PLAINTIFF'S EXHIBIT

UC-3881

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: P.E. Cyrus

Date: September 24, 1979

cc: R.W Holland, Jr., M.D,
D.B. Howard
L.W. Phair
W.B. Trautman

From: W.C. Young

Survey Date: September 18, 1979 Department/Location 327/Bldg 151-W, Pipe Rack

Airborne Chemical Measurements: Asbestos Dust File No. OH671/327-151W

✓ Area/Source (7.3)(1), ✓ Occupational Exposure (7.4), ____ Noise (8.1),

____ Heat Stress (9.5), ____ Illumination (9.6), ____ Dust, Respirable/Total (9.7)

– REMOVAL OF INSULATION CONTAINING ASBESTOS –

Sample Location, Employee Monitored	SS/AN	Sample Duration, Minutes	Concentration, Fibers > 5μ/cc air	Status(2)
J.W. Cavender	232-84-9757	327	0.5	IC/OSHA
W.T. Buckalew	233-76-2739	325	0.1	IC/OSHA
Stanchion 772, S.E. work Area (down Wind)	—	315	0.1	—
East of work area, roadway	—	315	< 0.01	—
#16 Rack, 12 Ft from yellow barrier tape	—	314	0.1	—
NW of work area @ barrier tape	—	306	< 0.01	—

Comments:

OSHA permissible exposure limit = 2 fibers greater than 5 microns in length per cc of air. SOP strictly followed i.e., barrier tape warning signs, wetting down debris, disposal in appropriately marked plastic bags & respirators worn, etc

(1) (n.n) = Plant 514 Standard Safety File Reference

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

UCC 013786

Area sampling along the boundry/barrier/warning tape indicate that ambient air is substantially free of asbestos dust per OSHA Standard.

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: P.E. Cyrus

Date: September 14, 1979

cc: R.W. Holland, Jr., M.D.
D.B. Howard
L.W. Phair
W.B. Troutman/A.P. Wood
E.L. Van Deuren

From: W.C. Young

Survey Date: September 11, 1979 Department/Location Maintenance/Pipe Rack @ Bldg 151-W

Airborne ~~Chemical~~ Measurements Asbestos Dust File No. OHG71-327/151-W

____ Area/Source (7.3)(1), ✓ Occupational Exposure (7.4), ____ Noise (8.1),

____ Heat Stress (9.5), ____ Illumination (9.6), ____ Dust, Respirable/Total (9.7)

- APPLYING KAYLO 10 (Asbestos-Free) OVER EXISTING LAYER OF ASBESTOS CONTAINING INSULATION -

Sample Location, Employee Monitored	SS/AN	Sample Duration, Minutes	Concentration, Fibers/cc > 5 μ	Status(2)
W.T. Buckalew	233-76-2739	260	0.05	IC/OSHA
J.W. Cavender	232-84-9757	260	0.05	IC/OSHA

Comments:

OSHA limit = 2 fibers per cc of sampled air not greater than 5 micrometers in length. Please notify the above employees about these measurements. If there any questions, please contact me.

(1) (n.n) = Plant 514 Standard Safety File Reference

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period) STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

* Dust respirators worn by above employees ∴ No actual inhalation exposures

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: P. E. Cyrus

Date: September 12, 1979

cc: R. W. Holland, Jr., M.D.
D. B. Howard
L. W. Phair
W. B. Troutman / A. P. Wood
E. L. Van Deuren

From: W. C. Young

Survey Date: September 10, 1979 Department/Location: Maintenance / Pipe Rack @ 151-4

Airborne ~~Chemical~~ Measurements: Asbestos File No. OH671-327/151W

___ Area/Source (7.3)[1], ✓ Occupational Exposure (7.4), ___ Noise (8.1),

___ Heat Stress (9.5), ___ Illumination (9.6), ✓ Dust, Respirable/~~Total~~ (9.7)

– Applying Keylo 10 (Asbestos-Free) over existing layer of asbestos containing insulation –

Sample Location, Employee Monitored	SSAN	Sample Duration, Minutes	Concentration, Fibers/cc. > 5μm	Status[2]
W. T. Buckalew	233-76-2739	17	0.7	IC/OSHA*
J. E. ONeal	234-76-5812	33	0.3	IC/OSHA*

Comments: * The above concentration ranges "indicate" compliance with OSHA's Standard, i.e., no more than 2 fibers per cc of air exceeding 5 micrometers in length, 8-hour time weighted average. Future monitoring will be conducted over extended periods of time – covering the entire work day if possible. These initial measurements for short duration were done to get a fix on concentration ranges to determine if they fall within limitations of the fiber counting procedure.

