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KOOGLER & ASSOCIATES, INC.
ENVIRONMENTAL SERVICES

KA 654-12-12
August 1, 2013

Electronically Sent – Received Receipt Requested

Mr. Jeff Koerner (Jeff.Koerner@dep.state.fl.us)
Office of Permitting and Compliance
Florida Dept. of Environmental Regulation
2600 Blair Stone Road, MS 5500
Tallahassee, Florida 32399-2400

Subject: ***Response to Request for Additional Information dated May 10, 2013***
Air Construction Permit Application (0250020-035-AC)
Tarmac America LLC; Facility ID: 0250020

Dear Mr. Koerner:

This letter is in response to FDEP's request for additional information provided to Tarmac on May 10, 2013, regarding an air construction permit for project number 0250020-035-AC. A request-response format is used to address the Agency's questions in a streamlined manner.

1. **Request:** Tarmac requests to delete the short term NOx emission limit of 720 lb/hr based on a 24-hr block average.

   To evaluate this request, please submit a chart representative of the continuous emissions monitoring (CEM) for NOx (2 years representative period) including short and long term data. The summary chart example below is taken from the 2005 technical evaluation and preliminary determination (TEPD) for this pollutant.

   [*chart removed*]

   During the last 2011 construction permitting process (0250020-031-AC) to evaluate the burning of alternate solid fuels (ASF), the Department concluded in its TEPD (page 10): *The applicant's projected actual emissions include the physical change of replacing the main kiln burner, which is not expected to increase emissions. The Department notes that the applicant's projected actual emissions are based on an annual clinker production rate that is less than the baseline period due to the economic downturn. This is the reason for the projected "reductions". However, the applicant estimates that short-term emissions would not increase; therefore, there would be no*

significant net emissions increases even when assuming an equivalent production rate. Total project emissions are not expected to exceed the PSD significant emissions rates; therefore, the project is not subject to PSD preconstruction review. For a period of five years following completion of construction, the Department will require a comparison of projected actual emissions to baseline actual emissions to ensure that the project did not cause a PSD-significant emissions increase."

Please provide reasonable assurance that the short-term emissions will not be exceeded.

Response: Tarmac initially made the following request:

> This AC permit [*0250020-17-AC*] set two NOx limits, which were based to have been based on avoiding the PSD program, at 720 lb/hr (24-hr average) and 2.17 lb/mmton clinker (12-month average). The current NOx limit and monitoring, as stated in the current TV permit, is only required due to the PSD program and related netting of emissions.
>
> Because the limitation on NOx emissions is based only on the PSD program, Tarmac is requesting that the NOx limit be based on the correct averaging basis to determine compliance with the PSD program – a ton per year basis. Tarmac believes that FDEP rule requires that compliance to the PSD program be based on 2,376 tons per year (12-month period) of NOx emissions.

<u>RACT limit – (2.0 lb/mmbtu, 30-day average)</u>

In our recent telephone conversations with FDEP, the origin of the 720 lb/hr limit was determined to be derived from a Miami-Dade County Reasonable Achievable Control Technology limit of 2.0 lb of NOx/mmbtu (62-296.570(4)(b)(8), F.A.C.) for cement plants, and we understand that DEP has also determined that the NOx RACT limit of 2.0 does not apply to this facility and can therefore be deleted.

