

INDUSTRIAL HYGIENE
SAMPLING FORM

PLAINTIFF'S EXHIBIT

SH-1136

SERIAL NO.
1041 04867DATE
11/10/86NO.
14 04867

JOB TITLE <i>Shredder</i>		EMPLOYEE'S COMPANY <i>Brown & Root</i>		LOCATION (SHELL FACILITY OR OTHER) <i>E-200</i>		AREA/UNIT DESCRIPTION <i>BD</i>		OPERATING CONDITIONS (SAMPLING OPERATION) <i>01</i>		TIME START TIME <i>11/07</i>		WORK TASK		SAMPLE NO. <i>90508</i>		DESCRIPTION OF COLLECTOR (MG, Lot No., Etc.) <i>25mm O.D. ACE</i>		SAMPLED BY <i>CD. Kinell 47C-7710</i>		RETURN RESULTS TO <i>CD. Kinell ETC</i>		DATE SAMPLED <i>11/10/86</i>		SHIFT <i>1 2 3 0730/1600</i>		PHONE											
1 PERSONAL-TWA		1 CHARCOAL TUBE		2 PERSONAL-PEAK		2 FILTER (RESP)		3 FILTER (TOTAL)		4 IMPINGER		5 PASSIVE DOSIMETER		6 SILICA GEL		7 PACKED TUBE		8 PERSONAL TASK		9 POSSIBLE INTERFERENCES/INSTRUCTIONS		10 LAB CONTROL		11 SOURCE		12		13									
3 D AREA		4 D BLANK		5 D BLANK		6 D LAB CONTROL		7 D SOURCE		8 D PERSONAL TASK		9 POSSIBLE INTERFERENCES/INSTRUCTIONS		10 LAB CONTROL		11 SOURCE		12		13		14		15		16											
BAROMETER <i>30.0</i>		IN. HG. <i>30.0</i>		TEMPERATURE <i>74</i>		HUMIDITY <i>79</i>		% RH. <i>79</i>		WIND <i>SE 8</i>		M.P.H. <i>79</i>		SAMPLE NO. <i>90508</i>		DESCRIPTION OF COLLECTOR (MG, Lot No., Etc.) <i>25mm O.D. ACE</i>		SAMPLED BY <i>CD. Kinell 47C-7710</i>		RETURN RESULTS TO <i>CD. Kinell ETC</i>		DATE SAMPLED <i>11/10/86</i>		SHIFT <i>1 2 3 0730/1600</i>		PHONE											
INSTRUMENT TYPE <i>DuPont A-2530</i>		SERIAL NO. <i>6368</i>		BY <i>CD</i>		REFERENCE METHOD <i>500 M/L</i>		DATE <i>11/10/86</i>		COUNTER READING <i>195</i>		VOLUME PER COUNT <i>1.95</i>		FLOW RATE <i>1.95</i>		INITIAL <i>195</i>		FINAL <i>195</i>		NET <i>1.95</i>		SAMPLING TIME <i>300</i>		MIN. <i>394</i>		LITERS											
CALIBRATION DATA		BY <i>CD</i>		REFERENCE METHOD <i>500 M/L</i>		DATE <i>11/10/86</i>		COUNTER READING <i>195</i>		VOLUME PER COUNT <i>1.95</i>		FLOW RATE <i>1.95</i>		INITIAL <i>195</i>		FINAL <i>195</i>		NET <i>1.95</i>		SAMPLING TIME <i>300</i>		MIN. <i>394</i>		LITERS													
LENGTH OF SHIFT <i>480</i> MIN.		DOES THIS SAMPLE REPRESENT EXPOSURE OVER THE ENTIRE SHIFT ☐ YES ☒ NO		IF NO, COMPLETE THE FOLLOWING: • INCLUDE RESULTS FROM • ASSIGN ZERO EXPOSURE FOR 280 MINUTES OF SHIFT DURING PERIOD NOT SAMPLED.		WAS A RESPIRATOR WORN DURING SAMPLE TO CONTROL EXPOSURE? ☒ YES ☐ NO		DID ANY SIGNIFICANT SKIN CONTACT OCCUR? ☐ YES ☒ NO		ANALYSIS REQUIRED		NAME		S		RESULT		UNIT		1 D PMV		5 D MG		2 D MG/MP		6 D FIBER		3 D PPBV		7 D % WT		4 D FIBER/CC		8 D % VOL		9 D G/CM ³	
COMMENTS <i>Revised asbestos from E-80-103</i>		575859		CLASSIFIED BY <i>CD Kinell</i>		REVIEWED BY <i>Wagner & Under</i>		DATA CLASSIFICATION <i>01</i>		SKETCH AREA (AND/OR REMARKS)		DPMPC-04771		11/10/86		12/10/86		13/10/86		14/10/86		15/10/86		16/10/86		17/10/86		18/10/86		19/10/86		20/10/86					

