PLAINTIFF'S EXHIBIT JMMC-12
PENGAD-Bayonne, N.J.

Health Science Associates

TECHNICAL AND ADVISORY SERVICES • ENVIRONMENTAL HEALTH AND SAFETY

INDUSTRIAL HYGIENE SURVEY

ASBESTOS, RESPIRABLE SILICA DUST, NOISE, VINYL CHLORIDE, SOLVENT VAPORS, TOTAL PARTICULATES, CARBON MONOXIDE

September 20 to October 7, 1983

J-M Manufacturing Company, Inc.
Highway 75N
Denison, Texas 75020

For: American Home Assurance Co.
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INTRODUCTION

The survey was conducted at the request of Betsy Leff, C.S.P., American Home Assurance Co., San Francisco, CA.

On September 19, 1983, a walk-through survey of J-M Manufacturing Co., Inc., Denison facility, was conducted to acquaint the survey team with production activity of the Transite (asbestos-cement/A/C) pipe, Polyvinyl Chloride (PVC) Shop, Injection Mold, Permastran and Cool Core, and Permaloc-Lining & Temp-Tite areas. Exposure potentials to airborne asbestos fiber, vinylchloride monomer (VCM), respirable silica dust, solvent vapors, carbon monoxide (CO), total particulates and noise were investigated and a sampling strategy developed.

Assistance was provided by Mr. Jim T. Armstrong of J-M Manufacturing Co., Inc., so that previously sampled locations bearing J-M sample designations were included in the survey along with additional locations or job descriptions as prescribed by Health Science Associates, in accordance with good Industrial Hygiene practice.

Actual monitoring occurred during the day shift, Monday through Friday, beginning September 20, 1983 and ending October 7, 1983, inclusive.

At the time of the survey, many of the infrequently used lathes in the Transite area were not in operation. However, additional sampling equipment was kept in reserve and was used to monitor the operation of such equipment

when put into service. Thus, in some instances, sampling periods of less than 8-hours represent the entire duration of operation and, hence, all the exposure potentials for the given operation.

Transite area personnel were sampled for airborne asbestos fiber and respirable silica (SiO_2) dust. PVC assembly moulders, located within the transite production area, were also monitored for exposure to solvent vapors consisting of tetrahydrofuran (THF) and ethyl acetate (E/A).

Vinyl chloride monomer (VCM) monitoring was conducted wherever the possibility of work in proximity to heated PVC, by either hot extrusion, molding, or belling operations, were noted. Accordingly, PVC, permaloc, permastran, and injection molding area personnel were monitored.

Solvent vapor sampling for methyl ethyl ketone (MEK), acetone (AC), and methylene chloride ($MeCl_2$) in the permastran area was done.

Personal noise dosimetry measurements were obtained for all areas of the facility, including maintenance personnel.

Total particulate sampling of mezzanine level batching operations in the PVC and injection molding areas was also accomplished during normal full shift activity.

Long term (duration) carbon monoxide (CO) monitoring of transite area power truck drivers was done during normal work activity.

OPERATIONS

WEEK ONE

Begining on Tuesday, September 20, 1983, personnel in forming and finishing classifications in the transite area were sampled for airborne asbestos fiber exposure during normal work activity.

Some equipment did not operate, however. Therefore, samples could not be obtained for the ten foot pipe machine (10' P/M) crew, and the tracer and sample lathe operators. Noise dosimetry was accomplished for the operators as well. Notable exposures and the associated products are explained in the results section.

WEEK TWO

Crew members sampled during week one were resampled for total respirable particulates (respirable silica dust) during full shift activity.

Solvent vapor monitoring for PVC assembly moulders using PVC 1969 Green Glue (containing tetrahydrofuran (THF)) and ethyl acetate (E/A) as the solvent for cementing of PVC joints and elbows occured at this time.

This location was situated within the transite production area.

Permaloc personnel monitoring for vinyl chloride monomer (VCM) and noise at all operating lines was conducted. Area VCM was also conducted to establish what levels, if any, were emanating from the source, i.e., directly over the hot

extrusion end of extrusion machine no. 2.

In the same manner, PVC shop personnel were monitored and area sampling was conducted. Operators were assigned to all machines. This was an assignment change instituted recently. Thus, in some cases, the J-M sample numbers do not apply.

Sampling of week two occurred from September 26th to the 30th, 1983.

WEEK THREE

During the final week of sampling, all remaining areas, permastran and cool core, injection molding, permaloc-lining and temp-tite operations were sampled for VCM and noise. Batching operations at PVC and injection mold mezzanine levels were sampled for total particulates as well.

Personal noise dosimetry was conducted for maintenance employees at this time.

Sampling began October 3, 1983, and concluded on October 7, 1983.

METHODS

Personal and area air samples were collected by the use of portable battery operated sampling pumps connected by tubing to the appropriate collecting media. Air flow rates were established by means of a bubble buret method calibrated field rotameter immediately before, during, and immediately after the sampling period.

Employee breathing zone sampling was achieved by mounting the collection media on the employee's collar and the sampling pumps at waist level.

All samples were analyzed in HSA's AIHA accredited laboratory (except for direct reading Dräger tubes used for CO monitoring).

The collecting media and analytical methods used for this survey are listed below.

Substance	Collection	Analysis
Asbestos fiber	Mixed cellulose ester 0.8 μ filters in 37mm open face cassettes; 2.0 liter per minute (LPM) flow rate.	Phase contrast microscopy @ 400X. NIOSH P&CAM 239.
Respirable silica dust	PVC filters in 10mm nylon cyclone assembly; 1.7 LPM flow rate.	Infrared spectroscopy. NIOSH P&CAM 110.
Total particulate	PVC filters in 37mm cassettes; 2.0 LPM flow rate.	Gravimetric
Vinyl chloride monomer	Charcoal tubes; 100 cc/ min. flow rate.	Gas chromagoraphy NIOSH P&CAM 178.
Tetrahydrofuran, Ethyl acetate	Charcoal tubes; 200 cc/ min. flow rate.	Gas chromatography NIOSH P&CAM 127.

Substance	Collection	Analysis
Methyl ethyl ketone, Methylene chloride, Acetone.	Charcoal tubes; 200 cc/ min. flow rate.	Gas chromatography NIOSH P&CAM 127 modified.
Carbon monoxide	SKC long-term tubes; 10-20 cc/min. flow rate.	Direct-reading.

Noise dosimtery was accomplished with the use of GenRad model 1954 audiodosimeters. These were set on the operating range of 80-130 dBA at an exchange rate of 5 dB. The A-weighting characteristics of these units meet the specifications of ANSI S1.4-1971, Type 2 devices. Each unit was calibrated prior to each use.

