PLAINTIFF'S EXHIBIT

DOW-785

DOW CHEMICAL U.S.A.

TEXAS OPERATIONS
FREEPORT, TEXAS 77541

August 24, 1987

Mr. Steve Peirce
Texas Air Control Board
5555 West Loop Suite 300
Bellaire, Texas 77401

NOTIFICATION OF INTENT TO RENOVATE ACCORDING TO EPA NATIONAL EMISSIONS STANDARD 40 CFR 61

(i) Name and address of owner: The Dow Chemical Company
Texas Operations
Freeport, Texas 77541

(ii) Description of Process: General office facilities estimated to have been in service 30 years.

(iii) Quantity of Asbestos: Approximately 4,000 square feet as estimated from building dimensions.

(iv) Location: Texas Operations, B-1201

(v) Starting Date: September 20, 1987
Completion Date: December 31, 1987

(vi) Nature of Renovation: Asbestos containing fire proofing will be removed from building structure during renovation activities.

(vii) Procedure to be Followed: Appropriate area will be barricaded and proper signs will be posted. The proper safety equipment will be used. Insulation will be wet down, then placed in impermeable containers. Proper labeling will be attached.

(viii) Disposal Site: The Dow Chemical Company, Freeport, Texas

R. E. Snelgrove

R. E. Snelgrove
Environmental Services

dp

xc: W. E. Cragar, B-101
C. R. Ford, APB

ST0015229

SECTION X

ASBESTOS ABATEMENT MINIMUM REQUIREMENTS

LARGE SCALE, LONG DURATION PROJECTS.

GENERAL:

1. The Superintendent/owner must contact Environmental Services (2414) a minimum of 25 days prior to starting asbestos removal work and specify a project supervisor.
2. The project supervisor must provide a written Safe Work procedure specific for each job which includes as a minimum the Safe Work procedures listed below.
3. The project supervisor must meet with the industrial hygienist, safety director for the area, and personnel performing the job to discuss the Safe Work procedure and arrange for audit and monitoring.
4. The project supervisor must arrange to have a "Competent Person" for the job. If work is contracted, the contractor must also provide a "Competent Person" to supervise the job.
5. Employees who work with asbestos must receive training in asbestos hazards before the initial assignment and annually thereafter.
6. Personnel in the general area must be notified that asbestos work is in progress.

SAFETY:

1. Safety equipment required by the job location must be worn.
2. An approved respirator must be worn during material removal and cleanup. Employee must have completed the mandatory fit test within the last 6 months. Contact (409) 238-3536 for information.
3. Disposable coveralls with attached boots and hoods must be worn during cleanup and removal operations. Coverall boots may be worn over work shoes or inside rubber boots.
4. "Street clothes" must not be worn underneath disposable coveralls.
5. If work clothing is worn underneath, it must be left in the "dirty room" of the decontamination facilities. Contaminated clothing for laundering must be contained in a sealed asbestos waste bag and laundered in a manner which will minimize the release of asbestos fibers. Personnel laundering asbestos contaminated clothing must be informed of this requirement.
6. Vacuum and local exhaust ventilation systems must be equipped with HEPA filters.
7. Personnel monitoring must be done at the beginning of each job unless glove bags are used or personnel wear supplied air respirators or previous personnel monitoring of similar jobs shows 8 hour TWA exposure potentials less than 0.1 fibers/cc. Contact Industrial Hygiene Services (409) 238-1281 for information.
8. A decontamination area must be provided. It must be contiguous to the regulated area if feasible. Egress to the regulated area must be through the decontamination area.
9. Water for wetting must contain a surfactant.
10. Local exhaust ventilation must be provided for hand operated or power operated tools, such as but not limited to, saws, scorers, abrasive wheels, and drills if the use of these tools would cause potential exposure levels to equal or exceed 0.2 fibers/cc 8 hour TWA. The efficiency of local exhaust ventilation systems must be verified by Industrial Hygiene Services.
11. An Asbestos Safety Checklist must be completed for each job.

ST0015230

Large Scale
Asbestos Abatement Minimum Requirements
Page 2

REGULATED AREA:

1. A regulated area must be established and asbestos warning signs posted to restrict access to authorized personnel only.
2. Area must be cleaned of existing asbestos contamination and other debris.
3. Portable objects must be removed to prevent contamination.
4. Coverings must be placed over remaining objects and underneath the work area. Scaffold landings must be covered. Materials must not be dropped to the ground. Pre-job planning must include provisions for keeping deteriorated material in place after jacketing is removed.
5. Glove bags, mini-enclosures or negative pressure enclosures must be used for jobs whenever feasible if the potential exposure level may equal or exceed 0.2 fibers/cc 8 hour TWA (local exhaust ventilation or other engineering controls methods may eliminate the need for enclosures).

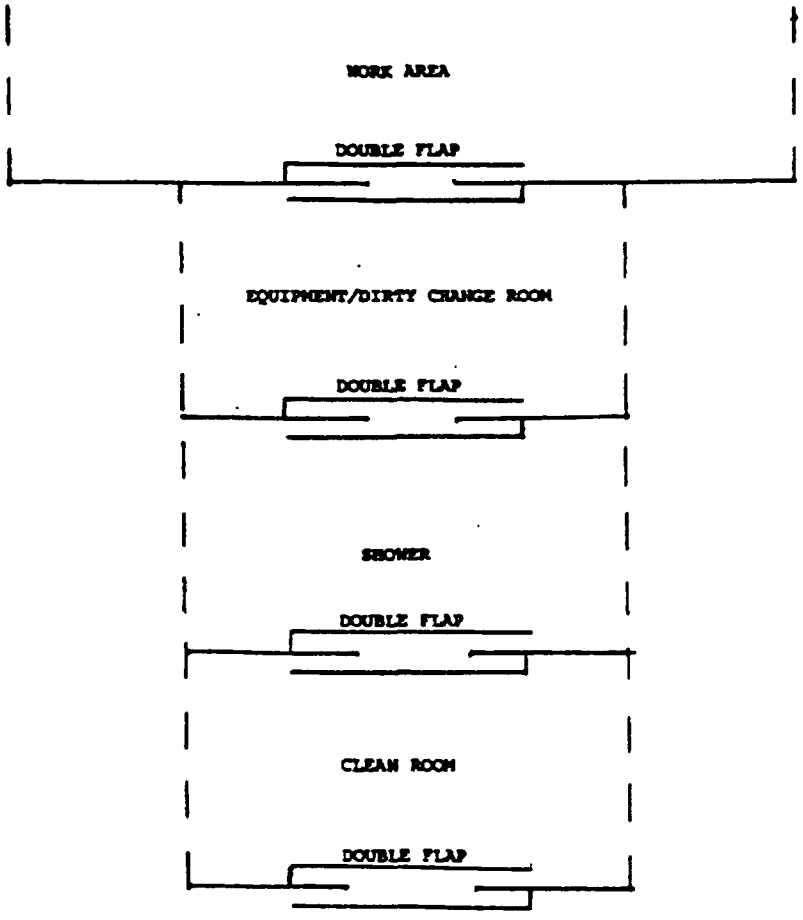
REMOVAL:

1. The materials must be wet down before, during, and after removal to prevent airborne emissions. Materials must be thoroughly wetted, but not to the point that they crumble and turn to mush. Wetting of materials may be eliminated if water is not compatible with the process, or materials/equipment may be seriously damaged, or local exhaust ventilation reduces the potential exposure limit below 0.2 fibers/cc 8 hour TWA.
2. Material must be removed and placed into labeled polyethylene bags or containers approved by Environmental Operations. Bags or containers must be lowered to the ground, not dropped.
3. The surface from which asbestos has been removed must be wetted and cleaned.
4. Exposed asbestos must be encapsulated at terminations.
5. After asbestos removal, a thorough inspection and cleanup of the area must be conducted. Pick up and dispose of coverings and double bag contaminated or broken bags. Vacuum work area as required.
6. All items removed from the regulated area must be decontaminated.
7. All materials used to establish the regulated area must be removed.
8. Bags or containers must be transported to the dempster or collection area.