Dust respirators worn by above employees ∴ No actual inhalation exposure –

(1) (n.a) = Plant 514 Standard Safety File Reference

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period) STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: W. A. Garrett

Date: October 11, 1979

cc: R. N. Bates
L. W. Phair
W. B. Troutman

From: W. C. Young

Survey Date 10/1 - 10/2/1979 Department/Location Maintenance/West of Bldg 151

Airborne ~~Chemical~~ Dust Measurements Asbestos File No. OH671-327/151-W

___ Area/Source (7.3)(1), ✓ Occupational Exposure (7.4), ___ Noise (8.1),

___ Heat Stress (9.5), ___ Illumination (9.6), ___ Dust, Respirable/Total (9.7)

— INSULATION STRIPPING/CLEANUP —

	Sample Location, Employee Monitored	SSAN	Sample Duration, Minutes	Concentration, Fibers > 5 μ/cc air	Status(2)
10/1	J. W. Cavender	232-84-9757	Sample pump malfunctioned		—
10/1	W. T. Buckalew	233-76-2739	317	C.2	IC/OSHA
10/2	W. T. Buckalew	233-76-2739	381	0.1	"
10/2	J. E. O'Neal	234-76-5812	380	0.2	"
10/2	J. P. Stalnaker	235-76-9616	382	0.2	"

Comments:

OSHA permissible limit = 2 fibers 5 μ in length/cc air. Sample analyses (dust count) performed by R & D Ind. Hyg. Lab @ Bldg 701. 514 MMMP #18 strictly followed. Please notify the above employees of these results in accordance with 514 Safety/Health Procedure No. 16.

(1) (n.n) = Plant 514 Standard Safety File Reference

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period) STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

Asbestos Plant 514

Date Collected	Sample No#	Liters of Air	Count	Date Counted	Counted by
10-1-79	#2	634 liters	108 fibers/100 fields	10/4/79	DRCl
10-2-79	#1	762 liters	110 fibers/100 fields	10/4/79	DRCl
10-2-79	#2	760 liters	75 fibers/100 fields	10/4/79	Clise
10-2-79	#3	764 liters	133 fibers/100 fields	10/4/79	Clise

10-1-79 - #2 $\frac{1.08 \times 855}{6.24 \times 634}$ = 0.2 fibers > 5 μm/cm³

10-2-79 - #1 $\frac{1.1 \times 855}{6.24 \times 762}$ = 0.2 fibers > 5 μm/cm³

10-2-79 - #2 $\frac{.75 \times 855}{6.24 \times 760}$ = 0.1 fiber > 5 μm/cm³

10-2-79 - #3 $\frac{1.33 \times 855}{6.24 \times 764}$ = 0.2 fibers > 5 μm/cm³

COPY

WORKPLACE ENVIRONMENT MONITORING - FIELD DATA SHEET Page ____ of ____

Date 10-2-79 Project [illegible] Department ____

General Operating Conditions: Stripping & Cleaning of Insulation West of IPH, Center Pipe Rack Heading East → West Stanchion #772 → 771

Sampling Method and Equipment: Personal ✓ : Area ____ : Portable Sampler Pump ✓ : Charcoal Tube ____ : Bag ____ : Other FC

Remarks: Wearing Disposable Dust Masks

Shift: Day ____ Eve. ____ Mid. ____ No. Employees ____ Sampled By ____

Employee Name, Job Title, Payroll No., Soc. Sec. No., Bldg. No. - Monitoring Loc. Smoke - Chew?	Sample No.	Pump Ser. Number	Pump Kv	Pump Flow Control Set	Initial Pump Reading	Final Pump Reading	Net Pump Reading	Start (Time)	Stop (Time)	Net Sample Time, Min.	Volume, Liters.	Conc. Fib/cm³
Buckalew, W.T. Insul. 233-76-2739	1	Bendix		2.0/2.0	X 381 =	762 Liters		0834	[illegible]	381	762	.2
O'Neal, J.E. Insul. 234-76-5812 No No	2	MSA 2-06-0370		2.0/2.0	X 380 =	760 "		0835	[illegible]	380	760	.2
Stalnaker, J.P. Insul. 235-76-9616 Yes Yes	3	MSA 2-78-3220		2.0/2.0	X 382 =	764 "		0833	[illegible]	382	764	.2

COPY

Remarks: (See Reverse Side)

UCC 013791

WORKPLACE ENVIRONMENT MONITORING - FIELD DATA SHEET Page ____ of ____

Date 1[illegible]79 Project [illegible] Department 327

General Operating Conditions: Stripping & clean up [illegible] west of [illegible] at Stanchion 772

Sampling Method and Equipment: Personal ✓ : Area ____ : Portable Sampler Pump ✓ : Charcoal Tube ____ :
Bag ____ : Other F.C.

Remarks: Wearing Disposable Dust Masks

Shift: Day ✓ Eve. ____ Mid. ____ No. Employees ____ Sampled By [illegible]

Employee Name, Job Title, Payroll No., Soc. Sec. No., Bldg. No. - Monitoring Loc. Smoke - Chew?	Sample No.	Pump Ser. Number	Pump Kv	Pump Flow Control Set	Initial Pump Reading	Final Pump Reading	Net Pump Reading	Start (Time)	Stop (Time)	Net Sample Time, Min.	Volume, Liters.	Conc. ~~PPM~~ Fiber/cc
[illegible]	1	DUPONT		2.0 LPM/	[illegible]	WET [illegible]		[illegible]	STOPPED			
[illegible]												
[illegible]												
[illegible]	2	BENDIX		2.0/2.0		20X 317 = 634 LT.		[illegible]	[illegible]	317	634	.2
[illegible]												
[illegible]												
	3	MSA K 75-3220		2.0/								
	4	MSA B 06-0270		2.0/								

COPY

Remarks: (See Reverse Side)