LAM 015562

CONDITION OF SAMPLE	DATE RECEIVED	METHOD CODE	NO. OF ANALYSES
☒ OK ☐ SEE BELOW	46-3	ASBOM	1
ANALYZED BY	DATE REPORTED	LAB RECORD NO.	ACCOUNT NO.
E. V. Monowitz	50-5	4017830-19.4103	881-82710.00
METHOD/REFERENCE			
1A-12-86			

N105H 7400A, 05HA ID-160

Journal

DPMC-04772

= $\frac{0.29}{\text{fluid}} = 0.83 \text{ s/c}$

OPERATING CONDITION CODE (01-15)

- | | | |
|---|-------------------|----|
| | (For TWA Samples) | |
| Normal | | 01 |
| Startup | | 02 |
| Upset/spill/leak | | 03 |
| Shutdown/tumaround | | 05 |
| Maintenance | | 06 |
| Other (specify in written
Comments section) | | 08 |
| OPERATION CODE (16-60)
(For Peak or Task Samples) | | |
| Operations | | |
| Handling/disposal of product/process
sample(s) | | 50 |
| Working around spill/leak | | 33 |
| Gauging tank(s) | | 34 |
| Analyzing product/process sample(s) | | 22 |
| Collecting product/process sample(s) | | 11 |
| Other Operating Tasks (specify in
Comments section) | | 30 |
| Maintenance | | |
| Entry/work in confined space | | 11 |
| Removing insulation | | 22 |
| Applying insulation | | 55 |
| Breaking into process line | | 22 |
| Changing product/process filters | | 22 |

Maintenance (Continued)

- | | |
|---|----|
| Installing/removing blinds | 55 |
| Cleaning equipment (draining, purging, decontaminating) | 37 |
| Tank/equipment inspection (involving entry) | 28 |
| Degreasing/solvent washing | 56 |
| Welding/grinding/cutting | 43 |
| Painting | 44 |
| Abrasive blasting | 22 |
| Carpentry | 57 |
| Other mechanical work (specify in comment section) | 35 |
| Loading/Shipping | |
| Filling drum(s) | 18 |
| Emptying drum(s) | 49 |
| Filling container(s) (sacks, bins, etc.) | 50 |
| Emptying container(s) (sacks, bins, etc.) | 55 |
| Loading tank truck(s) | 20 |
| Unloading tank truck(s) | 46 |
| Loading tank car(s) | 19 |
| Unloading tank car(s) | 45 |
| Loading barge(s) | 42 |
| Unloading barge(s) | 42 |
| Loading ship | 4 |
| Unloading ship | 42 |

COMMENT CODES

- | | | PPE (specify types in Comments section) |
|---|----|---|
| Monitoring Problems | | |
| Pump/dosimeter malfunctioned | 02 | |
| Initial and final flow rates differ by > 10% | 55 | Respirator worn |
| Pump may have not run for entire sampling period | 14 | Gloves worn |
| | | Protective clothing worn |
| Monitoring Conditions | | |
| Monitoring in conjunction with government agency | 03 | |
| Local ventilation system in work area | 04 | |
| Major engineering changes made | 05 | |
| Random sample | 08 | |
| Worst case situation | 09 | |
| Duplicate sample | 43 | |
| Analysis | | |
| Sample lost in shipment | 26 | |
| Sample lost in analysis | 20 | |
| Sample arrived contaminated/damaged | 23 | |
| Incorrect sample collector used | 35 | |
| Interference by other compound suspected | 21 | |
| Sample shipped cold arrived ambient | 61 | |
| Reported result is minimum value due to possible sample loss/breakthrough | 56 | |
| Result corrected for recovery/desorption efficiency of < 75% | 60 | |



