ESIS
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November 20, 1984

Mr. Terry Lohman, Plant Manager
J-M MANUFACTURING COMPANY, INC.
Highway 75 North
Denison, TX 75020

RE: ESIS Contract 84E0096

Dear Mr. Lohman:

On September 10 through 14, 1984, I made a visit to your plant to conduct an Industrial Health Survey. As a result of that visit, I am submitting the attached recommendations which should receive your immediate attention and consideration.

You will also find the results of the Industrial Health Report attached. These results are an indication of the environmental health conditions that existed on the day of my visit.

I wish to thank you and your staff for the cooperation that was extended during the course of this visit.

Sincerely,

Zuhdy Youssef/jdm

ZUHDY YOUSSEF
Certified Industrial Hygienist

ZY:jdm:01

Attachment

cc: John T. Armstrong, J-M Manufacturing Co., Inc.
Dr. E. Edward Wang, Ph. D., J-M Manufacturing Co., Inc., 1051 Sperry Rd., Stockton, CA 95206
Ms. Beth Ingleston, Alexander & Alexander of New York, 1185 Ave. of Americas, New York, NY 10013
RCC-West

EH84-1 Employees in the plant, except the permastran shop are exposed to noise levels that exceed the 8-hour Time-Weighted Average of 90 dBA or the maximum exposure limit for continuous noise of 115 dBA or the "action level" of 85 dBA as an 8-hour Time-Weighted Average. Exposure to excessive noise may cause auditory fatigue, headache, sleeplessness and/or hearing loss. Therefore, noise levels should be reduced to within the permissible limits by engineering controls if feasible.

It is noted, that all employees in the plant are participating in a Hearing Conservation Program. Employees exposed to excessive noise should continue participating in the program which includes the following:

The OSHA noise law requires that any employee exposed to over 90 dBA on an 8-hour Time-Weighted Average must wear hearing protectors (if noise cannot be reduced by engineering or administrative controls).

It also requires that those employees exposed to over 85 dBA on an 8-hour Time-Weighted Average (the "action level") participate in a Hearing Conservation Program which includes the following:

1. Pre-placement or baseline audiometric testing and periodic audiometric testing which should be done at least yearly.

2. All such employees must be given a yearly training program. Information provided in the training program must be updated to be consistent with the changes and protection equipment and work processes.

3. The employer shall ensure that each employee is informed of the following:

   a. The contents of the Noise Standard.
   b. The effects of noise on hearing.
   c. The purpose of hearing protectors, the advantages, dis-advantages, an attenuation of the various types, and instruction on selection, fitting, use and care of such protectors.
   d. The purpose of audiometric testing and an explanation of the test procedures.

4. The employer should also make available to affected employees or their representatives, copies of the noise law (included in the Appendix Section of this report), and shall also post a copy in the work place.

EH84-1 "Continued"

5. The employer shall provide to affected employees any informational materials pertaining to this standard that are supplied to the employer by the U.S. Department of Labor, Occupational Safety and Health Administration.

6. The employer shall provide, upon request, all materials related to the employers training and education program pertaining to this standard, to authorized representatives of the Chief of the Division and the Director, National Institute of Occupational Safety and Health.

7. The employer shall post signs at entrances to or on the periphery of all well-defined work areas in which employees may be exposed at or above a TWA of 85 dBA. The warning signs shall clearly indicate that the area is a high noise area and shall indicate that hearing protectors may be required.

Although the wearing of hearing protectors is not mandatory below 90 dBA, it is strongly suggested that the employees which fall within the "action level" of 85 to 90 dBA be provided with and wear personal hearing protectors when exposed to the noise, as it has been demonstrated that a statistically significant percent of such employees experience noise-induced hearing loss, along with those who are exposed to over 90 dBA.

EH84-2 Samples collected at the large coupling cut off saw and the 13' head curer operations showed airborne concentrations that exceeded the proposed standard of 0.5 fibers of asbestos per cubic centimeter. Since these samples were collected on a three-four hour basis, they may not represent an accurate 8-hour Time-Weighted Average. Therefore, 8-hour samples should be collected on a later date at these two locations to determine the exact 8-hour exposure. In the meantime, employees at these two locations should wear a NIOSH approved type of respirator until further sampling and analysis is done.

EH84-3 The sample collected in the breathing zone of the UPL helper indicated airborne concentration of respirable dust containing silica which exceeded the calculated Permissible Exposure Limit. The prolonged inhalation of dusts containing free silica may result in the development of a disabling pulmonary fibrosis known as silicosis. Since the sample concentration was slightly higher than

EH84-3 "Continued"

the PEL, the employee at this location should wear a NIOSH approved type of respirator until further sampling is done on a later date to determine the 8-hour Time-Weighted Average.

