UNITED STATES GOVERNMENT

Memorandum

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
Consumer Protection and Environmental Health Services
Environmental Control Administration

TO : Director, Division of Criteria and Standards Development

DATE: July 14, 1969

FROM : Assistant Director, Division of Epidemiology and Special Services

SUBJECT: Comments on "Proposed criteria and recommended interim standard for asbestos", draft of 6-12-69.

1. p. 3, para. 3; p. 10, para. 1

The statement "adherence to this interim standard will reduce to an insignificant risk the occurrence of asbestosis, even among workers who may be exposed to asbestos dust for as long as 30 years" is not supported by available data. For example:

a. The Hygiene Standards for Chrysotile Asbestos of the British Occupational Hygiene Society estimates that 100 (fiber/cc) - years will result in 1% asbestosis. For 30 year exposure this would give 3 fibers/ml; not 12 fibers/ml. (see p. 15, this std)

b. Dr. John Wells, U.S. Rubber Company, Newman, Georgia states (Ref. 1, p. 335) "When we got to a period of 50 to 60 million particles per cu. ft. - years, we began to find people with pulmonary asbestosis". This would correspond roughly to the interim limit, but not to an "insignificant risk".

c. In the only medical study done so far by the DESS, about 1 of 6 workers examined were positive for basal rales, and perhaps 1 of 10 workers were positive for asbestosis by X-ray findings. Current exposures are almost all within the interim limit. While it is quite possible, perhaps even likely, that these findings are the results of previous, unrecorded higher exposures, such speculation is far from firm scientific data. Thus, it is hard to see how we can quote "its own recent epidemiological investigations" as a basis for the USPHS interim standard.

2. p. 11, lines 7 to 9. What is meant by the "occupational neighborhood"? The job sites surrounding asbestos workers? The housing area near a factory processing asbestos? Could this be made more specific?

3. p. 11, lines 19 and 20. Should this be "may contribute", until we have more data on the proportion of asbestotics dying from these causes?

4. p. 15, para. 2. This BOHS document is a Hygiene Standard, which includes a description of an epidemiologic study carried out in one British factory. The analysis of these data result in statements that "the concentration giving a risk of 1% for a man working for 50 years in the industry is estimated as 2.2 fibers per cc .... the uncertainty of the estimate of the concentration for 1% risk at 50 years is such that the concentration for which one could state with 95% probability that the risk is less than 1% is 1.0 fibers per cc." Elsewhere they state: "For basal rates a 1% risk is estimated for an exposure of 112 f/cc - years... At this concentration there is a reasonable chance that the risk is as high as 3%..." (underlining mine)

Similar analysis of the Dreesen study by the BOHS group results in a 50 year, 1% risk estimate at 0.7 mppcf, with a 95% confidence limit for a 50 year, 1% risk of 0.17 mppcf, corresponding approximately to 1 fiber per ml, as in the British factory.

5. p. 23. The standard seems to digress to describe the PHS techniques as determined by equipment "on hand". For example, a rotating phase turret is not necessary for 400X fiber count, and the ribbon filament illuminator is not used with the built-in illuminator as in our Leitz microscope. Nor are "total fiber" or >10μ fiber counts necessary for the interim standard method. This section might be revised to include as requirements only those things which we do because they must be so done, with more general statements for the things we do because they are convenient for us.

6. p. 35. This section does not mention electron diffraction or electron microprobe analyses which are used (by others) for single fiber analyses of fibers, including those from lung tissue. Should not this standard include all relevant techniques?

7. p. 36, lines 1 to 3. What are "the criteria"? The interim standard appears to have ignored the British epidemiologic data, the Dreesen study had no 30 year (or even 20 year) exposures, and Wells says that he finds people with asbestosis at a level equivalent to the interim standard. BOSH data support no level as yet. Neither the epidemiologic data nor the analytical methods included in this document are necessarily "best".

8. p. 36, lines 17 and 18. There is no section giving "techniques utilized in control."

9. General: The Interim Standard can give no quantitative estimate as to the proportion of workers who, if exposed at the Standard level, would eventually develop asbestosis or cancer. The available evidence suggests

that this proportion would not be "insignificant". Since the basis of this Standard is so tenuous, and its safety so questionable, it appears that it should be recommended (if at all) for no more than a three year period. Exposures should be kept as far below this Interim Standard as possible.

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