

INDUSTRIAL HYGIENE RESULTS

DATE: April 8, 1983.

PROJECT: Measure airborne asbestos fiber concentrations on the east side of #3 boiler.

DATE OF SAMPLES: 2-17-83, 3-2-83

SUMMARY: The three results reported here are less than the OSHA PEL of 2 fibers per cubic centimeter (F/CC).

<u>F/cc</u>	<u>DATE</u>	<u>SAMPLE TIME, MINUTES</u>	<u>LOCATION</u>		<u>SAMPLE TYPE</u>	<u>METHOD</u>
0.07	2-17-83	36	Top level east side #3 boiler near Graver tank	} Requested by T. Bossick. No insulation work being performed	Area	FC
0.32	2-17-83	34	One level below top #3 boiler near Graver tank		Area	FC
0.08	3-2-83	30	East side #3 boiler near top T-606, requested by K. R. Mosley, no insulation work being performed.		Area	FC

RECOMMENDATIONS:

Charles Keatley
Request additional monitoring during asbestos insulation removal.

*Detection limit ?
accuracy at < 1 f/cc ?*

DISCUSSION:

METHOD OF ANALYSIS:

Microscopy

DATA AND REPORT BY:

H. G. Kuntz/K. E. Williams

ANALYSIS BY:

IHI - Kemron

COPY TO:

✓ M. W. Bosserman, T. Bossick, R. E. Crum,
J. E. McDermott, J. B. Mickey, F. M. Plechaty

K. E. Williams
K. E. Williams

IHI-KEMRON

901 Highland Avenue, Williamstown, WV 26187 (304) 375-5800

KM-25-0017-83
March 28, 1983

Union Carbide Corporation
P. O. Box 180
Sistersville, WV 26175
Attn: K. E. Williams

ASBESTOS FIBER COUNT ANALYSES

(P. O. No. 380-519727-1)

<u>UCC NO.</u>	<u>IHI-KEMRON NO.</u>	<u>FIBERS COUNTED</u>	<u>SAMPLED</u>	<u>FIBERS CC</u>	<u>OSHA FIBERS CC LIMIT</u>
Z-4535	83-486	4,886	72,648	0.07	2.00
Z-4536	83-487	21,986	68,544	0.32	2.00
Z-4604	83-488	4,886	59,370	0.08	2.00

Charles L. Keatley
Charles L. Keatley
Industrial Hygienist

Baton Rouge, LA • Chicago, IL • Detroit, MI • Houston, TX • Huntington, NY • Madison, NJ

UCC 016196

For your asbestos file.

WB

WV-0236 # 35

INDUSTRIAL HYGIENE MONITORING

DATE: June 28, 1984.

PROJECT: Monitor respiratory exposure to asbestos fibers experienced by an insulator, Maintenance Department.

DATE OF SAMPLES: May 11, 1984.

SUMMARY: An insulator was monitored as she bagged old asbestos-containing insulation that had been removed by fellow insulators. This job took place on the ground level of the Steam Plant, between boilers 1 and 2. Two consecutive samples were taken, one for 57 minutes and the second for 58 minutes. Her exposures were measured at <0.20 and <0.18 fibers per cubic centimeter of air. These concentrations are less than the permissible exposure limit of 2 fibers per cc of air. She wore full protective clothing plus an air-supplied, full facepiece respirator.

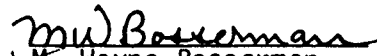
RECOMMENDATIONS: Share this information with Maintenance insulators.

METHOD OF ANALYSIS: Microscopy

DATA AND REPORT BY: H. G. Kuntz/M. W. Bosserman

ANALYSIS BY: IHI - Kemron

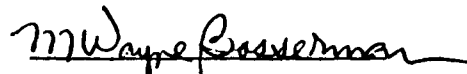
COPY TO: J. E. Boley, F. E. Dailey, J. E. Heilman, C. A. McNeill, F. M. Plechaty, W. V. Summers, K. E. Williams, G. W. Wulfert.


