

R. E. Hughes

S. J. Sansonetti

E. C. Irby - EXO; H. M. Cole, ✓ R. H. Mansur - GOB; J. H. Dedrick,

D. V. Bowling, R. E. Hughes, G. P. Koch, J. Prestley, S. J. Sansonetti,  
G. E. Spangler, B. D. Spargo - MRD

July 17, 1973

EVALUATION OF AIRBORNE ASBESTOS DUST

As we discussed some weeks ago, we have been counting for the Medical Department asbestos particles on samples taken by them. We have been doing this on a service basis using procedures established here at MRD. Recently, we sent W. J. Porter from the Metallographic Section to the NIOSH School in Cincinnati. A copy of his trip report is attached. This school was highly beneficial and will allow us, in a very short time, to be in full compliance with OSHA standards as established by NIOSH. This should put us in a position to consider obtaining laboratory accreditation.

Would you please make the necessary inquiries within RMC concerning the steps necessary for us to proceed with obtaining accreditation? Such accreditation should have the attractive features of broadening the scope of services available at MRD as well as acceptance of RMC counts by OSHA inspectors. Perhaps you could contact the necessary persons and set up a meeting the first week in August.



R. E. Hughes

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Attachment

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METALLURGICAL RESEARCH DIVISION  
CONTACT REPORT

DATE OF CONTACT: July 9-12, 1973

DATE OF REPORT: July 16, 1973

SUBJECT: NIOSH School - "Sampling and Evaluating Airborne  
Asbestos Dust"

NAME: W. J. Porter

PLACE OF MEETING: National Institute for Occupational  
Safety and Health  
1014 Broadway  
Cincinnati, Ohio

DISTRIBUTION:

|                  |      |
|------------------|------|
| Dr. E. C. Irby   | -EXO |
| H. M. Cole       | -GOB |
| R. H. Mansur     | -GOB |
| J. H. Dedrick    | -MRD |
| D. V. Bowling    | -MRD |
| R. E. Hughes     | -MRD |
| G. P. Koch       | -MRD |
| J. S. Prestley   | -MRD |
| S. J. Sansonetti | -MRD |
| G. E. Spangler   | -MRD |
| B. D. Spargo     | -MRD |

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METALLURGICAL RESEARCH DIVISION  
CONTACT REPORT

DATE OF CONTACT: July 9-12, 1973

DATE OF REPORT: July 16, 1973

SUBJECT: NIOSH School - "Sampling and Evaluating Airborne  
Asbestos Dust"

NAME: W. J. Porter

PLACE OF MEETING: National Institute for Occupational  
Safety and Health  
1014 Broadway  
Cincinnati, Ohio

PURPOSE:

To attend NIOSH Training Course No. 582 - "Sampling and Evaluating Airborne Asbestos Dust" for qualification in laboratory techniques and as a preparatory step to laboratory accreditation by NIOSH as a certified asbestos counting facility.

SUMMARY:

The course was attended by twelve professionals from both the government and industry. Most of these people were chemists, industrial hygienists, safety engineers and microscopists. The course provided highly technical and detailed background information concerning all aspects of asbestos dust evaluation. To illustrate the nature and content of the course, a copy of the agenda and laboratory sessions is attached.

Of specific interest to RMC-MRD were the sessions on mounting and counting asbestos fibers. These sessions verified that in general the techniques previously established here at MRD were essentially correct; however, some modifications in our techniques are necessary. In particular, the session on polarized light

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microscopy and dispersion staining in conjunction to the standard phase contrast microscopy were of interest since they will allow fiber differentiation (especially between asbestos and fiberglass). A certificate was awarded after satisfactory completion of the course.

ACTION REQUIRED:

The counting technique here at MRD will be modified to include all aspects covered in the course. These modifications will put us in full compliance with the OSHA standards as established by NIOSH. The equipment used here at MRD fully meets the NIOSH requirements and those changes necessary are relatively minor.

Based upon the information acquired from this course, we will be in full compliance with all requirements. Consideration should now be directed toward laboratory accreditation.

