

PLAINTIFF'S EXHIBIT

CT-832

INDUSTRIAL HYGIENE SURVEY (IHS 90-18)

RIVESIDE A/C PIPE PLANT

September 6 - 8, 1990

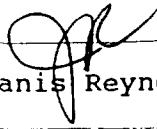
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OCT 9 1990

CTD007582

Interoffice Memo

CertainTeed 

To	J. Burke	Mail Code	#260	From	 Janis Reynolds	Mail Code	1125/4	Ext	7713
Subject	Industrial Hygiene Survey - Riverside						Date	10/8/90	

cc: L. Todd - Riverside #260
J. McGinley - 2125/2B

Attached is the report for the Industrial Hygiene Survey conducted at your plant the week of September 6 - 8, 1990. The report contains three recommendations that require your attention. Please provide a written response to Corporate Health and Safety within sixty (60) days of receipt of this report as to the corrective actions taken.

If you have any questions or comments, please contact me.

Attachments

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**Industrial Hygiene Survey (IHS 90-19)
Riverside A/C Pipe Plant
September 6 - 8, 1990**

An Industrial Hygiene Survey was conducted at the Riverside A/C Pipe Plant by Janis Woodson Reynolds of Corporate Health and Safety on September 6 - 8, 1990.

This survey was conducted to supplement the in-plant Asbestos exposure surveillance program. Samples were also taken to assess compliance with the OSHA excursion limit of 1.0 f/cc averaged over a sampling period of thirty minutes.

This report is an employee exposure record as defined in Corporate Procedure GE003.02 and OSHA Standard 29CFR1910.20 and must be retained for thirty years. Upon request, this record must be made available to those Federal officials, employee designees or employees as provided for in Corporate Procedure AD011, Paragraphs 7 and 8.

Appendix I of this report documents the air sampling methodologies, the analysis techniques and the current standards used in evaluating the data. The field and in-house laboratory notes on this survey are on file in Corporate Health and Safety.

SUMMARY

The sample results ranged from 0.001 to 2.3 f/cc. Of the twenty-six 8-hour time weighted averages (TWA) calculated for this survey, three were found to exceed the OSHA permissible exposure limit of 0.2 f/cc. The employees involved were the Crusher Operator and two maintenance mechanics checking dust collectors on the maintenance down day. All three employees wore respiratory protection while performing their jobs.

One maintenance employee also had a sample that exceeded the excursion limit of 1 f/cc.

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RECOMMENDATIONS:

- IHS 90 - 18 1. Continue to evaluate engineering controls and work practices to reduce exposures at the crusher operation. Document all changes and forward that documentation to Corporate Health and Safety.
- IHS 90 - 18 2. Future in-house sampling should be targeted around the operations which have samples exceeding 0.1 f/cc, see Table IV.
- IHS 90 - 18 3. Inform employees of the results of this survey.

DISCUSSION

During this survey, airborne asbestos sampling was conducted to complete our two year sampling schedule for all plant employees. I also conducted sampling for 30 minute excursion limit exposures for certain job positions during normal operations, in addition to down day maintenance.

As in the past, at the beginning of each sampling day each employee to be monitored for an excursion level, was consulted to determine when they felt their highest exposure would occur during the shift. Care was taken to note the activities performed during the sampling period as well as the type of personal protective equipment used.

The samples from this survey ranged from 0.001 to 2.3 f/cc, the TWA's ranged from 0.005 to 0.40 f/cc. Of the TWA's calculated for this survey, three exceeded the 0.2 f/cc OSHA PEL, the Crusher Operator and two Maintenance employees. One Maintenance employee's sample also exceeded the 1 f/cc excursion limit.

The results of all samples are presented in Table I. Table II lists sample results for each position in which EL samples were taken. The results highlighted in the TWA column, exceed the PEL of 0.2 f/cc; and in the EL column exceed the excursion limit (EL) of 1 f/cc.

Table III list the sample results for the last 4 years for the Coupling Cut Off Operator, Crusher Operator and Rework Saw Operator. The list, in the past, included the Wet Tester, 1/4 Lathe Operator, Fittings Inspector and the Fittings Maker, however due to their past samples being consistently below 0.1 f/cc I have removed them from the list.

