PLAINTIFF'S EXHIBIT

UC-4099

DRAFT

MANUSCRIPT FOR INTERVIEW ON MEDICAL SURVEILLANCE EXAMINATIONS

by T. A. LINCOLN, M.D., Corporate Medical Director
Union Carbide Corporation
39 Old Ridgebury Road, P2-594
Danbury, CT 06817

11/13/84

The following interview between Dr. Hilton Lewinsohn, Assistant Corporate Medical Director of Union Carbide Corporation and Dr. Thomas Lincoln, Corporate Medical Director of Carbide is designed to illustrate the potential of physcian interviews in the preparation of "Topics" tapes and to provide general background material on the subject of medical surveillance. Many part-time or contract physicians who have had no special training and no experience in occupational medicine may not appreciate what a company desires when it refers workers for medical surveillance examinations. The physician may assume that all that is needed is a complete physical examination much like an examination of a person who wishes to purchase life insurance or a student going off to college. The purpose of this interview is to review the many objectives of medical surveillance examinations and the special knowledge which is requried to perform quality examinations.

1Q Lewinsohn:

Dr. Lincoln, would you please explain what you mean by the term medical surveillance?

1A Lincoln:

Medical surveillance is a term which covers all aspects of the medical monitoring of workers who are exposed to physical, chemical or biological stresses in the workplace. It includes, for example, such activities as reviewing exposure monitoring results and occupational illness and injury experience, conducting periodic plant tours or

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studying illness patterns. It is a broad concept while the term, medical surveillance examination, is confined to the routine periodic physical examination and laboratory tests performed on workers exposed to specific potentially toxic substances or energies.

2Q Lewinsohn:

There are now a number of OSHA standards, for example, asbestos, ethylene oxide, acrylontrile, which mandate specific medical surveillance examinations for workers exposed above certain action levels to these and other substances. These standards don't go into great detail as to how these examinations should be performed or what their objectives should be. Many physicians appear to assume that these examinations are merely periodic health appraisals of exposed workers. Is there more to it than this?

2A Lincoln:

Medical surveillance examinations are not the same as periodic general health evaluations performed on healthy unexposed workers. Medical surveillance examinations require all the skills of the periodic health appraisal but in addition require knowledge of how much and in what manner a worker is being exposed as well as what effects such exposure might cause. The physician who performs medical surveillance examinations must be more than just a skilled clinician.

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3Q Lewinsohn:

The principal concerns seem to be chronic effects, for example, chronic interstitial fibrosis or lung cancer in workers exposed to asbestos. Can one really hope to detect these changes early enough to prevent irreversible pathology? Why not just reduce employee exposures to safe levels and avoid the cost and potential liabilities of these examinations?

3A Lincoln:

Reducing employee exposures to "safe" levels is basic to any health protection program. However, in many plants there will be employees with 10-35 years of company service who may have worked many years where potential levels of exposure were higher than now considered appropriate by modern standards. The amount of exposure which occurred in the distant past is often not known. The technology for measurement had not been developed or the potential toxicity of some substances was not yet known. These employees, therefore, need to be kept under surveillance to enable detection of any adverse delayed health effects. Such detection would allow early intervention and would signal the need for reevaluation of the total health protection program. New employees who will be exposed to only currently approved levels need medical surveillance examinations primarily for prevention reasons rather than early detection of possible effects.

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4Q Lewinsohn:

Are some workers more susceptible to the effects of exposure than others?

4A Lincoln:

Some employees may have medical conditions which make them more vulnerable to the subtle effects of low level exposure to toxic materials or physical stresses. A good example would be exposure to methylene chloride. When this material is absorbed and metabolized in a worker, it raises the level of carboxyhemoglobin. If that worker already has advanced coronary artery disease with impaired circulation to the cardiac muscle, he or she cannot safely tolerate much reduction in the oxygen carrying capacity of the blood. If that worker also smokes, the carboxyhemoglobin level is already elevated. Finding this disease or this lifestyle factor could require certain special exposure restrictions to make the work safe. Also, it is a special reason for helping an employee stop smoking.

5Q Lewinsohn:

Are the effects of pharmaceutical drugs and lifestyle factors important to detect and how do they affect vulnerability from exposures to potentially toxic materials?

5A Lincoln:

In many cases no specific interaction like the one just mentioned is present but general adverse health effects of drugs, alcohol or tobacco are of concern. Certain medications, for example, such as tranquilizers or antihistamines may impair alertness.

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The worker who abuses alcohol, smokes 1-2 packages of cigarettes each day, or who is on various therapeutic medications, may be sustaining special health risks. These could have an additive effect when combined with the occupational exposure. In order to appreciate what special risks the worker and the company may be taking, it is essential to know what these drug or lifestyle factors are and try to help the worker do something about them. If the problem is simply a potential adverse drug action, sometimes alternative drugs can be prescribed. Another reason for documenting non-occupational factors is to keep a more complete health record. Such a record may enable a more accurate attribution of these lifestyle or drug factors in the causation or aggravation of diseases which could have both occupational and non-occupational origins.

6Q Lewinsohn:

Why is knowing what the worker does so important? The physcian is looking for pathology. It's either there or it isn't. Why is knowledge of the workplace so important?

6A Lincoln:

During an adequate medical surveillance examination there must be an exchange of information between the medical examiner and the worker. The medical examiner needs to inquire how the worker being examined has been exposed in the past or is currently being exposed. The examiner must be familiar with the production process and be able to understand workers when they describe what they do. Good medical practice requires the examiner to get his (her) own medical and crude exposure history.