UCC 013792

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: W. B. Spurlock

Date: June 5, 1980

cc: W. A. Garrett
C. R. Gillespie
W. B. Troutman

From: W. C. Young

Survey Date 5/29 - 5/30 Department/Location 327/Area I @ Oxide Adducts

Airborne ~~Chemical~~ Measurements Asbestos Fibers File No. OH671

✓ (Area)/Source (7.3)(1), ✓ Occupational Exposure (7.4), ____ Noise (8.1),

____ Heat Stress (9.5), ____ Illumination (9.6) ____ Dust, Respirable/Total (9.7)

- REMOVING OLD INSULATION FROM 16 INCH STEAM LINE -

	Sample Location, Employee Monitored	SSAN	Sample Duration, Minutes	Concentration, No. fibers > 5μ long/cc air	Status(2)
5/29	SE Corner @ Yellow barrier/tape		370	0.02	IC
"	NW " " "		370	0.01	IC
5/30	SE " " "		415	0.04	IC
"	NW " " "		415	0.01	IC
5/29	Buckalew, W.T.	233-76-2739	370	0.18	IC
5/30	" "	"	425	0.13	IC
5/29	Stalnaker, J.P.	235-76-9616	370	0.20	IC
5/30	" "	"	425	0.22	IC

Comments: Wet methods (work practice/OSHA) & respiratory protection used. (327 Dept. procedure)
OSHA permissible exposure limit = 2 fibers greater than 5 micrometers long per cubic centimeter of air. Determination of airborne fiber concentration made by the perscribed OSHA method, i.e., membrane filter, 400-450X (magnification) with phase contrast illumination.

WCY 6/5/80

(1) (n.n) = Plant 514 Standard Safety File Reference

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period), STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

(3) Please notify monitored employees of results in accordance with Plant 514 Safety/Health Procedure No. 16.

WORKPLACE ENVIRONMENT MONITORING - FIELD DATA SHEET Page ____ of ____

Date 5.29.80 Project ASBESTOS Department ____

General Operating Conditions: REMOVING INSULATION FROM STEAM LINES LOWER MAINLAND AREA (OXIDE ADDITION AREA) OVER S.B #7, EAST OF BLDG

Sampling Method and Equipment: Personal ✓ : Area ✓ : Portable Sampler Pump ✓ : Charcoal Tube ____ : Bag ____ : Other FILTER CASSETTE

Remarks: 3 of 4 WEARING DISPOSABLE DUST MASKS.

Shift: Day ____ Eve. ____ Mid. ____ No. Employees ____ Sampled By NCJ-CCA

Employee Name, Job Title, Payroll No., Soc. Sec. No., Bldg. No. - Monitoring Loc. Smoke - Chew?	Sample No.	Pump Ser. Number	Pump Kv	Pump Flow Control Set	Initial Pump Reading	Final Pump Reading	Net Pump Reading	Start (Time)	Stop (Time)	Net Sample Time, Min.	Volume, Liters.	Conc. F/cc
W T BUCKALEW ● INSUL. 233-76-2739 "M" Yes NO	3	74 POINT P-4000		2.0 LPM	2.0	AV = 2.0		0900	1510	370	740	.183
J R STALNAKER ● INSUL 235-76-9616 "M" YES YES	4	BENDIX		2.0 LPM	2.0	AV = 2.0		0900	1510	370	740	.201
SO EAST CORNER BARRICADE	5	MSA #4		2.0 LPM	1.8	AV = 1.9		0900	1510	370	703	.047
NO WEST CORNER STRIPPING	6	MSA R-73-0231		2.0 LPM	2.0	AV = 2.0		0900	1510	370	740	.013

6-2-80 CCA

3= 93-1=92 Fibers/100 Fields

4= 102-1=101 " "

5= 9-1=8 " "

6= 7.5-1=6.5

(3) $\frac{.92 \times 855}{5.8 \times 740} = .183$

(4) $\frac{1.01 \times 855}{5.8 \times 740} = .201$

(5) $\frac{.08 \times 855}{5.8 \times 703} = .017$

(6) $\frac{.065 \times 855}{5.8 \times 740} = .013$

COPY

UCC 87P41

Remarks: (See Reverse Side)

WORKPLACE ENVIRONMENT MONITORING - FIELD DATA SHEET Page ____ of ____

Date 5-30-80 Project ASBESTOS Department

General Operating Conditions: REMOVING INSULATION FROM STEAM LINE, LOWER MAINLAND, EAST OF BLDG. 36 AT #7 S.B.

Sampling Method and Equipment: Personal ___ : Area ___ : Portable Sampler Pump ___ : Charcoal Tube ___ : Bag ___ : Other FILTER CASSETTE

Remarks: 1/2 - WEARING DISPOSABLE DUST MASKS.