SECTION X

TYPICAL DECONTAMINATION AREA

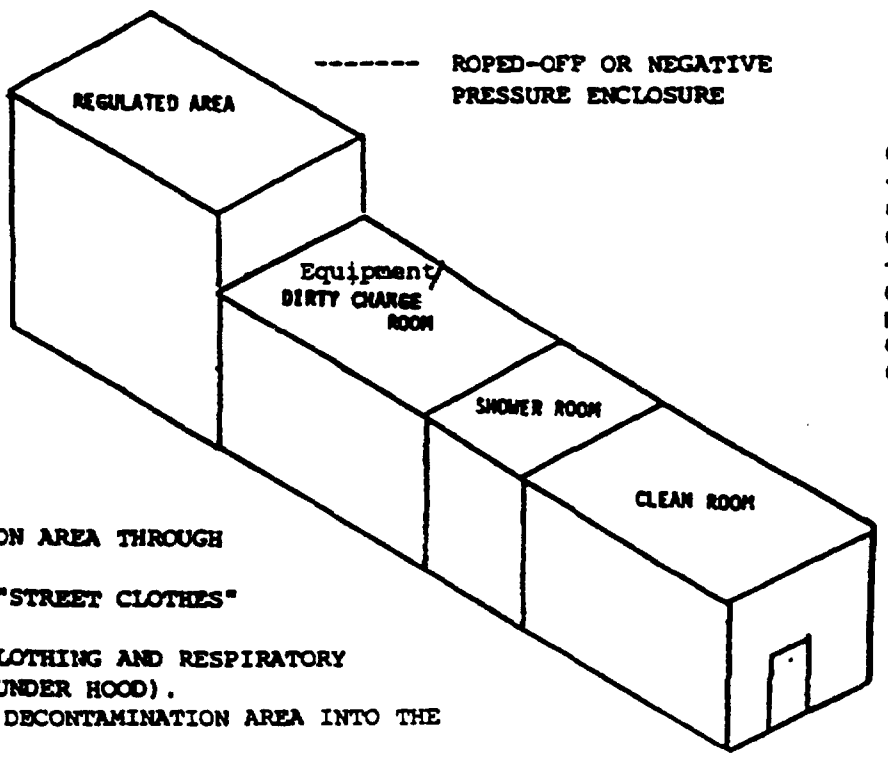
LAYOUT



SECTION X

DECONTAMINATION AREA

(CONTIGUOUS TO WORK AREA)



ST0015233

ENTRY

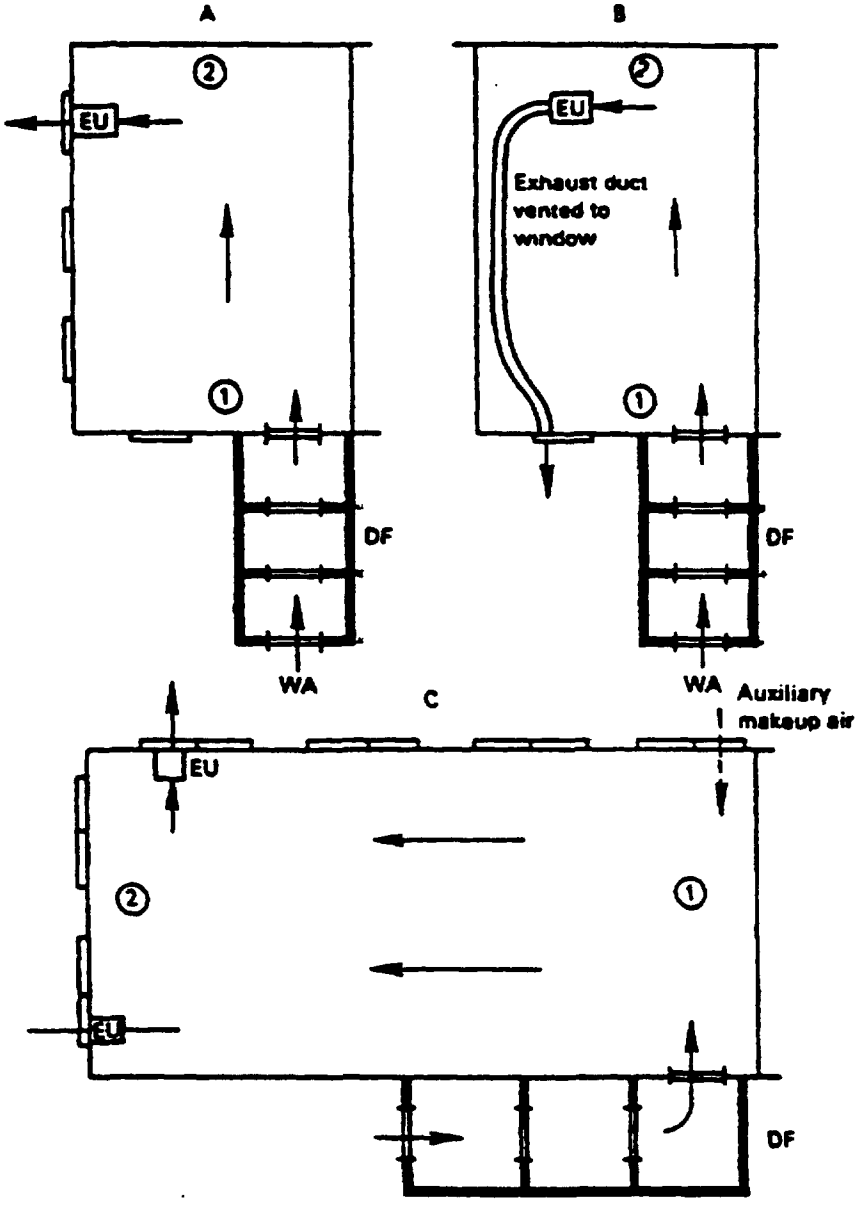
1. ENTER DECONTAMINATION AREA THROUGH CLEAN ROOM.
2. REMOVE AND DEPOSIT "STREET CLOTHES" IN LOCKER.
3. PUT ON PROTECTIVE CLOTHING AND RESPIRATORY PROTECTION (STRAPS UNDER HOOD).
4. PROCEED THROUGH THE DECONTAMINATION AREA INTO THE REGULATED AREA.

EXIT

1. REMOVE GROSS CONTAMINATION FROM SUIT.
2. REMOVE PROTECTIVE CLOTHING IN EQUIPMENT/DIRTY CHANGE ROOM AND DEPOSIT IN LABELED IMPERMEABLE BAGS.
3. WEAR RESPIRATOR INTO SHOWER AREA.
4. SHOWER BEFORE ENTERING CLEAN ROOM.
5. PUT ON STREET CLOTHES.
6. EXIT DECONTAMINATION AREA.

SECTION X

EXAMPLES OF NEGATIVE PRESSURE SYSTEMS



DF, Decontamination Facility; EU, Exhaust Unit; WA, Worker Access; A, Single-room work area with multiple windows; B, Single-room work area with single window near entrance; C, Large single-room work area with windows and auxiliary makeup air source (dotted arrow). Arrows denote direction of air flow. Circled numbers indicate progression of removal sequence.

