Texas Commission on Environmental Quality
INTEROFFICE MEMORANDUM

TO: Office of Chief Clerk DATE: April 6, 2015

FROM: Amy L. Browning
Staff Attorney
Environmental Law Division

SUBJECT: Backup Documents Filed for Consideration of Hearing Requests at Agenda
Applicant: Holcim (Texas) Limited Partnership
Proposed Permit No.: 8996 & PSDTX454M4
Program: Air
Docket No.: TCEQ Docket No. 2015-0460-AIR

Enclosed please find a copy of the following documents for inclusion in the background material for this permit application:

- Final Draft Permit, including any special provisions or conditions
- Maximum Allowable Emission Rate Table (MAERT)
- The summary of the technical review of the permit application
- The preliminary determination summary for the draft permit
- The modeling audit memorandum
- The compliance summary of the applicant

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
AIR QUALITY PERMIT

A Permit Is Hereby Issued To
Holcim (Texas) Limited Partnership
Authorizing the Construction and Operation of
Portland Cement Plant
Located at **Midlothian, Ellis County, Texas**
Latitude 32° 30′ 40″ Longitude –96° 58′ 25″

Permits: 8996 and PSDTX454M4

Amendment Date : xxx, 2015

Expiration Date: October 5, 2015

For the Commission

1. **Facilities** covered by this permit shall be constructed and operated as specified in the application for the permit. All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unlawful unless the permit holder first makes application to the Texas Commission on Environmental Quality (commission) Executive Director to amend this permit in that regard and such amendment is approved. [Title 30 Texas Administrative Code 116.116 (30 TAC 116.116)]
2. **Voiding of Permit**. A permit or permit amendment is automatically void if the holder fails to begin construction within 18 months of the date of issuance, discontinues construction for more than 18 months prior to completion, or fails to complete construction within a reasonable time. Upon request, the executive director may grant an 18-month extension. Before the extension is granted the permit may be subject to revision based on best available control technology, lowest achievable emission rate, and netting or offsets as applicable. One additional extension of up to 18 months may be granted if the permit holder demonstrates that emissions from the facility will comply with all rules and regulations of the commission, the intent of the Texas Clean Air Act (TCAA), including protection of the public's health and physical property; and (b)(1)the permit holder is a party to litigation not of the permit holder's initiation regarding the issuance of the permit; or (b)(2) the permit holder has spent, or committed to spend, at least 10 percent of the estimated total cost of the project up to a maximum of $5 million. A permit holder granted an extension under subsection (b)(1) of this section may receive one subsequent extension if the permit holder meets the conditions of subsection (b)(2) of this section. [30 TAC 116.120(a), (b) and (c)]
3. **Construction Progress**. Start of construction, construction interruptions exceeding 45 days, and completion of construction shall be reported to the appropriate regional office of the commission not later than 15 working days after occurrence of the event. [30 TAC 116.115(b)(2)(A)]
4. **Start-up Notification**. The appropriate air program regional office shall be notified prior to the commencement of operations of the facilities authorized by the permit in such a manner that a representative of the commission may be present. The permit holder shall provide a separate notification for the commencement of operations for each unit of phased construction, which may involve a series of units commencing operations at different times. Prior to operation of the facilities authorized by the permit, the permit holder shall identify the source or sources of allowances to be utilized for compliance with Chapter 101, Subchapter H, Division 3 of this title (relating to Mass Emissions Cap and Trade Program). [30 TAC 116.115(b)(2)(B)(iii)]
5. **Sampling Requirements**. If sampling is required, the permit holder shall contact the commission's Office of Compliance and Enforcement prior to sampling to obtain the proper data forms and procedures. All sampling and testing procedures must be approved by the executive director and coordinated with the regional representatives of the commission. The permit holder is also responsible for providing sampling facilities and conducting the sampling operations or contracting with an independent sampling consultant. [30 TAC 116.115(b)(2)(C)]

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6. **Equivalency of Methods.** The permit holder must demonstrate or otherwise justify the equivalency of emission control methods, sampling or other emission testing methods, and monitoring methods proposed as alternatives to methods indicated in the conditions of the permit. Alternative methods shall be applied for in writing and must be reviewed and approved by the executive director prior to their use in fulfilling any requirements of the permit. [30 TAC 116.115(b)(2)(D)]
7. **Recordkeeping.** The permit holder shall maintain a copy of the permit along with records containing the information and data sufficient to demonstrate compliance with the permit, including production records and operating hours; keep all required records in a file at the plant site. If, however, the facility normally operates unattended, records shall be maintained at the nearest staffed location within Texas specified in the application; make the records available at the request of personnel from the commission or any air pollution control program having jurisdiction; comply with any additional recordkeeping requirements specified in special conditions attached to the permit; and retain information in the file for at least two years following the date that the information or data is obtained. [30 TAC 116.115(b)(2)(E)]
8. **Maximum Allowable Emission Rates**. The total emissions of air contaminants from any of the sources of emissions must not exceed the values stated on the table attached to the permit entitled "Emission Sources--Maximum Allowable Emission Rates." [30 TAC 116.115(b)(2)(F)]
9. **Maintenance of Emission Control**. The permitted facilities shall not be operated unless all air pollution emission capture and abatement equipment is maintained in good working order and operating properly during normal facility operations. The permit holder shall provide notification for upsets and maintenance in accordance with 30 TAC 101.201, 101.211, and 101.221 of this title (relating to Emissions Event Reporting and Recordkeeping Requirements; Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements; and Operational Requirements). [30 TAC 116.115(b)(2)(G)]
10. **Compliance with Rules**. Acceptance of a permit by an applicant constitutes an acknowledgment and agreement that the permit holder will comply with all rules, regulations, and orders of the commission issued in conformity with the TCAA and the conditions precedent to the granting of the permit. If more than one state or federal rule or regulation or permit condition is applicable, the most stringent limit or condition shall govern and be the standard by which compliance shall be demonstrated. Acceptance includes consent to the entrance of commission employees and agents into the permitted premises at reasonable times to investigate conditions relating to the emission or concentration of air contaminants, including compliance with the permit. [30 TAC 116.115(b)(2)(H)]
11. **This** permit may not be transferred, assigned, or conveyed by the holder except as provided by rule. [30 TAC 116.110(e)]
12. **There** may be additional special conditions attached to a permit upon issuance or modification of the permit. Such conditions in a permit may be more restrictive than the requirements of Title 30 of the Texas Administrative Code. [30 TAC 116.115(c)]
13. **Emissions** from this facility must not cause or contribute to a condition of "air pollution" as defined in Texas Health and Safety Code (THSC) 382.003(3) or violate THSC 382.085. If the executive director determines that such a condition or violation occurs, the holder shall implement additional abatement measures as necessary to control or prevent the condition or violation.
14. **The** permit holder shall comply with all the requirements of this permit. Emissions that exceed the limits of this permit are not authorized and are violations of this permit.

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Special Conditions

Permit Numbers 8996 and PSDTX454M4

Emission Limitations, Fuel Specifications, and Operating Requirements

1. 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 that attached 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) and the opacity limits of Special Condition No. 10. **(10/14)**

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

   A. The U. S. 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;

      (2) Subpart F – Portland Cement Plants;

      (3) Subpart Y - Coal Preparation Plants; and

      (4) Subpart OOO - Nonmetallic Mineral Processing Plants.

   B. 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.

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

   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.

3. Clinker production is limited to:

   A. 1.34 million short tons per year (stpy) per kiln; and

   B. 2.67 million stpy plant-wide.

4. The facility is subject to 40 CFR 63, Subpart LLL at all times. The following limits are associated with a compliance date of September 9, 2015, subject to change to September 9, 2016 per approval of a pending one-year extension request. **(xx/15)**

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Contaminant	Limit	Other conditions
Particulate Matter (PM) filterable ($PM/PM_{10}/PM_{2.5}$)	0.07 pounds per ton (lb/T) clinker or alternative PM limit calculated using Equation 1 of 40 CFR 63.1343(b)(2)	30 operating day rolling average excluding periods of startup / shutdown (SU/SD) as defined in 40 CFR 63.1341
Total Hydrocarbons (THC) OR alternative limit on Organic Hazardous Air Pollutants (OHAP)	24 parts per million THC (as propane) by volume dry (ppmvd) corrected to 7 percent oxygen (% O_2) OR	30 operating day rolling average excluding periods of SU/SD as defined in 40 CFR 63.1341
	12 ppmvd total OHAP corrected to 7% O_2	
Mercury (Hg)	55 lb/million tons clinker	30 operating day rolling average excluding periods of SU/SD as defined in 40 CFR 63.1341
Dioxins/Furans (D/F)	0.20 nanogram per dry standard cubic meter (TEQ), corrected to 7% O_2 OR 0.40 TEQ, corrected to 7% O_2, if average temperature at the inlet to the first PM control device during the D/F performance test is 400 °F or less.	
Hydrogen Chloride (HCl)	3 ppmvd corrected to 7% O_2	30 operating day rolling average excluding periods of SU/SD as defined in 40 CFR 63.1341

5. Each kiln shall not exceed the ammonia (NH_3) emission limit of 35 ppmvd corrected to 7% O_2, on a 24 hour rolling average basis. **(XX/15)**

6. Authorized kiln and precalciner fuels are as follows.

   A. Pipeline-quality, sweet natural gas;

   B. Coal containing no more than 3.0 percent sulfur by weight;

   C. Petroleum coke. **(7/07)**

   D. Non-waste fuels as described in 40 CFR §§ 241.3 and 241.4. Any non-hazardous secondary material used as a fuel other than those identified in 40 CFR § 241.4 must meet the legitimacy criteria set forth in 40 CFR § 241.3(d)(1). The permit holder

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shall maintain records showing that the non-hazardous secondary materials are managed as a valuable commodity; have a meaningful heating value; are used as a fuel in the kiln or precalciner to recover energy; contain contaminants or groups of contaminants at levels equal to or less than natural gas, coal or petroleum coke fuels as specified in Special Condition Nos. 6.A, 6.B, and 6.C, or other traditional fuels that the kilns and precalciners are designed to burn; and, in the case of non-hazardous secondary materials that have been previously discarded, have been processed into legitimate non-waste fuel. Non-waste fuels, include, but are not limited to the following. **(1/13)**

(1) Non-hazardous solids: **(1/13)**

(a) oil containing materials, including, but not limited to: on-site and off-site generated oil filter fluff, absorbents, rags, grease, wax, and other similar materials;

(b) material collected at municipal and post-industrial recycling facilities such as paper, cardboard, and plastics which may contain small quantities of metals; and

(c) materials collected during or generated from carpet recycling (such as carpet fiber, carpet backing, carpet pads, and other similar materials);

(d) rubber-derived fuel (RDF), including, but not limited to: tire-derived fuel (TDF), manufacturing raw material, rejects, and waste; green rubber, off-specification rubber, hoses, and other similar rubber materials;

(e) asphalt base composite roofing material, up to 10 tons per hour and 87,000 tons per year (tpy), including: sand, fiberglass, and other non-asphalt materials in the composite;

(f) wood chips; and

(g) activated carbon.

(2) Non-hazardous liquids:

(a) oil containing liquids, including, but not limited to: on-site and off-site generated on-specification oil, off-specification oil, oil-water emulsions, oily waters, virgin fuel oils, virgin oils, and other similar liquids;

(b) glycols; and

(c) glycerin containing liquids generated from the production of biodiesel fuel. **(4/07)**

E. Hazardous waste, as defined by the Federal Resource Conservation and Recovery Act and the rules implementing that Act, may not be fired. **(5/06)**

7. Fuels are limited and shall be recorded as follows:

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A. The non-waste fuel fed to each kiln system (kiln and precalciner) is limited as a percentage of the total fuel fed into the kiln system, calculated as heat input on a higher heating value (HHV) basis, on an hourly basis, as follows:

(1) Total non-waste fuels, as described in Special Condition No. 6.D above., 60 percent of the total fuel; and **(1/13)**

(2) TDF, 45 percent of the total fuel.

B. The natural gas heating value shall be provided by the gas supplier.

C. The HHV and sulfur content of the coal shall be determined by monthly sampling.

8. Fuel shall be injected into the precalciner only when the precalciner temperature is greater than 1,200°F. A fuel shutoff shall automatically stop fuel feed to the precalciner when the temperature is less than 1,200°F.

Selective Non-catalytic Reduction (SNCR)

9. For each kiln system, from March 1 through October 31 of each year SNCR NO_x control technology must be operated during all periods of normal kiln operation. Normal kiln operation does not include the following circumstances:

A. MSS activity when the precalciner operating temperature is too low for proper SNCR operation; and **(10/14)**

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. **(11/09)**

10. **Opacity / Visible Emission Limitations**

A. During normal operations, the opacity of emissions shall not exceed the limits in the table below.

Source	**EPNs**	**Opacity Limit[1]**
Kiln stacks	7*, 62*	10%
All other baghouse stacks	see MAERT	5%

[1]For any six-minute period.

B. During MSS activities, the opacity of emissions shall not exceed 20% for any six minute period, for any source except for buildings, enclosed facilities, or other structures, for which the opacity shall not exceed 30% for any six-minute period. **(10/14)**

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C. Compliance with the opacity limits is determined:

(1) For EPNs 7* and 62*, by using the continuous opacity monitoring systems (COMS) required in Special Condition No. 20. After September 9, 2015, a particulate matter (PM) continuous parameter monitoring system (CPMS) that has passed the initial certification requirements of 40 CFR Part 63, Subpart LLL may be used instead of a COMS. **(10/14)**

(2) For all other EPNs,

(a) By following the periodic monitoring procedures specified for each EPN in the federal operating permit (FOP) for this site, FOP No. O1046. **(10/14)**

(b) After September 9, 2015, any source subject to the opacity monitoring requirements of 40 CFR § 63.1350(f) may follow those procedures to demonstrate compliance with the opacity limits of this permit instead of Special Condition 10.C(2)(a) above. **(10/14)**

(c) Periods of excess opacity are subject to the requirements of 30 TAC §§ 101.201 and 101.211, relating to Emission Events and Scheduled Maintenance, Start-up, and Shutdown Activities.

Fugitive Emissions

11. All hoods, ducts, and collection systems shall be effective in preventing fugitive emissions from buildings. Compliance with this condition shall be determined per the monitoring procedures specified in the Operation and Maintenance Plan required by 40 CFR Part 63, Subpart LLL.

12. Dust emissions from cement loading into trucks or railcars shall be controlled with a self-sealing shroud at the loading point and venting of the displaced air to a fabric filter.

13. Material collected in the baghouses shall be disposed of in a manner that will prevent the material from becoming airborne. The bypass baghouse dust loadout shall be enclosed on two sides with a vertical windbreak extending up to the first floor level. A water sprinkler system or water truck shall be used as necessary to control dust emissions from any baghouse dust disposed of in on-site landfills.

14. In order to control fugitive dust emissions to the minimum level possible under existing conditions:

A. plant roads shall be paved, water sprinkled, or swept, as necessary;

B. quarry roads, including haul roads (i.e., Raw Material Road and Bypass Dust Road), shall be oiled or water sprinkled, as necessary; and

C. primary coal stockpiles shall be stored in the coal storage building. Any outside coal stockpiles shall be sprayed with water and/or chemicals, as necessary.

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15. Individual Chemical Species

    A. For each kiln stack, if not specified in the MAERT, the emission rate for any compound with an Effects Screening Level (ESL) is limited as follows: **(xx/15)**

        (1) Emission Rate (pound per hour) = short-term ESL x 3.84

        (2) Emission Rate (TPY) = annual ESL x 324

    B. The short-term and annual ESLs for any individual chemical species limited by this condition are those contained in the TCEQ ESL list dated March 17, 2014. **(xx/15)**

    C. The allowable emission rate shall be calculated for each contaminant tested pursuant to Special Condition No. 18, and the calculated allowable emission rate shall be included in the sampling report submitted pursuant to Special Condition No. 18.F.

