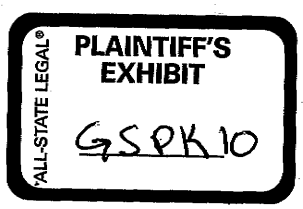
SECTION 10

DOW CHEMICAL / GAKET REMOVAL STUDY

2/18/87



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ST0673125

Oliver R. McDonald
September 25, 1989

4-18-86 PIPE INSULATION ANALYSIS FOR ASBESTOS None

OBJECTIVE: OBTAIN POSITIVE IDENTIFICATION OF INSULATING MATERIAL TO BE REMOVED FROM PIPING AND STRUCTURE LOCATED IN AREA JUST EAST OF THE R+D SEMI-COMMERCIAL WORKS BUILDING.

PROCEDURE TAKEN: SAMPLES OF THE INSULATING MATERIAL(S) WERE COLLECTED BY MAINTENANCE FROM VARIOUS LOCATIONS ON THE STRUCTURE AND DELIVERED TO THE INDUSTRIAL HYGIENE DEPT. BY COLE MINER, MUNDY SAFETY REPRESENTATIVE. THESE SAMPLES WERE DOUBLE PACKAGED IN PLASTIC BAGS AND SENT TO FREEPORT FOR ANALYTICAL EVALUATION.

DATA: SAMPLES ARE LABELED AS FOLLOWED WITH THE RESULTS AND DATE RECEIVED.

SS #	DESCRIPTION	RESULTS	DATE
0001	COLUMN INSULATION	CHRYSOTILE ASBESTOS	5-2-86
0002	6" FROM STRUCTURE	SYNTHETIC FIBERS FIBERGLASS	5-2-86
0003	SIGHT GLASS	CHRYSOTILE ASBESTOS	5-2-86
0004	PIPE ON GROUND	CHRYSOTILE ASBESTOS	5-2-86

COMMENTS: ANALYTICAL SERVICES IN FREEPORT USED LIGHT MICROSCOPY TECHNIQUE TO ANALYZE THESE SAMPLES. ANALYSIS WAS PERFORMED BY BARBARA BURKHARDT.

MAINTENANCE HAS BEEN REQUESTED TO PREPLAN PROJECTS WHICH MAY INVOLVE REMOVAL OF ASBESTOS INSULATION TO ALLOW SAMPLES TO BE ANALYZED PRIOR TO JOB DATE.

Gregory A. Rogers
8/30/89

ST0673126

LaPorte Alloys Systems

May 29, 198

SEPT. 15, 1986 — ASBESTOS MONITORING IN POLYOLS - R504 AND PIPE INSULATION REMOVAL

OBJECTIVE : OBTAIN REPRESENTATIVE AIR SAMPLES FROM THE BREATHING ZONES OF CONTRACT.. EMPLOYEES INVOLVED IN THE REMOVAL OF ASBESTOS INSULATION FROM POLYOL'S VESSEL R504 AND PIPES CONNECTED TO THE VESSEL.

EQUIPMENT : 2 - DUPONT AIR SAMPLING PUMPS MODEL P2500B
0.8 UM, MCE FILTER FOR ASBESTOS SAMPLING
TYGON TUBING

DESCRIPTION OF PROCEDURE : THE CONTRACTOR, ORTIZ, UTILIZED FROM 2 TO 4 WORKERS FOR THE JOB. THEIR WORKERS WERE EQUIPPED WITH TYPAC FULL BODY SUITS @ HOOD AND SHOE COVERS, FULL-FACE AIR SUPPLIED RESPIRATORS, AND RUBBER GLOVES. THEY WORK AN 8 HOUR WORK DAY WITH ONE MORNING BREAK AND A LUNCH BREAK.

A SCAFFOLD WAS ERECTED AROUND THE VESSEL WHICH IS LOCATED INSIDE THE RAW MATERIALS WAREHOUSE. THE WORKERS BEGAN THE PROCEDURE AT THE TOP OF THE VESSEL. THE INSULATION WAS THOROUGHLY SOAKED WITH WATER AND REMOVED IN APPROXIMATELY 1 FOOT IN DIAMETER SECTIONS. THE SECTIONS WERE IMEDIATELY PLACED IN PLASTIC BAGS. ASBESTOS WHICH STUCK TO THE VESSEL WAS WASHED OFF OR SCRAPED BY HAND. THE MATERIAL WHICH COLLECTED ON THE FLOOR BENEATH THE VESSEL WAS CLEANED UP AT THE END OF THE DAY AND PLACED INTO PLASTIC BAGS. THE BAGS CONTAINING THE ASBESTOS WAS THEN PLACED INTO A SECOND BAG, SEALED, AND PACKAGED IN 30 GALLON PLASTIC CONTAINERS.

ST06731127

SAMPLING DATA : THE EMPLOYEES WERE MONITORED WHILE PERFORMING THE REMOVAL AND PACKAGING PROCEDURES. THE PUMPS TURNED OFF DURING BREAKS AND LUNCH. THE WORKERS REMOVED THE PROTECTIVE CLOTHING AT THESE TIMES.

TEMP - 85-92°F

PUMP FLOW RATES - 2.5 liters/MIN calibrated with bubble tube. on Sept 14, 1984.