ILIBRATOR VERSION 1.1

Pump # 2099C Before 6/25/87

FLOW	AVERAGE	# SAMPLES
2244	2244	01
2239	2242	02
2242	2242	03
2239	2241	04
2294	2250	05
2226	2246	06
2224	2243	07
2201	2237	08
2216	2235	09
2215	2233	10

FLOW AVERAGE # SAMPLES

FLOW	AVERAGE	# SAMPLES
-2059	000.0	00
2060	2060	01
2063	2062	02
2062	2062	03
2060	2061	04
2060	2061	05
2062	2061	06
2062	2061	07
2062	2061	08
2062	2061	09
2065	2062	10

FLOW AVERAGE # SAMPLES

Pump # 2803C Before 6/25/87

B12-312

FLOW	AVERAGE	# SAMPLES
2069	2069	01
2071	2070	02
2069	2070	03
2069	2070	04
2069	2069	05
2070	2070	06
2070	2070	07
2070	2070	08
2070	2070	09
2071	2070	10

FLOW AVERAGE # SAMPLES

#280 After 6/25/8

2116	2116	01
2116	2116	02
2113	2115	03
2113	2115	04
2110	2114	05
2111	2113	06
2113	2113	07
2113	2113	08
2108	2113	09
2111	2112	10

FLOW AVERAGE # SAMPLES

Pump # 1944C Before 6/25/87

B12-3127

FLOW	AVERAGE	# SAMPLES
2260	2260	01
2252	2256	02
2241	2251	03
2249	2251	04
2231	2247	05
2151	2231	06
-2151	2247	05
2220	2242	06
2220	2239	07
2223	2237	08
2223	2235	09
2226	2235	10

#2099 After 6/25/87

B12-3

FLOW	AVERAGE	# SAMPLES
2551	2551	01
2558	2555	02
2556	2555	03
2554	2555	04
2554	2555	05
2556	2555	06
2556	2555	07
2564	2556	08
2564	2555	07
2556	2555	08
2558	2555	09
545	2554	10
564	2554	10
568	2555	11

#20 After 6/25/1

FLOW	AVERAGE	# SAMPLES
2863	2863	01
2871	2867	02

FLOW	AVERAGE	# SAMPLES
2586	2586	01
2586	2586	02
2582	2585	03
2586	2585	04
2584	2585	05
2584	2585	06
2582	2584	07
2582	2584	08
2586	2584	09
2582	2584	10

FLOW AVERAGE # SAMPLES

Pump # 2096C Before 6/25/87

B12-3127

FLOW	AVERAGE	# SAMPLES
2138	2138	01
2139	2139	02
2136	2138	03
2138	2138	04
2138	2138	05
2136	2138	06
2139	2138	07
2138	2138	08
2139	2138	09
2138	2138	10

#1944 After 6/25/87

ST00152

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INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER: B12 - 3127 | PROFILE: APB ADMINISTRATION BUILDING | BLDG. NO: B-1201 | DATE: 6/25/87

MATERIAL: ASBESTOS | SAMPLING METHOD: NIOSH 7400 | TRAPPING MEDIUM: .25mm FILTER

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP.
SEE BELOW	GILIAN HFS 513A	2.5			

REMARKS (VENTILATION, ETC.)
AREA SAMPLES WHERE ASBESTOS MATERIAL IS LOCATED

SAMPLE NO.	CONTAINER PUMP NO.	DESCRIPTION OF SAMPLE	TIME START	TIME INCREMENT	CONCENTRATION fibers/cc
3	2099C	STAIR #5 Between 1 & 2 Floor	9:10	3:30	4.46
		4.46 - 0.6 = 3.86 fibers/mm²	(380 min)	(2.2 l/min)	
		(3.86)(385) / (836)(10³) = 0.0022 fibers/cc			
4	1944C	STAIRWELL #4 Between 1st & 2nd Floor	9:30	3:25	12.
		12.10 - 0.6 = 11.50 fibers/mm²	(365 min)	(2.1 l/min)	
		(11.50)(385) / (968)(10³) = 0.00 fibers/cc		766.5 l	
5	2803C	North end of Lobby	9:18	3:25	19.75
		19.75 - 0.6 = 19.15 fibers/mm²	(367 min)	(2.1 l/min)	
		(19.15)(385) / (771)(10³) = 0.01 fibers/cc		770.7 l	
6	2096C	IN PLANTER INSIDE HALLWAY BEHIND LOBBY	9:28	3:25	5.7
		5.73 - 0.6 = 5.13 fibers/mm²	(365 min)	(2.6 l/min)	
		(5.13)(385) / (949)(10³) = 0.002 fibers/cc		949 l	
Blanks	#1 & 2				<0.4
					<0.1

SIGNATURE: Linda Ballard | DATE: 6/25/87

ST0015236

B12-3127

McKee Environmental
Health Services

July 7, 1987

LAB ANALYSIS REPORT

Client: Dow Chemical, USA
Texas Operations
Freeport, Texas 77541

Attention: Dave Mathurin (B101Y)

Analysis Performed: NIOSH Method #7400
Fiber Counts (Asbestos)

Sample I.D.	M.E.H.S. No.	# of fields	# of fibers	Fibers per mm2
BC 1	871378	100	LT 0.5	LT 0.6
2	9	100	26.5	33.76
3	80	100	7.	8.92
4	1	100	LT 0.5	LT 0.6
OC-3122-1	871386	100	5.5	7.01
2	7	100	LT 0.5	LT 0.6
3	8	100	LT 0.5	LT 0.6
4	9	100	3.	3.82
5	90	100	0.5	0.6
B31-2789-1	1	100	LT 0.5	LT 0.6
2	2	88	110.	159.2
3	3	100	6.5	8.28
B101-1	4	100	LT 0.5	LT 0.6
2	5	100	10	12.74
3	6	100	13	16.56
B12-3127-1				
	871419	100	LT 0.5	LT 0.6
2	20	100	LT 0.5	LT 0.6
3	1	100	3.5	4.46
4	2	100	9.5	12.10
5	3	100	15.5	19.75
6	4	100	4.5	5.73
A1704-1	5	100	0.5	0.6
2	6	100	3.5	4.46
B24-1/CS	7	100	7.5	9.55
2/CS	8	100	LT 0.5	LT 0.6
SIH - 7	9	73	101.	176.2
8	30	20	130.5	831.2
9	1	100	28.5	36.3
A1800-1	2	100	LT 0.5	LT 0.6
2	3	100	1.	1.27
3	4	100	4.	5.10

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U #2 -	15	5	100	2.	2.55
	16	6	100	LT 0.5	LT 0.6
	17	7	100	6.	7.64
	18	8	100	16.	20.38
	19	9	100	4.5	5.73
	20	40	100	3.	3.82
	21	1	100	2.	2.55
B56-2916	AN-3	2	100	6.	7.64
U #1-1		3	100	4.5	5.73
2		4	100	5.	6.37
3		5	100	1.5	1.91
4		6	100	6.	7.64
5		7	100	LT 0.5	LT 0.6

ST0015238

Ronald S. McKee, CIH.

Ronald S. McKee
Certified Industrial Hygienist

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROJECT	BLDG NO	DATE
B12-3127	APB ADMINISTRATION	B1201	8/4/82

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
ASBESTOS	NIOSH 7400	25mm FILTER

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTDOOR TEMP.	INSIDE TEMP.
See Below	GILIAN HFS 513A	2.5	See Below		

REMARKS (VENTILATION, ETC.)

AREA SAMPLES FOR AIRBORNE ASBESTOS

SAMPLE NO.	CONDENSED PUMP NO.	DESCRIPTION OF SAMPLE	TIME START	TIME INCREMENT	CONCENT. fibers
B12-3127-10	2100	Attic at 3rd floor Anel Stairwell	8:50	3:53	8.3
Flow rate	Before 2.4	(2.5)(423 min) = 1058 l #1		423	
	After 2.5	8.92 − 0.6 = 8.32 fibers/mm².			
		$\frac{(8.32)(385)}{(1058)(10^3)}$ = 0.003 fibers/cc or < 0.01 fibers/cc			
B12-3127-8	2099	At entrance Executive Driveway	8:30	3:22	2.1
Flow rate	Before 2.4	(2.4 l/min)(412 min) = 989 l		412	
	After 2.4	2.55 − 0.6 = 1.95 fibers/mm²			
		$\frac{(1.95)(385)}{(989)(10^3)}$ = 0.001 = < 0.01 fibers/cc			
B12-3127-9	2801	In attic over lobby	8:45	3:41	14.
Flow rate	Before 2.2	(2.2 l/min)(422 min) = 928 l		422	
	After 2.2	14.01 − 0.6 = 13.41 fibers/mm²			
		$\frac{(13.41)(385)}{(928)(10^3)}$ = 0.006 = < 0.01 fibers/cc			
B12-3127-7		Blank			< 0.6

