office within 24 hours of a positive EPA TM 22 observation of a detached or secondary plume. This notification does not satisfy excess opacity event reporting requirements under 30 TAC § 101.201.

Opacity / Visible Emission Limitations

11. The kiln tail and raw grinding mill baghouse (EPN 202BF01) and kiln head and cooler baghouse (EPN 303BF01) shall control emissions as indicated in Special Condition No. 7.

12. All other baghouses shall control associated emissions to 0.002 gr/dscf PM.

13. The permit holder shall install, calibrate, operate, and maintain PM continuous parametric monitoring system (CPMS) to monitor and record the applicable site-specific operating parameters for the kiln (EPN 202BF01) and clinker cooler (EPN 303BF01) in accordance with 40 CFR Part 60, Subpart F and 40 CFR Part 63, Subpart LLL.

A PM CPMS that has passed the initial certification requirements of 40 CFR Part 63, Subpart LLL may be used instead of a continuous opacity monitoring system (COMS). A site specific relationship between PM emissions and opacity measurements shall be developed to establish a

level of CPMS output that reliably corresponds to the required opacity in Special Condition No. 15. Compliance with such a CPMS level will be considered to demonstrate compliance with the opacity limits for the kiln and clinker cooler; however, the TCEQ may use EPA Test Method 9 to determine opacity at any time.

14. Visible fugitive emissions shall not leave the property for more than 30 cumulative seconds in any six-minute period.

15. In accordance with 40 CFR Part 60, Appendix A, Test Method 9 or equivalent, and except for those periods described in 30 Texas Administrative Code (30 TAC) § 101.201 and § 101.211, opacity of emissions shall not exceed the limits in the table below:

Source	Opacity Limit (for any six-minute period)
Kiln Exhaust (EPN 202BF01)	5%
Clinker Cooler Exhaust (EPN 303BF01)	5%
Raw and finish mills	5%
Other[1]	5%

[1] Any stationary emission source with EPN not specifically listed in above table.

16. Observations for visible emissions shall be performed and recorded daily while the facility is in operation. The visible emission determination must be made in accordance with 40 CFR Part 60, Appendix A, Test Method 22. The observation period when conducting Method 22 shall extend for at least one minute during normal operations. Contributions from uncombined water shall not be included in determining compliance with this condition. If visible emissions are observed, then the permit holder must conduct a six minute test of opacity in accordance with 40 CFR Part 60 Appendix A, Test Method 9. The Method 9 test must begin within one hour of any observation of visible emissions.

17. The facilities are authorized to operate up to 8,760 hours per year.

18. All in-plant roads and traffic areas shall be paved with a cohesive hard surface that can be cleaned by sweeping or washing. All roads and active work areas shall be sprayed with water or dust suppressant with an installed area type water spray or a dedicated truck upon detection of visible particulate matter emissions to maintain compliance with all applicable TCEQ rules and regulations.

Material Handling Control Technology

19. Material transfer points shall be controlled by baghouses, complying with Special Condition No. 12.

20. Conveyors shall be enclosed.

21. Drop points shall be enclosed.

22. Crushers shall be partially enclosed (that is, with a roof and enclosed on three sides).

23. Storage / stock piles (including those for waste and overburden) shall be enclosed, controlled with a baghouse meeting 0.002 gr/dscf PM.

24. The permit holder shall comply with the following:

    A. All air pollution control equipment will be maintained in good working order and will be operating properly at all times during plant operation except those allowed per Special Condition Nos. 35 through 39. Cleaning and maintenance of the abatement equipment shall be performed as recommended by the manufacturer or more frequently as required by the TCEQ, and as necessary so that the equipment efficiency can be adequately maintained.

    B. Fans and ducting from emission points to the baghouses are part of the air pollution control equipment. All hood, duct, and collection systems shall be effective in capturing emissions from this equipment and in preventing fugitive emissions from all buildings. The hood and duct system shall be maintained free of holes, cracks, and other conditions that would reduce the collection efficiency of the emission capture system. Capture systems shall be visually observed for holes, cracks, and tears at least quarterly. Any holes, cracks, or other condition in the hood and duct system that reduces the collection efficiency must be repaired as soon as practicable.

    C. Outgoing railroad cars and trucks used in transporting cement and clinker shall be cleaned and maintained as necessary to minimize fugitive emissions.

    D. Material collected by air pollution abatement equipment, which is not returned to the process, shall be disposed of in a manner that minimizes any emissions in transit and prevents any emissions after disposal.

    E. Spillage of cement, clinker, or additives shall be cleaned up and contained or dampened as soon as practicable such that dust emissions from wind erosion, vehicle traffic, and other fugitive dust emissions are minimized.

Ammonia Handling

25. The permit holder shall maintain appropriate prevention and protection measures for the NH_3 storage system. NH_3 storage tank areas will be marked and protected so as to protect the NH_3 storage areas from accidents that could cause a rupture. The aqueous ammonia stored shall have a concentration of less than 20% NH_3 by weight.

26. In addition to the requirements of Special Condition No. 25, the permit holder shall maintain the piping and valves in NH_3 service as follows:

    A. Audio, visual, and olfactory (AVO) checks for NH_3 leaks shall be made daily when the kiln is operating.

    B. Immediately, but no later than 24 hours following the detection of a leak, plant personnel shall take one or more of the following actions:

        (1) Locate and isolate the leak, if necessary.

        (2) Commence repair or replacement of the leaking component.

        (3) If immediate repair is not possible, report the leak to the appropriate regulatory agency and use a leak collection or containment system to control the leak until repair or replacement can be made.

Initial Determination of Compliance

27. Sampling ports and platforms shall be incorporated into the design of the kiln stack (EPN 202BF01), the clinker cooler stack (EPN 303BF01), and the finish mill stacks (EPNs 403BF01, 403BF02, and 403BF03) according to the specifications set forth in "Chapter 2, Guidelines for Stack Sampling Facilities." Alternate sampling facility designs may be submitted for approval by the TCEQ Regional Director.

28. To demonstrate compliance with the MAERT and with the emission performance levels as specified in the special conditions, the holder of this permit shall perform stack sampling and/or other testing within 180 days of startup to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere. Sampling must be conducted in accordance with appropriate procedures of the TCEQ Sampling Procedures Manual and in accordance with EPA Test Methods. (TMs).

    The holder of this permit is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at its expense. Production rates shall be recorded during each test run and entered in the final sampling report. Within 60 days of the completion of the sampling, the holder of this permit shall submit a copy of the final sampling report to the TCEQ Regional Office for review.

    A. For the kiln (EPN 202BF01): Air contaminants emitted from the kiln to be tested for include PM_{10}, $PM_{2.5}$, CO, NO_x, SO_2, and VOC. Initial determination of compliance for emissions of PM (filterable), NO_x, CO, SO_2, and THC shall be performed in accordance with the applicable initial compliance requirements of 40 CFR Part 63, Subpart LLL.

    B. The TCEQ Regional Office shall be contacted as soon as testing is scheduled, but not less than 30 days prior to sampling to schedule a pretest meeting. The notice shall include:

        (1) Date for pretest meeting.

        (2) Date sampling will occur.

        (3) Name of firm conducting sampling.

        (4) Type of sampling equipment to be used.

        (5) Method or procedure to be used in sampling.

        The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper forms for recording pertinent data, and to review the format and procedures for submitting the test reports. In addition, TCEQ may identify species of PM_{10} and VOC to be analyzed from the PM_{10} and VOC samples. The pretest meeting shall be conducted on-site at the facility in the presence of a qualified person knowledgeable about stack testing and the units being tested.

        A written proposed description of any deviation from sampling procedures specified in permit conditions or TCEQ or EPA sampling procedures shall be made available to the TCEQ prior to the pretest meeting. The TCEQ Regional Director shall approve or disapprove of any deviation from specified sampling procedures.

    C. The deadlines for the sampling specified in this permit may be extended. Requests for additional time to perform sampling shall be submitted to the TCEQ Regional Office. EPA approval is required to grant additional time to comply with any applicable federal requirements such as 40 CFR Part 60 and 40 CFR Part 63.