			Sample Times						
PUMP NO	DATE	EMPLOYEE NAME	START	STOP	START	STOP	START	STOP	TOTAL SK TIME
13963	9/15/86	MORENO, PABLO	10:52	12:10	1:27	3:12	—	—	3:03
13968	9/15/86	TORRES, GEORGE	10:54	12:10	1:25	3:13	—	—	3:04
13963	9/16/86	MORENO, PABLO	8:13	9:25	10:09	12:12	1:20	2:56	4:51
13968	9/16/86	TORRES, GEORGE	8:12	9:25	10:08	12:12	1:18	2:56	4:55

Gregory A. Rogers
8/30/89

SEPT. 15, 1986 — ASBESTOS MONITORING IN POLYOLS - R504 AND PIPE INSULATION REMOVAL

REPORT 529-87 LaPorte Alliant System

SAMPLE RESULTS: THE SAMPLING FILTER CASSETTES WERE SENT TO MCKEE E-H SERVICES, ILLY. SAGEPARK, HOUSTON, TX 77089. FOR ANALYSIS. THE RESULTS OF THE SAMPLING ARE:

SAMPLE NO.	DATE OF SAMPLE	EMPLOYEE NAME	SAMPLE DURATION	VOLUME SAMPLED	LAB RESULTS FIBERS/cc	8hr TWA
0005	9/15/86	MORENO, PAOLO	3:03	457.5 l	0.002	0.001
0006	9/15/86	TORRES, GEORGE	3:04	460.0 l	0.018	0.007
0007	9/16/86	MORENO, PAOLO	4:51	727.5 l	0.025	0.015
0008	9/16/86	TORRES, GEORGE	4:55	737.5 l	0.035	0.022
0009	BLANK	BLANK	BLANK	—	CLEAN	

ST0673128

Gregory A. Rogers
8/30/89

Jan 16, 1987 Asbestos Monitoring in A-Unit (Hot Oil) LPAS-3129

6-29-87

Objective: Obtain representative air samples from the breathing zones of contract employees involved in the removal of asbestos insulation from the hot oil piping in A-Unit.

Equipment: 2 - Dupont Model P2500.B sample pumps
2 - .8 µm, MCE Filter cassettes for Asbestos sampling
Tygon tubing

Description of procedure: The contractor, Ortiz, Bros. utilized 3 employees for the job. The workers were equipped with Tyvac full body suits with attached hoods, shoe covers, full-face air supplied respirators, and rubber gloves.

This particular job involved the removal of approximately 20 feet of asbestos insulation. The procedure required the removal of the metal shell, ~~clipping~~ soaking the insulation with water, clipping the wire binder, and removing the sections of insulation by hand. The insulation was then double bagged. This part of the procedure was performed by two employees. The base line beneath the insulation contained ~500°F hot oil so it was difficult to maintain a wet condition on the insulation. This work was done in a pipe rack ~10 feet from ground.

The double bagged insulation was handed down to a third employee who then taped the bags closed and stacked for later removal to the proper waste pick up area. This employee wore the same PPE as the ones doing the removal.

ST06731 29

Sampling Data: This sampling period covered the entire removal process of this job. No breaks were taken. Sampling includes the preparation and clean up procedures. TEMP- 62°F Wind speed- 5mph Wind direction- NE. PUMP FLOW RATE = 2.5 L/MIN CALIBRATED ON 1/16/87.

Sx #	Pump No.	Employee Name	Sx Start	Sx Stop	Vol Sx'd (L)	Results f/cc
0011	13968	REMOVAL HERNANDEZ, LUPE	1348	1455=~~67~~ 167	167.5	0.029 .004
0012	13963	HELPER CANALES, JOE	1349	1455=66	165.0	0.006 .001
0013	—	BLANK	—	—	—	CLEAN

DATE

SIGNED Hugo A. Rogers 8/30/89

ST06731

Jan 28, 1987 Asbestos Monitoring in Maint Area I Shop LPM-3132

6-27-87

Objective : Obtain representative air samples from the breathing zones of employees involved in the removal of asbestos insulation from steam lines located inside of the Maintenance Area I shop.

Equipment : 2- Dupont Model P2500 B Sample pumps
2- .8 µM MCE Filter cassette for Asbestos Sampling
Tygon

Description of Procedure : The contractor, Oatey Bros, utilized 3 employees for the job. The workers were equipped with Tyvac full body suits with attached hoods, shoe covers, full face air supplied respirators, and rubber gloves. The asbestos insulation to be removed was located about 10 ft above the floor on the south east side of the shop area. Offices running along the south wall were sealed off with plastic sheeting and tape. A rolling scaffold was utilized and was covered by plastic sheeting which was extended on either side of the scaffold to catch loose material if it fell. A pressure sprayer was used to wet the insulation during removal using amended water. Two employees stood on the scaffold wetting down, removing, wiping down the exposed pipe with wetrags, placing the wet insulation into double plastic bags, and then handed the bags to the third employee below. The third employee sealed the bags, maintained the pressure sprayer, and moved the scaffolding. all plastic sheeting was bagged after completion of the job. This job was performed after hours in the maintenance shop. One employee removing insulation and the employee working below were monitored.

Sampling Data : This sampling period covered the entire removal process of this job. No breaks were taken. Sampling includes some of the preparation and clean up procedure. Temp. 75°F. Wind 5 mph — indoors
Pump flow rate 2.5 l/min

JOB	SX #	PUMP NO	EMPLOYEE NAME	SX START	SX STOP	MIN TOTAL SX TIME	SX VOL	RESULTS	F/cc TWA
REMOVAL	0014	13963	HERNANDEZ, LUPE	1623	1828	125	312.5	0.787	0.205
HELPER	0015	13968	CANALES, JOE	1623	1828	125	312.5	0.121	0.032
	0016		BLANK					CLEAN	

SIGN:

Hugo A. Rojas
8/30/87

ST0673

ST0673130

LaPorte LIRL REPORT

1-30-87 Asbestos Removal @ R&D Building

5-19-87

Objective: Obtain representative air samples from the breathing zones of employees removing insulation and from areas outside the containment area during asbestos insulation removal inside the R&D building.

