

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

J-M Manufacturing Company, Inc.
Denison, Texas



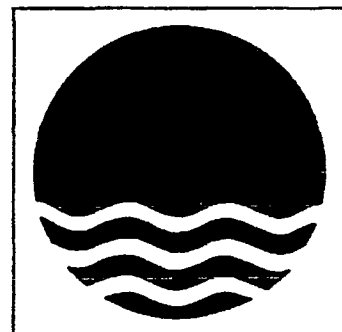
Galson Project # S6-350-00

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

SC-JMM-3140

Summary report:
Semi-annual asbestos survey at

Asbestos-Cement Pipe Division

J-M Manufacturing Company, Inc.
Denison, Texas

Galson Project # S6-350-00

Submitted by : Chuck C. Siu
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.

D 001797

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

TABLE OF CONTENTS

	<u>page</u>
Abstract	i
Project Personnel	ii
Introduction	1
Sampling and analytical method	1
Permissible Exposure Standards	2
Results	2
Observations and Recommendations	6
Appendix I - Sampling and analytical method	
Appendix II - Field Data Sheets	
Appendix III - Laboratory Data Sheets	

D 001799

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			
permissible exposure	2.0	1.3	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

GALSON TECHNICAL SERVICES, INC.

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.

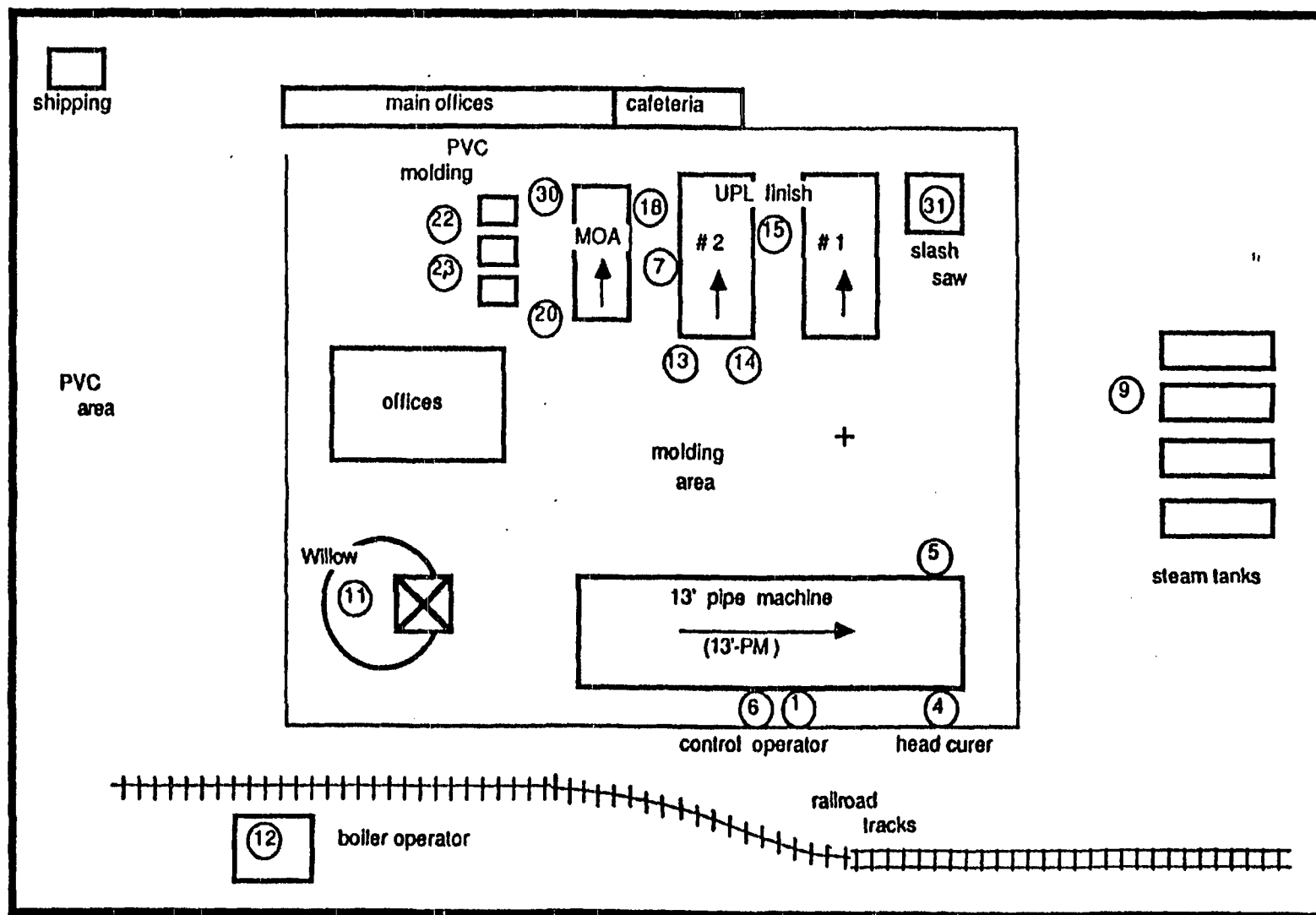


Figure 1. Sketch showing employee workstations monitored for asbestos. J-M Manufacturing, Inc., Denison, TX. March 31, 1986. Galson Project # S6-350-00. (#) corresponds to the codes as shown in Table 1.)

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)

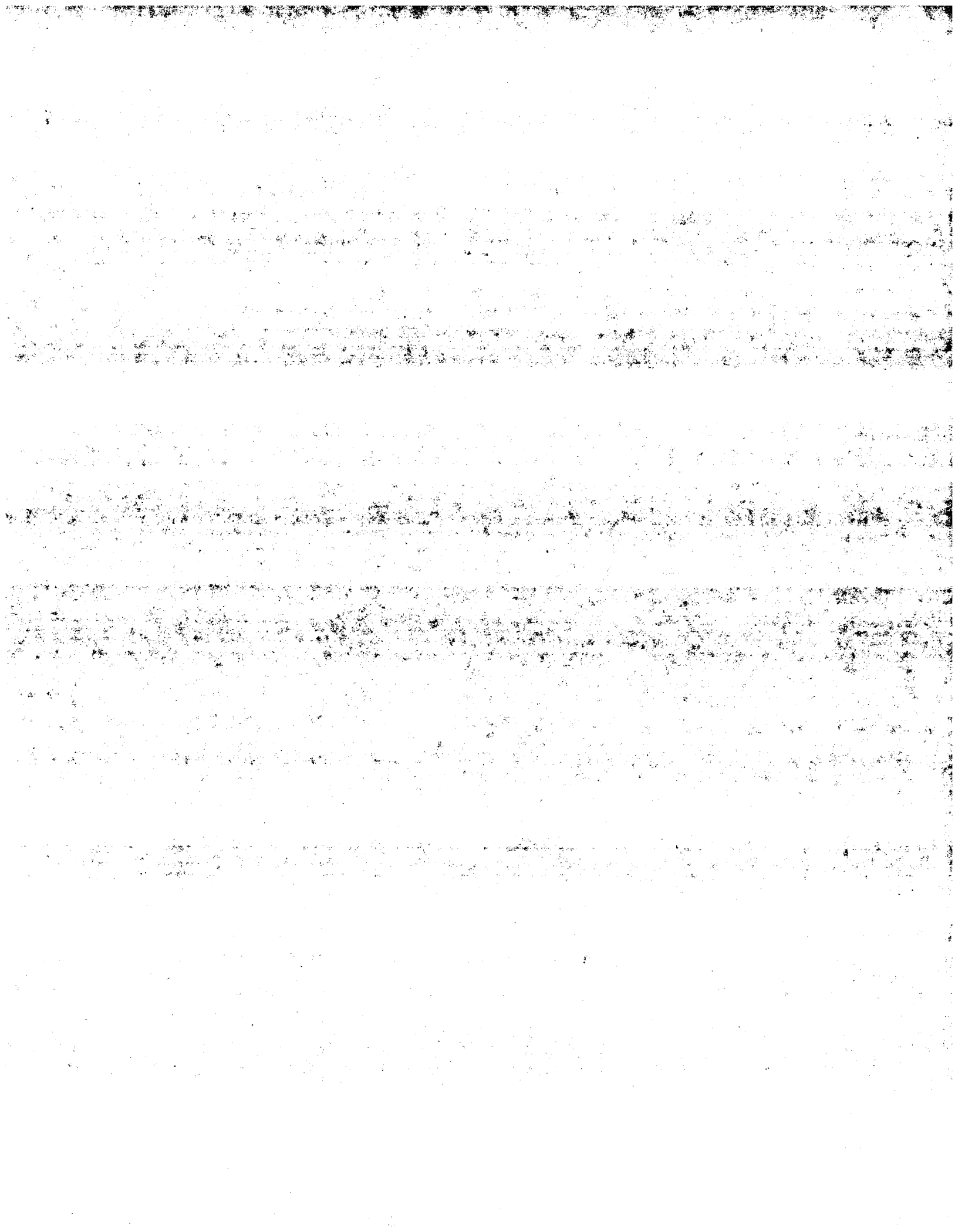
The sampling and analytical methods incorporated in this study were those recommended in NIOSH Method P&CAM 239 for the quantification of airborne asbestos fiber concentrations. The preferred index of asbestos exposure is the number of fibers longer than 5 microns with a length to width aspect ratio 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