D. Test waivers and alternate/equivalent procedure proposals for NSPS and NESHAPS for Source Categories testing which must have EPA approval shall be submitted to the TCEQ Regional Director.

E. Actual operation percentages for raw mill on and for raw mill off and stack test data shall be used in the calculation of the hourly and annual emissions of filterable (front half) and condensable (back half) $PM/PM_{10}/PM_{2.5}$ and VOC to demonstrate compliance with the emission limits presented in the MAERT and outlet grain loading requirement in Special Condition No. 7.A.

F. Primary operating parameters that enable determination of production rates shall be monitored and recorded during the stack test. These parameters, which are to be determined at the pretest meeting, may include but not be limited to:

(1) Hourly natural gas firing rate;

(2) Limestone / kaolin feed rate;

(3) Clinker production rate during test;

(4) Control device operating rates, including SNCR reagent injection rate;

(5) Emissions in the units of the limits of this permit, lb/hr and lb/MMBtu, three one hour stack sampling test runs or 30-day average, as appropriate.

Additional stack testing may be required if the kiln achieves a production rate more than 10 percent higher than the rate that occurred during the most recent stack test performed after the issuance of this permit.

G. Two copies of each initial demonstration of compliance sampling report shall be forwarded to the TCEQ within 60 days after sampling is completed unless an extension is granted by the TCEQ Regional Office. Sampling reports shall comply with the provisions of Chapter 14 of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:

(1) One copy to the TCEQ San Angelo Regional Office.

(2) One copy to the TCEQ Austin Office of Air, Air Permits Division.

Demonstration of Continuous Compliance

29. Upon request by the TCEQ Executive Director or the TCEQ Regional Director having jurisdiction, the holder of this permit shall perform stack sampling and/or other testing as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere or to demonstrate compliance with represented outlet grain loadings in Special Condition Nos. 7.A, 11, 12 and/or 23. The tests shall be performed during normal operation of the facilities and shall be performed in accordance with accepted TCEQ practices and procedures.

30. The holder of this permit shall conduct a quarterly visible emissions determination to demonstrate compliance with the visible emissions limitations specified in this permit. This visible emissions determination shall be performed: 1) during normal plant operations, 2) for a minimum of six minutes, 3) approximately perpendicular to plume direction, 4) with the sun behind the observer (to the extent practicable), 5) at least 15 feet, but not more than 0.25 mile, from the plume, and 6) in accordance with EPA 40 CFR Part 60, Appendix A, Test Method 22, except where stated otherwise in this condition. If visible emissions leaving the property exceed 30 cumulative seconds in any six-minute period, the owner or operator shall take immediate action (as appropriate) to eliminate the

excessive visible emissions. The corrective action shall be begun within 24 business hours and documented within 24 business hours of completion.

31. The differential pressure across each baghouse shall be continuously monitored and be recorded at least once an hour. The pressure drop shall be at least 2 inches water gauge pressure and shall not exceed 6 inches water gauge pressure. Torn or leaking filter bags shall be replaced whenever the pressure drop across the filter bags no longer meets the range specified above. Records of maintenance performed, including dates of filter replacements, shall be maintained. If the filter system operating performance parameters are outside the above water column limits, the affected facility shall not be in operation until the abatement equipment is repaired.

    Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications or at least annually, whichever is more frequent, and shall be accurate to within 0.5 inches water gauge pressure or 0.5 percent of span.

    Quality assured (or valid) data must be generated when the facility is operating except during the performance of a daily zero check. Loss of valid data due to periods of monitor breakdown, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in hours) that the facility operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

32. The holder of this permit shall install, calibrate and maintain a Continuous Emissions Monitoring System (CEMS) to measure and record the NO_x and CO concentrations, and continuous flow rate sensors to measure and record the exhaust flow rate from the Kiln stack, EPN 202BF01.

    A. The CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 2 through 4, 40 CFR Part 60, Appendix B.

    B. The flow rate sensor shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification No. 6, 40 CFR Part 60, Appendix B.

    C. The CEMS shall be zeroed and spanned daily and corrective action taken when the 24 hour drift exceeds two times the amount specified in 40 CFR 60, Appendix B, or as specified by the TCEQ if not specified in Appendix B. Zero and span is not required on weekends or holidays if instrument technicians are not normally scheduled on those days, unless the monitor is required by a subpart of NSPS or NESHAPS, in which case zero and span shall be done daily without exception.

    D. Each CEMS shall be quality-assured at least quarterly accordance with 40 CFR Part 60, Appendix F, Procedure 1, § 5.1.2. All cylinder gas audit results and any CEMS downtime shall be reported quarterly to the appropriate TCEQ Regional Director, and necessary corrective action shall be taken if the downtime exceeds 10 percent of the kiln operating hours in the quarter. Failure to complete any corrective action as directed by the TCEQ Regional Office may be deemed a violation of the permit. For non-NSPS sources, an equivalent method approved by the TCEQ may be used.

    E. Each CEMS shall complete a minimum of one cycle of sampling, analyzing, and data recording for each successive 15-minute period. One-hour average concentrations and

pounds of pollutant per hour shall be computed from normally at least four, and a minimum of two, data points equally-spaced over each one-hour period. Data recorded during periods of CEMS breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the computed data averages.

F. The TCEQ San Angelo Regional Director shall be notified within 24 hours after the discovery of any CEMS malfunction which is expected to result in more than 24 hours of lost data. Supplemental stack concentration measurements may be required at the discretion of the TCEQ Regional Director in case of extended CEMS downtime.

G. The TCEQ San Angelo Regional Office shall be notified in writing at least 30 days prior to the quarterly cylinder gas audit required by Appendix F in order to provide the TCEQ staff the opportunity to observe the testing.

H. The NOx and CO CEMS and the continuous flow rate sensor shall be used as a continuous emission rate monitoring system for NOx and CO.

33. The NH_3 concentration in the Kiln Exhaust Stack (EPN 202BF01) shall be monitored or calculated according to one of the methods listed below and shall be tested or calculated according to frequency listed below. Testing for NH_3 slip is only required on days when the SNCR unit is in operation.

A. The holder of this permit may install, calibrate, maintain, and operate a CEMS to measure and record the concentrations of NH_3. The NH_3 concentrations shall be corrected and reported in accordance with Special Condition No. 7 above.

B. The permit holder may establish a correlation between the maximum NH_3 slip limit and maximum NH_3 injection rate or other surrogate parameter that may be monitored to determine compliance with NH_3 MAERT limits.

C. The NH_3 slip may be measured using a sorbent or stain tube device specific for NH_3 measurement in the appropriate range. The frequency of sorbent or stain tube testing shall be monthly.

(1) If the sorbent or stain tube testing indicates an ammonia (NH_3) slip concentration that exceeds 10 parts per million (ppm) at any time, the permit holder shall begin NH_3 testing by either the Phenol-Nitroprusside Method, the Indophenol Method, or EPA Conditional Test Method (CTM) 27 on a quarterly basis in addition to the monthly sorbent or stain tube testing.

(2) If the quarterly testing indicates NH_3 slip is 10 ppm or less, the Phenol Nitroprusside Indophenol CTM 27 tests may be suspended until sorbent or stain tube testing again indicate 35 ppm NH_3 slip or greater.

D. The permit holder may install and operate a second NO_x CEMS probe located between the kiln and the SNCR, upstream of the stack NO_x CEMS, which may be used in association with the SNCR efficiency and NH_3 injection rate to estimate NH_3 slip. This condition shall not be construed to set a minimum NO_x reduction efficiency on the SNCR unit.

E. The permit holder may install and operate a dual stream system of NO_x CEMS at the exit of the SNCR. One of the exhaust streams would be routed, in an unconverted state, to one NO_x CEMS, and the other exhaust stream would be routed through a NH_3 converter to convert NH_3 to NO_x and then to a second NO_x CEMS. The NH_3 slip concentration shall be calculated from the delta between the two NO_x CEMS readings (converted and unconverted).

F. Any other alternative methods used for measuring NH_3 slip shall require prior written approval from the TCEQ Air Permits Division in Austin.