Equipment: 3-DuPont Model P2500B Sample pumps
.8 µm, MCE Filter cassettes for Asbestos sampling
Tygon Tubing

Description of Procedure: Sample pumps were set up on 1-30-87 to obtain background data on the areas where asbestos insulation is to be removed. The actual insulation removal began on 2-2-87 in the Mechanical room where the Hot Oil lines go through the wall from the outside on the east wall, turn north through another wall coming through in the equipment storage area over semi works offices. The lines proceed north to the north wall in the pre-pilot lab, turn west and run the length of the room.

For the removal work, the contractor, Oatis Bros, utilized three employees. Two employees perform the removal process by removing the protective shell, wetting the material with amended water contained in pump up sprayers, removing the sections of insulation and placing the sections into double plastic bags, wiping off any insulation which may adhere to the lines with wet rags which are also placed in the double plastic bags. The bags are then handed to a third employee who seals the bags and stacks for movement to the proper pick up area. This employee also maintains the breathing air bottles and moves scaffolding (when used).

All employees wear Tyvec full body suits with attachable hood, booties, rubber gloves, and full face air line respirators.

Sample pumps were removed and turned off during breaks and lunch periods.

Sampling Data: [redacted] [redacted] TEMP- 72° INDOORS

SX PERIOD	SX DATE	SX #	AIRLE NO.	SX DESCP	MIN SX TIME	SX VOL (LITERS)	LAB RESULTS FIBERS/cc	SHRTWA
1230-1400	1-30-87	0018	13968	PRE PILOT AREA - BEFORE	87	217.5	LT 0.002	LT 0.0004
1300-1300 ↓	2-2-87	0019	13968	JOEL GARCIA - REMOVAL	180	450.0	0.146	0.055
	2-2-87	0020	13963	JOE CANALES - HELPER	180	450.0	0.031	0.012
0730-1350	2-3-87	0021	13963	JOEL GARCIA - REMOVAL	265	662.5	0.221	0.122
↓	2-3-87	0022	13968	JOE CANALES - HELPER	265	662.5	0.226	0.125
	2-3-87	0023	13959	BRADENS OFFICE - OUTSIDE CONTAINMENT	430	860.0	0.008	0.007

SIGNED Angie A. Rogers 5/30/87

ST0673131

ST06731

1-30-87 Asbestos Removal @ R&D Building

LaPorte/HR
5-19-87

(cont)
Sampling:
Data

Sx Period	Sx Date	Sx #	Pump #	Sx Descp	Min Sx Time	Liters Sx Vol	Lab Results (Fibers/cc)	8 HR TWA
0730-1330	2-4-87	0024	13968	Joel Garcia - Removal	330	825.0	0.054	0.037
	2-4-87	0025	13963	Joe Canales - Helper	330	825.0	0.050	0.034
	2-4-87	0026	13959	Pre Pilot Lab - Area Cleanup	329	658.0	LT 0.002	LT 0.001
0800-1330	2-5-87	0027	13959	Pre Pilot Lab - After Removal	430	860.0	LT 0.001	LT 0.001

Comments: - The Sx #s 0023, 0026, & 0027 were collected with a flow rate of 20 liters/min.
- The cleanup procedure involved mopping the area & vacuuming. The employees wore approved dust masks during this phase and the 2-4-87 samples (0024 & 0025) include this clean up. Sample 0026 was place in a central location during clean-up.
- Offices and other work areas were sealed off during the removal with plastic sheeting and tape.

ST0673132

SIGNED

Gregory A. Rogers
8/30/89

ST06731:

La Porte URL REPORT

2-5-87 ~~1-30-87~~

Asbestos Removal @ R&D - Outside Building & Semi Works

5-19-87

Objective: Obtain representative air samples from the breathing zones of employees removing insulation from the pipe rack between R&D and Semi Works buildings and inside the Semi Works building.

Equipment: DuPont Model P2500B Sample Pumps
.8 μm, MCE filter cassettes for Asbestos Sampling
Tygon Tubing.

Description of Procedure: This outside removal starts on the east side of the R&D building where the hot oil lines come out of the building heading east for about eight feet then turn south in the pipe rack about 15 feet from the ground. They run south for about 25 feet then turn east then up and over the road between the R&D building and Semi Works. A rolling scaffold is used to remove the insulation until the pipes head up. The works then manuver along the top of the pipe racks across the road.

Three employees are used in the process with two workers removing the insulation (shell, wetting, insulation removal, bagging, wiping down pipe) and one employee sealing bags and maintaining the scaffold and breathing air.

All employees wore Tyvek full body suits with attachable hood, rubber gloves, booties, and full face air supplied respirators.

Sample pumps were removed & turned off during lunch & break periods

ST06731 33

Sampling Data: Temp - 65°F Wind - NE @ 2 MPH Partly cloudy ~~[illegible]~~

SAMPLE PERIOD	SX DATE	SX #	PUMP NO	SX DESCRIPTION	MID SX TIME	LITERS SX VOL	LAB RESULTS FIBERS/cc	8 hr TWA
1230-1453	1-30-87	0017	13968-2.5	SEMI WORKS AREA SX-BEFORE	133 (1230-1453)	332.5	LT 0.002	LT 0.001
0800-1530	2-5-87	0028	13968-2.5	LEONARDO FLORES-REMOVAL	235	587.5	0.070	0.034
↓	2-5-87	0029	13963-2.5	PATRICK BRYANT - HELPER	230	575.0	0.028	0.013
NA	2-6-87	0031		BLANK			CLEAN	
1230-1530	2-11-87	0034	13963-2.5	LEONARDO FLORES - REMOVAL	110	275.0	0.074	0.017