Shift: Day ✓ Eve. ___ Mid. ___ No. Employees ___ Sampled By HCJ

Employee Name, Job Title, Payroll No., Soc. Sec. No., Bldg. No. - Monitoring Loc. Smoke - Chew?	Sample No.	Pump Ser. Number	Pump Kv	Pump Flow Control Set	Initial Pump Reading	Final Pump Reading	Net Pump Reading	Start (Time)	Stop (Time)	Net Sample Time, Min.	Volume, Liters.	Conc., F/cc
W T BUCKALEW INSUL 233-76-2739 " YES NO	1	DUPONT	P-2500	2 LPM				0800	1505	425	850	.134
J P STALNAKER INSUL 235-76-9616 " YES YES	2	DUPONT	P-4000	2 LPM				0800	1505	425	850	.222
SE OF BARRIER	3	BENDIX		2 LPM				0810	1505	415	830	.043
N/2 W OF BARRIER	4	MSA	3220	2 LPM				0810	1505	415	830	.014
	~~5~~	~~MSA~~	~~3221~~									
	6	MSA	1144									

COPY

6-2-80 CCA

1- 77-1 = 76 FIBER/100 FIELDS ① ② ③ ④

2- 129-1 = 128 " "

3- 24-1 = 23 " "

4- 8-1 = 7 " "

① .77 × 855 / 5.8 × 850 = .134

② 1.28 × 855 / 5.8 × 850 = .222

③ .24 × 855 / 5.8 × 830 = .043

④ .08 × 855 / 5.8 × 830 = .014

Remarks: (See Reverse Side)

UCC 013795

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: W. B. Spurlock

Date: June 11, 1980

cc: W. A. Garrett
C. R. Gillespie
W. B. Troutman

From: W. C. Young

Survey Date 6/23/80 Department/Location 327/Piperack @ Bldg 323-N

Airborne ~~Chemical~~ Measurements Asbestos Fibers File No. OH671

____ Area/Source (7.3)(1), ____ Occupational Exposure (7.4), ____ Noise (8.1),

____ Heat Stress (9.5), ____ Illumination (9.6) ____ Dust, Respirable/Total (9.7)

— REMOVING INSULATION FROM 4 INCH LINE —

Sample Location, Employee Monitored	SSAN	Sample Duration, Minutes	Concentration, No. fibers > 5μ long/cc of air	Status(2)
O Neal, J. E.	234-76-5817	15	2.4	IC
Barnett, M. G.	234-72-1767	15	4.8	IC

Comments:

OSHA PEL = 2 fibers greater than 5 μ long per cc of air, (Averaged over 8-Hr day); if ceiling limit of 10 fibers is exceeded, fresh air respiratory protection must be used. NO WETTING PROCEDURE FOLLOWED DURING THE ABOVE SAMPLE/WORK PERIOD

6/27/80

(1) (n.n) = Plant 514 Standard Safety File Reference

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period), STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

(3) Please notify monitored employees of results in accordance with Plant 514 Safety/Health Procedure No. 16.

WORKPLACE ENVIRONMENT MONITORING - FIELD DATA SHEET Page ____ of ____

Date 6-23-80 Project ASBESTOS Department 327 (MAINT. DEPT ALL)

General Operating Conditions: STRIPPING INSULATION FROM 4" LINE NORTH R/O 6223, PIPE RACK NORTH OF ROADWAY WEARING DISPOSABLE DUST MASKS. INSULATION WAS NOT WET DOWN.

Sampling Method and Equipment: Personal ✓ : Area ____ : Portable Sampler Pump ✓ : Charcoal Tube ____ : Bag ____ : Other ELUTRIC CASSETTE

Remarks: ____

Shift: Day ____ Eve. ____ Mid. ____ No. Employees ____ Sampled By CCA

Employee Name, Job Title, Payroll No., Soc. Sec. No., Bldg. No. - Monitoring Loc. Smoke - Chew?	Sample No.	Pump Ser. Number	Pump Kv	Pump Flow Control Set	Initial Pump Reading	Final Pump Reading	Net Pump Reading	Start (Time)	Stop (Time)	Net Sample Time, Min.	Volume, Liters.	Conc., F/cc
ONEAL JE 234-76-5817 NO NO	1	MSA 8-06-0223		2.0 LPM/2.0		AV. = 2.0		1038	1053	15	30	2.36
BARNETT, MG 234-72-1767 Yes Yes	2	MSA #4		2.0 LPM/2.0		AV. = 2.0		1038	1053	15	30	4.77

6-26-80 (CC)
#1 48 FIBERS/100 FIELDS
#2 97 " " "

(1) $\frac{.48 \times 855}{5.8 \times 30} = 2.36$

(2) $\frac{.97 \times 855}{5.8 \times 30} = 4.77$

COPY

Remarks: (See Reverse Side)

UCC 013797

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: W. B. Spurlock

Date: July 10, 1980

cc: W. A. Garrett
C. R. Gillespie
W. B. Troutman

From: W. C. Young /CCA

Survey Date 7/1/80 Department/Location 327/Piperack @ Bldg 323-N

Airborne ~~Chemical~~ Measurements Asbestos Fibers File No. OH671

____ Area/Source (7.3)(1), ✓ Occupational Exposure (7.4), ____ Noise (8.1),

____ Heat Stress (9.5), ____ Illumination (9.6) ____ Dust, Respirable/Total (9.7)

— REMOVING INSULATION FROM 4 INCH LINE —

Sample Location, Employee Monitored	SSAN	Sample Duration, Minutes	Concentration, No. fibers > 5μ long/cc of air	Status(2)
BUCKALEW, W.T.	233-76-2739	15	1.4	IC
BUCKALEW, W.T.	233-76-2739	15	2.9	IC
STALNAKER, J.P.	235-76-9616	15	1.0	IC
STALNAKER, J.P.	235-76-9616	15	2.4	IC

Z

Comments:

OSHA PEL = 2 fibers greater than 5 μ long per cc of air, (Averaged over 8-Hr day); if ceiling limit of 10 fibers is exceeded, fresh air respiratory protection must be used. NO WETTING PROCEDURE FOLLOWED DURING THE ABOVE SAMPLE/WORK PERIOD

(1) (n.n) = Plant 514 Standard Safety File Reference

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period), STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

(3) Please notify monitored employees of results in accordance with Plant 514 Safety/Health Procedure No. 16.