OSHA is proposing to reduce the permissible exposure limit to 0.1 f/cc. I have attached Table IV which summarizes, by exposure level, all samples taken from January 1, 1988 to the present. Fifteen percent (nineteen) of the samples are above the proposed 0.1 f/cc limit. Job positions which have samples exceeding 0.1 f/cc are:

- Press Operator [11/89]
- Mandrel Handler [9/90]
- Machine Tender [9/90]
- Rework Saw Operator [3/89]
- Coupling Cut Off Operator [10/88]
- Crusher Operator [9/90] (also exceeds 0.2 f/cc)
- Maintenance employees (only during special tasks)

The employees in the Manufacturing Department are somewhat of a surprise to be included on the list. When the Press Operator had an increased exposure in November of last year, a follow-up sample was taken and resulted in 0.05 f/cc. During this survey the Mandrel Handler and Machine Tender had exposures of 0.1 f/cc. Prior exposures taken earlier in the year by the plant were lower than 0.05 f/cc for these positions. During this past survey nothing unusual occurred, however, they were manufacturing large diameter pipe which may have been the reason for the increased exposure.

As for the Rework Saw and Coupling Cut Off Operators, the plant has been conscientiously working to lower their exposure levels on an ongoing basis. The Maintenance employees and Crusher Operator are discussed below.

Maintenance Employees

Samples were taken on seven maintenance employees on September 8th, while performing routine "down day" maintenance. Two maintenance employees, Whitaker and Perry, had TWA exposures exceeding the 0.2 f/cc PEL (0.4 and 0.3 f/cc). Whitaker also had one of his excursion samples exceed the 1 f/cc excursion limit (2.3 f/cc).

Four employees were involved in checking the dust collectors and they each wore Tyvek coveralls with either a full-faced high efficiency particulate air (HEPA) filter respirator or a Racal Breath Easy hood with a HEPA filter.

Some of the additional jobs that were performed by these men during the down day maintenance were:

- repaired on the 42" mill
- repaired on the savall red valve
- repaired on Mixer #3
- worked on Transfer boxes
- repaired the crane in manufacturing
- repaired on the primary crusher
- repaired the stripper
- worked on the pipe machine at the press
- worked at the water tank
- worked at the autoclaves
- packed valves in the boiler room

Crusher Operator

The Crusher operator's 8-hour TWA exposure resulted in 0.20 f/cc. This job position continues to have exposure levels above the action level, and borderline of the PEL.

The plant has made several improvements to the crusher operation over the past 6 months. The major improvements are primarily, enclosing the system by placing walls around the structure, and adding a ventilation duct above the primary crusher. The improvements are in the trial stages and changes are being made on a continual basis to attain the best possible solution.

I recommend the plant continue to strive for lower levels. Until acceptable levels are achieved for the Crusher operator, I recommend the use of respiratory protection continue.

In-house Surveillance

In-house sampling is being conducted on a regular basis. All present plant employees, except W. Askew - on vacation and G. Evans and J. Brady on medical leave, have been sampled during the past year, by the efforts of the plant and through the routine industrial hygiene surveys. I have included Table V, which lists the present employees by date of their last official* exposure monitoring.

Future in-house sampling should be targeted around the operations which have samples exceeding 0.1 f/cc (See Table IV). These will also be target areas of the next industrial hygiene survey scheduled for March 1991.

* Official exposure monitoring samples are those taken by the Plant and Corporate Health and Safety which are sent to Natlsco, our certified lab, for analysis per the NIOSH 7400 method. All other samples, such as those taken to measure the effect of engineering changes, are analyzed on-site, at the plant, using the outdated NIOSH P&CAM 239 method. This method is utilized by the plant so that results can be obtained without delay and repairs can be made immediately.

