



DOW CHEMICAL U.S.A.

REV
8(2)

LOUISIANA DIVISION

P. O. BOX 150

INDUSTRIAL HYGIENE REPORT PLAQUEMINE, LOUISIANA 70765-0150

504 389-8000

1986 First Half Bi-Annual Asbestos Survey in the
Cell Service, Chlor-alkali II, and Chlorine Plants

CRI NO. _____

FILE NO. LAD-III-86.02

DATE September 12, 1986

AUTHOR Jackie Paul

*Jackie Paul*CHECKED *William E. Redford*

DATE 9/16/86

SUMMARY

Sixty-four (64) samples were collected during the first half, 1986 asbestos survey. The survey results indicated no overexposures to asbestos due to the appropriate protective equipment.

Twelve (12) area samples were collected. The range was from < 0.01 to 0.06 fibers/cc > 5 microns in length. The high end of the range was taken on the anode line station at Cell Service. Fifty-two (52) samples were personnel samples with the range being from < 0.01 to 3.08 fibers/cc > 5 microns in length. The highest potential personnel exposure was collected during the hand brushing of copper on the cathodes at Cell Service. Respiratory protection was being worn during the job. This job procedure has been changed resulting in lower levels of asbestos. Prior to May, 1986, brushing was done on dry cathodes using a brush. This job is now performed on wet cathodes using cloth.

Survey results should be compared to the OSHA Permissible Exposure Limits.

Limits: 8-hour TWA = 2.0 fibers/cc > 5 microns in length
Ceiling Limit = 10.0 fibers/cc > 5 microns in length

DISTRIBUTION

LOUISIANA DIVISION

*R. W. Gallant - 2306
*H. M. Bell - 4701
Dr. M. Currier - 2303
R. Peebles - 5601
E. Bahry - 5601
C. Brannan - 2601
H. Causey - 2601
E. Myer - 3601
*R. W. Gaska - 3701
*M. Mitchell - 3701
T. Austin - 3601

MIDLAND

*L. W. Rappy - 1803
*M. Swank - 1803
*J. E. LeBeau - 1803
*G. Engdahl - 1803
*R. Olsen - 1803
*A. Schaffer - 1803
*S. Gorgacz - 474

OTHER

*F. D. Axe - Pittsburg
*Gary Meier - Strongsville
*A. Pollock - Sarnia
*D. E. Crager - Freeport
*N. Hollis - Texas
*R. R. Langner - Houston Dow
Center

*SUMMARY ONLY

DO 082056
CONFIDENTIAL

Introduction

The required asbestos in air monitoring for the first half of 1986 has been completed. The survey serves to help protect the employees against over-exposure, pinpoint problem areas and fulfill the requirements of the Federal Occupational Safety and Health Act.

Discussion

In addition to everyday safety equipment, operators are required to wear disposable paper suits or work uniforms laundered on-site, rubber gloves and proper dust respirators when handling or working with friable asbestos. The safe procedure for handling asbestos should be discussed with each new employee before entering the work area and reviewed annually with the experienced operators as part of the ongoing Industrial Hygiene Education Program.

Sampling Method - Personnel samples are collected from the operators' breathing zone with a mixed cellulose ester membrane filter (25 mm diameter; 0.8 micron pore size) mounted on an open-face filter holder and attached to the operators' lapels. These cassettes are connected to monitoring pumps calibrated with a soap bubble meter to operate at a rate of 1.5 to 2.0 liters per minute.

Analytical - The asbestos samples are analyzed using the NIOSH-Approved Method, 7400 A.

Results (See Attachment)

The range of the area samples was from <0.01 to 0.06 fibers/cc > 5 microns in length. The high end of the range was taken on the anode line station at Cell Service. The average results for area samples was < 0.02 fibers/cc > 5 microns in length.

The range of the personnel samples was < 0.01 to 3.08 fibers/cc > 5 microns in length. The highest potential personnel exposure was collected during the hand brushing of copper on the cathodes at Cell Service. Respiratory protection was being worn during the job. This job procedure has been changed resulting in lower levels of asbestos. Prior to May, 1986, brushing was done on dry cathodes using a brush. This job is now performed on wet cathodes using cloth. The average results for personnel samples was < 0.17 fibers/cc > 5 microns in length.

Conclusions

The hazardous nature of asbestos necessitates housekeeping and safe operating procedures remain the most important considerations for an abatement program. This must be a daily, job-by-job program to be successful and to offer the greatest protection to the employee.

The Cell Service, Chlor-Alkali II and Chlorine plants employees must be informed of this survey's results and the consequences of exposure to toxic amounts of asbestos reviewed. (See Attachment.)