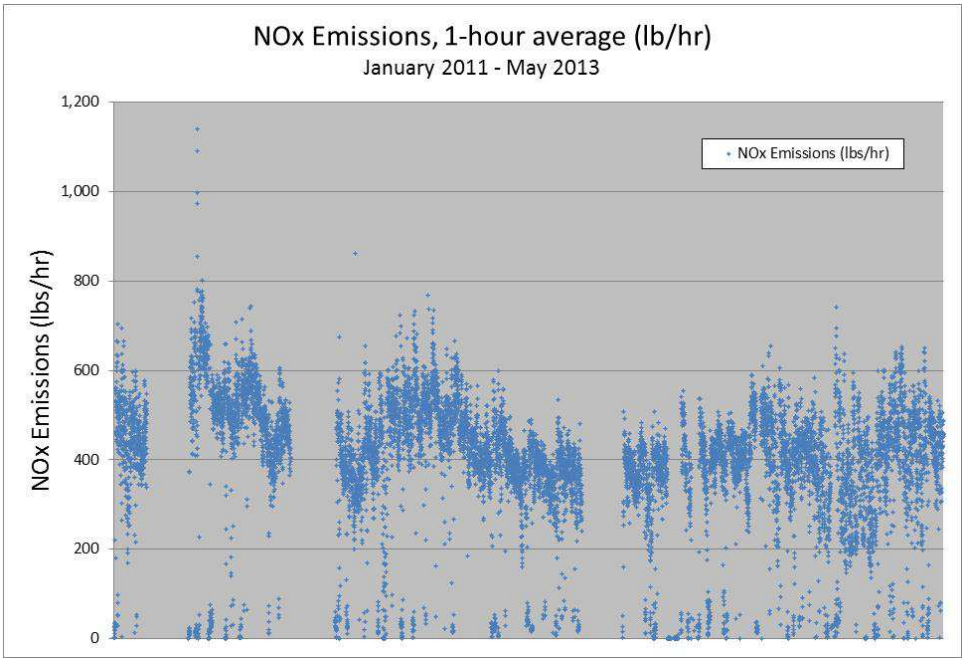
Tarmac controls NOx emissions from the new kiln through its operations not through post combustion add-on controls. Production of clinker has well-studied theoretical thermochemistry which is closely matched in the modern dry-process calciner kiln. Maximum production is limited based on the amount of processed materials, airflow through the kiln, structure of the kiln and locations of combustion. NOx emissions derive from the thermal requirements for maximum production of clinker.

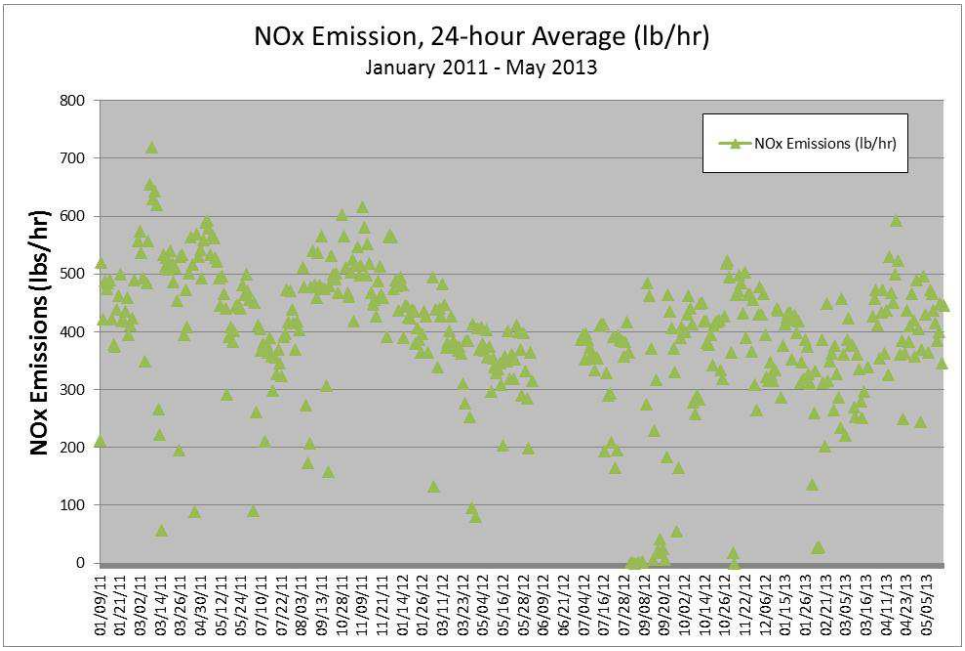
One of the charts below shows the 24-hour avg lb/hr values of NOx from Jan 2011 to May 2013. The chart reflects the fact that the kiln has been up and down many times over the last two years (due to the economic downturn). However, given that when the kiln operates, the kiln must operate at least at 75 percent of capacity to ensure accurate control of the thermochemistry, the data also indicate short-term emissions are relatively constant.

