July 19, 2002

Mallika Muthiah, P.E.
Chief, Air Facilities Section
Miami Dade DERM
33 SW 2nd Avenue
Miami, FL 33130-1540

Re: Tarmac AC Permit Application (Dated 6/25/02)
Relocation and Replacement of Existing Concrete Block Plant (at Tarmac Pennsuco, Medley, FL)
Permit No. 0250020-014-AC

Dear Ms. Muthiah:

As you know, Tarmac Pennsuco is a wet-process Portland cement plant located in Medley, Florida. This plant is owned by Tarmac America LLC and is an existing, major source pursuant to State Prevention of Significant Deterioration (PSD) rules. Accordingly, requests from Tarmac for air construction (AC) permits should be reviewed by the Department of Environmental Protection (DEP), New Source Review Section, for PSD applicability.

To facilitate such a review for Tarmac's recent AC permit application (for the relocation and replacement of the existing concrete block plant; Permit No. 0250020-014-AC), you forwarded a copy of the application to DEP on July 12, 2002. While DEP does not feel that this project triggers the requirements of New Source Review, we do have several comments and concerns.

PM Emission Calculations. Tarmac estimated the potential particulate matter (PM) emissions from the new concrete block plant as part of their application (reference Attachment TA-E022-L2, Emissions Calculations). The DEP has several questions about these calculations.

1. The number of cement unloadings and the time required for each unloading seem irrelevant. The AP-42 emission factor for cement unloading to elevated storage silos is provided in emissions per mass of material transferred.[1] Based on the application, the new concrete block plant would have a capacity of 5500 blocks per hour (requiring 8.53 tons of cement/5500 blocks) = 0.00155 tons cement per block. In one year of operation (limited to 6,240 hours), this equates to (0.00155)(5500)(6240) = 53,227 tons cement transferred to the storage silos. At 0.72 lb PM/ton cement transferred, uncontrolled PM emissions from the cement storage silos are thereby estimated to be 19.2 tons per year.

2. Tarmac's calculation for PM from the weigh hopper/mixer assumes a single weigh hopper/mixer that only processes cement from the cement storage silos. Looking at Attachment TA-E022-L1, Process Flow Diagram, it is clear that there are a number of weigh hoppers. Each of the three aggregate storage silos has a weigh hopper, as do each of the two cement storage silos. The aggregate weigh hoppers process a total of 81.68 tons aggregate per hour, and the cement silo

weigh hoppers process a total of 8.53 tons cement per hour. The mixer, however, would appear to process (8.53 + 81.68) = 90.21 tons of material per hour.

3. The DEP agrees with the rational for assuming aggregate storage and silo loading PM emissions are negligible. Likewise, DEP agrees with the suggested control for PM emissions from unpaved roads. Both of the paragraphs listed under "unconfined emissions" in Tarmac's emission calculation should be included as conditions in the AC permit.

The following table summarizes DEP's calculations of PM emissions from the new concrete block plant. (PM = emission factor * throughput * 6,240 hours/year * 1 ton/2000 lbs)

Emission Source	Emission Factor[1]	Throughput	Uncontrolled PM
Aggregate Silo Loading	Negligible	81.68 ton/hr	Negligible
Aggregate Weigh Hopper Loading	0.0051 lb/ton	81.68 ton/hr	1.3 tons/year
Cement Silo Loading	0.72 lb/ton	8.53 ton/hr	19 tons/year
Cement Weigh Hopper Loading	0.0051 lb/ton	8.53 ton/hr	0.14 tons/year
Mixer Loading	0.22 lb/ton	90.21 ton/hr	62 tons/year

Assuming 99 percent control efficiency for the baghouses, this results in maximum total controlled PM emissions of 0.82 tons/year. This is well below the significant emission rate for PM (25 tons/year).

"Debottlenecking" the Kiln. The new, replacement concrete block plant has a capacity 80 percent larger than the existing plant (5500 blocks per hour versus current capacity of 3000 blocks per hour). To meet the new demand for 2500 blocks per hour, the existing wet-process Portland cement plant would have to produce additional cement. Based on the numbers in Tarmac's application, 24,000 tons per year of cement would be required to make the additional concrete blocks. While this is only a three percent increase compared to current production levels (approximately 757,000 tons of cement per year), a three percent increase in kiln NO_x and SO_2 would trigger the PSD significance levels for those pollutants.

For example, current NO_x emissions are around 2300 tons per year. A three percent increase in NO_x would yield an additional 70 tons per year, which is greater than the significant emissions rate of 40 tons per year.

To avoid PSD implications, the AC permit should provide assurances that cement is only being "shifted" from other products to the concrete block plant. There must not be an increase in cement production from the existing wet-process kilns to meet the new capacity of the concrete block plant. In other words, for DEP's PSD determination to remain valid, the AC permit must maintain the current production limits for the existing wet-process kilns.

Please feel free to contact me with any additional questions or comments at (850)921-9506.

Sincerely,

Greg DeAngelo, P.E.
New Source Review Section

[1] EPA Report. "Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1: Stationary Point and Area Sources." Section 11.12, Concrete Batching. October 2001.