INDUSTRIAL HYGIENE
SAMPLING FORM

O-2801 (REV. 3-85)

12/19/90 140868

NAME EMPLOYEE		COLLECTOR		ANALYSIS REQUIRED		UNIT	
NAME EMPLOYEE	10 PERSONAL TWA	10 CHARCOAL TUBE	CODE	NAME	\$	RESULT	UNIT
SOCIAL SECURITY NUMBER	20 PERSONAL-PEAK	20 FILTER (RESP.)	90088	Asbestos		0.09	100 PPMV 50 MG
EMPLOYEE NUMBER	30 AREA	30 FILTER (TOTAL)					200 MG/M 60 FIBER
	40 BLANK	40 IMPINGER					300 PPBV 70% WT
	50 BULK	50 PASSIVE DOSIMETER					40 FIBER/CC 80% VOL
JOB OR AREA CODE	60 LAB CONTROL	60 SILICA GEL					90 µG/m³
JOB TITLE	70 SOURCE	70 PACKED TUBE					
EMPLOYER COMPANY	80 PERSONAL TASK	80					
LOCATION (SHELL FACILITY OR OTHER)	POSSIBLE INTERFERENCES/INSTRUCTIONS						
AREA/UNIT DESCRIPTION	BAROMETER	TEMPERATURE	SAMPLE NO.	SAMPLED BY	PHONE		
OPERATING CONDITION/OPERATION	WIND	HUMIDITY	DESCRIPTION OF COLLECTOR (Mfg. Lot No. Etc.)	RETURN RESULTS TO			
START TIME	30.0 IN. HG	74	08-2	CD Swann 4K 710			
1107	SE 8 MPH	79	25mm 0.8µm MCE	CD Swann EC13116			
1147							
1245							
1525							
Notes: Asbestos did not handle asbestos when 1/2 jar cracked with filter							
INSTRUMENT TYPE SERIAL NO. 6439							
Du Pont P-1500							
CALIBRATION DATA							
INITIAL	BY	REFERENCE/METHOD	DATE				
CE		Swann Asbestos	11/10/88				
FINAL	CE						
COUNTER READING	VOLUME PER COUNT	FLOW RATE					
FINAL	FINAL	FINAL					
INITIAL	INITIAL	INITIAL					
NET	AVG.	AVG.					
SAMPLING TIME	MIN	SAMPLING VOLUME	LITERS				
30	386						
INFORMATION REQUIRED FOR IDENTIFICATION							
- LENGTH OF SHIFT 480 MIN.							
- DOES THIS SAMPLE REPRESENT EXPOSURE OVER THE ENTIRE SHIFT							
- IF NO COMPLETE THE FOLLOWING: ADDITIONAL SAMPLES (ATTACHED) PERIOD NOT SAMPLED.							
- INCLUDE RESULTS FROM: ADDITIONAL SAMPLES (ATTACHED) PERIOD NOT SAMPLED.							
- TWA CANNOT BE CALCULATED FROM THESE SAMPLES.							
- WAS A RESPIRATOR WORN DURING SAMPLE TO CONTROL EXPOSURE?							
- DID ANY SIGNIFICANT SKIN CONTACT OCCUR?							
COMMENTS							
Removed Asbestos from QABD-103 and pipes.							
CLASSIFIED BY CD Swann							
REVIEWED BY Wayne S. Swann							
DATA CLASSIFICATION 01							

DPMC-04773

LAM 015564

ANALYTICAL REPORT

CONDITION OF SAMPLE	DATE RECEIVED	DATE REPORTED	METHOD CODE	NO. OF ANALYSES
☒ OK ☐ SEE BELOW	46-3	50-5	ASBOM	1
ANALYZED BY		DATE ANALYZED	LAB RECORD NO.	ACCOUNT NO.
E.V. Alvarado		12-12-82	LE17680-99 #103	881-82712.00
METHOD/REFERENCE				