M. Wayne Bosserman

MWB/le
2778A

INDUSTRIAL HYGIENE
PERSONAL MONITORING REPORT
UCC, SISTERSVILLE

was monitored for respiratory exposure to asbestos fibers on May 11, 1984. Her job consisted of bagging asbestos-containing insulation that had been removed by fellow insulators. This job took place on the ground level of the Steam Plant, between boilers 1 and 2. Two consecutive monitoring samples were taken, one for 57 minutes and the second for 58 minutes. Her exposures were measured at <0.20 and <0.18 fibers per cubic centimeters of air. These concentrations are less than the permissible exposure limit of 2 fibers per cc of air. She wore full protective clothing, plus an air-supplied, full facepiece respirator.


M. Wayne Bosserman

✓MWB/le

2779A

cc: D. A. Lamp
G. W. Wulfert
IH
Medical

Tammy
F.Y.I
Mac

INDUSTRIAL HYGIENE MONITORING

DATE: June 28, 1984

PROJECT: Monitor respiratory exposure to asbestos fibers experienced by insulators, Maintenance Department.

DATE OF SAMPLES: May 9, 1984.

SUMMARY: Two insulators were monitored as they removed asbestos-containing insulation on the second level of the Steam Plant, between boilers 1 and 2. One insulator was exposed to less than .11 fibers per cubic centimeter of air over a period of 1.68 hours while the second insulator was exposed to 0.13 fibers per cc over a period of 1.67 hours. Both of these exposures are below the permissible limit of 2 fibers/cc averaged over 8 hours. Both operators wore full protective clothing, including air-supplied respirators.

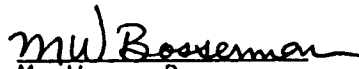
RECOMMENDATIONS: Share this information with Maintenance insulators.

METHOD OF ANALYSIS: Microscopy

DATA AND REPORT BY: H. G. Kuntz/M. W. Bosserman

ANALYSIS BY: IHI - Kemron

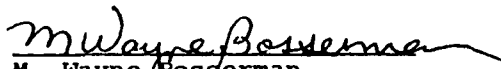
COPY TO: J. E. Boley, F. E. Dailey, J. E. Heilman, C. A. McNeill, W. V. Summers, K. E. Williams, G. W. Wulfert.


M. Wayne Bosserman

MWB/le
2781A

INDUSTRIAL HYGIENE
PERSONAL MONITORING REPORT
UCC, SISTERSVILLE

{ was monitored for respiratory exposure to asbestos fibers on May 9, 1984. His exposure was 0.13 fibers per cubic centimeter of air over a 1.67-hour period. His job consisted of removing old asbestos-containing insulation on the second level of the Steam Plant, between boilers 1 and 2. This concentration is less than the permissible exposure limit of 2 fibers per cc of air. He wore full protective clothing plus an air-supplied, full facepiece respirator.


M. Wayne Bosserman

MWB/le

2782A

cc: D. Lupardus

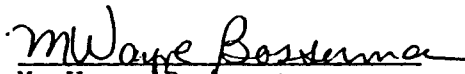
G. W. Wulfert

LIH

Medical

INDUSTRIAL HYGIENE
PERSONAL MONITORING REPORT
UCC, SISTERSVILLE

was monitored for respiratory exposure to asbestos fibers on May 9, 1984. His exposure was less than 0.11 fibers per cubic centimeter of air over a 1.68-hour period. His job consisted of removing old asbestos-containing insulation on the second level of the Steam Plant, between boilers 1 and 2. This concentration is less than the permissible exposure limit of 2 fibers per cc of air. He wore full protective clothing plus an air-supplied, full facepiece respirator.


M. Wayne Bosserman

MWB/le
2783A

cc: F. J. Sellers
G. W. Wulfert
LH
Medical

..DUSTRIAL HYGIENE MONITORING

DATE: June 28, 1984

PROJECT: Monitor respiratory exposure to asbestos fibers experienced by insulators, Maintenance Department.

DATE OF SAMPLES: May 9, 1984.

SUMMARY: Two insulators were monitored as they removed asbestos-containing insulation on the second level of the Steam Plant, between boilers 1 and 2. One insulator was exposed to less than .11 fibers per cubic centimeter of air over a period of 1.68 hours while the second insulator was exposed to 0.13 fibers per cc over a period of 1.67 hours. Both of these exposures are below the permissible limit of 2 fibers/cc averaged over 8 hours. Both operators wore full protective clothing, including air-supplied respirators.

