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PLAINTIFF'S EXHIBIT

USX-1064

November 20, 1996

David A. Luptak, Esq.
Law Department
U.S. Steel
600 Grant Street
Pittsburgh, PA 15219-2749

Re: JOHN PATTERSON, Executor of the Estate of Vonida J.
Patterson, and JOHN PATTERSON, Individually, Plaintiffs, vs.
USX Corporation, et al.
In the Court of Common Pleas of Washington County,
Pennsylvania, Civil Division - Asbestos
Case No. 95-359

Dear Mr. Luptak:

You have asked me to address several issues in this case.
Before I begin, I would like to briefly review my qualifications
and experience.

QUALIFICATIONS AND EXPERIENCE

I am a physician, and obtained my Doctor of Medicine degree in 1973. I am board certified in the specialties of Internal Medicine, Pulmonary Medicine, and Occupational Medicine. I am a Clinical Professor of Medicine in the School of Medicine at the University of California, San Diego (UCSD), and am Director of the UCSD Center for Occupational & Environmental Medicine. I am a Qualified Medical Evaluator for the Industrial Medical Council of the State of California, and have been an Agreed Medical Evaluator in many Workers' Compensation cases. I am frequently asked to perform medical-legal evaluations in Workers' Compensation and personal injury cases. I see patients referred by plaintiffs' and defense attorneys, government agencies such as the Department of Labor, local employers, and physicians in the community.

In addition to my clinical qualifications, I have a Doctor of Philosophy degree in Epidemiology from Oxford University. The discipline of Epidemiology includes analysis of the risk factors for diseases. As an epidemiologist with clinical qualifications in Pulmonary Medicine and Occupational Medicine, I am frequently asked to review the medical literature, and to assess the

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relationship between various exposures and the subsequent risk for occupational lung diseases, including mesothelioma.

I have made an extensive review of the historical development of scientific and medical knowledge concerning the health effects of asbestos. This area of expertise is often referred to as "State-of-the Art".

SUMMARY

Vonida Patterson was born on October 8, 1926. She was married to John Patterson. He worked as a bricklayer at the Homestead Works, a facility owned by U.S. Steel. He was employed there from 1947 until steel making ceased at the facility in 1984. He retired officially in 1986. It is alleged that Vonida Patterson washed her husband's work clothes on a weekly basis during the course of his employment, an interval of approximately 37 years. It is alleged that the clothing was contaminated with asbestos, and that this exposure was responsible for her mesothelioma. Vonida Patterson died on May 12, 1995, at the age of 68. The cause of death was mesothelioma, with extensive metastases.

ASSESSMENT

You have asked me to address two issues:

1. The historical development of scientific and medical knowledge concerning the health hazards of asbestos. In particular, when was it recognized that family members of asbestos-exposed employees might be at risk of developing mesothelioma due to exposure from asbestos dust on work clothes brought home for laundering?

Most experts point to the paper by Wagner in 1960 as the first medical article which linked asbestos exposure to mesothelioma. I would generally agree with this position. However, as discussed by Wagner (page 269), "The pathological evidence for associating these tumours with asbestos exposure is not conclusive. As previously stated, only in eight of the 33 cases has evidence of asbestos been demonstrated." Of the 33 cases, it seemed that 11 had been exposed from early childhood by living in the environment surrounding the mines, and did not have direct occupational exposure. However, villages had grown around mills and their associated tailing dumps. Activities such as hand cobbing, milling, and bagging of ore occurred locally. Schools were established, and children often played on the mounds of mine tailings. People reported living in a blue haze. Wagner's article dealt with crocidolite asbestos, not amosite or phrysotile, and he pointed out (page 260) that "The tumour is

rarely seen elsewhere in South Africa."

The issue of whether mesothelioma was a problem in North America was raised by Selikoff in 1965. He reported 10 cases among insulation workers, and also reviewed pathological materials. He concluded (page 564) that "mesotheliomas may not necessarily be entirely a problem of only one kind of asbestos (crocidolite) and that it is surely not limited to South Africa." However, Selikoff was hampered by the fact that crocidolite had been imported to the United States in substantial amounts, and he could not exclude exposure to crocidolite as the cause of his cases. It was not until 1972 that he identified four cases which he believed had been exposed only to amosite asbestos.

The first article describing household exposure to asbestos as a risk factor for mesothelioma was published in the British Journal of Industrial Medicine by Newhouse in 1965. Newhouse reported 83 cases of mesothelioma occurring in the London area. For seven, there was no information concerning occupational or domestic asbestos exposure. Of the remaining 76 cases; nine reported only household exposures. As in the Wagner article, crocidolite was implicated as the responsible fiber. Dust exposure in local factories averaged 20 fibers/cc or higher prior to 1946. They were reduced by 50% after 1946, but in some areas remained above 2 fibers/cc even until 1979. Asbestos pollution of local neighborhoods was significant; residents described dust in their homes, and handfuls of waste asbestos on the ground.

The issue of domestic or household exposure to asbestos as a cause of mesothelioma was not raised in the United States until the publications by Anderson in 1976 and 1979. By 1979, he reported 5 cases occurring in household contacts. It is important to note that the occupational exposures occurred in a factory producing amosite products. The ventilation system was deficient, and fiber counts were estimated to be from 15-95/cc, with a median value of 50/cc. It is believed that high-level exposure in the factory caused significant domestic asbestos contamination, and the cases of mesothelioma in household contacts.

The occupational exposures described by Anderson are not applicable to Mr. Patterson, who was a bricklayer not engaged in the primary production of asbestos products. I reviewed industrial hygiene data concerning bricklayers employed at the Homestead Works. The highest short-term level measured was 0.23 fibers/cc, and the highest time-weighted average was 0.12 fibers/cc. None of the samples taken exceeded the OSHA permissible exposure limits which applied then, and most were below the current limit of 0.1 fibers/cc. During the course of Mr. Patterson's employment at U.S. Steel, there were no existing

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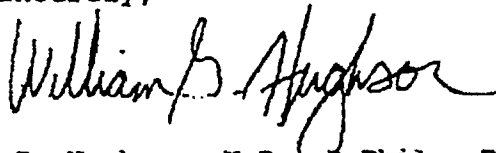
studies suggesting a risk of adverse health effects to family members from asbestos at the levels of exposure indicated above. Therefore, in my opinion, U.S. Steel would have had no objective basis to conclude that there was a risk to family members of bricklayers employed at the Homestead Works.

2. The impact of latency on the risk of developing mesothelioma. The basic question is whether exposures to asbestos early in life pose a greater risk of developing mesothelioma than later exposures.

The latency interval between exposure to asbestos and the development of mesothelioma is very long, particularly when the level of asbestos is low. The risk increases in an exponential fashion as time passes, and exposures earlier in life are far more likely to cause mesothelioma than later exposures. If Vonida Patterson's mesothelioma was caused by exposure to asbestos, exposures early in her life were probably responsible.

The opinions expressed above are given to a reasonable degree of medical and scientific certainty.

Sincerely,



W.G. Hughson, M.D., D.Phil., F.R.C.P.(C), F.C.C.P.
Professor of Medicine
UCSD Center for Occupational & Environmental Medicine

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