

INDUSTRIAL HYGIENE REPORT TEXAS OPERATIONS

DOW CHEMICAL U.S.A.
AN OPERATING UNIT OF THE DOW CHEMICAL COMPANY

FILE NUMBER:	A6-3311
DATE ISSUED:	May 17, 1988
PLANT CODE:	16100

TITLE:

EVALUATION OF CONTRACTOR WORK HABITS USING AREA MONITORING FOR ASBESTOS DURING A TRANSITE BOARD REMOVAL PROJECT AT TEXAS OPERATIONS-MAGNESIUM CASTING A, (A-629), ON MARCH 22 AND 30, 1988.

AUTHOR(S)

R. J. Reda

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REVIEWER(S)

C. L. Sandlin

C. L. Sandlin

SUMMARY

Asbestos area monitoring was performed during the removal of a transite board project at Magnesium Casting A, (A-629), on March 22 and 30, 1988. All area sample results were less than the acceptable exposure guidelines of 0.2 fibers/cc. Results of the eight samples taken ranged from <0.0002 to 0.12 fibers/cc with an average of 0.019 fibers/cc.

The procedures outlined in the Texas Operations Asbestos Handbook - February, 1987 were followed during this removal project by Win Way Contractors. The work area was cordoned off and all workers within the restricted area used approved respiratory protection and protective clothing. Disposal and clean-up operations followed the handbook guidelines.

D. E. Cragar, B-101
W. Demain, B-101
G. W. Engdahl, 1803, Midland
J. H. Hedrick, A-650

W. A. Johnson, A-650
*J. E. LeBeau, 1803, Midland
*L. W. Rampy, 1803, Midland
M. G. Swank, 1803, Midland

* Cover Sheet Only

ST0015193

EVALUATION OF CONTRACTOR WORK HABITS USING AREA MONITORING
FOR ASBESTOS DURING A TRANSITE BOARD REMOVAL PROJECT AT
MAGNESIUM CASTING A, (A629), ON MARCH 22 AND 30, 1988

INTRODUCTION

On March 22 and 30, 1988, Win Way contractors removed transite board from Magnesium Casting A, (A-629), ceiling. Area monitoring was conducted to evaluate potential exposures to asbestos during this operation.

CONCLUSIONS

All area sample results were less than the acceptable exposure guidelines of 0.2 fibers/cc. Results of the eight samples taken ranged from <0.0002 to 0.12 fibers/cc with an average of 0.019 fibers/cc. Monitoring results have been communicated to Win Way Contractors for employee notification. See Table I for sampling results.

RESULTS AND DISCUSSION

Win Way contractors removed transite board from Magnesium Casting A ceiling, following procedures in the Texas Operations Asbestos Handbook - February 1987 Guidelines. The actual removal process lasted two days and occurred on March 22 and March 30, 1988.

Scaffolding and decking was erected to perform this removal project. A double layer of clear poly was laid out on the decking and attached to the scaffold's mid-rails. Prior to removal, each transite board was wetted with amended water. Once removed the transite was placed on a double layer of poly, wrapped and secured. The wrapped transite was lowered to the ground and placed in a dino box for disposal. The poly on the scaffolding was rolled up and properly disposed of with the work area being thoroughly cleaned.

Approved respirators and protective clothing was worn by all operators involved within this restricted area.

METHODOLOGY

Asbestos samples were collected using calibrated Gilian HFS 513 air sampling pumps. A known volume of air was pulled through 25 mm cellulose ester membrane filters, 0.8 micron pore size. Samples were collected at a flow rate of approximately 2 liters per minute. The samples were counted by McKee Environmental Health Services using NIOSH Analytical Method #7400.

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EVALUATION OF CONTRACTOR WORK HABITS USING AREA MONITORING
FOR ASBESTOS DURING A TRANSITE BOARD REMOVAL PROJECT AT
MAGNESIUM CASTING A, (A629), ON MARCH 22 AND 30, 1988

EVALUATION CRITERIA

The evaluation of exposure levels was based on the following criterion:

	<u>OSHA PEL</u>
Asbestos	0.2 fibers/cc

The OSHA Permissible Exposure Limit (PEL) is the time-weighted average concentration for a normal 8-hour workday, 40 hour work week, to which nearly all workers may be repeatedly exposed without adverse health effects.