September 6 - 8, 1990

TABLE I - Asbestos Monitoring Results

Seq	Job Location	Job Position	Employee Name	Soc Sec Nbr	Date	Shift	TWA	Units	Exposure Limit
Department: BATCH/FORMING									
0023	MIXER	OPERATOR	REYES, P.	560-04-6091	09/06/1990	1ST	0.0450	F/CC	OSHA PEL = 0.2 F/CC
(Asbestos)									
	Start Stop	Min	Conc	Comments					
1.	07:28 07:45	17	0.0260	OSHA EL = 1.0 F/CC BAG JAM IN OPENER, OPENED DOORS, CUT BAG, USED VACUUM					
2.	07:45 11:22	217	0.0660	STAGED AND CLEANED UP, MADE 1 DUMP.					
3.	11:22 11:52	30	0.0074	< OSHA EL = 1.0 F/CC UNLOADED 1 TRUCK (19 PALLETS) OF ASBESTOS FIBER 25 MIN.					
4.	11:52 14:45	173	0.0280						
Department: PRODUCTION									
0013	BORING MILL	OPERATOR	DOBBS, P.	557-68-1875	09/07/1990	1ST	0.0330	F/CC	OSHA PEL = 0.2 F/CC
(Asbestos)									
	Start Stop	Min	Conc	Comments					
1.	07:07 12:00	293	0.0240	> WORKED ON BORING MILL					
2.	12:00 14:27	147	0.0530	WORKED ON 42" MILL					
0016	COUPLING CUT OFF	OPERATOR	COOLEY, D.	344-30-3938	09/07/1990	1ST	0.0390	F/CC	OSHA PEL = 0.2 F/CC
(Asbestos)									
	Start Stop	Min	Conc	Comments					
1.	07:06 07:42	36	0.0064	< OSHA EL = 1.0 F/CC 24 MIN CLEANUP 12 MIN SET UP					
2.	07:42 09:00	78	0.0270	SET UP MACHINE					
3.	09:00 11:58	178	0.0091	45 MIN SET UP TIME 15 MIN BREAK					
4.	11:58 14:18	140	0.0910	IN HOOD 60 MIN					
0015	CRUSHER	OPERATOR	GALVIN, D.	560-48-6590	09/07/1990	1ST	0.0390	F/CC	OSHA PEL = 0.2 F/CC
(Asbestos)									
	Start Stop	Min	Conc	Comments					
1.	07:15 09:04	109	0.0890	WORKED AT CRUSHER					
2.	09:04 14:38	334	0.0230	EMPLOYEE WORKED IN SHIPPING THE REST OF THE DAY.					
0025	CRUSHER	OPERATOR	GALVIN, D.	560-48-6590	09/06/1990	1ST	0.1700	F/CC	OSHA PEL = 0.2 F/CC
(Asbestos)									
	Start Stop	Min	Conc	Comments					
1.	07:16 12:42	326	0.1000	> ALSO WORKED ON SWEEPER 1/2 HOUR					
2.	12:42 15:00	138	0.3200	>					
0012	LATHE - 1/4	OPERATOR	GOODWIN, L.	546-76-6926	09/07/1990	1ST	0.0320	F/CC	OSHA PEL = 0.2 F/CC
(Asbestos)									
	Start Stop	Min	Conc	Comments					

">" Greater than sign means the sample was heavily loaded with particulate possibly obscuring fibers. Actual count could be higher.

CTD007589

September 6 - 8, 1990

TABLE I - Asbestos Monitoring Results

Seq	Job Location	Job Position	Employee Name	Soc Sec Nbr	Date	Shift	TWA	Units	Exposure Limit
1.	07:27 12:02	275	0.0120						
2.	12:02 12:29	27	0.0850	OSHA EL = 1.0 F/CC	NORMAL OPERATION				
3.	12:29 14:25	116	0.0680						
0010	LATHE LINE	HANDLER	Cooper, H.	568-13-3118	09/07/1990	1ST	0.0560 F/CC		OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start Stop	Min	Conc		Comments				
1.	07:21 12:06	285	0.0520 >						
2.	12:06 14:27	141	0.0640						
0011	LATHE LINE	OPERATOR	PASILLAS, D.	562-74-5496	09/07/1990	1ST	0.0500 F/CC		OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start Stop	Min	Conc		Comments				
1.	07:10 12:04	294	0.0490 >						
2.	12:04 14:25	141	0.0520						
0021	LATHE LINE	OPERATOR	AVERY JR, A.	572-82-0787	09/06/1990	1ST	0.0180 F/CC		OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start Stop	Min	Conc		Comments				
1.	07:20 10:57	217	0.0130 >		WORKING ON LINE 1				
2.	12:00 12:33	33	0.0300	OSHA EL = 1.0 F/CC	WORKING ON LINE 3, NORMAL OPERATION				
3.	12:33 15:01	148	0.0230		WORKING ON LINE 3				
0026	MANDREL	HANDLER	CANTRELL, N.	572-64-3309	09/06/1990	1ST	0.1100 F/CC		OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start Stop	Min	Conc		Comments				
1.	07:30 12:05	275	0.0970 >						
2.	12:05 12:35	30	0.1900	OSHA EL = 1.0 F/CC	NORMAL OPERATION				
3.	12:35 14:49	134	0.1100 >						
0019	PIPE MACHINE	RELIEF	RENFRO, E.	553-54-5445	09/06/1990	1ST	0.0490 F/CC		OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start Stop	Min	Conc		Comments				
1.	07:33 12:09	276	0.0540 >						
2.	12:09 12:39	30	0.0200	OSHA EL = 1.0 F/CC	11 MIN AS PRESS OPR. 19 MIN AS MACHINE TENDER.				
3.	12:39 15:07	148	0.0450						
0024	PIPE MACHINE	TENDER	MORALES, D.	549-52-6935	09/06/1990	1ST	0.0960 F/CC		OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start Stop	Min	Conc		Comments				

">" Greater than sign means the sample was heavily loaded with particulate possibly obscuring fibers. Actual count could be higher.