34. The holder of this permit shall install, calibrate and maintain systems and operate such systems as necessary to control contaminants regulated by 40 CFR 63, Subpart LLL to the emission limits set in Special Condition 7.

Maintenance, Startup, and Shutdown

35. The holder of this permit shall minimize emissions during planned MSS activities by operating the facility and associated air pollution control equipment in accordance with good air pollution control practices, safe operating practices, and protection of the facility. Particulate and hazardous air pollutant controls shall be operational during startup and shutdown.

36. Planned kiln startups and shutdowns are defined as follows:

A. A planned startup of the kiln is defined as the period starting when the kiln's induced draft fan is turned on and fuel is fired in the main burner and ending when feed is being continuously introduced into the kiln for at least 120 minutes or when the feed rate exceeds 57 tons per hour, whichever occurs first.

B. A planned shutdown of the kiln is defined as the period starting when feed to the kiln is halted and ending when continuous kiln rotation ceases.

37. Conditions regarding refractory changeout:

A. Temporary storage of spent refractory on site shall be sprayed with water or dust suppressant and removed within 48 hours.

B. Refractory changeout shall not occur simultaneously with operation of Engine 1.

38. Compliance with the emissions limits for planned maintenance activities identified in this permit shall be demonstrated as follows.

A. For inherently low-emitting (ILE) planned maintenance activities (Attachment A):

(1) The total emissions from all ILE planned maintenance activities shall be considered to be no more than the estimated potential to emit for those activities that are represented in the permit application and subsequent associated submittals.

(2) The permit holder shall annually confirm the continued validity of the estimated potential to emit as represented in the permit application and subsequent associated submittals. Any increase of estimated potential to emit shall be authorized through an appropriate application to the TCEQ Air Permit Division.

B. Other planned maintenance activities which comply with the emission limits of the MAERT are authorized.

39. Emissions from planned MSS activities authorized by this permit shall be determined by the use of an appropriate method, including but not limited to any of following methods:

A. Use of a CEMS. If emission concentrations measured by the CEMS during MSS activities exceed the maximum value of the range over which the CEMS is certified, additional information must be provided to justify the use of the CEMs data in the MSS emission determination. The additional information may include use of default values that are shown to conservatively estimate the actual emissions.

B. Use of emission factors including but not limited to, facility-specific parameters, manufacturer's emission factors, and/or engineering knowledge of the facility's operations.

C. Use of emissions data measured (by a CEMS or during emissions testing) during the same type of planned MSS activity occurring at or on an identical or similar facility, and correlation of that data with the facility's relevant operating parameters, including, but not limited to, temperature, fuel input, or fuel sulfur content.

D. Use of emissions testing data collected during a planned maintenance activity occurring at or on the facility, and correlation of that data with the facility's relevant operating parameters, including, but not limited to, temperature, fuel input, or fuel sulfur content.

Recordkeeping Requirements

40. In addition to the recordkeeping requirements specified in General Condition No. 7, 40 CFR Part 60, Subparts A, F, and OOO, and 40 CFR Part 63, Subparts A and LLL, the following records shall be maintained at this facility site and made available at the request of personnel from the TCEQ or any other air pollution control program having jurisdiction to demonstrate compliance with permit limitations. Records shall be maintained on-site on a rolling five-year retention basis:

A. Daily production rates summed on an annual basis.

B. Daily fuel consumption of natural gas. Fuel consumption records shall be summed monthly.

C. Annual records of the natural gas fuel sulfur content based on receipts or chemical analyses as required by Special Condition No. 6.

D. Records regarding the 200 hp emergency engine:

(1) Hours of non-emergency operation kept on a monthly and rolling 12-month basis.

(2) Records of diesel fuel delivery indicating date and quantity of fuel delivered. If the diesel fuel is designated ultra-low sulfur diesel (ULSD) on the receipt, this is acceptable as showing compliance with Special Condition No. 9.B. Otherwise, keep records of the sulfur content of the fuel based on receipts or chemical analyses.

E. Daily, monthly, and annual amounts of raw materials fed to the kiln and processed, summarized in tons per hour, tons per month, and tons per year;

F. Baghouse pressure drop records, as required by Special Condition No. 31.

G. Documentation of air pollution control equipment (including baghouses) malfunctions, maintenance, and repair, including but not limited to date and time of maintenance, individual performing the maintenance, date of repair, and repair summary.

H. CPMS or COMS data for opacity, and NO_x and CO from CEMS to demonstrate compliance with the emission rates listed in the MAERT and performance standards listed in this permit for pollutants that are monitored by CEMS or CPMS/COMS. Records shall identify the times when emissions data have been excluded from the calculation of average emission rates because of planned maintenance, startup, shutdown, fuel type, or malfunction along with the

justification for excluding data. Records should also identify factors used in calculations that are used to demonstrate compliance with emissions limits and performance standards.

I. Documentation of all CEMS or COMS quality-assurance measures, calibration checks, adjustments, and maintenance performed on these systems and documentation of alternative NH_3 continuous demonstration of compliance, if any.

J. Records of NH_3 emissions sampling and calculations pursuant to Special Condition No. 33.

K. Records demonstrating compliance with AVO checks and maintenance as required by Special Condition No. 26.

L. Records (including date and time of day) of daily visible emissions observations as specified in Special Condition No. 16.

M. Records of road cleaning, application of road dust control, or road maintenance for dust control.

N. Records of planned MSS, including the following, to demonstrate compliance with Special Condition Nos. 35-38.B and the MAERT:

(1) Records of startup and shutdown of the kiln, including the date, time, duration, and emissions associated with those activities.

(2) Records of non-ILE planned maintenance activities and the associated emissions.

(3) Records of ILE planned maintenance activities and annual validations.

(4) Records of other planned maintenance activities and emissions associated with those activities.

Greenhouse Gases Special Conditions

41. Emissions from the kiln exhaust (EPN 202BF01) shall not exceed 0.95 tons carbon dioxide equivalent (CO_2e) per ton of produced clinker on a 12 month rolling average.

42. The kiln is limited to production of no more than 496,040 tons of clinker during a rolling 12-month period.

43. The kiln fan drive motors should include variable speed/variable frequency drive devices and will be operated in a manner that attempts to maximize energy efficiency. The kiln induced draft fan drive motors may have the ability to operate with damper controls when necessary.

44. Initial determination of compliance as specified in Special Condition No. 28 shall also include sampling for CO_2.

Provided it is conducted within the time frames and conforms with the notification requirements of this Special Condition and Special Condition No. 28, the CO_2 CEMs may satisfy for the initial performance test, in accordance with 40 CFR §98.34(c)(1), conforming with the Performance Specification 3 in appendix B to Part 60 for CO_2 concentration monitors and Performance Specification 5 in appendix B to Part 60 for the continuous rate monitoring system.

45. The permittee shall install, calibrate, maintain, and operate a CO_2 CEMS or other appropriate monitoring methodology and/or equipment to measure and record the concentration from the kiln in accordance with the CO_2 CEMS system requirements in 40 CFR 75.10(a)(3) and (a)(5).

A. The CEMS shall meet the design and performance specifications, pass the field tests, and meet the installation requirements and the data analysis and reporting requirements specified in the applicable Performance Specification Nos. 1 through 9, 40 CFR Part 60, Appendix B, or an acceptable alternative. If there are no applicable performance specifications in 40 CFR Part 60, Appendix B, contact the TCEQ Office of Air, Air Permits Division in Austin for requirements to be met.

The holder of this permit shall assure that the CEMS meets the applicable quality-assurance requirements specified in 40 CFR Part 60, Appendix F, Procedure 1, or an acceptable alternative. Relative accuracy exceedances, as specified in 40 CFR Part 60, Appendix F, § 5.2.3, and any CEMS downtime and all cylinder gas audit exceedances of ±15 percent accuracy shall be reported semiannually to the appropriate TCEQ Regional Director, and necessary corrective action shall be taken. Supplemental stack concentration measurements may be required at the discretion of the appropriate TCEQ Regional Director.