ST0015195

TABLE I
ASBESTOS TRANSITE REMOVAL BY WIN WAY CONTRACTORS
MAGNESIUM CASTING A - BUILDING 629

<u>Sample No.</u>	<u>Location</u>	<u>Date</u>	<u>Sample Time (min.)</u>	<u>Asbestos fibers/cc</u>
A650 3-22-88 RJR 1	On top of conveyor #1 B	3-22-88	460 min.	0.0028
A650 3-22-88 RJR 2	#1 Bay Area on hand rail	3-22-88	457 min.	0.013
A650 3-22-88 RJR 3	On top of air conditioning unit by #2 conveyor	3-22-88	453 min.	0.004
A650 3-22-88 RJR 4	On top of column in the middle of #2 conveyor	3-22-88	462 min.	0.005
A650 3-30-88 RJR 1	10' west of pot #1	3-30-88	473 min.	0.0008
A650 3-30-88 RJR 2	On hand rail by #2 bay	3-30-88	470 min.	<0.0002*
A650 3-30-88 RJR 3	On hand rail between Furnace #2 and bay #2	3-30-88	470 min.	0.12
A650 3-30-88 RJR 4	On girder next #2 conveyor	3-30-88	470 min.	0.008

*< = less than/limit of detection

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DOW CHEMICAL U.S.A.

TEXAS OPERATIONS
FREEPORT, TEXAS 77541

May 23, 1988

Mike Lowery
Win Way, Inc.
P. O. Drawer GG
Freeport, Texas 77541

FILE: IHS A6-3311

EVALUATION OF CONTRACTOR WORK HABITS USING AREA MONITORING FOR ASBESTOS
DURING A TRANSITE BOARD REMOVAL PROJECT AT MAGNESIUM CASTING A ON MARCH
22 AND 30, 1988

Win Way contractor employees have been included in an Industrial Hygiene survey conducted by Dow Texas Operations Industrial Hygiene Department. The results of this survey as it pertains to your employees is attached. This removal project followed the Texas Operations Asbestos Handbook guideline procedures. It is your responsibility to inform your employees of the monitoring results of this survey.

Industrial Hygiene Services
Texas Operations

db

ST0015197



McKEE ENVIRONMENTAL HEALTH SERVICES

11114 Sagepark • Houston, TX 77089 • (713) 481-3501

May 2, 1988

LAB ANALYSIS REPORT

Client: Dow Chemical, USA
Cheryl Sandlin (8101Y)
Freeport, Tx 77541

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

ST0015198

Sample I.D.	M.E.H.S. Number	# of fields	# of fibers	fibers per mm ²	
SIH #28	880248	20	143	910.8	
32	9	20	127	808.9	
34	50	47	100	271.0	
A3601	1	100	9.5	12.10	
2	2	100	5.5	7.01	
3	3	100	10.	12.74	
4	4	100	11.	14.01	
6	5	100	2.5	3.18	
7	6	100	4.5	5.73	
8	7	100	1.	1.27	
9	8	10	5.5	7.01	
10	9	100	2.5	3.18	
→ A650-1 (3/22)	880260	100	6.	7.64	
2	1	100	25.	31.85	
3	2	100	9.	11.46	
4	3	100	10.	12.74	
5	4	100	LT 0.5	LT	0.6
→ A650-1 (3/30)	5	100	2.	2.55	
2	6	100	LT 0.5	LT	0.6
3	7	45	103.	291.6	
4	8	100	17.	21.66	
5	9	100	LT 0.5	LT	0.6

FILE NO.	PROCESS	Asbestos/Transite Removal	BLDG.	A629	DATE	3-30-8
MATERIAL	Asbestos	SAMPLING METHOD	25mm filter	TRAPPING MEDIUM		
TYPE OF PUMP	Gilian	FLOW SET		FLOW RATE		FLOW FACTOR
REMARKS (VENTILATION, ETC.)	Asbestos Handbook Texas Operations 2/87 - All Procedures in Removal Project were followed.					

3 p. b.