SIGNATURE DATE

FORM C-10630 PRINTED 8-1-72

ST0015239

McKee Environmental
Health Services

September 8, 1987

LAB ANALYSIS REPORT

Client: Dow Chemical, USA
Texas Operations
Freeport, Texas 77541

Attention: Dave Mathurin (B101Y)

Analysis Performed: NIOSH Method #7400
Fiber Counts (Asbestos)

Sample I.D.	M.E.H.S. Number	# of fields	# of fields	Fibers per mm^2
R3081-1	871922	100	2.5	3.18
2	3	100	LT 0.5	LT 0.6
3	4	100	2	2.55
4	5	100	LT 0.5	LT 0.6
5	6	100	7	8.92
6	7	100	5	6.37
7	8	100	2.5	3.18
8	9	100	1.5	1.91
B12-3127-7	83182	100	LT 0.5	LT 0.6
8	3	100	2	2.55
9	4	100	11	14.01
10	5	100	7	8.92
A36-1	6	100	13.5	17.20
2	7	100	LT 0.5	LT 0.6
3	8	100	14.5	18.47
4	9	100	6.5	8.28
CPB	90	100	31.	39.49
CPC	1	100	70.5	89.81
CPD	2	100	15.	19.11
CPE	3	100	17.	22.29
SIH #16	4	20	130.	828.0
17	5	49	101.	262.6
18	6	100	27.	34.39
U#2 #1	7	100	4.5	5.73
2	8	100	1.5	1.91
3	9	100	2.	2.55
4	83200	100	LT 0.5	LT 0.6
5	1	100	2.	2.55
6	2	100	5.5	7.01
7	3	100	LT 0.5	LT 0.6
8	4	100	LT 0.5	LT 0.6

LT = less than

Ronald L. McKee, C.I.H.

ST0015240

1.054C
Calibration

1/27/87 Before	1/27/87 After
2.212	2.205
2.206	2.199
2.202	2.204
2.196	2.200
2.170	2.204
2.1972	2.2024

2.2

McKee Environmental
Health Services

February 2, 1987

LAB ANALYSIS REPORT

Client: Dow Chemical, USA
Texas Operations
Freeport, TX 77541

Attention: Joe Emmitte BTLY

Analysis performed: NIOSH Method #239
Fiber Count (Asbestos)

Sample Identification	M.E.H.S. number	Results fibers/mm2
451-1	87276	30.23
B1-3065-61	7	8.82
62	8	2.52
63	9	12.59
64	80	3.78
65	1	10.08
66	2	6.30
FAB -	87288	LT 1.26
2	9	149.9
3	90	overload - dust
4	1	73.05
5	2	overload - dust
6	3	overload - dust
7	4	117.1
8	5	173.8
9	6	LT 1.26
10	7	LT 1.26
B44-3072-1	8	37.78
2	9	LT 1.26
3	87300	42.82
B12-3062-10	1	12.59
11	2	18.89
12	3	12.59
13	4	7.56
IHS 10	5	191.3
11	6	335.9

LT = less than

Ronald L. McKee CIH.

File # B12-3062

ST0015242

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROCESS	BLDG NO	DATE
B12-3062	APB	B12.1	1/27/87

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
ASBESTOS	NIOSH 7400	25 mm FILTER

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP
12054C	GILIAN HFS 113A	2.5	2.2		°

REMARKS (VENTILATION, ETC.)
CLEAN ROOM SAMPLE

SAMPLE NO.	CONTAINER NO.	DESCRIPTION OF SAMPLE	TIME START	TIME INCREMENT	CONCENTRATION
B12-3062-	11	[illegible] C.C. Cake machine	7.50	3.25	18.89
		(2.2)(446) = 981 l 446 min			
		18.89 - 4.4 (blank) = 14.49 fibers/mm²			
		$\frac{(14.49)(385)}{(981)(10^3)}$ = 0.006 fibers/cc			

ST0015243

SIGNATURE Linda Bullard DATE 1/27/87

FORM C-[illegible] PRINTED 8-1-72

12057

Calibration

1/27/87 Before	1/27/87 After
2.319	2.294
2.311	2.296
2.305	2.296
2.298	2.293
2.288	2.292
2.3042	2.2942

2.3

File # B12-3062

3	3	LT 1.26
4	4	LT 1.26
5	5	LT 1.26
6	6	3.78
7	7	LT 1.26
8	8	LT 1.26
9	9	LT 1.26
10	60	LT 1.26
11	1	LT 1.26
12	2	LT 1.26
✓ B12-3062-1	87063	LT 1.26
✓ 2	4	133.5
✓ 3	5	filter overload - fibers & dust
✓ 4	6	138.5
✓ 5	7	161.2
✓ 6	8	V O I D
✓ 7	9	75.57
✓ 8	70	LT 1.26
✓ 9	1	LT 1.26
B1021 - 1	2	10.08
2	3	49.12
3	4	LT 1.26
4	5	8.82
5	6	13.85
6	7	28.97
7	8	5.04
8	9	42.82
9	80	74.31
10	1	16.37
11	2	12.59
12	3	5.04
A75 - 3	4	156.2
A86 - 4	5	251.9
B2401-1A	6	13.85
2A	7	231.7
3A	8	filter overload
4A	9	18.89
5A	87090	filter overload - fibers
6A	1	LT 1.26
7A	2	LT 1.26
8A	3	221.7
9A	4	filter overload - fibers
10A	5	268.0
A83-2	6	734.1
A87-3	7	503.8

ST0015215

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROCESS	BLDG NO.	DATE
B-12	APB	B1201	1/27/87

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
Asbestos	NIOSH 7400	25mm FILTER

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP.
12057	GILIAN HFS113A	2.5	2.3	°F	

REMARKS (VENTILATION, ETC.)
Clean Room Sample

SAMPLE NO.	CONTAINER NO.	DESCRIPTION OF SAMPLE	TIME START	TIME INCREMENT	CONCENTRATION
B12-	3062 +10	Equipment Room # 1101	7:48	3:20	12.59
		(2.3)(447) = 1028 l 447 min			
		$12.59 \frac{3}{3}$ 44 (blank) = 8.19 fiber/mm²			
		$\frac{(8.19)(385)}{(1028)(10^3)}$ = 0.003 fibers/cc			

ST0015246

SIGNATURE Linda Bullard DATE 1/27/87

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROCESS	BLDG. NO.	DATE
B12-3062	APB Equipment Room	B-1201	1/29/87

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
Asbestos	NIOSH 7400	25mm Filter

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTDOOR TEMP.	INSIDE TEMP
12056C	Gilian HFS 113A	2.5	2.4	°	

REMARKS (VENTILATION, ETC.)
Clean Room Sample

SAMPLE NO.	CONTAINER NO.	DESCRIPTION OF SAMPLE	TIME START	TIME INCREMENT	CONCENT
B12-3062-	12	Equipment Room # 1125.	3:00	3:25	12.5
		(2.4)(454) = 1090 l 454 ml/min			
B12-3062-	13	Blank			4.4
		12.59 - 4.4 (blank) = 8.19 fibers/mm²			
		(8.19)(385) / (1090)(10³) = 0.003 fibers/cc			

ST0015247

SIGNATURE: Linda Bullard
DATE: 1/27/87

T2056
Calibration

1/29/87 Before	1/27/87 After
2.398	2.439
2.399	2.443
2.401	2.440
2.402	2.421
2.398	2.408
2.3996	2.4302

2.4

BREVARD
1/9/87 7:30 AM

Shut off steam & 6pm
Waste pipes @ 9 Start
Reinsulate
after Sat i
Sun
Steam on at
5:00 PM
Mond

PROCEDURE FOR REMOVING ASBESTOS AT B-1202 MECHANICAL ROOM.

