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Exposure Monitoring

ENVIRONMENTAL ENGINEERING REPORT

Company Proprietary

FILE NUMBER: MMD-87-3 REPORT DATE: 6/2/87
AFFECTED GROUP: Manchester SURVEY DATE: 4/28-5/4/87
SUBJECT: Asbestos Exposure Monitoring - GLP #2 Line
ACTION: RJMikulak MRBeauregard REQuaranto
JPRispoli AEsposito LPMacVane
INFO: WAHayes ADChesmer RFLee EMBulger
REFER: Environmental Engineering Report; Dated
4/20/87, Subject: Asbestos Exposure
Monitoring - File #MMD-87-1

PURPOSE: This study was conducted to further evaluate asbestos exposure levels on the GLP #2 line while running 661 grade. Although we have already established baseline data for asbestos exposure, this additional monitoring will increase our confidence level and help to detect the problem areas that should be concentrated on to lower asbestos exposures. Additionally, exposure on the Kneaders and Extruder #1 while running 470 asbestos was sampled.

SUMMARY: A total of six samples were obtained during this survey: 2 were from the Kneader and #1 Extruder while grade 470 was running and four were from the GLP #2 line (661 Grade). Levels found on the GLP mill operator and screener, extruder #1 operator and kneader operator were all below the OSHA PEL of 0.2 f/cc. Exposure during the GLP premix operation once again exceeded the OSHA PEL for the duration of the mix. Discussion of results listed in Table #1 including ventilation recommendations is included below. One sample was voided as a result of improper filter preparation.

Monitored By: TBGauthier/GADuff Date: 4/28 - 5/4/87
Analyzed By: TBGauthier Date: 4/28 - 5/4/87
Env. Eng. Mgr. Apprv.: *William Whitely* Date: 6-3-87

PROCEDURE

Collection on AA Filter, .8 μ m. Analysis by Phase Contrast Microscopy. 37 mm cassette used instead of 27 mm due to expected filter loading.

RESULTS

TABLE #1 - Asbestos Air Monitoring Data - MMD

<u>Sample #</u>	<u>Date</u>	<u>Grade</u>	<u>Employee/ Operation</u>	<u>Sample Time</u>	<u>Contaminant</u>	<u>Concentration</u>
M872004	4/28/87	470	RBishop/ Ext. #1 Operator	183 m	Asbestos	0.06 f/cc
M872006	4/28/87	470	EAnderson/ Kneaders	199 m	Asbestos	0.10 f/cc
M872013	5/4/87	661	HFortier/ GLP #2 Screener	187 m	Asbestos	0.07 f/cc
M872014	5/4/87	661	RFranklin/ GLP #2 Operator	161 m	Asbestos	0.05 f/cc
M872015	5/4/87	661	ZDeVoe/ GLP #2 Premix	23 m	Asbestos	0.8 f/cc

OSHA Permissible Exposure Limit (PEL)

Asbestos - 0.2 f/cc (Action Level 0.1 f/cc)