WORKPLACE ENVIRONMENT MONITORING - FIELD DATA SHEET Page____ of____

Date 7-1-80 Project ASBESTOS Department 327 (NORTH BLDG 327)

General Operating Conditions: NOT WETTING DOWN INSUL
STRIPPING ASBESTOS INSUL FROM 4" STEAM LINE

Sampling Method and Equipment: Personal ✓ : Area ____ : Portable Sampler Pump ✓ : Charcoal Tube ____ :
Bag ____ : Other FILTER CASETTE

Remarks: ____

Shift: Day ____ Eve. ____ Mid. ____ No. Employees ____ Sampled By HCJ

Employee Name, Job Title, Payroll No., Soc. Sec. No., Bldg. No. - Monitoring Loc. Smoke - Chew?	Sample No.	Pump Ser. Number	Pump Kv	Pump Flow Control Set	Initial Pump Reading	Final Pump Reading	Net Pump Reading	Start (Time)	Stop (Time)	Net Sample Time, Min.	Volume, Liters.	Conc., ppmv
W T BUCKALEW INSUL 233-76-2739 YES NO	1	DUPONT	P-2500		2.0 LPM			0832	0847	15	30	1.38
J P STALNAKER INSUL 235-76-9616 YES YES	2	DUPONT	P-4000		2.0 LPM			0832	0847	15	30	1.01
W T BUCKALEW	3	DUPONT	P-2500		2.0 LPM			0847	0902	15	30	2.85
J P STALNAKER	4	DUPONT	P-4000		2.0 LPM			0847	0902	15	30	2.36

7-8-80 CCA

1) 29-1=28 Fibers/100 Fields
2) 20.5-1=19.5 " " "
3) 59-1=58 " " "
4) 49-1=48 " " "

① $\frac{.28 \times 855}{5.8 \times 30} = 1.38$

② $\frac{.205 \times 855}{5.8 \times 30} = 1.01$

③ $\frac{.58 \times 855}{5.8 \times 30} = 2.85$

④ $\frac{.48 \times 855}{5.8 \times 30} = 2.36$

COPY

Remarks: (See Reverse Side)

UCC 013799

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: W.B. SPURLOCK

Date: July, 25, 1980

cc: W.A. GARRETT
C.R. GILLESPIE
W.B. TROUTMAN

From: C.C. ARMSTEAD

Survey Date 7-16-80 Department/Location 327/PIPE RACK @ BLDG. 303-N

Airborne Chemical Measurements ASBESTOS FIBERS File No. OH 671

____ Area/Source (7.3)(1), ____ Occupational Exposure (7.4), ____ Noise (8.1),

____ Heat Stress (9.5), ____ Illumination (9.6) ____ Dust, Respirable/Total (9.7)

REMOVING INSULATION FROM 4 INCH LINE

Sample Location, Employee Monitored	SSAN	Sample Duration, Minutes	Concentration, F/cc	Status(2)
STAINAKER, J.P.	235-76-9611	15	2.2	IC
"	"	"	1.2	IC
SHIRKEY, W.M	233-38-6218	"	2.5	IC
"	"	"	3.4	IC

5 fibers > 5μ/cc

2 5μ

10

Comments:

OSHA PEL = 2 FIBERS GREATER THAN 5 μ LONG PER CC OF AIR (AVE. OVER 8-HR DAY) IF CEILING LIMIT OF 10 FIBERS IS EXCEEDED, FRESH AIR RESPIRATORY PROTECTION MUST BE USED.

(1) (n.n) = Plant 514 Standard Safety File Reference

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period), STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

(3) Please notify monitored employees of results in accordance with Plant 514 Safety/Health Procedure No. 16.

WORKPLACE ENVIRONMENT MONITORING - FIELD DATA SHEET Page ___ of ___

Date 7-16-80 Project ASBESTOS Department 327 (P. de Brick North of Building 303)
General Operating Conditions: WET DOWN DUST RESP (Disposable)
Removing Insul. from steam lines.

Sampling Method and Equipment: Personal ✓ : Area ___ : Portable Sampler Pump ✓ : Charcoal Tube ___ :
Bag ___ : Other FILTER CASSETTE

Remarks:

Shift: Day ___ Eve. ___ Mid. ___ No. Employees ___ Sampled By HCS

Employee Name, Job Title, Payroll No., Soc. Sec. No., Bldg. No. - Monitoring Loc. Smoke - Chew?	Sample No.	Pump Ser. Number	Pump Kv	Pump Flow Control Set	Initial Pump Reading	Final Pump Reading	Net Pump Reading	Start (Time)	Stop (Time)	Net Sample Time, Min.	Volume, Liters.	Conc., ppmv
J.P. STALNAKER INSUL 235-76-9616 M YES YES	1	DUPONT	P2500	2 LPM				10:00	10:15	15	30	2.21
WM SHIRKEY INSUL 233-38-6218 M NO NO	2	DUPONT	P4000	2 LPM				10:00	10:13	15	30	2.46
J.P. STALNAKER 235-76-9616 "M" Yes Yes	3			2 LPM				1036	1051	15	30	1.23
W M SHIRKEY 233-38-6218 "M" NO NO	4			2 LPM				1036	1051	15	30	3.39
7-21-80 CCA	0	$\frac{.45 \times 855}{5.8 \times 30} = 2.21$			① $\frac{.50 \times 855}{5.8 \times 30} = 2.46$		② $\frac{.25 \times 855}{5.8 \times 30} = 1.23$		④ $\frac{.69 \times 855}{5.8 \times 30} = 3.39$			
#1 45-1 = 44 F/100 Fields												
#2 51-1 = 50 " "												
#3 26-1 = 25 " "												
#4 70-1 = 69 " "												