16. For each kiln stack, compliance with the 12-month rolling emission limits in the MAERT for PM equal to or less than 10 microns in diameter (PM_{10}) shall be calculated using the actual operation hours and stack test data for each of the following operating scenarios:

    A. raw mill on, scrubber on;

    B. raw mill off, scrubber on;

    C. raw mill on, scrubber off; and

    D. raw mill off, scrubber off.

Initial Demonstration of Compliance

17. Sampling ports and platforms shall be incorporated into the design of the Kiln Stacks according to the specifications set forth in "Chapter 2, Stack Sampling Facilities." Alternate sampling facility designs may be submitted for approval by the TCEQ Regional Director.

18. The holder of this permit shall perform stack sampling and other testing by September 30, 2010, as required, to establish the actual pattern and quantities of PM_{10} (front-half and back-half), lead, and VOC being emitted into the atmosphere from the Kiln Line 2 Stack (EPN 62*) and shall perform stack sampling of PM emissions from three baghouses: Finish Mill System No. 1 Baghouse, (EPN 23*); Finish Mill System No. 2 Baghouse, (EPN 29*); SKS and Cement Mill Baghouse, (EPN 66*). Stack sampling and other testing for Kiln Line 1 Stack (EPN 7*) to establish the actual pattern and quantities of lead shall be completed by the later of the first continuous emissions monitoring system (CEMS) quality-assurance testing conducted in accordance with 40 CFR Part 60, Appendix F, Procedure 1, § 5.1.1 or compliance sampling required by 40 CFR Part 63, Subpart LLL after restart. Sampling results performed since September 22, 2005, can satisfy this condition if determined acceptable to the TCEQ and the TCEQ Regional Office waives subsequent testing. Sampling must be conducted in accordance with appropriate procedures of the

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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 for each line, the holder of this permit shall submit a copy of the final sampling report to the TCEQ Dallas/Fort Worth Regional Office for review as required by Special Condition No. 18F. Allowable emission rates listed on the MAERT shall not exceed that EPN test average by more than 20 percent. Those MAERT EPNs exceeding the average test emissions by more than 20 percent shall be corrected to within 20 percent by means of a permit alteration. The alteration request must be received by TCEQ within 60 days after the date of the approval of each of the final test reports by the TCEQ Dallas/Fort Worth Regional Office. **(4/10)**

A. Air contaminants emitted from Kiln 2 (EPN 62*, once the Regenerative Thermal Oxidizer [RTO] is installed) and Kiln 1 (EPN 7*, once the Selective Catalytic Reduction for THC / OHAP [SCR-THC] is installed) to be tested for include PM_{10}, $PM_{2.5}$, and methane. Initial determination of compliance for PM (filterable), HCl, D/F, THC or OHAP, and Hg shall be performed in accordance with the applicable initial compliance requirements of 40 CFR Part 63, Subpart LLL. Initial determination of compliance for volatile organic compounds (VOC) shall be performed in accordance with Special Condition No. 22.C. **(xx/15)**

B. The TCEQ Dallas/Fort Worth 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.

(6) A test plan for TCEQ approval which identifies the alternative fuel combinations and maximum firing rates to be tested, and the speciated compounds emissions to be sampled and reported.

(7) 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.

(8) 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

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Dallas/Fort Worth Regional Director shall approve or disapprove of any deviation from specified sampling procedures.

C. The deadlines for the sampling specified above may be extended. Requests for additional time to perform sampling shall be submitted to the TCEQ Dallas/Fort Worth Regional Office. Additional time to comply with any applicable requirements of 40 CFR Part 60 requires EPA approval.

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 Dallas/Fort Worth Regional Director.

E. Primary operating parameters that enable determination of production rates shall be monitored and recorded during the stack test. These parameters are to be determined at the pretest meeting. Additional stack testing may be required if the kiln achieves a production rate more than 10 percent higher than the rate occurring during the most recent stack test performed after the issuance of this permit. **(3/11)**

F. 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 Dallas/Fort Worth Regional Office.

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

Continuous Demonstration of Compliance

19. The holder of this permit shall install, calibrate, operate, and maintain CEMS to measure and record the SO_2, NO_x, and CO concentrations, and continuous flow rate sensors to measure and record the exhaust flow rate, in each kiln. The SO_2, NO_x, and CO CEMS and the continuous flow rate sensor shall be used as a continuous emission rate monitoring system (CERMS) for SO_2, NO_x, and CO.

A. The systems 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 portions of 40 CFR Part 60, Appendix B,

(1) Performance Specification Nos. 2 through 4, for the CEMS; and

(2) Performance Specification No. 6 for the flow rate sensors.

B. Each CEMS shall be zeroed and spanned daily and corrective action taken when the 24-hour span drift exceeds two times the amounts specified in 40 CFR Part 60, Appendix B, or as specified by the TCEQ if not specified in Appendix B. Zero and span is not required on weekends and plant 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.

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C. Each CEMS shall be quality-assured at least quarterly in 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 Dallas/Fort Worth Regional Office may be deemed a violation of the permit. For non-NSPS sources, an equivalent method approved by the TCEQ may be used.

D. 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.

20. Except as provided in Special Condition 20.D, the permit holder shall install, calibrate, operate, and maintain a COMS to measure and record the opacity in the kiln stacks. **(10/14)**

A. The COMS 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 Performance Specification No. 1, 40 CFR Part 60, Appendix B.

B. The COMS shall be zeroed and spanned daily and corrective action taken when the 24-hour span drift exceeds two times the amounts specified in 40 CFR Part 60, Appendix B, or as specified by the TCEQ if not specified in Appendix B. Zero and span is not required on weekends and plant 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.

C. The opacity monitor shall complete a minimum of one cycle of data recording for each successive ten-second period. Six-minute averages shall be computed from normally at least 36 and a minimum of 18 data points equally-spaced over each six minute period. Data recorded during periods of COMS breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the computed data averages.

D. After September 9, 2015, a PM CPMS that has passed the initial certification requirements of 40 CFR Part 63, Subpart LLL may be used instead of a 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 opacity below 10%. Compliance with such a CPMS level will be considered to demonstrate compliance with the opacity limit; however, the TCEQ may use EPA Test Method 9 to determine opacity at any time. **(10/14)**

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21. 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 from the cement kilns to demonstrate compliance with the MAERT and with emission performance levels as specified in the special conditions and/or otherwise prove satisfactory equipment performance. Sampling must be conducted in accordance with the TCEQ Sampling Procedures Manual or in accordance with the applicable EPA 40 CFR procedures. Any deviations from those procedures must be approved by the TCEQ Executive Director or the appropriate TCEQ Regional Director prior to conducting sampling.

    Air contaminants emitted from the kilns to be tested for include (but are not limited to) PM, NO_x, CO, VOC, and SO_2. **(xx/15)**

22. The holder of this permit shall install, calibrate, operate, and maintain CEMS to measure and record the in-stack concentrations of THC, Hg, and oxygen from Kiln 2 (EPN 62*) and Kiln 1 (EPN 7*) in accordance with the requirements of 40 CFR Part 63, Subpart LLL. The holder of this permit shall install, calibrate, operate, and maintain a continuous flow rate sensor to measure and record the exhaust flow rate in each kiln stack. This CEMS, which may be the same unit as described in Special Condition 19, is subject to Special Conditions 19.A through 19.D, in addition to the following: **(xx/15)**

    A. The THC CEMS and the continuous flow rate sensor shall be used as a CERMS for VOC.

    B. The CEMS monitoring data shall be reduced to hourly average concentrations in accordance with 40 CFR §60.13(h)(2(i)-(ix).

       Each CEMS shall complete a minimum of one cycle of sampling, analyzing, and data recording for each successive 15-minute 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.

    C. The VOC mass emission rate for EPN 62* or EPN 7* shall be calculated from the THC emission rate determined using the THC emission rate monitoring system by multiplying the THC mass emission rate by a Methane Reduction Factor. The following equation shall be used:

       VOC = THC * Methane Reduction Factor

       Where, the Methane Reduction Factor is the methane concentration divided by the THC concentration subtracted from 1 [i.e., methane reduction factor = (1-(methane/THC))].

    D. The methane concentration shall be determined by performing stack testing on a quarterly basis for the first four tests, then annually thereafter. Once four stack tests have been performed, the methane concentration used to determine VOC emissions will be the average of the four stack tests. Thereafter, the methane concentration

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used to determine VOC emissions will be the average of the most recent four stack tests.

23. The NH_3 concentration in the Exhaust Stack shall be tested 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. **(xx/15)**

    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. 5 above.

    B. 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 35 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 35 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.

    C. 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.

    D. 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).

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

24. 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 4. Line 2 (EPN 62*) will have an RTO system and Line 1 (EPN 7*) will have an SCR-THC system. **(xx/15)**

25. Regional Notification

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A. The TCEQ Regional Director shall be notified as soon as possible after the discovery of any CEMS, COMS, or CPMS 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 appropriate TCEQ Regional Director in case of extended CEMS, COMS, or CPMS downtime.

B. The TCEQ Dallas/Fort Worth Regional Office shall be notified at least 30 days prior to the quarterly cylinder gas audit required by 40 CFR Part 60 Appendix F in order to provide the TCEQ staff the opportunity to observe the testing.

Planned Maintenance, Startup, and Shutdown (10/14)

26. 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.

27. Planned startup and shutdown activities associated with the kilns shall comply with the following definitions and requirements to minimize emissions:

    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 90 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. A planned shutdown of the kiln is limited to 48 hours.

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

    A. For 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 MSS permit amendment 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 MSS permit amendment application and subsequent associated submittals.

    B. For each pollutant emitted during non-ILE planned maintenance activities (Attachment B), the permit holder shall do the following for each calendar month.

        (1) Determine the total emissions of the pollutant that result from such non-ILE planned maintenance activities in accordance with the methods listed in Special Condition No. 29.

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(2) Compare the pollutant's short-term (hourly) emissions during planned maintenance activities, as determined using one of the methods listed in Special Condition No. 29, to the applicable short-term planned MSS emissions limit in the MAERT.

(3) Once the pollutant's emissions during planned maintenance activities have been measured for 12 months after the MSS permit amendment is issued, compare the rolling 12-month emissions of the pollutant, as determined using the monthly emission totals, to the applicable annual planned MSS emissions limit in the MAERT.

29. 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.

30. The permit holder will net out of Prevention of Significant Determination (PSD) Review for CO. The reduction of CO emissions relied upon for netting shall occur no later than the commencement of operation of the SCR-THC system for Line 1 (EPN 7*) and the permit holder will operate the RTO system on Line 2 (EPN 62*) as necessary for the additional control of CO emissions such that the combined total CO emissions from Line 1 (EPN 7*) and Line 2 (EPN 62*) shall not exceed 4,303 tons per year of CO on a 12-month rolling average. **(xx/15)**

Aqueous Ammonia (xx/15)

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

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32. In addition to the requirements of Special Condition No. 31, 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 once every 24 hours when the kiln(s) are operating.

    B. Immediately, but no later than 24 hours upon detection of a leak, 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) Use a leak collection or containment system to control the leak until repair or replacement can be made if immediate repair is not possible.

Recordkeeping Requirements

33. The following records shall be kept and made available upon request to the TCEQ or any air pollution control program having jurisdiction. Records shall be maintained on-site on a rolling five-year retention basis.

    A. Alternative fuels:

        (1) The source and date received;

        (2) Amount received in pounds (or gallons for liquids);

        (3) A description of the material;

        (4) Estimated fuel HHV in Btu per pound (or Btu/gallon for liquids);

        (5) Number of pounds fired (or gallons fired for liquids) and date/time fired;

        (6) Percentage of TDF fed into the kiln system (kiln and precalciner) on an hourly, HHV basis; and

        (7) Percentage of total alternative fuel fed into the kiln system (kiln and precalciner) on an hourly, HHV basis.

        (8) Records as specified in Special Condition No. 6.D for other non-waste fuels. **(1/13)**

    B. Records to demonstrate compliance with the 5.3 tons per day NO_x combined kiln cap limit, 30-day rolling average, beginning on March 31 and ending on October 31 of each calendar year. **(3/11)**

    C. SO_2 scrubber records. For each scrubber:

        (1) Uptime (in hours) as a percentage of kiln operating hours;

        (2) Scrubbing liquid pH and flow rate recorded at least once per hour; and

        (3) Downtime (in hours) of the raw mill when the scrubber is down.

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D. Records of MSS, including the following, to demonstrate compliance with Special Condition Nos. 27 through 29 and the MAERT: **(10/14)**

(1) Records of startup and shutdown of the kilns, 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.

E. Records to demonstrate compliance with the combined CO limit of 4,303 tons per year for Line 1 (EPN 7*) and Line 2 (EPN 62*) on a 12 month rolling average. **(xx/15)**

F. A copy of this permit. **(xx/15)**

G. A complete copy of the testing reports and records of the initial performance testing and initial determination of compliance completed pursuant to Special Condition No. 18 to demonstrate initial compliance. **(xx/15)**

H. Stack sampling results or other air emissions testing (other than CEMS data) that may be conducted on units authorized under this permit after the date of issuance of this permit. **(xx/15)**

I. Records of NH_3 concentrations monitored or calculated pursuant to Special Condition No. 23 and the corresponding NH_3 emissions. Records of NH_3 AVO checks pursuant to Special Condition No. 32. **(xx/15)**

J. Records of NO_x, CO, diluent gases (O_2 or CO_2), SO_2, THC, and Hg CEMS emissions data, as applicable, and continuous flow rate monitoring data to demonstrate compliance with the emission rates listed in the MAERT. **(xx/15)**

K. Records of COMS data for the EPNs required by this permit to have one installed. **(xx/15)**

L. Raw data files of all CEMS data including calibration checks and adjustments and maintenance performed on these systems. **(xx/15)**

M. Records of methane concentrations and VOC emissions calculated pursuant to Special Condition No. 22. **(xx/15)**

N. 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 Executive Director of the TCEQ or designated representative upon request. The data from the CEMS may, at the discretion of the TCEQ, be used to determine compliance with the conditions of this permit. **(xx/15)**

O. Records to demonstrate compliance with limits for PM, THC or OHAP, Hg, D/F, and HCl as specified in Special Conditions 4 and 22. **(xx/15)**

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Reporting Requirements

34. The holder of this permit shall submit two copies of quarterly monitoring (CEMS, CERMS, COMS, or CPMS) reports to the TCEQ Dallas/Fort Worth Regional Office in a format specified by the TCEQ Regional Office. All reports must be postmarked by the 30th day following the end of each calendar quarter and shall include the following information for each monitor:

    A. The date and duration of time from the commencement to the completion of an event which resulted in excess emissions of any pollutant.

    B. The date and time of the commencement and completion of each specific time period of excess emissions within that event.

    C. The total time duration of excess emissions.

    D. The magnitude of the emissions, including the highest emission rate, and the average emission rate. All excess emissions shall be converted into the units of the permit. All conversion factors and equations shall be included.

    E. The nature and cause of any malfunction resulting in excess emissions and the corrective action taken and/or preventative measures adopted.

    F. The date and time identifying each period during which a CEMS or COMS (or emissions measuring device acceptable by the EPA) was inoperative, except for zero and span checks, and the nature of the system repairs and/or adjustments which occurred during the downtime.

    G. When no excess emissions have occurred or the CEMS, CERMS, COMS, or CPMS have not been inoperative, repaired, or adjusted, such information shall be stated in the report. (**xx/15)**

    H. The total tons of SO_2, NO_x, and CO emitted during the quarter from Kilns 1 and 2 (EPNs 7* and 62*) prior to the installation of the Oxidation Control Systems; the total tons of NO_x, CO, SO_2, VOC, and Hg emitted during the quarter from the Kilns 1 and 2 following installation of the Oxidation Control Systems (EPNs 7* and 62*); the total hours of kiln operation; and the total hours of raw mill operation during the quarter. **(xx/15)**

    I. In addition to the other information required in this special condition, a summary of the excess emissions shall be reported using the form identified as Figure 1 in 40 CFR § 60.7.

    J. The reporting of excess emissions required by this condition does not relieve the holder of this permit from notification requirements of emission events as required by 30 TAC § 101.201 or notification of scheduled maintenance, startup, and shutdown activities as required by 30 TAC § 101.211.