B. The monitoring data shall be reduced to hourly average values at least once every day, using a minimum of four equally-spaced data points from each one-hour period. At least two valid data points shall be generated during the hourly period in which zero and span is performed.

C. All monitoring data and quality-assurance data shall be maintained by the source for a period of five years and shall be made available to the TCEQ Executive Director or a designated representative upon request. The hourly average data from the CEMS shall be used to determine compliance with the conditions of this permit. Kiln No. 2 CEMS data shall also be used to produce TPY each month and used to determine compliance with the annual tonnage emission limits of this permit.

D. If no accuracy exceedances, CEMS downtime, or gas audit exceedances were noted, a semi-annual report (including certification by Responsible Official) shall be submitted to the TCEQ Regional Director stating none were noted.

E. The appropriate TCEQ Regional Office shall be notified at least 30 days prior to any required RATAs in order to provide them the opportunity to observe the testing.

Greenhouse Gases Recordkeeping Requirements

46. Permit holders must keep records sufficient to demonstrate compliance with 30 TAC 116.164. Records shall be sufficient to demonstrate the amount of emissions of GHGs from the source as a result of construction; a physical change or a change in method of operation does not require authorization under 30 TAC 116.164(a). Records shall be maintained for a period of five years after collection.

47. The holder of this permit shall maintain the following records at the plant site in a form suitable for inspection for a period of five years after collection, and the records shall be made available upon request to representatives of the TCEQ, EPA, or any air pollution control agency with jurisdiction.

A. Daily and monthly clinker production rates.

B. Records of the average monthly consumption of fuels.

C. For each continuous emissions monitor, records of the nature and cause of any malfunction (if known), the corrective action taken, or preventive measures adopted shall be kept.

D. Total monthly CO_2 and CO_2e emissions are to be calculated and recorded monthly as follows:

(1) Sum total monthly CO_2 emissions from CEMS data.

(2) Calculate total nitrous oxide (N_2O) and methane (CH_4) monthly emissions from fuel combustion using Equation C-8 of 40 CFR Part 98, Subpart C.

(3) Convert CO_2, N_2O and CH_4 monthly emissions to CO_2e emissions using Equation A-1 of 40 CFR Part 98, Subpart A.

E. The monthly data from paragraph D of this special condition data shall be used to calculate rolling 12-month total emission rates of CO_2 and CO_2e to demonstrate compliance with emissions limits in the MAERT.

Draft Date: April 23, 2018

Attachment A

Permit Numbers 144729, PSDTX1514, and GHGPSDTX165

Maintenance Activities

Planned Maintenance Activity	EPN	Emissions					
		VOC	NO_x	CO	PM	SO_2	NH_3
Vacuum truck solids loading and unloading	MSS				x		
Material handling system maintenance	MSS				x		
Organic chemical usage	MSS	x			x		
CEMS / Analyzer calibration	MSS		x	x			x
Lube oil maintenance	MSS	x					
Refractory maintenance operations	MSS				x		
Refractory change out (including jack hammer powered by diesel air compressor)	MSS-REFRAC	x	x	x	x	x	
Refractory bake out	202BF01*				x		
Gaseous fuel venting	MSS	x					
Miscellaneous particulate filter maintenance	MSS				x		
Kiln particulate filter maintenance	MSS				x		

* Refractory bake out will include descaling of the kiln, which will occur with the kiln and dust collectors on-line, and emissions are no higher than normal emissions from the Kiln Tail and Raw Mill Baghouse (EPN 202BF01).

Draft Date: April 23, 2018

Emission Sources - Maximum Allowable Emission Rates

Permit Number 144729 and PSDTX1514

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
101-DP1	Raw Material Drop to Feed Hopper	PM	0.04	0.18
		PM_{10}	0.02	0.09
		$PM_{2.5}$	< 0.01	0.01
101-DP2	Raw Material Drop from Feed Hopper to Apron Feeder	PM	0.04	0.18
		PM_{10}	0.02	0.09
		$PM_{2.5}$	< 0.01	0.01
101-DP3	Raw Material Drop from Apron Feeder to Crusher	PM	0.04	0.18
		PM_{10}	0.02	0.09
		$PM_{2.5}$	< 0.01	0.01
101-DP4	Raw Material Drop from Apron Feeder and Crusher to Belt Conveyor	PM	0.04	0.18
		PM_{10}	0.02	0.09
		$PM_{2.5}$	< 0.01	0.01
101-DP5	Raw Material Drop from 101BC01 to Belt Conveyor 101BC02	PM	0.04	0.18
		PM_{10}	0.02	0.09
		$PM_{2.5}$	< 0.01	0.01
201-DP1	Raw Material Drop to Belt Conveyor	PM	0.04	0.18
		PM_{10}	0.02	0.09
		$PM_{2.5}$	< 0.01	0.01
201-DP2	Raw Material Drop to Hopper	PM	< 0.01	< 0.01
		PM_{10}	< 0.01	< 0.01
		$PM_{2.5}$	< 0.01	< 0.01
202-DP1	Blended Raw Material Drop to Belt Conveyor	PM	0.05	0.21
		PM_{10}	0.02	0.10
		$PM_{2.5}$	< 0.01	0.02

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
202-DP2	Ground Raw Materials Blend Drop to Belt Conveyor	PM	0.05	0.21
		PM_{10}	0.02	0.10
		$PM_{2.5}$	< 0.01	0.02
402-DP1	Additives Drop to Hopper	PM	< 0.01	0.01
		PM_{10}	< 0.01	< 0.01
		$PM_{2.5}$	< 0.01	< 0.01
304-DP1	Additives from Hopper to Crusher	PM	< 0.01	0.01
		PM_{10}	< 0.01	< 0.01
		$PM_{2.5}$	< 0.01	< 0.01
402-DP2	Additives Drop to Hopper	PM	0.01	0.03
		PM_{10}	< 0.01	0.01
		$PM_{2.5}$	< 0.01	< 0.01
402-DP3	Additives Drop to Hopper	PM	< 0.01	0.01
		PM_{10}	< 0.01	< 0.01
		$PM_{2.5}$	< 0.01	< 0.01
304-DP2	Additives Drop from Hopper to Crusher	PM	< 0.01	0.01
		PM_{10}	< 0.01	< 0.01
		$PM_{2.5}$	< 0.01	< 0.01
402-DP4	Additives Drop to Hopper	PM	0.01	0.03
		PM_{10}	< 0.01	0.01
		$PM_{2.5}$	< 0.01	< 0.01
405-DP1	White Cement Drop to Screw Conveyor	PM	0.04	0.17
		PM_{10}	0.02	0.08
		$PM_{2.5}$	< 0.01	0.01
405-DP2	White Cement Drop to Screw Conveyor	PM	0.04	0.17
		PM_{10}	0.02	0.08
		$PM_{2.5}$	< 0.01	0.01

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
101 CR01	Limestone / Kaolin Crusher	PM	0.02	0.08
		PM_{10}	0.01	0.03
		$PM_{2.5}$	< 0.01	0.01
304 CR01	Gypsum Crusher	PM	< 0.01	< 0.01
		PM_{10}	< 0.01	< 0.01
		$PM_{2.5}$	< 0.01	< 0.01
304 CR02	Gypsum Crusher	PM	< 0.01	< 0.01
		PM_{10}	< 0.01	< 0.01
		$PM_{2.5}$	< 0.01	< 0.01
101BF01	101 Conveyor/Apron Feeder Limestone / Kaolin Crushing (Baghouse)	PM	0.23	0.99
		PM_{10}	0.19	0.82
		$PM_{2.5}$	0.06	0.25
102BF01	102 Sand Mill Sand Grinding (Baghouse)	PM	0.37	1.60
		PM_{10}	0.30	1.33
		$PM_{2.5}$	0.09	0.40
102BF02	102 Sand Silo Sand Grinding (Baghouse)	PM	0.04	0.18
		PM_{10}	0.03	0.15
		$PM_{2.5}$	0.01	0.04
201BF01	201 Limestone Silo Raw Material Blending Station (Baghouse)	PM	0.09	0.40
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.02	0.10
201BF02	201 Kaolin Silo Raw Material Blending Station (Baghouse)	PM	0.06	0.27
		PM_{10}	0.05	0.22
		$PM_{2.5}$	0.02	0.07
201BF03	201 Kaolin Silo Raw Material Blending Station (Baghouse)	PM	0.06	0.27
		PM_{10}	0.05	0.22
		$PM_{2.5}$	0.02	0.07