ST0015195

1/1

2121

DATE: 4-5-88

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NO.	PROCESS <i>Asbestos / Transect Removal</i>	BLDG. <i>A 629</i>	DATE <i>3-30-88</i>
MATERIAL <i>Asbestos</i>	SAMPLING METHOD <i>25mm filter</i>	TRAPPING MEDIUM	
TYPE OF PUMP <i>Gilian</i>	FLOW SET	FLOW RATE	FLOW FACTOR
REMARKS (VENTILATION, ETC.) <i>Asbestos handbook Texas Operations 2/8</i> <i>All Procedures in Removal Project were followed.</i>			

SAMPLE NO	SAMPLE DESCRIPTION		STROKE COUNT	TIME	TOTAL TIME (MIN)
A 650	PUMP S/N 3097C	START		7 ⁵⁰ AM	470 min.
	FLOW FACTOR:				
	ON Girders Next to #2 CONVEYOR	STOP		3 ⁴⁰ PM	
3-30-88	See Attached Map	TOTAL LITERS AIR: 9721			
RJR4	calibration before 12.089 LPM				
	after 2.046 LPM				
	avg. 2.068 LPM				
				(21.06) x (385)	
				972000	= 0.008
				(blank subtracted)	Fibers/ml

A 650	PUMP S/N	START			
	FLOW FACTOR:				
3-30-88		STOP			
RJR5		TOTAL LITERS AIR:			
(blank)					

	PUMP S/N	START			
	FLOW FACTOR:				
		STOP			
		TOTAL LITERS AIR:			

ST0015200

SIGNATURE:

DATE:

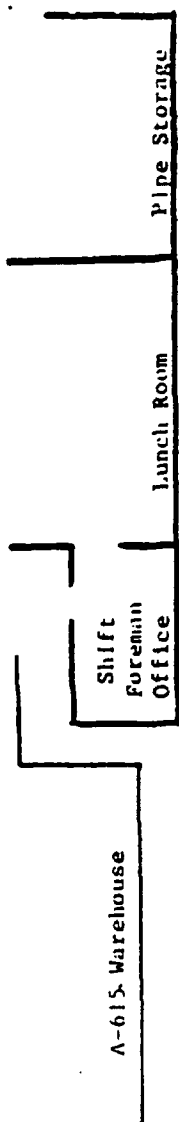
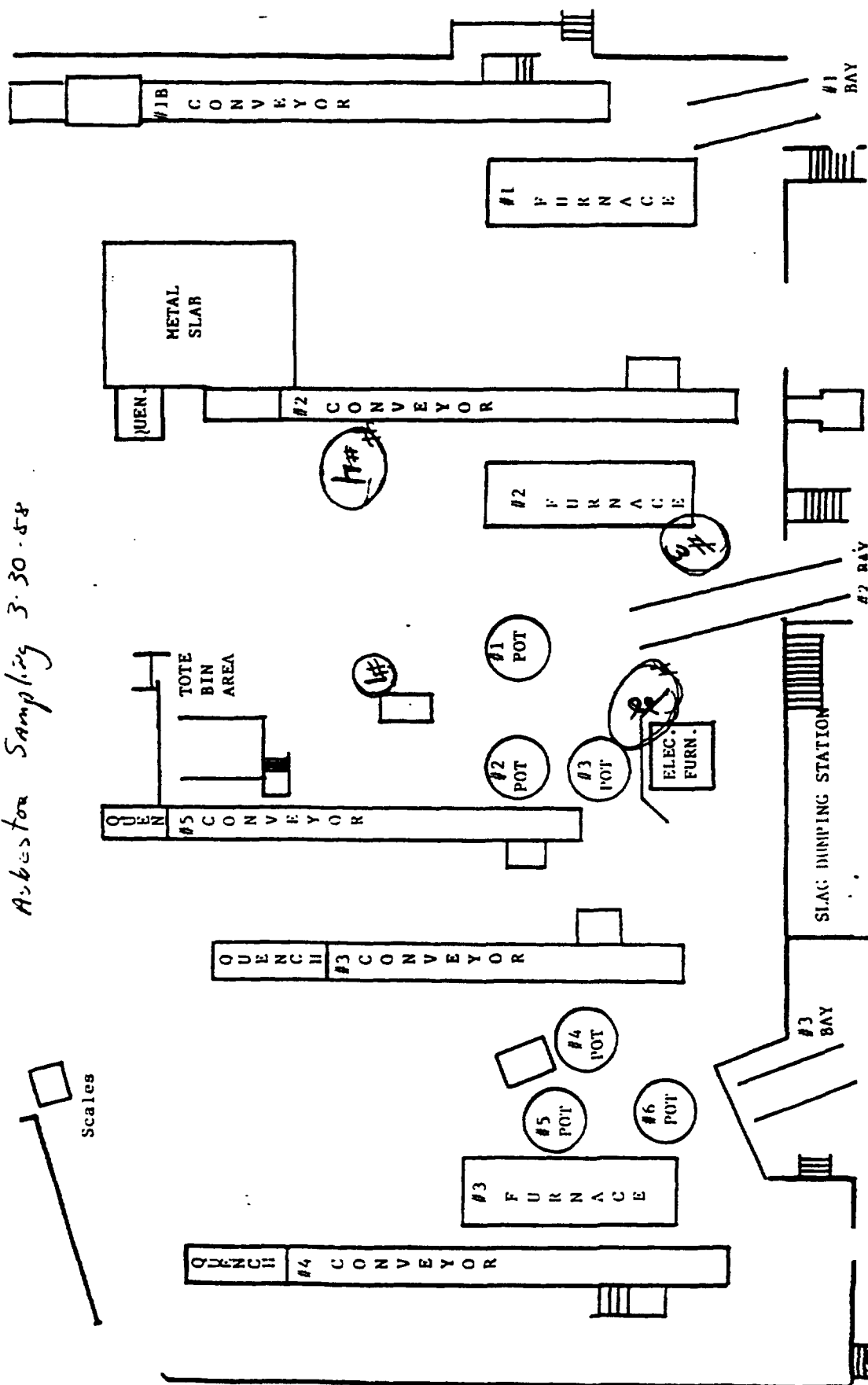
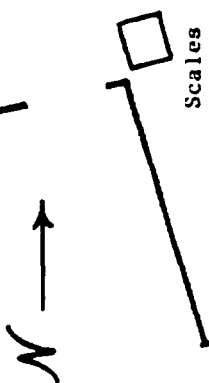


