

Summary report:
Semi-annual asbestos survey at
Asbestos-Cement Pipe Division

J-M Manufacturing Company, Inc.
Denison, Texas

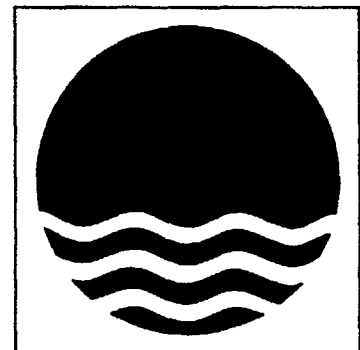
Galson Project # S6-350-00

Submitted to:

Dr. E. E. Wang
Corporate Environmental Control Manager
1051 Sperry Road
Stockton, CA 95206

March 31, 1986

Galson
Technical Services, Inc.



Environmental Sciences Division, 6601 Kirkville Road, East Syracuse, New York 13057

APR. 23 1986

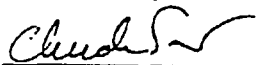
D 001795

Summary report:
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Asbestos-Cement Pipe Division

J-M Manufacturing Company, Inc.
Denison, Texas

Galson Project # S6-350-00

Submitted by : 
Chuck C. Siu, CIH

D 001796

ABSTRACT =

This report summarizes the results of the Spring, 1986 half-annual survey for workers' exposures to asbestos at the Asbestos-Cement Pipe Division of J-M Manufacturing, Inc. at Denison, Texas. The results may be summarized as follows:

1. Exposure of 14 out of 31 workers monitored were measured at or above the current Occupational Safety and Health Administration (OSHA) Action Level of 0.07 fiber/cc for daily exposure of 12 hours. The Action Level is the concentration above which routine monitoring and medical examinations are required.

2. Exposure of 7 out of the 31 workers monitored were measured above or close to 0.13 fiber/cc, the lower of the two proposed OSHA 12-hour daily permissible exposure levels (PEL).

3. The slash (wet) saw operator's exposure exceeded 0.33 fiber/cc, the higher of the two proposed daily permissible exposure levels (adjusted for 12-hour shift). His exposure also exceeded 50% of 1.3 fiber/cc, the current OSHA PEL (adjusted for 12-hour shift).

4. The UCL workers were not monitored since operations were suspended on the survey day.

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Project Personnel

J-M Manufacturing, Inc.

Dr. E. E. Wang	Corporate Environmental Control Manager
Mr. Tim Armstrong	Denison, TX site coordinator
Mr. Carl Weger	Denison, TX site coordinator

Galson Technical Services, Inc.

Mr. Chuck C. Siu, CIH	Project Manager & Laboratory Director
Mr. Daryl Jahn	Industrial Hygiene Technician & Laboratory Technician
Mr. Scott Silvey	Computer Programmer

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INTRODUCTION

This report summarizes the results of a sampling survey conducted on March 31, 1986 at the Asbestos-Cement Pipe Division of J-M Manufacturing, Inc. at Denison, Texas. The purpose of the half-annual survey was to monitor worker exposures to asbestos fibers as required by the current Occupational Safety and Health Administration (OSHA) regulations.

The survey was performed by Chuck C. Siu, Certified Industrial Hygienist of Galson Technical Services, Inc., Oakland, California, at the request of Dr. E. E. Wang, Corporate Environmental Manager. Site coordination was provided by Mr. Tim Armstrong and Mr. Carl Weger of the Denison plant.

SAMPLING AND ANALYTICAL METHOD

Sampling and analysis were in accordance with National Institute for Occupational Safety and Health (NIOSH) method #P&CAM 239. This method is required by the current OSHA asbestos regulations for occupational monitoring of asbestos. A more detailed discussion of the method is presented in Appendix I.

PERMISSIBLE EXPOSURE STANDARDS

Occupational asbestos exposures are governed by the OSHA permissible exposure levels. The current and proposed OSHA standards are summarised as follows, along with those recommended by NIOSH and 1985-86 American Conference of Governmental Industrial Hygienists (ACGIH).