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
201BF04	201 Sand Silo Raw Material Blending Station (Baghouse)	PM	0.06	0.27
		PM_{10}	0.05	0.22
		$PM_{2.5}$	0.02	0.07
201BF05	201 CaF_2 Silo Raw Material Blending Station (Baghouse)	PM	0.06	0.27
		PM_{10}	0.05	0.22
		$PM_{2.5}$	0.02	0.07
201BF06	201 Conveyor-BC02 Raw Material Blending Station (Baghouse)	PM	0.07	0.32
		PM_{10}	0.06	0.26
		$PM_{2.5}$	0.02	0.08
202BF01	Kiln Tail and Raw Mill Exhaust (Baghouse)	PM (7)	7.33	32.08
		PM_{10} (7)	6.41	28.07
		$PM_{2.5}$ (7)	2.45	10.71
		NO_x	103.34	452.64
		CO	95.07	416.43
		SO_2	27.56	120.70
		VOC	10.25	44.89
		HCl	1.06	4.64
		NH_3	1.52	6.63
202BF02	202 Conveyor-BC02 Raw Meal Grinding and Waste Gas Treatment (Baghouse)	PM	0.04	0.18
		PM_{10}	0.03	0.15
		$PM_{2.5}$	0.01	0.04
202BF03	202 Air Slide - AS01 Raw Meal Grinding and Waste Gas Treatment (Baghouse)	PM	0.04	0.18
		PM_{10}	0.03	0.15
		$PM_{2.5}$	0.01	0.04
203BF02	203 Raw Meal Homogenizing Silo #1 (Baghouse)	PM	0.14	0.59
		PM_{10}	0.11	0.49
		$PM_{2.5}$	0.03	0.15

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
203BF05	203 Raw Homogenizing Silo #2 (Baghouse)	PM	0.14	0.59
		PM_{10}	0.11	0.49
		$PM_{2.5}$	0.03	0.15
203BF01	203 Raw Meal Weighing Bin #1 / Homogenizing Silo (Baghouse)	PM	0.09	0.40
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.02	0.10
203BF04	203 Raw Weighing Bin #2 / Homogenizing Silo (Baghouse)	PM	0.09	0.40
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.02	0.10
203BF03	203 Air Slide - AS10 Raw Meal Homogenizing Silo (Baghouse)	PM	0.06	0.27
		PM_{10}	0.05	0.22
		$PM_{2.5}$	0.02	0.07
203BF06	203 Air Slide - AS20 Raw Meal Homogenizing Silo (Baghouse)	PM	0.06	0.27
		PM_{10}	0.05	0.22
		$PM_{2.5}$	0.02	0.07
303BF01	303 Kiln Cooler / Kiln Head (Baghouse Stack)	PM (7)	2.76	12.07
		PM_{10} (7)	2.29	10.02
		$PM_{2.5}$ (7)	0.69	3.02
304BF01	304 Clinker Silos #1 and #2 (Baghouse)	PM	0.12	0.54
		PM_{10}	0.10	0.45
		$PM_{2.5}$	0.03	0.13
304BF02	304 Clinker Silos #4 and #5 (Baghouse)	PM	0.12	0.54
		PM_{10}	0.10	0.45
		$PM_{2.5}$	0.03	0.13
304BF05	304 Unqualified Clinker Silo (Baghouse)	PM	0.07	0.29
		PM_{10}	0.06	0.24
		$PM_{2.5}$	0.02	0.07

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
304BF03	304 Conveyor - BC03 Clinker Silos (Baghouse)	PM	0.09	0.40
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.02	0.10
304BF04	304 Conveyor - BC06 Clinker Silos (Baghouse)	PM	0.09	0.40
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.02	0.10
402BF01	402 Clinker Silo #1 and #2 Cement Blending Station (Baghouse)	PM	0.09	0.40
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.02	0.10
402BF02	402 Gypsum and Admixture Silo #1 Cement Blending Station (Baghouse)	PM	0.09	0.40
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.02	0.10
402BF04	402 Clinker Silo #3 and #4 Cement Blending Station (Baghouse)	PM	0.09	0.40
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.02	0.10
402BF05	402 Gypsum and Admixture Silo #2 Cement Blending Station (Baghouse)	PM	0.09	0.40
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.02	0.10
402BF03	402 Conveyor - BC01 Cement Blending Station (Baghouse)	PM	0.09	0.40
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.02	0.10
402BF06	402 Conveyor - BC02 Cement Blending Station (Baghouse)	PM	0.09	0.40
		PM_{10}	0.08	0.33
		$PM_{2.5}$	0.02	0.10
403BF01	403 Cement Mill #1 Cement Grinding (Baghouse)	PM	1.47	6.42
		PM_{10}	1.22	5.32
		$PM_{2.5}$	0.37	1.60

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
403BF02	403 Cement Mill #2 Cement Grinding (Baghouse)	PM	0.46	2.02
		PM_{10}	0.38	1.68
		$PM_{2.5}$	0.12	0.50
403BF03	403 Cement Mill #2 Cement Grinding (Baghouse Stack)	PM	1.83	8.02
		PM_{10}	1.52	6.66
		$PM_{2.5}$	0.46	2.01
403BF04	403 Air Slide - AS07 Cement Grinding (Baghouse)	PM	0.04	0.18
		PM_{10}	0.03	0.15
		$PM_{2.5}$	0.01	0.04
403BF05	403 Air Slide - AS08 Cement Grinding (Baghouse)	PM	0.04	0.18
		PM_{10}	0.03	0.15
		$PM_{2.5}$	0.01	0.04
404BF01	404 Cement Silo #1 (Baghouse)	PM	0.11	0.49
		PM_{10}	0.09	0.41
		$PM_{2.5}$	0.03	0.12
404BF02	404 Cement Silo #2 (Baghouse)	PM	0.11	0.49
		PM_{10}	0.09	0.41
		$PM_{2.5}$	0.03	0.12
404BF03	404 Cement Silo #3 (Baghouse)	PM	0.11	0.49
		PM_{10}	0.09	0.41
		$PM_{2.5}$	0.03	0.12
404BF04	404 Cement Silo #4 (Baghouse)	PM	0.11	0.49
		PM_{10}	0.09	0.41
		$PM_{2.5}$	0.03	0.12
404BF05	404 Cement Silo #5 (Baghouse)	PM	0.11	0.49
		PM_{10}	0.09	0.41
		$PM_{2.5}$	0.03	0.12