CTD007590

September 6 - 8, 1990

TABLE 1 - Asbestos Monitoring Results

Seq	Job Location	Job Position	Employee Name	Soc Sec Nbr	Date	Shift	TWA	Units	Exposure Limit
1.	07:27 12:07	280	0.1100 >						
2.	12:07 14:47	160	0.0750						
0014	SAW - REWORK	OPERATOR	CLAUSON, J.	554-72-9301	09/07/1990	1ST	0.0860	F/CC	OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start Stop	Min	Conc						
1.	07:22 11:56	274	0.1000 >						
2.	11:56 12:26	30	0.0450	OSHA EL = 1.0 F/CC					
3.	12:26 14:18	112	0.0620						
0022	SAW - REWORK	OPERATOR	CLAUSON, J.	554-72-9301	09/06/1990	1ST	0.0810	F/CC	OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start Stop	Min	Conc						
1.	07:13 12:00	287	0.1000 >						
2.	12:00 12:30	30	0.1500	OSHA EL = 1.0 F/CC					
3.	12:30 15:02	152	0.0290						
0017	TRAY LOADING	OPERATOR	FOOSE, D.	568-08-6676	09/06/1990	2ND	0.0110	F/CC	OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start Stop	Min	Conc						
1.	19:03 23:00	237	0.0033						
2.	23:00 03:00	240	0.0180						
Department: QUALITY CONTROL									
0009	LAB	TECHNICIAN	GRANILLO, B.	557-56-8670	09/07/1990	1ST	0.0270	F/CC	OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start Stop	Min	Conc						
1.	07:17 09:32	135	0.0180						
2.	09:32 09:55	23	0.0430	OSHA EL = 1.0 F/CC					
3.	09:55 14:40	285	0.0300						
Department: MAINTENANCE									
0001	GENERAL	MECHANIC	VANDERTWEEL, R.	092-30-9537	09/08/1990	1ST	0.0050	F/CC	OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start Stop	Min	Conc						
1.	07:04 12:34	330	0.0050						
2.	12:34 15:10	156	0.0052						

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September 6 - 8, 1990

TABLE I - Asbestos Monitoring Results

Seq	Job Location	Job Position	Employee Name	Soc Sec Nbr	Date	Shift	TWA	Units	Exposure Limit
0003	GENERAL	MECHANIC	MCFANN, J.	567-46-5755	09/08/1990	1ST	0.0140	F/CC	OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start	Stop	Min	Conc					
1.	07:00	12:32	332	0.0082					
									Comments
									WORKING AT PIPE MACHINE, PRESS
									SECTION
2.	12:32	15:10	158	0.0270					WORKING AT PIPE MACHINE PRESS SECT-
									ION AND STRIPPER
0005	GENERAL	MECHANIC	CHUTE, G.	327-26-8652	09/08/1990	1ST	0.0130	F/CC	OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start	Stop	Min	Conc					
1.	07:12	12:31	319	0.0029					Comments
									WORKED AT SAVALL 2 HRS, CHGD TRANSFER
									BOXES 3 HRS.
2.	12:31	15:13	162	0.0320					40 MIN. CHGD TRANSFR BOXES, 2 HRS CHECKED
									DUST COLL, IN: 20 MM
0006	GENERAL	MECHANIC	CARON, A.	002-22-0623	09/08/1990	1ST	0.0140	F/CC	OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start	Stop	Min	Conc					
1.	07:02	09:23	141	0.0065					Comments
									WORKED ON CRANE IN MANUFACTURING
2.	09:23	10:31	68	0.0130	OSHA EL = 1.0 F/CC				WORKED ON PRIMARY CRUSHER
3.	10:31	12:40	129	0.0053					WORKED AT PRIMARY CRUSHER, SOME
									WELDING
4.	12:40	15:12	152	0.0300					WORKED AT PRIMARY CRUSHER
0007	GENERAL	MECHANIC	BASTIAANS, H.	557-56-8797	09/08/1990	1ST	0.0470	F/CC	OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start	Stop	Min	Conc					
1.	07:04	12:40	336	0.0022					Comments
									3 HRS. ON RED VALVE, MIX #3 - 20 MIN.
									TRANS. BOX 1.5 HR.
2.	12:40	14:45	125	0.1700 >					.5 HR TRANSFR BOXES CHECKED DUST COLLECT
									IN: APPROX 30 MIN.
3.	14:45	15:13	28	0.0520	OSHA EL = 1.0 F/CC				IN DUST COLLECTOR APPROX 10 MIN.
0008	GENERAL	MECHANIC	WHITAKER, W.	294-40-4086	09/08/1990	1ST	0.4200	F/CC	OSHA PEL = 0.2 F/CC
	(Asbestos)								
	Start	Stop	Min	Conc					
1.	07:06	09:18	132	0.0810 >					Comments
									CHECKING DUST COL- LECTORS
2.	09:18	10:54	96	----- V					Sample VOIDED
3.	10:54	12:35	101	----- V					Sample VOIDED
4.	12:35	13:35	60	0.9400 >					CHECKED DUST COL- LECTORS, IN: 28 MIN.
5.	13:35	14:50	75	0.0950 >					CHECKED DUST COL- LECTORS, IN: 27 MIN.