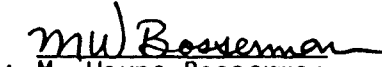
RECOMMENDATIONS: Share this information with Maintenance insulators.

METHOD OF ANALYSIS: Microscopy

DATA AND REPORT BY: H. G. Kuntz/M. W. Bosserman

ANALYSIS BY: IHI - Kemron

COPY TO: J. E. Boley, F. E. Dailey, J. E. Heilman, C. A. McNeill, W. V. Summers, K. E. Williams, G. W. Wulfert.


M. Wayne Bosserman

MWB/le
2781A

INDUSTRIAL HYGIENE MONITORING

DATE: June 22, 1984.

PROJECT: Monitor respiratory exposure to asbestos fibers experienced by onsite contractor personnel employed by C. Brown.

DATE OF SAMPLES: May 23, 1984.

SUMMARY: Two employees, were monitored as they removed debris from the old insulators' trailers. The operation lasted for a period of 34 minutes, during which their exposure was less than 0.33 fibers per cubic centimeters of air. The maximum permissible exposure is 2 fibers per cc averaged over 8 hours. The employees wore full protective clothing and the Type H dust respirators recommended for asbestos removal.

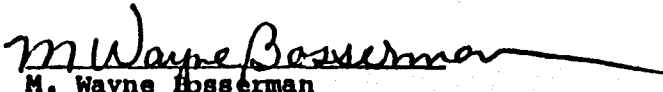
RECOMMENDATION: Share this information with the two employees who worked in the trailer.

METHOD OF SAMPLING: Air Filtration

ANALYSIS BY: Kemron Environmental Services

DATA AND REPORT BY: M. Wayne Bosserman

COPY TO: J. E. Heilman, C. A. McNeill, W. V. Summers,
G. W. Wulfert.


M. Wayne Bosserman

MWB/le

INDUSTRIAL HYGIENE RESULTS

DATE: July 14, 1983.

PROJECT: Measure insulator exposure to airborne asbestos fibers while removing asbestos containing insulation in several areas of the plant.

DATE OF SAMPLES: 6-10-83, 6-14-83, 6-16-83, 6-17-83, 6-20-83, 6-21-83. Analysis received 7-11-83

SUMMARY: The maximum airborne asbestos concentration measured 3.41 fibers/cc during a monitoring period of 10 minutes, while the craftsman removed insulation from piping associated with K-2 at the 4th level of Polymers I. Other monitoring results covered a range of 0.11 to 1.49 fibers/cc for monitoring periods up to 42 minutes.

These concentrations are less than the permissible Ceiling of 10 fibers/cc and the permissible 8 hour TWA of 2 fibers/cc. In all cases the craftsmen wore protective equipment including Comfo 2 type respirator with type H filter, coveralls, goggles and gloves.

RECOMMENDATIONS: Share this information with Maintenance insulators.

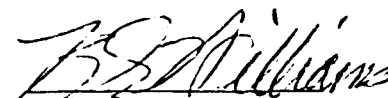
DISCUSSION: In all areas where asbestos insulation was being removed the area was roped off and asbestos hazard signs were in place. In addition the insulation was wetted before starting and during removal as needed. All insulation was placed in labeled plastic bags for disposal. The area was washed down on completion of the job with all wet debris being scooped up for disposal, as mentioned above.

METHOD OF ANALYSIS: Microscopy

DATA AND REPORT BY: H. G. Kuntz/K. E. Williams

ANALYSIS BY: IHI - Kemron

COPY TO: D. L. Beagle, M.W. Bosserman, J. E. Boley, M. L. Byrd, R. E. Cashdollar, R. E. Crum, S. K. Delancey, L. R. Ferrebee, J. E. Heilman, Jr., R. M. Keith, D. Lupardus, J. E. McDermott, J. B. Mickey, J. E. Shearon, K. G. Taylor, Medical - 8.