1. FILL OUT ASBESTOS REMOVAL CHECKLIST PRIOR TO REMOVING ASBESTOS.

2. WEAR ALL REQUIRED SAFETY EQUIPMENT:
   a. RESPIRATOR
   b. SIDE-SHIELDS
   c. COTTON GLOVES
   d. RUBBER BOOTS
   e. DISPOSABLE COVERALLS WITH HOODS.
   f. HARD HAT

3. TAPE OFF ENTRANCES TO ROOM AND POST ASBESTOS REMOVAL SIGNS.

4. PLACE POLYFILM ON FLOOR UNDERNEATH LINES & HEAT EXCHAN
BEING STRIPPED.

5. WET LINE AS YOU CUT OUTER COVERING. (CLOTH) WATER SHOULD CONTAIN SURFACTANT. WET ~~LINE~~ INSULATION AFTER OUTER COVERING IS REMOVED. USE AS MUCH WATER AS NECESSARY TO PREVENT DUST BUT NOT SO MUCH THAT INSULATION BECOMES MUSHY AND RUNOFF OCCURS.

6. PLACE INSULATION DIRECTLY INTO POLY BAG FROM LINE, SEAL BAG AND LOWER TO GROUND.

7. AFTER STRIPPING IS COMPLETE, DISPOSE OF POLY FILM AS ASBESTOS AND CLEAN UP ALL RESIDUAL ASBESTOS.

8. AFTER FINAL CLEANUP REMOVE YELLOW TAPE AND ASBESTOS SIGNS.

File # B12-3062

ST0015249

ST0015250

CALIBRATION DATA

FILE NUMBER B12-3062 DATE 1/2/87 PLANT NAME APE PLANT ID _____

COLLECTION MEDIA: _____ CALIBRATION METHOD _____

PUMP # SETTING		PUMP # 2097-C SETTING		PUMP # 1260 C SETTING 1/3/87		PUMP # 12056 C SETTING 1-3-87		PUMP # 8698 SETTING 1-3-87	
FORE	AFTER	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER	BEFORE	AFTER
		2004	2.03	2.065	2.051	2.044	2.001	2.060	2.101
		2005	2.037	2.065	2.048	2.077	1.995	2.074	2.150
		2008	2.038	2.066	2.046	2.022	1.992	2.074	2.150
		2004	2.037	2.056	2.036	2.004	1.986	2.074	2.150
		2003	2.040	2.065	2.035	2.005	1.992	2.070	2.149
		1999	2.040						
		1999	2.041						
		2005	2.046						
		2001	2.042						
		2007	2.047						
		2.00	2.04	2.0634	2.0444	2.0216	1.7932	2.0704	2.15
		avg 2.02		avg 2.05		avg 2.01		avg 2.11	

*** NOTES: _____

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROCESS			BLDG. NO	DATE
B12-3127	Asbestos Removal at HPB			B1201	11/19/8

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
Asbestos	NIOSH 7400	25mm Filter

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP.
8979	Gilian HFS 113A	2.5		°	

REMARKS (VENTILATION, ETC.) Post Asbestos Monitoring Stairwell #2 & 3

SAMPLE NO.	PUMP NO.	DESCRIPTION OF SAMPLE	TIME START	TIME STOP	CONCENTRA fibers/
B12-3127-49	8979	Stairwell #2 Between 2nd and 3rd Floor	9:28		1.2
flow rate 2.1 l/min		(2.1)(369 min) = 775 l	369		
		1.27 − 1.05 = 0.22 fibers/mm²			
		(0.22)(385) / (775)(10³) = 0.0001 = <0.01 fibers/cc			
B12-3127-44	12053	3rd Floor of Stairwell #3	9:30		8.2
flow rate 2.0 l/min.		(2.0)(366) = 732 l	366		
		8.28 − 1.05 = 7.23 fibers/mm²			
		(7.23)(385) / (732)(10³) = 0.004 = <0.01 fibers/cc			
		Blank average 1.05 fibers/mm²			

SIGNATURE Linda Bullard DATE 11/19/87

FORM C-10070 PRINTED 6-1-72

ST0015279

ST0015280

FLOW	AVERAGE	# SAMPLES
2016	2016	01
2018	2017	02
2017	2017	03
2018	2017	04
2017	2017	05
2018	2017	06
2004	2015	07
2016	2016	08
2013	2015	09
2014	2015	10
2016	2015	11

Before pump # 12053 11/19/87

FLOW	AVERAGE	# SAMPLES
2116	2116	01
2116	2116	02
2117	2116	03
2117	2117	04
2119	2117	05
2117	2117	06
2114	2117	07
2118	2116	08
2114	2116	09
2118	2115	10

Before pump # 8820 11/19/87

FLOW	AVERAGE	# SAMPLES
2129	2129	01
2123	2126	02
2119	2124	03
2113	2121	04
2107	2118	05
2104	2116	06
2106	2114	07
2101	2113	08
2104	2112	09
2098	2110	10

After 8979 11/19/87

FLOW	AVERAGE	# SAMPLES
1991	1991	01
1988	1990	02
1994	1991	03
1987	1990	04
1996	1991	05
1990	1991	06
1987	1990	07
1987	1990	08
1982	1989	09
		10

After 12053 11/19/87

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROCESS	BLDG. NO.	DATE
B12-3127	APB Asbestos Removal	B1201	10/31/87

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
Asbestos	NIOSH 7400	25mm Filter

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP.
See Below	Gilian 5113HFS	2.0		°,	

REMARKS (VENTILATION, ETC.)

Stairwell #2 & 3

SAMPLE	CONTAIN	DESCRIPTION OF SAMPLE	TIME	CONCENTRATIO	fibers/cc
		pump# 2801C - filter # 3127-34 (second floor)	10:15 AM	4:13 PM 356	38.22
		pump# 1261 filter # 3127-32 (third floor)	10:18 AM	4:12 PM 357	21.66
		pump # 2099 filter # 3127-33 (N.A.M. outlet)	10:22 AM	4:18 PM 347	10.83
		filter # 3127-35 Blank			<0.6
flow rate		Sample # 3127-34 (2.2 l/min)(856 min) = 783 l			
		$\frac{(38.22)(385)}{(783)(10^3)}$ = 0.02 fibers/cc			
		Sample # 3127-32 (2.0 l/min)(357 min) = 714 l			
		$\frac{(21.66)(385)}{(714)(10^3)}$ = 0.01 fibers/cc			
		Sample # 3127-33 (2.1)(347) = 729 l			
		$\frac{(10.83)(385)}{(729)(10^3)}$ = 0.006 fibers/cc			

Steve Stellmacher

SIGNATURE DATE

ST0015281

ST0015282

FLOW	AVERAGE	# SAMPLES
1949	1949	01
1944	1947	02

FLOW	AVERAGE	# SAMPLES
2136	2136	01
2135	2136	02
2129	2133	03
2129	2132	04
2129	2132	05
2126	2131	06
2123	2130	07
2122	2128	09
2122	2127	10
2122	2127	11

10/30/87 Pump # 2099 Before

FLOW	AVERAGE	# SAMPLES
000.0	1825	11

FLOW	AVERAGE	# SAMPLES

FLOW	AVERAGE	# SAMPLES
1654	1654	01
1654	1654	02
1654	1654	03
1654	1654	04

FLOW	AVERAGE	# SAMPLES
2257	2257	01
2267	2262	02
2274	2266	03
2272	2268	04
2279	2270	05
2282	2272	06
2272	2272	07
2276	2272	08
2281	2273	09
2279	2274	10

Pump # 2801 10/30/87 Before

GILIBRATOR VERSION 1.:

FLOW	AVERAGE	# SAMPLES
2005	2005	01
2016	2011	02
2012	2011	03
2010	2011	04
2010	2011	05
2007	2010	06
2005	2009	07
2003	2009	08
2003	2008	09

Pump # 1261 10/30/87 Before

FLOW	AVERAGE	# SAMPLES

FLOW	AVERAGE	# SAMPLES
2188	2188	01
2183	2186	02
2182	2184	03
2182	2184	04
2182	2183	05
2185	2184	06
2182	2183	07
2180	2183	08
2182	2183	09
2180	2183	10

