PLAINTIFF'S EXHIBIT

UC-2222

UNION CARBIDE

[redacted]

Mr. J. L. Myers
Niagara Falls, New York

May 22, 1975

[redacted]

Dear John:

Enclosed are two copies of the Actyvex agreement. Please have Actyvex initial changes and return one copy to me for Corporate files.

Very truly yours,

W. C. Thurber

WCT/es
Enclosures - 2

[redacted]

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(These examinations must be made available before an employee is assigned to an occupation exposed to asbestos, annually following the employee's first exposure to asbestos,or in the case of termination of employment, the examination "shall be given within 30 calendar days before or after the date of termination of employment." No medical examination shall be required if adequate records show that the employee has been examined in accordance with the requirements above within the past 1 year period.)

The employer must give the examining physician:

- a copy of the standard and appendices and E
- a description of the employee's duties relating to asbestos exposure
- the representative exposure level or anticipated exposure level
- a description of any personal protective and respiratory equipment used or to be used
- and information from previous medical examinations that is not otherwise

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available to the examining physician.

The employer must obtain a written signed opinion from the physician which contains:

- the results of the medical examination and the physician's opinion as to whether the employee has any detected medical conditions that would place the employee at increased risk of material health impairment if exposed to asbestos
- any recommended limitations on the employee or upon the use of personal protective equipment such as clothing or respirators
- and a statement that the employee has been informed by the physician of the results of the examination and of any medical conditions resulting from exposure to asbes tos that require further explanation or treatment.

The physician must be instructed not to reveal to theemployer in the written opinion specific

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findings or diagnoses unrelated to occupational exposure to asbestos.

The employer must provide a copy of the physician's written opinion to the affected employee within 30 days after its receipt.

The Standard requires the employer to establish and maintain an accurate record fro each employee subject to medical surveillance which shall include:

- name and social security number;
- physician's written opinions;
- any employee medical complaints related to exposure to asbestos;
- a copy of the information which was provided to the physician.

The employer must ensure that medical records are maintained for the duration of employment plus 30 years in accordance with 29CFR 1910.2

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(b) The Construction Industry Standard and Medical Surveillance.

The employer must establish a medical surveillance program for all employees engaged in work with potential for exposure to asbestos at or above the action level for 30 days or more per year, or who are required to wear negative pressure respirators.

Examinations must include:

-a medical and work history with special emphasis directed to the pulmonary, cardiovascular and gastro-intestinal systems
-completion of the standardized questionnaires contained in Appendix D
-a physical examination directed to the pulmonary and gastro-intestinal systems
-a chest x-ray (14"x17") administered at the discretion of the physician
-pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at on

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second (FEV 1)

-any other examinations or tests deemed necessary by the examining physician.

Frequency of examinations will be:

-prior to assignment to an area where negative pressure respirators are to be worn

-on assignment to an area where exposure to asbestos may be at or above the action level for 30 or more days per year, a medical examination must be given within 10 days following the 30th day of exposure

-at least annually thereafter

-if the examining physician determines that any of the examinations should be provided more frequently than specified, the employer shall provide them as specified by the physician.

No medical examination shall be required if adequate records show that the employee has been examined in accordance with the requirements of the standard within the past 1 year period.

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The employer must give the examining physician :

-a copy of the standard and Appendices D,E and I
-a description of the employee's duties relating to asbestos exposure
-the employee's representative exposure level or anticipated exposure level
-a description of any personal protective and respiratory equipment used or to be used
-and information from previous medical examinations that is not otherwise available to the examining physician.

The employer must obtain a written signed opinion from the physician which contains:

-the results of the medical examination and the physician's opinion as to whether the employee has any detected medical conditions that would place the employee at increased risk if exposed to asbestos

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-any recommended limitations on the employee or upon the use of personal protective equipment such as clothing or respirators

-and a statement that the employee has been informed by the physician of the results of the examination and of any conditions that may result from asbestos exposure. The physician must be instructed by the employer not to reveal to the employer in the written opinion provided any specific findings or diagnoses unrelated to occupational exposure to asbestos.