35. For the purposes of reporting pursuant to Special Condition Nos. 1 and 34, excess emissions from the kiln stacks are defined as follows: **(3/11)**

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A. Excess emissions of NO_x are each daily period of operation during which the combined Kiln 1 and Kiln 2, 30-day rolling average emissions of NO_x, as measured and recorded by the CERMS, exceed the emission limitations of the MAERT. The 30-day rolling average is to be computed on a daily basis as the average of the hourly emissions on the 30th day and the preceding 29 daily average emissions.

B. Excess periods of opacity are each six-minute period of operation during which the average opacity, as measured and recorded by the COMS or CPMS, exceed the opacity limitations of Special Condition No. 10.

36. The holder of this permit shall physically identify and mark in a conspicuous location all equipment that has the potential of emitting air contaminants as follows:

A. The facility identification numbers as submitted to the Emissions Inventory Section of the TCEQ.

B. The EPNs as listed on the MAERT.

37. The table below lists the maintenance-related sources or activities that are authorized by permits by rule (PBR) under Title 30 Texas Administrative Code (30 TAC) Chapter 106, or as De Minimis sources under 30 TAC § 116.119. This list is not intended to be all inclusive and can be altered at the site without modifications to this permit. **(10/14)**

Source or Activity	Authorization
Application of aqueous detergents, surfactants, and other cleaning solutions containing not more than one percent of any organic compound by weight or containing not more than five percent of any organic compound with a vapor pressure less than 0.002 pounds per square inch absolute	De Minimis
Lab sampling and analysis	De Minimis
Manual applications of cleaning or stripping solutions or coatings for maintenance, including applications using brushes, cloth pads, sponges, droppers, tube dispensing equipment, or spray bottles and pump-up sprayers without aerosol propellants	De Minimis
Office cleaning activities	De Minimis
Yard work and landscaping	De Minimis
Pesticides, insecticides, and fumigation	De Minimis
Inorganic chemical usage	De Minimis
Application of aerosol-propelled organic liquids using hand-held devices for maintaining equipment and other facilities where usage is no	De Minimis

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Source or Activity	Authorization
more than four aerosol cans or 64 ounces per day on a 12-month rolling average basis	
Application of lubricants (including greases and oils) without aerosol propellants	De Minimis
Blast cleaning equipment using only water as the cleaning media	De Minimis
Comfort air conditioning systems or comfort ventilation systems	De Minimis
Refrigeration system repair	De Minimis
Brazing, soldering, and welding	PBR 30 TAC § 106.227
Maintenance painting; maintenance chemicals	PBR 30 TAC § 106.263
Enclosed and outdoor dry abrasive blasting	PBR 30 TAC § 106.263
Hand-held or manually operated equipment used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, surface grinding, or turning of ceramic art work, ceramic precision parts, leather, metals, plastics, fiber board, masonry, carbon, glass, graphite, or wood	PBR 30 TAC § 106.265
Solvent cleaning, parts degreaser	PBR 30 TAC § 106.454
Emergency engines and portable small engines, over 12 months on site, including startup and shutdown	PBR 30 TAC § 106.511
Sludge management	PBR 30 TAC § 106.532
Organic chemical usage for water treatment	PBR 30 TAC § 106.532

38. This permit does not include the facilities or operations at the site identified in the following table. Instead, these facilities or operations are authorized under standard permit (SP) by 30 TAC Chapter 116 or permit by rule (PBR) by 30 TAC Chapter 106. This list is not intended to be all inclusive and can be altered at the site without modification to this permit. **(10/14)**

Source Description	Source Name	EPNs	Rule(s)	Reg. No.(1)
Non-hazardous, organic-containing liquid fuels	Storage tanks and piping	FUG-1	Pollution Control SP § 116.602	70582
Type II cement and Alternative raw material	Line 2 raw mill feed bins baghouse Stack No. 2	79*(2)	PBRs §§ 106.144, 106.264	56768
	Raw material handling	84*(2)		

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Source Description	Source Name	EPNs	Rule(s)	Reg. No.(1)
	baghouse Stack No. 1			
Limestone screening system	Reserve pile	38N*	PBR § 106.261	74558
	Raw material pile and reclaimers	40D* 40E*		
Line 2 raw mill airslide passive vents	Airslide vent No. 1	86*	PBR § 106.144	74694
	Airslide vent No. 2	87*		
Synthetic gypsum to finish mills	Dewatering pile to FEL	38R*	PBR § 106.261	76083
	FEL to storage building	38S*		
	Conveyor to bin drop	38Q*		
	Dewatering pile	38T*		
	Finish mills pile	38U*		
On-site shale mining	Emergency water pump	39A*	PBRs §§ 106.261, 106.472, 106.511	76527
	Overburden to dump truck	39B*		
	Overburden to crusher	39C*		
	Shale to dump truck	39D*		
	Reserve shale pile	38V*		
Reserve clinker storage pile	Pile and material transfer	38Y*	PBR § 106.261	80423
	Material transfer	38Z*		
	Finish mills feed hopper	38J*		
Coal and petcoke additional storage	Existing coal storage pile	38A*	PBRs §§ 106.144, 106.264	84171
	New coal storage pile	38AA*		
	New petcoke storage pile	38AB*		
	New coal bin to existing dust collector EPN 13*	38AC*		
	New conveyor belts, and diverter and silo gates	13*(2)		
Solid fuels hopper	Loader to hopper – 1	38H1*	PBRs §§ 106.261, 106.262	94642
	Loader to hopper – 2	38H2*		
	Conveyor transfer point	38H3*		
Limestone screening	Lower bench (LB) crusher	75A*	PBR § 106.261	96989
	Screen	75C*		
	Conveyor to screen pile	75D*		
	Screened limestone pile	75E*		
	FEL to LB crusher	PLANTFUG		
Solid fuel screening	Screen hopper	38AD*	PBRs §§ 106.261, 106.262	98215
	Screen dust collector	38AE*		
	Conveyor belt No. 1	38AF*		
	Conveyor belt No. 2	38AG*		
	Conveyor belt No. 3	38AH*		

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Source Description	Source Name	EPNs	Rule(s)	Reg. No.(1)
	Storage pile No. 1	38AI*		
	Storage pile No. 2	38AJ*		
	Storage pile No. 3	38AK*		
Plant-wide degreasing operations	Quarry, mobile, lube, and maintenance shops	GRPDEGREAS	PBR § 106.454	77035
Site-wide tanks	Gasoline and diesel fuel tanks	GRPTANKS	PBRs §§ 106.412, 106.472, 106.473	N/A(3)
Site-wide engines	Emergency engines	GRPEMENGS	PBR § 106.511	N/A(3)
Comfort heaters	Comfort heaters	GRPCOMHTR	PBR § 106.102	N/A(3)

(1) TCEQ New Source Review Air Permit Registration Number.
(2) Emissions from named source only; the EPN includes permitted sources on MAERT.
(3) These PBRs do not require registration.

Date: xxx, 2015

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Attachment A

Permit Numbers 8996 and PSDTX454M4

Inherently Low-Emitting Maintenance Activities

Planned Maintenance Activity	**VOC**	**NO_x**	**CO**	**PM**	**SO_2**
Material handling system maintenance				x	
Material handling system maintenance (air guns)				x	
Miscellaneous particulate filter maintenance				x	
Cartridge particulate filter maintenance				x	
Kiln particulate filter maintenance				x	
CEMS calibration	x	x	x		x
Lube oil/Grease maintenance	x				
Refractory maintenance operations				x	
Deslagging maintenance of kiln/preheater/cooler		x	x	x	
Gaseous fuel venting	x				
Storage vessel emptying	x				

Date: xxx, 2015

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Attachment B

Permit Numbers 8996 and PSDTX454M4

Non-Inherently Low-Emitting Maintenance Activities

Planned Maintenance Activity	**VOC**	**NO_x**	**CO**	**PM**	**SO_2**
Vacuum truck loading				x	
Vacuum truck unloading				x	

Date: xxx, 2015

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Emission Sources - Maximum Allowable Emission Rates

Permit Numbers 8996 and PSDTX454M4

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)
7*	Kiln Line 1, Bypass Baghouse, and Coal Mill Baghouse	CO (6)	1,939	3,556
		CO (7)	2,172	--
		$PM/PM_{10}/PM_{2.5}$ (filterable)	24	104
		$PM/PM_{10}/PM_{2.5}$ (condensable)	353	155
		$PM/PM_{10}/PM_{2.5}$ (condensable, 24 hr)	35.37	---
		$PM/PM_{10}/PM_{2.5}$ (total)	377	259
		SO_2 (1-hour)	2,600	--
		SO_2 (3-hour)	2,300	--
		SO_2 (24-hour)	1,900	--
		SO_2 (annual)	--	1,769
		TRS	15	18
		H_2SO_4	180	71
		VOC	292	438
		Total OHAPs (30-operating day rolling ave excluding startup / shutdown [SU/SD]) (7)	63	---
		Speciated Compounds	See Attachment I	
62*	Kiln Line 2, Bypass Baghouse, and Coal Mill Baghouse	CO (6)	1,939	3,556
		CO (7)	1,939	--
		$PM/PM_{10}/PM_{2.5}$ (filterable)	32	138

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
		$PM/PM_{10}/PM_{2.5}$ (condensable)	353	154
		$PM/PM_{10}/PM_{2.5}$ (condensable, 24 hr)	35.22	---
		$PM/PM_{10}/PM_{2.5}$ (total)	385	292
		SO_2 (1-hour)	2,600	--
		SO_2 (3-hour)	2,300	--
		SO_2 (24-hour)	1,900	--
		SO_2 (annual)	--	1,769
		TRS	15	18
		H_2SO_4	180	71
		VOC (6)	292	438
		VOC (7)	292	219
		Total OHAPs (30-operating day rolling ave excluding SU/SD) (7)	63	---
		Speciated Compounds	See Attachment I	
7* and 62*	Combined Kiln Lines 1 and 2 Emission Limits	CO (7)	---	4,303
		Compliance Period (8)	**Tons/day**	**Total tons**
		NO_x, November 1 through March 30	15.3	2,310
		NO_x, March 31 through October 31	5.3	1,140
		NO_x, Annual (12-month rolling)	---	3,450

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
1A*	Primary (Upper Bench) Limestone Crusher	PM	0.28	0.25
		PM_{10}	0.13	0.12
1B*	Primary (Upper Bench) Limestone Crusher	PM	0.72	3.15
		PM_{10}	0.72	3.15
		CO	11.18	48.97
		NO_x	8.09	35.43
		SO_2	1.08	4.73
		VOC	1.43	6.26
2*	Secondary Crusher Baghouse Stack	PM	0.77	1.69
		PM_{10}	0.77	1.69
3*	Raw Material Transfer Point Baghouse Stack	PM	0.34	0.75
		PM_{10}	0.34	0.75
4*	Conveyor Belt Transfer Baghouse Stack	PM	0.70	1.53
		PM_{10}	0.70	1.53
5*	Line No. 1 Raw Mill Feed Bins Baghouse Stack No. 2	PM	0.93	2.03
		PM_{10}	0.93	2.03
6*	Line No. 1 Raw Mill Feed Bins Baghouse Stack No. 2	PM	0.93	2.03
		PM_{10}	0.93	2.03
8*	Rotary Kiln Feed Silo Upper Baghouse Stack	PM	1.04	2.28
		PM_{10}	1.04	2.28
9*	Rotary Kiln Feed Silo Lower Baghouse Stack	PM	0.87	1.91
		PM_{10}	0.87	1.91
11*	Waste Bypass Dust Baghouse Stack	PM	0.18	0.38
		PM_{10}	0.18	0.38

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
12*	Coal Handling Baghouse Stack	PM	0.80	1.76
		PM_{10}	0.80	1.76
13*	Coal Storage Bin Baghouse Stack	PM	0.33	0.71
		PM_{10}	0.33	0.71
14*	Clinker Conveyor Transfer Point Baghouse Stack	PM	0.22	0.48
		PM_{10}	0.22	0.48
15*	Clinker Conveyor Baghouse Stack	PM	0.29	0.64
		PM_{10}	0.29	0.64
16*	Gypsum Silo Baghouse Stack	PM	0.12	0.27
		PM_{10}	0.12	0.27
17*	Upper Clinker Silos Baghouse Stack	PM	0.45	0.99
		PM_{10}	0.45	0.99
18*	Gypsum Weigh Feeder Baghouse Stack	PM	0.16	0.36
		PM_{10}	0.16	0.36
19*	Clinker Feeder No. 7 Baghouse Stack	PM	0.15	0.32
		PM_{10}	0.15	0.32
20*	Clinker Feeder No. 1 Baghouse Stack	PM	0.15	0.32
		PM_{10}	0.15	0.32
21*	Clinker Feeder No. 6 Baghouse Stack	PM	0.15	0.32
		PM_{10}	0.15	0.32
22*	Clinker Feeder No. 4 Baghouse Stack	PM	0.15	0.32
		PM_{10}	0.15	0.32
23* & 29*	Finish Mill System No. 1 and No. 2 Baghouse Stack	PM	13.62	59.68
		PM_{10}	13.62	59.68

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
24*	Gypsum Weigh Feeder Baghouse Stack	PM	0.16	0.36
		PM_{10}	0.16	0.36
25*	Clinker Weigh Feeder No. 2 Baghouse Stack	PM	0.15	0.32
		PM_{10}	0.15	0.32
26*	Clinker Weigh Feeder No. 5 Baghouse Stack	PM	0.15	0.32
		PM_{10}	0.15	0.32
27*	Clinker Weigh Feeder No. 3 Baghouse Stack	PM	0.15	0.32
		PM_{10}	0.15	0.32
28*	Clinker Weigh Feeder No. 8 Baghouse Stack	PM	0.15	0.32
		PM_{10}	0.15	0.32
30*	Cement Silo No. 1 Discharge Baghouse Stack	PM	0.25	0.55
		PM_{10}	0.25	0.55
31*	Cement Silo No. 2 Discharge Baghouse Stack	PM	0.37	0.81
		PM_{10}	0.37	0.81
32*	Cement Silo No. 4 Discharge Baghouse Stack	PM	0.25	0.55
		PM_{10}	0.25	0.55
33*	Cement Silo No. 5 Discharge Baghouse Stack	PM	0.46	1.02
		PM_{10}	0.46	1.02
34*	Cement Silo No. 7 Discharge Baghouse Stack	PM	0.25	0.55
		PM_{10}	0.25	0.55
35*	Cement Silo No. 8 Discharge Baghouse Stack	PM	0.37	0.81
		PM_{10}	0.37	0.81
36*	Cement Silo No. 1 Filling Baghouse Stack	PM	1.14	2.49
		PM_{10}	1.14	2.49

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
37*	Cement Silo No. 7 Filling Baghouse Stack	PM	0.58	1.27
		PM_{10}	0.58	1.27
42*	Shale Crusher Discharge Baghouse Stack	PM	0.38	0.83
		PM_{10}	0.38	0.83
43*	Line No. 2 Raw Mill Feed Bins Baghouse Stack No. 1	PM	0.76	1.67
		PM_{10}	0.76	1.67
44*	Raw Mill Discharge Airslide Baghouse Stack	PM	0.24	0.52
		PM_{10}	0.24	0.52
45*	Kiln Feed System No. 1 Baghouse Stack	PM	0.29	0.62
		PM_{10}	0.29	0.62
46*	Blending Silo Upper Baghouse Stack	PM	0.24	0.52
		PM_{10}	0.24	0.52
47*	Blending Silo Lower Baghouse Stack	PM	0.48	1.04
		PM_{10}	0.48	1.04
48*	Kiln Feed System No. 2 Baghouse Stack	PM	0.29	0.62
		PM_{10}	0.29	0.62
49*	Pan Conveyor Under Clinker Cooler Baghouse Stack	PM	0.28	0.61
		PM_{10}	0.28	0.61
50*	Dust Bin Baghouse Stack	PM	0.29	0.62
		PM_{10}	0.29	0.62
51*	Clinker Silo No. 1 Discharge Baghouse Stack (North)	PM	0.07	0.15
		PM_{10}	0.07	0.15
52*	Clinker Silo No. 1 Discharge Baghouse Stack (South)	PM	0.07	0.15
		PM_{10}	0.07	0.15