STANDARDS

Occupational exposure standards for airborne contaminants as 8-hour time weighted averages (8-hr. TWA) which is based upon a 40-hour work week.

Some contaminants have short term exposure limits (STEL) or ceiling limits (C).

The Code of Federal Regulations (29 CFR) part 1910 is the source of these standards. They are derived from ACGIH (American Conference of Governmental Industrial Hygienist), ANSI (American National Standards Institute) and NIOSH (National Institute for Occupational Safety and Health) recommendations.

The exposures of concern and their regulatory permissible exposure limits (PELs) are listed below.

Contaminant		Regulatory Source
Asbestos*	2.0 f/cc (TWA-PEL) 10.0 f/cc (Ceiling) (Action Level for medical surveillance currently designated as "exposed" persons).	29 CFR 1910 Subpart Z Section 1910.1001.
Respirable silica dust.	$\frac{10}{\% SiO_2 + 2}$ mg/m^3	29 CFR 1910 Subpart Z Section 1910.1000 Table Z-3 Mineral Dusts.
Total particulate (inert or nuisance dust).	15 mg/m^3	29 CFR 1910 Subpart Z Section 1910.1000 Table Z-3 Mineral Dusts.
Vinyl chloride monomer.	1.0 ppm (TWA-PEL) 0.5 ppm (Action Level averaged over 8 hr. day) 5.0 ppm (STEL-15 min).	29 CFR 1910 Subpart Z Section 1910.1017

Contaminant		Regulatory Source
Acetone.	100 ppm (TWA-PEL)	29 CFR 1910 Subpart Z
Ethylene acetate	400 ppm (TWA-PEL)	Section 1910.1000
Methylene chlor-	500 ppm (PEL-TWA)	Table Z-1 Air Contaminants
ide.	1000 ppm (Ceiling)	Table Z-2 applies to
	2000 ppm (5 min.-any	Methylene chloride only.
	2 hrs).	
Methyl ethyl	200 ppm (TWA-PEL)	" "
ketone.		
Tetrahydrofuran.	200 ppm (TWA-PEL)	" "
Carbon monoxide.	50 ppm (TWA-PEL)	29 CFR 1910 Subpart Z
		Section 1910.1000
		Table Z-1
Physical Energy		
Noise	90 dBA (TWA-PEL)	29 CFR 1910 Subpart G
	85 dBA (TWA-Action	Section 1910.95
	Level)	

f/cc = asbestiform fibers, longer than 5 microns, per cubic centimeter of air.

mg/m^3 = milligrams per cubic meter of air.

ppm = parts per million parts of air.

dBA = decibels, A-weighting network of an Ansi Type 2 sound level meter, set on slow response.

TWA-PEL = time-weighted average - permissible exposure level.

Ceiling = Level which cannot be exceeded even for short periods of time.

TWA - Action Level = The level which requires that monitoring or other action be taken.

*On November 3,1983 OSHA instituted an emergency temporary standard of 0.5 f/cc for TWA-PEL. This action was subsequently stayed, pending the outcome of a federal hearing due in January, 1984.

RESULTS AND DISCUSSION

Survey results of the various contaminants may be found in the following Tables:

I - Airborne Asbestos Fibers-Transite Production/Handling Areas.

II - Total Respirable Particulates-Trasite Production/Handling Areas.

III - Solvent Vapor - PVC Assemblers.

IV - Solvent Vapor - Permastran Area.

V - Vinyl Chloride Monomer - Permaloc Area.

VI - Vinyl Chloride Monomer - PVC Shop.

VII - Vinyl Chloride Monomer - Injection Mold Area.

VIII - Vinyl Chloride Monomer - Cool Core Machine-Permastran Area.

IX - Carbon Monoxide - Power Truck Operators.

X - Carbon Monoxide - Instantaneous Readings at Steam Tunnel Area.

XI - Total Particulates - Batching Operators.

XII - Personal Noise Dosimetry Results - Transite Production/Handling Areas.

XIII - Personal Noise Disometry Results-Permaloc/Lining and Temp-Tite area.

XIV - Personal Noise Dosimetry Results - PVC Shop.

XV - Personal Noise Dosimetry Results - Injection Mold Area.

XVI - Personal Noise Dosimetry Results - Permastran/Cool Core Area.

XVII - Personal Noise Dosimetry Results - Maintenance Department.

Contained within these Tables are work descriptions and results of the survey for noted contaminants in their appliable units. Where previously established, J-M sample numbers have been included.

Asbestos

Fourty-eight (48) countable samples were taken and no exposure exceeded the 2.0 f/cc TWA-PEL. Only one sample * exceeded 0.5 f/cc. This level is significant in consideration of the proposed new standard of 0.5 f/cc (TWA-PEL). Additionaly, 13 samples (27% of the total) exceeded .1 f/cc, and may be of future significance.

8 hour TWA exposures exceeding 0.1 f/cc:

Name/Job	Sample No.	f/cc	Date Sampled
Shane Coker - Unit Load Builder	16	0.10	9/21/83
Eddy Scott - Unit Load Builder	17	0.13	9/21/83
Kevin Hanna - UPL No.2 Hydrotester	18	0.20	9/21/83
Charles Wilson - 13' P/M Control Operator.	22	0.15	9/21/83
Lynn McKeeg - 2nd Curer - 13' P/M	23	0.14	9/21/83
Leo Doyle - 13' P/M Machine Tender	24	0.11	9/21/83
Paul Franks - PVC Assembly Moulder	31	0.10	9/22/83
Dana Simpson - PVC Assembly Moulder	32	0.14	9/22/83
Bill Snedden - Small Coupling Saw	34	0.22	9/22/83
Dorothy Williams - Coupling Tester	36	0.11	9/22/83
Henry Coldiron - QC Crush Tester	38	0.19	9/23/83
T.H. Stanley - 3 Fork Driver	40	0.10	9/23/83
Jerry Wright - Mono Saw Operator	A-34	0.61	10/6/83

Unit Load Builders At Universal Pipe Lathe (UPL) No.2

Unit Load Builders S. Coker (No. 16) and E. Scott (No. 17) received exposures of 0.10 and 0.13 f/cc respectively. The results are indicative of the dusty conditions of the 12" class 150 RTWP run from 7:00 to 9:10 AM and 11:00 to 1:00 PM, and 14" casing pipe run from 1:00 to 3:15 PM.

Additional exposure resulted from coupling handling and stacking activity as a result of temporary assignment due to UPL equipment problems.

