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DOCUMENT DESCRIPTION: Environmental Engineering Report - GLP Blender Clean
Out Operation - Exposure Monitoring

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ENVIRONMENTAL ENGINEERING REPORT

Confidential

FILE NUMBER: MMD-81-4 REPORT DATE: 8/20/81
AFFECTED GROUP: MMD SURVEY DATE: 7/6/81
SUBJECT: GLP Blender Clean Out Operation - Exposure
Monitoring
ACTION: AJDontje RJMikulak
INFO: WAH CAB CGM LCHaack MKupsaw WJWhiteley
TLSieger

PURPOSE: This study was conducted to determine worker exposure to air contaminants during the clean out process on the GLP Final Blender. During this operation, the employee climbs into the blender and chips out solidified material on the interior walls of the blender.

SUMMARY: Dust exposure during the clean out process is well in excess of the current OSHA PEL. Currently used respirator protection is not considered adequate for the measured dust levels. Suggestions to reduce dust exposure are presented. Prompt action by the division is recommended.

Monitored by: CJPorter Date: 7/6/81
Analyzed by: CJPorter Date: 8/10/81
Env. Eng. Mgr. Appr.: *[Signature]* Date: 8-20-81

PROCEDURE

Asbestos Monitoring

NIOSH #239 - Collection on filters, analysis by Phase Contrast Microscopy.

Nuisance Dust Monitoring

Collection on PVC filters, Gravimetric analysis.

RESULTS

Table #1 Air Monitoring Data - MMD 7/6/81

<u>Sample #</u>	<u>Operation</u>	<u>Employee</u>	<u>Sample Time</u>	<u>Contaminant</u>	<u>Concentration</u>
M813001	GLP Blender Clean Out	Lloyd Barnes	8 m	Asbestos	Impossible to Count, Filter Overloaded
M813002	"	"	4 m	Asbestos	2.31 f/cc (A)
M813003	"	"	7 m	Total Nuisance Dust	4307 mg/m ³ (B)

(A) Questionable result due to the extremely small sample volume required to avoid filter particulate overload.

(B) Microscopic analysis of dust by Polarized Light Microscopy showed: glass fiber, wollastonite, amorphous silica, celite, resin, all present, no definite asbestos fibers.

Current OSHA PEL's

Asbestos: 2.0 f/cc 8 hour TWA
 10.0 f/cc 15 m Peak

Nuisance Dust: 15 mg/m³ - Total Dust 8 hour TWA
 5 mg/m³ - Respirable Dust 8 hour TWA

DISCUSSION

The data in Table #1 indicate worker exposure levels are greatly in excess of the current OSHA nuisance dust PEL during the blender clean out process. Asbestos exposure is difficult to quantify because of the large excess of dust which interferes with the fiber counting procedure. Steps taken to reduce dust exposure should also lower asbestos levels.

The clean out process normally requires one or two shifts to complete. It should be noted that only a short time period, which occurred approximately midway through the clean out process, was sampled. In addition, the employee involved in this operation actually spends more time outside the blender (preparing himself before entering and cleaning himself after) than inside. Still the magnitude of the exposure levels while inside the blender causes the eight hour TWA exposure to be in excess of the OSHA PEL. A respirator was being worn by the employee while inside the blender, but an organic vapor cartridge with a felt particulate filter which was being used is not considered adequate for this situation. The felt was completely penetrated by dust after only seven minutes inside the blender. The employee's safety glasses and face were completely covered with dust upon leaving the blender. Ear muffs were being worn to reduce noise exposure.

The division should act to reduce dust exposures during this clean out process.

Possible techniques to accomplish this include:

1. Rerouting ventilation on blender during cleanup so that fresh air makeup enters through top and is exhausted through bottom thus pulling dust away from worker.
2. Rigging air hammer to eliminate air spray blowoff inside blender which creates further airborne dust.
3. Improved respirator protection. Present dust exposures would require the use of a full face, high efficiency, protection. The Airstream system by Racal appears well suited for this operation. The air supplied "Air Crown" System would provide excellent protection, eliminate the problem of clogging filters and would probably result in a much

faster clean out process. Furthermore, this system could be adapted for use in other excessive dusty operations like baghouse maintenance.

Environmental Engineering can assist in implementing the dust reduction program.

/dcc

APPENDIX #3 Air Sampling Data - Areas Near Asbestos Containing Materials

<u>Sample #</u>	<u>Date</u>	<u>Figure* Location</u>	<u>Description</u>	<u>Sample Time</u>	<u>Contaminant</u>	<u>Concentration</u>
F853001	8/21/85	Fig. 1-A	Area/404 Dryer Aisle	255 m	Asbestos	0.004 f/cc
F853002	8/21/85	Fig. 1-B	Area/Between 403&402 Driers	254 m	Asbestos	0.006 f/cc
F853003	8/21/85	Fig. 1-D	Area/302 Wet Machine	246 m	Asbestos	0.007 f/cc
F853004	8/27/85	Fig. 4-F	Area/Beater Rm., East Wall	154 m	Asbestos	0.005 f/cc
F853005	8/27/85	Fig. 5-G	Area/Finishing Room	152 m	Asbestos	0.004 f/cc
F853006	8/29/85	Fig. 2-E	Area/995 Line Back Side	366 m	Asbestos	0.004 f/cc
F853007	8/29/85	Fig. 1-C	Area/10ft. From 304 Wet Machine	360 m	Asbestos	0.003 f/cc
F853008	8/29/85	Fig. 3-H	Area/983 Mach. Left Side	361 m	Asbestos	0.002 f/cc
F853011	8/30/85	Fig. 5-I	Area/ Bldg.#21 Service Room	370 m	Asbestos	0.004 f/cc
F853009	8/29/85	-----	Area/Bldg.#3 Third Floor	359 m	Asbestos	0.005 f/cc
F853010	8/30/85	-----	Area/6th Floor Warehouse	382 m	Asbestos	0.004 f/cc
F854001	10/23/85	-----	Area/Pulp Shed Barracuda Pulper	151 m	Asbestos	0.04 f/cc

*(See attached map for area locations).

NOTES

1. Areas sampled requested by EMBulger 8/15/85.
2. NIOSH method P & Cam 239 utilized.
3. Reported values represent approximate fiber levels at the time of sampling. Significantly higher fiber levels may be caused by activity or air currents in the area.
4. EPA does not recommend this type of sampling for primary evaluation of asbestos containing materials.