

Commonwealth of Pennsylvania
Pennsylvania Department of Transportation

December 16, 2002



Mr. Atle Lygren
EMC Development AB
Hornsgatan 12
S-972 36 Lulea, Sweden

Re: EMC Cement Experimental Project

Dear Mr. Lygren:

As we stated during our meeting in September 2002, our PENNDOT laboratory has reviewed the information and testing results you have provided for your product and found it has the potential to meet all of the requirements for a blended cement. We are interested in evaluating EMC Cement in full-scale production on significant projects because of the durability benefits that we may derive from high volume fly ash containing cements and because of the environmentally related benefits.

We will commit to doing 6 (six) field demonstration projects which will be evaluated under the State Planning and Research (SPR) Program. This program is funded under the T-21 legislation by 80% federal and by 20% state funds.

The demonstration will have varying parameters:

- Assuming a 12-inch thick pavement and 48 ft. width (4-lanes) and 600 lbs. Of cement in a cubic yard of concrete, there are about 2,800 tons of cement in a 4-lane mile. If we would do an average of 5 miles of paving on each project, this would translate to 14,000 tons of cement per project.
- We may also do shoulders, use longer test sections or multiple lanes to use sufficient quantities in order for the demonstration evaluation results to be valid.

We confirm that:

1. The test results contained in the documentation we have received concerning EMC cement with 50% and 70% fly ash content meet the performance criteria set out in our specifications (Publication 408 Specifications) and that we will make the necessary amendments to our specifications by special provisions in order that your cement can be used on these demonstration projects without limitations as to fly ash volume, provided always that compliance with our performance specifications is demonstrated.
2. If the results of the evaluation of these demonstration projects indicate the quality performance that is expected and the value of EMC, is comparable we will pursue implementation statewide. This implementation would include changing our Form 408 specifications to allow greater percentages of fly ash and developing use criteria which recognize the environmental benefits of EMC.

We are confident that the demonstration projects will be very positive and will demonstrate that the EMC materials can enhance concrete properties, especially those that contribute to what we call high-performance concrete.

We are ready to work with our contiguous States' DOT's and the FHWA to initiate a request for a potential pooled-fund demonstration of your product. We are also ready to share our own data and views with our fellow AASHTO members, the FHWA, and other parties that may be interested.

We sincerely hope that this commitment on our part will make it possible for you to establish the required manufacturing capability in Pennsylvania and ask that you inform us as soon as possible of the chosen location and likely completion date for plant construction so that we can start selecting suitable projects.

We look forward to and fully expect a successful demonstration of the value EMC cement.

Sincerely,

A handwritten signature in cursive script that reads "Gary L. Hoffman". The signature is written in black ink and is positioned above the printed name and title.

Gary L. Hoffman, P.E.
Chief Engineer

400/GLH/cam

cc: G. L. Hoffman, P.E.
A.C. Bhajandas, P.E.
J. Malasheskie, P.E.
P. Ingram, P.E.
George Wolff