Source of Standard	(adjusted)		Ceiling (fiber/cc)
	8-hour (fiber/cc)	12-hour (fiber/cc)	
Current OSHA standard			
<u>permissible exposure</u>	<u>2.0</u>	<u>1.3</u>	10.0
"Action Level" *	0.1	0.07	--
1st Proposed OSHA standard	0.5	0.33	--
2nd Proposed OSHA standard	0.2	0.13	--
NIOSH recommended standard	0.1	0.07	--
ACGIH recommended standards			
chrysotile asbestos	2.0	1.3	--
crocidolite asbestos	0.2	0.13	--

* The Federal OSHA asbestos regulations do not have an "Action Level" explicitly stated. 0.1 fiber/cc has been interpreted as an index above which routine monitoring and medical examinations should be implemented.

RESULTS

Before entering into the discussion of the results, the following items should be kept in mind:

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1. Several work positions were not in operation on the survey day, consequently those workers were not monitored. They are listed as follows:

UCL operator,
Coupling Cut-off,
Boring Mill,
Power Sweeper,
Coupling Tester and
Lining Service.

2. The work positions to be sampled were selected by the plant manager prior to the survey: selection was based on sampling results from previous surveys.

3. Since the work activity levels for these work positions were considered fairly steady throughout the shift, samples of 4-hour durations were collected and their results assumed representative of the whole day exposures.

4. Most personnel monitored work a 12-hour shift, the remainder an 8-hour shift and are listed below:

electricians,
mechanic,
moulding department and
utility truck driver.

Results are summarized below and in Table 1, and pertinent field and laboratory data sheets are included

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in Appendices II and III. The general locations of most of the work positions monitored are shown on Figure 1.

1. Of the 5 persons who worked an 8-hour shift, their exposures ranged from less than 0.03 to 0.04 fiber/cc. These values were below the 8-hour Action Level of 0.1 fiber/cc. (Action Level is the concentration at which routine monitoring and medical examinations are required to be given to the workers.)

2. Among the 26 workers who worked a 12-hour shift, 12 measurements were below and 14 were above the current Occupational Safety and Health Administration (OSHA) Action Level of 0.07 fiber/cc adjusted for 12-hour shift.

3. 7 measurements exceeded 0.13 fiber/cc, which is the lower of the two proposed PEL adjusted for a 12-hour shift.

4. The slash (wet) saw operator's exposure was measured at 1.08 fiber/cc. This level exceeded 0.33 fiber/cc, the higher of the two proposed standard (adjusted for 12-hour shift). His exposure was 83% of the current standard of 1.3 fiber/cc (adjusted for 12-hour shift).

TABLE 1

RESULTS SUMMARY OF
SEMI-ANNUAL ASBESTOS SURVEY
at

J-M Mfg. Inc., Denison, Texas

March 31, 1986

Galson Project #S6-350-00

Location *	Employee's Name	Operations	Sample I.D.	Sampling Duration	Exposure° Level Fibers/cc
1	Jimmy Lang	13' Utility Oper.	5756	254	0.09
2	Ed Heironimus	13' PM Tender	5757	246	0.16
3	Tommy Martin	Gen. Worker	5778	279	0.10
4	Ray Terrell	13' PM Head Curer	5758	243	0.13
5	Cecil Bell	13' PM Curer	5774	239	0.15
6	Charlie Moore	13' Control Oper.	5771	250	0.16
7	Lewis Ives	13' PM Asst Serv	5766	270	0.21
8	Phillip French	13' Service Opr	5773	218	0.11
9	Charles Wilson	13' PM Stm Tank Opr	5759	263	< 0.02
10	Arlis Chambers	Salvage Trk Driver	5763	259	0.02
11	Dale Kent	Willow Operator	5820	260	0.19
12	Pete Turnbull	Boiler Operator	5775	260	< 0.02
13	Bill Rogers	UPL Operator	5764	255	0.09
14	Glen Weger	UPL Helper	5768	253	0.03
15	James Walsh	UPL Inspector	5765	252	0.09
16	Roger Carn	Janitor	5761	306	0.05
17	Dock Dill	UPL Hydrotester Opr	5824	252	0.04
18	Raymond Hesse	13' Unit Leader	5809	248	0.06
19	Jeck Bartley	18000# Trk Driver	5776	249	0.03
20	Thurman Stanley	MOA Operator	5777	246	0.04
21	Wilbur Greene	Tool Room Opr	5762	246	0.05
22	Don Dutton	Molder	5787	168	0.04
23	Elliott Brown	Crew Leader	5792	167	0.03
24	Fredie Wright	Utility Trk Driver	5803	216	0.02
25	Bill Williams	Electrician	5793	125	< 0.03
26	Murel Abernathy	Mechanic	5802	120	0.04
27	Jerry Bruce	Platform Trk Driver	5782	248	0.08
28	Jack Hansard	Sm Fork Trk Driver	5788	244	0.03
29	James Bush	Sample Plan Insp.	5815	240	0.08
30	Henry Coldiron	In Process Insp.	5788	240	0.03
31	Lawrence Arnold	Slash Saw Opr	5805	240	1.08