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
53*	Slag/Gypsum Bins and Belt Discharge Baghouse Stack	PM	0.76	1.67
		PM_{10}	0.76	1.67
54*	Clinker Silo No. 2 Discharge Baghouse Stack (North)	PM	0.07	0.15
		PM_{10}	0.07	0.15
55*	Clinker Silo No. 2 Discharge Baghouse Stack (South)	PM	0.07	0.15
		PM_{10}	0.07	0.15
56*	Clinker Silo Feeder Baghouse Stack	PM	0.76	1.67
		PM_{10}	0.76	1.67
57*	Clinker Conveyor Transfer Point Baghouse Stack	PM	0.24	0.52
		PM_{10}	0.24	0.52
58*	Belt-Air-Slide Transfer Point 1 Baghouse Stack	PM	0.38	0.83
		PM_{10}	0.38	0.83
59*	Belt-Air-Slide Transfer Point 2 Baghouse Stack	PM	0.48	1.04
		PM_{10}	0.48	1.04
60*	Bulk Loading 1 Baghouse Stack	PM	0.52	1.15
		PM_{10}	0.52	1.15
61*	Truck Loadout- 1 Baghouse Stack	PM	0.01	0.02
		PM_{10}	0.01	0.02
63*	Rail Loadout- 1 Baghouse Stack	PM	0.01	0.02
		PM_{10}	0.01	0.02
64*	Coal Mill Conveyor Baghouse Stack	PM	0.24	0.52
		PM_{10}	0.24	0.52
65*	Truck Loadout- 2 Baghouse Stack	PM	0.01	0.02
		PM_{10}	0.01	0.02

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
66*	SKS & Cement Mill Baghouse Stack	PM	14.11	61.79
		PM_{10}	14.11	61.79
67*	Cement Silo Filling Baghouse Stack (North)	PM	0.29	0.64
		PM_{10}	0.29	0.64
68*	Cement Silo Filling Baghouse Stack (South)	PM	0.16	0.35
		PM_{10}	0.16	0.35
69*	Truck/Rail Loadout Baghouse	PM	0.19	0.41
		PM_{10}	0.19	0.41
70*	Truck/Rail Loadout Baghouse (North)	PM	0.19	0.41
		PM_{10}	0.19	0.41
71*	Air-Slide Conveyor Baghouse Stack	PM	0.48	1.04
		PM_{10}	0.48	1.04
72*	Pulverized Coal Bin Baghouse Stack	PM	0.02	0.05
		PM_{10}	0.02	0.05
73*	Pulverized Coal Bin CO Analyzer Baghouse Stack	PM	<0.01	<0.01
		PM_{10}	<0.01	<0.01
74*	Scrubber (Reagent-Feed) System 1- Line 1	PM	0.17	0.38
		PM_{10}	0.17	0.38
75A*	Primary (Lower Bench) Limestone Crusher	PM	0.28	0.25
		PM_{10}	0.13	0.12
75B*	Primary (Lower Bench) Limestone Crusher Engine	PM	0.39	1.71
		PM_{10}	0.39	1.71
		CO	8.23	36.05

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
		NO_x	6.64	29.08
		SO_2	0.90	3.94
		VOC	0.94	4.12
76*	Cooling Tower	PM	2.05	8.98
		PM_{10}	2.05	8.98
77*	Line 1 Kiln Dust Bin Baghouse Stack	PM	0.48	2.1
		PM_{10}	0.48	2.1
78*	Line 2 Dust Bin Baghouse Stack	PM	0.48	2.1
		PM_{10}	0.48	2.1
79*	Line No. 2 Raw Mill Feed Bins Baghouse Stack No. 2	PM	0.27	0.59
		PM_{10}	0.27	0.59
80*	Line No. 1 Raw Mill Feed Bins Baghouse Stack No. 3	PM	0.27	0.59
		PM_{10}	0.27	0.59
81*	Clinker Silo De-Dusting Baghouse Stack No. 1	PM	0.66	1.45
		PM_{10}	0.66	1.45
82*	Clinker Silo De-Dusting Baghouse Stack No. 2	PM	0.22	0.48
		PM_{10}	0.22	0.48
83*	Clinker Silo De-Dusting Baghouse Stack No. 3	PM	0.22	0.48
		PM_{10}	0.22	0.48
84*	Raw Material Handling Baghouse Stack No. 1	PM	0.54	1.18
		PM_{10}	0.54	1.18
85*	Raw Material Handling Baghouse Stack No. 2	PM	0.27	0.59

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Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates (4)	
			lbs/hour	TPY (5)
		PM_{10}	0.27	0.59
ROADS	Plant-Wide Roads (9)	PM	15.44	67.59
		PM_{10}	7.72	33.82
PLANTFUG	Plant-Wide Fugitives (9)	PM	5.94	15.12
		PM_{10}	2.90	7.43
MSSFUG1	Inherently Low Emitting (ILE) Planned Maintenance Activities (9)	NO_x	0.03	0.02
		CO	0.34	0.04
		SO_2	<0.01	<0.01
		VOC	68.07	0.06
		PM	14.69	0.41
		PM_{10}	6.93	0.16
		$PM_{2.5}$	1.06	0.03
MSSFUG2	Non-ILE Planned Maintenance Activities (Vacuum truck loading and unloading) (9)	PM	6.17	1.78
		PM_{10}	3.19	1.24
		$PM_{2.5}$	0.67	0.45

(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
HAP - hazardous air pollutant as listed in § 112(b) of the Federal Clean Air Act or Title 40 Code of Federal Regulations (CFR) Part 63, Subpart C

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Emission Sources - Maximum Allowable Emission Rates

TRS	- total reduced sulfur
H_2SO_4	- sulfuric acid
Speciated Compounds	- See Attachment I
OHAP	- organic hazardous air pollutants as defined in 40 CFR § 63.1341
Total OHAP	- sum of concentrations of compounds of formaldehyde, benzene, toluene, styrene, m-xylene, p-xylene, o-xylene, acetaldehyde, and naphthalene as measured by EPA Test Method 320 or Method 18, Appendix A, 40 CFR 60.

(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 limits shall be effective until the oxidation control systems (SCR-THC for Line 1 and RTO for Line 2) are installed and operational.
(7) Emission limits shall become effective after oxidation control systems (SCR-THC for Line 1 and RTO for Line 2) are installed and operational.
(8) Demonstration of compliance with 30-day rolling limit begins on first day of stated period. The control period for the March 31 limit effectively begins on March 1. Reference: 30 TAC § 117.3123.
(9) Emission rate is an estimate and is enforceable through compliance with the applicable special conditions and permit application representations.

Date: Xxx, 2015

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ATTACHMENT I: Emission Sources - Maximum Allowable Emission Rates, Speciated Compounds

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
7*	Kiln No. 1 Main Bypass Baghouse, Coal Mill Baghouse and Scrubber Stack	Aluminum	0.12	0.46
		Ammonia (24-hour rolling avg.)	24.46	--
		Ammonia	--	107.15
		Ammonium Chloride	3.86	14.78
		Arsenic	3.53E-03	0.01
		Barium	0.09	0.34
		Benzaldehyde	0.45	1.72
		Benzo(a)pyrene	2.61E-05	9.99E-05
		Beryllium	1.32E-04	5.04E-04
		Boron	0.01	0.04
		Cadmium	4.41E-04	1.69E-03
		Chromium	0.03	0.11
		Copper (fume)	1.06	4.06
		Ethyl Toluene	1.69	6.47
		Ethylbenzene	1.04	3.98
		Fluorene	3.81E-03	0.01
		Fluoride (as HF)	0.18	0.69
		Hydrogen Chloride (30-operating day rolling ave excluding SU/SD)	4.49	--
		Hydrogen Chloride	--	19.66
		Iron	0.17	0.65
		Lead	0.02	0.08
		Manganese (fumes)	0.01	0.04
		Mercury (30-operating day rolling ave excluding SU/SD)	0.01	--
		Mercury	--	0.04

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Emission Sources - Maximum Allowable Emission Rates, Speciated Compounds

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
7*	Kiln No. 1 Main Bypass Baghouse, Coal Mill Baghouse and Scrubber Stack	Methyl Indene	2.02	7.74
		Methyl Mercaptan	0.46	1.76
		Methyl Styrene	0.01	0.04
		Methylene Chloride	0.10	0.38
		Nickel	0.01	0.04
		OCDD	4.01E-07	1.54E-06
		OCDF	8.33E-08	3.20E-07
		Pentadiene (all isomers)	1.23	4.71
		Phenathrene	0.08	0.31
		Selenium	0.04	0.15
		Silver	5.00E-04	1.91E-03
		Thallium	1.65E-03	0.01
		Total HpCDD	1.69E-07	6.50E-07
		Total HpCDF	5.45E-08	2.10E-07
		Total HxCDD	7.26E-08	2.80E-07
		TotalHxCDF	7.36E-08	2.80E-07
		Total PeCDD	5.41E-06	2.07E-06
		Total PeCDF	5.82E-08	2.20E-07
		Total TCDD	9.26E-09	4.00E-08
		Total TCDF	2.27E-07	8.70E-07
		Zinc	0.07	0.27

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Emission Sources - Maximum Allowable Emission Rates, Speciated Compounds

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
62*	Kiln No. 2 Main Bypass Baghouse, Coal Mill Baghouse and Scrubber Stack	Aluminum	0.12	0.46
		Ammonia (24-hour rolling avg.)	24.46	--
		Ammonia	--	107.15
		Ammonium Chloride	3.86	14.78
		Arsenic	3.53E-03	0.01
		Barium	0.09	0.34
		Benzaldehyde	0.45	1.72
		Benzo(a)pyrene	2.61E-05	9.99E-05
		Beryllium	1.32E-04	5.04E-04
		Boron	0.01	0.04
		Cadmium	4.41E-04	1.69E-03
		Chromium	0.03	0.11
		Copper (fume)	1.06	4.06
		Ethyl Toluene	1.69	6.47
		Ethylbenzene	1.04	3.98
		Fluorene	3.81E-03	0.01
		Fluoride (as HF)	0.18	0.69
		Hydrogen Chloride (30-operating day rolling ave excluding SU/SD)	4.49	--
		Hydrogen Chloride	--	19.66
		Iron	0.17	0.65
		Lead	0.02	0.08
		Manganese (fumes)	0.01	0.04
		Mercury (30-operating day rolling ave excluding SU/SD)	0.01	--

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Emission Sources - Maximum Allowable Emission Rates, Speciated Compounds

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
62*	Kiln No. 2 Main Bypass Baghouse, Coal Mill Baghouse and Scrubber Stack	Mercury	--	0.04
		Methyl Indene	2.02	7.74
		Methyl Mercaptan	0.46	1.76
		Methyl Styrene	0.01	0.04
		Methylene Chloride	0.10	0.38
		Nickel	0.01	0.04
		OCDD	4.01E-07	1.54E-06
		OCDF	8.33E-08	3.20E-07
		Pentadiene (all isomers)	1.23	4.71
		Phenathrene	0.08	0.31
		Selenium	0.04	0.15
		Silver	5.00E-04	1.91E-03
		Thallium	1.65E-03	0.01
		Total HpCDD	1.69E-07	6.50E-07
		Total HpCDF	5.45E-08	2.10E-07
		Total HxCDD	7.26E-08	2.80E-07
		TotalHxCDF	7.36E-08	2.80E-07
		Total PeCDD	5.41E-06	2.07E-06
		Total PeCDF	5.82E-08	2.20E-07
		Total TCDD	9.26E-09	4.00E-08
		Total TCDF	2.27E-07	8.70E-07
		Zinc	0.07	0.27

(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.

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Emission Sources - Maximum Allowable Emission Rates, Speciated Compounds

(3) HF - hydrogen fluoride
OCDD - Octachlorodibenzo- p-dioxin
OCDF - Octachlorodibenzofuran
HpCCD - Heptachlorodibenzo- p-dioxin
HpCDF - Heptachlorodibenzofuran
HxCDD - Hexachlorodibenzo- p-dioxin
HxCDF - Hexachlorodibenzofuran
PeCDD - Pentachlorodibenzo- p-dioxin
PeCDF - Pentachlorodibenzofuran
TCDD - Tetrachlorodibenzo- p-dioxin
TCDF - Tetrachlorodibenzofuran

(4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.

Date: Xxx, 2015

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Permit Amendment
Source Analysis & Technical Review

Company	**Holcim Texas Limited Partnership**	Permit Numbers	**8996 & PSDTX454M4**
City	**Midlothian**	Project Numbers	**211660 & 211663**
County	**Ellis**	Account Number	**ED-0099-J**
Project Type	**Amend**	Regulated Entity Number	**RN100219286**
Project Reviewer	**Laura Gibson, P.E.**	Customer Reference Number	**CN601231459**
Site Name	**Portland Cement Plant**		

Project Overview

Holcim Texas LP ("Holcim") is proposing a pollution control project to install add-on control technologies on both Line 1 and Line 2 kilns at the referenced facility. These controls will be installed to meet the new Total Hydrocarbons (THC) or alternate organic hazardous air pollutant (OHAP) emission limits under the NESHAP for HAPs from the Portland Cement Manufacturing Industry (PC MACT) as codified in Title 40 of the Code of Federal Regulations (40 CFR) Part 63, Subpart LLL.

This PC MACT compliance project will result in an overall reduction of THC (OHAPs) from the Midlothian plant. The collateral emission increases from the PC MACT compliance pollution control project will trigger federal New Source Review (NSR) permitting requirements. Collateral emissions increases from the pollution control project are below the nonattainment NSR (NNSR) and Prevention of Significant Deterioration (PSD) thresholds for all criteria pollutants, except for sulfuric acid (H_2SO_4), PM (total particulate matter), PM_{10} (total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$), and $PM_{2.5}$ (particulate matter equal to or less than 2.5 microns in diameter). As such, the pollution control project will be considered a PSD major modification and subject to PSD review for H_2SO_4, PM, PM_{10}, and $PM_{2.5}$ emissions.

Table 1: Emission Summary

Air Contaminant	Current Allowable Emission Rates (tpy)	Proposed Allowable Emission Rates (tpy)	Change in Allowable Emission Rates (tpy)
PM (total particulate matter, suspended in the atmosphere, including PM_{10} and $PM_{2.5}$)	468.85	571.85	103
PM_{10}	468.72	571.72	103
$PM_{2.5}$*	---	571.72	103
Volatile Organic Compounds (VOC)	882.26	663.26	-219.0
Nitrogen Oxides (NO_X)	3479.43	3479.43	0.00
Carbon Monoxide (CO)	7160.97	4351.97	-2809
Sulfur Dioxide (SO_2)	3542.73	3542.73	0.00
Hydrogen Chloride (HCl)	14.86	39.32	24.46
H_2SO_4	40	142	102

*$PM_{2.5}$ has not previously been quantified on the permit but has always been emitted.

Federal Applicability

The project is located at the Holcim Midlothian Portland Cement plant, which is an existing major source in Ellis County. Ellis County is designated as a serious nonattainment (NA) area for ozone. The plant is a major source for NA purposes. However, the emissions increases associated with this project will not trigger NA review. The following table illustrates the annual project emissions (without considering decreases) for each NA pollutant and whether this pollutant triggers NA review. No further NA review applicability is required.

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Table 2: Nonattainment Triggers

Pollutant	Project Increase (tpy)	NA Netting Trigger (tpy)	Netting Triggered (Y/N)	Net Contemporaneous Change (tpy)	NA Major Mod Trigger (tpy)	NA Review Triggered (Y/N)
VOC	0.0	5	N	NA	25	N
NO_x	4.95	5	N	NA	25	N

The site is also an existing major source for PSD. As shown in the below table, project increases (without considering decreases) of NO_x, SO_2, and VOC are less than the respective thresholds to require further PSD review. Once decreases are considered, there is no proposed change in NO_x emission rates. Once netting is applied, PSD review is not required for CO. PM, PM_{10}, $PM_{2.5}$, and H_2SO_4 remain subject to PSD review. No further PSD review applicability is required.