Gregory A. Rogers
8/30/89

ST06731

2-5-87 Asbestos Removal @ R&D - Outside & Semi Works

La Porte URL
5-19-87

	Sx Date	Sx #	Pump No 4/MIN	Sx DESCRIPTION	(MIN) Sx Time	(LITERS) Sx Vol	F/CC LAB RESULTS	Sh TWA
1230-1530	2-11-87	0035	13968-25	PATRICK BRYANT - HELPER	105	262.5	LT 0.004	LT 0.001
↓	2-11-87	0036	13959-2.0	AREA SX - SEMI WORKS CONTROL PANEL	108	216.0	0.015	0.003
NA	2-13-87	0037		BLANK			CLEAN	

ST0673134

Gregory A. Rogers
5/30/87

ST06731:

2-18-87

ASBESTOS REMOVAL - A-WAREHOUSE

LPAS-3128
6-29-87

OBJECTIVE: Obtain representative air samples from the breathing zones of employees removing insulation from the pipe rack running East & West along the north side of the A-warehouse dismantling a storage area and running north and south midway in the same area.

Equipment: Dupont Model P2500.B Sample pumps
.8 μ M, MCE filter cassettes for Asbestos Sampling
Tygon Tubing.

Description of Procedure: The removal process was performed inside of the A-Warehouse. The section of lines where insulation was to be removed was surrounded by plastic sheeting reaching from the pipe rack to the floor. The floor below the pipes was covered with plastic sheeting to collect any material which falls. A scaffold was erected and was rolled along as the insulation was removed. The pipe rack was located about 10 feet above the floor.

Two employees worked on the scaffold removing the metal casing, clipping the banding wire, removing the insulation, and wiping off material which adhered to the pipe with wet rags. The insulation is wetted with amended water before removal. The removed material is placed in plastic bags.

One employee worked below scaffold receiving the bags of insulation material, sealed the bags, and placed them aside.

All employees wore Tyvek full body suits with attached hoods, rubber gloves, shoe covers, hard hats, and full face air line respirators.

Their normal work day includes a 30 minutes of breaks and a 30 minute lunch period. Sample pumps and filters were removed while employees were on breaks and lunch or when performing other tasks than insulation removal.

ST0673135

Sample Data: Temp. 55°F - 60°F INSIDE

SX #	PUMP	SX DATE	SX PERIOD	SX DESCRIPTION	SX TIME (MIN)	SX VOL (LITERS)	LAB RESULTS (FIBERS/cc)	8 HR TWA
0033	13968	2-10-87	0950-1405	A-WAREHOUSE BEFORE	415	637.5	0.019	0.02
0038	13968	2-18-87	1035-1520	TORRES, JUAN - REMOVAL	180	450.0	0.214	0.08
0039	13963	2-18-87	1035-1520	BRYANT, PATRICK - HELPER	180	450.0	0.365	0.14

Angela A. Rogers
8/30/89

ST06731

2-18-87

ASBESTOS REMOVAL A-WAREHOUSE

LPAS-3128
6-29-87

SX #	PUMP	SX DATE	SX PERIOD	SX DESCRIPTION	SX TIME (MIN)	SX VOL (LITERS)	LAB RESULTS (FIBERS/CC)	INITIAL
0040	13967	2-18-87	0806-1520	AREA SX - EAST END	434	1085.0	0.008	0.01
0043	13963	2-19-87	1010-1215	TORRES, JUAN - REMOVAL	125	312.5	0.772	0.20
0044	13964	2-19-87	1010-1215	BRYANT, PATRICK - HELPER	125	312.5	0.608	0.16
00455	13967	2-19-87	1010-1315	AREA SX - EAST END	185	462.5	0.023	0.01
0046.		2-20-87		BLANK			N.D. CLEAN	

ST06731136

SIGNED

Gregg A. Rogers
8/30/89

Dow, 1987

2-18-87 ASBESTOS MONITORING - MAINT. GASKET BUFFING LPMT-3523

OBJECTIVE : Obtain representative air samples from the breathing zone of a millwright removing a fused gasket from equipment.

Equipment : Dupont Model P2500B sample pump
.8µM, MCE filter cassettes for asbestos sampling
Tygon tubing

Description of Procedure: Employee uses a chisel and hammer to break loose asbestos containing gaskets from a steam turbine pump. After loosening the gasket, the chisel is used to scrape the majority of the material from the pump flange. The remainder of the gasket which adheres to the flange is then buffed off using an air driven rotary tool equipped with a wire brush. This procedure was performed outdoors on the west side of the Maintenance Area I shop. The immediate area around the site was barricaded.

The employee wore a Tyvek full body suit with attached hood, rubber gloves, and a full face air line respirator.

EMPLOYEE: J.B. BLAKEMORE MASTER #: 237353 TEMP - 55°F WIND - N @ 8 MPH

ST0673137

Sample Data:

SX #	PUMP	SX DATE	SX PERIOD	SX DESCRIPTION	SX TIME (MIN)	SX VOL (LITERS)	LAB RESULTS FIBERS/CC	SHIFT WT
0041	13959	2-18-87	1505-1509	CHISEL PROCESS/BZ OF JB BLAKEMORE	4	8.0	0.121	
0042	13959	2-18-87	1509-1515	BUFFING PROCESS/BZ OF JB BLAKEMORE	6	12.0	18.14	

Angie A. Rojas
8/30/89

ST06731

4/2/87

Asbestos Monitoring in Pellethane Unit Insulation Removal on R 1614

LAFP-3131
6-29-87

OBJECTIVE: Obtain representative air samples to determine the air borne concentration of asbestos fibers in the breathing zone of workers and surrounding area during the removal of asbestos insulation.