* the locations correspond to those marked on Figure 1.

° actual and estimated whole day time-weighted-average exposure level.

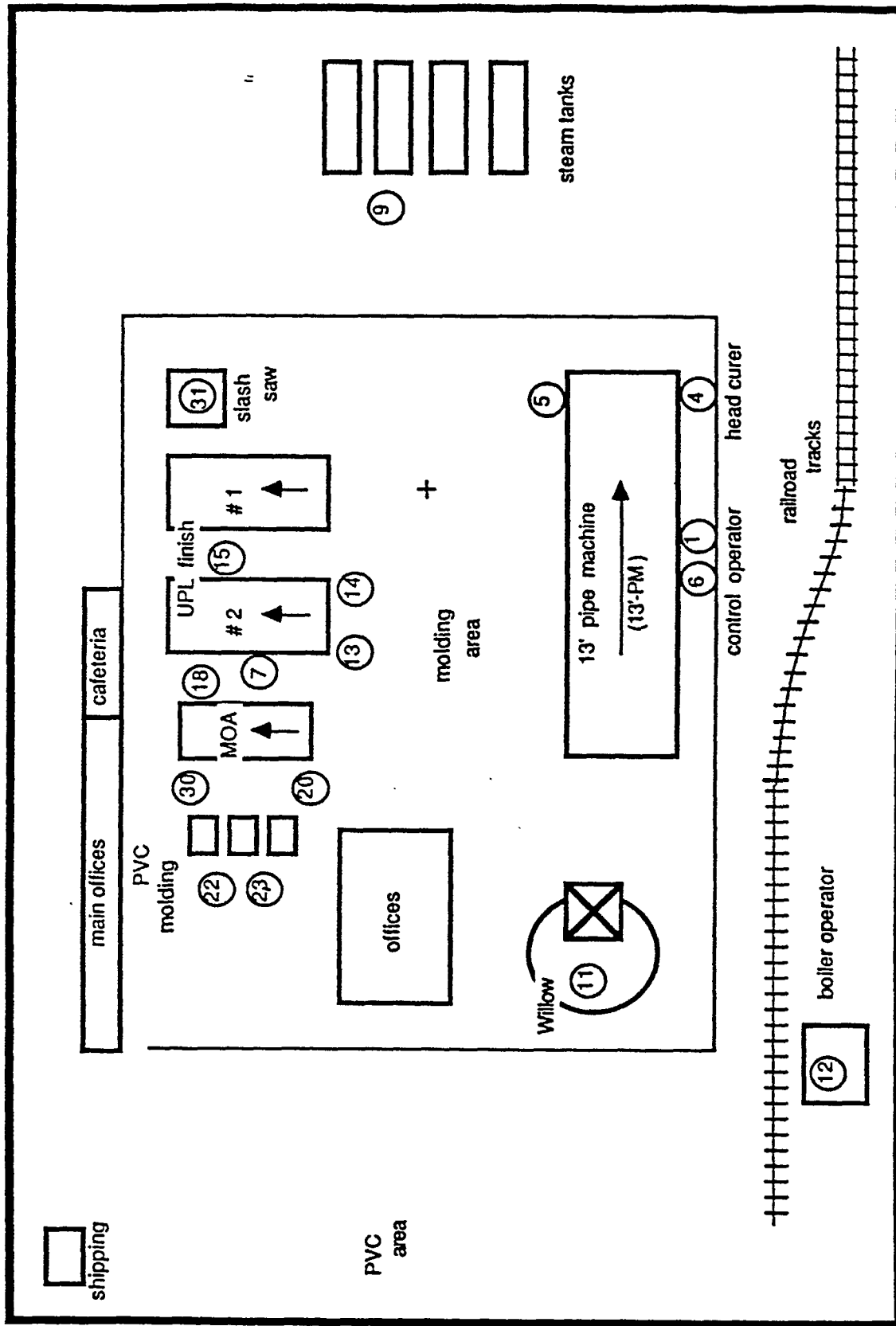


Figure 1. Sketch showing employee workstations monitored for asbestos. J-M Manufacturing, Inc., Denison, TX. March 31, 1986. Galson Project # S6-350-00. (#) corresponds to the codes as shown in Table 1.)

OBSERVATIONS AND RECOMMENDATIONS

This survey was not intended to be a comprehensive industrial hygiene evaluation of the plant, but some of the observations made during the survey are summarized below with the corresponding recommendations:

1. Although exposure to the slash saw operator was below the current OSHA standard of 1.3 fiber/cc, his measurement warrants the use of a NIOSH approved respirator for protection against asbestos dust. At the minimum, a half-face respirator equipped with high efficient particulate aerosol (HEPA) filter cartridges is preferred.

2. During the survey, several workers were observed using NIOSH approved respirators equipped with dust pads for protection against asbestos dust. NIOSH has recommended that such dust pads not be used for this purpose, despite its continual "approval" as required by law. The dust pads should be replaced by HEPA cartridges.

3. The transparent shield at the local exhaust for one of the Universal Pipe Lathe (UPL) work stations was frequently missing, thus reducing the efficiency of the exhaust. The shield should be kept in place as much as feasible.

Appendix I
Sampling and analytical method

D 001807

ASBESTOS (Summary of NIOSH P&CAM 239)

The sampling and analytical methods incorporated in this study were those recommended in NIOSH Method P&CAM 239 for the quantification of airborne asbestos fiber concentrations. The preferred index of asbestos exposure is the number of fibers longer than 5 microns with a length to width aspect ratio greater than three to one, as counted on membrane filters at 400-450X magnification by phase contrast microscopy. This method of analysis requires the use of specific procedures for the collection of the sample.