After pump # 2801 11/2/87

FLOW	AVERAGE	# SAMPLES
2114	2114	01
2106	2110	02
2104	2108	03
2095	2105	04
2094	2103	05
2091	2101	06
2087	2099	07
2084	2097	08
2080	2095	09
2078	2093	10

After pump # 2099 11/2/87

FLOW	AVERAGE	# SAMPLES

FLOW	AVERAGE	# SAMPLES
1995	1995	01
1996	1996	02
1994	1995	03
1994	1995	04
1994	1995	05
1983	1993	06
1983	1995	05
1990	1994	06
1990	1993	07
1988	1993	08
1991	1992	09
1992	1992	10
1987	1992	11

After pump # 1261 11/2/87

McKEE ENVIRONMENTAL HEALTH SERVICES
11114 Sagepark • Houston, TX 77089 • (713) 481-3501

December 1, 1987

ST0015283

LAB ANALYSIS REPORT

Client: Dow Chemical, USA
Attn: Cheryl Sandlin (B101Y)
Texas Division, Industrial Hygiene

Test Performed: NIOSH Analytical Method #7400
(Fiber Counts - Asbestos)

Sample I.D.	M.E.H.S. No.	# of fields	# of fields	Fibers per mm^2
RW-1	83409	100	1.	1.27
2	10	100	2.	2.55
3	1	100	9.5	12.10
4	2	100	15.	19.11
5	3	100	7.5	8.92
A26/CS #5	4	100	64.5	82.17
LD-A	5	100	11.	14.01
CPW	6	73	103.5	131.8
CPT 8/21	7	100	61.5	78.34
CPK 8/31	8	100	6.	7.64
VER-3	9	100	4.	5.10
VER-2	21	100	19.	24.20
NP/n-1	20	100	19.5	24.84
SAT-2	83422	100	7.5	9.55
EDA-2	3	100	5.	6.37
EDA-4	4	100	11.	14.01
SIH #23	6	20	136.	866.2
#24	5	100	28.	35.67
#25	7	20	116.	738.9
B12-3127				
-18✓	9	100	4.5	5.73
BLANK 19✓	8	100	0.5	0.6
21✓	30	100	19.	24.20
22✓	1	100	9.	11.46
23✓	2	100	8.	10.19
24✓	3	100	2.	2.54
25✓	4	100	71.	90.45
26✓	5	100	46.	58.60
27✓	6	100	53.	67.52
BLANK 28✓	7	100	LT 0.5	LT 0.6

	29✓	8	100	4.	5.10
	30✓	9	100	12.5	15.92
	31✓	40	100	13.	16.56
	32✓	1	100	17.	21.66
	33✓	2	100	8.5	10.83
	34✓	3	100	30.	38.22
BLANK	35✓	4	100	LT 0.5	LT 0.6
	36✓	5	100	24.	30.57
	37✓	6	100	2.	2.55
	38✓	7	100	12.	15.29
BLANK	39✓	8	100	2.	2.55
OCD I-2938					
	-1	9	100	24.5	31.21
	2	50	100	13.	16.56
	3	1	100	1.	1.27
	4	2	100	13.5	17.20
	5	3	100	LT 0.5	LT 0.6
	6	83458	100	LT 0.5	LT 0.6
A-ISB-1		83454	21	101.	612.1
	2	5	26	104.	509.8
	3	6	100	31.	39.49
	4	7	100	LT 0.5	LT 0.6

LT = less than

ST0015284

Ronald S. McKee, C.I.H.

Ronald S. McKee
Certified Industrial Hygienist

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROCESS	BLDG. NO.	DATE
B12-3127	APB Asbestos Removal	B1201	10/30/87

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
Asbestos	NIOSH 7400	25mm FILTER

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP.
See Below	Gilian HFS Pump	2		°	

REMARKS (VENTILATION, ETC.) Post Removal Monitoring in Stairwell #1

SAMPLE	CONTAIN	DESCRIPTION OF SAMPLE	TIME		CONCENTRATION fibers/mm
B12-3127-30			10:15	3:50	15.92
Pump# 12057		1st Floor Lobby	339 min		
Flow Rate		(2.1 l/min)(339 min) = 712 l			
Before 2.13 After 2.1		$\frac{(15.92)(385)}{(712)(10^3)}$ = 0.009 fibers/cc			
			10:15	3:54	16.56
B12-3127-31		2nd Floor	341 min		
Pump# 12056		(2.0)(341) = 682 l			
Flow rate		$\frac{(16.56)(385)}{(682)(10^3)}$ = 0.009 fibers/cc			
Before 2.036 After 2.022					

[illegible signature]

SIGNATURE DATE

ST0015285

ST00015286

FLOW	AVERAGE	# SAMPLES
582.9	583.0	91

FLOW	AVERAGE	# SAMPLES
1885	1885	01
1885	1885	02
1885	1885	03
1882	1884	04
1881	1884	05
1877	1883	06
1873	1881	07
1873	1880	08
1872	1879	09
1872	1879	10

After pump 12.0 10|

FLOW	AVERAGE	# SAMPLES
1909	1910	02
1906	1908	03
1909	1909	04
1903	1907	05
1903	1907	06
1903	1906	07
1903	1906	08
1902	1905	09
1902	1905	10

Pump 13 ft

FLOW	AVERAGE	# SAMPLES
1918	1918	01
1916	1913	02
1915	1914	03
1913	1914	04
1913	1913	05
1913	1913	06
1913	1913	07
1915	1914	08
1905	1913	09
1907	1912	10

Before Pump 120. 10/12

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER: B12-3127 | PROFILE: APB Asbestos Removal | BLDG NO: B1201 | DATE: 10/24/87

MATERIAL: Asbestos | SAMPLING METHOD: NIOSH 7400 | TRAPPING MEDIUM: 25mm Filter

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP
See Below	Gilian HES Pumps	2.0			

REMARKS (VENTILATION, ETC.)

Outside Negative Pressure Enclosure During Removal of Asbestos From Stairwell #1

SAMPLE NO.	COMPRESSOR P/N/S/P	DESCRIPTION OF SAMPLE	TIME START	TIME STOP	CONCENTRATION fibers/cc
B12-3127-27	1261	Top Floor Filter Area	7:44am	4:20 496min	69.
B12-3127-25	12055	2nd Floor Exit	7:47am	3:53 485min	90.
B12-3127-26	2099	Hall to Lobby	7:52am	3:50 479min	58.
B12-3127-29	12053	Exhaust Area Ground Floor	8:05am	4:03 478min	5.
B12-3127-28	Blank				<0.1

Flowrate Before 1.986 | After 1.991 | Avg. 2.0

Sample # B12-3127-27 Pump # 1261

(496 min)(2.0 l/min) = 992 l

$\frac{(7.52)(385)}{(992)(10^3)}$ = 0.03 fibers/cc

Flowrate Before 2.211 | After 2.194 | Avg. 2.2

Sample # B12-3127-25 Pump # 12055

(2.2 l/min)(485 min) = 1067 l

$\frac{(90.45)(385)}{(1067)(10^3)}$ = 0.03 fibers/cc

Flowrate Before 1.943 | After 1.901 | Avg. 1.9

Sample # B12-3127-26 Pump # 2099

(1.9)(479) = 910 l

$\frac{(58.60)(385)}{(910)(10^3)}$ = 0.02 fibers/cc

Flowrate Before 2.032 | After 1.969 | Avg. 2.0

Sample # B12-3127-29 Pump # 12053

(2.0)(473) = 946 l $\frac{(5.10)(385)}{(946)(10^3)}$ = 0.002 fibers/cc

SIGNATURE: Linda Bullard | DATE: 10/24/87

ST0015287

ST0015288

FLOW	AVERAGE	# SAMPLES
2028	2028	01
2030	2029	02
2033	2030	03
2033	2031	04
2026	2030	05
2030	2030	06
2034	2031	07
2033	2031	08
2037	2032	09
2034	2032	10

