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Exposures in the Engine Build-up Shop at Waycross

53

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- proceedings from annual meeting
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- meeting agenda minutes report
- letter
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Jacksonville, Florida, September 18, 1981 MEB:jlj

Dr. Charles A. Mead, M. D.
Chief Medical Officer

SUBJECT: Asbestos and Mineral Spirits Exposures in the Engine
Build-up Shop at Waycross

INTRODUCTION:

A request was made to evaluate air quality in the Engine Build-up Shop in Waycross, Georgia. A subsequent investigation of the contents of the gasketing materials revealed that nearly all the high temperature gaskets contain asbestos. Discussions with supervisors revealed that the gasket removal procedure involved buffing the old gasket off with an abrasive wheel, then removing the dust with compressed air. Since the presence of asbestos was known and could become airborne, air sampling was necessary to quantify the exposure.

The Governor Room was sampled to determine employee exposure to mineral spirits (FL-MD #8L). The solvent is used to clean parts throughout the shop. The Governor Room contained several small vats filled with the solvent, and most of the room air was recycled because it was air conditioned. These two conditions made this area the "worst case" area in the Engine Build-up Shop and appropriate for air sampling. Sampling was done on August 10, 11, 1981, at Waycross.

Mr. O. G. Wood, Mr. C. E. Hendrix, Mr. E. E. Wilcox, Mr. L. L. Blount, Mr. C. E. Blount, Mr. D. L. Futen, and Mr. W. R. Wainwright, provided assistance and comments while making the survey.

Materials and Methods

The survey supplies consisted of smoke tubes, charcoal tubes, two air sampling pumps, and three piece filter cassette with a 0.8 micrometer cellulose membrane filter. The mineral spirits samples were collected on charcoal tubes with the pump drawing air at 200 cc/minute. At the end of the sampling period, the tube ends were capped and prepared for shipment.

The asbestos samples were collected on mixed cellulose membrane filters. The flow rate was maintained at two liters per minute. Following the sampling period the samples were sealed and prepared for shipment. The collection and analysis was conducted according to NIOSH Method P & CAM 239.

Bulk samples of the gasket material and solvent were sent to the lab. A suitable blank was prepared for each procedure and sent to the lab for analysis. Environmental Health Laboratory, a certified industrial hygiene, analyzed all

Ltr to Dr. Charles A. Mead, M.D.

Page 2 - September 18, 1981

SUBJECT: Asbestos and Mineral Spirits Exposures in the Engine Build-up
Shop at Waycross

samples and reported the results.

Results

The sampling results are given in Tables 1 and 2.

Table 1

Governor Room Sampling Results For Mineral Spirits (FL-MD #8L)

<u>Sample</u>	<u>Type</u>	<u>Air Concentration</u>
1	Area	14 mg/M ³
2	Area	Non-Detectable
3	Personal	23 mg/M ³
4	Personal	37 mg/M ³

Detection Limit = 0.012 mg

Table 2 - Engine Build-up Shop Sampling Results For Asbestos

<u>Sample</u>	<u>Type</u>	<u>Air Concentration</u>
AA2542	Personal	*
AA2544	Personal	0.19 fibers/cc
AA2545	Personal	*
AA2546	Area	0.073 fibers/cc
AA2547	Personal	0.0097 fibers/cc
AA2549	Area	0.044 fibers/cc

*Heavy Particulate Load

Samples AA2542 and AA2545 had a high particulate load caused by the buffing of a frame with a large area of rust that needed to be buffed clean. Sample AA2544 may have a reduced count due to the particulate material which may have

Ltr to Dr. Charles A. Mead, M.D.

Page 3 - September 18, 1981

SUBJECT: Asbestos and Mineral Spirits Exposures in the Engine Build-up
Shop at Waycross

obscured some fibers.

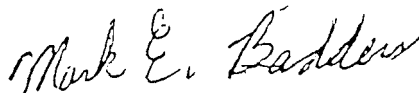
Discussion

The asbestos concentration was well below the current OSHA limit of 2 fibers/cc of air. The buffing produced a heavy particulate load of iron oxide (rust) and synthetic rubber from the gasket material. This caused problems with the analysis that may produce a low count on some samples. However, the two personal samples and area samples indicated that the highest air concentration of asbestos was one tenth of the currently acceptable level. The foreman in this area stated that this operation was normally done two hours a day. Based on the limited exposure time and the low airborne concentration, it is unlikely that asbestos would be a health hazard as the operation is currently done.

Mineral spirits vapor does not currently have an OSHA limit established. The current TLV (Threshold Limit Value) established by the American Conference of Governmental Industrial Hygienists for Stoddard Solvent which is similar in content is 525 mg/M³. The air concentrations in the Governor Room were well below this concentration. Based on these sampling results, mineral spirits vapor should not be a threat to the health of employees working in the Governor Room at Waycross Shop.

Recommendations

No further control measures are recommended at this time.



Mark E. Badders
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Medical Department

References

Documentation of the Threshold Limit Values Fourth Edition, American Conference of Governmental Industrial Hygienist, Cincinnati, Ohio, 1980

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