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CTD007592

September 6 - 8, 1990

TABLE I - Asbestos Monitoring Results

Seq	Job Location	Job Position	Employee Name	Soc Sec Nbr	Date	Shift	TWA	Units	Exposure Limit
6.	14:50 15:10	20	2.3000 >	OSHA EL = 1.0 F/CC	HANDING BAGS TO D. PERRY INSIDE DUST COLLECTOR, IN: 10 MM				
0018	GENERAL	MECHANIC	MICHEL, R.	558-49-4568	09/06/1990	2ND	0.0220 F/CC	OSHA PEL = 0.2 F/CC	
(Asbestos)									
	Start Stop	Min	Conc	Comments					
1.	19:06 23:00	234	0.0010						
2.	23:00 03:00	240	0.0420						
0002	GENERAL	MECHANIC	PERRY, D.	550-52-1674	09/08/1990	1ST	0.2800 F/CC	OSHA PEL = 0.2 F/CC	
(Asbestos)									
	Start Stop	Min	Conc	Comments					
1.	07:07 09:15	128	0.0350	WORKED ON 42" MILL 2 HOURS					
2.	09:15 10:49	94	0.4300 >	CHECKING DUST COL- LECTORS, IN: 35 MIN.					
3.	10:49 12:37	108	0.4400 >	CHECKING DUST COL- LECTORS, INSIDE 39 MIN.					
4.	12:37 13:35	58	0.3900 >	CHECKING DUST COL- LECTORS, INSIDE 30 MIN.					
5.	13:35 14:50	75	0.1300 >	CHECKING DUST COL- LECTORS, INSIDE 27 MIN.					
6.	14:50 15:10	20	0.6100 >	OSHA EL = 1.0 F/CC	CHECKING DUST COL- LECTORS, INSIDE 11 MIN.				
0020	GENERAL	MECHANIC	PERRY, D.	550-52-1674	09/06/1990	1ST	0.0480 F/CC	OSHA PEL = 0.2 F/CC	
(Asbestos)									
	Start Stop	Min	Conc	Comments					
1.	08:20 08:36	16	0.9300	OSHA EL = 1.0 F/CC	13 MIN IN BAG OPENER CLEARING JAM				
2.	08:36 12:35	239	0.0150						
3.	12:35 15:10	155	0.0100						

* * * End Of Report * * * REYNOLJW

">" Greater than sign means the sample was heavily loaded with particulate possibly obscuring fibers. Actual count could be higher.

Riverside A/C Pipe Plant (IHS 90-18)
September 6 - 8, 1990

TABLE II

Sample Result Summary
Excursion Samples

Job Position	Results (f/cc)		Activity During EL Sample
	TWA	EL	
Mixer Operator	0.05	0.03 0.007	Bag jam in Opener Unloaded 1 truck of fiber
1/4 Lathe Oper.	0.03	0.08	Normal Operation
Rework Saw Oper.	0.09	0.04	15 min cutting lg. dia. pipe
			15 min. clean up with oil mop
	0.08	0.10	Small saw - normal operation
Cplg Cut Off Op.	0.04	0.006	24 min clean up, 12 min. set-up
Relief Operator	0.05	0.02	11 min press operator, 19 min machine tender
Mandrel Handler	0.10	0.20	Normal Operation
Lathe Line Oper.	0.02	0.03	Normal Operation
Lab Technician	0.03	0.30	Collected fiber and cement samples and ran test in lab
Maintenance	0.05	0.90	Clearing jam in bag opener
Maintenance	0.30	0.60	Checking dust collectors Inside 11 min.
Maintenance	0.05	0.05	Checking dust collectors, Inside 11 min.
Maintenance	0.40	2.3	Checking dust collectors
Maintenance	0.01	0.01	Repairing primary crusher