K.E. Williams

ASBESTOS MONITORING OF MAINTENANCE
INSULATORS DURING ASBESTOS INSULATION
REMOVAL, SEVERAL PLANT AREAS
PEL, TWA 8 HRS. = 2 FIBERS*/CC OF AIR
CEILING = 10 FIBERS*/CC OF AIR

*FIBERS LONGER THAN 5 MICROMETERS

F/CC	DATE	SAMPLE TIME, MINUTES		RESPIRATOR WORN	SAMPLE		EMPLOYEE
					TYPE	METHOD	
0.13	6-10-83	9	} Rectification, south end, ground level	Yes	P	FC	MLB
0.48	6-10-83	9		Yes	P	FC	SKD
1.43	6-14-83	21	} Polymers I, TF44B1, 2nd level	Yes	P	FC	RMK
0.92	6-14-83	24		Yes	P	FC	KGT
0.11	6-16-83	42	} Polymers II, overhead piping north of BL. 48	Yes	P	FC	SKD
0.34	6-16-83	36		Yes	P	FC	JES
1.49	6-17-83	10	} Polymers I, K-2, 4th Level	Yes	P	FC	KGT
3.41	6-17-83	10		Yes	P	FC	JES
0.17	6-20-83	22	} Steam Plant, 3rd level south of control room	Yes	P	FC	LRF
0.36	6-20-83	16		Yes	P	FC	DL
1.23	6-21-83	20	} Intermediates, ground level, east side	Yes	P	FC	MLB
0.86	6-21-83	16		Yes	P	FC	DLB

FC = filter cassette

Remark $\Rightarrow$ Wayne 13.

SPECTROSCOPY LABORATORY

Sample # <u>Z-549</u>	Report To <u>W Boeserman</u>
Sample <u>Ceiling material</u>	Date <u>4/11/84</u>
Lot or Location <u>from Building 2000</u>	Analyst <u>McCool</u>
A. A. Analysis	I. R. Analysis
Cu (Alloy) Al	SiH cc/gm
Ti Ni	Propenyl
As Cr	L-43%
Zn Na	C=O
Cu K	Si O ₂
Ca Si	CN
Fe Sn	% Y-8425
Mn	% Activity
Mg	
Pb	

Identification

no asbestos noted.
material primarily fiber glass
with small amounts of paper fiber
and crystalline particles similar to
calcium carbonate.

INDUSTRIAL HYGIENE RESULTS

DATE: June 20, 1983.

PROJECT: Measure insulator's exposure to airborne asbestos fibers while removing asbestos containing insulation in several areas of the plant.

DATE OF SAMPLES: 4-11-83, 4-13-83, 4-26-83.

RESULTS RECEIVED: 6-6-83

SUMMARY: The maximum airborne asbestos concentration measured 6.36 fibers/cc during a monitoring period of 11 minutes, while the craftsman removed insulation from piping in Intermediates. Other monitoring results covered a range of 0.17 to 2.84 fibers/cc for monitoring periods of up to 45 minutes.

These concentrations are less than the permissible Ceiling of 10 fibers/cc and the permissible 8 hour TWA of 2 fibers/cc. In all cases the craftsmen were protected from exposure by use of Comfo 2 respirator with type H filter, coveralls, goggles, gloves, and boots.

RECOMMENDATIONS: Share this information with Maintenance insulators.

DISCUSSION: In all areas where asbestos insulation was being removed the area was roped off and asbestos hazard signs were in place. In addition the insulation was wetted before starting and during removal as needed. All insulation was placed in labeled plastic bags for disposal. The area was washed down on completion of the job with all wet debris being scooped up for disposal, as mentioned above.

METHOD OF ANALYSIS: Microscopy

DATA AND REPORT BY: H. G. Kuntz/K. E. Williams

COPY TO: D. L. Beagle, M. W. Bosserman, R. E. Cashdollar (2), R. E. Crum, S. K. Delancey, L. R. Ferrebæ, R. M. Keith, D. Lupardus, J. E. McDermott, J. B. Mickey, K.G. Taylor., Jack Boley, Jim Heilman.


K. E. Williams

INDUSTRIAL HYGIENE RESULTS

DATE: June 3, 1983.

PROJECT: Measure asbestos concentration in the vicinity of a roped-off area, where insulation was to be removed, west of #1 boiler; Energy Systems.

DATE OF SAMPLES: 3-15-83, 3-17-83

SUMMARY: The long term monitoring of the roped-off area west of #1 boiler showed average asbestos fiber counts of less than 0.1 fibers/cc. This level is well below the permissible exposure limit of 2 fibers, longer than 5 micrometers, per cubic centimeter of air.

RECOMMENDATIONS: 1. Share this information with Energy Systems personnel and Maintenance insulators.