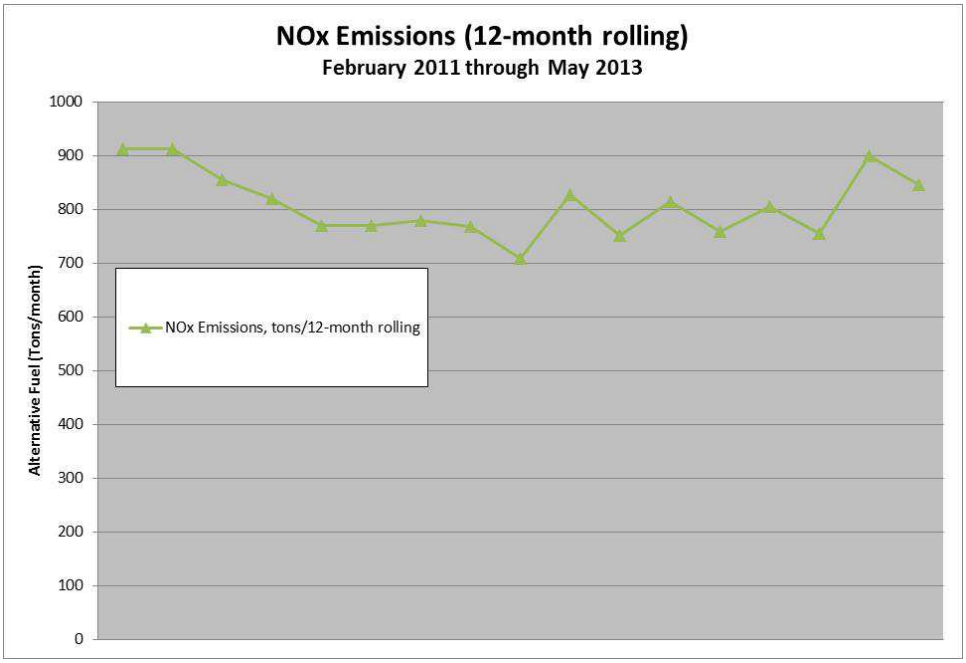
Again, the kiln emissions of NOx are controlled through the kiln operation and not through an optional add-on control. NOx emissions should therefore not change if the 720 lb/hr emission limit is removed from the permit.

In addition the current operational limits on production and other emission limitations (e.g., for other pollutants) will help assure that the kiln is not changing its method of operation which could affect short-term NOx emissions. Tarmac does not believe that removal of this limit should indicate that its emissions will necessarily increase or that New Source Performance Standards will be triggered through a "modification" as defined in NSPS rules.

Three charts are provided below of NOx emissions for 1-hour average (lb/hr), 24-hour average (lb/hr), and 12-month rolling total emissions of tons per year.







PSD Avoidance limit

Tarmac avoided PSD review when the new kiln was added in 2005 by "netting" its NOx emissions, taking into account a permanent reduction in NOx emissions due to the permanent shut down of older wet kilns. The current Title V permit includes two NOx limits: a 720 lb/hr (24-hour average) and a 2.17 lb/ton (12-month average) with a reference that they were included to ensure avoidance of the Prevention of Significant Deterioration (PSD) program. During the air construction permitting process for this new kiln, PSD applicability was reviewed based on a comparison of past actual emissions to future potential emissions of 2,376 TPY. Based on this

comparison, the Department determined that the addition of the new kiln would not result in a net increase of NOx emission above 40 TPY and therefore not trigger PSD.

The current limit of 2.17 lb of NOx ton clinker at the permitted annual production limit of 2.19 million tons of clinker equates to 2376 tons per year of NOx emissions. Tarmac's position is that 2376 TPY should be established as an enforceable limit in the permit. While the 2.17 lb/ton NOx limit currently in the permit was apparently established as a surrogate for a TPY NOx limit, the 2.17 lb/ton limit is not an accurate surrogate. Compliance with the 2.17 lb/ton limit cannot be used to correctly calculate the tons per year of NOx emissions because a limit of lb/ton of clinker only includes NOx emissions when clinker is produced from the kiln. NOx emissions can occur even when clinker is not being produced (i.e., any time fuel is fired in the kiln) regardless of whether clinker is produced.

Tarmac requests **that a NOx limit of 2376 tons per year be added to the permit and that the limit of 2.17 lb/ton be moved to a permitting note indicating the unit's design rating.** The lb/ton rate can be calculated annually by dividing the production rate by the emission rate, allowing the design rate to be confirmed but would not be an enforceable limit.