JM Manufacturing, Inc. Galson Project # 56-350-00

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

AGENT: ASBESTOS
Method: PCAN 239

Flow rate: 1.7 lpm
Media: 37mm 0.8µ MCF

Facility: Denison, TX

	Employee's Name	Dept.	Operations	Sample ID	Pump ID	ON OFF	min VOL(l)	level Fibers/cc	est. TWA Fibers/cc	Codes (see below)
	Employee ID#	Title		ID	ID					
①	JIMMY LANG		13' UTILITY OPER	5756	321	814 1228	254 432	0.09	0.09	11A
	35									
②	ED HEIRONIMUS		13' P/M Tender	5757	208	820 1226	246 418	0.16	0.16	11A
	# 27									
③	TOMMY MARTIN		GEN. WORKER	5778	552	821 1:00	279 474	0.10	0.10	#
	549									
④	RAY TERRELL		13' P/M HEAD CURER	5758	471	824 1227	243 413	0.13	0.13	
	511									
⑤	CECIL BELL		13' P.M. CURER	5774	689	825 1224	239 406	0.15	0.15	1:15
	191									

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

L = LUNCH AT LUNCH AM

Comments:

D 001811

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

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

AGENT: ASBESTOS
 Method: PCM 239

Flow rate: 1.7 lpm
 Media: 37min 0.8u MCEF

Facility: Denison, TX

	Employee's Name	Dept.	Operations	Sample ID	Pump ID	ON	min	level	est. TWA	Codes
	Employee ID#	Title		ID	ID	OFF	VOL(l)	Fibers/cc	Fibers/cc	(see below)
6	CHARLIE MOORE		12 CONTROL OPER	5771	644	817	250	0.16	0.16	1130 AM
	#43					1217	425			
7	LEWIS IVES		13: PM ASST SERVICE OPER	5766	677	828	270	0.21	0.21	11 AM
	499					1258	459			
8	PHILIP FRENCH		13: PM SERVICE OPER	5773	649	830	218	0.11	0.11	11 AM
	#321					1228	371			
9	CHARLES WILSON		13: PM STEAM TANK OPER.	5759	373	832	263	10.02	10.02	11 AM
	265					1255	447			
10	ARLIS CHAMBERS		SALVAGE TRK. DRIVER	5763	417	835	259	0.02	0.02	
	93					1254	440			

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

Comments:

D 001812

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

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

AGENT: ASBESTOS
Method: PCPM 239

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

Facility: Denison, TX

Employee's Name	Dept.	Sample	Pump	ON	min	level	est. TWA	Codes
Employee ID#	Title	ID	ID	OFF	VOL(l)	Fibers/cc	Fibers/cc	(see below)
① DALE KENT		5820	462	839	260		"	110m
601	WILLOW OPERATOR			1259	442	0.19	0.19	③① dust pad
② PETE TURNBULL		5775	328	842	260			
560	BOILER OPERATOR			1202	442	40.02	40.02	
③ BILL ROGERS		5764	345	850	255			
	8" CT 150 UPL. OPERATOR			1805	434	0.09	0.09	
④ DALE KENT GLEN NEGER		5768	561	852	253			①②
	UPL. HELPER			1105	430	0.03	0.03	
⑤ JAMES WALSH		5765	322	853	252			②
	UPL. INSPECTOR			1105	428	0.09	0.09	

D 001813

Codes: 1 = 1/2 faced respirator used 2 = other PPE adequate if needed	①. PLASTIC VIBR-SHIELD MISSING FROM LOCAL EXHAUST, MAT'L CTN THRU OUT THRU OPENING ②. TURNED OFF DURING LUNCH
Comments: ③. Coater covered + fixed	④. He took sample of and left it at work padlock during lunch - cassette was plugged w/pump on