UPL No. 2 Hydrotester

This operator, K. Hanna (No. 18) occasionally used a hand held rasp (file) to remove high spots on the outer diameter of both classes of transite pipe (12" and 14"). The residue was brushed off by hand or blown off, thus resulting in airborne asbestos fiber. Interestingly, this job classification is described as a wet-end (WE) area.

13' Pipe Machine (P/M) Crew Members

The primary source of exposure at this location is the build-up of residual material which has escaped the wet-rolling manufacturing stage. This build up was noted to be ubiquitous to the 13' P/M area, and can be loosened during vibration of the machine. These classifications were also previously designated as WE areas.

PVC Assembly Moulders

Manufacturing tasks of this job classification include the assembly of transite couplings as well as plastics products.

At the time of this sampling, transite short heavy tap 12" class 150-200 couplings were being finished by installation of a rubber bushing (ring) into the coupling. The fitting, however, was aided by dry scraping or sanding of the coupling, which can release airborne asbestos fiber.

Small Coupling Cut-Off Saw Operator

Cutting activity involving 13' transite pipe into 7" sections of class 150 resulted in a build-up of shavings beneath the pipe which is not locally exhausted. The local exhaust

above the pipe, at the cutting area appeared to work well.

However, during loading/unloading of the cut transite material, dust was generated.

Coupling Tester

Although couplings were wiped clean with a damp sponge. the transferring from pallets to the testing unit disturbed settled dust.

Quality Control (QC) Crush Tester

Fiber release may have occurred during the crush testing of 1' sections of transite pipe in the testing laboratory. Additionally, bulk fiber and blends were checked by this operator.

3-Fork Truck Driver

Exposure most likely resulted from handling of finished product at the mono saw area.

Mono Saw Operator

5" class all sewer pipe 45° elbows were run during sampling. Exposure resulted from dust generated by the cutting bit and dust observed inside the saw housing room. A 3M 9920 Dust/Fume/Mist respirator was worn upon entry in the room. Thus, protection for part of the sampling period was afforded.

Respirable Silica (SiO_2) Dust

Thirty (30) total respirable particulate samples resulted in low levels of respirable silica exposures except for one. Only one sample (No. 2222), placed upon M. Bartley (MOA lathe operator) on 9/26/83 exceeded it's calculated PEL. The level *

of 0.5 mg/m^3 exceeded the calculated PEL of 0.39 mg/m^3.

Lathing activity at this MOA lathe was unique when compared with the other lathes. Full pipe length OD lathing was done here. Thereby, greater quantity of dust material was expected. However, observation suggested that this dust was finer in character as well.

Vinyl Chloride Monomer - All Areas

The results in Tables V through VIII indicated non-detetable levels of VCM for both personal and source exposures (<0.2 ppm).

Total Particulates - Batching Operators

Batching operators R. Price (No. 2108), PVC area, and K. Wingfield (No. 2229), Injection Molding Area are receiving less than 15% and less than 2%, respectively, of the PEL of 15 mg/m^3 for nuisance dusts.

Additionally, the stabilizer component (liquid Butyl Tin) which comprises 1.3% by weight of the total batch is added via an enclosed feed system. In view of the total particulate exposures and the small amount of tin in the mix, it is unlikely that exposure to the tin would exceed allowable limits.

Carbon Monoxide

Personal exposures ranged from 7.2% to 19.5% of allowable for a time weighted average. Instantaneous readings indicated that short-term peak concentrations were present in locales immediately after propane powered equipment had operated in the area. There levels ranged from 0 to 10 parts per million.

Solvent Vapors - All Areas

The solvent vapor results reported in Tables III and IV were unremarkable in that no result approached any respective PEL, even when additive effects are considered.

One methylene chloride result for T. Beck, permastran winder operator (sample No. P-1) was 42.6 ppm (8.5% of TWA-PEL), this was the highest percent of allowable detected.

Noise

Personal noise dosimetry results are of primary concern as this was the area of greatest non-compliance with respect to 29 CFR 1910.95.

Thirty-nine (39) of a total of eighty-two (82) samples (47.5%) equalled or exceeded the 90 dBA TWA-PEL. *

By areas, the breakdown is as follows:

Area	Total No.	90 dBA	85 dBA
Transite	40	27	9
Permaloc	9	6	3
Injection Mold	8	3	5
PVC Shop	6	6	0
Permastran	11	2	6
Maintenance	8	1	5

It would be prudent to include all job classifications in a hearing conservation program. Encouraging the use of ear plugs or muffs and enforcing their use should be an element of this program, as inconsistancies in the wearing of hearing protection were noted in several areas of the facility.

RECOMMENDATIONS

Asbestos

1) Dry filing and sanding procedures should be discontinued, as fiber release has been demonstrated by this activity. Wet methods should be investigated.
2) Improved maintenance with regard to the 13' pipe machine with attention to the removal of built-up fibrous material should be undertaken.
3) Ventilation surveys should be conducted at the small coupling saw and mono saws to determine the effectiveness of the local exhaust systems.
4) Review methods of fiber sample collection and testing for Quality Control personnel. Respiratory protection may be needed during the actual collection and testing. Sample No. 38 includes this activity. The fiber sample collection work should be separately sampled next time for assessment of peak exposure potentials.
5) Improved control of scrap and residual material present at coupling tester, mono saw, small coupling saw and 13' P/M should help bring exposure levels down. A regular program of housekeeping throughout the shift is advisable.
6) Annual monitoring should be continued.

Respirable Silica Dust

1) Resampling of the MOA lathe operator should be done to confirm the level obtained in this survey.

2) Overall, sampling results did not indicate any levels of concern with regard to respirable silica dust. Monitoring on a comprehensive scale does not need to be repeated, as long as changes in processes or materials are not made.

Total Particulates

1) Batching operations, as sampled, did not result in high exposure levels. Resampling may be conducted if a greatly increased workload or alternate materials are used.

Vinyl Chloride Monomer

1) As long as the PVC received from suppliers has no more free monomer in it than was present during this survey there is no further need for VCM air sampling. *

Solvent Vapor

1) If working conditions, equipment, practices and materials did not change, there is no further need to * sample the use of the various solvents during production activity.
Since employees reported that vapors are "increased" during hot weather, sampling should be done to assess the levels encountered during the hot weather. *

Carbon Monoxide

1) No changes appear necessary at this time.

Noise

1) The feasibility of engineering control of noise needs to be assessed.

2) The hearing conservation program must include, as a minimum, the following elements.

A) Periodic monitoring.

B) Baseline and annual audiograms.

C) Hearing protectors; supply and enforcement of use.

D) Training.

E) Recordkeeping.