Specifically, Tarmac requests the following changes to the language establishing the applicable limits**.**

REVISIONS TO AIR CONSTRUCTION PERMIT 0250020-017-AC
{The following revisions (in respective order) are made to the NOx emission limit, averaging time, limit basis and validation contained in Air Construction Permit 0250020-017-AC, Section III, Condition 9. and 14., the subsequent modifications of those permits and as applicable requirements in facility Title V Operation Permit 0250020-034-AV, Section III, Condition B.9.and B.14. Changes are shown in strikeout and double-underlined format.}

PARAMETER	EMISSION LIMIT	AVERAGING TIME	COMPLIANCE METHOD	LIMIT BASIS
NO_X (as NO_2)	2376 TPY ~~2.17 lb/ton of clinker~~	12-month rolling total[3] ~~12 months~~[3]	CEMS Method 7 or 7E	PTE, Avoid PSD Equivalent to 2.17 lb/ton at max. production

1. Compliance with the short-term emission limit for ~~NOx,~~ CO~~,~~ and VOC shall be based on a 24-hour block average computed in accordance with Specific Condition B.14. Compliance with lb/hr SO2 emissions limitations in this condition will insure compliance with Miami-Dade County Code, Section 24-41.3(2)(a)(i) limiting emissions to 1.2 lb SO2/MMBtu heat input when solid fuel is fired, or 0.8 lb SO2/MMBtu heat input when liquid fuel is fired, based on a 24 hour average.

2. Compliance with the long-term emission limit for CO and VOC shall be based on a 30 operating-day block average computed in accordance with Specific Condition B.14.

3. Compliance with the long-term emission limit for NOx shall be based on 12 month rolling total ~~average~~ computed in accordance with Specific Condition B.14. Tarmac shall calculate its annual NOx lb/ton rate for each calendar year by dividing its annual mass NOx emissions by its annual clinker production, and Tarmac shall report this information in its Annual Operating Report.

B.14. Continuous Emission Monitoring Systems: The owner or operator shall install, calibrate, maintain, and operate continuous emission monitoring systems (CEMS) in the in-line kiln/raw mill stack to measure and record the emissions of NOx, CO, and VOC from the in-line kiln/raw mill, in a manner sufficient to demonstrate compliance with the emission limits of this permit. The CO and VOC CEMS systems shall express the results in units of pounds per ton of clinker produced and pounds per hour. Emissions of VOC shall be reported in units of the standards (lb/hour, lb/ton clinker) and ppmvd as propane corrected to 7% oxygen.

a. *Compliance Demonstration*: Compliance with the short-term emission limits for ~~NO_x,~~ CO~~,~~ and VOC shall be based on a 24-hour block average. The 24-hour block shall begin at midnight of each operating day and shall be calculated from 24 consecutive hourly average values. If there are less than 24 hours during the block, the 24-hr block average shall be the average of all valid hourly average values available during the 24 hour block. Compliance with the long-term emission limits for CO and VOC shall be based on a 30 operating-day block average that shall be computed as the arithmetic average of all valid hourly averages occurring within each 30 operating-day block. For purposes of the ~~SO2,~~ CO~~,~~ and VOC long-term emission limits, an operating day is any day that the kiln produces clinker or fires fuel. The first 30 operating day block shall begin the first operating day on or after January 1, 2006.

b. *Compliance with the long-term NOX emissions limit:* Compliance with the long-term NOX emission limit of 2376 tons per year shall be based on a 12 month rolling ~~average~~ total that shall be recomputed each month as the total emission for ~~arithmetic average of that month and~~ the preceding ~~11~~ twelve months~~. Each monthly average shall be computed by averaging~~ based on all valid hourly mass emissions data ~~averages occurring within each calendar month. The first 12-month period shall commence on January 1, 2006~~, including periods of startups, shutdowns, and malfunctions.

c. *Valid Hourly Averages*: Each hourly average shall be computed as the arithmetic average of the data points generated by the CEM system. For an hourly average to be considered valid, at least two data points separated by a period of 15 minutes or more must be used to compute the hourly average.

