FILE NAME: Pfizer (PFIZ)

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April 17, 1972

File - Kilnoise

TO: J. P. Bartels

FROM: R. W. Linnett

SUBJECT: DONELCO COMPANY - TORONTO, ONTARIO
DON LITTLE, MANAGER
CALL 4/11/72 WITH H. E. ROURKE

The Donelco Company has a contract to apply acoustical material to the tunnel and station walls of an addition to the Toronto subway system. The job consists of a section five miles long with four stations. The tunnels consists of an inbound and an outbound tunnel constructed of pre-cast concrete or tubular iron members.

180 tons of Kilnoise have been applied to date. The project will require approximately 1,100 tons. Once completed, additional extentions are expected. The completion date on the current contract is September 1972.

Two problems have developed. The first is related to the asbestos content of Kilnoise. Donelco has temporarily satisfied the authorities by installing tarpaulin screens at both ends of each section being coated. There does not appear to be a great deal of pressure on Donelco to eliminate asbestos from the formulation of Kilnoise. For reasons other than the asbestos problem, it appears to be necessary to make a formulation adjustment.

The Kilnoise is being used to absorb noise in the tunnels and stations. The job specification calls for a "Noise Reduction Coefficient" (NRC) of 50. Test panels submitted by Donelco passed the NCR rating; however, test conditions and actual conditions probably will not give the same results. Donelco is concerned that Kilnoise is not performing up to minimum specifications on the job.

Kilnoise is not being applied by Pfizer's recommended procedures. Pfizer procedure calls for the use of a bonding agent on the surface to be coated prior to application of Kilnoise. No bonding agent is being used on the job. Kilnoise should be applied to metal lath. On this job it is applied directly to concrete or steel. This procedure does affect noise reduction.

To improve the noise reduction level formulations, based on mineral wool as a replacement of asbestos, have been made and tested. The best effort to date has not been successful; however, the test panels were not perforated. They were not perforated because the problem appeared to be the need to match

EXHIBIT
Rourke 52
5/24/94 SR

SAMPLE 15799

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a competitive material that does not require perforation. An additional test will be made to determine the acceptability of the mineral wool formulation when perforated. The subway job is being perforated.

The competitive product is made by Cafco (a part of U. S. Mineral Wool Company). The product is known as Sound Shield 85. This product is claimed to have a NRC of 85. Donelco and Pfizer tests indicate it has an NRC of 65 or better. The specification on the subway job calls for 50 or better. Sound Shield 85, therefore, is a better product than is required by the subway specification. Sound Shield 85 is sold for $300 per ton. It is considered the best product of its type on the market and is superior to Kilnoise. It is a much less dense material than Kilnoise. It is porous and has the appearance of a very low binder system. Kilnoise has the appearance of a high binder system as evidenced by a glassiness on the surface when examined by a magnifying glass. The Sound Shield 85 appears "punky" to the touch yet passes a rather mild washability test. The washability test, which Kilnoise also passes, consists of the ability of the acoustical material to withstand a high speed wash and rinse cycle twice annually to prevent dirt accumulation and the resultant fire hazard. To pass the test, an acoustical product does not have to be "hard". A "punky" film will pass if the adhesion is OK. There is no evidence that Kilnoise suffers adhesion problems. The wall of the tunnel coated with Kilnoise was attacked with a 2 x 4 without damage.

Donelco's main business is the application of fire retardant materials to structural materials. One of their primary suppliers is W. R. Grace & Company. W. R. Grace led Donelco to believe they could produce an acoustical product adaquate for the Toronto subway job. Donelco bid the subway job on W. R. Grace's estimate of price for an acoustical product. W. R. Grace could not perform. Donelco was left holding the bag. They either had to use Sound Shield 85 at $300 per ton and take a financial loss or find a less expensive product. It was in search of a replacement that they contacted Harry Rourke.

Sound Shield 85 has another disadvantage. Because of its low density it cannot be pumped and applied at the rate desired.(which Kilnoise can be). A direct match for Sound Shield 85 is not desirable for this job.

Another contractor working on a section of the subway is using Sound Shield 85. By about September of 1972 Donelco and the other contractor will be working towards each other to finish a section. At that time, the Kilnoise section and the Sound Shield section will be joined. It is feared that the comparison of the two materials will be observed and Donelco will suffer reprisal.

In summary Donelco risked bidding based on a non-existant product. They have scrambled to meet their committment and may not be performing as expected. Pfizer has supplied standard product and has performed as expected. The Pfizer product is not being used as we recommended it to be used so there is no Pfizer exposure to liability.

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Looking ahead, some incremental benefits from producing a product to meet the job requirements of the Toronto subway can be expected.

Don Little estimates the market for Sound Shield 85 in Canada to be 2,000 tons per year. This would place the United States market at about 20,000 tons. This market is for non-subway applications. The Canadian business has been developed, but the United States business has not. The reason is marketing strategy. In Canada the sale of Sound Shield 85 is controlled by firms specializing in acoustical application. The contractors supervise the plastering applicators. Sound Shield 85 is not sold directly to applicators. The result is good workmanship and acceptable results.

In the United States, Sound Shield is available to anyone that wants to buy through a dealer. Application technique is shoddy; performance is unsatisfactory and expensive; and repeat business does not develop.

Washington, D. C. has a subway project underway. The total system includes 47 miles of subway and stations. At least two tubes (inbound and outbound) will be required; so in total over 100 miles will be coated with acoustical material to a thickness of 5/8 inches. This job should require over 10,000 tons of acoustical plaster. Bids have not been issued on the contract for acoustical application as yet. Harry Rourke is following this job.

In view of the foregoing information, the following is recommended.

Development work continue to formulate a product meeting the Toronto specification. Technical assistance is needed and a modest amount of money to get equipment capable of blending mineral wool and other ingredients. With a satisfactory product, a marketing strategy can be developed and other subway work pursued.

It appears to me that a successful product can be developed by exploring the following:

1. Properly dispersing mineral wool in the Kilnoise circut. In understand a "chopper" is required.

2. Reducing the binder (hydrated lime) to a much lower level than in Kilnoise.

3. Adding a hardening agent such as latex or magnesium based reactive chemicals.

4. Exploring air-entraining agents that produce larger air bubbles to help open up the surface to allow sound absorption.

SAMPLE 15801

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Because of the success in Toronto of achieving good adhesion and good washability with all materials evaluated, it is likely that any formula that is lower in dry density, with an open surface and somewhat "punky" in hardness will be satisfactory. It should be noted that the curing conditions in the Toronto subway were miserable. The atmosphere is cold, the walls and ceilings damp, and the humidity high enough to be foggy.

At this stage, the development of a 5,000 ton per year market appears to be possible. Pricing is not critical. Estimated cost would be on the order of 50% C.O.G.

I'll work with Mr. Stephenson and Mr. Bailey on a program to develop a product.

Roger W. Linnett

RWL/esm

cc: H. R. Bailey
D. G. Brant
H. E. Rourke
W. M. Stephenson

SAMPLE 15802

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