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
404BF06	404 Cement Silo #6 (Baghouse)	PM	0.11	0.49
		PM_{10}	0.09	0.41
		$PM_{2.5}$	0.03	0.12
405BF01	405 Cement Packer #1 (Baghouse)	PM	0.18	0.79
		PM_{10}	0.15	0.65
		$PM_{2.5}$	0.05	0.20
405BF02	405 Cement Packer #2 (Baghouse)	PM	0.18	0.79
		PM_{10}	0.15	0.65
		$PM_{2.5}$	0.05	0.20
405BF03	405 Buffer Bin #1 and Reject Screen #1 Cement Packing (Baghouse)	PM	0.06	0.27
		PM_{10}	0.05	0.22
		$PM_{2.5}$	0.02	0.07
405BF04	405 Buffer Bin #2 and Reject Screen #2 Cement Packing (Baghouse)	PM	0.06	0.27
		PM_{10}	0.05	0.22
		$PM_{2.5}$	0.02	0.07
405BF05	405 Air Slide-AS03 Cement Packing (Baghouse)	PM	0.04	0.19
		PM_{10}	0.04	0.16
		$PM_{2.5}$	0.01	0.05
405BF06	405 Air Slide-AS04 Cement Packing (Baghouse)	PM	0.04	0.19
		PM_{10}	0.04	0.16
		$PM_{2.5}$	0.01	0.05
404BS01-i	404 Cement Bulking #1 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02
404BS02-i	404 Cement Bulking #2 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
404BS03-i	404 Cement Bulking #3 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02
404BS04-i	404 Cement Bulking #4 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02
404BS05-i	404 Cement Bulking #5 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02
404BS06-i	404 Cement Bulking #6 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02
404BS07-i	404 Cement Bulking #7 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02
404LS01-f	404 Cement Bulking #8 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02
404LS02-f	404 Cement Bulking #9 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02
404LS03-f	404 Cement Bulking #10 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02
404LS04-f	404 Cement Bulking #11 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
404LS05-f	404 Cement Bulking #12 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02
404LS06-f	404 Cement Bulking #13 (Baghouse)	PM	0.02	0.09
		PM_{10}	0.02	0.08
		$PM_{2.5}$	0.01	0.02
Engine 1	Emergency Engine(s), diesel fired, 1.4 MMBtu/hr, 24 hrs/yr	PM	0.07	<0.01
		PM_{10}	0.07	<0.01
		$PM_{2.5}$	0.07	<0.01
		SO_2	0.01	<0.01
		NO_x	1.32	0.02
		CO	1.15	0.01
		VOC	1.32	0.02
MSS-REFRAC (6)	Refractory Changeout MSS (including jack hammer powered by a diesel air compressor)	PM	1.03	0.01
		PM_{10}	0.49	< 0.01
		$PM_{2.5}$	0.07	< 0.01
		SO_2	< 0.01	< 0.01
		NO_x	0.18	0.01
		CO	0.21	0.01
		VOC	0.05	< 0.01
MSS (6)	MSS Emissions, including vacuum truck solids loading and unloading, material handling maintenance, equipment washing and cleaning, lube oil drum loading, CEMS calibration, refractory maintenance, gaseous fuel venting, misc. baghouse maintenance, and kiln baghouse	PM	0.07	< 0.01
		PM_{10}	0.03	< 0.01
		$PM_{2.5}$	0.01	< 0.01
		VOC	6.47	0.17
		NO_x	< 0.01	< 0.01
		CO	< 0.01	< 0.01
		NH_3	< 0.01	< 0.01

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
	maintenance.			

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
NO_x - total oxides of nitrogen
SO_2 - sulfur dioxide
PM - total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$, as represented
PM_{10} - total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$, as represented
$PM_{2.5}$ - particulate matter equal to or less than 2.5 microns in diameter
CO - carbon monoxide
CaF_2 - calcium fluoride
HCl - hydrochloric acid
NH_3 - ammonia
(4) Planned maintenance, startup, and shutdown (MSS) emissions are included.
(5) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
(6) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
(7) Compliance is based on a 30 operating day rolling average excluding periods of startup / shutdown (SU/SD) as defined in 40 CFR §63.1341.

Draft Date: April 23, 2018

Emission Sources - Maximum Allowable Emission Rates

Permit Number GHGPSDTX143

This table lists the maximum allowable emission rates of greenhouse gas (GHG) emissions, as defined in Title 30 Texas Administrative Code § 101.1, for all sources of GHG air contaminants on the applicant's property that are authorized by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities authorized by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates
			TPY (4)
202BF01	Kiln Head and Calciner	CH_4 (5)	2.8
		N_2O (5)	<1
		CO_2 (5)	573,339
		CO_2e	573,490
Engine 1	Emergency Engine	CH_4 (5)	<1
		N_2O (5)	<1
		CO_2 (5)	2.7
		CO_2e	2.7
NG Fugitives (6)	Natural Gas service fugitives	CH_4 (5)	2.9
		CO_2e	73

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources, use area name or fugitive source name.
(3) CO_2 - carbon dioxide
N_2O - nitrous oxide
CH_4 - methane
CO_2e - carbon dioxide equivalents based on the following Global Warming Potentials (1/2015): CO_2 (1), N_2O (298), CH_4 (25), SF_6 (22,800), HFC (various), PFC (various)
(4) Compliance with annual emission limits (tons per year) is based on a 12-month rolling period. These rates include emissions from maintenance, startup, and shutdown.
(5) Emission rate is given for informational purposes only and does not constitute enforceable limit.
(6) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.

Draft Date: April 23, 2018

Preliminary Determination Summary

US Cement LLC
Permit Numbers 144729, PSDTX1514, and GHGPSDTX165

I. Applicant

US Cement LLC
8316 East Freeway
Houston, Texas 77029-1612

II. Project Location

Brady Cement Plant
6.5 miles north on US Highway 377 from the intersection of 100 West Main St and US Highway 377
McCulloch County
Brady, Texas

III. Project Description

The applicant is requesting authorization for proposed new construction at a greenfield site of a royal white cement kiln, natural gas fired, producing up to 496,040 tons per year clinker, and appurtenant facilities. The facility is subject to a source specific (Portland Cement) National Emissions Standards for Hazardous Air Pollutants (NESHAP), also known as the PC Maximum Allowable Control Technology (MACT).

The plant will use a dry process and include a natural gas fired rotary kiln with a five stage preheater/calciner to produce up to 1656 tons per day white cement. Raw materials for the production of clinker include limestone, kaolin, sand, and calcium fluoride (CaF_2).

Emissions sources to be authorized by this permit at the proposed plant include enclosed stock piles, storage silos, a limestone and kaolin crusher, sand mill, raw material blending station, raw material grinding and drying, raw meal homogenization, cement kiln and clinker cooler, clinker silos, cement blending station, cement grinding station, cement silos, cement packing station, and various material handling and loading conveyances.

Unpaved roads within the facility (from quarry to crusher, from kaolin storage to crusher) will be watered as necessary to comply with visible emission restrictions. Roads used for truck traffic (raw materials from offsite, clinker and cement to offsite) will be paved and swept actively.

Associated maintenance, startup, and shutdown (MSS) activities are included.

IV. Emissions

Air Contaminant	Proposed Allowable Emission Rates (tpy)
VOC	45.08
NO_x	452.66
SO_2	120.70
CO	416.45
PM	81.59
PM_{10}	68.43
$PM_{2.5}$	22.71
HAPs (Hydrogen Chloride, HCl)	4.64
Ammonia (NH_3)	6.63
CO_2	573,342
CH_4	5.7
N_2O	<1
CO_2 Equivalents (CO_2e)	573,565

CO_2e - carbon dioxide equivalents based on global warming potentials of CH_4 = 25, N_2O = 298.

Front and back half catch species of particulate matter (PM) were included. All applicable federally regulated pollutants have been reviewed, as discussed in Section V below. Startup and shutdown emissions for sources are included within the units' estimated emissions as specified in the Maximum Allowable Emission Rate Table (MAERT). Separate maintenance emissions activities are identified and quantified in the MAERT.

V. Federal Applicability

McCulloch County is currently designated as an attainment area for all pollutants so nonattainment (NA) review is not applicable. No further NA review applicability is required.

The project is a new major source in McCulloch County. As shown in the below table, Prevention of Significant Deterioration (PSD) review is triggered for nitrogen oxide (NO_x), carbon monoxide (CO), particulate matter, including particulate matter with a diameter of 10 microns or less and 2.5 microns or less

($PM/PM_{10}/PM_{2.5}$), sulfur dioxide (SO_2), volatile organic compounds (VOC), and greenhouse gases (GHGs). No further PSD review applicability is required.

PSD Triggers

Pollutant	Project Increase (tpy)	PSD Significance Trigger (tpy)	PSD Review Triggered (Y/N)
NO_x	452.66	40	Y
CO	416.45	100	Y
PM	81.59	25	Y
PM_{10}	68.43	15	Y
$PM_{2.5}$	22.71	10	Y
SO_2	120.70	40	Y
Ozone as NO_x	452.66	40	Y
Ozone as VOC	45.08	40	Y
CO_2e	573,565	75,000	Y

Pollutants not subject to a PSD review are still subject to a state level review.