FIGURE
Mag Casting A, A-629
Asbeston Sampling 3-30-58

Went



ST0015201



DOW CHEMICAL U.S.A.
TEXAS OPERATIONS

Reorder Per Pad - Dow Code 07-02515-00

JOB NO _____
CHARGE NO _____
SUBJECT Transite Removal Project
AG 29 3/30/88
Mag Cant A SHEET _____ OF _____
AUTH NO _____
FILE NO _____
BY _____
DATE _____
CHECKED BY _____

*Gilibrator Calibrator Model PWO 800268
Gilian Corp. SN, 9355*

3/30/80
Pre
1257C

FLOW	AVERAGE	# SAMPLES
2003	2003	01
2013	2008	02
2012	2009	03
2008	2009	04
2020	2011	05
2018	2012	06
2016	2013	07

α
3/31/80

1959	1959	01
1964	1962	02
1964	1962	03
1964	1963	04
1962	1963	05
1962	1963	06
1958	1962	07
1960	1962	08

3/31/80
Pre
2100
Pre

FLOW	AVERAGE	# SAMPLES
2045	2045	01
2044	2045	02
2052	2047	03
1962	2026	04
2059	2032	05
2052	2036	06
2051	2008	07

ES
1257C
Post
3/31/88

1972	1972	01
1974	1973	02
1981	1976	03
1981	1977	04
1977	1977	05
1976	1977	06
1953	1972	07

Pre
3/30/80
2097C

FLOW	AVERAGE	# SAMPLES
2043	2043	01
2043	2043	02
2044	2043	03

2097C
Post
3/31/88

FLOW	AVERAGE	# SAMPLES
2043	2043	01
2043	2043	02
2044	2043	03
2048	2045	04
2047	2046	05

3/30/88
1256C
Pre

1957	1958	01
1970	1959	02
1970	1970	03
1974	1971	04
1975	1970	05

Post
3/31/88
1256C

1947	1945	01
1947	1946	02
1946	1946	03
1946	1945	04

ST0015202

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NO.	PROCESS <u>Asbestos / TRANSIT Removal</u>	BLDG. <u>A629</u>	DATE <u>3-23-88</u>
MATERIAL <u>Asbestos</u>	SAMPLING METHOD <u>25 mm Filter</u>	TRAPPING MEDIUM	
TYPE OF PUMP <u>Gilian</u>	FLOW SET	FLOW RATE	FLOW FACTOR
REMARKS (VENTILATION, ETC.) <u>Asbestos HANDBOOK TEXAS OPERATIONS 2/87</u>			
<u>All Procedures in Removal Project WERE Followed.</u>			