TABLE I

J-M Manufacturing
Airborne Asbestos Fiber Air Sampling Results
Transite Production/Handling Areas
Denision, Texas

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	F/CC*	Date Sampled
Joe Baxter (OBZ)				
Slash saw operator.	1 (D-1F)	451	0.02	9/20/83
Bill Snedden (OBZ)				
Large coupling cut-off.	2 (D-15F)	452	0.02	"
Charles Winnott (OBZ)				
UCL No. 1 operator.	3 (D-16F)	453	0.04	"
Mark Johnson (OBZ)				
Large coupling lathe (No. 347) operator.	4	455	0.03	"
Gerold Grass (OBZ)				
UCL No. 2 operator.	5 (D-26F)	451	0.05	"
Jerry Wright (OBZ)				
Mono lathe operator.	6 (D-24F)	450	0.04	"
Terry Garner (OBZ)				
Boring mill operator.	7 (D-17F)	482	0.05	"
Gary Terril (OBZ)				
Radial drill operator.	8 (D-13F)	490	0.04	"
Barry Sims (OBZ)				
Nipple lathe operator.	9 (D-31F)	493	0.06	"
Linda Johnson (OBZ)				
Band saw operator.	10 (D-21F)	491	0.07	"

(continued on page 2)

Name-Job Description	HSA Sample No. (J-M No.)	Time (mins)	F/CC*	Date Sampled
David White (OBZ)				
Perforator drill operator.	11 (D-9F)	468	0.06	9/20/83
Kenneth Cambell (OBZ)				
Fitting lathe operator.	12 (D-18F)	470	0.05	"
Raymond Hesse (OBZ)				
UPL No. 2 operator helper.	13	474	0.06	9/21/83
Larry Henderson (OBZ)				
UPL No. 2 operator.	14 (D-2F)	468	0.07	"
Buddy Walsh (OBZ)				
UPL No. 2 inspector.	15 (D-11S)	469	0.05	"
Shane Coker (OBZ)				
UPL No. 2 unit load builder.	16 (D-3F)	470	0.10	"
Eddy Scott (OBZ)				
UPL No. 2 unit load builder.	17 (D-5F)	473	0.13	"
Kevin Hanna (OBZ)				
UPL No. 2 hydrotester.	18	465	0.20	"
Lola McKinney (OBZ)				
First curer at 13' P/M.	19	454	0.03	"
Rodger Carr (OBZ)				
Head curer at 13' P/M/	20 (D-3WE)	454	0.03	"
Philip French (OBZ)				
Utility operator at 13' P/M/	21 (D-8WE)	451	0.07	"
Charles R. Wilson (OBZ)				
Control operator at 13' P/M.	22 (D-2WE)	453	0.15	"
Lynn McKeeg (OBZ)				
Second curer at 13' P/M.	23	437	0.14	"

(continued on page 3)

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	F/CC*	Date Sampled
Leo Doyle (OBZ)				
Tender at 13' P/M.	24 (D-1WE)	276	0.11	9/21/83
Ronnie Harp (OBZ)				
MOA lathe operator.	25 (D-6F)	485	<0.01**	9/22/83
Billy Corbin (OBZ)				
Janitor and tennant floor sweeper operator.	26 (D-6S)	480	0.07	"
Thomas Bell (OBZ)				
Power truck operator.	27 (D-30F)	479	0.04	"
Lee Brown (OBZ)				
Crew leader (epoxy area).	28	479	0.02	"
Mark Hunt (OBZ)				
Willow operator (for 13' P/M).	29 (D-7WE)	448	0.07	"
Larry Walker (OBZ)				
Blasted mandrels at wheel abrator station, operated breaker/gringer. 2nd curer.	30 (D-25S)	462	0.03	"
Paul Franks (OBZ)				
PVC assembly moulder.	31 (D-11F)	486	0.10	"
Dana Simpson (OBZ)				
PVC assembly moulder.	32 (D-11F)	484	0.14	"
Jerry Bruce (OBZ)				
Tool room attendant.	33 (D-17S)	475	I.F.P***	"
Bill Sneeden (OBZ)				
Small coupling cut-off operator.	34 (D-23F)	477	0.22	"
Ann Sanders (OBZ)				
General utility operator.	35 (D-8WE)	460	0.04	"

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Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	F/CC*	Date Sampled
Dorothy Williams (OBZ)				
Coupling tester.	36	451	0.11	9/22/83
Area Sample				
At 5 foot height at doorway separating PVC batching area and transite area.	37	373	< 0.02	9/23/83
Henry Coldiron (OBZ)				
Quality control crush tester.	38	453	0.19	"
Johnny Crain (OBZ)				
Salvage truck driver.	39 (D10S)	393	0.02	"
T.H. Stanley (OBZ)				
Unit loader - 3-fork truck operator.	40 (D-28F)	437	0.10	"
Emmit Morrison (OBZ)				
Steam tank attendant.	41	432	0.02	"
Linda Johnson (OBZ)				
Molding swing saw operator.	42 (D-12F)	477	0.04	"
Margene Thompson (OBZ)				
In-Process Inspector.	43	469	0.08	"
Larry Walker (OBZ)				
Breaker/grinder operator.	44	435	0.03	"
Arthur Dawson (OBZ)				
Fiber warehouseman (shipping and receiving).	45 (D-2S)	430	0.02	"
Terry Garner (OBZ)				
Machined 45 sewer conduit bends. Sampling period encompassed entire duration of product run. K and C lathe operator.	46 (D-7F)	158	0.06	"
Buck Hyder (OBZ)				
Finishing area mechanic.	47	453	0.02	"

(continued on page 6)

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	F/CC*	Date Sampled
Pete Turnbull (OBZ)				
Ball mill/boiler house operator.	48	461	< 0.01	9/23/83
Jerry Wright (OBZ)				
Mono saw operator.	A-34 (D-25F)	342	0.61	10/6/83

OBZ - Operators Breathing Zone

* - fibers per cubic centimeter of air, (F/CC).