Table 3: PSD Triggers

Pollutant	Project Increase (tpy)	PSD Netting Trigger (tpy)	Netting Triggered (Y/N)	Net Contemporaneous Change (tpy)	PSD Major Mod Trigger (tpy)	PSD Review Triggered (Y/N)
NO_x	4.95	40	N	NA	40	N
CO	427	100	Y	- 26	100	N
PM	103	25	Y	103	25	Y
PM_{10}	103	15	Y	103	15	Y
$PM_{2.5}$	103	10	Y	103	10	Y
SO_2	0.13	40	N	NA	40	N
VOC	0.0	40	N	NA	40	N
H_2SO_4 mist	102	7	Y	102	7	Y

Holcim proposes to offset the NO_x emissions increase from the oxidation control systems by using the existing and/or new Selective Non-Catalytic Reduction (SNCR) systems to control NO_x emissions to a certain concentration (which remains unchanged by this action).

Compliance History Evaluation - 30 TAC Chapter 60 Rules

A compliance history report was reviewed on:	**October 8, 2014**
Compliance period:	**September 1, 2009 – August 31, 2014**
Site rating & classification:	**0.82, Satisfactory**
Company rating & classification:	**0.82, Satisfactory**
If the rating is 50<RATING<55, what was the outcome, if any, based on the findings in the formal report:	**NA**
Has the permit changed on the basis of the compliance history or rating?	**No**

Public Notice Information - 30 TAC Chapter 39 Rules

Rule Citation	Requirement	
39.403	Is Public Notice Required?	**Yes**
	Date Application Received:	**June 2, 2014**
	Date Administratively Complete:	**June 4, 2014**

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Rule Citation	Requirement	
	Small Business Source?	**No**
	Date Leg Letters mailed:	**June 4, 2014**
39.603	Date Published:	**June 11, 2014, missing Bolding Republished July 2, 2014**
	Publication Name:	***Midlothian Mirror***
	Pollutants:	Organic compounds, nitrogen oxides, sulfur dioxide, carbon monoxide, particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less, sulfuric acid, total reduced sulfur, hazardous air pollutants and other speciated compounds.
	Date Affidavits/Copies Received:	**June 25 and July 23, 2014**
	Is bilingual notice required?	**Yes**
	Language:	**Spanish**
	Date Published:	**June 30, 2014**
	Publication Name:	***La Prensa Comunidad***
	Date Affidavits/Copies Received:	**July 14, 2014**
	Date Certification of Sign Posting / Application Availability Received:	**September 25, 2014**
39.604	Public Comments Received?	**Yes**
	Hearing Requested?	**Yes**
	Meeting Request?	**Yes**
	Date Meeting Held:	**November 3, 2014**
	Date Response to Comments sent to OCC:	
	Request(s) withdrawn?	**Downwinders at Risk Contested Case Hearing Request was withdrawn, but others remain.**
	Date Withdrawn:	**December 1, 2014**
	Consideration of Comments:	**See RTC, no changes made to permit.**
	Is 2nd Public Notice required?	**Yes**
39.419	Date 2nd Public Notice/Preliminary Decision Letter Mailed:	**October 17, 2014**
39.413	Date Cnty Judge, Mayor, and COG letters mailed:	**October 17, 2014**
	Date Federal Land Manager letter mailed:	**NA**
39.605	Date affected states letter mailed:	**NA**
39.603	Date Published:	**October 22, 2014**
	Publication Name:	***Midlothian Mirror***
	Pollutants:	Particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less, sulfuric acid, organic compounds, nitrogen oxides, sulfur dioxide, carbon monoxide, total reduced sulfur, hazardous air pollutants and other speciated compounds
	Date Affidavits/Copies Received:	**October 31, 2014**
	Is bilingual notice required?	**Yes**
	Language:	**Spanish**

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Rule Citation	Requirement	
	Date Published:	**October 30, 2014**
	Publication Name:	***La Prensa de Comunidad***
	Date Affidavits/Copies Received:	**November 7, 2014**
	Date Certification of Sign Posting / Application Availability Received:	**December 11, 2014**
	Public Comments Received?	**Yes**
	Meeting Request?	**Yes**
	Date Meeting Held:	**NA**
	Hearing Request?	**Yes**
	Date Hearing Held:	
	Request(s) withdrawn?	**Downwinders at Risk Contested Case Hearing Request was withdrawn, but others remain.**
	Date Withdrawn:	**December 1, 2014**
	Consideration of Comments:	**See RTC, no changes made to permit.**
39.421	Date RTC, Technical Review & Draft Permit Conditions sent to OCC:	
	Request for Reconsideration Received?	
	Final Action:	
	Are letters Enclosed?	

Construction Permit & Amendment Requirements - 30 TAC Chapter 116 Rules

Rule Citation	Requirement	
116.111(a)(2)(G)	Is the facility expected to perform as represented in the application?	**Yes**
116.111(a)(2)(A)(i)	Are emissions from this facility expected to comply with all TCEQ air quality Rules & Regulations, and the intent of the Texas Clean Air Act?	**Yes**
116.111(a)(2)(B)	Emissions will be measured using the following method:	**CEMS for NO_x, CO, SO_2, VOC, and THC/OHAP combined with fuel flow records and calculations; continuous opacity monitoring systems (COMS) for opacity**
	Comments on emission verification:	**None**
116.111(a)(2)(D)	Subject to NSPS?	**Yes**
	Subparts **A, F, Y (Coal Preparation), & OOO (Nonmetallic Mineral Processing Plants)**	
116.111(a)(2)(E)	Subject to NESHAP?	**No**
	Subparts &	
116.111(a)(2)(F)	Subject to NESHAP (MACT) for source categories?	**Yes**
	Subparts **A & LLL (Portland Cement Plants)**	
116.111(a)(2)(H)	**Nonattainment review applicability:** The site is in a Nonattainment county; however, NA review is not triggered. See Federal Applicability above.	
116.111(a)(2)(I)	**PSD review applicability:** PSD is triggered for PM, PM_{10}, $PM_{2.5}$, and H_2SO_4 mist. See Federal Applicability above.	

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Rule Citation	Requirement		
116.111(a)(2)(L)	Is Mass Emissions Cap and Trade applicable to the new or modified facilities?		**No**
	If yes, did the proposed facility, group of facilities, or account obtain allowances to operate:		**NA**
116.140 - 141	Permit Fee: $ **75,000**	Fee certification:	**R428211**

Title V Applicability - 30 TAC Chapter 122 Rules

Rule Citation	Requirement
122.10(13)	**Title V applicability:** Title V is applicable and the site has Federal Operating Permit O1046.
122.602	**Periodic Monitoring (PM) applicability:** Periodic monitoring is applicable since the site is subject to 30 TAC Chapter 122 (Title V Permit No. O1046). Periodic monitoring includes NO_x, SO_2, CO, and THC CEMS for the cement kilns. Recordkeeping is used for periodic monitoring for other activities in which emissions are determined based on the duration of each event and compared to the Maximum Allowable Emission Rates Table (MAERT) on a rolling 12-month basis.
122.604	**Compliance Assurance Monitoring (CAM) applicability:** CAM is applicable to certain facilities that are located at a Title V site. The kilns are controlled with a baghouse and the pre-control potential-to-emit is greater than the major source threshold for CO, NO_x, SO_2, VOC, and PM. Therefore, CAM is applicable to the kilns, and the kiln is equipped with CEMS and COMS.

Request for Comments

Received From	Program/Area Name	Reviewed By/Date	Comments
Region:	**4**	**Luke Jones, 10/13/14**	**No objections, proceed with permit review.**
City:	**Midlothian**		**No local program.**
County:	**Ellis**		**No local program.**
ADMT:		**Dan Jamieson, 9/3/14**	**Air Quality Analysis acceptable for all review types and pollutants.**
EB&T:			**No EB&T issues.**
Toxicology:			**No toxicology issues.**
Compliance:			**No compliance issues.**
Legal:		**Amy Browning**	
Comment resolution and/or unresolved issues:			

Process/Project Description

The Portland cement manufacturing process at the facility involves raw materials acquisition and handling, kiln feed preparation, pyro processing, and finished cement grinding and loading. Raw materials (calcium source, silica source, iron source, and aluminum source) are mixed and ground in the raw mills and fed into a rotary kiln. In the kiln, the materials are heated to increasingly higher temperatures as they traverse the length of the kiln. The high temperatures create chemical reactions that transform the raw materials into an intermediate product known as clinker. The clinker exits the kiln, traveling along grates in the clinker cooler until cool enough to store or process further. Finish mills grind the clinker and integrate additives and set regulators to create the final cement product.

The current project authorizes oxidation control systems for both kilns (Emission Point Numbers [EPNs] 7* and 62*) on

the low-dust side, between the main baghouse and wet scrubber. Two oxidation control systems are to be authorized with this project: regenerative thermal oxidizer (RTO) for Kiln 2 (EPN 62*) and Selective Catalytic Reduction for total hydrocarbons (SCR-THC) for Kiln 1 (EPN 7*). The applicant proposes to install the RTO on Line 2 (EPN 62*) as a proof of concept, then make applicable design changes before installing the SCR-THC on Line 1. Line 1 is currently idled.

The THC standard in the PC MACT is 24 parts per million by volume dry (ppmvd) corrected to 7% O2. The applicant may choose to meet the alternative standard in the PC MACT of 12 ppmvd of total OHAP corrected to 7% O2. The total OHAP is defined per the PC MACT to be the sum of concentrations of compounds of formaldehyde, benzene, toluene, styrene, m-xylene, p-xylene, o-xylene, acetaldehyde, and naphthalene as measured by EPA Test Method 320 or Method 18, Appendix A, 40 CFR 60.

Pollution Prevention, Sources, Controls and BACT- [30 TAC 116.111(a)(2)(C)]

Emission sources at the site are cement kilns, raw and finish mills, clinker coolers, and ancillary material transfer equipment. Emission sources associated with this project are the oxidation control systems (RTO for Line 2 and SCR-THC for Line 1), supplemental heat exchangers, and natural gas-fired burners for heating of the inlet stream to achieve desired destruction efficiency. These additional sources exit from existing stacks for the kilns; therefore are included / added to the existing stack EPN maximum allowable emissions in the MAERT. Collateral emission increases of PM, PM_{10}, $PM_{2.5}$, and H_2SO_4 associated with this project result from the oxidation of pollutants.

After completion of the project, the stack emissions from the kilns continue to use SNCR with ammonia injection to control NO_x; fabric filtration (baghouse) to control $PM/PM_{10}/PM_{2.5}$; and wet scrubbers to control SO_2 and H_2SO_4; while the proposed oxidation control systems will control THC and OHAPs.

The two types of oxidation control technologies are described as follows:

- RTO (16 MMBtu/hr) system destroys THC and OHAP compounds by oxidizing them at high temperatures (≈ 850 °C). The RTO system is energy consuming as the inlet stream needs to be heated from approximately 150 °C to 850 °C or higher to achieve the required destruction efficiency. Beds of ceramic material are used as heat exchangers to reduce the fuel input requirements.
- SCR-THC system uses metal oxides (vanadium and tungsten) as a catalyst to reduce the temperature required to destroy THC and OHAP compounds by oxidizing them at a relatively low temperature (≈ 250 – 300 °C). Burners are also required to heat the inlet gas to the optimum temperature to achieve desired destruction efficiency. An air to air tube heat exchanger will be installed to reduce fuel input requirements.

Upgrades to the main baghouse fan in the existing control configuration of each kiln will accommodate the increase in pressure drop across the control train due to the new oxidation control systems. These upgrades will not result in increased production or emission rates from the kilns. The existing SNCR associated with Line 2 has excess capacity and will be used to offset NO_x emissions from natural gas combustion in the oxidation control. A second SNCR may be added to Line 1 to offset increased NO_x if required. Bypass will be incorporated in both control trains for the oxidation control system for maintenance and energy efficiency.

H_2SO_4 emissions result from the oxidation of SO_2 into SO_3. The SO_3 combines with water to form H_2SO_4 (which is also condensable PM_{10} and $PM_{2.5}$). The oxidation system vendors estimate a 0.8 to 1.0% conversion of SO_2 that is present in the kiln exhaust gas stream to H_2SO_4. The hourly and annual emission increases associated with this project are calculated based on a 0.9% conversion of SO_2 to H_2SO_4 / PM_{10} / $PM_{2.5}$, SO_2 concentrations and exhaust gas flow rates for both the raw mill off and on operating modes, and scrubber control efficiency. H_2SO_4 proposed collateral increases are in 24 hour and annual (condensable) PM_{10} and $PM_{2.5}$ as well as a proposed increase in the annual limit for H_2SO_4. Although the PC MACT compliance project will trigger PSD review for H_2SO_4, there will be no proposed increase in H_2SO_4 emissions on a short-term (hourly) basis. Therefore, a State Property line air dispersion modeling analysis is not required for H_2SO_4.

CO emissions decreases from Line 2 of 50% annually are realized when an RTO is installed. CO emissions increases resulting from using an SCR-THC on Line 1 were estimated based on preliminary testing by the vendor, which indicates a 12% increase in actual CO emission levels (within current permit allowables for Line 1). The requested levels were determined by applying these percent changes to two years of actual emissions.

Emissions of PM and SO_2 were determined based on a 16 MMBtu/hr RTO system for Line 2 and a 39.24 MMBtu/hr SCR-

THC system for Line 1. AP-42 factors for Natural Gas Combustion (Tables 1.4-1 and 1.4-2) were also used.

Hydrogen chloride (HCl) and Ammonia (NH_3) were calculated based on the 3 ppmvd HCl at 7% O_2 limit specified by the PC MACT and the 35 ppmvd NH_3 at 7% O_2 limit authorized in an alteration to Permit No. 8996 in February 2010. The ideal gas law was applied to complete the emissions calculations.

OHAPs limits for modeling purposes (to ensure acceptable health effects) were found by applying a 2.5 factor of safety on each OHAP, assumed at the 12 ppmvd at 7% O_2 limit (PC MACT [40 CFR 63.1343(b)] requirement).

In addition to a review of control technology for steady state operations, the 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 Maximum Allowable Emission Rate Table (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. A PSD review was required for PM / PM_{10} / $PM_{2.5}$ and H_2SO_4. An RBLC search of federal permits issued between 2004 and 2013 identified seven thermal oxidizers used for emission control and fourteen cement kilns. Control technologies for the pollutants triggering PSD review for the current project were examined. These technologies were: good combustion practices; sulfur content limits on fuel; wet Electrostatic Precipitator (ESP); dry sorbent injection; Dry Flue Gas Desulfurization (FGD), and/or wet scrubbers to control H_2SO_4 / PM / PM_{10} / $PM_{2.5}$.

Portland Cement Kilns and Controls

NO_x Emissions

NO_x is currently controlled using low NO_x burners (pre-heaters) installed in both kilns and both calciners. With the current project, the applicant has requested no increase in NO_x allowables: the collateral potential increase in NO_x emissions directly generated from the pollution control device will be offset by reductions of NO_x emissions from the kilns using existing and/or new SNCR systems. The existing SNCR system associated with Line 2 has excess capacity and CEMS is in place monitoring the exhaust gas. NH_3 is injected at a rate appropriate to meet current NO_x limits (feedback loop). A second SNCR system may be added to Line 1 as part of the oxidation control system to offset NO_x emissions from the combustion of natural gas in the oxidation control system if required. Holcim will demonstrate that BACT for NO_x is achieved through the initial stack testing, proper operation of the units, and NO_x records from the CEMS.

CO Emissions

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. In addition, the installation of the RTO will control CO. Holcim 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

Currently, 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. The installation of the RTO on Line 2 allows the applicant to estimate a 50% decrease in annual VOC emissions from Line 2. Due to variability in the inlet stream, operational optimization of the RTO, and the form of the PC MACT THC/OHAP limit, Holcim proposed to maintain the current hourly VOC limits. The applicant also estimates a 30 – 60% reduction in VOCs from Line 1 once the SCR-THC is installed; however, the applicant proposes to maintain the current hourly and annual limits on VOC from Line 1 due to variability in the inlet stream, varying degrees of effectiveness of the SCR-THC, and the form of the PC MACT THC/OHAP limit. Holcim will demonstrate that BACT for VOC is achieved through the initial stack testing, proper operation of the units, and VOC records from the CEMS.