*W. J. Porter*  
W. J. Porter

APPROVED:

*REH*  
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R. E. Hughes

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National Institute for Occupational Safety and Health  
Division of Training  
Environmental Management Branch  
Cincinnati, Ohio

SAMPLING AND EVALUATING AIRBORNE ASBESTOS DUST (582)

July 10 - 12, 1973

AGENDA

Course Location:  
1014 Broadway  
Cincinnati, Ohio 45202

Course Director:  
Stephen G. Bayer  
(513) 684-3253

| DAY AND TIME                  | SUBJECT                                                         | SPEAKER            |
|-------------------------------|-----------------------------------------------------------------|--------------------|
| <u>Tuesday, July 10, 1973</u> |                                                                 |                    |
| 8:30 - 8:45                   | Welcome                                                         | James Ferguson     |
| 8:45 - 9:00                   | Course Preview                                                  | Stephen Bayer      |
| 9:00 - 9:25                   | Part I: The Effects of<br>Asbestos Dust on Man<br>(Video Tape)  | Dr. Howard Raymond |
| 9:30 - 9:45                   | Part II: The Effects of<br>Asbestos Dust on Man<br>(Video Tape) | Dr. Howard Raymond |
| 10:00 - 10:25                 | Asbestos in Industry<br>(Video Tape)                            | John Dement        |
| 10:30 - 11:30                 | Sampling and Calibration<br>Equipment                           | Stephen Bayer      |
| 11:30 - 12:30                 | Lunch                                                           |                    |
| 12:30 - 1:00                  | Calibration Laboratory                                          | Stephen Bayer      |
| 1:00 - 1:45                   | The Sampling Procedure                                          | Stephen Bayer      |
| 2:00 - 2:20                   | Asbestos Seen Through<br>The Microscope                         | Stephen Bayer      |
| 2:30 - 2:50                   | Familiarization with the<br>Microscope (Video Tape)             | Stephen Bayer      |

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## AGENDA

Course No. 582

| DAY AND TIME                              | SUBJECT                                       | SPEAKER        |
|-------------------------------------------|-----------------------------------------------|----------------|
| <u>Tuesday, July 10, 1973 (Continued)</u> |                                               |                |
| 3:00 - 3:30                               | Demonstration: Basic Set-Up Procedure         | Stephen Bayer  |
| 3:30 - 4:00                               | Discussion - Recommended Microscope Equipment | Stephen Bayer  |
| 4:00                                      | First Day Quiz                                |                |
| <u>Wednesday, July 11, 1973</u>           |                                               |                |
| 8:30 - 9:15                               | Optical Microscopy<br>(Video Tape)            | James Ferguson |
| 9:30 - 9:55                               | Calibrating the Microscope<br>(Video Tape)    | Stephen Bayer  |
| 10:00 - 11:30                             | Laboratory: Microscope Preparation            | Stephen Bayer  |
| 11:30 - 12:30                             | Lunch                                         |                |
| 12:30 - 1:00                              | Filter Mounting Procedure<br>(Video Tape)     | Stephen Bayer  |
| 1:00 - 1:45                               | Laboratory - Filter Mounting                  | Stephen Bayer  |
| 2:00 - 2:30                               | The Counting Procedure<br>(Video Tape)        | Stephen Bayer  |
| 2:30 - 3:00                               | Explanation of Phase-Contrast Theory          | Stephen Bayer  |
| 3:00 - 3:30                               | Class Discussion Session                      | Staff          |
| 3:30                                      | Second Day Quiz                               |                |
| <u>Thursday, July 12, 1973</u>            |                                               |                |
| 8:30 - 11:00                              | Sample Evaluation Laboratory                  | Stephen Bayer  |
| 11:00 - 12:00                             | Lunch                                         |                |
| 12:00 - 12:45                             | Basic Polarized Light Techniques              | James Ferguson |
| 1:00 - 2:00                               | Dispersion Staining Techniques                | James Ferguson |
| 2:00 - 2:30                               | Data Comparison                               |                |
|                                           | Course Closing                                | Stephen Bayer  |

## CONTENTS

The Effects of Asbestos (Dust) on Man  
Asbestos in Industry  
Sampling and Evaluating Airborne Asbestos Dust  
Optimum Sampling Times for Airborne Asbestos Fibers  
Air Flow Calibration  
Familiarization with the Microscope  
Demonstration: Familiarization with the Microscope  
Specifications for a Phase-Contrast Microscope  
Optics and the Microscope  
Calibrating the Microscope  
The Counting and Sizing Procedures  
Sampling Equipment Laboratory  
Filter Mounting Laboratory  
Instructions for Leitz Dialux  
Instructions for Preparing American Optical's Nicrostar  
Asbestos Dust Evaluation  
Reticle Calibration Worksheet  
Asbestos Count Record Sheets  
Quiz - First Day  
Quiz - Second Day

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