SAMPLE NO	SAMPLE DESCRIPTION	STROKE COUNT	TIME	TOTAL TIME (MIN)
A650-32288-RJR1	PUMP S/N <u>1259C</u>	START	8:00 AM	460 min.
	FLOW FACTOR:			
	Location - ON top of #1B	STOP	3:40 PM	
	CONVEYOR - See Attached Map			
	TOTAL LITERS AIR: <u>953 l</u>			
	Calibration before <u>2.069 LPM</u>			
	After <u>2.077 LPM</u> (7.04) (385)			
	Avg. <u>2.073 LPM</u> = 0.0028 f/c			
953000				
(blank subtracted)				

A650-32288-RJR2	PUMP S/N <u>1205C</u>	START	8:03 AM	457 min.
	FLOW FACTOR:			
	Location - #1 BAY Area	STOP	3:40 PM	
	See Attached Map			
	TOTAL LITERS AIR: <u>912 l</u>			
	Calibration before <u>2.1009 LPM</u>			
	After <u>1.982 LPM</u>			
	Avg. <u>1.995 LPM</u> (31.25) (385) = 0.013 f/c			
912000				
(blank subtracted)				

A650-32288-RJR3	PUMP S/N <u>12057</u>	START	8:05 AM	453 min.
	FLOW FACTOR:			
	Location - ON top of	STOP	3:42 PM	
	Air Conditioning unit			
	TOTAL LITERS AIR: <u>944 l</u>			
	Calibration before <u>2.1070 LPM</u>			
	After <u>2.098 LPM</u> (10.86) (385)			
	Avg. <u>2.084 LPM</u> = 0.004 f/c			
944000				
(blank subtracted)				

SIGNATURE: R.L. Reed

DATE: 3-29-88

ST0015203

3 f/c
min

0.004 f/c
min

INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NO.	PROCESS <i>Asbestos Transite Removal</i>	BLDG. <i>H 629</i>	DATE <i>3-23-88</i>
MATERIAL <i>Asbestos</i>	SAMPLING METHOD <i>25mm Filter</i>	TRAPPING MEDIUM	
TYPE OF PUMP <i>Gilian</i>	FLOW SET <i>2.0 LPM</i>	FLOW RATE <i>2.0 LPM</i>	FLOW FACTOR
REMARKS (VENTILATION, ETC.) <i>Asbestos Handbook - TEXAS Operations 2/87</i> <i>All Procedures in Removal Project were followed.</i>			

SAMPLE NO	SAMPLE DESCRIPTION	STROKE COUNT	TIME	TOTAL TIME (MIN)
A 650- 3-22-88 RJR 4	PUMP S/N <i>2100</i>	START	<i>7:59 AM</i>	<i>462 min</i>
	FLOW FACTOR:			
	<i>Location 2 - on top of column by the middle of conveyor #2</i>	STOP	<i>3:41 PM</i>	
	<i>See Attached Map.</i>	TOTAL LITERS AIR: <i>943.1</i>		
	<i>Calibration before 2.0157 LPM (12.14) (385)</i>			
	<i>After 2.026 LPM</i>	<i>943.000 = 0.005</i>		
	<i>Avg. 2.042 LPM</i>	<i>files/ml</i>		

A 650 3-22-88 RJR 5 (blank)	PUMP S/N	START		
	FLOW FACTOR:			
		STOP		
	TOTAL LITERS AIR:			
<i>(Subtracted)</i>				

PUMP S/N	START		
FLOW FACTOR:			
	STOP		
TOTAL LITERS AIR:			