COPY

UCC 013801

Remarks: (See Reverse Side)

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: W. A. Spurlock

Date: September 5, 1980

cc: W. A. Garrett
W. B. Troutman
E. L. Van Deuren

From: W. C. Young

Survey Date 9/2/80 Department/Location 327 / East of Bldg 305 @ RR Bridge

Airborne ~~Chemical~~ Measurements Asbestos Dust File No. OH 671

____ Area/Source (7.3)(1), ✓ Occupational (7.4), ____ Noise (8.1),

____ Heat Stress (9.5), ____ Illumination (9.6) ____ Dust, Respirable/Total (9.7)

— STRIPPING INSULATION/CLEANUP —

Sample Location, Employee Monitored	SSAN	Sample Duration, Minutes	Concentration, Fibers > 5μ/cc air	Status(2)
Stalnaker, J.P.	235-76-9616	45	1.9*	IC
Turley, W. E.	232-24-6317	45	1.1	IC
Howard, E. L.	235-84-6522	45	2.3*	IC

* There were numerous particles/fibers present not meeting criteria of counting method. That is, either too wide or too long — This suggests ineffective wetting of the material handled.

Comments:

The express purpose of the above measurements was to determine whether the ceiling limit (10 fibers > 5μ/cc air) was exceeded during the period of time when airborne concentrations were likely to be highest. Dust masks in use.

(1) (n.n) = Plant 514 Standard Safety File Reference Sample duration = job task duration.

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period), STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

(3) Please notify monitored employees of results in accordance with Plant 514 Safety/Health Procedure No. 16.

WORKPLACE ENVIRONMENT MONITORING - FIELD DATA SHEET Page ____ of ____

Date 9-2-80 Project ASBESTOS Department 327 EAST OF BLDG 305

General Operating Conditions: RESP WORN

PICKING UP & BAGGING INSULATION REMOVED FROM STEAM LINE

Sampling Method and Equipment: Personal ✓ : Area ____ : Portable Sampler Pump ✓ : Charcoal Tube ____ :
Bag ____ : Other FILTER CASETTE

Remarks:

Shift: Day ✓ Eve. ____ Mid. ____ No. Employees 3 Sampled By HCJ

Employee Name, Job Title, Payroll No., Soc. Sec. No., Bldg. No. - Monitoring Loc. Smoke - Chew?	Sample No.	Pump Ser. Number	Pump Kv	Pump Flow Control Set	Initial Pump Reading	Final Pump Reading	Net Pump Reading	Start (Time)	Stop (Time)	Net Sample Time, Min.	Volume, Liters.	~~Conc.~~, ppmv F/cc
J.P. STALNAKER INSUL 235-76-9616 M NO YES	1	DUPONT	P-4000		2 LPM			0830	0915	45	90	1.90
W.E. TURLEY INSUL 232-24-6817 M YES NO	2	DUPONT	P-2500		2 LPM			0830	0915	45	90	1.06
E.L. HOWARD INSUL 235-84-6522 M YES NO	3	BENDIX			2 LPM			0830	0915	45	90	2.28

1 = 116-1 = 115 Fibers / 100 Fields
2 = 65-1 = 64 " "
3 = 139-1 = 138 " "

(1) $\frac{1.16 \times 855}{5.8 \times 90} = 1.90$ (2) $\frac{.65 \times 855}{5.8 \times 90} = 1.06$ (3) $\frac{1.39 \times 855}{5.8 \times 90} = 2.28$

CA 9-3-80

Remarks: (See Reverse Side)

UCC 013803

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: J. R. Dean

Date: October 23, 1980

cc: J. S. Cornell
W. B. Troutman

From: W. C. Young

Survey Date 10/23/80 Department/Location 327 / Pipe Trench @ Bldg 202-N

Airborne Chemical Measurements Asbestos File No. OH 671

___ Area/Source (7.3)(1), ✓ Occupational Exposure (7.4), ___ Noise (8.1),

___ Heat Stress (9.5), ___ Illumination (9.6) ___ Dust, Respirable/Total (9.7)

— INSULATION REMOVAL —

Sample Location, Employee Monitored	SSAN	Sample Duration, Minutes	Concentration, # Fibers >5μ/cc Air	Status(2)
Newsome, C.	233-66-0592	30	Unable to determine an accurate count due to heavy concentration of both apparent resin dust and asbestos fibers.	
Stalnaker, J.P.	235-76-9616	25	1.7	IC*
Newsome, C.	233-66-0592	7	3.9	IC*
Stalnaker, J.P.	235-76-9616	7	3.0	IC*

Comments: Sample duration is approximately equal to job task (stripping) duration.