OSHA PEL - 0.2 f/cc TWA
OSHA EL - 1.0 f/cc for 30 minutes

CTD007594

TABLE III
 Riverside A/C Pipe Plant
 Asbestos Sample Results (8-hour TWA's - f/cc)
 August, 1986 through September, 1990

	8/86	12/86	3/87	8/87	2/88	4/88	8/88	10/88	3/89	11/89	4/90	9/90
Cplg C/O Oper.	1.6	.27	.05 .05 .22	.10 .07 .04		.05	.04 .01 .07 .07	.10	.07 .04	.09	.04	.04
Crusher Oper.	.16	.31	.10	.10 .09 .07		.01	.01 .07	.28	.15 .09	.13	.20	.04 .20
Saw Operator	.12 .11			.03	.42	.01	.01 .09 .13	.03	.06 .04 .10	.09		.09 .08

<Dt - less than detectable <0.001 f/cc.

> - result may actually be greater, as the filter was heavily loaded with particulate, possibly obscuring fibers.

TABLE IV
Riverside A/C Pipe Plant
Summary of Asbestos Exposure Monitoring
January 1988 - September 1990
(8-hour Time Weighted Average Exposures)

DEPARTMENT	NUMBER OF SAMPLES IN EACH RANGE (f/cc)						Arithmetic Mean (f/cc)	Geometric Mean (f/cc)
	<0.05	0.05 - ≤0.1	0.1 -<0.15	0.15 - <0.2	>0.2*			
Manufacturing	18	6	0.14 Press Op. 0.10 Mand Han. 0.10 Mach Ten.				0.04	0.03
Finishing	41	20	0.13 Rewrk Saw 0.10 Cplg Cut 0.10 Lg Rwk Sw 0.13 Crusher	0.15 Crusher	0.29 Crusher 0.20 Crusher 0.20 Crusher		0.05	0.03
Maintenance	15	2		0.18 Crusher	0.30 Down Day 0.24 Down Day 0.46 Down Day 0.66 Down Day 0.27 Down Day 0.40 Down Day 0.30 Down Day	0.13 [0.03]		0.04
Miscellaneous (QC, Ship. Storeroom)	9	1					0.02	0.02
Totals(n=131)	83 (63%)	29 (22%)	7 (5.5%)	2 (1.5%)	10 (8%)		0.06 [0.04]	0.03

*For the samples exceeding the 0.1 f/cc PEL the actual sample results are listed with a description of the job performed.

[] numbers in brackets are the mean values minus the Down Day maintenance sample results