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

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

AGENT: Asbestos
Method: PCMM 239

Flow rate: 1.7 Lpm
Media: 37mm 0.8µ MCF

Facility: Denison, TX

Employee's Name	Dept.	Sample	Pump	ON	min	level	est. TWA	Codes
Employee ID#	Title	ID	ID	OFF	VOL(l)	Fibers/cc	Fibers/cc	(see below)
(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 LEADER	5809	150	856	248		
					1:04	422	0.06	0.06
(19) JACK BARTLEY		18000 ⁺ TRK. DRIVER	5776	154	858	249		
THURMAN STANLEY		MCA OPERATOR			1:07	423	0.03	0.03
(20) THURMAN STANLEY		MCA 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

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

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

AGENT: ASBESTOS
Method: PCAM 239

Flow rate: 1.7 LPM
Media: 37mm Q-Bus MCEP

Facility: Denison, TX

Employee's Name	Dept.		Sample	Pump	ON	min	level	est. TWA	Codes
Employee ID#	Title	Operations	ID	ID	OFF	VOL(l)	Fibers/cc	Fibers/cc	(see below)
②1 MILLER GREENE		Tool Room OPER	5762	153	902	246		"	
					1108	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

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

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

AGENT: ASBESTOS
Method: PCMH 239

Flow rate: 1.7 lpm
Media: 37mm 0.8µm MCEF

Facility: Denison, TX

	Employee's Name	Dept.	Operations	Sample ID	Pump ID	ON	min	level	est. TWA	Codes
	Employee ID#	Title		ID	ID	OFF	VOL(l)	Fibers/cc	Fibers/cc	(see below)
22	DON DUTTON		MOULDER (A)	5797	649	1232	168 248	0.04	0.04	77 330µ
						320	286 422			
23	ELLIOTT BROWN		MOULDER (A) (B) (CREW) LEADER	5792	321	1233	167	0.03	0.03	77 330µ
						320	284			
24	Fred Wright		SHIPPAIN 6 (outside) Utility TRK Driver	5803	471	1245	216	0.02	0.02	77 4µm
						421	367			
25	Bill Williams		ELECT.	5793	644	1248	135 215	0.03	0.03	77 330µ
						253	213			
26	MARSH ABERNATHY		MECHANIC	5802	202	1253	120	0.04	0.04	77 330µ
						253	204			

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 use work
used as background counts. (Does
not include material in mold etc.)

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

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

AGENT: Asbestos
Method: PCAN 239

Flow rate: 1.7 lpm
Media: 31mm 0.8u MCEF

Facility: Denison, TX

	Employee's Name	Dept.	Operations	Sample ID	Pump ID	ON	min	level	est. TWA	Codes
	Employee ID#	Title		ID	ID	OFF	VOL(l)	Fibers/cc	Fibers/cc	(see below)
27	JERRY BRUCE		PLAT FORM TRK DR.	5782	322	1:11	248		"	
						519	422	0.08	0.08	
28	JACK HANSARD		SMALL FERR TRUCK DR.	5788	462	1:12	244			
						516	415	0.03	0.03	
29	JAMES BUSH		SAMPLE PLAN INSP. (STACK COUPLERS ONTO LOADERS PELLERS)	5815	552	1:14	240			
						514	408	0.08	0.08	
30	HENRY COLDIRON		IN PROCESS INSP.	5788	561	1:16	240	0.03	0.03	
						516	408	0.08	0.08	
31	LAWRENCE ARNOLD		SLASH SAW OPEN SAWING AT PIPES WBT - NO LEV.	5805	345	1:17	240			
						517	408	1.08	1.08	

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

Comments: 30 - Unloading AC pipes at exit of MCA

D 001817

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

SAMPLED BY: C. SIU

DATE: 3-31-86

AGENT: ASBESTOS

Method: PCOM 239

Flow rate: 1.7 lpm

Media: 31mm 0.8u MLEF

Facility: Denison, TX

Employee's Name	Dept.	Sample	Pump	ON	min	level	est. TWA	Codes
Employee ID#	Title	ID	ID	OFF	VOL(l)	Fibers/cc	Fibers/cc	(see below)
<u>EARLST KIMBISH</u>	<u>COUPLING TESTER OPER.</u>							
<u>Blank</u>		<u>5754</u>						
<u>Blank</u>		<u>5760</u>						

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

Comments:

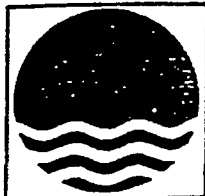
D 001818

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 4/14/86*

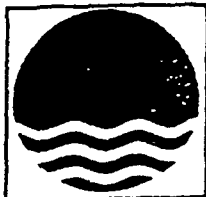
ANALYSIS METHOD: NIOSH P&CAM #239

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 = 0.0121mm²Job #: 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 blank
5820	94928	84	100.0	442	0.19 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

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