ENVIRONMENTAL HEALTH REPORT

REPORT PREPARED FOR

J-M MANUFACTURING COMPANY, INC.
Denison, Texas

DATE OF SURVEY

September 10 - 14, 1984

SURVEY PREPARED BY

Zuhdy Youssef
Certified Industrial Hygienist

ENVIRONMENTAL HEALTH REPORT

J-M MANUFACTURING COMPANY, INC.

INTRODUCTION

On September 10 through 14, 1984, an Environmental Health Survey was conducted at your plant in Denison, Texas to evaluate employee exposures to noise, vinyl chloride monomer, respirable silica dust, asbestos and organic solvents. The survey was conducted at the request of J-M Manufacturing Company, Inc. as an ongoing monitoring program.

The standards, guidelines, results and discussion pertinent to this report follow.

STANDARDS AND GUIDELINES

Recommendations made in this report are based on current OSHA standards and/or accepted state of the art industrial hygiene practices to give reasonable protection to the health and well-being of your employees.

METHODS

Air Contaminants

Air sampling and analyses were conducted using the following.

Air Contaminant	Vacuum Source	Flow Rate Liters/Min	Collection Medium	Analytical Method
Asbestos	Gilian Pumps & DuPont 2500	1.5	Open face AA filters	PCM * NIOSH P&CAM 239
Vinyl Chloride Monomer	Gilian Pumps	0.05	2 CT** in series	NIOSH P&CAM 127 GC***
Respirable Silica	Gilian Pumps	1.7	Pre-weighed PVC filters on mini-cyclones	NIOSH P&CAM 106
Organic Solvents except Methylene Chloride	Gilian Pumps	0.2	CT	NIOSH P&CAM 127 GC

METHODS "Continued"

Air Contaminant	Vacuum Source	Flow Rate Liters/Min	Collection Medium	Analytical Method
Carbon Monoxide	Gilian Pumps	0.017	Drager Tubes	Direct Reading
Methylene Chloride	Gilian Pumps	0.05	2 CT in series	NIOSH P&CAM 127 GC

* PCM = Phase Contrast Microscopy
** CT = Activated Charcoal Tubes
*** GC = Gas Chromatography

Unless otherwise stated, samples were taken in the workers' breathing zone to obtain samples indicative of actual employee exposure. Pumps were calibrated prior to and after the sampling period.

All analyses were conducted by Environmental Health Laboratory in Hartford, Connecticut, which is accredited by the American Industrial Hygiene Association.

Noise

DuPont Mark I Audio Dosimeters were used for this survey.

The DuPont Mark I Audio Dosimeter meets or exceeds U.S. Government, OSHA, MSHA, Department of Defense, ANSI S 1.25-1978 and ISO 1999 requirements for dosimeters.

In addition, it can be used as a sound level meter and conforms to ANSI S 1.4-1971 for Type S 2A sound level meters using the "A" weighted scale and the "slow" response. It also meets the requirements of IEC 651.

The Mark I calculates noise dose, stores the maximum level of sound exposure (dBA_{max}), tracks operating time and computes average dB levels (dBA_{avg}). It also indicates exposures exceeding 115 dB for two seconds or more. In the sound level meter mode, it displays the dB level of the monitoring area.

METHODS "Continued"

The Mark I meets the 30 dB crest factor with an accuracy of $\pm$ 1.5 dB and can, therefore, measure impact and impulse noise as well as continuous noise.

RESULTS

Asbestos

The results of asbestos sampling are presented in Table I. The concentrations are presented in number of fibers (longer than 5 microns) per cubic centimeter, by job description along with the applicable OSHA standard.

Vinyl Chloride

The results of vinyl chloride monomer sampling are presented in Table II. The concentrations are presented in milligram per cubic meter (mg/M^3), by job description and location along with the applicable OSHA standard.

Respirable Crystalline Silica

The results of respirable free silica sampling are listed in Table III. The concentrations are presented in milligram per cubic meter (mg/M^3), by job description and location, along with the applicable OSHA standard. Permissible Exposure Limit (PEL) was computed using the following formula:

$$\text{PEL}_{\text{Respirable Silica}} = \frac{10\ mg/M^3}{\%\ SiO_2 + 2}$$

Organic Solvents

The results of organic solvents air sampling are listed in Table IV. The concentrations are presented in parts per million (ppm), by job description and location along with applicable OSHA standards.

