October 5, 1976

Mr. Marc Collins
Airflex Plant
Eaton Corporation
9919 Clinton Road
Cleveland, Ohio 44111

Subject: Airborne Asbestos

Dear Marc,

I have your letter of October 1, 1976 and will comment on it and the other topic of our conversation, possible asbestos dust exposure by people who change or grind brake linings.

Taking the last item first, I can offer the following facts and opinions.

The August 14th, 1975 issue of the Wall Street Journal carried an article that is the cause of a lot of consternation from people who are exposed to the problems associated with the use of asbestos. A copy of the article is attached for your review.

In the article, a NIOSH spokesman makes a statement that I do not agree with and is the basis for a lot of unnecessary fears regarding the use of asbestos-containing products. In the second paragraph of the article, HEW reportedly said that, "garage personnel who change or grind brake linings are being exposed to potentially hazardous levels of airborne asbestos." If the statement had been made that, "garage personnel who change and grind brake linings --" rather than, "-- who change or grind brake linings--", I would not object. As written, it implies that the mere act of changing brake linings exposes personnel to high levels of airborne asbestos. This, in my opinion, is not the case as I will show later. However, I cannot disagree that the act of grinding asbestos-containing products may cause some liberation of asbestos, which may become airborne and could lead to people in the immediate area to become exposed to potentially hazardous levels of airborne asbestos. More about this later on.

In the next to the last paragraph of the article, the information is given (and I do not disagree with it in general) that asbestos dust can be generated where truck and bus linings are ground to fit brake drums or are resurfaced after use. However, I do disagree with the

statement that, "the changing of asbestos brake linings for automobiles was also dangerous because mechanics usually use an air hose to blow out the loose dust after removing the old lining." The implication here is that the brake lining debris that is trapped in the drum contains significant amounts of asbestos that can become airborne after being blown out of the drum by the air hose. This too will be touched upon shortly.

Exhibit 1, copy attached, is an abstract along with the reference regarding brake lining decomposition products. Mr. Lynch, the author, was a member of the U.S. Public Health Services when he presented his finding in May, 1968 that the high temperatures involved in braking converts asbestos to other minerals and that the very small amounts of free fiber appear to be an inconsequential health hazard.

Exhibit 2 is an abstract of a submission made by Caterpillar Tractor Company to the Illinois Pollution Control Board on October 19, 1971 as its documented argument against the banning of asbestos-containing friction materials. Beginning on Page 13, a section titled "B. Brake Wear Products" is pertinent to our present discussion. Here, Caterpillar draws information from Mr. Jeremiah Lynch who published an article in the Air Pollution Control Association Journal entitled "Brake Lining Decomposition Products". (This may have been part of the study referred to in Exhibit 1, but the findings are reported in greater detail.) The gist of the article is that little or no free asbestos is present in the dust taken from drums and only insignificant amounts of asbestos may become airborne during braking operations. (Incidentally, we do not know if there even was a page 14 in this presentation. The continuity of the thought content suggests that there never was a page 14 -- that an error occurred in numbering the pages.)

Exhibit 3 is an EPA supported, long term project that was presented in May, 1973. The most informative figure from this comprehensive article is that less than 0.3% of asbestos fiber originally present may be emitted to the atmosphere during brake life, the remainder will have been converted to other mineral products.

The information presented in the three exhibits leads me to the inescapable conclusion that if there were significant amounts of free asbestos generated during braking that both OSHA and EPA would have made all concerned aware of this. On the contrary, all experimental data points to the fact that insignificant amounts of free asbestos is generated and either emitted to the atmosphere or trapped within a brake drum and the amount is not large enough to raise the fears of even the most militant of the anti-asbestos forces.

As far as J. W. Penney & Sons Company is concerned, my thoughts are that very little, if any, asbestos is released to the air during clutch engagement. While there may be some dust or smoke observed during severe

clutch (or brake) engagement, the bulk of this is carbonized material from the binder or non-asbestos mineral material from the fillers. While the friction material may contain about 50% by weight asbestos, the high temperatures involved in braking or clutching will cause the asbestos to be transformed into a non-asbestos mineral.

It is my opinion that if OSHA had any information suggesting that the amount of airborne asbestos liberated during brake or clutch operations being at potentially dangerous levels, they would have monitored this in the Great Northern Paper Company plant rather than asking them the question of how much is released to the air during clutch operation.