TABLE V

CURRENT RIVERSIDE EMPLOYEES (9/8/90)
DATE OF LAST OFFICIAL EXPOSURE MONITORING

EVANS, GEORGE	LATHE OPERATOR	870811 MEDICAL LEAVE
BRADY, JEFF	PRESS OPERATOR	870812 MEDICAL LEAVE
ASKEW, W	MIXER OPERATOR	880824
HAMILTON, CHRIS	FITTINGS MAKER	900330
WALL, BUD	STOREROOM CLERK	900330
BRYANT, BIRK	LOADER	900331
GARCIA, MONTE	INSPECTOR	900331
SANDERS, ANZY	FITTINGS TRUCK OPERATOR	900331
STANFIELD, DICK	FORKLIFT-LATHE	900331
WILSON, CHARLES	FITTINGS INSPECTOR	900331
MARRON, DOUG	MACHINE TENDER	900522
SONCRANT, GLEN	STRIPPER	900522
CORRAL, RICHARD	WET TESTER	900530
LEDFORD, JOE	TRAY LOADER	900530
AESCHLIMAN, KEN	MACHINE TENDER	900601
LOLIE, KEVIN	PRESS OPERATOR	900604
COLE, HARRY	TRAY LOADER	900605
MARTINEZ, PETE	STRIPPER	900605
BIVENS, JANET	TRUCK OPERATOR SHIPPING	900614
GIL, L	LG FM LATHE OPERATOR	900621
MORGAN, JW	FORKLIFT-SHIPING	900626
VANDERTWELL	MECHANIC	900708
CONTRERAS, JOE	WET TESTER	900719
VILLAPANDO, A	PRESS OPERATOR	900731
PLAZA, MANUAL	MANDREL HANDLER	900801
MEIER, STEVEN	TRAY LOADER	900815
SUAREZ, ANDRES	PIPE HANDLER	900815
AVERY, ALBERT	LATHE OPERATOR	900906
CANTRELL, N	MANDREL HANDLER	900906
FOOSE, DENNIS	TRAY LOADER	900906
MICHEL, ROBERTO	MECHANIC	900906
MORALES, D	MACHINE TENDER	900906
RENFRO, E	RELIEF OPERATOR	900906
REYES, P	MIXER OPERATOR	900906
CLAUSON, J	REWORK SAW	900907
COOLEY, DENNIS	COUPLING CUT OFF	900907
COOPER, H	PIPE HANDLER	900907
DOBBS, P	BORING MILL	900907
GALVIN, DENNIS	CRUSHER	900907
GOODWIN, L	1/4 LATHE OPERATOR	900907
GRANILLO, B	Q C LAB TECHNICIAN	900907
PASILLAS, DAVE	LATHE OPERATOR	900907
BASTAAINS, HENRY	MECHANIC	900908
CARRON, A	MECHANIC	900908
CHUTE, GAIL	MECHANIC - FORKLIFT	900908
MCFANN, JOE	MECHANIC	900908
PERRY, DALE	MAINTENANCE OILER	900908
WHITAKER, WOODROW	MAINTENANCE	900908

lotus/river

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APPENDIX I
Sampling and Analytical Methods
and
Current Standards

It is our standard procedure in taking personal exposure samples, to inform each employee of the purpose of the sample and what they should and should not do to invalidate the results.

Specific do's and don'ts are: To go about their work as normal, not to remove the sampler, disconnect the tubing or filter holder, or purposely contaminate the sampling filter.

We request they inform us of any loss of integrity of the sample such as sampling cassette accidentally coming off, dropping or otherwise subjecting the devices to unnecessary impacts. We strongly encourage plant management to similarly inform the employees when conducting their sampling programs.

We request that each employee be informed of exposure results in this survey as outlined in the corporate procedure. Employees whose asbestos exposures exceed the PEL, action level and excursion level respectively, must be informed accordingly to OSHA regulation.

We suggest that a copy of the attached tables be posted on the employees bulletin board. Also, a Fiber Notification Form (FEN) must be completed as outlined in the Health Maintenance Manual, Asbestos Unit Program Section VII, for each employee sampled for asbestos. Alternately, the employees, including those in similar positions to those measured, can be informed personally.

Asbestos

The sampling and analysis was conducted following the current OSHA Standard 29CFR1910.1001, Appendix A ORM (Mandatory).

Personal samples were obtained open faced on a 25mm 0.8 micron mixed cellulose ester Millipore filter with an electrically conductive 50mm extension cowl. DuPont Alpha I, air sampling pumps were calibrated before and after each sampling day to approximately 1 liter per minute for all samples except excursion limit samples. For the 30 minute excursion samples pumps were calibrated to approximately 1.7

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liters per minute. In most cases, a series of two, three or four different filter samples were obtained for the person, to establish an 8-hour time-weighted average (TWA) concentration.

The analysis was conducted by NATLSCO Labs, Long Grove, Illinois. The counts were made following the A counting rules as described in the Standard, Appendix A.

The current Standard calls for a personal exposure limit of 0.2 fibers, longer than 5 microns per cubic centimeter of air (f/cc), an action limit of 0.1 f/cc and an excursion limit (EL) of 1 f/cc for 30 minutes.

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APPENDIX II

Industrial Hygiene Survey

Sampling Results Information Sheet

There are a number of terms and abbreviations used in the sample results posted. A brief explanation will be given of these terms. If you have any further questions about the results contact your supervisor.

F/CC - fibers per cubic centimeter of air; a measurement to determine concentration of respirable fibers in the air.

NIOSH - National Institute of Occupational Safety and Health; part of the Center for Disease Control, Public Health Service, U.S. Department of Health and Human Services. This agency conducts research on the health effects of exposures in the work environment and recommends exposure limits.

OSHA - Occupational Safety and Health Administration which is a part of the Department of Labor. This agency sets limits on chemical exposures, develops safety standards and establishes other regulations to protect worker health and safety.