H_2SO_4 and SO_2 Emissions

Review of the RBLC did not reveal any specific H_2SO_4 control technologies for the cement industry. The coal and oil-fired power plant industry uses wet electrostatic precipitation (ESP) or dry sorbent injection to control H_2SO_4 and PM_{10} / $PM_{2.5}$. A cost evaluation was performed to determine whether adding wet ESP, dry sorbent injection and/or dry FGD would be economically reasonable. The cost of the wet ESP system is close to $169,000 per ton of H_2SO_4 / PM_{10} / $PM_{2.5}$ emission reduction from the kilns. The cost of the dry sorbent injection or dry FGD is $326,000 per ton of H_2SO_4 / PM_{10} / $PM_{2.5}$

emission reduction from the kilns. These costs are not considered economically reasonable and these control technologies were rejected from further consideration. Current controls for H_2SO_4 and SO_2 at this plant include the use of pipeline quality natural gas or coal containing no more than 3 percent sulfur by weight or other limited non-hazardous fuels. Control of sulfur compounds also occurs through the use of a wet scrubber system, which Holcim will use to control collateral increases of H_2SO_4 and SO_2. 0.11 lb H_2SO_4 / ton clinker was proposed as BACT by the applicant and is acceptable. Holcim will demonstrate that BACT for H_2SO_4 and SO_2 is achieved through maintenance of SO_2 scrubber records (hours of operation, pH, and flow rate) and SO_2 records from the CEMS.

PM / PM_{10} / $PM_{2.5}$ Emissions
The kilns currently have baghouses and wet scrubbers to control PM / PM_{10} / $PM_{2.5}$, and must use maximum available control technology to meet the 40 CFR 63, Subpart LLL requirement for filterable PM. The proposed oxidation control systems will be installed downstream of the baghouse and upstream of the wet scrubbers; therefore the applicant has proposed using the wet scrubbers to control PM_{10} / $PM_{2.5}$ from the RTO and SCR-THC. Upgrades to the main baghouse fan in the existing control configuration of each kiln will accommodate the increase in pressure drop across the control train due to the new oxidation control systems. Because the particulate increase is from oxidation of SO_2 into H_2SO_4 mist, the wet scrubbers are the controls. Holcim has proposed 0.23 lb PM_{10}/$PM_{2.5}$ (condensables) / ton clinker which is acceptable. Holcim will demonstrate that BACT for PM / PM_{10} / $PM_{2.5}$ is achieved through initial stack testing, proper operation of the units, maintenance of wet scrubber records (hours of operation, pH, and flow rate) and opacity records from the COMS.

NH_3 Emissions
In February 2010, Holcim was granted an alternate baseline for control of ammonia slip from their SNCR systems. The ammonia emission shall not exceed more than one time per 12-month rolling period a limit of 35 ppmvd at 7 percent oxygen, on a 24-hour rolling average basis. Holcim proposed to set the maximum hourly ammonia emission rate in the permit based on calculations using the Ideal Gas Law, the flue gas flow rate, and 35 ppmvd. Holcim proposed to set the annual emission rate in the permit based on continuous operation (i.e., 8,760 hours per year) at the maximum hourly operation/emission rate. The increased concentration was previously evaluated and is now being claimed with this amendment. The aqueous ammonia is limited to 20% concentration with AVO checks every 24 hours. Records must be kept of compliance with the NH_3 emission limits.

HCl Emissions
Per 40 CFR §63.1343(b), Table 1, the maximum available control technology results in HCl emissions being limited to 3 ppmvd at 7 percent oxygen, on a 30 day rolling average basis, for each Portland Cement kiln. Holcim 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. Holcim proposed to set the annual HCl emission rate in the permit based on continuous operation (i.e., 8,760 hours per year) at the maximum hourly operation/emission rate. Holcim will demonstrate that BACT for HCl is achieved through the initial stack testing and proper operation of the units.

Summary of Modeling Results

The air quality analysis (AQA) was performed for maximum emissions increases from both proposed control technologies as represented in the June 2, 2014 amendment application, and is acceptable for all review types and pollutants. Any changes to emissions provided in the application update of September 10, 2014 are a decrease from those represented in the June 2, 2014 application, therefore the AQA is still acceptable. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results for PM_{10}, $PM_{2.5}$, and CO indicate that the project is below the respective de minimis concentrations.

The applicant provided an evaluation of ambient $PM_{2.5}$ monitoring data, consistent with draft EPA guidance for $PM_{2.5}$[1], for using the $PM_{2.5}$ De Minimis levels in the NAAQS analysis. See the discussion below in the Air Quality Monitoring section for additional information on the evaluation of ambient $PM_{2.5}$ monitoring data.

1 www.epa.gov/ttn/scram/guidance/guide/Guidance_for_PM25_Permit_Modeling.pdf

While the De Minimis levels for both the NAAQS and increment are identical for $PM_{2.5}$ in the table below, the procedures to determine significance (that is, predicted concentrations to compare to the De Minimis levels) are different. This difference occurs because the NAAQS for $PM_{2.5}$ are statistically-based, but the corresponding increments are exceedance-based.

Table 4: Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m³)

Pollutant	Averaging Time	GLC_{max} (µg/m³)	De Minimis (µg/m³)
PM_{10}	24-hr	1.15	5
PM_{10}	Annual	0.18	1
$PM_{2.5}$ (NAAQS)	24-hr	0.97	1.2
$PM_{2.5}$ (NAAQS)	Annual	0.15	0.3
$PM_{2.5}$ (Increment)	24-hr	1.15	1.2
$PM_{2.5}$ (Increment)	Annual	0.18	0.3
CO	1-hr	195	2000
CO	8-hr	108	500

The 24-hr and annual $PM_{2.5}$ (NAAQS) GLC_{max} are based on the highest five-year averages of the maximum predicted concentrations determined for each receptor. The GLC_{max} for all other pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

The applicant performed an analysis on secondary $PM_{2.5}$ formation as part of the PSD AQA. The applicant evaluated the project emissions of $PM_{2.5}$ precursors (NO_x and SO_2). Since the project NO_x and SO_2 emissions are less than the $PM_{2.5}$ precursor significant emission rates (SERs) for NO_x and SO_2, the applicant concluded that the potential project impacts associated with secondary $PM_{2.5}$ formation would not be significant. This analysis is reasonable and is consistent with draft EPA guidance for $PM_{2.5}$.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that PM_{10} and CO are below their respective monitoring significance levels.

Table 5: Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLC_{max} (µg/m³)	Significance (µg/m³)
PM_{10}	24-hr	1.15	10
CO	8-hr	108	575

The GLC_{max} represent the maximum predicted concentrations associated with five years of meteorological data.

The applicant evaluated ambient $PM_{2.5}$ monitoring data to satisfy the requirements for the pre-application air quality analysis.

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Background concentrations for $PM_{2.5}$ were obtained from the EPA AIRS monitor 481390016 located at 2725 Old Fort Worth Rd., Midlothian, Ellis County. The three-year average of the 98th percentile of the annual distribution of the 24-hr concentrations for years 2011-2013 was used for the 24-hr value (23 µg/m³). The three-year average of the annual concentrations from years 2011-2013 was used for the annual value (9.7 µg/m³). Though there was a quarter in the three year data set that did not contain a sufficient number of samples to be complete, the applicant provided an analysis to demonstrate the validity of the data set following the substitution test procedures from Appendix N of 40 CFR Part 50. The use of this monitor is reasonable based on the proximity of the monitor to the project site, as well as the analysis provided by the applicant of the industrialized area surrounding the monitoring site relative to the project site.

C. National Ambient Air Quality Standard (NAAQS) Analysis

The De Minimis analysis modeling results for PM_{10}, $PM_{2.5}$, and CO indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The project site is located in Ellis County, which is part of the Dallas-Fort Worth ozone non-attainment area. Therefore, an ozone analysis is not required as part of the AQA.

D. Increment Analysis

The De Minimis analysis modeling results for PM_{10} indicate that the project is below the respective de minimis concentrations and no further analysis is required.

Though the De Minimis analysis modeling results for $PM_{2.5}$ indicate that the project is below the respective de minimis concentrations, the applicant conducted a full increment evaluation.

Table 6: Results for PSD Increment Analysis

Pollutant	Averaging Time	GLCmax (µg/m³)	Increment (µg/m³)
$PM_{2.5}$	24-hr	7.87	9
$PM_{2.5}$	Annual	3.37	4

The 24-hr $PM_{2.5}$ GLC_{max} represents the maximum high, second high (H2H) predicted concentration over five years of meteorological data. The annual $PM_{2.5}$ GLC_{max} represents the maximum predicted concentration over five years of meteorological data.

E. Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective primary and secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with 30 TAC 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the project site to determine if emissions could adversely affect a Class I area. The nearest Class I area, Wichita Mountains, is located approximately 290 kilometers (km) from the project site.

The predicted concentrations of PM_{10} and $PM_{2.5}$, for all averaging times, are less than de minimis levels at all modeled receptors. As noted above, Wichita Mountains is located approximately 290 km from the project site; therefore, emissions from the proposed project are not expected to adversely affect the Wichita Mountains Class I area.

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F. Minor Source NSR and Air Toxics Analysis

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

Pollutant & CAS#	Averaging Time	GLC_{max} (µg/m³)	ESL (µg/m³)
Hydrogen chloride 7647-01-0	1-hr	1.2	190
Hydrogen chloride 7647-01-0	Annual	0.06	7.9
Ammonia 7664-41-7	1-hr	6.4	170
Formaldehyde 50-00-0	1-hr	9.6	15
Acetaldehyde 75-07-0	1-hr	14.1	15
Benzene 71-43-2	1-hr	25	170
Benzene 71-43-2	Annual	0.5	4.5
Toluene 108-88-3	1-hr	29.5	3500
p-Xylene 106-42-3	1-hr	34	250
m-Xylene 108-38-3	1-hr	34	340
o-Xylene 95-47-6	1-hr	34	1600
Naphthalene 91-20-3	1-hr	41.1	200
Styrene 100-42-5	1-hr	33.4	110

The GLC_{max} are located along the property line. The applicant did not address a GLC_{ni} location.

Permit Concurrence and Related Authorization Actions

Is the applicant in agreement with special conditions?	**Yes**
Company representative(s):	**Dan Carnes**
Contacted Via:	**Email & phone**
Date of contact:	**10/10/13, 10/13/13, 10/14/13**
Other permit(s) or permits by rule affected by this action:	**None**
List permit and/or PBR number(s) and actions required or taken:	**No action needed; 13 registered PBRs and 1 Standard Permit exist for this site and are appropriate authorizations for sources not addressed in this permit (NSR Permit No. 8996).**

1/7/15

Project Reviewer Date Team Leader/Section Manager/Backup Date

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Preliminary Determination Summary

Holcim (Texas) Limited Partnership
Permit Numbers 8996 and PSDTX454M4

I. Applicant

Holcim Texas Limited Partnership
1800 Dove Ln
Midlothian, Texas 76065-4435

II. Project Location

Portland Cement Plant
1800 Dove Ln
Ellis County
Midlothian, Texas 76065

III. Project Description

Holcim Texas LP (Holcim) is proposing a pollution control project to install add-on control technologies on both Line 1 and Line 2 kilns at the referenced facility. These controls will be installed to meet the new Total Hydrocarbons (THC) or alternate organic hazardous air pollutant (OHAP) emission limits for the Portland Cement (PC) Manufacturing Industry (PC Maximum Available Control Technology [MACT]) as codified in Title 40 of the Code of Federal Regulations (40 CFR) Part 63, Subpart LLL.

This PC MACT compliance project will result in an overall reduction of THC (OHAPs) from the Midlothian plant. The collateral emission increases from the PC MACT compliance pollution control project will trigger federal New Source Review (NSR) permitting requirements. Collateral emissions increases from the pollution control project are below the nonattainment NSR (NNSR) and Prevention of Significant Deterioration (PSD) thresholds for all criteria pollutants, except for sulfuric acid (H_2SO_4), PM (total particulate matter), PM_{10} (total particulate matter equal to or less than 10 microns in diameter, including $PM_{2.5}$), and $PM_{2.5}$ (particulate matter equal to or less than 2.5 microns in diameter). As such, the pollution control project will be considered a PSD major modification and subject to PSD review for H_2SO_4, PM_{10}, and $PM_{2.5}$ emissions.

The current project authorizes oxidation control systems for both kilns (Emission Point Numbers [EPNs] 7* and 62*) on the low-dust side, between the main baghouse and wet scrubber. Two oxidation control systems are to be authorized with this project: regenerative thermal oxidizer (RTO) for Kiln 2 (EPN 62*) and Selective Catalytic Reduction for total hydrocarbons (SCR-THC) for Kiln 1 (EPN 7*). Other emission sources associated with this project are the supplemental heat exchangers and natural gas-fired burners for heating of the inlet stream to achieve desired destruction efficiency. These additional sources exit from existing stacks for the kilns. Collateral emission increases of PM, PM_{10}, $PM_{2.5}$, and H_2SO_4 associated with this project result from the oxidation of pollutants.

IV. Emissions

The facility before and after construction of the proposed project will emit the following pollutants:

Table 1: Proposed Allowable Emission Rates

Air Contaminant	Current Allowable Emission Rates (tpy)	Proposed Allowable Emission Rates (tpy)	Change in Allowable Emission Rates (tpy)
PM	468.85	571.85	103
PM_{10}	468.72	571.72	103
$PM_{2.5}$	---	571.72	103
VOC	882.26	663.26	-219.0
NO_x	3479.43	3479.43	0.00
CO	7160.97	4351.97	-2809
SO_2	3542.73	3542.73	0.00
Hydrogen Chloride (HCl)	14.86	39.32	24.46
H_2SO_4	40	142	102

Condensable and filterable PM / PM_{10} / $PM_{2.5}$ were reviewed in the analysis. The hourly and annual emission limitations on the table entitled "Emission Sources - Maximum Allowable Emission Rates" (MAERT) include emissions from Maintenance, Startup, and Shutdown activities.

V. Federal Applicability

The project is located at the Holcim Midlothian Portland Cement plant, which is an existing major source in Ellis County. Ellis County is designated as a serious nonattainment (NA) area for ozone. The plant is a major source for NA purposes. However, the emissions increases associated with this project will not trigger NA review. The following table illustrates the annual project emissions (without considering decreases) for each NA pollutant and whether this pollutant triggers NA review. No further NA review applicability is required.

Table 2: Nonattainment Triggers

Pollutant	Project Increase (tpy)	NA Netting Trigger (tpy)	Netting Triggered (Y/N)	Net Contemp-oraneous Change (tpy)	NA Major Mod Trigger (tpy)	NA Review Triggered (Y/N)
VOC	0.0	5	N	NA	25	N
NO_x	4.95	5	N	NA	25	N

The site is also an existing major source for PSD. As shown in the below table, project increases (without considering decreases) of NO_x, SO_2, and VOC are less than the respective thresholds to require further PSD review. Once decreases are considered, there is no proposed change in NO_x emission rates. Once netting is applied, CO no longer triggers PSD review. PM, PM_{10}, $PM_{2.5}$, and H_2SO_4 remain subject to PSD review. No further PSD review applicability is required.

Table 3: PSD Triggers

Pollutant	Project Increase (tpy)	PSD Netting Trigger (tpy)	Netting Triggered (Y/N)	Net Contemp-oraneous Change (tpy)	PSD Major Mod Trigger (tpy)	PSD Review Triggered (Y/N)
NO_x	4.95	40	N	NA	40	N
CO	427	100	Y	- 26	100	N
PM	103	25	Y	103	25	Y
PM_{10}	103	15	Y	103	15	Y
$PM_{2.5}$	103	10	Y	103	10	Y
SO_2	0.13	40	N	NA	40	N
VOC	0.0	40	N	NA	40	N
H_2SO_4 mist	102	7	Y	102	7	Y

Holcim will offset the NO_x emissions increase from the oxidation control systems by using the existing and/or new Selective Non-Catalytic Reduction (SNCR) systems, which, combined with the Continuous Emissions Monitoring Systems (CEMS), control NO_x emissions to a certain concentration (which remains unchanged by this action). Although NO_x, CO, SO_2, and VOC are not subject to PSD, they are subject to the TCEQ's permit review, which requires both a control technology and an air quality review.