** -< -less than (Quantity)

*** - Interference from excess particulate - sample not countable.

Table II

J-M Manufacturing
Total Respirable Particulates Air Sampling Results
Transite Production/Handling Area
Denison, Texas

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	T.R.P. mg/m^3	T.R.P. % SiO_2 (µg)	Calculated PEL (mg/m^3)*	Date Sampled
Charles Roper (OBZ)						
UPL operator. Machined 8" class 150 transite pipe on ends in well kept area. Good ventilation conditions.	2262 (D-2F)	417	0.1	ND<5	5.0	9/26/83
Glen Weger (OBZ)						
UPL helper. Performed identical duties as UPL operator, sample no. 2262.	2258	420	0.2	ND<5	5.0	"
Lee Crain (OBZ)						
UPL hydrotester. Checked freshly machined pipe for diameter specifications prior to loading into wet hydrotesting unit. Area virtually dust free.	2244	411	0.3	ND<5	5.0	"
Billy Sexton (OBZ)						
UPL Inspector. Loaded coupling trays, inspected and flex tested pipe products.	2209 (D-11S)	409	0.1	ND<5	5.0	"
Bobby Brown (OBZ)						
No. 2 unit loader. Palletized 8" class 150 transite pipe at off-bearing end.	2231 (D-3F)	401	0.2	ND<5	5.0	"

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Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	T.R.P. mg/m^3	T.R.P. % SiO_2 (μg)	Calculated PEL (mg/m^3)*	Date Sampled
Mike Bartley (OBZ)						
MOA lathe operator. Performed repetitive machining of 8" class 150 MOA transite pipe under well ventilated conditions.	2222 (D-6F)	417	0.5	23.6	0.39	9/26/83
Linda Johnson (OBZ)						
Swing saw operator. Performed repetitive cutting of 5" class 150 transite pipe into 9½" long sections under well ventilated conditions.	2240 (D-12F)	409	0.01	ND<5	5.0	"
Terry Garner (OBZ)						
K & C lathe operator. Finished ends of 6" 45 bend sewer pipe in recessed cutting hood. Rasped off transite residual build-up on outer diameter of pipe. Dusty conditions were evident.	2269 (D-7F)	415	1.50	ND<5	5.0	"
Gary Terrill (OBZ)						
Radial drill operator. Made radial cuts ot 6" by 4" class all sewer pipe.	2280 (D-13F)	439	0.08	ND<5	5.0	"
David White (OBZ)						
Perforator drill operator. Performed repetitive drilling of 6" underdrain transite pipe.	2284 (D-9F)	417	1.40	ND<5	5.0	"

(continued on page 3)

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	T.R.P. mg/m³	T.R.P. % SiO_2 (µg)	Calculated PEL (mg/m³)*	Date Sampled
Tony Sweeney (OBZ)						
First curer operator. Operated mandrel extractor and labeled finished pipe product.	2249	448	0.1	12.5	0.69	9/27/83
LeRoy Dorley (OBZ)						
Head curer operator. Operated vacuum hoist on moist pipe. Inspected product.	2253 (D-3WE)	445	0.01	ND<5	5.0	"
Fred Shires (OBZ)						
Control operator at 13' pipe machine. Monitored control panel for pipe forming readouts.	2260 (D-2WE)	443	ND<0.01	ND<5	5.0	"
Adrian Arterburn (OBZ)						
Machine tender at 13' pipe machine. Inspected machine functions for full shift.	2267 (D-1WE)	443	0.5	4.4	1.56	"
Ronny Bruce (OBZ)						
Supervisor. Supervised forming, willow, steam tank, air cure, & service crew operations.	2264	445	0.04	ND<5	5.0	"
Jeff Cambell (OBZ)						
Fittings lathe operator.	2266 (D-18F)	425	0.01	ND<5	5.0	"

(continued on page 4)

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	T.R.P. mg/m³	T.R.P. % SiO_2 (µg)	Calculated PEL (mg/m³)*	Date Sampled
Brain Rice (OBZ)						
Small coupling cut-off saw operator.	2239 (D-23F)	471	0.28	ND<5	5.0	9/27/83
Mark Johnson (OBZ)						
Large coupling lathe operator at No. 347. Machined inner diameter of 16" class 150 pipe utilizing vacuum hood.	2232 (D-15F)	458	0.50	ND<5	5.0	9/28/83
Mike Poteet (OBZ)						
UCL operator. Loaded 6" class 150 transite pipe into lathe under vacuum hood.	2270 (D-16F)	453	0.07	ND<5	0.5 → 5.0	"
Herbert Fletcher (OBZ)						
Fork truck operator. Transported pallets of finished product to storage area.	2241 (D-29F)	460	0.01	ND<5	5.0	"
Allen Morrison (OBZ)						
Willow operator for 13' P/M.	2233	445	0.20	ND<5	5.0	"
Arthur Dawson (OBZ)						
Willow truck operator.	2247	450	0.50	ND<5	5.0	"
Jack A. Bartley (OBZ)						
Tennant floor sweeper operator. Operated sweeper unit in all floor areas of plant.	2278 (D-6S)	467	0.03	ND<5	5.0	9/29/83

(continued on page 5)

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	T.R.P. mg/m^3	T.R.P. % SiO_2 (µg)	Calculated PEL (mg/m^3)*	Date Sampled
Donnie R. Walton (OBZ)						
Mono lathe operator. Machined dry, dusty elbow joints. Cleaned joints off with compressed air after machining.	2214 (D-24F)	453	0.01	ND<5	5.0	9/29/83
Judy A. Wells (OBZ)						
PVC assembly moulder operator joined 4" UD-90 transite sections into 45 angle units with mixed epoxy resin.	2255 (D-11F)	455	0.01	ND<5	5.0	"
Clint Evans (OBZ)						
Tracer lathe operator.	2272 (D-22F)	455	0.03	ND<5	5.0	"
Paul Wilson (OBZ)						
Boiler room operator. Tended boilerhouse, sand drying units, & ball mill area.	2283	402	0.20	7.7	1.03	"
Johnny Crain (OBZ)						
Salvage truck driver. Operated crusher-grinder unit, & transported scrap material to dumpsite.	2254 (D-10S)	448	0.03	75	0.13	"

(continued on page 6)

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	T.R.P. mg/m^3	T.R.P. % SiO_2 (µg)	Calculated PEL (mg/m^3)*	Date Sampled
Jerry Wright (OBZ)						
Mono saw operator. Cut 5" class all sewer 45 elbows. Dust material liberated.	2235 (D-25F)	342	0.03	50%	0.19	10/6/83
Henry Coldiron (OBZ)						
Q.C. crush tester. Inspected finished priduct for specification conformity.	2228	455	0.01	ND<5	5.0	"

(OBZ) - Operator Breathing Zone

T.R.P. - Total respirable particulates in milligrams per cubic meter (mg/m^3)/% SiO_2.

*PEL - Permissible exposure level in milligrams per cubic meter (mg/m^3).

ND = None Detected (<less than quantity).