The principle of the sampling method is as follows. A known volume of air is drawn through a 0.8 micron pore size cellulose ester filter utilizing a personal sample pump. The pumps are calibrated prior to sampling using a calibrated, precision rotameter. Any particulate materials present in the sampled air impact on the filter. A portion of the filter is analyzed visually using phase contrast microscopy.

When analyzing the filter, only objects with a length at least three times the width and a total length of at least 5 microns are counted. The total number of fibers on the filter (with the above characteristics) is computed by determining the average number of fibers per unit area on a small portion of the filter and then multiplying this number by the total filter area. The fiber concentration in air is then calculated by dividing the total number of fibers collected by the volume of air sampled.

Asbestos samples analyzed using the NIOSH method must contain a minimum of 10 fibers/100 fields to provide a statistically significant concentration measurement. A field is the area covered by the microscopy scale during the counting process. For samples with fewer than 10 fibers per 100 fields, a maximum concentration is calculated using a nominal value of 10 fibers/100 fields and the volume of air sampled. Maximum concentrations are indicated by a less than (<) sign.

Thus, for comparison purposes, samples with fiber counts less than 10 fibers/100 fields are statistically identical. For example, a fiber count

of 5 fibers/100 fields is statistically identical to a count of 1 fiber per 100 fields, rather than being 5 times greater.

In general, the precision of the counting method decreases with decreasing fiber concentrations. The coefficient of variation for this method is determined using Figure 1 in conjunction with the total fiber count reported on the laboratory data sheet. To determine the 95% confidence interval for the sample result, the reported value is multiplied by two times the coefficient of variation.

Finally, note that this analytical method does not positively identify the fibers as asbestos.