COMMENT

M1054 7402A, OSHA ID-160

RESULTS	☐ PPMV ☐ MG/M ³ ☐ MG	USE < LIMIT OF DETECTION (NOT N.D.)	APPROVALS
	☐ PPBV ☐ µG/M ³ ☐ µG		Mmm 12/27/82

DPMC-04774

= 0.688 fluid = 0.094/cc

OPERATIONAL CODES

OPERATING CONDITION CODE (01-15)
(For TWA Samples)

- Normal
- Startup
- Upset/spill/leak
- Shutdown/tl/raround
- Maintenance
- Other (Specify in written comments section)
- OPERATION CODE (16-60)
(For Peak or Task Samples)
- Operations
- Handling/disposal of product/process sample(s)
- Working around spill/leak
- Gauging tank(s)
- Analyzing product/process sample(s)
- Collecting product/process sample(s)
- Other Operating Tasks (Specify in comments section)
- Maintenance
- Entry/work in confined space
- Removing insulation
- Applying insulation
- Breaking into process line
- Changing prod. process filters

Maintenance (Continued)

- Installing/removing blinds
- Cleaning equipment (draining, purging, decontaminating)
- Tank/equipment inspection
- (Involving entry)
- Degreasing/solvent washing
- Welding/grinding/cutting
- Painting
- Abrasive blasting
- Carpentry
- Other mechanical work (Specify in comments section)
- Loading/Shipping
- Filling drum(s)
- Emptying drum(s)
- Filling container(s) (sacks, bins, etc.)
- Emptying container(s) (sacks, bins, etc.)
- Loading tank truck(s)
- Unloading tank truck(s)
- Loading tank car(s)
- Unloading tank car(s)
- Loading barge(s)
- Unloading barge(s)
- Loading ship
- Unloading ship

COMMENT CODES

Monitoring Problems

- Pump/dosimeter malfunctioned
- Initial and final flow rates differ by > 10%
- Pump may have not run for entire sampling period

Monitoring Conditions

- Monitoring in conjunction with government agency
- Local ventilation system in work area
- Major engineering changes made
- Random sample
- Worst case situation
- Duplicate sample

Analysis

- Sample lost in shipment
- Sample lost in analysis
- Sample arrived contaminated/damaged
- Incorrect sample collector used
- Interference by other compound suspected
- Sample shipped cold arrived ambient
- Reported result is minimum value due to possible sample loss/breakthrough
- Result corrected for recovery/desorption efficiency of < 75%

PPE (Specify types in Comments section)

- Respirator worn
- Gloves worn
- Protective clothing worn

LAM 015565

INDUSTRIAL CAMPAIGN FOR

RECEIVED
GENERAL OFFICE
JUN 19 1967
F 04869

LAM 015566

CONDITION OF SAMPLE	DATE RECEIVED	DATE ANALYZED	METHOD CODE	NO. OF ANALYSES	JHL 041869
☒ OK ☐ SEE BELOW	46-3	50-5	ASBOM	1	
ANALYZED BY			LAB RECORD NO.	ACCOUNT NO.	
C. W. Hammond		12-12-56	4011820-Pg. #63	881-82712.00	
METHOD/REFERENCE					

NIOSH 7400A, OSHA ID-160

msm
msm

[illegible]**OPERATING CONDITION CODE (01-15)****Maintenance (Continued)**

- | | | |
|---|----|---|
| Normal | 01 | Cleaning equipment (draining, purging, rinsing/removing urinos) |
| Startup | 02 | decontaminating) |
| Upsel/spill/leak | 03 | Tank/equipment inspection |
| Shutdown/turnaround | 05 | (involving entry) |
| Maintenance | 06 | Degreasing/solvent washing |
| Other (specify in written comments section) | 08 | Welding/grinding/cutting |

(For Peak or Task Samples)

Other mechanical work (specify in

Handling/disposal of product/process sample(s)

Working around spill/leak
Gauging tank(s)

Analyzing product/process sample(s)
Collecting product/process sample(s)

Other Operating Tasks (specify in Comments section)

Maintenance

Removing insulation

Applying insulation Breaking into process line

Changing prod. process filters

COMMENT CODES

Monitoring Problems

Pump/dosimeter malfunctioned
Initial and final flow rates differ by $> 10\%$

Pump may have not run for entire sampling period

Monitoring Conditions

Monitoring in conjunction with government agency

Local ventilation system in work area

Random sample
Worst case situation

Duplicate sample

Sample lost in shipment
Sample lost in analysis

Sample arrived contaminated/damaged
Incorrect sample collector used

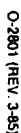
Interference by other compounds suspected