SIGNATURE: *R. J. Reda*

DATE: *3-29-88*

ST0015204

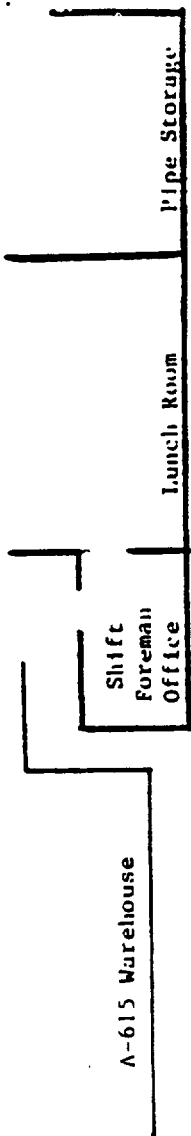
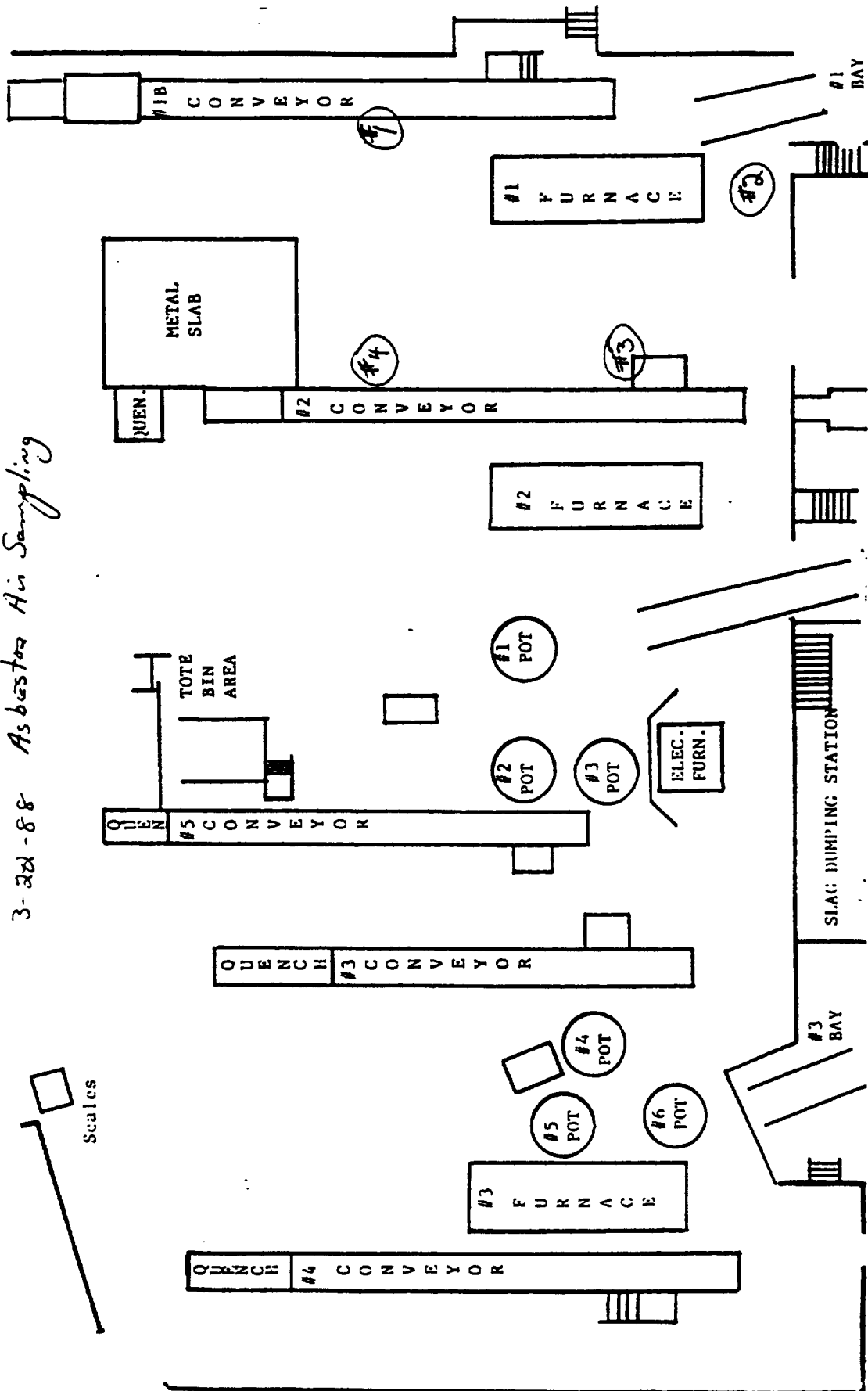
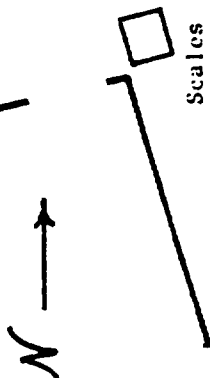