In summary, my opinion after reviewing all facts available to me is that for all practical purposes, there is no measurable amount of airborne asbestos liberated during a clutch or brake engagement and this should not be a cause for concern among people using your brakes and clutches.

In Mr. Rosenow's memo to you dated September 7, 1976, he states that some countries in Europe are striving to outlaw the use of asbestos. I have not heard of this before. Would it be possible for Mr. Rosenow to get me some information concerning this.

I trust that the information is adequate for your intended purpose. If I can be of further assistance, please let me know.

Best regards,

E. J. Sydor
General Manager

EJS:jm
Encl.

cc: E. Figert
R. Keiser

Eaton Corporation

Inter-Office Correspondence

Date October 18, 1976
To Rod Baltz
Division & Plant R. L. Baltz Co./Boston
From R. W. Rosenow
Division & Plant IDD/Airflex
Copy to R. L. Burks, T. Luginbuhl
Subject J. W. Penney & Sons Co. & Great Northern Paper Co.

EATON

The recent request from the subject Companies for information regarding the asbestos content in Airflex friction material, was forwarded to National Friction Products Corporation. Mr. Ed Sydor, the General Manager, has responded to this request, and I will pass the information on to you for transmittal to your customer.

The friction material may contain about 50% asbestos by weight. During clutching and braking actions, the surface temperature is generally quite high, and this tends to convert asbestos into other minerals. The subsequent very small amounts of asbestos free fiber are then considered to be an inconsequential health hazard. Mr. Sydor's report states that less than 0.3% of asbestos fiber originally present may be emitted to atmosphere during clutch or brake life, and this is considered insignificant.

Keep in mind that a certain amount of dusting or smoking may be observed during a severe clutch or brake engagement, but the bulk of this is carbonized material from the binder or nonasbestos mineral material from the fillers.

In summary, Mr. Sydor states "that for all practical purposes, there is no measurable amount of airborne asbestos liberated during a clutch or brake engagement, and this should not be a cause for concern among people using your brakes and clutches".

Continued . . . . .

It would seem that if OSHA was really concerned, they would take air samples and monitor the area.

For additional information, please review the attachments marked Exhibit 1, 2, and 3.

R. W. Rosenow
RWR/pl
Attachments:

EATON

Eaton Corporation
Industrial Drives Division
Airflex Plant
9919 Clinton Road
Cleveland, Ohio 44111
Telephone (216) 281-2211

October 22, 1976

Mr. E. J. Sydor
General Manager
National Friction Products Corp.
1441 Holland St.
P. O. Box 327
Logansport, Indiana 46947

Dear Mr. Sydor:

EATON

In your letter of October 5, 1976 to Marc Collins, you furnished some useful information regarding asbestos use in friction material. You indicated that the friction material may contain about 50% asbestos by weight. Does a woven type friction material contain approximately the same amount of asbestos?

In reference to your exhibits, a statement appears in several places that extreme or high temperatures converts asbestos into some other mineral which, apparently, is harmless. On Page 13 of the Caterpillar Tractor Report (Exhibit 2), a 900°F temperature is mentioned, and that minute areas of intense heat is the real cause of lining wear. Certainly, the braking demands on earthmoving equipment, heavy trucks, and certain automotive stopping requirements can be quite severe, but for the most part, an Airflex clutch or brake will not be exposed to these high temperatures. Can you tell us at what temperature the actual thermal breakdown of asbestos occurs?

If we assume that the friction material temperatures never reach this thermal breakdown point, abrasion must be the cause of wear. If asbestos decomposition does not occur during the wear process, are we, in fact, emitting a higher concentration of asbestos fiber to the atmosphere? I realize that even if this is true, the amount of asbestos fiber released during an 8 hour exposure period would still most likely be insignificant but, at this point, we simply don't know this to be a fact.

Continued ....

Some of our customers are expressing concern over the health hazards associated with exposure to asbestos fibers, and are seeking answers to some questions regarding friction material that, frankly, we are unable to furnish. Your assistance in this matter will be appreciated.

Very truly yours,

EATON

R. W. Rosenow, Manager
Service & Safety

RWR/pl
cc:
R. L. Burks
M. Collins
J. Kozdron
T. Luginbuhl