



*J.C.
Liver
Enzyme Study*

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J. C. Delgado
Manager of Industrial
Health and Hygiene
Environmental Affairs

28 July 1987

Dr. F. Blaine Hollinger
Professor of Medicine
Baylor College of Medicine
Texas Medical Center
Houston, Texas 77030

Dr. Hollinger:

Enclosed is the information that you requested on the employees of our Lake Charles plant that are the subject of our enzyme study. I have also included a copy of our proposed medical surveillance procedure.

Please review the procedure, as we would like to have your evaluation of it. I will call your secretary to attempt to arrive at a time when I can discuss this with you by telephone.

We appreciate your being available to attend our meeting of August 4. I plan on meeting you at the airport and driving you to our office. I will also get you back to the airport so that you can make your flight to Washington, D. C. If I can be of further assistance to you in making your travel arrangements, please call.

Thank you,

J. C. Delgado, Jr.

cc:
Murray Davis / Dr. R. C. Looney
R. J. McCorquodale

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PPG INDUSTRIES, INC.
LAKE CHARLES COMPLEX

Medical Surveillance - Derivatives Area

Purpose

The primary goal of PPG Industries, Inc.'s management is to protect the health and well-being of employees. These guidelines are provided for examining physicians assessing employees assigned to work in the Derivatives Area of the Lake Charles facility. They are meant to assist the physician in making his/her decision, but are in no way intended to circumvent their final judgement in individual cases.

Employees Included

Employees assigned, or with the potential for assignment, to the Derivatives Area will participate in the Lake Charles "Derivatives" medical surveillance program.

Examination Frequency

Examinations will be given prior to assignment in the Derivatives Area, and at least annually thereafter. Employees who have worked in the area for ten (10) years or longer will have semi-annual liver function tests done in addition to their routine examination.

Liver Enzyme Studies

1. Blood chemistries will be drawn for all examinations per the above criteria. These chemistries must include those tests mandated by the OSHA Vinyl Standard.
2. If an enzyme is judged by the examining physician to be abnormally elevated, a second sample should be drawn in two (2) to four (4) weeks (the actual interval is at the discretion of the physician).
3. If the second sample continues elevated, particularly if the enzyme(s) involved are:
 - Total Alkaline Phosphatase,
 - Alanine Aminotransferase (ALT or SGPT), or
 - Aspartate Aminotransferase (AST or SGOT) --then a third sample should be drawn. The interval between the second and third samples should be:
 - two (2) weeks if an upward trend is noted, or
 - four (4) weeks if the levels appear stable.

This frequency of sampling should be continued until a decreasing trend is noted.

4. If the elevated enzyme is gamma-Gutamyl Transpeptidase (GGTP) a second sample should not be necessary, unless the value is 200% or more of the normal. However, if the examining physician determines that a second sample is warranted a triglycerides analysis will be ordered.
5. Abnormalities in other test results should also be evaluated by the physician.

Medical and Work History

Although liver enzyme levels are primarily screening tests- the examining physician must evaluate each employee on an individual basis. Any necessary retesting should be accompanied by a detailed review of the employee's medical and work history. This would include past history of blood transfusions, medications and hospitalizations, etc. Occupational exposure to hepatotoxins can be provided by the current industrial hygiene monitoring history for his/her assigned job.

Risk Factors

The physician will work with each employee on an individual basis to determine, modify or remove any risk factors which may be causing or contributing to elevated enzyme levels.

Work Restrictions

1. An employee should not routinely be restricted from the Derivatives Area unless the examination reveals clinical findings that, coupled with enzyme levels, indicate a medical condition which could place the employee at risk. Employees with clinical findings and enzyme levels indicating liver disease must be restricted and followed until the condition clears.
2. If an employee's AST, ALT, Total Alkaline Phosphatase, or GGTP continue to remain elevated, and all other risk factors have been discounted - a restriction from the Derivatives Area should be considered. The duration of the restriction is at the discretion of the examining physician. The employee's enzyme levels should be routinely followed during and after the restriction.

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3. If, after a complete clinical evaluation, the physician determines that the employee cannot work in the Derivatives Area without risking permanent liver injury-a permanent restriction should be instituted.

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