EQUIPMENT: DuPont Model P2500 B air sampling pumps .8 lpm, MCE filter cassettes for asbestos sampling Tygon Tubing

DESCRIPTION OF PROCESS: R1614 is a horizonal vessel located on the east side of the Pellethane building. Scaffolding is erected around the vessel, plastic enclosure was built around the scaffolding the help prevent material from escaping the confinement. The insulating material is wetted with process H_2O. Workers use FF positive pressure ALR, Tyvek full body suits with attached hood, rubber boots, rubber gloves, and hard hats. Three workers removed the insulation and worked within the confinement. A fourth worker maintained the work area and occasionally entered the confinement. The pomps were turned off for breaks and lunch.

The sample pumps were calibrated prior to the actual sampling using a bubble tube.

ST:06731 38

SAMPLE DATA:

Sx #	Sx Period	Sx Description	Sx Length (Min)	Sx Vol (Liters)	Lab Results F/cc / F/mm²	8 HR TWA (F/cc)
Date- 4/1/87	[redacted]					
0047	1315 - 1530 hrs	Area Sx Before	135	337.5	<.001 / <1.26	<0.01
Date- 4/2/87						
0048	0745 - 1020	Area Sx During	155	310.0	.080 / 65.49	0.03
0049	0750 - 1530	Canales, Joe - Removal	370	795.0	.025 / 52.90	0.02
0050	0750 - 1530	Rodriguez, Andres-Helper	370	925.0	.012 / 30.23	0.01
Date- 4/3/87						
0051	0850 - 1230	Canales, Joe Removal	185	462.5	.050 / 61.71	0.02
0052	0850 - 1230	Rodriguez, Andres Helper	185	462.5	.023 / 27.71	0.01
0053	0855 - 1350	Area During	295	590.0	<.001 / <1.26	<0.01
0054		Field Blank			--- / 5.04	
Date 4/15/87						
0066	0912 - 1112	Area After	120	300.0	.002 / 1.26	<0.01

A - Rogers
5/30/87

ASBESTOS MONITORING IN ~~ASBESTOS~~ POLYOLS -

4/9/87 INSULATION REMOVAL ON R501

LAFS-313.
6-29-87

WITH THIS REMOVAL PROJECT, ORTIZ, THE CONTRACTOR, HAS ASSUMED THE RESPONSIBILITY OF MONITORING THE REMOVAL PROCESS. DOW IND. HYG. DEPT. WILL SUPPLY THE SAMPLING EQUIPMENT AND COORDINATE THE SAMPLES FOR ANALYSIS.

PROCEDURES FOR REMOVAL, MONITORING, ANALYSIS, AND REPORTING SHALL BE DONE ACCORDING TO THE DOW LA PORTE ASBESTOS MANUAL.

QA SXS WILL BE INCLUDED WITH THE ROUTINE SAMPLES - THE QA SPIKES ARE SUPPLIED BY MIDLAND AND THE RESULTS ARE TO BE RECORDED AND REPORTED TO THE CORPERATE IND HYG. DEPT.

DATA — QA SAMPLES INCLUDED WITH THE R1614 SX'S NB GR01:58

SX #	LEVEL OF SPIKE	LAB DATA (F/mm²)
0063	BLANK	8.82
0064	MEDIUM 203 F/mm²	204.0
0065	HIGH 768 F/mm²	787.2

ST06731139

SX'S FROM INSULATION REMOVAL FROM R501 IN POLYOLS

DATE	SX #	SX DESCRIPTION	SX PERIOD	SX LENGTH (MIN)	SX VOL LITERS	LAB RESULTS F/mm²	LAB RESULTS F/cc	8 hr TWA (F/cc)
4/9/87	0055	AREA - BEFORE	1312-1512h	120	240.0	1.26	<.002	<0.01
4/10/87	0056	TORRES, JUAN - REMOVAL	1015-1530h	270	675.0	12.59	<.007	<0.01
	0057	ARRIAGA, ALFREDO - HELPER	1016-1531h	270	675.0	11.34	.006	<0.01
	0058	AREA - DURING	0930-1532h	362	905.0	6.30	.003	<0.01
	0059	FIELD BLANK	NA	NA	NA	2.52	—	
4/13/87	0060	MORENO, PABLO - REMOVAL	0840-1530	315	787.5	20.15	.010	0.01
	0061	TORRES, JUAN - HELPER	0841-1531	315	787.5	17.63	.008	0.01
	0062	AREA - DURING	0842-1532	411	1027.5	7.56	.003	<0.01
4/15/87	0067	AREA - AFTER	0916-1116	120	300.0	5.04	.002	<0.01
4/21/87	0068	AREA - RECLEAN VESSEL	0850-1500	370	925.0	15.11	.008	0.01
	0069	MORENO, PABLO - REMOVAL	0851-1501	302	755.0	22.67	.011	0.01
	0070	ARRIAGA, ALFREDO - HELPER	0852-1502	302	755.0	20.15	.051	0.03
	0071	SPIKE - LOW LEVEL BLANK	NA	NA	NA	22.67	.057	
	0072	SPIKE - MED LEVEL 203 F/mm²	NA	NA	NA	276.8	.348	

Gregg A. Rogers
8/30/87

4/28/87 ASBESTOS MONITORING OF GASKET CUTTING LDMT-3523

SAMPLE DATA	Sx #	DESCRIPTION	Sx (MIN) LENGTH	Sx VOL (L)	LAB RESULTS F/MM²	LAB RESULTS F/CC	BHP INHA F/CC
	0074	AREA SAMPLE ON TABLE TOP	85	212.5	20.51	0.036	0.01
	0073	JERRY BROOK CUT 4 GASKETS	75	187.5	25.61	0.052	0.01
	0075	FIELD BLANK	—	—	6.37	—	