The employer must provide a copy of the physician's written opinion to the affected employee within 30 days after its receipt.

The standard requires the employer to establish and maintain an accurate record for each employee subject to medical surveillance which shall include:

-name and social security number;

-a copy of the employee's medical examination results,including the medical history,

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questionnaire responses, results of any tests and physician's recommendations

-physician's written opinion

-any employee medical complaints related to exposure to asbestos

-a copy of the information which was provided to the physician.

The employer must ensure that medical records are maintained for the duration of employment plus 30 years in accordance with 29CFR 1910.20.

New Concepts Introduced in the 1986 Standards.

1. Action Level: 0.1f/cc TWA_8 for the General Industry Standard. The requirements for the Construction Standard with regard to the action level are triggered by a 30 day per year qualifying period or the requirement to wear negative pressure respirators.

This represents a change from the 1972 Standard which did not specify any action level other than exposure

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to airborne concentrations of asbestos.

2. Frequency of Chest X-rays: Table 2 of the General Industry Standard allocates the frequency of x-rays as illustrated:

Table 2:Frequency of Chest Roentgenograms

Years since first exposure	Age of employee		
	15to35	35+to45	45+
0 to 10.....	Every Five (5) Years		
10+.....	Every 5 Years	Every 2 Years	Every Year.

This reduces the frequency of chest x-rays from the previous annual requirement. In the case of the Construction Standard the chest x-ray is "to be administered at the discretion of the physician."

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The change in the frequency of x-rays required reduces the need to x-ray younger workers who have been exposed for a short period of time.

3. Frequency of Medical Examinations: The 1986 Standards now require that a preplacement medical examination be given to assess each worker's state of health prior to beginning of exposure to asbestos fibers. The 1972 Standard permitted the medical to be conducted within the first thirty (30) days of hire. The provision for an annual medical examination has been retained in the 1986 Standards.

4. Medical Questionnaires: The 1972 Standard required that the examining physician elicit a history of respiratory symptoms, but did not stipulate the use of a standardized questionaire. The 1986 Standards mandate the use of the Initial and Periodic Medical Questionnaires in Appendix D, Parts 1 and 2.The questionnaire will record the employee's work history, respiratory symptoms and tobacco habits. OSHA requires the questionnaire to be administered verbatim and does not permit it to be altered or changed in any way.

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5. Interpretation of Chest Roentgenograms: The 1972 Standard required an annual chest x-ray but did not require it to be interpreted or reported on in a standardized fashion. This undoubtedly led to a diminution in the value of this sensitive diagnostic tool because of poor quality control in terms of radiographic technique and proficiency of x-ray readers. The 1986 Standards require that Chest Roentgenograms be interpreted and classified in accordance with a professionally accepted classification system by either a NIOSH Certified B-Reader, a Board eligible/certified Radiologist or an experienced physician with known expertise in pneumoconioses. All interpreters, whenever interpreting chest x-rays must have immediately available for reference the latest version of the ILO U/C International Classification of Radiographs for Pneumoconoses. The current version is the 1980 edition.

6. Direction of the Medical Examination to Target Organ Systems: OSHA believes that the content of the revised Standard's physical examination requirements is consistent with the identification of adverse effects associated with exposure. The adverse health effects which are referred to are asbestosis, lung cancer,

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mesothelioma, and an "increase in esophageal, stomach, colo-rectal, kidney, laryngeal, pharyngeal and buccal cavity cancers. OSHA states "It is therefore important that the physical examination be directed to a determination of the condition of the pulmonary, cardiovascular and gastro-intestinal systems.

7. The revised Standards require that individuals other than licensed physicians who administer pulmonary function tests complete a training course in spirometry sponsored by an appropriate academic or professional institution. This provision will insure better quality control and reproducibility of tests administered in accordance with the requirements of the standards.