Table III

J-M Manufacturing
Air Sampling Results
Solvent Vapor - PVC Assemblers
Denision, Texas

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	Conc. in ppm* THF	E/A	Date Sampled
Dana Simpson (OBZ)					
PVC assembly moulder. Constructed 90 PVC 12" bends with PVC No. 1969 green glue.	1 (V-1F)	497	4.0	6.0	9/27/83
Paul Franks (OBZ)					
PVC assembly moulder. Constructed saddlewise "Y" joints (15" PVC green sections). Used PVC No. 1969 green glue.	2 (V-1F)	493	7.0	7.0	"
Judy Wells (OBZ)					
PVC assembly moulder. Hand wiped PVC surfaces with ethyl acetate soaked cloth prior to constructing 24" x 24" T-units with PVC green No. 1969 cement.	3 (V-1F)	491	4.0	49.0	"
Donny Walton (OBZ)					
PVC assembly moulder. Manufactured 15" 45 PVC bends with cloth winding and resin application methods.	4 (V-1F)	490	11.0	6.0	"

(OBZ) - Operators Breathing Zone.
*ppm - parts per million of air.

THF - Tetrahydrofuran

E/A - Ethyl Acetate

Table IV

J-M Manufacturing
Air Sampling Results
Solvent Vapor - Permastran Area
Denison, Texas

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	Conc. in ppm*			Date Sampled
			MEK	AC	$MeCl_2$	
Terry Beck (OBZ)						
Permastran winder operator.	P-1 (V-2PS)	438	<0.84	<1.45	42.6	10/4/83
Larry Bilby (OBZ)						
Permastran assistant winder.	P-2	428	<0.83	<1.43	177***	"
E.W. James (OBZ)						
Mixer operator at permastran mazzanine.	P-3	435	0.82	<1.37	15.1	"
David Smith (OBZ)						
Core coater operator.	P-4 (V-1PS)	424	1.98	<1.64	<1.77	"
Dickie Kennedy (OBZ)						
Extractor operator.	P-5	424	0.91	<1.51	1.64	"
Benny Stanley (OBZ)						
Hydroformer operator.	P-6 (V-3PS)	423	2.46	<1.66	<1.8	"
Jim Hollingsworth (OBZ)						
Permastran crew leader.	P-7	472	2.68	<1.33	1.67	10/5/83
Jeanette Bilby (OBZ)						
Permastran machine finisher operator.	P-8	471	0.83	1.29	1.84	"

(continued on page 2)

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	Conc. in ppm* MEK	AC	$MeCl_2$	Date Sampled
Mitchell Troxtell (OBZ)						
Permastran utility handler.	P-9	440	0.84	1.41	<1.53	10/6/83

(OBZ) - Operators Breathing Zone.

*ppm - parts per million parts of air.

< - less than (quantity).

***Sample invalid. Back-up section break through >25%.

MEK - Methyl Ethyl Ketone

AC - Acetone

$MeCl_2$ - Methylene Chloride

Table V

J-M Manufacturing
Air Sampling Results
Vinyl Chloride Monomer - Permaloc Dept.
Denison, Texas

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	VCM Conc. in ppm*	Date Sampled
Paula Neely (OBZ)				
Permaloc extruder operator at machine No.2.	V-1 (V-1SW)	474	ND<.2	9/28/83
Dennis Burden (OBZ)				
Permaloc area crew leader.	V-2	471	ND<.2	"
Smokey Reagen (OBZ)				
Unit loader at permaloc lines.	V-3 (V-5SW)	471	ND<.2	"
Area Sample				
At 5' height directly over hot extrusion end of permaloc extruder No. 2.	V-4	456	ND<.2	"
Don Donaldson (OBZ)				
Extruder operator at experimental line.	V-5	492	ND<.2	"
Terry Becham (OBZ)				
Labor pool member. Removed cut permaloc scrap to storage/grinding area.	V-6	457	ND<.2	"
Jerry Jenkins (OBZ)				
Sonoco line operator.	V-29	438	ND<.2	10/6/83
Dwight Rogers (OBZ)				
Sonoco line operator.	V-30	435	ND<.2	"

(OBZ) - Operators Breathing Zone.

* - Vinyl Chloride Monomer in parts per million parts of air.

ND - Non Detectable - < less than (quantity).

Table VI

J-M Manufacturing
Air Sampling Results
Vinyl Chloride Monomer - PVC Shop
Denison, Texas

Name-Job Description-Location	HSA Samlpe No. (J-M No.)	Time (mins)	VCM Conc. in ppm*	Date Sampled
Charles Bilby (OBZ)				
Tool and die operator.	V-7 (V-3P)	428	ND<.2	9/29/83
Terry Askins (OBZ)				
Crew leader PVC shop. Supervised all lines.	V-8	443	ND<.2	"
Barbara Terabbit (OBZ)				
Process operator near machine No. 1.	V-9 (V-2P)	429	ND<.2	"
L.Y. Mitchell (OBZ)				
Process operator.	V-10	434	ND<.2	"
James Rhoads (OBZ)				
Sample accidentally destroyed by wearer.	V-11	Not submitted.		
Charlie Flood (OBZ)				
PVC scrap grinder. General worker.	V-12 (V-4P)	435	ND<.2	"
Area Sample				
At 5' height directly over hot end of extruder machine No. 6, during run of 8" diameter PVC green.	V-13	427	ND<.2	9/30/83
Area Sample				
At 5' height directly over hot end of extruder machine No. 5, during run of 8" diameter PVC blue.	V-14	424	ND<.2	"
Area Sample				
At 5' height directly over hot end of extruder machine No. 4, during run of PVC blue.	V-15	423	ND<.2	"

(continued on page 2)

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	VCM Conc. in ppm*	Date Sampled
Area Sample AT 5' height directly over hot end of extruder machine No. 3, during run of PVC green.	V-16	418	ND<.2	9/30/83
Area Sample At 5' height directly over hot end of extruder machine No. 2, during run of 6" diameter PVC blue.	V-17	421	ND<.2	"
Area Sample At 5' height directly over hot end of extruder machine No. 1, during run of 15" diameter PVC blue.	V-18	421	ND<.2	"

(OBZ) - Operators Breathing Zone.

* - Vinyl Chloride Monomer in parts per million parts of air.

ND - Non Dectectable -< less than (quantity).

Table VII

J-M Manufacturing
Air Sampling Results
Vinyl Chloride Monomer - Injection Mold Shop
Denison, Texas

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	VCM Conc. in ppm*	Date Sampled
Nick Guymon (OBZ)				
Inspector at injection mold area.	V-19	428	ND<.2	10/3/83
James Emerson (OBZ)				
Packer operator. Tended machines No. 3 & 4. Packed finished products for storage & shipping.	V-20 (V-11M)	436	ND<.2	"
Kenny Chester (OBZ)				
Packer operator. Tended machines No.5 & 6. Packed finished products for storage & shipping.	V-21 (V-11M)	434	ND<.2	"
Tony Giarraputo (OBZ)				
Packer operator. Tended machines No.1 & 2. Packed finished products for storage & shipping.	V-22 (V-11M)	439	ND<.2	"
Ray Crites (OBZ)				
Injection mold machine operator.	V-23	420	ND<.2	"
Issac Winters (OBZ)				
Crew leader at ijnection mold area.	V-24 (V-41M)	421	ND<.2	"

(OBZ) - Operators Breathing Zone

* - Vinyl Chloride Monomer in parts per million parts of air.