FIGURE
Map Casting A, A-629

3-28-88 Asbestos Air Sampling



ST0015205



DOW CHEMICAL U.S.A.
TEXAS OPERATIONS

Reorder Per Pad - Dow Code Q7-02515-0

JOB NO MAG. Cast. A Plant
CHARGE NO Asbestos - Transit Removal Survey
SUBJECT ON 3/23/88

AUTH NO _____
FILE NO _____

Pre Calibration

*pre-cal
3/22/88
12056
5N Gilian
Pump*

FLOW	AVERAGE	# SAMPLES
38	2008	01
32	2000	02
39	2003	03
84	2023	04
10	2021	05
00	2019	06
12	2018	07
44	2008	08
10	2009	09

FLOW AVERAGE # SAMPLES

*pre-cal
12057
3/22/88
Gilian
Pump*

FLOW	AVERAGE	# SAMPLES
263	2063	01
286	2075	02
267	2072	03
2117	2082	04
2350	2076	05
2055	2074	06
2060	2072	07
2060	2071	08
2025	2070	09

*2100
3/22/88
pre-cal
Gilian
Pump*

FLOW	AVERAGE	# SAMPLES
2040	2040	01
2040	2040	02
2040	2040	03
2040	2040	04
2040	2040	05
2040	2040	06
2040	2040	07
2040	2040	08
2040	2040	09

*1259C
3/22/88
pre-cal
Gilian
Pump*

FLOW	AVERAGE	# SAMPLES
306	2066	01
307	2099	02
307	2051	03
307	2051	04
307	2051	05
307	2051	06
307	2051	07
307	2051	08
307	2051	09

after Post Calib.

3/22/88

FLOW AVERAGE # SAMPLES

FLOW	AVERAGE	# SAMPLES
1976	1976	01
1982	1979	02
1983	1983	03
1973	1981	04
1979	1980	05
1976	1980	06
1976	1979	07
1979	1979	08
1979	1979	09
1983	1983	10
1997	1981	11
1986	1982	12

FLOW AVERAGE # SAMPLES

FLOW	AVERAGE	# SAMPLES
2030	2030	01
2034	2032	02
2024	2029	03
2041	2032	04
327.2	1691	05
327.2	2032	06
1959	2018	07
2049	2027	08
2048	2026	09

FLOW AVERAGE # SAMPLES

FLOW	AVERAGE	# SAMPLES
2101	2101	01
2097	2099	02
2098	2099	03
2095	2098	04
2100	2098	05
2101	2099	06
2093	2098	07

FLOW AVERAGE # SAMPLES

FLOW	AVERAGE	# SAMPLES
124	124	02
1370	1370	01
124	124	02
1370	1370	01
124	124	02
1370	1370	01
124	124	02
1370	1370	01
124	124	02
1370	1370	01

ST0015206

Gilibrator Calibrator Model PND 800268
5N/935 S

*2100
Gilian
Pump*

*12057
Gilian
Pump*

*1259C
Gilian
Pump*

SECTION XII

ASBESTOS ABATEMENT AUDIT CHECKLIST

Job Description TRANSite Removal from Ceiling Date: 3-30-88
Location: A629 Removal by: Win Way - Contractors
Company Name

