

SHELL OIL COMPANY

PLAINTIFF'S EXHIBIT

SH-3626

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REFERENCE

DATE JANUARY 24, 1979

TO MANUFACTURING - SAFETY & HEALTH -
MANAGER - MR. R. L. BRUNNER

FROM MEDICAL DIRECTOR, OCCUPATIONAL
HEALTH SURVEILLANCE - CORPORATE
MEDICAL DEPARTMENT

SUBJECT STANDARDIZATION AND
INTERNALIZATION OF SHELL'S
SPIROMETRY TESTING

Pulmonary function tests cover a spectrum of studies used to help detect the presence of lung disease and to guide treatment. They range from screening spirometry, as performed in certain pre-placement, periodic, and special medical examinations under the Shell Occupational Health Program, to the more complex diagnostic procedures. Spirometry means "measure of air" - the ventilatory capacity of the lungs. The spirometer achieves this by measuring volumes of air and relating them to time. Occupational spirometric testing should be combined with a current history (including smoking history) and physical examination that attempts to evaluate the respiratory system in relation to the job environment and duties performed.

As in any test, spirometric results must be measured against a standard or a set of predicted normal values - in this case based on sex, height, and age. Through the years many such sets have been generated. Because they were derived using widely varying "normal" populations, equipment, and test conditions, the values calculated from these different sets for an individual patient may vary widely. Therefore, it is important to know which set of values is being used, especially if tables have been provided with the spirometer or normal figures are built into a computerized unit. The two sets of predicted normal values in most common use today are that of Kory, et al.¹, collected on a mixed population of smokers and non-smokers, and that of Morris, et al.², collected on non-smokers only.

Industries that have instituted screening spirometry programs have discovered problems such as the following:

1. Many makes and models of spirometry equipment are available and choosing the right one can be difficult. Selection is usually based on the answers to a series of questions - how will the equipment be used and for how many people, must it be portable, will more sophisticated tests be required in the future, and will a permanent record be needed. Space requirements, initial and operating costs, and availability of service are additional factors to be considered. Of course, equipment should be relatively simple to calibrate and operate.

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2. In the past there have been no certification requirements for performers of pulmonary function tests, and thus, many variously trained health professionals have administered the testing in hospitals, physicians' offices, clinics and industries. Their technical training ranges from formal training programs to no more than a demonstration at the time the equipment is purchased. Unfortunately, inadequate training may lead to tests which are performed or calculated incorrectly.
3. A very important problem may become apparent within any large organization which is attempting to create a sensitive biometrics program for utilization in occupational epidemiology as well as other health programs. This problem becomes apparent where past methodologies lack standardization, thereby rendering difficult the comparison of results obtained at different locations. Information derived under these circumstances may be worse than no information at all.

Based upon the above information and also because of recent developments in standardization of spirometry³ and the necessity for pulmonary function technician certification⁴, it becomes important for the Shell Corporate Medical Department to consider standardization of the Shell Occupational Health Program spirometry testing. Further, it is important that this function be internalized at Manufacturing locations where professional occupational nurses are available to perform the necessary testing at appropriately determined intervals.

After a review of the 1974-1978 spirometric tests on asbestos workers at the Wood River Refinery by Drs. B. Kern, Medical Director - Northern Region, and C. Ross, Medical Director - Occupational Health Surveillance, the following is indicated:

1. A thorough evaluation must be made of the facility which conducts the pulmonary function tests, including an inspection of the equipment utilized. Further, the head of the Pulmonary Medicine laboratory as well as technician staff must be interviewed in order to evaluate professional training, certification, and standards utilized in the performance of spirometry.
2. It is recommended by the Corporate Medical Department that the above tasks be performed by David P. Discher, M.D. (Chairman Department of Industrial and Environmental Medicine, San Jose Medical Clinic, 56 South 17th Street, San Jose, California 95112) who is a consultant in the fields of Occupational Medicine and Pulmonary Medicine. Dr. Discher would be responsible to interface with the management of the Wood River Refinery and the location physician, Michael Mitchell, M.D.

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3. In this consulting capacity, Dr. Discher would be present, along with Drs. Ross and Mitchell, for discussions which would be held at the Wood River Refinery both prior to and after a visit to the location facility where pulmonary function tests are conducted. Dr. Discher should also be involved with an examination of selected medical information which should include both asbestos and non-asbestos workers.
4. The Corporate Medical Department will request that Dr. Discher furnish a complete report of his findings to the Corporate Medical Department as well as the management of the Wood River Refinery with recommendations concerning standardization and internalization of the spirometry program.



C. E. Ross, D.O., F.A.C.Pr.M.

cc - R. E. Joyner, M.D. ← THIS COPY FOR
B. J. Kern, M.D.

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2. Morris, James F., et al., "Spirometric Standards for Healthy Non-
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3. ATS Statement - Snowbird Workshop on Standardization of Spirometry,
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4. Cotton Dust Regulation, Federal Register, Appendix D, Part 4.

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