VI. Control Technology Review

The cement kiln is subject to the PC MACT (Title 40 Code of Federal Regulations [40 CFR] Part 63, Subpart LLL), which requires maximum available controls to meet specific emission limits for particulate matter and total hydrocarbons. Additional limits for NO_x and SO_2 are required for the kiln as specified in the New Source Performance Standards (NSPS) for Portland Cement (40 CFR 60 Subpart F).

In addition to a review of control technology for steady state operations, the Best Available Control Technology (BACT) analysis includes startup and shutdown emissions and the numerical emission limits in the draft permit reflect this analysis. BACT for each pollutant is reflected in the numerical limits in the MAERT.

As part of the BACT review process, the Texas Commission on Environmental Quality (TCEQ) evaluates information from the Environmental Protection Agency's (EPA's) RACT/BACT/LAER Clearinghouse (RBLC), on-going permitting in Texas and other states, and the TCEQ's continuing review of emissions control developments for pollutants triggering a PSD review. PSD review is triggered for NO_x, CO, PM, PM_{10}, $PM_{2.5}$, SO_2, VOC and GHGs and state level review is triggered for all other regulated pollutants, including HCl. An RBLC search of recently issued federal permits identified Portland Cement projects associated with several kiln sites. Control technologies used at these

sites include Selective Non-Catalytic Reduction (SNCR), thermal oxidizers, fabric filters, wet scrubbers, good combustion practices; sulfur content limits on fuel, wet Electrostatic Precipitator (ESP), dry sorbent injection, and/or Dry Flue Gas Desulfurization (FGD). Control technologies for the current project are discussed below.

Portland Cement Kiln

NO_x Emissions (PSD)

NO_x emissions from the kiln are subject to 40 CFR 60 Subpart F, which specifies a limit of 1.5 pound (lb) NO_x/ton clinker. This level of control was the lowest found in the RBLC search / BACT review. NO_x will be controlled using SNCR, in which NH_3 will be injected at a rate appropriate to meet proposed NO_x limits. NH_3 emissions resulting from the SNCR NOx control are limited to 10 ppmvd corrected to 7% O_2. The applicant will demonstrate that BACT for NO_x is achieved through the initial stack testing, proper operation of the kiln, and NO_x records from the Continuous Emissions Monitoring System (CEMS).

CO Emissions (PSD)

Good combustion practices, where the kiln and calciner burners are operated efficiently with adequate oxygen and mixing to minimize CO emissions, are considered BACT for these types of facilities. The proposed kiln includes a five stage pre-calciner to reduce CO. Limits found in the RBLC search / BACT review varied between 1.05 (associated with a kiln in a CO nonattainment area requiring Lowest Allowable Emission Rate [LAER]) and 10.5 lb CO / ton clinker. The kiln will emit no more than 95.07 lb CO/hr (1.3 lb CO/ton clinker on an hourly average) and 416.4 tpy CO (1.7 lb CO/ton clinker on an annual average). This will be confirmed by CO records from the CEMS and satisfies BACT. The applicant will demonstrate that BACT for CO is achieved through the initial stack testing, proper operation of the units, and CO records from the CEMS.

VOC Emissions (PSD)

VOC emissions are heavily dependent upon the type of limestone raw material used in Portland Cement manufacturing. VOC emissions are controlled through the use of good combustion practices and good combustion unit design, with preheaters / precalciners in place to combust VOCs, which is standard for Portland Cement kilns. Note that THC, which is a subset of VOC, is limited to 24 parts per million by volume dry (ppmvd) at 7% oxygen (O_2) per the PC MACT. Values for VOC limits in the RBLC search for Portland Cement Kilns varied between 0.12 and 0.55 lb VOC/ton clinker. The applicant will limit VOCs to rates on the MAERT, which are consistent with the range above and satisfy BACT. The applicant will demonstrate that BACT for VOC is achieved through the initial stack testing, proper operation of the units, and THC records as required by the PC MACT.

SO_2 Emissions (PSD)
Emissions of SO_2 are dependent on the concentration of sulfur in the natural gas, pyritic sulfur in the limestone, and process conditions. The kiln is subject to an SO_2 limit of 0.4 lb SO_2/ton clinker on a 30 day rolling average per 40 CFR 60 Subpart F. SO_2 control is provided by the alkali absorption inherent in the preheater/precalciner kiln and by the baghouse abatement device's alkali filter cake. SO_2 emissions will also be reduced through appropriate selection of low sulfur raw material. RBLC SO_2 emissions varied between 0.2 and 1.93 lb SO_2/ton clinker. The applicant is predicting SO_2 emissions as shown in the MAERT, which are consistent with the range above and satisfy BACT. The applicant will demonstrate that BACT for these SO_2 is achieved through initial stack testing, proper operation of the units, and maintenance of sulfur records from the fuel.

PM / PM_{10} / $PM_{2.5}$ Emissions (PSD)
The PC MACT (40 CFR 63 Subpart LLL) places a limit of 0.02 lb filterable PM/ton clinker from the kiln and the clinker cooler, with required continuous PM emissions monitoring. The applicant will be installing baghouse / fabric filter controls for the kiln and clinker cooler. Baghouses with a limit of 0.01 gr/dscf are accepted particulate BACT for sources controlled by baghouses. The applicant has proposed outlet grain loading of 0.00291 grains PM per dscf from the kiln and 0.00292 gr PM per dscf from the clinker cooler, which satisfy BACT. The applicant will demonstrate that BACT for PM / PM_{10} / $PM_{2.5}$ is achieved through initial stack testing, proper operation of the units, Continuous Parametric Monitoring System (CPMS) records, maintenance of the baghouse controls, and opacity records.

HCl Emissions
Per 40 CFR §63.1343(b), Table 1, the maximum available control technology requires that HCl emissions are limited to 3 ppmvd at 7% O_2, on a 30 day rolling average basis, for each Portland Cement kiln. The applicant proposed to set the maximum hourly HCl emission rate in the permit based on calculations using the Ideal Gas Law, the flue gas flow rate, and the emission limit in §63.1343(b), Table 1. This meets BACT. The applicant will demonstrate that BACT for HCl is achieved through the initial stack testing and proper operation of the units.

GHG Emissions (PSD)
Good combustion practices and energy efficiency, where the kiln and calciner burners are operated efficiently with adequate oxygen and mixing to minimize CO_2 emissions, are considered BACT for these types of facilities. Emissions from the kiln exhaust shall not exceed 0.95 tons CO_2e per ton of produced clinker on a 12 month rolling average. A yearly production limit of clinker from the kiln is

also present. These numerical limitations are consistent with those found in the RBLC and issued TCEQ GHG permits for cement kilns. This represents BACT. The applicant will demonstrate BACT is achieved through recordkeeping of production rates and fuel consumption, and CEMS for the CO_2/CO_2e.

Diesel-fired Emergency Engine
The EPA Tier 2 200 hp emergency engine is subject to 40 CFR 63, Subpart ZZZZ for emergency engines, is limited to 24 hours per year, will run on ultra-low sulfur diesel (≤ 0.0015% sulfur), and will have a non-resettable run time meter. This meets BACT.

PM / PM_{10} / $PM_{2.5}$ Other Sources:
Storage Piles shall be enclosed, and enclosures will be controlled to a baghouse meeting 0.002 gr/dscf PM.

Raw Meal Homogenizing Silos, Sand Mill shall use enclosed conveyors with transfer points controlled via baghouse, meeting 0.002 gr/dscf PM.

Raw Material Blending and Grinding, Clinker Silos, Cement Grinding, Cement Silos shall use enclosed conveyors with transfer points controlled via baghouse, meeting 0.002 gr/dscf PM. These sources will meet applicable requirements of 40 CFR 60 Subpart OOOO.

Limestone / Kaolin Crusher, Cement Blending shall be partially enclosed to meet the minimum 70% PM/PM_{10}/$PM_{2.5}$ control, with enclosed drop points and conveyors, controlled with baghouses meeting 0.002 gr/dscf PM. These sources will meet applicable requirements of 40 CFR 60 Subpart OOOO.