- ~~Hours during which there is no preheater feed and no fuel fired to the kiln systems are not valid .~~
- Hours during which the plant is firing fuel but producing no clinker are valid, but these hours are excluded from the production-normalized emission rate computation (pounds per ton of dry preheater feed or pounds per ton of clinker). These hours are included in any pollutant mass emission rate computation (pounds per hour, tons per day, etc.).

. . .

[Permit Nos. 0250020-017-AC, 0250020-025-AC, 0250020-027-AC, 0250020-029-AC, 0250020-036-AC, and 0250020-035-AC]

Tarmac requests that this AC permit clearly state in the permit that the above changes of emission limits and related conditions shall supercede all active and prior permits. We note that a number of active AC permits, e.g.,0250020-029-AC, repeat all Title V conditions even though many of the conditions are entirely unrelated to the specific AC permit action. This style of permit writing by RER (formerly DERM), has been of concern for this exact reason. Again, we request that FDEP make a clear statement that this AC permit revised NOx limit conditions supercede all active and prior permits.

We request that this permit state the following:

COMPLIANCE WITH EXISTING PERMIT CONDITIONS

1. Existing Permits: This permit supplements all existing valid air permits. Unless otherwise specified below, the permittee shall continue to comply with all applicable conditions from valid air construction and facility Title V operation permits. [Rule 62-4.070(3), F.A.C.]

2. **Request:** To evaluate this request, please let us know: Is any baghouse associated with this emission point or are all emissions fugitive? If there is a baghouse, please provide the proposed baghouse design specifications as indicated in this EU description (Cement Plant Clinker & Storage System) of emission points.

The application states that the new conveyor (to re-use older clinker material stored during past operations to substitute input of fresh clinker into the cooler system) would be added as an emission point to EU 027; and, that it will not increase the current permitted amount of material to the kiln system. Proposed PM/PM10/PM2.5 fugitive emissions are 0.037/0.012/0.003 TPY respectively. Although permitted material throughput rates are not expected to increase, what effect will this new conveyor have on the actual material throughput and actual emissions rates?

Response: There will not be any baghouse associated with this added conveyor line. All emissions from the associated conveyor line will be fugitive.

The addition of the clinker material will occur into the clinker cooler. In summary, it will not have an effect on the actual material throughput, since it will be added post kiln processing and require subtraction of kiln-produced clinker. Any emissions from this process will strictly be either vented through the existing cooler control system as though the material is virgin clinker. Otherwise the material will create the limited amount of fugitive emissions as stated in the application. The proposed fugitive PM emissions, as outlined above, were determined based on a maximum material transport and AP-42 emission factors.

3. **Request:** To evaluate this request, please submit the process rate of this operation. Finish Mill No. 4 is allowed by current Title V permit to process 140 TPH (Condition D.2). If the operation of Finish Mill No. 4 results in 17,000 actual cubic feet per minute (acfm) of exhaust air that is currently controlled by the existing baghouse, how will this be accomplished with the two replacement baghouses that have a combined flow of only 16,000 acfm?

Response: The operation of Finish Mill No. 4 does not result in 17,000 acfm. Rather, the baghouse associated with said Finish Mill is capable of handling such a flow rate. The flow rate to the associated baghouse is capable of being controlled and, following the installation of the two baghouses, the airflow will not exceed what they are capable of handling. The new flow rate will not exceed 16,000 acfm for the two new combined PM control devices. Please note that the difference in 16,000 versus 17,000 acfm is about 5 percent. The amount of current control has not shown exceedances or other violations and thus is not expected to result in unexpected emissions. Furthermore, these two baghouses have been used in past years for air pollution control and were placed out of operation as a potential future resource of air pollution control. Tarmac has deceived to use the units for control.

4. **Request:** The application submitted did not include a request for concurrent revision of the Title V permit; therefore, these new insignificant emissions activities will be added to Appendix I, List of Insignificant Emissions Units and Activities the next time the Title V permit is opened for revision or renewal.

Response: This statement was noted and will be re-addressed upon the next revision or the renewal for the current Title V permit.

5. **Request:** It appears that permit No. 0250020-029-AC imposed the limit of 1.65 tons per hour of tires to limit the PM emissions to an increase of 24 tons per year in order to avoid triggering PSD at that time. To evaluate this request, please explain the kiln and/or precalciner feed system capabilities for accommodating a higher feed rate for whole tires and provide an explanation of why you believe PSD would not be triggered as a result of increasing the limit for tires from 1.65 tons per hour up to the full 15 tons per hour allowed by permit No. 0250020-031-AC for all alternative. Further, please propose permit language to clarify the Tarmac concerns regarding conflicting conditions between permit Nos. 0250020-029-AC and 0250020-031-AC.