VI. Control Technology Review

In addition to a review of control technology for steady state operations, the 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 Maximum Allowable Emission Rate Table (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. A PSD

review was required for PM / PM_{10}/$PM_{2.5}$ and H_2SO_4. An RBLC search of federal permits issued between 2004 and 2013 identified seven thermal oxidizers used for emission control and fourteen cement kilns. Control technologies for the pollutants triggering PSD review for the current project were examined. These technologies were: good combustion practices; sulfur content limits on fuel; wet Electrostatic Precipitator (ESP); dry sorbent injection; Dry Flue Gas Desulfurization (FGD), and/or wet scrubbers to control H_2SO_4 / PM / PM_{10} / $PM_{2.5}$.

Portland Cement Kilns and Controls

NO_x Emissions

NO_x is currently controlled using low NO_x burners (pre-heaters) installed in both kilns and both calciners. With the current project, the applicant has requested no increase in NO_x allowables: the collateral potential increase in NO_x emissions directly generated from the pollution control device will be offset by reductions of NO_x emissions from the kilns using existing and/or new SNCR systems. The existing SNCR system associated with Line 2 has excess capacity and CEMS is in place monitoring the exhaust gas. NH_3 is injected at a rate appropriate to meet current NO_x limits, which are 5.3 tons NO_x per day during ozone season, and 15.3 tons NO_x per day during non-ozone season. A second SNCR system may be added to Line 1 (which is currently idled) as part of the oxidation control system to offset NO_x emissions from the combustion of natural gas in the oxidation control system if required. Holcim will demonstrate that BACT for NO_x is achieved through the initial stack testing, proper operation of the units, and NO_x records from the CEMS.

CO Emissions

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. In addition, the installation of the RTO will control CO. Holcim 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

Currently, 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. The installation of the RTO on Line 2 allows the applicant to estimate a 50% decrease in annual VOC emissions from Line 2. Due to variability in the inlet stream, operational optimization of the RTO, and the form of the PC MACT THC/OHAP limit, Holcim will maintain the current hourly VOC limits. The applicant also estimates a 30 – 60% reduction in VOCs from Line 1 once the SCR-THC is installed; however, the applicant will maintain the current hourly and annual limits on VOC from Line 1 due to variability in the inlet stream, varying degrees

of effectiveness of the SCR-THC, and the form of the PC MACT THC/OHAP limit. Holcim will demonstrate that BACT for VOC is achieved through the initial stack testing, proper operation of the units, and VOC records from the CEMS.

H_2SO_4 and SO_2 Emissions

Review of the RBLC did not reveal any specific H_2SO_4 control technologies for the cement industry. The coal and oil-fired power plant industry uses wet electrostatic precipitation (ESP) or dry sorbent injection to control H_2SO_4 and PM_{10} / $PM_{2.5}$. A cost evaluation was performed to determine whether adding wet ESP, dry sorbent injection and/or dry FGD would be economically reasonable. The cost of the wet ESP system is close to $169,000 per ton of H_2SO_4 / PM_{10} / $PM_{2.5}$ emission reduction from the kilns. The cost of the dry sorbent injection or dry FGD is $326,000 per ton of H_2SO_4 / PM_{10} / $PM_{2.5}$ emission reduction from the kilns. These costs are not considered economically reasonable and these control technologies were rejected from further consideration. Current controls for H_2SO_4 and SO_2 at this plant include the use of pipeline quality natural gas or coal containing no more than 3 percent sulfur by weight or other limited non-hazardous fuels. Control of sulfur compounds also occurs through the use of a wet scrubber system, which Holcim will use to control collateral increases of H_2SO_4 and SO_2. 0.11 lb H_2SO_4 / ton clinker was proposed as BACT by the applicant and is acceptable. Although the PC MACT compliance project triggered PSD review for H_2SO_4, there is no proposed increase in H_2SO_4 emissions on a short-term (hourly) basis. Therefore, a State Property line air dispersion modeling analysis is not required for H_2SO_4. Holcim will demonstrate that BACT for H_2SO_4 and SO_2 is achieved through maintenance of SO_2 scrubber records (hours of operation, pH, and flow rate) and SO_2 records from the CEMS.

PM / PM_{10} / $PM_{2.5}$ Emissions

The kilns currently have baghouses and wet scrubbers to control PM / PM_{10} / $PM_{2.5}$, and must use maximum available control technology to meet the 40 CFR 63, Subpart LLL requirement for filterable PM. The proposed oxidation control systems will be installed downstream of the baghouse and upstream of the wet scrubbers; therefore the applicant will use the wet scrubbers to control PM / PM_{10} / $PM_{2.5}$ from the RTO and SCR-THC. Upgrades to the main baghouse fan in the existing control configuration of each kiln will accommodate the increase in pressure drop across the control train due to the new oxidation control systems. Because the particulate increase is from oxidation of SO_2 into H_2SO_4 mist, the wet scrubbers are the controls. Holcim has proposed 0.23 lb PM_{10}/$PM_{2.5}$ (condensables) / ton clinker which is acceptable. Holcim will demonstrate that BACT for PM / PM_{10} / $PM_{2.5}$ is achieved through initial stack testing, proper operation of the units, maintenance of wet scrubber records (hours of operation, pH, and flow rate) and opacity records from the continuous opacity monitoring system.

NH_3 Emissions
In February 2010, Holcim was granted an alternate baseline for control of ammonia slip from their SNCR systems. The ammonia emission shall not exceed more than one time per 12-month rolling period a limit of 35 ppmvd at 7 percent oxygen, on a 24-hour rolling average basis. The maximum hourly ammonia emission rate in the permit is based on calculations using the Ideal Gas Law, the flue gas flow rate, and 35 ppmvd. The increased concentration was previously authorized and is now being claimed with this amendment. The aqueous ammonia is limited to 20% NH_3 concentration with AVO checks every 24 hours. Records must be kept of compliance with the NH_3 emission limits.

HCl Emissions
Per PC MACT rule requirements effective September 9, 2015, HCl emissions are limited to 3 ppmvd at 7 percent oxygen, on a 30 day rolling average basis, for each Portland Cement kiln. Holcim has 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 HCl emission limit in 40 CFR §63.1343(b) Table 1. Holcim will demonstrate that BACT for HCl is achieved through the initial stack testing, proper operation of the units, and recordkeeping.

VII. Air Quality Analysis

The air quality analysis (AQA) was performed for maximum emissions increases from both proposed control technologies as represented in the June 2, 2014 amendment application, and is acceptable for all review types and pollutants. An application update was received on September 10, 2014 which describes emissions rates decreases from those represented in the June 2, 2014 application, therefore the AQA is still acceptable. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results for PM_{10}, $PM_{2.5}$, and CO indicate that the project is below the respective de minimis concentrations.

The applicant provided an evaluation of ambient $PM_{2.5}$ monitoring data, consistent with draft EPA guidance for $PM_{2.5}$[1], for using the $PM_{2.5}$ De Minimis levels in the NAAQS analysis. See the discussion below in the Air Quality Monitoring section for additional information on the evaluation of ambient $PM_{2.5}$ monitoring data.

[1] www.epa.gov/ttn/scram/guidance/guide/Guidance_for_PM25_Permit_Modeling.pdf

While the De Minimis levels for both the NAAQS and increment are identical for $PM_{2.5}$ in the table below, the procedures to determine significance (that is, predicted concentrations to compare to the De Minimis levels) are different. This difference occurs because the NAAQS for $PM_{2.5}$ are statistically-based, but the corresponding increments are exceedance-based.

Table 4. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m³)

Pollutant	Averaging Time	Maximum Ground Level Concentration (GLC_{max}, µg/m³)	De Minimis (µg/m³)
PM_{10}	24-hr	1.15	5
PM_{10}	Annual	0.18	1
$PM_{2.5}$ (NAAQS)	24-hr	0.97	1.2
$PM_{2.5}$ (NAAQS)	Annual	0.15	0.3
$PM_{2.5}$ (Increment)	24-hr	1.15	1.2
$PM_{2.5}$ (Increment)	Annual	0.18	0.3
CO	1-hr	195	2000
CO	8-hr	108	500

The 24-hr and annual $PM_{2.5}$ (NAAQS) GLC_{max} are based on the highest five-year averages of the maximum predicted concentrations determined for each receptor. The GLC_{max} for all other pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

The applicant performed an analysis on secondary $PM_{2.5}$ formation as part of the PSD AQA. The applicant evaluated the project emissions of $PM_{2.5}$ precursors (NO_x and SO_2). Since the project NO_x and SO_2 emissions are less than the $PM_{2.5}$ precursor significant emission rates (SERs) for NO_x and SO_2, the applicant concluded that the potential project impacts associated with secondary $PM_{2.5}$ formation would not be significant. This analysis is reasonable and is consistent with draft EPA guidance for $PM_{2.5}$.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that PM_{10} and CO are below their respective monitoring significance levels.

Table 5. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLC_{max} (µg/m³)	Significance (µg/m³)
PM_{10}	24-hr	1.15	10
CO	8-hr	108	575

The GLC_{max} represent the maximum predicted concentrations associated with five years of meteorological data.

The applicant evaluated ambient $PM_{2.5}$ monitoring data to satisfy the requirements for the pre-application air quality analysis.

Background concentrations for $PM_{2.5}$ were obtained from the EPA AIRS monitor 481390016 located at 2725 Old Fort Worth Rd., Midlothian, Ellis County. The three-year average of the 98th percentile of the annual distribution of the 24-hr concentrations for years 2011-2013 was used for the 24-hr value (23 µg/m³). The three-year average of the annual concentrations from years 2011-2013 was used for the annual value (9.7 µg/m³). Though there was a quarter in the three year data set that did not contain a sufficient number of samples to be complete, the applicant provided an analysis to demonstrate the validity of the data set following the substitution test procedures from Appendix N of 40 CFR Part 50. The use of this monitor is reasonable based on the proximity of the monitor to the project site, as well as the analysis provided by the applicant of the industrialized area surrounding the monitoring site relative to the project site.

C. National Ambient Air Quality Standards (NAAQS) Analysis

The De Minimis analysis modeling results for PM_{10}, $PM_{2.5}$, and CO indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The project site is located in Ellis County, which is part of the Dallas-Fort Worth ozone non-attainment area. Therefore, an ozone analysis is not required as part of the AQA.

D. Increment Analysis

The De Minimis analysis modeling results for PM_{10} indicate that the project is below the respective de minimis concentrations and no further analysis is required.

Though the De Minimis analysis modeling results for $PM_{2.5}$ indicate that the project is below the respective de minimis concentrations, the applicant conducted a full increment evaluation.

Table 6. Results for PSD Increment Analysis

Pollutant	Averaging Time	GLC_{max} (µg/m^3)	Increment (µg/m^3)
$PM_{2.5}$	24-hr	7.87	9
$PM_{2.5}$	Annual	3.37	4

The 24-hr $PM_{2.5}$ GLC_{max} represents the maximum high, second high (H2H) predicted concentration over five years of meteorological data. The annual $PM_{2.5}$ GLC_{max} represents the maximum predicted concentration over five years of meteorological data.

E. Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective primary and secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with 30 TAC 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the project site to determine if emissions could adversely affect a Class I area. The nearest Class I area, Wichita Mountains, is located approximately 290 kilometers (km) from the project site.

The predicted concentrations of PM_{10} and $PM_{2.5}$, for all averaging times, are less than de minimis levels at all modeled receptors. As noted above, Wichita Mountains is located approximately 290 km from the project site;

therefore, emissions from the proposed project are not expected to adversely affect the Wichita Mountains Class I area.

F. Minor Source NSR and Air Toxics Review

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

Pollutant & CAS#	Averaging Time	GLC_{max} (µg/m³)	ESL (µg/m³)
Hydrogen chloride 7647-01-0	1-hr	1.2	190
Hydrogen chloride 7647-01-0	Annual	0.06	7.9
Ammonia 7664-41-7	1-hr	6.4	170
Formaldehyde 50-00-0	1-hr	9.6	15
Acetaldehyde 75-07-0	1-hr	14.1	15
Benzene 71-43-2	1-hr	25	170
Benzene 71-43-2	Annual	0.5	4.5
Toluene 108-88-3	1-hr	29.5	3500
p-Xylene 106-42-3	1-hr	34	250
m-Xylene 108-38-3	1-hr	34	340
o-Xylene 95-47-6	1-hr	34	1600
Naphthalene 91-20-3	1-hr	41.1	200
Styrene 100-42-5	1-hr	33.4	110

The GLC_{max} are located along the property line. The applicant did not address a non-industrial ground level concentration location.

Thus, the applicant has demonstrated that the proposed project's emissions will not adversely affect public health and welfare.

VIII. Conclusion

Holcim proposes controls and emission limits that represent BACT for the proposed pollution control projects for Portland Cement kilns. 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 applicant has demonstrated the project meets all applicable rules, regulations and requirements of the Texas and Federal Clean Air Acts. The Executive Director makes a preliminary recommendation to amend Permit Nos. 8996 and PSDTX454M4.

TCEQ Interoffice Memorandum

To: Laura Gibson, P.E.
Combustion/Coatings Section

Thru: Daniel Menendez, Team Leader
Air Dispersion Modeling Team (ADMT)

From: Dan Jamieson
ADMT

Date: September 3, 2014

Subject: Air Quality Analysis Audit - Holcim Texas Limited Partnership (RN100219286)

1. Project Identification Information

Permit Application Number: PSDTX454M4
NSR Project Number: 211663
ADMT Project Number: 4358
NSRP Document Number: 514081
County: Ellis
ArcReader Published Map: \\tceq4apmgisdata\GISWRK\APD\MODEL PROJECTS\4358\4358.pmf

Air Quality Analysis: Submitted by Trinity Consultants, August 2014, on behalf of Holcim Texas Limited Partnership. Additional information was provided August 2014.

2. Report Summary

The air quality analysis (AQA) is acceptable for all review types and pollutants. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results for PM_{10}, $PM_{2.5}$, and CO indicate that the project is below the respective de minimis concentrations.

The applicant provided an evaluation of ambient $PM_{2.5}$ monitoring data, consistent with draft EPA guidance for $PM_{2.5}$[1], for using the $PM_{2.5}$ De Minimis levels in the NAAQS analysis. See the discussion below in the Air Quality Monitoring section for additional information on the evaluation of ambient $PM_{2.5}$ monitoring data.

[1] www.epa.gov/ttn/scram/guidance/guide/Guidance_for_PM25_Permit_Modeling.pdf

While the De Minimis levels for both the NAAQS and increment are identical for $PM_{2.5}$ in the table below, the procedures to determine significance (that is, predicted concentrations to compare to the De Minimis levels) are different. This difference occurs because the NAAQS for $PM_{2.5}$ are statistically-based, but the corresponding increments are exceedance-based.

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m³)

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
PM_{10}	24-hr	1.15	5
PM_{10}	Annual	0.18	1
$PM_{2.5}$ (NAAQS)	24-hr	0.97	1.2
$PM_{2.5}$ (NAAQS)	Annual	0.15	0.3
$PM_{2.5}$ (Increment)	24-hr	1.15	1.2
$PM_{2.5}$ (Increment)	Annual	0.18	0.3
CO	1-hr	195	2000
CO	8-hr	108	500

The 24-hr and annual $PM_{2.5}$ (NAAQS) GLCmax are based on the highest five-year averages of the maximum predicted concentrations determined for each receptor. The GLCmax for all other pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

The applicant performed an analysis on secondary $PM_{2.5}$ formation as part of the PSD AQA. The applicant evaluated the project emissions of $PM_{2.5}$ precursors (NO_x and SO_2). Since the project NO_x and SO_2 emissions are less than the $PM_{2.5}$ precursor significant emission rates (SERs) for NO_x and SO_2, the applicant concluded that the potential project impacts associated with secondary $PM_{2.5}$ formation would not be significant. This analysis is reasonable and is consistent with draft EPA guidance for $PM_{2.5}$.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that PM_{10} and CO are below their respective monitoring significance levels.