Sample shipped cold arrived ambient
Reported result is minimum value due to

possible sample loss/breakthrough
Result corrected for recovery/desorption

efficiency of $< 75\%$

LAM 015567



INDUSTRIAL HYGIENE SAMPLING FORM

LAM 015568

DPMC-04777

☒ OK. ☐ SEE REPLY

COMMENT

N165H 7402A, OSHA ID-160

METHOD CODE	ASBOM	NO. OF ANALYSES	1
LAB RECORD NO.	LR19880-Pg. # 103	ACCOUNT NO.	881-80

141 040870

DPMC-04778

OPERATING CONDITION CODE (01-15)

Changing product process filters

Monitoring Problems

efficiency of $< 75\%$



INDUSTRIAL HYGIENE SAMPLING FORM

EMPLOYEE INFORMATION		ANALYSIS REQUIRED	
NAME	EMPLOYEE NUMBER	CODE	NAME
BRADLEY	1132	90508	Adapt 2
AREA CODE	EH0099853		
JOB TITLE	Granulator		
EMPLOYER COMPANY	Brown & Root		
LOCATION (SHELL FACILITY OR OTHER)	E-020		
AREA/UNIT DESCRIPTION	BD		
OPERATING CONDITION/OPERATION	01		
START TIME	0822		
STOP TIME			
WIND	112 MPH		
TEMPERATURE	57 °F		
HUMIDITY	82 % RH		
BAROMETER	30.0 IN. HG		
10 PERSONAL TWA			
20 PERSONAL-PEAK			
30 AREA			
40 BLANK			
50 DUK			
60 LAB CONTROL			
70 SOURCE			
80 PERSONAL-TASK			
100 CHARCOAL TUBE			
200 FILTER (RESP)			
300 FILTER (TOTAL)			
400 IMPINGER			
500 PASSIVE DOSIMETER			
600 SILICA GEL			
700 PACKED TUBE			
800			
DATE SAMPLED	11/1/82		
SHIFT	1 2 3		
PHONE	00284600		
SAMPLE NO.	CEB		
DESCRIPTION OF COLLECTOR (MFG., LOT NO., ETC.)	Osman 082 NCE		
RETURN RESULTS TO	CD Shawnee ELS-116		
SKETCH/AREA (AND/OR COMMENTS)			
INSTRUMENT TYPE	DePom P2500		
SERIAL NO.	6439		
CALIBRATION DATA			
BY	RE		
REFERENCE/METHOD	500 mld/hr		
DATE	11/1/82		
INITIAL			
FINAL			
COUNTER READING			
VOLUME PER COUNT			
FLOW RATE			
INITIAL			
FINAL			
NET			
Avg.			
SAMPLING TIME	781		
SAMPLING VOLUME	533.9		
LITERS			
DID ANY SIGNIFICANT SKIN CONTACT OCCUR?			
YES			
NO			
INFORMATION FOR TWA DETERMINATION			
LENGTH OF SHIFT	4hr		
MIN			
DOES THIS SAMPLE REPRESENT EXPOSURE OVER THE ENTIRE SHIFT			
YES			
NO			
IF NO, COMPLETE THE FOLLOWING:			
INCLUDE RESULTS FROM			
ADDITIONAL SAMPLES (ATTACHED)			
ASSIGN ZERO EXPOSURE FOR 199 MINUTES OF SHIFT DURING PERIOD NOT SAMPLED.			
TWA CANNOT BE CALCULATED FROM THESE SAMPLES.			
WAS A RESPIRATOR WORN DURING SAMPLE TO CONTROL EXPOSURE?			
YES			
NO			
COMMENTS	GR TWA = 0.06 REMOVED ASBESTOS FROM C-BD-202 OVER LINE AND BOTTOM OF C-BD-203		
CLASSIFIED BY	CD Shawnee		
REVIEWED BY	CD Shawnee		
DATE	11/1/82		
CLASSIFICATION	01		

LAM 015570

West Operation 82/HT III mounting
Results 1984 724.3

LAM 015561