OSHA PEL - permissible exposure limit set for a chemical by OSHA (see above).

TWA - time-weighted average. It is used to average multiple samples taken on an employee for his full shift to get his average daily exposure.

INDUSTRIAL HYGIENE SURVEY: 90-18
 PIPE & PLASTICS GRP RIVERSIDE
 Will's Test
 PERSONAL EXPOSURES

EMPLOYEE NAME	JOB POSITION	SAMPLE DATE	CONTAMINANT	TWA	UNITS	EXPOSURE LIMIT
AVERY JR, ALBERT	OPERATOR	09/06/1990	Asbestos	0.0200	F/CC	OSHA PEL = 0.2 F/CC
BASTIAANS, HENRY J.	MECHANIC	09/08/1990	Asbestos	0.0500	F/CC	OSHA PEL = 0.2 F/CC
CANTRELL, NORMAN L.	HANDLER	09/06/1990	Asbestos	0.1000	F/CC	OSHA PEL = 0.2 F/CC
CAROW, ALFRED J.	MECHANIC	09/08/1990	Asbestos	0.0100	F/CC	OSHA PEL = 0.2 F/CC
CHUTE, GAIL	MECHANIC	09/08/1990	Asbestos	0.0100	F/CC	OSHA PEL = 0.2 F/CC
CLAUSON, JOHN W.	OPERATOR	09/06/1990	Asbestos	0.0800	F/CC	OSHA PEL = 0.2 F/CC
CLAUSON, JOHN W.	OPERATOR	09/07/1990	Asbestos	0.0900	F/CC	OSHA PEL = 0.2 F/CC
COOLEY, DENNIS	OPERATOR	09/07/1990	Asbestos	0.0400	F/CC	OSHA PEL = 0.2 F/CC
Cooper, Homer	HANDLER	09/07/1990	Asbestos	0.0600	F/CC	OSHA PEL = 0.2 F/CC
DOBBS, PHILLIP	OPERATOR	09/07/1990	Asbestos	0.0300	F/CC	OSHA PEL = 0.2 F/CC
FOOSE, DENNIS J.	OPERATOR	09/06/1990	Asbestos	0.0100	F/CC	OSHA PEL = 0.2 F/CC
GALVIN, DENNIS W.	OPERATOR	09/06/1990	Asbestos	0.2000	F/CC	OSHA PEL = 0.2 F/CC
GALVIN, DENNIS W.	OPERATOR	09/07/1990	Asbestos	0.0400	F/CC	OSHA PEL = 0.2 F/CC
GOODWIN, LORAN C.	OPERATOR	09/07/1990	Asbestos	0.0300	F/CC	OSHA PEL = 0.2 F/CC
GRANILLO, BENJAMIN	TECHNICIAN	09/07/1990	Asbestos	0.0300	F/CC	OSHA PEL = 0.2 F/CC
MCFANN, JOSEPH R.	MECHANIC	09/08/1990	Asbestos	0.0100	F/CC	OSHA PEL = 0.2 F/CC
MICHEL, ROBERTO	MECHANIC	09/06/1990	Asbestos	0.0200	F/CC	OSHA PEL = 0.2 F/CC
MORALES, DAVID E.	TENDER	09/06/1990	Asbestos	0.1000	F/CC	OSHA PEL = 0.2 F/CC
PASILLAS, DAVID	OPERATOR	09/07/1990	Asbestos	0.0500	F/CC	OSHA PEL = 0.2 F/CC
PERRY, DALE C.	MECHANIC	09/06/1990	Asbestos	0.0500	F/CC	OSHA PEL = 0.2 F/CC
PERRY, DALE C.	MECHANIC	09/08/1990	Asbestos	0.3000	F/CC	OSHA PEL = 0.2 F/CC
REMFRO, EDWARD T.	RELIEF	09/06/1990	Asbestos	0.0500	F/CC	OSHA PEL = 0.2 F/CC
REYES, PETER C.	OPERATOR	09/06/1990	Asbestos	0.0500	F/CC	OSHA PEL = 0.2 F/CC
VANDERTWEEL, RICHARD M.	MECHANIC	09/08/1990	Asbestos	0.0050	F/CC	OSHA PEL = 0.2 F/CC
WHITAKER, WOODROW	MECHANIC	09/08/1990	Asbestos	0.4000	F/CC	OSHA PEL = 0.2 F/CC

*** END OF REPORT *** SPIESWB

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