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What does the worker do? What is the worker's impression of his past exposure? Does he regard it as high, medium or low? On what does he base this estimate? What is the worker's level of understanding of the reasons to avoid excessive exposure? How do special work practices influence exposure? The examiner needs to know enough about the workplace and the manufacturing process to carry on a relaxed dialogue with the worker.

Ideally, the medical examiner should have available industrial hygiene monitoring results of the individual worker or of comparable workers so he (she) can respond to questions. It is sometimes amazing to learn of the misunderstandings of the hazards of exposure or the levels of exposure as reflected in monitoring results. The medical examiner, especially the physican, has to be adequately prepared to answer questions in a calm confident manner. Responding that, "I don't know. You had better talk to your supervisor," is not reassuring to the worker. It may occasionally be necessary but being able to respond intelligently because of a broad base of knowledge is much more convincing.

7Q Lewinsohn:

So far you have implied that it is up to the physician to detect the markers of developing occupational disease on the basis of a one-on-one doctor-patient relationship. Isn't that a little unrealistic? Aren't some of these early changes extremely subtle and detectable only when epidemiological studies are performed?

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7A Lincoln:

Medical surveillance examinations should be performed and information collected in a manner which can be subjected to possible future epidemiological analysis. The examination is a time of vital data collection. The medical record must contain adequate health experience information and specific test results so it can be a reliable data source.

8Q Lewinsohn:

Is the medical surveillance examination sometimes used to collect body materials for bioassay?

8A Lincoln:

Sometimes the medical surveillance examination is a time when body materials such as blood, urine, hair etc., can be collected for bioassay in order to estimate past exposures and current body burdens of toxic materials. Whenever such tests are performed, the employee must be informed of the results and given interpretations of them. Full knowledge of the limitations or vagaries of such testing must be appreciated by any medical examiner. Opportunities for additional follow up testing and investigation of test results are essential. How many occupational physicians have been puzzled by high blood lead levels in lead burners only to learn that the worker made toys or fishing lures out of lead at home in his basement with no exhaust ventilation?

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9Q Lewinsohn:

Does one always need to perform a complete examination?

9A Lincoln:

No, although a complete general examination is needed for an adequate baseline. Sometimes the interval examination performed between general examinations can be confined to one or two specific laboratory tests such as pulmonary function or a chest x-ray examination. However, limiting a medical surveillance examination just to finding an effect in a specific organ system can lead to potential liabilities. A chest x-ray examination performed for evidence of early fibrosis in an asbestos worker which then ignores a suspicious mass in the hilum could lead to a malpractice claim.

Both the medical examiner and the worker being examined must have an adequate understanding of the scope of the examination. If it is limited to only one specific test, the worker must understand that a general health appraisal is not being performed. When the health effect being searched for is not highly specific, e.g. any malignancy not a specific organ system cancer, it is not only prudent but highly desirable to conduct a general health survey being alert to possible significant historical abnormalities, physical findings or test results. Referral for more complete evaluation may be necessary but these findings must not be ignored.

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10Q Lewinsohn:

I imagine documentation of the results of the examinations is important. What are some of the responsibilities of the examining physician in informing the worker or his or her management?

10A Lincoln:

The worker must be informed of the results of any medical surveillance examination which has been performed. Follow up evaluations of undesirable work practices, borderline or elevated exposure levels detected by industrial hygiene monitoring, exposure anxieties, lifestyle problems and miscellaneous health concerns are an important objective of medical surveillance examinations. It is not enough to perform certain examinations or tests and then dutifully file the results in a cabinet. Consistent with medical ethics, the medical examiner should be sure that adequate attention to individual or group abnormal findings related to job exposure has been paid by the worker, the plant health and safety professional, the supervisor and the plant management. Again consistent with the confidential nature of certain medical information, a continuous interchange of group surveillance examination results should be conducted between the medical department and the unit where exposed employees work. Also, ideally, evaluation of group experience should be conducted. Many times subtle effects of exposure will never be appreciated unless group examination results are collected and analyzed.

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11Q Lewinsohn:

Where does a contract or fee-for-service physician find out about what is recommended for these examinations?

11A Lincoln:

Those occupational stresses for which surveillance examinations are required by OSHA regulations are covered in the standards themselves. These have been published in the Federal Register and a copy of the requirements must be given to the physician by the company. The NIOSH criteria documents are useful guidance documents. When a Corporate or Plant Health and Safety Department exists, the attending physician should request help from them. Attendance at seminars provided by the American Academy of Occupational Medicine and the American Occupational Medical Association are useful. The Journal of Occupational Medicine contains many articles on general medical surveillance examinations.

12Q Lewinsohn:

In order to pull this discussion together, could you please summarize the major points you have made about medical surveillance examinations?

12A Lincoln:

The medical department should play an important role in health protection. Medical surveillance examinations are an opportunity to learn of new health problems which may have a relationship with job exposures, to inform and reassure the worker and to collect vital health data which can be analyzed to detect possible occupational relationships. Unless the examiner has a clear understanding of the

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potential toxicity of the substance or physical stress to which the worker is being exposed and knows how the worker is actually being exposed, he (she) cannot perform a quality examination.

Unless one knows what one is looking for, he (she) is unlikely to find it!

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