ST0673140

Gregory A. Rogers
4/30/87

4/29/87

ASBESTOS MONITORING DURING INSULATION REMOVAL FROM E1174 AND E1107⅓ IN SCRAP YARD

6-29-87
LPM-3130 and LPPK-002
1-5-88

SAMPLE DATA	DATE	SX #	SX DESCRIPTION	SX PERIOD	SX LENGTH (MIN)	SX VOL (LITERS)	LAB RESULTS F/mm²	PCM	TEM PCM
	4/29/87	0076	FIELD BLANK	N/A	N/A	N/A	1.91	N/A	
		0077	AREA SAMPLE	0805-1225	260	650.0	<0.6	<.001	<0.001
		0078	HERRARA, GABRIEL - REMOVAL 461-35-0647	0817-1226	221	552.5	23.69	0.016	0.087
		0079	MANES, SCOTT - HELPER 465-77-2123	0818-1227	221	552.5	21.15	0.014	0.086
		0080	LAB BLANK LOT 6188027 GILIAN SN 322515	N/A	N/A		<0.6	NA	
		0081	LAB BLANK LOT 6188027 GILIAN SN 322515	N/A	N/A		3.82	NA	
		0082	SPIKE SX HIGH 768 F/mm²	N/A	N/A		684.7		

ST0673141

Gregory A. Rogers
5/30/89

7/20/87

ASBESTOS MONITORING DURING INSULATION REMOVAL FROM R1601 & R1602 IN PELLETHANE

None Required

CONTRACTORS ORTIZ INSULATION INC. P.O. BOX 3738

INSULATION DISTRIBUTORS

ENGINEERS BROS. BAYTOWN, TEXAS 77520 (713) 427-7448

7-20-87

DOW CHEMICAL
LA PORTE PLANT

ATTN: GREG ROGERS

SATURDAY 7-18-87 IN PELLETHANE WE REMOVED APPX 300 SF OF ASBESTOS CONTAINING CAL SIL INSULATION ON WORK ORDER # 401-28936-R1601 & 401-28936-R1602. WE THOROUGHLY CLEANED THE AREA BEFORE STARTING, THEN LAID POLY ON FLOORS, SCAFFOLDING AND AROUND THE PERIMETER ON THE WALLS. WE WETTED MATERIAL AS IT WAS REMOVED AND THEN BAGGED AND STACKED ON PALLETS FOR DISPOSAL. WE MONITORED AIR SAMPLES AS PER REGULATIONS AS FOLLOWS.

BLANK FILTER # 0084

RENDOVER	HELPER	AREA
JOEL GARCIA	SCOTT MANES	
461-45-9550	465-71-2123	
PUMP # 13959	PUMP # 13967	PUMP # 13968
FILTER # 0085	FILTER # 0082	FILTER # 0087
TURNED ON 7:10AM	TURNED ON 7:11	TURNED ON 7:00
TURNED OFF 12:01 - 4.83	TURNED OFF 12:01	TURNED OFF 16:00
TURNED ON ~~4.83~~ 12:35	TURNED ON 12:35	
TURNED OFF 15:40 - 3.083	TURNED OFF 15:45	
476 MIN		
1190 LITERS	1200	

ST06731142

SAMPLE DATA / RESULTS

DATE SMPL	SM #	DESCRIPTION	VOL(L)	FIBERS/CC	FIBERS/mm²	8 HR TWA
7-18-87	0083	AREA BEFORE	300	N	*5.10	
	0084	BLANK - FIELD	N/A		2.55	
	0085	PERSONAL	1190952		FILTER MISSING	
	0086	PERSONAL	1200		FILTER WET	
	0087	AREA DURING	1350	<.001	< 0.64	

* dust particles not typical of asbestos

Gregory A. Rogers
8/30/89

ST06731

8-19-87 ASBESTOS REMOVAL FROM PIPE IN A-PLANT LPFF-002
3-9-88

EQUIPMENT — 180° BEND

AMOUNT — 147 ft²

DATA:

DATE Sk'd	SX #	DESCRIPTION	VOL(LITERS)	FIBERS/cc	FIBERS/mm²	TWA
8-17-87	0088	PERSONAL	787.5	0.005	11.46	.003
	0089	PERSONAL	787.5	0.007	15.29	.005
	0090	AREA	630.0	0.002	3.82	.001
	0091	FIELD BLANK	—	—	0.6	

8-19-87 "A" PLANT
147 S.F. 180° BEND

REMOVER JOEL GARCIA 461-45-9550
FILTER #3 0088 (2.5L/MIN) ON: 0815 1345
PUMP #13967 OFF 1015 1430
8-20-87 ON 10:00AM 315 MIN
OFF 12:30 787.5 LITERS

HELPER ALFREDO ARRIAGA 450-27-4522
FILTER #4 0089 (2.5L/MIN) ON: 0815 1345
PUMP #13968 OFF: 1015 1430
8-20-87 ON 10:00AM 315 MIN
OFF 12:30 787.5 LITERS

AREA MONITOR
FILTER #2 0090 ON: 0800 1300
PUMP #13959 (2.0 L/MIN) OFF: 1030 1430
8-20-87 ON 9:30 315 MIN
OFF 12:30 630 LITERS

FIELD BLANK FILTER #1 0091

ST0673143

Hugo A. Rogers
8/30/87

8-27-87 ASBESTOS REMOVAL K-PLANT P1109 A+B PIPING (96 LF)

No Report Needed

DATE SMP'd	SX #	DESCRIPTION	VOL(L)	FIBERS/cc	FIBERS/mm²	TWA
8/27/87	0092	AREA MONITOR	352.5	.005	4.46	0.001
	0093	FIELD BLANK	—	—		<.6

CONTRACTORS — INSULATION DISTRIBUTORS — ENGINEERS

ORTIZ BROS.