Table 2. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax (µg/m³)	Significance (µg/m³)
PM_{10}	24-hr	1.15	10
CO	8-hr	108	575

The GLCmax represent the maximum predicted concentrations associated with five years of meteorological data.

The applicant evaluated ambient $PM_{2.5}$ monitoring data to satisfy the requirements for the pre-application air quality analysis.

Background concentrations for $PM_{2.5}$ were obtained from the EPA AIRS monitor 481390016 located at 2725 Old Fort Worth Rd., Midlothian, Ellis County. The three-year average of the 98th percentile of the annual distribution of the 24-hr concentrations for years 2011-2013 was used for the 24-hr value (23 µg/m³). The three-year average of the annual concentrations from years 2011-2013 was used for the annual value (9.7 µg/m³). Though there was a quarter in the three year data set that did not contain a sufficient number of samples to be complete, the applicant provided an analysis to demonstrate the validity of the data set following the substitution test procedures from Appendix N of 40 CFR Part 50. The use of this monitor is reasonable based on the proximity of the monitor to the project site, as well as the analysis provided by the applicant of the industrialized area surrounding the monitoring site relative to the project site.

C. National Ambient Air Quality Standard (NAAQS) Analysis

The De Minimis analysis modeling results for PM_{10}, $PM_{2.5}$, and CO indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The project site is located in Ellis County, which is part of the Dallas-Fort Worth ozone non-attainment area. Therefore, an ozone analysis is not required as part of the AQA.

D. Increment Analysis

The De Minimis analysis modeling results for PM_{10} indicate that the project is below the respective de minimis concentrations and no further analysis is required.

Though the De Minimis analysis modeling results for $PM_{2.5}$ indicate that the project is below the respective de minimis concentrations, the applicant conducted a full increment evaluation.

Table 3. Results for PSD Increment Analysis

Pollutant	Averaging Time	GLCmax (µg/m³)	Increment (µg/m³)
$PM_{2.5}$	24-hr	7.87	9
$PM_{2.5}$	Annual	3.37	4

The 24-hr $PM_{2.5}$ GLCmax represents the maximum high, second high (H2H) predicted concentration over five years of meteorological data. The annual $PM_{2.5}$ GLCmax represents the maximum predicted concentration over five years of meteorological data.

E. Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective primary and secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with 30 TAC 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the project site to determine if emissions could adversely affect a Class I area. The nearest Class I area, Wichita Mountains, is located approximately 290 kilometers (km) from the project site.

The predicted concentrations of PM_{10} and $PM_{2.5}$, for all averaging times, are less than de minimis levels at all modeled receptors. As noted above, Wichita Mountains is located approximately 290 km from the project site; therefore, emissions from the proposed project are not expected to adversely affect the Wichita Mountains Class I area.

F. Minor Source NSR and Air Toxics Analysis

Table 4. Minor NSR Site-wide Modeling Results for Health Effects

Pollutant & CAS#	Averaging Time	GLCmax (µg/m³)	ESL (µg/m³)
Hydrogen chloride 7647-01-0	1-hr	1.2	190
Hydrogen chloride 7647-01-0	Annual	0.06	7.9
Ammonia 7664-41-7	1-hr	6.4	170

Pollutant & CAS#	Averaging Time	GLCmax (µg/m³)	ESL (µg/m³)
Formaldehyde 50-00-0	1-hr	9.6	15
Acetaldehyde 75-07-0	1-hr	14.1	15
Benzene 71-43-2	1-hr	25	170
Benzene 71-43-2	Annual	0.5	4.5
Toluene 108-88-3	1-hr	29.5	3500
p-Xylene 106-42-3	1-hr	34	250
m-Xylene 108-38-3	1-hr	34	340
o-Xylene 95-47-6	1-hr	34	1600
Naphthalene 91-20-3	1-hr	41.1	200
Styrene 100-42-5	1-hr	33.4	110

The GLCmax are located along the property line. The applicant did not address a GLCni location.

3. Model Used and Modeling Techniques

AERMOD (Version 14134) was used in a refined screening mode.

Source groups were used in the modeling analysis to account for different operating scenarios for EPNs 7 and 62. The different operating scenarios considered include: scrubber running/raw mill running; scrubber down/raw mill running; scrubber running/raw mill down; and scrubber down/raw mill down. The results from the worst-case operating scenario are presented in the tables above.

For the health effects analysis, a unitized emission rate of 1 lb/hr was used to predict a generic short-term and long-term impact for source groups containing both EPNs 7 and 62 that account for the different operating scenarios described above. The generic impact for the worst-case source group was multiplied by the proposed pollutant specific emission rates to calculate a maximum predicted concentration for each health effects pollutant for comparison with the ESLs. Using source groups that have both EPNs is appropriate given that the proposed emission rates are the same between the two EPNs, and the two EPNs were modeled with the same emission rates (1 lb/hr).

A. Land Use

Medium roughness and elevated terrain were used in the modeling analysis. These selections are consistent with the AERSURFACE analysis, topographic map, DEMs, and aerial photography. The selection of medium roughness is reasonable.

B. Meteorological Data

Surface Station and ID: Corsicana, TX (Station #: 53912)
Upper Air Station and ID: Shreveport, LA (Station #: 13957)
Meteorological Dataset: 2008-2012 for PSD analyses; 2012 for health effects analysis
Profile Base Elevation: 136 meters

C. Receptor Grid

The grid modeled was sufficient in density and spatial coverage to capture representative maximum ground-level concentrations.

D. Building Wake Effects (Downwash)

Input data to Building Profile Input Program Prime (Version 04274) are consistent with the aerial photography, plot plan, and modeling report.

4. Modeling Emissions Inventory

The modeled emission point and area source parameters and rates were consistent with the modeling report. The source characterizations used to represent the sources were appropriate.

Maximum allowable hourly emission rates were used for the short-term averaging time analyses, and annual average emission rates were used for the annual averaging time analyses.

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To request a more accessible version of this report, please contact the TCEQ Help Desk at (512) 239-4357.

Compliance History Report

PUBLISHED Compliance History Report for CN601231459, RN100219286, Rating Year 2014 which includes Compliance History (CH) components from September 1, 2009, through August 31, 2014.

Customer, Respondent, or Owner/Operator:	CN601231459, Holcim (Texas) Limited Partnership	**Classification:** SATISFACTORY	**Rating:** 0.82
Regulated Entity:	RN100219286, HOLCIM TEXAS	**Classification:** SATISFACTORY	**Rating:** 0.82
Complexity Points:	28	**Repeat Violator:** NO	
CH Group:	10 - Cement and Concrete Product Manufacturing		
Location:	1800 DOVE LN MIDLOTHIAN, TX 76065-4435, ELLIS COUNTY		
TCEQ Region:	REGION 04 - DFW METROPLEX		

ID Number(s):

AIR OPERATING PERMITS ACCOUNT NUMBER ED0099J
AIR OPERATING PERMITS PERMIT 1046
INDUSTRIAL AND HAZARDOUS WASTE EPA ID TXD130369481
INDUSTRIAL AND HAZARDOUS WASTE SOLID WASTE REGISTRATION # (SWR) 32439
PETROLEUM STORAGE TANK REGISTRATION REGISTRATION 48390
STORMWATER PERMIT WQ0002580000
STORMWATER EPA ID TX0090425
AIR NEW SOURCE PERMITS PERMIT 8996
AIR NEW SOURCE PERMITS REGISTRATION 38923
AIR NEW SOURCE PERMITS REGISTRATION 39680
AIR NEW SOURCE PERMITS ACCOUNT NUMBER ED0099J
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX454
AIR NEW SOURCE PERMITS REGISTRATION 76083
AIR NEW SOURCE PERMITS AFS NUM 4813900022
AIR NEW SOURCE PERMITS REGISTRATION 70582
AIR NEW SOURCE PERMITS REGISTRATION 56768
AIR NEW SOURCE PERMITS REGISTRATION 74694
AIR NEW SOURCE PERMITS REGISTRATION 74558
AIR NEW SOURCE PERMITS REGISTRATION 76527
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX454M2
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX454M3
AIR NEW SOURCE PERMITS REGISTRATION 77035
AIR NEW SOURCE PERMITS REGISTRATION 80423
AIR NEW SOURCE PERMITS REGISTRATION 84171
AIR NEW SOURCE PERMITS REGISTRATION 94642
AIR NEW SOURCE PERMITS REGISTRATION 96989
AIR NEW SOURCE PERMITS REGISTRATION 98215
AIR NEW SOURCE PERMITS EPA PERMIT PSDTX454M4
WASTEWATER LICENSING LICENSE WQ0002580000
WATER LICENSING LICENSE 0700072
TIRES REGISTRATION 76900
USED OIL REGISTRATION A85867
USED OIL EPA ID TXD130369481
AIR EMISSIONS INVENTORY ACCOUNT NUMBER ED0099J
POLLUTION PREVENTION PLANNING ID NUMBER P06708

Compliance History Period: September 01, 2009 to August 31, 2014 **Rating Year:** 2014 **Rating Date:** 09/01/2014

Date Compliance History Report Prepared: March 30, 2015

Agency Decision Requiring Compliance History: Permit - Issuance, renewal, amendment, modification, denial, suspension, or revocation of a permit.

Component Period Selected: September 01, 2009 to August 31, 2014

TCEQ Staff Member to Contact for Additional Information Regarding This Compliance History.

Name: Laura Gibson **Phone:** (512) 239-1000

Site and Owner/Operator History:

1) Has the site been in existence and/or operation for the full five year compliance period?	YES
2) Has there been a (known) change in ownership/operator of the site during the compliance period?	NO
3) If **YES** for #2, who is the current owner/operator?	N/A
4) If **YES** for #2, who was/were the prior owner(s)/operator(s)?	N/A
5) If **YES**, when did the change(s) in owner or operator occur?	N/A

Components (Multimedia) for the Site Are Listed in Sections A - J

A. Final Orders, court judgments, and consent decrees:

1 Effective Date: 03/19/2011 ADMINORDER 2010-1200-IWD-E (1660 Order-Agreed Order With Denial)

Classification: Moderate

Citation: 2D TWC Chapter 26, SubChapter A 26.121(a)(1)
30 TAC Chapter 305, SubChapter F 305.125(1)

Rqmt Prov: Effluent Limits PERMIT

Description: Failed to comply with permit effluent limits for total suspended solids.

B. Criminal convictions:

N/A

C. Chronic excessive emissions events:

N/A

D. The approval dates of investigations (CCEDS Inv. Track. No.):

Item 1	September 08, 2009	(815131)
Item 2	September 15, 2009	(762022)
Item 3	October 19, 2009	(815132)
Item 4	January 18, 2010	(815135)
Item 5	February 17, 2010	(815128)
Item 6	March 15, 2010	(834503)
Item 7	April 01, 2010	(792661)
Item 8	May 18, 2010	(798077)
Item 9	July 08, 2010	(861819)
Item 10	September 07, 2010	(875160)
Item 11	October 06, 2010	(849864)
Item 12	October 14, 2010	(882772)
Item 13	November 08, 2010	(889176)
Item 14	November 22, 2010	(870751)
Item 15	November 29, 2010	(871222)
Item 16	December 08, 2010	(897554)
Item 17	December 14, 2010	(881239)
Item 18	January 05, 2011	(903445)
Item 19	February 10, 2011	(910359)
Item 20	March 04, 2011	(917575)
Item 21	April 13, 2011	(908086)
Item 22	April 26, 2011	(908391)
Item 23	May 04, 2011	(928695)
Item 24	May 09, 2011	(939284)
Item 25	May 19, 2011	(908847)
Item 26	June 08, 2011	(920346)
Item 27	June 20, 2011	(946688)
Item 28	July 12, 2011	(953947)
Item 29	July 18, 2011	(940978)
Item 30	August 03, 2011	(943708)
Item 31	August 08, 2011	(960540)
Item 32	August 29, 2011	(950608)
Item 33	September 12, 2011	(966597)
Item 34	October 13, 2011	(972609)
Item 35	November 03, 2011	(963582)
Item 36	November 09, 2011	(965193)
Item 37	November 17, 2011	(978753)
Item 38	December 01, 2011	(985589)
Item 39	January 12, 2012	(991869)
Item 40	February 13, 2012	(999235)
Item 41	February 29, 2012	(988868)
Item 42	March 12, 2012	(1004744)
Item 43	April 09, 2012	(1011326)

Item 44	May 11, 2012	(1017689)
Item 45	June 13, 2012	(1025481)
Item 46	July 11, 2012	(1032812)
Item 47	August 01, 2012	(1039245)
Item 48	August 24, 2012	(995200)
Item 49	September 13, 2012	(1048197)
Item 50	October 03, 2012	(1067354)
Item 51	November 09, 2012	(1067355)
Item 52	December 03, 2012	(1067356)
Item 53	January 08, 2013	(1081698)
Item 54	February 04, 2013	(1053504)
Item 55	February 06, 2013	(1081697)
Item 56	March 01, 2013	(1090635)
Item 57	April 02, 2013	(1096987)
Item 58	May 01, 2013	(1107954)
Item 59	May 13, 2013	(1085798)
Item 60	June 07, 2013	(1111580)
Item 61	July 01, 2013	(1118489)
Item 62	August 01, 2013	(1126272)
Item 63	September 06, 2013	(1130823)
Item 64	October 01, 2013	(1136589)
Item 65	November 04, 2013	(1141976)
Item 66	December 03, 2013	(1148434)
Item 67	January 10, 2014	(1154510)
Item 68	February 07, 2014	(1161832)
Item 69	February 26, 2014	(1134058)
Item 70	March 10, 2014	(1168457)
Item 71	April 02, 2014	(1156868)
Item 72	April 03, 2014	(1175620)
Item 73	May 12, 2014	(1181825)
Item 74	June 10, 2014	(1188718)
Item 75	June 23, 2014	(1158872)
Item 76	July 02, 2014	(1200514)
Item 77	July 06, 2014	(1159844)
Item 78	August 01, 2014	(1200515)

E. Written notices of violations (NOV) (CCEDS Inv. Track. No.):

A notice of violation represents a written allegation of a violation of a specific regulatory requirement from the commission to a regulated entity. A notice of violation is not a final enforcement action, nor proof that a violation has actually occurred.

N/A

F. Environmental audits:

Notice of Intent Date: 08/29/2011 (952205)

Disclosure Date: 03/09/2012

Viol. Classification: Minor

Citation: 40 CFR Chapter 63, SubChapter C, PT 63, SubPT A 63.8(c)

Description: Failed to provide a written Continuous Monitoring System plan for the Particulate Matter Control Device (PMCD) inlet thermocouples. Specifically, the details from the quarterly work orders for the PMCD were not included in the plan.

Viol. Classification: Moderate

Citation: 40 CFR Chapter 60, SubChapter C, PT 60, SubPT A 60.7(a)(1)

Description: Failed to provide a pre-construction notification prior to construction of the new solids fuel handling system authorized under Permit-by-Rule 98215. Specifically, no record could be found that the notice was submitted.

Viol. Classification: Moderate

Citation: 40 CFR Chapter 60, SubChapter C, PT 60, SubPT OOO 60.676(i)

Description: Failed to submit notification of initial startup and performance testing of a limestone screen system authorized by Permit-by-Rule No. 96989. Specifically, no record could be found that the notice was submitted.

Viol. Classification: Moderate

Citation: 30 TAC Chapter 335, SubChapter A 335.24(h)

30 TAC Chapter 335, SubChapter A 335.6

Description: Failed to submit a one-time notification for receiving non-hazardous recyclables.
Viol. Classification: Minor
Citation: 40 CFR Chapter 261, SubChapter I, PT 261, SubPT A 261.5(f)
Description: Failed to properly label and treat electronic waste, which were sent for recycle and labeled "Universal Waste," but is actually exempt from regulation.

G. Type of environmental management systems (EMSs):
N/A

H. Voluntary on-site compliance assessment dates:
N/A

I. Participation in a voluntary pollution reduction program:
N/A

J. Early compliance:
N/A

Sites Outside of Texas:
N/A