8. Mandatory and Non-mandatory Medical Surveillance: The medical and work history and physical examination are mandatory. These include the Questionnaires in Appendix D, Pulmonary Function Tests, and Chest X-rays. In the case of the Construction Standard the Chest X-ray may be administered at the discretion of the physician. Other tests such as sputum cytology and screening for the presence of occult blood in the stools of exposed workers were not considered to have either the

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sensitivity or specificity required for their mandatory incorporation in the medical surveillance requirements of the standards. The performance of such tests was left to the discretion of the examining physician.

9. Appendices: The incorporation of Appendices D,E and I are a significant new concept. Appendix D contains the mandatory questionnaires which will help tp eliminate some of the difficulties in gathering comparable mortality and morbidity data when used in conjunction with pulmonary function test results and x-ray findings. Appendix E requires that chest x-rays be interpreted and classified in accordance with the ILO U/C Classification by readers proficient in its use utilizing a specially designed form for the purpose (Form CSD/NIOSH(M)2.8). Appendix I is intended to provide guidance to the examining physician in the recognition of the asbestos-related diseases. It also provides a synopsis of the main features of a medical surveillance program for asbestos workers.

Uresolved Issues

The frequency of medical examinations remains

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the same, i.e. every year after the initial examination. There are some authorities who consider this to be unnecessary and burdensome. The time-frame for the development of asbestos-related diseases is such that exposure to asbestos fibers at the new PEL is unlikely to result in any detectable clinical, physiological or radiological effects for at least 10 years. The lapsed interval from first exposure to diagnosis of or death from lung cancer is in the order of 15 to 20 years and for mesothelioma it can be from 20 to 50 years. The value of medical examinations increases with increasing length of exposure and seems reasonable to suggest that the periodicity should be flexible enough to take this into account. OSHA considers that the annual medical examination is an important tool in protecting the worker exposed to asbestos by,

(1) establishing and maintaining rapport between the medical staff and asbestos exposed workers

(2) detecting changes in a workers physical condition

(3) detecting biological effects of inhalation of asbestos as early as possible

(4) providing a way to re-evaluate the work-place conditions and

(5) evaluating the workers ability to continue doing the

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same job.
For these reasons OSHA has retained the annual medical examination provision in the standard.

In the preamble to the Standards OSHA indicates that other organ systems besides the lungs and pleura may be the targets for asbetos-related diseases. They emphasize in particular the gastro-intestinal tract and deliberate the value of screening tests for colo-rectal cancer. The epidemiologic evidence for an association between asbestos exposure and GI cancers is weak and the sensitivity and specificity of the available screening tests (occult blood,etc) is insufficient to enable OSHA to legislate their performance. OSHA also considered the desirability of including sputum cytological examination in the medical surveillance requirements but found that the value of this test alone as a routine screening method
was questionable. OSHA believes it inappropriate to include mandatory sputum cytology and occult blood screening in the medical surveillance protocol. In the case of both tests there is insufficient data to answer the central question as to whether they can reduce the mortality from lung cancer or colo-rectal cancer by

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enabling earlier diagnosis at a curable stage of the diseases. This issue remains open for the time being and the use of these screening techniques is left to the discretion of the examining physician.

Conclusion

The 1986 OSHA Standards for asbestos have definitely improved the medical surveillance section and should result in better data than has hitherto been forthcoming from industry in general and construction work in particular. The most significant changes have been in the area of quality control of history taking by the use of a standardized questionnaire, the interpretation of radiographs by the use of the ILO U/C International Classification of Radiographs for the Pneumoconioses,1980, and the requirements for the training of persons other than physicians who administer pulmonary function tests.

The Standards will also insure that records are correctly maintained , that employers are given proper feedback after medical examinations have been conducted, that employees are notified of the

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