INSULATION INC. P.O. BOX 3738 BAYTOWN, TEXAS 77539 (713) 427-7466

DATE 8-27-86

DOW CHEMICAL
LA PORTE PLANT

ATTN: MIKE DILLON

NOTICE OF ASBESTOS REMOVAL

WET METHOD FOR REMOVAL WAS USED AND THE AREA AND ALL PERSONNEL WERE UNDER ALL EXISTING REQUIREMENTS AND REGULATIONS AND WE DISPOSED OF SAME IN "ASB" DUMPSTER

AREA : K PLANT

W.O.#: 480-78915 & 480-78916

ITEM : P 1109 A&B PIPING

QUANTITY: 96 LF

AREA MONITOR PUMP # 13967 (2.5 LPM) FILTER # 0092 TIMED ON 13:00 TIMED OFF 15:25 191 MIN

THANK YOU

Allen Mann

FIELD BLANK FILTER # 0093

WITNESS

SIGNED DATE SIGNED Hugo A. Rogers

SIGNED DATE DATE 8/30/89

ST0673114

ST0673

9/10/87 ASBESTOS REMOVAL IN K-PLANT — LPPK-007
207 Linear Feet Removed — 3-9-88

DATE Sx'd	Sx #	DESCRIPTION	FIBERS/cc	FIBERS/mm²	TWA
9/10/87	0094	FIELD BLANK	—	<.6	
	0095	AREA SAMPLE	.003	4.46	.001
	0096	GARCIA, JOEL 461-45-9550	.002	2.55	.001
	0097	ARRIAGA, ALFREDO 450-27-4522	.028	33.12	.010
9/14/87	0098	FIELD BLANK	—	<.6	
	0099	AREA SAMPLE	.003	2.55	.001
	0100	GARCIA, JOEL 461-45-9550	.006	6.11	.002
	0101	ARRIAGA, ALFREDO 450-27-4522	.002	1.91	.001

ST0673145

MONITORING OF AIR SAMPLES

FIELD BLANK Filter # 0098

2.0 L/min

AREA SAMPLE Pump # 13959 Filter # 0099
Time on 11:30 Time off 14:30 180 min
360 L

2.5 L/min

REMOVER Pump # 13962 Filter # 0100
Jose Garcia Time on 11:50 Time off 12:30 145
461-45-9550 12:45 14:50 362.5 L

2.5 L/min

HELPER Pump # 13968 Filter # 0101
Time on 11:50 Time off 12:30 145
Alfredo Arriaga 12:45 14:50 362.5
450-27-4522

MONITORING OF AIR SAMPLES

FIELD BLANK Filter # 0094

AREA SAMPLE Pump # 13959 Filter # 0095
Time on 10:00 Time off 15:20 320
640

REMOVER PERSON Pump # 13967 Filter # 0096
Time on 11:20 Time off 12:20
Jose Garcia 13:05 14:25 177
461-45-9550 14:48 15:15 442.5

REMOVER HELPER Pump # 13968 Filter # 0097
Time on 11:00 Time off 12:20 176
Alfredo Arriaga 13:06 14:25
450-27-4522 14:48 15:15 440

207 linear feet removed

SIGNED DATE SIGNED Angela A. Rogers 8/30/89

DATE 9/10/87 SUBJECT ASBESTOS REMOVAL IN K-PLANT PROJECT NO.

DATE Sx'd	Sx #	DESCRIPTION	FIBERS/cc	FIBERS/mm²	TWA
9/10/87	0094	FIELD BLANK	—	<.6	
	0095	AREA SAMPLE	.003	4.46	.001
	0096	GARCIA, JOEL 461-45-9550	.002	2.55	.001
	0097	ARRIAGA, ALFREDO 450-27-4522	.028	33.12	.010
9/14/87	0098	FIELD BLANK	—	<.6	
	0099	AREA SAMPLE	.003	2.55	.001
	0100	GARCIA, JOEL 461-45-9550	.006	6.11	.002
	0101	ARRIAGA, ALFREDO 450-27-4522	.002	1.91	.001

ST0673146

MONITORING OF AIR SAMPLES

FIELD BLANK FILTER # 0098

2.0 L/min

AREA SAMPLE PUMP # 13959 FILTER # 0099
TIME ON 11:30 TIME OFF 14:50 180 min
360 L

2.5 L/min

REMOVER PUMP # 13962 FILTER # 0100
JOEL GARCIA TIME ON 11:30 TIME OFF 13:30 145
461-45-9550 12:05 14:50 362.5 L

2.5 L/min

HELPER PUMP # 13968 FILTER # 0101
TIME ON 11:30 TIME OFF 13:30 145
ALFREDO ARRIAGA 12:05 14:30 362.5
450-27-4522

MONITORING OF AIR SAMPLES

FIELD BLANK FILTER # 0094

AREA SAMPLE PUMP # 13959 FILTER # 0095
TIME ON 10:00 TIME OFF 15:20 320
640

REMOVER PERSON PUMP # 13967 FILTER # 0096
TIME ON 11:20 TIME OFF 13:20
JOE GARCIA 13:05 14:45 127
461-45-9550 14:48 15:15 445.5