f/cc - Fibers/Cubic Centimeter of Air

GLP to Premix Exhaust
 Need ~ 1500 cfm for
 face vel. of 125 fpm

Fig. #1

Tibbathier
 5/22/87

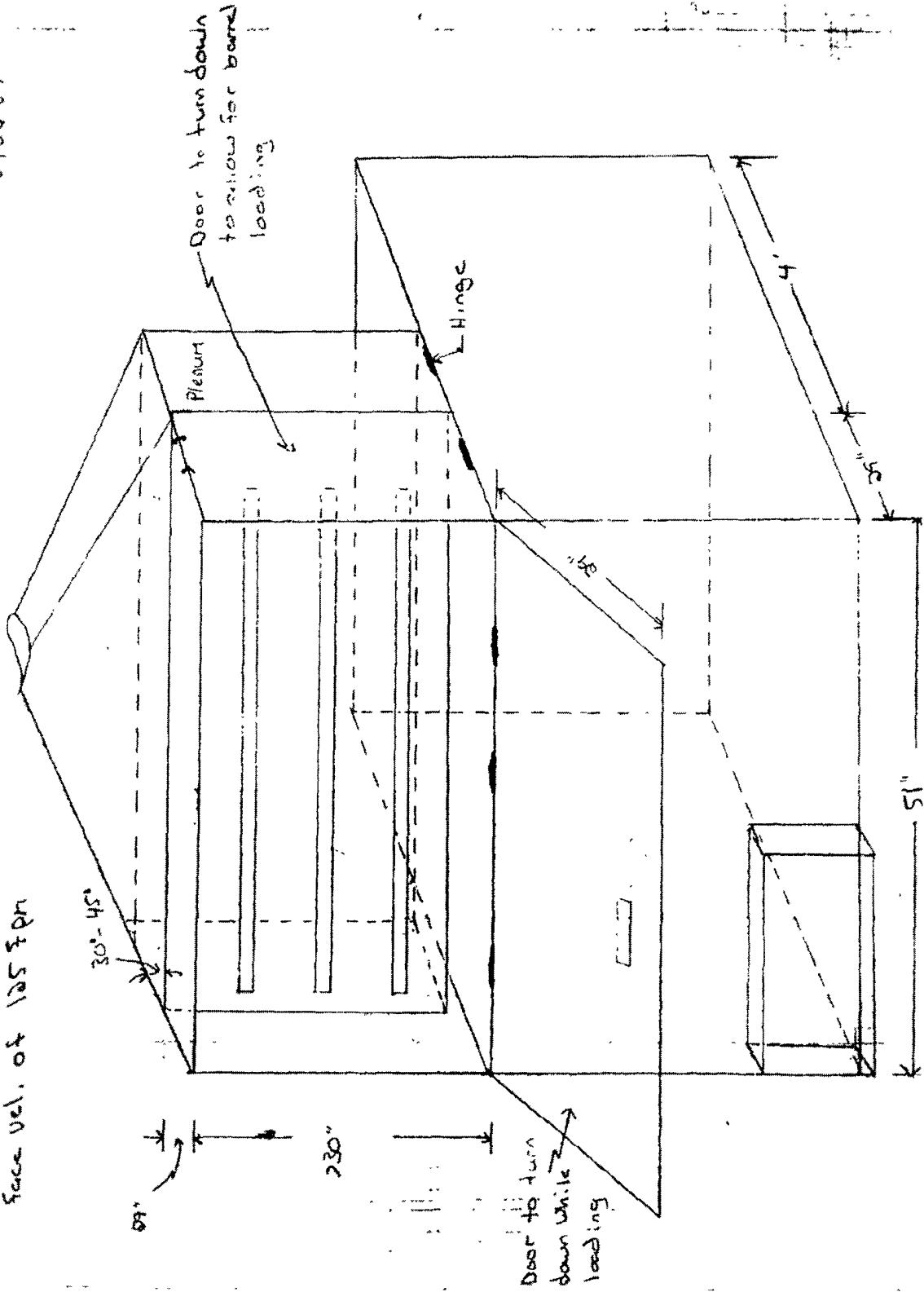
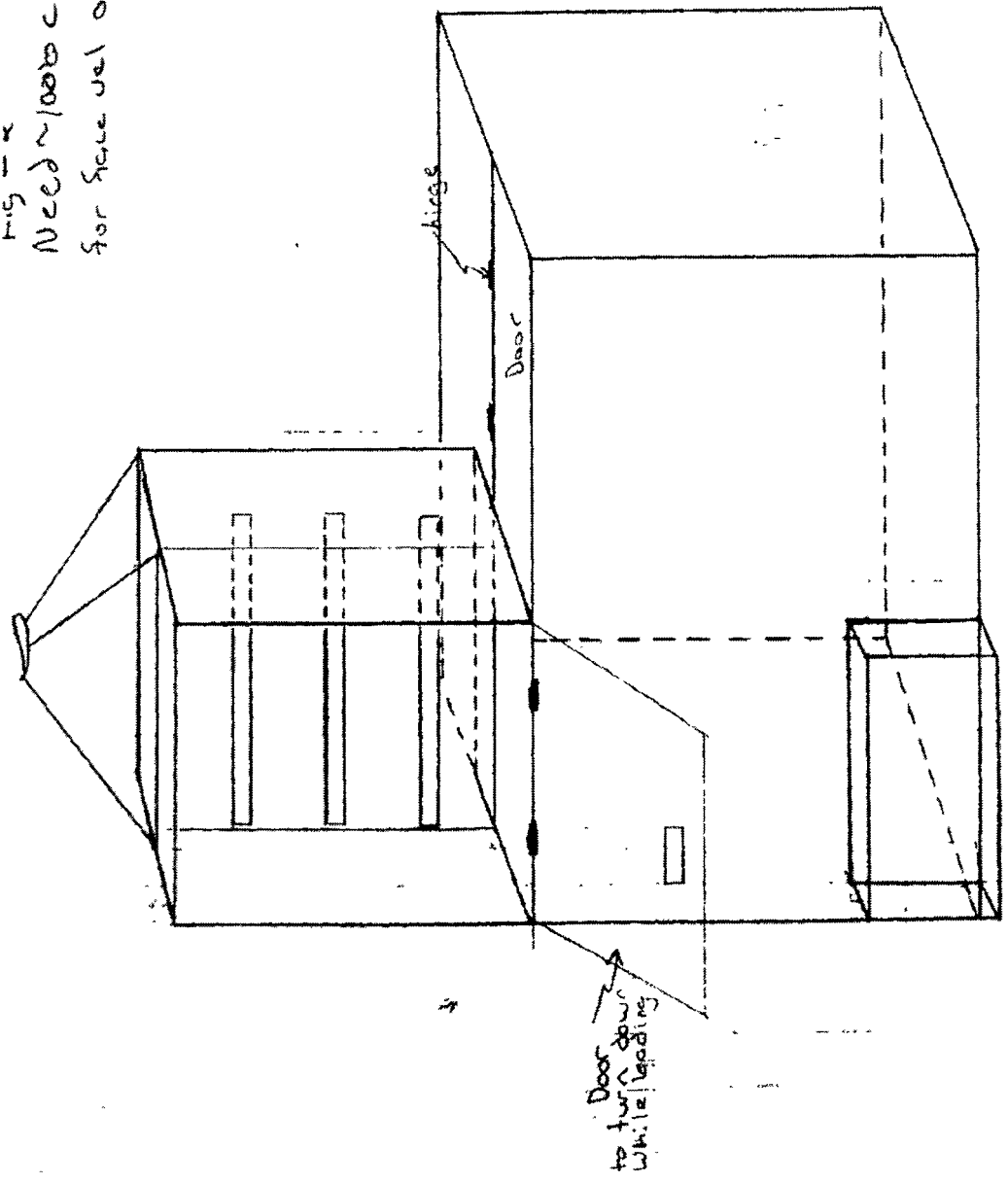