<u>ASBESTOS FIBERS/CC</u>	<u>DATE</u>	<u>SAMPLE TIME, MINUTES</u>	<u>LOCATION</u>		<u>SAMPLE TYPE</u>	<u>METHOD</u>
0.09	3-15-83	372	North of roped area	} Roped area west of #1 boiler, wind from south	Area	FC
0.02	3-15-83	366	South of roped area		Area	FC
0.08	3-17-83	211	South of roped area west of #1 boiler, wind from N-E.		Area	FC

FC = filter cassette

METHOD OF ANALYSIS: Microscopy

DATA AND REPORT BY: H.G. Kuntz/K. E. Williams

ANALYSIS BY: IHI - Kemron

COPY TO: ✓ M. W. Bosserman, T. Bossick (2), R. E. Cashdollar,
R. E. Crum, K. A. Hickman, J. E. McDermott, J. B.
Mickey, F. M. Plechaty.


K. E. Williams

INDUSTRIAL HYGIENE RESULTS

DATE: June 2, 1983.

PROJECT: Measure asbestos exposure to employees of the Process & Unit Control Laboratory.

DATE OF SAMPLES: 3-10-83, 3-15-83, 3-16-83

SUMMARY: During the two minutes required to prepare a pressure filter for use in filtering a sample, one Lab employee was exposed to 1.82 asbestos fibers per cubic centimeter of air. This exposure is less than the Ceiling limit of 10 fibers/cc established for asbestos.

On 3-15-83 and 3-16-83 lab employees were exposed to 0.03 and 0.07 asbestos fibers per cubic centimeter of air. Monitoring periods were 396 and 415 minutes, respectively. These exposures are less than the 8 hour time weighted average permissible exposure limit of 2 fibers/cc for asbestos.

RECOMMENDATIONS:

1. Request additional monitoring of filter preparation.
2. Share this information with lab employees.

<u>ASBESTOS FIBERS/CC</u>	<u>DATE</u>	<u>SAMPLE TIME, MINUTES</u>	<u>OPERATION</u>	<u>RESPIRATOR WORN</u>	<u>SAMPLE TYPE/METHOD</u>	<u>OPERATOR</u>
1.82	3-10-83	2	Preparing pressure filter for use	No	P FC	DHB, Jr.
0.03	3-15-83	396	Normal lab operations	No	P FC	RRB
0.07	3-16-83	415	Normal lab operations	No	P FC	RGC

FC = filter cassette

P = personal

DISCUSSION:

Personnel in the Process/Unit Control Laboratory use filter pads coated with asbestos fiber to filter some of the process samples they receive. They requested that asbestos exposure monitoring be performed. We sampled for peak exposure during the time a filter was being prepared for use, for 76 hours as an estimate of full shift exposure, because an individual might perform several filtrations during an 8 hour shift.

METHOD OF ANALYSIS:

Microscopy

DATA AND REPORT BY:

H. G. Kuntz/K. E. Williams

ANALYSIS BY

IHI - Kemron

COPY TO:

D. H. Binegar, Jr., R. R. Bonner, M. W. Bosserman, R. E. Crum,
R. G. Cunningham, T. W. Heiskell, J. E. McDermott, J. B.
Mickey, Medical - 3.


K. E. Williams

INDUSTRIAL HYGIENE RESULTS

DATE

May 4, 1983.

PROJECT:

Determine the presence of asbestos in sample of insulation from Polymers I.

DATE OF SAMPLES:

4-11-83, 4-12-83

SUMMARY:

<u>DATE</u>	<u>SAMPLE FROM</u>	<u>IDENTITY</u>
4-11-83	Insulation being removed from K-41 piping	No asbestos noted
4-12-83	Insulation on steam pipe to radiator, G. W. Myer's office	Appears to contain asbestos

RECOMMENDATIONS:

Follow asbestos procedure when removing insulation from piping in offices of Bldg. 35. After removal vacuum thoroughly.

METHOD OF ANALYSIS:

Chemical microscopy

DATA AND REPORT BY:

H. G. Kuntz/K. E. Williams

ANALYSIS BY:

V. H. McCool

COPY TO:

D. G. Beddow, M. W. Bosserman, R. E. Crum,
J. E. McDermott, J. B. Mickey, G. W. Myers,
F. M. Plechaty.


K. E. Williams

INDUSTRIAL HYGIENE RESULTS

DATE: March 25, 1983.