Appendix II
Field Data Sheets

D 001810

SAMPLED BY: C.S.D
DATE: 3-31-86AGENT: ASBESTOS
Method: PCMA 239Flow rate: 1.7 LPM
Media: 37mm 0.8µm MCFFacility: Denison, TX

Employee's Name	Dept.	Operations	Sample ID	Pump ID	ON OFF	min VOL (L)	level	est. TWA	Codes
Employee ID#	Title						Fibers/cc	Fibers/cc	(see below)

①	TIMMY LANG		13' UTILITY OPER	5756	321	814	254	0.09	0.09	11A
	35					1228	432			

②	ED HEIKKINENS		13' PM Tender	5157	208	820	246	0.16	0.16	11A
	# 27					1226	418			

③	TOMMY MARTIN		GEN. WORKER	5778	552	821	279	0.10	0.10	11A
	549					1220	474			

④	RAY TERCILL		13' PM HEAD OPER	5758	471	824	243	0.13	0.13	
	511					1227	413			

⑤	OSCAR BELL		13' PM. CUREN	5774	689	825	239	0.15	0.15	11B
	191					1224	406			

Codes: 1 = 1/2 faced respirator used

L = LUNCH AT LUNCH PM

2 = other PPE adequate if needed

Comments:

D 001811

SAMPLED BY: C-SIU
DATE: 3-31-86

AGENT: ASBESTOS
Method: PCM 239

Flow rate: 1.7 lpm
Media: 37mm 0-8µm MCEP

Facility: DENISON, TX

	Employee's Name Employee ID#	Dept. Title	Operations	Sample ID	Pump ID	ON OFF	min VOL(I)	level Fibers/cc	est. TWA Fibers/cc	Codes (see below)
6	CHARLIE MORRIS #43		12 CONTROL OPER	5771	644	817 1227	250 425	0.16	" 0.16	1130 AM
7	LEWIS IVES 499		13: PM ASST SERVICE OPER	5766	677	828 1258	270 459	0.21	0.21	11: AM
8	PHILIP FRENCH #321		13: PM SERVICE OPER	5773	649	830 1228	218 371	0.11	0.11	11 AM
9	CHARLES WILSON 265		13: PM STEAM TANK OPER.	5759	373	832 1255	263 447	40.02	40.02	11 AM
10	ARLIS CHAMBERS 93		SALVAGE TANK DRIVER	5763	417	835 1254	259 440	0.02	0.02	

Codes: 1 = 1/2 faced respirator used

2 = other PPE adequate if needed

Comments:

D 001812

SAMPLED BY: C.S.U.
DATE: 3/31/86

AGENT: ASBESTOS
Method: PCAPS 239

Flow rate: 1.7 lpm
Media: 37mm 0.2µm MCEP

Facility: DENISON, TX

Employee's Name Employee ID#	Dept. Title	Operations	Sample		Pump		ON	min	level	Fibers/cc	est. TWA Fibers/cc	Codes (see below)
			ID	ID	ID	ID						
(1) DALE KENT 601		WILLOW OPERATOR	5820	462	839	260	1259	442	0.19	0.19	"	110m (3) dust pad
(2) PETE TURNBULL 560		BOILER OPERATOR	5775	328	842	260	1202	442	0.02	0.02	0.02	
(3) BILL ROGERS		UPL. OPERATOR	5764	345	850	255	1805	434	0.09	0.09	0.09	
(4) DALE KENT GLEN WEGER		UPL. HELPER	5768	561	852	253	1105	430	0.03	0.03	0.03	(A) (C)
(5) JAMES WALSH		UPL. INSPECTOR	5765	322	853	252	1105	428	0.09	0.09	0.09	(B)

D 001813

Codes: 1 = 1/2 faced respirator used
2 = other PPE adequate if needed

(A) PLASTIC VIBRO-SHIELD MISSING FROM LOCAL EXHAUST, MAT'L GET THRU
ON TANK OPENING (B) TURNED OFF DURING WORK

Comments: (C) He took sample of and left it at work prior to leaving lunch -
(3) container + (3) canister was purchased w/ pump