When two or more hazardous substances are present, their combined effect, rather than that of either individually, should be given primary consideration. The health effects must be considered additive unless there is evidence to the contrary; thus, exposures are added relative to their designated OSHA standards. When

RESULTS "Continued"

adding these exposures, a value "Em" (Equivalent Exposure for the mixture) is determined by the OSHA formula. Exposure is considered excessive when the value "Em" exceeded unity (1.00).

$$Em = \frac{TWA_1}{PEL_1} + \frac{TWA_2}{PEL_2} + \frac{TWA_3}{PEL_3} \ldots + \frac{TWA_n}{PEL_n}$$

Where: TWA is the Time-Weighted Average concentration of a particular substance and PEL is the corresponding permissible limit for the substance.

Carbon Monoxide

A total of four samples were collected in long-term Drager detection tubes using Gilian pumps. Two of the samples were collected in the truck drivers' breathing zone and the other two were area samples collected in the steam shed outside the building. All samples showed none detected concentrations of carbon monoxide.

Noise

The results of noise level measurements and Time-Weighted Average (TWA) exposure are listed in Table V.

RESULTS "Continued"

Table I

Air Sampling Results

Location/Employee	Air Contaminant	Units (1)	Sampling Rate (liters/min)	Sampling Time (min)	Sampling Volume (liters)	Sample Concentration	Representative Air Concentration TWA (2) *	OSHA PEL (3)	Exceeds PEL ?
Willow Operator/M. Hunt OBZ (4)	Asbestos	Fibers/cc	1.5	280	420	0.19	0.19	2	No
Utility Operator/P. Franch	"	"	"	240	360	0.12	0.12	2	No
Steam Tank Operator/E. Morrison	"	"	"	240	360	0.005	0.005	2	No
13' Tender/L. Doyle	"	"	"	240	360	0.47	0.47	2	No
13' Control Operator/C. Wilson	"	"	"	230	345	0.20	0.20	2	No
13' Head Curer/P. Morrison	"	"	"	213	319.5	0.71	0.71	2	No
Large Supply Lathe/M. Johnson	"	"	"	235	352.5	0.12	0.12	2	No

RESULTS "Continued"

Table I

Air Sampling Results

Location/Employee	Air Contaminant	Units (1)	Sampling Rate (liters/min)	Sampling Time (min)	Sampling Volume (liters)	Sample Concentration	Representative Air Concentration TWA (2) *	OSHA PEL (3)	Exceeds PEL ?
Large Coupling Cut Off Saw/B. Ross	Asbestos Fibers	Fibers/cc	1.5	234	351	0.57	0.57	2	No
Fitting Lathe Operator/K. Campbell	"	"	"	231	346.5	0.075	0.075	2	No
Sweeper Driver/J. Bartley	"	"	"	240	360	0.056	0.056	2	No
UPL Lathe Operator/S. Shivers	"	"	"	205	307.5	0.041	0.041	2	No
UPL Hydrotester Operator/L. Crain	"	"	"	203	304.5	0.049	0.049	2	No
Inprocess Inspector/D. Johnson	"	"	"	203	304.5	0.21	0.21	2	No
Coupling Tester/S. Strong	"	"	"	202	303	0.024	0.024	2	No

RESULTS "Continued"

Table I

Air Sampling Results

Location/Employee	Air Contaminant	Units (1)	Sampling Rate (liters/min)	Sampling Time (min)	Sampling Volume (liters)	Sample Concentration	Representative Air Concentration TWA (2) *	OSHA PEL (3)	Exceeds PEL ?
Unit Leader #1/E. Pittman	Asbetos Fibers	Fibers/ cc	1.5	208	312	0.054	0.054	2	No
Coupling Cut Off/B. Ross	"	"	"	245	367.5	0.27	0.27	2	No
Moulder/J. Wells	"	"	"	244	366	0.016	0.016	2	No
MOA/M. Bartley	"	"	"	193	289.5	0.01	0.01	2	No
QC Lab Crush Tester/D. Williams	"	"	"	27	40.5	0.092	0.092	2	No
Salvage Truck Driver/J. Crain	"	"	"	164	246	0.015	0.015	2	No
Boring Machine Operator/K. Campbell	"	"	"	70	105	0.053	0.053	2	No

RESULTS "Continued"