PROJECT: Identify samples of insulation picked up at several locations in the Steam Plant.

DATE OF SAMPLES: 3-9-83, 3-17-83

SUMMARY:

<u>DATE</u>	<u>SAMPLE FROM</u>	<u>IDENTITY</u>
3-9-83	T-49, condensate tank	Appears to contain some asbestos.
3-9-83	Scrap insulation on 1st level above ground, N-W corner #1 boiler	No asbestos, all glass fibers
3-17-83	White residue, 4th level #1 boiler	Appears to be sodium and iron carbonates, no asbestos

RECOMMENDATIONS: Follow asbestos procedure while removing insulation from T-49 condensate tank.

Share this information with Energy Systems and Maintenance personnel.

METHOD OF ANALYSIS: Chemical microscopy

DATA AND REPORT BY: H. G. Kuntz/K. E. Williams

ANALYSIS BY: V. H. McCool

COPY TO: ✓ M. W. Bosserman, T. Bossick, R. E. Cashdollar,
J. E. McDermott, J. B. Mickey, K. R. Mosley,
A. G. Olds, F. M. Plechaty.


K.E. Williams

INDUSTRIAL HYGIENE RESULTS

DATE: March 25, 1983.

PROJECT: Sample and identify insulation on T-1098, water tank, near the tower in the Esters area; the protective cover has fallen off part of the insulation.

DATE OF SAMPLES: 3-23-83

<u>SUMMARY:</u>	<u>DATE</u>	<u>SAMPLE FROM</u>	<u>IDENTITY</u>
	3-23-83	Shredded, loose insulation, T-1098	No asbestos noted
	3-23-83	Rigid insulation, T-1098	No asbestos noted

RECOMMENDATIONS: Share this information with Esters area personnel.

DISCUSSION: Part of the cover has fallen off the insulation on T-1098 located near the S-W corner of the Esters tower. We noticed the strong wind on 3-23-83 was blowing the loose insulation on to the concrete pad. Thinking it might contain asbestos, we sampled it for identification.

METHOD OF ANALYSIS: Chemical Microscopy

DATA AND REPORT BY: H. G. Kuntz/K. E. Williams

ANALYSIS BY: V. H. McCool

COPY TO: D. G. Beddow, M. W. Bosserman, A. A. Cosper, Jr., K. A. Hickman, J. B. Mickey, A. G. Olds, R. L. Pitrolo, F. M. Plechaty.


K. E. Williams

ASBESTOS MONITORING OF MAINTENANCE INSULATORS
DURING ASBESTOS INSULATION REMOVAL
SEVERAL PLANT AREAS

PLA, TWA 8 HRS. = 2 FIBERS*/CC OF AIR
CEILING = 10 FIBERS*/CC OF AIR
*FIBERS LONGER THAN 5 MICROMETERS

F/CC	DATE	SAMPLE TIME, MINUTES		RESPIRATOR WORN	SAMPLE		CRAFTSMAN
					TYPE	METHOD	
2.53	4-11-83	16	Intermediates, stripping insulation, east of control bldg.	Yes	P	FC	KGT
2.75	4-11-83	31	Poly I, Ground level at K-41	Yes	P	FC	KGT
6.36	4-11-83	11	Intermediates, stripping insulation east of control bldg.	Yes	P	FC	DLB
2.84	4-11-83	45	Poly I, ground level at K-41	Yes	P	FC	DLB
1.81	4-11-83	38	Poly I, ground level, at K-41	Yes	P	FC	SKD
0.17	4-13-83	37	ES, strip cover and insul. T-49	Yes	P	FC	DL
0.70	4-13-83	35	ES, strip cover and insul. T-49	Yes	P	FC	DL
0.51	4-13-83	33	ES, strip cover and insul. T-49	Yes	P	FC	LRF
0.33	4-13-83	33	ES, strip cover and insul. T-49	Yes	P	FC	LRF
1.16	4-26-83	41	Poly I, cutting 6" squares from insulation on slurry tanks	Yes	P	FC	RMK
0.79	4-26-83	44		Yes	P	FC	KGT

FC = filter cassette

P = personal