Cement Packing shall use enclosed conveyors with transfer points controlled via baghouse, meeting 0.002 gr/dscf PM, with enclosed drop points. These sources will meet applicable requirements of 40 CFR 60 Subpart OOOO.

The above material handling and loading sources meet BACT, and will be shown with daily opacity measurements and proper operation, maintenance, and repair of the baghouses, including continuous baghouse pressure drop records.

Maintenance, Startup, and Shutdown Emissions
The emissions during startup and shutdown activities are not expected to exceed the proposed MAERT emission limits for all permitted facilities. Facilities that are controlled with a baghouse will operate the baghouse during planned startup and shutdown periods to comply with the MAERT emission limits. The kiln will comply with the startup and shutdown definitions and the duration limits specified in the Special Conditions to minimize emissions. These work practices are consistent with other similar facilities and represent BACT.

Maintenance emissions for refractory change out, vacuum truck solids loading and unloading, material handling maintenance, equipment washing, lube oil drum loading, CEMS calibration, refractory maintenance, gaseous venting, filter maintenance, and baghouse filter replacement have been estimated and represented with authorized emission rates in the MAERT. The emissions during planned maintenance activities are small, and the activities may occur intermittently, infrequently, and at differing times. Best management practices (BMPs) will be used to minimize emissions, including using good air pollution control practices and safe operating practices. The BMPs will reflect industry standard and will be consistent with other similar facilities. This represents BACT.

VII. Air Quality Analysis

Site-wide modeling was conducted for all pollutants emitted at the site. The AERMOD modeling report was audited, and approved, by the TCEQ Air Dispersion Modeling Team (ADMT). Additional details regarding the site-wide modeling analysis may be found in the ADMT Memo dated February 15, 2018.

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m^3)

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	4.9	7.8
SO_2	3-hr	6.4	25
SO_2	24-hr	2.7	5
SO_2	Annual	0.3	1
PM_{10}	24-hr	29	5
PM_{10}	Annual	3.7	1
$PM_{2.5}$	24-hr	5.2	1.2
$PM_{2.5}$	Annual	1.1	0.3
NO_2	1-hr	14.6	7.5
NO_2	Annual	0.9	1
CO	1-hr	97	2000
CO	8-hr	41	500

Table 2. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax (µg/m^3)	Significance (µg/m^3)
SO_2	24-hr	2.7	13
PM_{10}	24-hr	29	10

Pollutant	Averaging Time	GLCmax (µg/m^3)	Significance (µg/m^3)
NO_2	Annual	0.9	14
CO	8-hr	41	575

Table 3. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollu-tant	Averag-ing Time	GLCmax (µg/m^3)	Background (µg/m^3)	Total Conc. = [Background + GLCmax] (µg/m^3)	Standard (µg/m^3)
PM_{10}	24-hr	22	71	93	150
$PM_{2.5}$	24-hr	4	19	23	35
$PM_{2.5}$	Annual	1	8.4	9.4	12
NO_2	1-hr	40	60	100	188

Table 4. PSD Ambient Air Quality Analysis for Ozone

Pollutant	Monitor	Averaging Time	Background (ppb)	Standard (ppb)
O_3	480290059	8-hr	64	70

Table 5. Results for PSD Increment Analysis

Pollutant	Averaging Time	GLCmax (µg/m^3)	Increment (µg/m^3)
PM_{10}	24-hr	24	30
PM_{10}	Annual	4	17
$PM_{2.5}$	24-hr	5	9
$PM_{2.5}$	Annual	1	4

Table 6. Site-wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	Standard (µg/m^3)
SO_2	1-hr	30	1021

Table 7. Minor NSR Site-wide Modeling Results for Health Effects

Pollutant & CAS#	Averaging Time	GLCmax (µg/m^3)	ESL (µg/m^3)
Portland cement, 65997-15-1 [cement dust]	1-hr	76	50
Portland cement, 65997-15-1 [cement dust]	Annual	3.3	5

Pollutant & CAS#	Averaging Time	GLCmax ($\mu g/m^3$)	ESL ($\mu g/m^3$)
calcium fluoride, 7789-75-5 [fluorite]	1-hr	1.7	2.8
calcium fluoride, 7789-75-5 [fluorite]	Annual	0.08	0.57
Kaolin, 1332-58-7	1-hr	9.6	50
Kaolin, 1332-58-7	Annual	0.2	5
silica, crystalline (cristobalite), 14464-46-1	1-hr	4.2	14
silica, crystalline (cristobalite), 14464-46-1	Annual	0.14	0.27
Ammonia, 7664-41-7	1-hr	0.3	180
Ammonia, 7664-41-7	Annual	0.02	92
hydrogen chloride, 7647-01-0	1-hr	0.2	190
hydrogen chloride, 7647-01-0	Annual	0.01	7.9

Table 8. Minor NSR Hours of Exceedance for Health Effects

Pollutant	Averaging Time	1 X ESL GLCmax
Portland cement [cement dust]	1-hr	24

Portland cement 1-hr ESL exceedances as described above are acceptable when reviewing the magnitude and frequency of exceedances over non-industrial receptors per the Extended Tier II Review Guidelines in the Texas Natural Resources Conservation Commission (TNRCC) Memo from Thomas & Post to Interested Parties, Subject: Effects Evaluation Procedure, dated November 2001.

After TCEQ ADMT approved the applicant-provided modeling, some MSS emissions were finalized for products of combustion associated with a diesel air compressor powering a jack hammer to be used during refractory change out. This process will occur every five years and qualifies as an intermittent source. When comparing to the small emissions already reviewed and found acceptable

from the (Emergency) Engine 1, these sources are acceptable. A condition was added ensuring that the operation of the jack hammer (MSS-REFRAC) will not occur simultaneous with the operation of the Engine 1, thus making this an enforceable limit. The applicant also provided a screening analysis of additional MSS emissions associated with CEMS calibration, in which proposed impacts were added to the previously modeled impacts and found still well below NAAQS limits (and total concentration in $\mu g/m^3$ unchanged). This approach was discussed with ADMT staff and considered reasonable.

Thus, the applicant has demonstrated that the proposed project's emissions will not adversely affect public health and welfare, which includes the NAAQS, additional impacts, minor new source review of regulated pollutants without a NAAQS, and air toxics review. Therefore, the proposed increases in health effects pollutants will not cause or contribute to any federal or state exceedances. Therefore, emissions from the facility are not expected to have an adverse impact on public health or the environment.

A. Greenhouse Gases

EPA has stated that unlike the criteria pollutants for which EPA has historically issued PSD permits, there is no National Ambient Air Quality Standard (NAAQS) for GHGs, including no PSD increment. The global climate-change inducing effects of GHG emissions, according to the "Endangerment and Cause or Contribute Finding", are far-reaching and multi-dimensional (75 FR 66497). Climate change modeling and evaluations of risks and impacts are typically conducted for changes in emissions that are orders of magnitude larger than the emissions from individual projects that might be analyzed in PSD permit reviews. Quantifying the exact impacts attributable to a specific GHG source obtaining a permit in specific places and points would not be possible [EPA's PSD and Title V Permitting Guidance for GHGs at 48]. Thus, EPA has concluded in other GHG PSD permitting actions it would not be meaningful to evaluate impacts of GHG emissions on a local community in the context of a single permit.

The TCEQ has determined that an air quality analysis would provide no meaningful data and has not required the applicant to perform one. As stated in the preamble to TCEQ's adoption of the GHG PSD program, the impacts review for individual air contaminants will continue to be addressed, as applicable, in the state's traditional minor and major NSR permits program per 30 TAC Chapter 116.

VIII. Conclusion

The applicant has demonstrated the project meets all applicable rules, regulations, and requirements of the Texas and Federal Clean Air Acts. The proposed facilities and controls represent BACT (and MACT where applicable) for the proposed facility. Modeling analyses indicate that the proposed project will not violate the NAAQS or any PSD increment, nor have any adverse impacts on the public health, soils, vegetation, or Class I areas.

The Executive Director makes a preliminary recommendation to issue Permit Nos. 144729, PSDTX1514, and GHGPSDTX165.