ND - Non Detectable -< less than (quantity).

Table VIII

J-M Manufacturing
Air Sampling Results
Vinyl Chloride Monomer - Cool Core Machine - Permastran Area
Denison, Texas

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	VCM Conc. in ppm*	Date Sampled
David Smith (OBZ)				
Core coater operator.	V-25 (V-1PS)	473	ND<.2	10/5/83
Bennie Stanley (OBZ)				
Hydroformer.	V-26 (V-3PS)	474	ND<.2	"
Harold Orr (OBZ)				
20' copper machine cool core operator. Cored and hot-belled pipe during work shift.	V-27	448	ND<.2	"
Harry Cauldwell (OBZ)				
Assistant cool core operator.	V-28	445	ND<.2	"

(OBZ) - Operators Breathing Zone

* - Vinyl Chloride Monomer in parts per million parts of air.

ND - Non Detectable - < less than (quantity).

Table IX

J-M Manufacturing
Air Sampling Results
Carbon Monoxide (CO) Long Term - Power Truck Operators
Denison, Texas

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	CO Conc.* (8-hr TWA)	Date Sampled
Larry Hopson (OBZ)				
Steam tank operator and power truck driver.	A	407	3.6 ppm**	10/5/83
Bill Rogers (OBZ)				
Power truck operator.	B	432	9.8 ppm	10/6/83

(OBZ) - Operators Breathing Zone

*Carbon Monoxide - 8 hour time weighted average.

**ppm - parts per million of air.

Table X

J-M Manufacturing
Caron Monoxide - Instantaneous Readings at Steam Tunnel Area
Denison, Texas

Area Location	Sample No.	CO in ppm*	Date Sampled
Steam Tank Operator's Area			
Enclosed room.	A	ND	10/5/83
Northwest corner of enclosed tray storage area.	B	7.0	"
Southwest corner of enclosed tray storage area.	C	6.0	"
Northeast corner of enclosed tray storage area.	D	10.0	"
Center of enclosed tray storage area.	E	10.0	"
Southeast corner of enclosed tray storage area.	F	10.0	"
10' directly in front of steam tunnel No. 7, during tray removal (unloading) phase.	G	ND	"

* - Carbon Monoxide in parts per million parts of air.

ND - None Detected

Table XI

J-M Manufacturing
Total Particulate-Air Sampling Results
Batching Operators
Denison, Texas

Name-Job Description-Location	HSA Sample No. (J-M No.)	Time (mins)	Total Particulate in mg/m^3*	Date Sampled
Randy Price (OBZ)				
Batch mixer operator at PVC area at batching mezzanine level. Batched PVC green mix.	2108 (D-5P)	448	2.20	9/30/83
Keenan Wingfield (OBZ)				
Batch mixer operator at injection molding area.	2229 (D-21M)	438	0.25	10/3/83

(OBZ) - Operators Breathing Zone.

* mg/m^3 - milligrams per cubic meter of air.

Table XII

J-M Manufacturing
Personal Noise Dosimetry Results
Transite Production/Handling Areas
Denison, Texas

Name-Job Description-Location	Dosimeter Reading (in % of Allowable)	Time (mins)	8-hr TWA in dBA*	Date Sampled
Joe Baxter (N-1F)				
Slash saw operator.	191.4	451	95.0	9/20/83
Bill Snedden				
Large coupling cut-off saw operator.	135.6	452	93.0	"
Charles Winnott				
Universal coupling lathe No. 1 operator.	106.5	453	91.0	"
Mark Johnson				
Large coupling lathe operator.	80.0	455	89.0	"
Gerold Gross				
Universal coupling lathe No. 2 operator.	87.6	451	89.5	"
Terry Garner				
Boring mill operator.	126.9	482	92.0	"
Gary Terril				
Radial drill operator.	191.2	488	94.5	"
Barry Simms				
Nipple lathe operator.	103.9	493	90.5	"
Linda Johnson				
Band saw operator.	120.6	491	91.5	"
David White				
Perforator drill operator.	99.5	468	90.5	"
Raymond Hesse (N-4F)				
Universal pipe lathe No. 2 (UPL) operator.	204.4	474	95.5	9/21/83
Larry Henderson (N-4F)				
UPL No. 2 operator.	208.9	468	95.5	"

(continued on page 2)

Name-Job Description-Location	Dosimeter Reasing (in % of Allowable)	Time (mins)	8-hr TWA in dBA*	Date Sampled
Shane Coker				
Unit load builder at UPL No.2. Off-bearing end.	122.1	470	92.0	9/21/83
Eddy Scott	95.6	473	90.0	"
Unit load builder at UPL No.2. Off-bearing end.				
Lola McKinney (N-5WE)				
First curer at 13' pipe machine (13' P/M).	104.7	454	91.0	"
Rodger Carr				
Head curer at 13' P/M.	124.4	452	92.0	"
Philip French				
Utility operator at 13' P/M.	123.3	451	92.5	"
Charles Wilson				
Control operator at 13' P/M.	113.1	453	91.5	"
Ronnie Harp (N-6F)				
MOA lathe operator.	170.0	485	94.0	9/22/83
Mark Hunt				
13' P/M willow operator.	64.3	448	87.5	"
Larry Walker (N-1WE)				
Second curer at 13' P/M. Operated wheel abrator and breaker/grinder units.	68.0	462	87.5	"
Jerry Bruce				
Tool room attendant.	36.4	475	83.5	"
Bill Snedden				
Small coupling cut-off operator.	159.3	477	93.5	"
Ann Sanders				
Unit load builder.	83.5	460	89.0	"

(continued on page 3)