Before pump # 12053 10/22/87

FLOW	AVERAGE	# SAMPLES
2213	2213	01
2213	2213	02
2213	2213	03
2213	2213	04
2215	2213	05
2210	2212	07
2208	2212	08
2210	2212	09
2208	2211	10

Before pump # 12055 10/22/87

FLOW	AVERAGE	# SAMPLES
1986	1986	01
1986	1986	02
1988	1987	03
1987	1987	04
1987	1987	05
1983	1986	06
1987	1986	07
1984	1986	08
1984	1986	09
1984	1986	10

Before pump # 1261 10/22/87

FLOW	AVERAGE	# SAMPLES
1935	1935	01
1958	1947	02
1958	1950	03
1948	1950	04
1948	1949	05
1941	1948	06
1941	1947	07
1937	1946	08
1932	1944	09
1855	1935	10
1855	1944	09
1927	1943	10

Before pump # 2099 10/22/87

FLOW	AVERAGE	# SAMPLES
1972	1972	01
1970	1971	02
1969	1970	03
1969	1970	04
1968	1970	05
1968	1969	06
1968	1969	07
1967	1969	08
1967	1969	09
1969	1969	10

After pump # 12[illegible] 10

FLOW	AVERAGE	# SAMPLES
1991	1991	01
1991	1991	02
1991	1991	03
1992	1991	04
1992	1991	05
1992	1992	06
1990	1991	07
1991	1991	08
1991	1991	09
1991	1991	10

After pump 12[illegible] 1[illegible]

FLOW	AVERAGE	# SAMPLES
2199	2199	01
2199	2199	02
2197	2198	03
2194	2197	04
2194	2197	05
2193	2196	06
2193	2196	07
2190	2195	08
2188	2194	09
2191	2194	10

After pump 12[illegible] 1[illegible]

FLOW	AVERAGE	# SAMPLES
1914	1914	01
1908	1911	02
1905	1909	03
1903	1908	04
1901	1906	05
1900	1905	06
1896	1904	07
1897	1903	08
1893	1902	09
1890	1901	10

After pump # 209 10/[illegible]

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROFILE	BLDG. NO	DATE
B12-3127	APB Asbestos Removal	B-1201	10/22/87

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
Asbestos	NIOSH 7400	25mm Filters

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP.
	Gilian HFS Pumps	2.0		°	

REMARKS (CONCENTRATION, ETC.)
Post Removal Monitoring

SAMPLE NO.	CONDITIONED PUMP NO.	DESCRIPTION OF SAMPLE	TIME START	TIME STOP/INCREMENT	CONCENTRATION fibers/cc
B12-3127-2A	1259	1st Floor Stairwell 4	8:42		11.46
	Flow Rate			425 min	
Before	1.965	(2.0)(425) = 850 l			
After	1.971	(11.46)(385) / (850)(10³) = 0.005 fibers/cc			
Avg.	2.0				
B12-3127-2B	3217	2nd Floor Stairwell 4	8:46		10.19
	Flow Rate			432 min	
Before	2.078	(2.1)(421) = 884 l			
After	2.096	(10.19)(385) / (884)(10³) = 0.004 fibers/cc			
Avg.	2.1				

SIGNATURE Linda Bullard DATE 10/22/87

ST0015289

ST0015290

FLOW	AVERAGE	# SAMPLES
2077	2077	01
2078	2078	02
2080	2078	03
2080	2079	04
2083	2080	05
2077	2079	06
2077	2079	07
2078	2079	08
2076	2078	09
2069	2078	10

Before pump 321 10/22

FLOW	AVERAGE	# SAMPLES
1973	1973	01
1970	1972	02
1972	1972	03
1972	1972	04
1970	1971	05
1964	1970	06
1964	1969	07
1958	1968	08
1958	1967	09
1953	1965	10

Before pump # 1259 10/22/87

FLOW AVERAGE # SAMPLES

GILIBRATOR VERSION 1.1

FLOW	AVERAGE	# SAMPLES
2095	2095	01
2107	2101	02
2103	2102	03
2094	2100	04
2103	2100	05
2093	2101	07
2083	2099	08
2080	2097	09
2084	2096	10

After pump 321 10/22

FLOW	AVERAGE	# SAMPLES
1974	1974	01
1972	1973	02
1972	1973	03
1970	1972	04
1965	1971	05
1969	1971	07
1969	1971	08
1969	1971	09
1970	1971	10

pump 1255 14:17

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROJECT	BLDG. NO	DATE
B12-3127	APB ASBESTOS REMOVAL	B1201	10/17/87

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
ASBESTOS	NIOSH 7400	25mm FILTER

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP.
SEE BELOW	GILIAN HFS PUMP	2			

REMARKS (VENTILATION, ETC.)

SAMPLES TAKEN OUTSIDE NEGATIVE PRESSURE ENCLOSURE DURING REMOVAL IN STAIRWELL 4

SAMPLE NO.	CERTIFIED PUMP NO.	DESCRIPTION OF SAMPLE	TIME START	TIME STOP (MINUTES)	CONCENTR. (fibers/cc)
B12-3127-24	3217	THIRD FLOOR OUTSIDE NEG. AIR UNIT	9:44 AM	4:03 377	2.5
Flow Rate Before	2.070	(377 min)(2.1 l/min) = 792 l			
After	2.064				
Avg.	2.067	(2.54 fibers/mm²) − (0.6 Blank fibers/mm²) = 1.94 fibers/mm²			
		$\frac{(1.94)(385)}{(792)(10^3)}$ < 0.001 fibers/cc			
B12-3127-18	1205	SECOND FLOOR OUTSIDE NEG. AIR UNIT	9:44 AM	400 371	5.73
Flow Rate Before	2.092	(371)(2.1) = 779 l	5.73 − .6 = 5.13		
After	2.095				
Avg.	2.094	$\frac{(5.13)(385)}{(779)(10^3)}$, 0.003 fibers/cc			
B12-3127-21	1205	OUTSIDE OF NEG. AIR MACHINE	9:58 AM	3:58 361	24.2
Flow Rate Before	2.174	24.20 − .6 = 23.6 (2.2)(361) = 794 l			
After	2.203				
Avg.	2.189	$\frac{(23.6)(385)}{(794)(10^3)}$, 0.01 fibers/cc			
B12-3127-19		Blank			0.6

SIGNATURE Steve Fellenberg DATE 10/17/87

ST0015291

FLOW	AVERAGE	# SAMPLES
1969	1969	01
1982	1976	02
1982	1978	03
1981	1979	04
1978	1978	05
1976	1978	06
1976	1978	07
1978	1977	08
1968	1976	09
1969	1975	10

Before 10/16 pump 12

FLOW	AVERAGE	# SAMPLES
2169	2169	
2179	2174	
2180	2176	
2179	2177	04
2176	2177	05
2173	2176	06
2173	2176	07
2173	2175	08
2171	2175	09
2168	2173	10
2168	2175	09
2171	2174	10
2169	2174	11

Before 10/16/87 pump # 12055

FLOW	AVERAGE	# SAMPLES
2083	2083	01
2101	2092	02
2101	2095	03
2097	2096	04
2097	2096	05
2100	2097	06
2095	2096	07
2093	2096	08
2093	2096	09
2094	2095	10

After pump 12 10

FLOW	AVERAGE	# SAMPLES
2093	2093	01
2091	2092	02
2091	2092	03
2094	2092	04
2093	2092	05
2091	2092	06
2091	2092	07
2087	2091	08
2093	2092	09
2093	2092	10

Before 10/16/87 pump # 12053

FLOW	AVERAGE	# SAMPLES
1957	1957	01
1957	1957	02
1957	1957	03
1957	1957	04
1954	1956	05
1955	1956	06
1954	1956	07
1953	1956	08
1954	1955	09
1953	1955	10
1953	1955	11

After pump 12 10

FLOW	AVERAGE	# SAMPLES
2071	2196	13
2071	2188	14

FLOW	AVERAGE	# SAMPLES
2071	2071	01
2070	2071	02
2073	2071	03
2069	2071	04
2071	2071	05
2069	2071	06
2070	2070	07
2070	2070	08
2067	2070	09
2069	2070	10