*Samples appeared to contain resin particles which interfered with fiber counting. Hence, these data are questionable, but for those we were able to count they appear less then the OSHA ceiling limit of 10 fibers >5μ/cc air.

(1) (n.n) = Plant 514 Standard Safety File Reference 3M # 8710 masks used to avoid inhalation of fiber/particulates.

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period), STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

(3) Please notify monitored employees of results in accordance with Plant 514 Safety/Health Procedure No. 16.

ASBESTOS

WORKPLACE ENVIRONMENT MONITORING - FIELD DATA SHEET Page ___ of ___

Date 10/23/90 Project Remove/Replace Low Pressure Steam Lines Department 327

General Operating Conditions: 1 Respirator used: 3M #8710, for Dusts, TC-21C-132.

To remove asbestos-containing insulation from steel lines, into plastic bags - NO WETTING METHODS USED

Sampling Method and Equipment: Personal ✓ : Area ___ : Portable Sampler Pump ✓ : Charcoal Tube ___ :
Bag ___ : Other Field Number, Access/Type, Millipore Cat. No. HAWP03240 0.8µ Pore Size

Remarks: ___

Shift: Day ✓ Eve. ___ Mid. ___ No. Employees ___ Sampled By MC

Employee Name, Job Title, Payroll No., Soc. Sec. No., Bldg. No. - Monitoring Loc. Smoke - Chew?	Sample No.	Pump Ser. Number	Pump RV	Pump Flow Control Set	Initial Pump Reading	Final Pump Reading	Net Pump Reading	Start (Time)	Stop (Time)	Net Sample Time, Min.	Volume, Liters.	Fibers /cc Conc.,
Newsome, C. Insul. 233-66-0592 M Yes NO	#1	P-7500			2 LPM			1024	1054	30	60	⊗
Blalnaker, J.P. Insul 235-76-9616 M No Yes	2	P-4000			2 LPM			1030	1055	25	50	477
Newsome, C Insul. 233-66-0592 M Yes NO	3	P-7500			2 LPM			1100	1107	7	14	399
Blalnaker, J.P. Insul 235-76-9616 M NO Yes	4	P-4000			2 LPM		⊗ Too Much Dust To Count	1100	1107	7	14	325
(2) 54-1 = 53 F/100 Fields		(2)			(1)		(3)					
(3) 38-1 = 37 " "		58 X 85 = 171			37 X 85 = 3190		29 X 55 = 3.05					
(4) 29-1 = 28 " "		5.8 X 5.8			58 X 17		5.8 X 1.9					

Remarks: (See Reverse Side) (OVER)

CC 018806

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: J. R. Dean

Date: October 29, 1980

cc: J. S. Cornell
W. B. Troutman

From: W. C. Young

Survey Date 10/24/80 - 10/27/80 Department/Location 327 / Pipe Trench @ Bldg 202-N

Airborne Chemical Measurements Asbestos Fibers File No. OH 671

___ Area/Source (7.3)(1), ✓ Occupational Exposure (7.4), ___ Noise (8.1),

___ Heat Stress (9.5), ___ Illumination (9.6) ___ Dust, Respirable/Total (9.7)

L. P. Steam Line Insulation Removal/Application

	Sample Location, Employee Monitored	SSAN	Sample Duration, Minutes	Concentration, Fibers > 5μ/cc air	Status(2)
10/24/80	(5) Stalneker, J. P.	235-76-9616	30	1.2	IC
	(6) Dye, J. W.	236-24-0101	16	0.7	IC
	(7) Woods, G. R.	233-92-5828	30	0.6	IC
	(8) Bumgardner, H. J.	236-05-8883	30	0.5	IC
10/27/80	(9) Woods, G. R.	233-92-5828	12	0.4	IC
	(10) Gibson, J. D.	232-74-0970	12	0.3	IC
	(11) Woods, G. R.	233-92-5828	10	0.7	
	(12) Gibson, J. D.	232-74-0970	10	0.3	IC

Comments: 3-M, #8710 Dust Masks used to prevent inhalation exposure.
OSHA permissible exposure limits: 2 fibers greater than 5 micrometers long per cubic centimeter of air (8-hour average); ceiling of 10 fibers greater than 5 micrometers long per cubic centimeter of air.

(1) (n.n) = Plant 514 Standard Safety File Reference

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period), STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

(3) Please notify monitored employees of results in accordance with Plant 514 Safety/Health Procedure No. 16.

UCC 013807

INDUSTRIAL HYGIENE SURVEY REPORT

SOUTH CHARLESTON PLANT

To: J.R. Dean

Date: October 29, 1980

cc: J.S. Cornell
W.B. Troutman

From: W.C. Young

Survey Date 10-28-80 Department/Location 327/Pipe Trench @ Bldg 202-N

Airborne Chemical Measurements Asbestos Fibers File No. OH 671

___ Area/Source (7.3)(1), ✓ Occupational Exposure (7.4), ___ Noise (8.1),

___ Heat Stress (9.5), ___ Illumination (9.6) ___ Dust, Respirable/Total (9.7)

L.P. Steam Line Insulation Removal/Application

	Sample Location, Employee Monitored	SSAN	Sample Duration, Minutes	Concentration, Fibers > 5μ/cc air	Status(2)
(13)	Woods, G.R.	233-92-5828	13	3.6	IC
(14)	Howard, E.L.	235-84-6522	13	6.1 ★	IC

★ Highest value to date. People still aren't effectively using wetting methods.