Response:.As Tarmac stated in its alternative fuel permit application for permit 0250020-031-AC, and as DEP agreed in its technical evaluation of that application, the use of 100% <u>whole</u> tires should not result in an emissions increase (see Attachment 1 for pertinent excerpts from the Technical Evaluation.) Tarmac has been using tires as a supplemental fuel <u>as previously authorized</u> and has reported to the Department annually for the last two years that the use of tires as a fuel has not resulted in a significant emissions increase (see attached Reports for 2011 and 2012, Attachment 2). Based on the Department's prior analysis of 100% tire use and the recent PSD annual reports, there should be no concerns regarding any potential increases in PM emissions.

In addition to the unlimited use of whole tires in the pyroprocessing system, Tarmac is requesting the following clarifications in the 0250020-029-AC permit.

Remove the following condition from 029-AC

~~*Section 3.A.6. Maximum Whole Tire Feed Rate: The whole tire feed rate either manually or mechanically shall not exceed 1.65 tons per hour based on a 24 – hour block average. [Rule 62-4.070(3), F.A.C.]*~~

Revise the following condition from 029-AC

Section 3.A.7. Fuels: Allowable fuels fired in the pyroprocessing/raw mill emission unit shall consist of natural gas, bituminous coal, petroleum coke, No. 2 fuel oil with used oil blend, No. 6 fuel oil with used oil blend, and ASF including whole tire derived fuel (WTDF). Whole tires shall not be used as a start-up fuel. Fuel oil includes on-spec used oil (refer to definition in specific condition 18).
[Rule 62-4.070(3), F.A.C. and 0250020-031-AC]

Remove from 029-AC the entire Section B. from the permit as this portion of the permit has been completed.

Revise the following condition from 031-AC

Section 3. A.4.b. Tire-Derived Fuel (TDF), which includes whole and shredded used tires with steel belt material, shredded used tires without steel belt material and tire fluff.

Tarmac also request that the PSD annual reporting requirements now under 029-AC be revised to refer to 0250020-031-AC. After this permit is issued, the PSD annual report for tire-derived fuel will be reported under 0250020-031-AC as part of the Tire-Derived Fuel (TDF) fuel category. Tarmac submitted PSD annual reports for whole tires under 0250020-029-AC for 2011 and 2012.

Tarmac will complete PSD annual reports for TDF (i.e., whole tires) under permit 0250020-029-AC under permit 0250020-031-AC (which will now include whole tires) for calendar year 2013 for 5 calendar years. As such, we are requesting that permit 0250020-029-AC and 0250020-031-AC be revised as follows

Remove from 029-AC Section 3, conditions 21 and 22 and replaced with the following note:

{Permitting Note: PSD Pollutant Emissions Monitoring, Reporting, and Recordkeeping, will be conducted for whole tires under permit 0250020-031-AC.}

Revise 031-AC, Section 2, Item 9. to add item 9.d.

Tarmac has reported annual PSD reports for usage of whole tire usage for 2011 and 2012 under permit 0250020-029-AC. Tarmac will submit PSD annual reports for calendar year 2013 and a period of 4 years after for any use of TDF (including whole tires) if TDF is used during the reporting calendar year.

6. **Request:** The application submitted did not include a request for concurrent revision of the Title V permit; therefore, this issue will be considered the next time the Title V permit is opened for revision or renewal. However, the underlying construction permit (0250020-025-AC) will be revised to address this request.

Response: This statement was noted and will be re-addressed upon the next revision or the renewal for the current Title V permit.

Please feel free to contact me at (352) 377-5822 or mlee@koooglerassociates.com or Muhammad Khan, Titan America at (305) 200-1655 or mkhan@titanamerica.com, if you have any questions regarding this information or any other elements of this application. I sincerely appreciate your time and consideration for this project.

One additional comment, the prior responsible official, Kevin Baird, has been replaced by Marco Burgoa, 305-364-2256., mburgoa@titanamerica.com. We will submit a RO delegation/transfer form to DEP shortly.