Name-Job Description-Location	Dosimeter Reading (in % of Allowable)	Time (mins)	8-hr TWA in dBA*	Sampled
Henry Coldiron				
Quality control crush tester.	12.4	455	75.0	9/23/83
Linda Johnson				
Molding swing was operator.	750.4	477	105.0	"
Larry Walker				
Operated breaker/grinder.	57.7	435	86.0	"
Buck Hyder				
"Finishing area" mechanic. Worked near pipe machine.	111.5	453	91.0	"
Pete Turnbull				
Ball mill/boiler house operator.	76.6	463	88.5	"
Lee Brown				
Epoxy assembly crew leader.	98.0	444	90.5	10/5/83
Buddy Walsh				
Inspector at UPL No.2.	181.7	439	95.0	"
Kevin Hanna				
Hydrotester at UPL No.2.	137.0	434	93.0	10/6/83
Jim Hollingsworth				
Crew leader.	53.3	472	85.0	10/5/83
Dana Simpson (N-17F)				
Epoxy moulder.	19.1	446	78.5	"
Fred Kerley (N-19F)				
2-fork driver.	132.7	449	93.0	"
Jerry Wright				
Mono saw operator.	129.6	342	94.5	10/6/83
Dana Simpson				
Tennant floor sweeper operator.	74.0	446	88.5	"

(continued on page 4)

Name-Job Description-Location	Dosimeter Reading (in % of Allowable)	Time (mins)	8-hr TWA in dBA*	Date Sampled
Harry Caldwell				
Coupling service operator.	36.1	426	83.0	10/6/83
Jack Bartley				
Tennant floor sweeper operator.	110.7	467	91.0	9/29/83
Kennith Cambell				
Fittings lathe operator.	169.6	448	94.5	"

* - 8-hour time weighted average in decibles, A-weighted scale, slow response.

Table XIII

J-M Manufacturing
Personal Noise Dosimetry Results
Permaloc/Lining and Temp-Tite Area
Denison, Texas

Name-Job Description-Location	Dosimeter Reading (in % of Allowable)	Time (mins)	8-hr TWA in dBA*	Date Sampled
Don Donaldson				
Experimental line extruder operator.	110.3	493	90.5	9/28/83
Dennis Burden				
Permaloc crew leader.	119.5	472	91.0	"
Paula Neeley (N-1SW)				
Extruder operator at machine No.2.	181.2	474	94.0	"
Jim Ledford				
Unit load builder, all areas.	121.5	440	92.5	"
Smokey Reagan				
Unit load builder, permaloc lines.	121.7	469	92.5	"
Terry Becham				
Labor pool.	92.8	457	90.0	"
Harold Orr				
Finisher.	44.6	434	85.0	"
Dave Tonkinson (N-1L)				
Lining service operator.	59.6	466	87.0	"
Doug Winnict				
Temp-Tite operator.	74.5	461	88.5	"

* - 8 hour time weighted average in decibels, A-weighted scale, slow response.

Table XIV

J-M Manufacturing
Personal Noise Dosimetry Results
PVC Shop
Denison, Texas

Name-Job Description-Location	Dosimeter Reading (in % of Allowable)	Time (mins)	8-hr TWA in dBA*	Date Sampled
Terry Askins				
PVC crew leader.	110.0	445	91.0	9/29/83
M.Y. Mitchell				
Extruder operator, all areas.	105.2	435	91.0	"
James Rhoads				
Extruder operator. Worked near machines No.3,4 & 5.	112.3	435	91.5	"
Barbara Terrabit				
Extruder operator.	116.1	432	92.0	"
Charlie Flood				
PVC scrap grinder.	205.9	433	96.0	"
Charles. Bilby				
Tool and die operator.	148.9	427	94.0	"

* - 8 hour time weighted average in decibels, A-weighted scale, slow response.

Table XV

J-M Manufacturing
Personal Noise Dosimetry Results
Injection Mold Area
Denison, Texas

Name-Job Description-Location	Dosimeter Reading (in % of Allowable)	Time (mins)	8-hr TWA in dBA*	Date Sampled
Keenan Wingfield (N-11M)				
Mixer operator.	68.0	438	87.5	10/3/83
Tony Giarraputo (N-21M)				
Assembler at injection molding/packer machines No.1 and 2.	197.2	440	95.5	"
James Emerson (N-21M)				
Assembler at injection molding/packer machines No. 3 and 4.	65.5	435	87.5	"
Ken Chester (N-21M)				
Assembler injection molding machines No. 5 and 6.	120.0	436	92.0	"
Nick Guyman				
Injection molder inspector.	74.3	428	88.5	"
Ray Crites (N-51M)				
Injection molder machine operator, general worker.	50.3	422	86.0	"
Issac Winters				
Injection molder crew leader.	67.3	423	87.5	"
Jimmy Nelson (N-51M)				
General operator, scrap grinder operator.	294.1	414	99.0	"

* - 8 hour time weighted average in decibels, A-weighted scale, slow response.

Table XVI

J-M Manufacturing
Personal Noise Dosimetry Results
Permastran/Cool Core Area
Denison, Texas

Name-Job Description-Location	Dosimeter Reading (in % of Allowable)	Time (mins)	8-hr TWA in dBA*	Date Sampled
Terry Beck				
Permastran winder.	38.2	438	83.5	10/4/83
Larry Bilby				
Assistant permastran winder.	833.8	429	106.5	"
E.W. James				
Mixer operator at mezzanine level.	139.3	436	93.0	"
Dickie Kennedy				
Extractor operator.	74.2	426	88.0	"
David Smith				
Core coater operator.	64.5	425	88.0	"
Benny Stanley				
Hydroformer operator.	59.8	421	87.0	"
Jim Hollingsworth				
Permastran crew leader.	53.3	472	85.0	10/5/83
Jennette Bilby				
Finisher operator.	55.1	471	86.0	"
Mitchell Troxtell				
Utility handler.	40.0	444	84.0	10/6/83
Harry Caldwell				
Coupling service operator/ cool core.	36.1	426	83.0	"
Jackie Nelson				
End coater.	54.0	422	86.5	"

* - 8 hour time weighted average in decibels, A-weighted scale, slow response.

Table XVII

J-M Manufacturing
Personal Noise Dosimetry Results
Maintenance Department
Denison, Texas

Name-Job Description-Location	Dosimeter Reading (in % of Allowable)	Time (mins)	8-hr TWA in dBA*	Date Sampled
Gene Thompson				
Truck mechanic.	34.0	425	83.0	10/7/83
M.E. Abernathy				
General craftsperson.	67.8	442	88.0	"
Buck Hyder				
"Finishing area" mechanic.	70.6	423	88.0	"
Glen Reynolds				
Machinist.	46.1	422	85.5	"
Charles Dobbs				
Shift mechanic.	51.4	431	86.0	"
Thomas Elepper				
Carpenter-painter.	65.6	420	88.0	"
Woody Crump				
Electrician.	110.0	418	92.0	"
James Weaver				
Welder.	36.8	419	84.0	"

* - 8 hour time weighted average in decibels, A-weighted scale, slow response.