Fig 1-4
 Need ~1000 cfm
 for space vol of 125 sq ft



DISCUSSION

GLP #2 (Grade 661)

Sample M872013, M872014 and M872015 represent employee exposures to asbestos while working on the GLP #2 line running grade 661. These results are consistent with those presented in an earlier asbestos report this year (see Reference #1). The major problem area again appears to be the extent of exposure during the mixing operation. The premix employee has been supplied and uses the appropriate respirator type for protection against asbestos.

Asbestos levels at the premix area appear to be dependent upon two things; proper ventilation and employee handling procedures. In earlier sampling results, an exposure to the premix operator of .42 f/cc was reported while two batches of 661 was mixed (see reference #1, sample #M871001). In this study, (sample #M872015) that same operation with a different operator resulted in an exposure of .8 f/cc while mixing one batch. During collection of the latter data, rework was added to the mix by use of a drum dump.

Ventilation in the GLP premix area could be significantly improved by enclosing the mix area. The present system makes use of a capture hood system which is far less efficient than an enclosure.

For example, if the existing hood had a total of 1,500 cfm supplied to it, the velocity at 3' away would be approximately 30 fpm and at only 2' away the capture velocity would be 40 fpm. OSHA recommends a minimum vel. of 100 fpm for most contaminants. A more adequate velocity for the asbestos loading operation would be 125 fpm in order to overcome the movement of the operator.

If we enclosed the premix area (see Figure #1), a face velocity of 125 fpm could be established across the entire tank with 1,400 cfm. Additionally the contaminant would be drawn away from the employee rather than perpendicular to him.

Figure #2 is another option for enclosing the operation. This would require less air (1,000 cfm), but reduce the loading area by 50%.

Both of these hoods would require some small engineering changes to the mixing tank. We have not had a chance to measure exactly how much air is being drawn by the existing system, however the same blower will probably be adequate. More detailed ventilation design can be provided if we're all in agreement to making a change in this direction.

EXTRUDER AND KNEADERS

Sample #'s M872004 and M872006 represent employee exposures during Extruder #1 operation and Kneader loading of grade 470 asbestos. Levels in these area's were below the OSHA PEL. Grade 470 has been discontinued as of 5/87.

The Kneader area should be thoroughly cleaned of asbestos by use of HEPA vacuuming or wet method. Sampling will be performed after area is cleaned to determine asbestos levels in area.