Table I

Air Sampling Results

Location/Employee	Air Contaminant	Units (1)	Sampling Rate (liters/min)	Sampling Time (min)	Sampling Volume (liters)	Sample Concentration	Representative Air Concentration TWA (2) *	OSHA PEL (3)	Exceeds PEL ?
Mechanic/W. Hider	Asbestos Fibers	Fibers/ cc	1.5	210	315	**	**	2	?
Slash Saw Operator/J. Dalon	"	"	"	185	277.5	0.2	0.2	2	No
10' Machine Operator/E. Herronimus	"	"	"	175	262.5	0.085	0.085	2	No
UCL #2 Operator/R. James	"	"	"	235	352.5	0.14	0.14	2	No

(1) Fibers/cc - fibers longer than 5 microns per cubic centimeter
(2) TWA - Time-Weighted Average based on an 8-hour exposure
(3) PEL - Permissible Exposure Limit
(4) OBZ - sample taken in operators' breathing zone
* The TWA concentration is the same as the sample concentration based on the assumption that air concentration during the sampling period is representative of the exposure level for the entire shift
** Sample was heavily laden with particulate matter that an accurate fiber count was impossible

DISCUSSION

Asbestos samples were collected within the breathing zone of the employees. At least one sample was taken for each job classification. The scrap grinder, fiber loading, QC fiber sampling, and the band saw were not operating during the survey, therefore, samples could not be taken for these operations. As can be seen in the Results Section, all the exposure levels were within OSHA's 8-hour Permissible Exposure Limit of 2 fibers per cubic centimeter of air. It should be noted, that OSHA has issued an emergency temporary standard on asbestos which lowered the Permissible Exposure Limit to 0.5 fiber/cc. The emergency rulemaking was challenged in court by the Asbestos Information Association which obtained a stay on the implementation of the rule pending judicial review. The two samples collected at the large sampling cut off saw and the 13' head curer exceeded this proposed emergency standard (refer to Results Section). Therefore, it is recommended that during the next survey, an 8-hour sample should be collected at these two locations to determine the exact 8-hour average exposure.

All samples collected for vinyl chloride monomer analysis indicated that airborne concentrations were well below the Permissible Exposure Limit of 1.0 parts per million (ppm).

A total of ten samples were collected for respirable free silica analysis. All samples showed airborne concentrations well below the Permissible Exposure Limit except the sample collected in the breathing zone of R. Hesse (UPL Helper) which showed airborne concentrations slightly higher than the permissible limit for the percentage of free silica found in the sample. Therefore, it is recommended that another sample should be collected at the same location and analyzed for free silica exposure. It should be noted that perforating and silica grinding operations were down during the survey, therefore, no samples were collected at these locations.

Organic solvent samples were collected in the permastram, permaloc and transite departments. Soft water coating was not operating during the survey, therefore, no samples were collected at this location. As indicated in the Results Section, all samples showed that airborne concentrations of organic solvents were well below the Permissible Exposure Limit and should not present any health hazard.

Four long-term samples for carbon monoxide were collected in Drager direct reading tubes. The results indicated that carbon monoxide concentrations were below the detection limit of 10 ppm.

DISCUSSION "Continued"

A noise survey was conducted in various areas in the plant to evaluate the noise exposure to employees. As indicated in the Results Section, all areas tested (except three) showed noise exposure that exceeded the standard of 90 dBA or the "action level" of 85 dBA as an 8-hour Time-Weighted Average or exceeded the maximum of 115 dBA continuous noise. In some instances, the maximum level recorded by the dosimeter was higher than 115 dBA without triggering the >115 dBA indicator. This means that the maximum level recorded was from impact noise which did not last for two seconds to trigger the >115 dBA indicator. The areas that did not exceed 85 dBA as an 8-hour Time-Weighted Average were the permastran shop and one operator of a PVC extruder. It should be noted, that there is a Hearing Conservation Program in effect and wearing hearing protectors is adequately enforced. This program should continue to detect any shift of employees' hearing sensitivity.

CONCLUSION

Employee exposures to vinyl chloride monomer, carbon monoxide, and organic solvents were well below the Permissible Exposure Limit and should be not present any adverse health effects.

Exposures to asbestos fibers were below the permissible limit, however, two samples showed concentrations higher than the proposed standard of 0.5 fibers/cc. These two areas should be resampled on a later date to determine the 8-hour Time-Weighted Average.

All silica samples collected did not have enough deposit for silica analysis, except one sample that showed airborne concentrations that exceeded the calculated Permissible Exposure Limit for the sample. This area should be resampled on a later date to determine the 8-hour TWA.

Should you have any questions regarding this report, please do not hesitate to contact me at (213) 692-2837.

Respectfully,

Zuhdy Youssef/dm

ZUHDY YOUSSEF
Certified Industrial Hygienist