SAMPLED BY: C. SUD
DATE: 3-31-86

AGENT: Asbestos
Method: PCM 239

Flow rate: 1.7 LPM
Media: 31mm 0.2µ NCEP

Facility: Denison, TX

Employee's Name Employee ID#	Dept. Title	Operations	Sample		Pump		ON		min		level	est. TWA	Codes (see below)
			ID		ID		OFF		VOL(l)				
(16) ROGER CARN		JANITOR	5761		551		848		306			"	
							154		520		0.05	0.05	
(17) DOCK DILL		UPK HYDROTESTER OPER	5824		204		854		252				
							1:06		428		0.04	0.04	
(18) RAYMOND HESSE		13 UNIT LOADER	5809		150		856		248			-	
							1:04		422		0.06	0.06	
(19) JACK BARTLEY		18000 TRK DRIVER	5776		154		858		249				
THURMAN STANLEY		MOA OPERATOR					1:07		423		0.03	0.03	
(20) THURMAN STANLEY		MOA OPERATOR	5777		157		900		246				
							1:06		418		0.04	0.04	

Codes: 1 = 1/2 faced respirator used

2 = other PPE adequate if needed

Comments:

D 001814

SAMPLED BY: C.SID
DATE: 3-31-86

AGENT: ASBESTOS
Method: PCM 239

Flow rate: 1.7 LPM
Media: 37mm 0.2µm MCF

Facility: Denison, TX

Employee's Name	Dept.	Operations	Sample ID	Pump ID	ON	min	level	est. TWA	Codes
Employee ID#	Title				OFF	VOL(l)	Fibers/cc	Fibers/cc	(see below)

201/Bar Greene		Top/Room Oper	5762	153	902	246		"	
					1:08	418	0.05	0.05	

Blank Sample			5810	NA					

Codes: 1 - 1/2 faced respirator used
2 - other PPE adequate if needed

Comments:

D 001815

SAMPLED BY: C.SIU
DATE: 3-31-86

AGENT: ASBESTOS
Method: PCM 237

Flow rate: 1.7 lpm
Media: 37mm O-gum MCF

Facility: Denison, TX

Employee's Name	Dept.	Sample ID	Pump ID	ON	min	level	est. TWA	Codes	
Employee ID#	Title	Operations						Fibers/CC	(see below)

22	DON DUTTON			MECH. DR. (A)	5797	649	1232	168	0.04	"	970 330p
							320	248	0.04	0.04	

23	ELLIOTT BREWEN			MONITOR (A) CREW LEADER	5792	321	1233	167	0.03	0.03	970 330p
							320	284	0.03	0.03	

24	Fred Wright			SHIPPING (cont'd) Utility TAK Driver S803	471	1245	216	0.02	0.02	0.02	970 4pm
						421	367				

25	Bill Williams			ELECT.	5793	644	1248	135	40.03	40.03	970 3pm
							253	213	40.03	40.03	

26	Mural ABERNATHY			MECHANIC	S802	202	1253	120	0.04	0.04	970 3pm
							253	204	0.04	0.04	

Codes: 1 = 1/2 faced respirator used
2 = other PPE adequate if needed

D 001816

Comments:

(# 22-26) - work 8 hr/day, 5 days/week.

(A) Running PVC work, normally no work
Used as background counts. (Durs
line is not in sheet as recorded.)

SAMPLED BY: C. SUD
DATE: 3-31-86

AGENT: Asbestos
Method: PCM 239

Flow rate: 1.7 lpm
Media: 3mm OSHA MCEF

Facility: DENISON, TX

Employee's Name	ID#	Dept.	Title	Operations	Sample ID	Pump ID	ON	min	level	est. TWA	Codes (see below)
							OFF	VOL(l)	Fibers/cc	Fibers/cc	

27	JERRY BRUCE			PLAT FORM TRK DR.	5782	322	1:11	248		"	
							519	422	0.08	0.08	

28	JACK HANWARD			SMALL PERK TRUCK DR.	5788	162	1:12	244			
							516	415	0.03	0.03	

29	JAMES BUSH			SAMPLE PLAN INSP. (5788 COMPENSATION 100-1000 PELLETS)	5815	552	1:14	240			
							514	408	0.08	0.08	

30	HENRY COLDIRON			IN PROCESS INSP.	5788	561	1:16	240		0.03	
							516	408	0.08	0.08	

31	LAWRENCE ARNOLD			SLASH SAW OPEN SAWING AT PIPES WEB - NO LEV.	5805	345	1:17	240		1.08	
							517	408	1.08	1.08	

Codes: 1 = 1/2 faced respirator used

2 = other PPE adequate if needed

Comments: SO. WELDING AT PIPE - as exit of MCA

JM Manufacturing, Inc. Galson Project # S6-350- 00

SAMPLED BY: C. S. IJ DATE: 3-31-86 AGENT: ASBESTOS Flow rate: 1.7 LPM Facility: Denison, TX
 Method: PCM 1239 Media: 31max 0.2µm MCEF