Regards,

Max Lee, PhD., P.E.
mlee@kooglerassociates.com
KOOGLER AND ASSOCIATES, INC.

cc: Muhammad Khan, mkhan@titanamerica.com
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Attachment 1

0250020-031-AC

Excerpts from 0250020-031-AC Permit Application Technical Evaluation

0250020-031-AC Application
excerpts

TABLE 2. SUMMARY OF ESTIMATED EMISSIONS FOR RECOVERED MATERIALS

	SO_2 Inc./Dec. (tons)	NO_x Inc./Dec. (tons)	CO Inc./Dec. (tons)	VOC Inc./Dec. (tons)	PM Inc./Dec. (tons)	PM10 Inc./Dec. (tons)
Trucking					4.89	4.89
Grinding, handling and storage	1.08	3.53	4.11	3.53	0.61	0.61
Alternative fuels						
Coal (non-specific ranking)	0.0	0.0	0.0	0.0	0.0	0.0
Engineered fuel	-5.0	-449.3	-1045.4	-20.5	-9.7	-9.7
Tire Derived Fuel	-5.8	-476.8	-983.0	-32.8	-8.3	-8.3
Agricultural Film	-5.8	-476.8	-983.0	-32.8	-8.3	-8.3
Agricultural Byproduct	-5.0	-449.3	-1045.4	-20.5	-9.7	-9.7
Carpet-Derived Fuel	-5.0	-449.3	-1045.4	-20.5	-9.7	-9.7
Woody Biomass	-5.0	-449.3	-1045.4	-20.5	-9.7	-9.7
Manufacturer Reject Roofing Shingles	-5.8	-476.8	-983.0	-32.8	-8.3	-8.3
Preconsumer Paper	-5.0	-449.3	-1045.4	-20.5	-9.7	-9.7
Worst-case emissions from any fuel	0.0	0.0	0.0	0.0	0.0	0.0
	↓	↓	↓	↓	↓	↓
Total	1.08	3.53	4.11	3.53	5.50	5.50
	↓	↓	↓	↓	↓	↓
PSD Threshold	40	40	100	40	25	15
PSD Threshold exceeded?	NO	NO	NO	NO	NO	NO

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This summary shows that the PM emissions from fuels is expected to decrease emissions, where the trucking and handling/grinding and storage will potentially increase PM emissions.

0250020-031-AC FDEP
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Tire-Derived fuel (TDF)
Tire-derived fuel means whole tires, chipped tires (with or without steel) or tire fluff (shredded tire crumb with only incidental amounts of steel). The metal from TDF may include the radial steel belt, which can be a beneficial ingredient in the production of cement clinker because iron is a necessary ingredient for making clinker. When scrap tires are used as an ASF, approximately 550 pounds of iron per ton of scrap tires is "recovered", conserving the quantity of iron required from mined mineral sources. For the Pennsuco Cement Plant, Air Construction Permit No. 0250020-029-AC currently authorizes the installation of a tire injection system for firing whole tires in the precalciner and the plant currently burns whole tires.

Tire-derived fuel has a high heating value that is slightly higher than coal. The TDF will efficiently combust within the precalciner and the cement kiln due to the long residence times at high temperatures. Tire-derived fuel is a fairly common ASF used in cement kilns throughout the world including the United States. At the Colton Plant in California, the air permit mandated the firing of scrap tires as a NOx control strategy. According to kiln manufacturer FLSmidth, NOx emissions may be reduced by 30-50% when using tires as a fuel depending on the kiln design.

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Tire-Derived Fuel (TDF): Tires, tire chips and tire fluff have all been successfully fired in cement kilns as well as utility and industrial boilers. TDF has a high heating value (15,125 Btu/lb) and low moisture content (3%). The contents of sulfur, chlorine and metals are comparable to coal. Steel belt materials can be incorporated into the clinker product as an ingredient.

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Based on available technical information regarding the use of ASF in cement kilns, the conditions of the draft permit and reasonable assurance provided by the applicant, the Department concludes that the addition and use of ASF described in the application shall:

Not cause a PSD-significant emissions increase in accordance with Rule 62-212.400, F.A.C.;

Attachment 2

0250020-031-AC

Submitted PSD Annual reports for 2011 and 2012