1. Regulated Area Established and Signs Posted: YES ☒ NO ☐
Polyethylene or other coverings over floor & objects: YES ☒ NO ☐
2. Decontamination Area Established: YES ☒ NO ☐
Contiguous ☐ Remote: ☐ Location: yes
Entry to work area only through decontamination area condon off area is also decontamination area YES ☐ NO ☒
3. Negative Pressure Enclosure Established: YES ☐ NO ☒
Floor Covered YES ☐ NO ☐
Walls Covered YES ☐ NO ☐
Area Ventilation OFF YES ☐ NO ☐
All Edges Sealed YES ☐ NO ☐
Penetrations Around Pipes and Conduit Sealed YES ☐ NO ☐
Entry Curtains YES ☐ NO ☐
Negative Pressure Achieved (-0.02" water) YES ☐ NO ☐
4. Protective Equipment: YES ☒ NO ☐
Disposable Coveralls with Hood and Boots YES ☒ NO ☐
Coveralls Unzipped, Torn, or Out YES ☐ NO ☒
Coveralls Used One Time YES ☒ NO ☐
Approved Respirator 1/2 face piece Respirator YES ☒ NO ☐
Type Used was worn YES ☒ NO ☐
Clean Shaven YES ☒ NO ☐
Straps Under Hood YES ☒ NO ☐
Safety Equipment Required by Location:
Hard Hat YES ☒ NO ☐
Safety Glasses YES ☒ NO ☐
Goggles YES ☒ NO ☐

ST0015207

Scaffolding floor was lined with plastic to keep falling pieces at a controllable situation.
(See procedure attached)
-38-

SECTION XII

ASBESTOS ABATEMENT AUDIT CHECKLIST

5. Work Practices:

Material Worked Wet	YES ☒	NO ☐
Material Kept Wet Until Bagged & Sealed	YES ☒	NO ☐
Material Too Wet, Mushy	YES ☐	NO ☒
Insulation Broken Intentionally	YES ☐	NO ☒
Material Dropped to Ground	YES ☐	NO ☒
Removed Material Promptly Bagged	YES ☒	NO ☐
Bags Torn or Left Open	YES ☐	NO ☒
Visible Emissions	YES ☐	NO ☒
HEPA Filtered Vacuum Used N/A	YES ☐	NO ☐
Smoking, Eating, Drinking, Chewing, Cosmetics	YES ☐	NO ☒
Personnel Decontaminated Each Departure N/A	YES ☐	NO ☐
Shower Used by All Personnel N/A	YES ☐	NO ☐
Exposed Asbestos at Terminations Sealed with Encapsulant N/A	YES ☐	NO ☐
Work Area Cleaned After Completion <i>with methanol</i>	YES ☒	NO ☐

Continuous Job

6. Personnel Monitoring NO

Initial Monitoring ☒	Contractor ☒	Dow ☒	YES ☒	NO ☐
Daily Monitoring	<i>Area Monitoring</i>		YES ☒	NO ☐
Area Monitoring			YES ☒	NO ☐

COMMENTS: Transite Removal was completed following
with the approved procedure for that
particular operation. See attached form.

SIGNATURE: *Phil J. Redd*

Industrial Hygienist/Safety Director

cc: Project Supervisor
 Area Owner
 Safety Director
 Industrial Hygienist
 Manager, Industrial Hygiene Services

1/25/87

db

ST0015208

Mg Cast A

2/8/88

PROCEDURE FOR THE REMOVAL OF TRANSITE FROM
CEILING OF A-629

1. All rules and regulations as per the TEXAS OPERATIONS ASBESTOS HANDBOOK shall apply where relevant.
2. This will be a large scale, long duration job with the exception of a negative air enclosure.
3. The entire area shall be worked in sections. (ex: 1/4 at a time, etc.)
4. Scaffolding shall be erected in such a fashion as to solidly deck the area to be stripped.
5. Clear poly (doubled layered) shall be laid out on the decking and attached to the scaffold's mid-rails.
6. Prior to removal, each transite sheet shall be wetted with amended water.
7. The transite shall then be removed from the ceiling using a pry bar. (Care should be taken to avoid breaking any transite material.)
8. Removed transite shall be placed on a double layer of poly which is large enough to be wrapped around several stacked sheets of transite and secured.
9. The wrapped transite shall be lowered to the ground by a rope and placed in a dino box for disposal.
10. At the end of the day the work area shall be thoroughly cleaned. The poly on the scaffold shall be rolled up and properly disposed of.

S10015209