Before 10/16/87 pump # 3217

FLOW	AVERAGE	# SAMPLES
2207	2206	01
2204	2205	02
2204	2205	03
2202	2204	04
2201	2204	05
2201	2203	06
2201	2203	07
2202	2203	08
2199	2203	09
		10

After pump 12

FLOW	AVERAGE	# SAMPLES
2067	2067	01
2070	2069	02
2066	2068	03
2069	2068	04
2067	2068	05
2066	2068	06
2068	2066	07
2059	2066	08

After pump 32

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INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROJECT	BLDG. NO	DATE
B12-3127	APB Asbestos Removal	B-1201	10/12/87

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
Asbestos	NIOSH 7400	25mm FILTER

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP.
See Below	Gillian 113 HFS pumps	2		°F	

REMARKS (VENTILATION, ETC.)
Post Removal Monitoring

SAMPLE NO.	CONTAINER NO.	DESCRIPTION OF SAMPLE	TIME START	TIME INCREMENT	CONCENTR fibers/cc
B12-3127-20	Pump # 12053	Second Floor Stairwell 5	8:30	3:30	10.19
Before	Flow rate 1.9 l/min	(1.9 l/min)(419) = 796 l	419		
After	1.9 l/min	$\frac{(10.19)(385)}{(796)(10^3)}$ = 0.005 fibers/cc			
B12-3127-17	Pump # 12057	1st Floor Stairwell 5	8:40	3:30	19.
Before	Flow rate 1.9 l/min	(1.9 l/min)(413 min) = 785 l		413	
After	1.9 l/min	$\frac{(19.75)(385)}{(785)(10^3)}$ = 0.01 fibers/cc			

SIGNATURE Linda Bullard DATE 10/12/87

ST0015293

McKEE ENVIRONMENTAL HEALTH SERVICES
11114 Sagepark • Houston, TX 77089 • (713) 481-3501

November 2, 1987

AIR MONITORING SURVEY

Client: Dow Chemical, U.S.A.
Attn: Cheryl Sandlin
Texas Operations
Freeport, Texas 77541

Test Performed: NIOSH Analytical Method #7400
(Fiber Counts - Asbestos)

Sample I.D.	M.E.H.S. Number	# of fields	# of fibers	Fibers per mm2
B12-3127				
-11	872352	100	26	33.12
13	3	100	8.5	10.83
14	4	100	LT 0.5	LT 0.6
15	5	100	LT 0.5	LT 0.6
17	6	100	15.5	19.75
20	7	100	8	10.19
CPA 8/20	83289	100	31.5	40.13
CPA 8/21	90	100	10	12.74
MGMA -1	1	100	13.5	17.20
3	2	100	4	5.10
5	3	100	LT 0.5	LT 0.6
6	4	100	LT 0.5	LT 0.6
7	5	100	filter overload	
9	6	100	filter overload	
SD/CS 7	83306	100	LT 0.5	LT 0.6
8	7	100	LT 0.5	LT 0.6
9	8	100	LT 0.5	LT 0.6
A6-CS1	9	100	90	114.6
CS2	10	100	95	12.10
CS3	1	100	LT 0.5	LT 0.6
DM2 #1	83314	100	LT 0.5	LT 0.6
2	5	100	12.5	15.92
3	6	100	1.	1.27
4	7	100	6.	7.64
5	8	100	0.5	0.6
6	9	100	3	3.82
7	10	100	4	5.10
8	1	100	LT 0.5	LT 0.6
9	2	100	LT 0.5	LT 0.6

ST0015294

INDUSTRIAL HYGIENE SAMPLE RECORD

JOB NUMBER: B12-3127 | PROFILE: APB Asbestos Removal | BLDG NO: B-1201 | DATE: 10/10/87

MATERIAL: Asbestos | SAMPLING METHOD: NIOSH 7400 | TRAPPING MEDIUM: 25mm Filter

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP.
See Below	Gilian HFS Pump	2.0			

REMARKS (VENTILATION, ETC.)

SAMPLE NO.	CONTAINER NO.	DESCRIPTION OF SAMPLE	TIME START	TIME INCREMENT	CONCENTRATION f/cc
	PUMP		AM	480	ND
B12-3127-15	2802C	TOP FLOOR STAIRWELL #5	7:48	3:48PM	<0.6
	Flow rate				
	Before 1.9 l/min	(1.8 l/min)(480 min) = 864 l			
	after 1.8 l/min				
		$\frac{(0.6)(385)}{(864)(10^3)} = <0.0003$ fibers/cc			
B12-3127-13	1266C	Vertical Floor Stairwell #5	AM 7:52	472 4:47PM	10.83
	Flow rate				
	Before 2.2 l/min	(2.2 l/min)(472 min) = 1038 l			
	after 2.1 l/min				
		$\frac{(10.83)(385)}{(1038)(10^3)} = 0.004$ fibers/cc			
B12-3127-11	1259	Outside APB at Discharge of Neg. Air Washing	AM 5:46	430 3:55PM	33.1
	Flow rate				
	Before 2.0 l/min	(2.0 l/min)(430 min) = 860 l			
	After 2.0 l/min				
		$\frac{(33.12)(385)}{(860)(10^3)} = 0.015$ fibers/cc			
B12-3127-14	Blank				110 <0.6

SIGNATURE: [signature] DATE: 10/10/87

ST0015295

GILIBRATOR VERSION 1.1 Pump # 1259

FLOW	AVERAGE	# SAMPLES	
2000	2000	01	10/9/87
2009	2005	02	
2009	2006	03	
2008	2007	04	Before
2007	2007	05	
2004	2006	06	
2008	2005	07	B12-3127
2000	2005	08	
1999	2004	09	
1997	2003	10	

FLOW	AVERAGE	# SAMPLES	
2166	2166	01	10/9/87
2165	2166	02	Before
2163	2165	03	pump #
2159	2163	04	12056
2160	2163	05	
2159	2162	06	
2157	2161	07	
2157	2161	08	
2157	2160	09	B12-3127
2156	2160	10	

2180	2177	02	
2179	2177	03	

FLOW	AVERAGE	# SAMPLES	
2176	2176	01	10/9/87
2174	2175	02	Before
2177	2176	03	
2173	2175	04	
2177	2175	05	Pump #
2171	2175	06	1260
2173	2174	07	
2173	2174	08	
2174	2174	09	
2171	2174	10	B12-312

FLOW	AVERAGE	# SAMPLES	
1849	1849	01	Before
1853	1851	02	
1852	1851	03	Pump #
1853	1851	05	2802
1848	1851	06	
1847	1850	07	
1847	1850	08	10/9/87
1846	1848	09	
1845	1849	11	
1847	1848	12	B12-3127

FLOW	AVERAGE	# SAMPLES	
1806	1806	01	After
1820	1813	02	Pump
1818	1815	03	2801
1817	1815	04	
1818	1816	05	10/12/8
1816	1816	06	
1815	1816	07	
1810	1815	08	
1810	1814	09	
1810	1814	10	

FLOW	AVERAGE	# SAMPLES	
2137	2137	01	After
2138	2136	02	
2138	2136	03	Pump #
2135	2136	04	
2136	2136	05	12[illegible]
2135	2136	06	
2133	2135	07	
2133	2135	08	10/12/
2133	2135	09	
2135	2135	10	

FLOW	AVERAGE	# SAMPLES	
1950	1950	01	After
1953	1952	02	
1953	1952	03	Pump #
1952	1952	04	1259
1950	1952	05	
1949	1951	06	
1950	1951	07	10/12/8
1950	1951	08	
1948	1951	09	
1948	1950	10	

FLOW	AVERAGE	# SAMPLES	
1911	1920	02	After
1911	1919	03	
1911	1918	04	Pump #
1911	1917	05	1205
1911	1916	06	
1910	1915	07	
1913	1915	08	10/13/
1910	1915	09	

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