REMOVE HELPER PUMP # 13968 FILTER # 0097
TIME ON 11:20 TIME OFF 13:20 176
ALFREDO ARRIAGA 13:06 14:45
450-27-4522 14:48 15:15 440.2

WI P76

SIGNED DATE SIGNED

ST06721

9/15/87 ASBESTOS REMOVAL IN POLYOLS LPSY-004

3-9-88

DATE SMPL	SX #	DESCRIPTION	FIBERS/CC	FIBERS/MM²	TWA
9/15/87	0102	FIELD BLANK	——	3.18	
	0103	AREA SAMPLE	.002	3.18	.001
	0104	REMOVER	.010	14.65	.005
	0105	HELPER	.003	4.46	.001

MONITORING OF AIR SAMPLES

ST0673147

FIELD BLANK FILTER # 102

AREA SAMPLE 2.0 L/MIN PUMP # 13959 FILTER # 103 330
TIME ON 8:30 TIME OFF 14:00 660L

REMOVER 2.5 L/MIN PUMP # 13967 FILTER # 104
TIME ON 9:00 TIME OFF 9:45
10:05 12:15 230
13:05 14:00 575L

HELPER 2.5 L/MIN PUMP # 13968 FILTER # 105
TIME ON 9:00 TIME OFF 9:45
10:05 12:15 230
13:05 14:00 575L

Gregg A. Rogers
8/30/89

9/16/87 TRANSITE REMOVAL IN R&D (TRANSITE)

LPSW-001
3-9-88

DATE Sxd	SX. #	DESCRIPTION	FIBERS cc	FIBERS mm²	TWA
9/16/87	0106	FIELD BLANK	—	<.60	
	0107	AREA SAMPLE	.001	.60	<.001
	0108	REMOVER - ALFREDO ARRIAGA 450-27-4522	.012	8.28	.003
	0109	HELPER - JOEL GARCIA 461-45-9550	.008	5.73	.002
	0110	QA SPIKE MEDIUM 203 F/mm²	—	290.4	
	0111	QA SPIKE HIGH 768 F/mm²	—	754.8	

MONITORING OF AIR SAMPLES

ST0673148

FIELD BLANK FILTER # 0106

AREA SAMPLE 2.0 L/MIN PUMP # 13959 FILTER # 0107
TIME ON 9:10 TIME OFF 11:30 140
280 L

REMOVER 2.5 L/MIN PUMP # 13967 FILTER # 0108
ALFREDO ARRIAGA 450-27-4522 TIME ON 9:10 TIME OFF 9:40 105
10:05 11:20 262.5 L

HELPER 2.5 L/MIN PUMP # 13968 FILTER # 0109
JOEL GARCIA 461-45-9550 TIME ON 9:10 TIME OFF 9:40 105
10:05 11:20 262.5 L

Gregory A. Rogers
8/30/89

9/22/87 ASBESTOS REMOVAL IN POLYOLS RS09 LPSY-005

3-9-88

DATE SK'd	SX #	DESCRIPTION	FIBERS CC	FIBERS mm²	TWA
9/22/87	0112	FIELD BLANK		2.55	
	0113	AREA SAMPLE	> .001	> 0.6	
	0114	REMOVER - JOEL GARCIA 461-45-9550	.010	20.38	.006
	0115	HELPER - ALFREDO ARRIAGA 450-27-4522	.004	8.25	.002

MONITORING OF AIR SAMPLES

FIELD BLANK FILTER # 0112

AREA SAMPLE PUMP # 13959 (2.0 L/MIN) FILTER # 0113 (395 MIN) 790 L
TIME ON 0840 TIME OFF 15:15

REMOVER PUMP # 13967 (2.5 L/MIN) FILTER # 0114
JOEL GARCIA 461-45-9550
TIME ON 0915 TIME OFF 0945 (295 MIN)
1005 1220
1305 1515 737.5 L

HELPER PUMP # 13968 (2.5 L/MIN) FILTER # 0115
ALFREDO ARRIAGA 450-27-4522
TIME ON 0915 TIME OFF 0945
1005 1220
1305 1515 737.5 L

ST0673149

Gregory A. Rogers
8/30/89

9/23/87 ASBESTOS REMOVAL IN POLYOLS F513 IPSY-003
3-21-88

DATE SMPL	SX #	DESCRIPTION	FIBERS cc	FIBERS mm²	TWA
9/23/87	0116	FIELD BLANK		<0.6	
	0117	AREA SAMPLE	<.001	<0.6	<.001
	0118	REMOVER - JOEL GARCIA 461-45-9550	.008	16.56	.006
	0119	HELPER - ALFREDO ARRIAGA 450-27-4522	.006	14.01	.004
	0120	QA BLANK (LABELED AREA SAMPLE - 750.0 L)		6.37	

MONITORING OF AIR SAMPLES

ST0673150

FIELD BLANK — FILTER # 0116

AREA SAMPLE — 2.0 L/MIN — PUMP # 13959 — TIME ON 7:30 — FILTER # 0117 — TIME OFF 14:00 — 390 MIN 780 L

REMOVER — 2.5 L/MIN — PUMP # 13967 — TIME ON 7:45 / 10:05 / 12:10 — FILTER # 0118 — TIME OFF 9:40 / 12:20 / 14:30 — 330 MIN 825 L
JOEL GARCIA 461-45-9550

HELPER — 2.5 L/MIN — PUMP # 13968 — TIME ON 7:45 / 10:05 / 13:10 — FILTER # 0119 — TIME OFF 9:40 / 12:20 / 14:30 — 330 MIN 825 L
ALFREDO ARRIAGA 450-27-4522

Angela A. Rogers
8/30/89