Employee's Name Employee ID#	Dept. Title	Operations	Sample ID	Pump ID	ON OFF	min VOL(l)	level Fibers/cc	est. TWA Fibers/cc	Codes (see below)
EARL KIMBLE		REPAIRING TESTER							
Blank			5754						
Blank			5760						

Codes: 1 - 1/2 faced respirator used
 2 - other PPE adequate if needed

Comments:

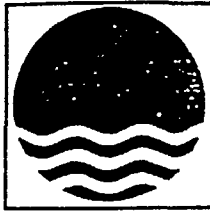
D 001818

Appendix III
Laboratory Data Sheets

D 001819

Galson

Technical Services, Inc.

77 8th Street
Oakland, CA 94607
(415) 763-1677Environmental Sciences
DivisionClient: JM-Denison
Date Sampled: NS
37mm cassette
Porton Field = 0.0121mm²Job #: S6-350-00
Date Analyzed: 4/8/86

Client's I.D.	Galson I.D.	Number of Fields	Number of Fibers	Volume (L)	Fibers per cc	Comments
5754	94896	100	NI	0	NA	blank
5756	94897	100	56.0	432	0.09	
5757	94898	100	96.5	418	0.16	
5758	94899	100	77.0	413	0.13	
5759	94900	100	9.5	447	< 0.02	
5760	94901	100	1.0	0	NA	blank
5761	94902	100	36.0	520	0.05	
5762	94903	100	29.0	418	0.05	Overloaded filter
5763	94904	100	14.5	440	0.02	
5764	94905	100	56.0	434	0.09	
5765	94906	100	53.0	428	0.09	

Submitted by: *Daryl K. Jahn*Approved by: *CS 4/11/86*

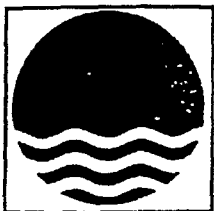
ANALYSIS METHOD: NIOSH P&CAM #239

D 001820

LABORATORY DATA ANALYSIS

Galson

Technical Services, Inc.

77 8th Street
Oakland, CA 94607
(415) 763-1677Environmental Sciences
DivisionClient: JM-Denison
Date Sampled: NS
37mm cassette
Porton Field = 0.0121mm^2 Job #: S6-350-00
Date Analyzed: 4/8/86

Client's Galson I.D. I.D.	Number of Fields	Number of Fibers	Volume (L)	Fibers per cc	Comments
5766	94907	75	100.0	459	0.21
5768	94908	100	18.5	430	0.03
5771	94909	100	99.0	425	0.16
5773	94910	100	59.0	371	0.11
5774	94911	100	88.0	406	0.15
5775	94912	100	1.0	442	< 0.02
5776	94913	100	19.0	423	0.03
5777	94914	100	23.0	418	0.04
5778	94915	100	66.0	474	0.10
5782	94916	100	45.5	422	0.08
5788	94917	100	17.5	415	0.03
5792	94918	100	13.0	284	0.03
5793	94919	100	9.0	213	< 0.03
5797	94920	100	16.5	286	0.04
5798	94921	100	18.5	408	0.03
5802	94922	100	10.5	204	0.04
5803	94923	100	11.5	367	0.02
5805	94924	20	125.5	408	1.08
5809	94925	100	37.0	422	0.06
5810	94926	100	NI	0	NA
5820	94928	84	100.0	442	0.19 blank sample found uncapped
5815	94927	100	48.5	408	0.08
5824	94929	100	22.0	428	0.04

Submitted by: *Daryl K. Jahn*Approved by: *ct 4/4/86*

ANALYSIS METHOD: NIOSH P&CAM #239

D 001821