JP:sb
9/86
IH-2

CELL SERVICE PLANT

ATTACHMENT 1

<u>DATE</u>	<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DURATION (MIN)</u>	<u>VOLUME (1)</u>	<u>FIBERS/ <5 MICRONS IN LENGTH</u>
2/27/86	04983	*Personnel - Laborer (433-52-8881) hand brushing copper on cathode to remove asbestos	435	870.00	3.08
2/28/86	04985	*Personnel - Laborer (435-58-7850) hooking up at drawing area, load and unloading oven, 1 hour debug-ging by hand, 1 hour mixing pulp.	490	960.00	0.19
3/3/86	04986	*Personnel - Laborer (435-30-7152) hand brushing copper on cathodes to remove asbestos.	480	960.00	0.01
3/4/86	04987	*Personnel - Laborer (436-56-6612) hooking up cathodes in drawing area, debuggging top floor 1/2 hour, dry asbestos mix 1 hour, loading & unloading oven 1 1/2 hours.	480	960.00	0.35
3/5/86	04988	*Personnel - Laborer (433-52-8881) hand brushing copper on cathodes to remove asbestos.	490	980.00	0.22
3/5/86	04989	Personnel - SOT (432978) drawing cathodes.	442	884.000	0.04
3/21/86	04992	Personnel - Laborer (439-76-6187) washing cathodes, working by P-505 pump.	465	906.750	0.15

DO 082059
CONFIDENTIAL

CELL SERVICE PLANT

ATTACHMENT 1
(continued)

<u>DATE</u>	<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DURATION (MIN)</u>	<u>VOLUME (1)</u>	<u>FIBERS/ <5 MICRONS IN LENGTH</u>
3/24/86	04995	*Personnel - Laborer (436-56-7476) hand brushing copper on cathodes.	390	790.000	0.10
3/11/86	04991	*Personnel - SOT (433708) hook-up at drawing vat, changed filter on vacuum at comp., assembled cathodes.	470	940.000	0.03
4/23/86	07125	*Personnel - Laborer (433-52-8881) brushing and shaping copper, dropping in cathodes.	435	870.000	0.05
Comment: Based on the above results of February 27 - April 23, 1986, the procedures for cleaning copper on cathodes was changed. Brushing with wire brush was replaced by wiping with wet cloth to reduce employee exposure. Subsequent samples shown below confirm the reduction in fiber exposutes.					
5/8/86	07128	Area - Cathode drop-in station.	445	890.000	<0.01
5/12/86	07131	Area - OV501 loading wet and unloading cathodes dry from oven.	460	920.000	<0.01
5/13/86	07129	Personnel - SOT (432978) drawing cathodes, spraying mobilaroma oil on cathodes during this time also.	450	900.000	<0.01
5/13/86	07130	*Personnel - Laborer (435-58-7850) hooking up cathode, loading & unloading oven, dumping asbestos in storage room	460	920.000	0.03
5/15/86	07132	*Personnel - Laborer (434-52-0947) hooking up cathodes, worked debagger room.	475	950.000	0.01

DO 082060
CONFIDENTIAL

CELL SERVICE PLANT

ATTACHMENT 1
(continued)

<u>DATE</u>	<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DURATION (MIN)</u>	<u>VOLUME (1)</u>	<u>FIBERS/ <5 MICRONS IN LENGTH</u>
5/15/86	07133	*Personnel - Laborer (434-32-8857) shaping copper on cathodes, working in drawing area.	460	900.000	<0.01
5/21/86	07134	Area - Cell assembly, dropping in cathodes.	490	980.000	<0.01
5/30/86	07135	Area - Copper shaping area.	420	840.000	<0.01
5/30/86	07136	Personnel - Laborer (439-76-6187) washing cathodes and running drum filter.	390	741.000	0.02
5/30/86	07137	*Personnel - Laborer (433-48-0668) brushing copper on cathodes.	390	741.000	<0.01
6/2/86	07138	*Personnel - Laborer (436-56-6612) hooking up cathodes, dumping dry asbestos in storage room, loading and unloading oven.	460	874.000	0.01
6/2/86	07139	Area - Cathode washer area.	460	874.000	0.01
6/2/86	07140	Personnel - Laborer (433-52-8881) dropping diaphragms in cells and buckling down.	470	916.500	0.01
6/3/86	07142	Area - Copper brushing area.	430	858.000	<0.01

DO 082061
CONFIDENTIAL

CELL SERVICE PLANT

ATTACHMENT 1
(continued)

<u>DATE</u>	<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DURATION (MIN)</u>	<u>VOLUME (1)</u>	<u>FIBERS/ <5 MICRONS IN LENGTH</u>
6/5/86	07144	Personnel - Laborer (436-50-8990) dropping diaphragms in cells and buckling down.	455	887.250	<0.01
6/5/86	06465	Area - Copper brushing area.	420	798.000	<0.01
6/17/86	06466	Personnel - Laborer (439-76-6187) washing cathodes.	390	741.000	0.06
6/17/86	07145	Area - Copper brushing area.	435	826.500	0.01
6/17/86	07146	Area - Cathode washer area.	390	741.000	0.03
6/18/86	07147	*Personnel - Laborer (436-56-6612) debagging asbestos.	30	60.000	0.02
6/18/86	07148	*Personnel - Laborer (435-58-7850) mixing pulp in asbestos storage room.	120	240.000	2.24
6/18/86	07149	*Personnel - Laborer (435-58-7850) hooking up cathodes, load and unload oven, dumping asbestos in D-509.	480	888.000	0.03
6/18/86	07150	*Personnel - Laborer (433-19-8999) brushing and shaping copper on cathodes.	450	877.50	0.02
6/23/86	07151	*Personnel - Laborer (436-56-6612) hooking up cathodes, dumping asbestos in debagger room.	430	838.500	0.02