Comments: 3-M, #8710 Dust Masks used to prevent inhalation exposure. OSHA permissible exposure limits: 2 fibers greater than 5 micrometers long per cubic centimeter of air (8-hour average); ceiling of 10 fibers greater than 5 micrometers long per cubic centimeter of air.

(1) (n.n) = Plant 514 Standard Safety File Reference

(2) IC = In Compliance, NC = Non-Compliance/TLV (Threshold Limit Value per 8-Hr. Period), STEL (Short Term Exposure Limit), C (Ceiling Limit), ACGIH (American Conference of Governmental Industrial Hygienists), UCC (UCC Internal Standard/Guidelines), OSHA (Occupational Safety & Health Administration).

(3) Please notify monitored employees of results in accordance with Plant 514 Safety/Health Procedure No. 16.

SSBN's check against #8 Report

ASBESTOS
WORKPLACE ENVIRONMENT MONITORING - FIELD DATA SHEET

Page ___ of ___

Date 10/27/80 Project Insulation Removal/Application Department 327
General Operating Conditions: Confined space, pipe trench/tunnel NW of Bldg 202

Sampling Method and Equipment: Personal ✓ : Area ___ : Portable Sampler Pump ✓ : Charcoal Tube ___ :
Bag ___ : Other F.C.

Remarks: 3M # Dust Masks used to prevent inhalation exposure

Shift: Day ✓ Eve. ___ Mid. ___ No. Employees 4 Sampled By WCy

Employee Name, Job Title, Payroll No., Soc. Sec. No., Bldg. No. - Monitoring Loc. Smoke - Chew?	Sample No.	Pump Ser. Number	Pump Kv	Pump Flow Control Set	Initial Pump Reading	Final Pump Reading	Net Pump Reading	Start (Time)	Stop (Time)	Net Sample Time, Min.	Volume, Liters.	Conc., ppmv
Stalnaker, J.P., Insul, 225-76-9616 M No-Yes	5	R-78-3220		2 LPM			2 LPM	1305	1335	30	60	1.20
Dye, J.W., Insulator 236-24-0101 M No-Yes	6	R-73-0231		2 LPM			2 LPM	1320	1336	16	32	.34
Woods, G.R., Insulator, 233-92-5828 M No-No	7	R-75-3220		2 LPM			2 LPM	1340	1410	30	60	.57
Baumgardner, H.J., Insulator, 216-05-8863 M No-No	8	R-73-0231		2 LPM			2 LPM	1341	1411	30	60	.54

10-27-80 EA

5) 49-1 = 48 Fiber/100 Fields — (5) .49 x 855 / 5.8 x 60 = 1.20
6) 17-1 = 16 " " — (6) .16 x 855 / 5.5 x 32 = .731
7) 24-1 = 23 " " — (7) .23 x 855 / 5.5 x 60 = .565
8) 23-1 = 22 " " — (8) .22 x 855 / 5.8 x 60 = .541

COPY

Remarks: (See Reverse Side) Samples 5 & 6 = mostly removal/stripping & disposal
" 7 & 8 = covering pipe with [illegible]

UC001809

✓

WORKPLACE ENVIRONMENT MONITORING - FIELD DATA SHEET

Page ____ of ____

Date 10-27-80 Project Asbestos Department 227

General Operating Conditions: Replacing insulation on Steam Line, in Tunnel No. 227

Sampling Method and Equipment: Personal ✓ : Area ____ : Portable Sampler Pump ✓ : Charcoal Tube ____ : Bag ____ : Other Filter Cassette

Remarks: Wearing Disposable Dust Masks

Shift: Day ____ Eve. ____ Mid. ____ No. Employees ____ Sampled By HCT - CCA

Employee Name, Job Title, Payroll No., Soc. Sec. No., Bldg. No. - Monitoring Loc. Smoke - Chew?	Sample No.	Pump Ser. Number	Pump Kv	Pump Flow Control Set	Initial Pump Reading	Final Pump Reading	Net Pump Reading	Start (Time)	Stop (Time)	Net Sample Time, Min.	Volume, Liters.	Conc., ppmv
WOODS, G.R. Insul 233-92-5828 M NO NO	1	DuPont 2226		2.0 LPM				1010	1022	12	24.0	.43
GIBSON, J.D. Insul 232-74-0970 M No Yes	2	DuPont 2226		2.0 LPM				1010	1022	12	24.0	.34
WOODS, G.R. INSUL 233-92-5828 M NO NO	3	MSA 806-0223		2.0 LPM				1022	1032	10	20.0	.44
GIBSON, J.D Insul 232-74-0970 M No Yes	4	MSA 806-0220		2.0 LPM				1023	1033	10	20.0	.29
	5	~~MSA 806-0220~~		~~2.0 LPM~~								
	6	~~MSA 806-0223~~		~~2.0 LPM~~								

10-27-80 CA

1) 8-1 = 7 Fiber/100 Fields
2) 6½-1 = 5½ " "
3) 11-1 = 10 " "
4) 5-1 = 4 " "

① .07 X 855 / 5.8 X 24 = .430

② .055 X 855 / 5.8 X 24 = .338

③ .10 X 855 / 5.8 X 20 = .737

④ .04 X 855 / 5.8 X 20 = .294

Copy

Remarks: (See Reverse Side)