DO 082062
CONFIDENTIAL

CELL SERVICE PLANT

ATTACHMENT 1
(continued)

<u>DATE</u>	<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DURATION (MIN)</u>	<u>VOLUME (1)</u>	<u>FIBERS/ <5 MICRONS IN LENGTH</u>
6/23/86	07152	Area - Cathode washer	445	867.750	0.03
6/23/86	07153	Area - Oven area OV-501	445	778.75	0.01
6/24/86	07154	*Personnel - SOT (433708) mixing pulp for pulp tank 3F700 and 7-M.	60	120.000	0.94
6/24/86	07155	Area - Anode line station 5-7	445	887.25	0.06
7/25/86	07156	*Personnel - SOT (433708) mixing pulp in asbestos storage room 7M and 3F700.	275	563.75	0.86
6/30/86	07158	Personnel - O.S. (430867) turnaround trailer skin grounding, working on P501A & B, P522A, GT502, and 501A,B.	490	1016.750	0.01
6/30/86	07160	Personnel - O.S. (432917) performed check inspection and stock room duties.	485	945.750	0.03

*Proper protective equipment worn.

JP:sb
9/15/86
IH-2

DO 082063
CONFIDENTIAL

CA II PLANT

ATTACHMENT 1
(Continued)

<u>DATE</u>	<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DURATION (MIN)</u>	<u>VOLUME (1)</u>	<u>FIBERS/ <5 MICRONS IN LENGTH</u>
6/9/86	06955	Personnel - O.T. (434350) pulping cells.	30	57.000	0.02
6/11/86	06954	Personnel - O.T. (433856) filled wagon and pulped cells.	66	118.800	0.03
6/16/86	06958	Personnel - O.T. (434350) pulping cells.	171	290.700	0.02
6/16/86	06959	Personnel - O.T. (433856) filled wagon and pulped cells.	135	226.100	<0.01
6/17/86	06962	Personnel - O.T. (434350) pulping cells.	25	42.500	0.02
6/23/86	06963	Personnel - O.T. (433856) filled wagon and pulped cells.	122	192.150	0.01
6/23/86	06964	Personnel - O.T. (434350) pulping cells.	90	189.000	0.03
6/24/86	06965	Personnel - O.T. (433856) pulping cells.	72	126.000	0.03
6/24/86	06966	Personnel - O.T. (433856) pulping cells.	72	151.200	<0.01
6/24/86	06967	Personnel - O.T. (433856) general cell crew duties and pulped.	435	848.250	<0.01

DO 082064
CONFIDENTIAL

CA II PLANT

ATTACHMENT 1
(Continued)

<u>DATE</u>	<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DURATION (MIN)</u>	<u>VOLUME (1)</u>	<u>FIBERS/ <5 MICRONS IN LENGTH</u>
6/30/86	06968	Personnel - O.T. (434350) general cell crew duties and pulped.	450	765.000	0.03

DO 082065
CONFIDENTIAL.

CHLORINE PLANT

ATTACHMENT 1
(Continued)

<u>DATE</u>	<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DURATION (MIN)</u>	<u>VOLUME (1)</u>	<u>FIBERS/ <5 MICRONS IN LENGTH</u>
1/14/86	07002	*Personnel - S.O.T. (433590) pulping cells.	75	150.000	0.03
5/13/86	07006	*Personnel - O.T. (278570) pulping cells.	48	960.000	0.01
5/14/86	07009	*Personnel - S.O.T. (433825) pulping cells.	48	960.000	0.02
5/14/86	07012	*Personnel - O.T. (278570) pulping cells.	60	120.000	0.02
5/14/86	07013	*Personnel - O.T. (278570) pulping cells.	70	140.000	0.01
5/29/86	07019	*Personnel - O.T. (278570) pulping cells.	25	50.000	0.07
5/29/86	07020	*Personnel - S.O.T. (433311) pulping cells.	48	96.000	0.04
5/29/86	07021	*Personnel - S.O.T. pulping cells.	25	50.000	0.02
5/29/86	07022	*Personnel - O.T. (278570) pulping cells.	48	96.000	0.04
5/30/86	07026	*Personnel - S.O.T. (433588) pulping cells.	55	110.000	0.04

DO 082066
CONFIDENTIAL

CHLORINE PLANT

ATTACHMENT 1 (Continued)

<u>DATE</u>	<u>SAMPLE #</u>	<u>SAMPLE DESCRIPTION</u>	<u>DURATION (MIN)</u>	<u>VOLUME (1)</u>	<u>FIBERS/ <5 MICRONS IN LENGTH</u>
5/14/86	07014	*Personnel - S.O.T. (433825) pulping cells.	65	130.000	<0.01
5/16/86	07017	*Personnel - S.O.T. (433311) pulping cells.	41	82.0000	0.01

▪ PROPER PROTECTIVE EQUIPMENT WORN.

DO 082067
CONFIDENTIAL