Data processed + checked 2/6/87 C King

ENVIRONMENTAL HEALTH SURVEY

FOR 1979

CHLORINATED METHANES PLANT

LOUISIANA DIVISION

SUBMITTED BY: R. J. BORDELON

CHLORINATED METHANES PLANT

INDUSTRIAL HYGIENE JOB ANALYSIS

A. Introduction

The Plaquemine, Louisiana Chlorinated Methanes Plant was monitored during 1979 in a routine and continual survey of the chemicals and noise present in this block. Listed below are the chemicals plus noise, with their respective standards:

Chemical	Standard (TLV)
Methyl Chloride	50 ppm
Vinyl Chloride	1 ppm
Methylene Chloride	200 ppm
Chloroform	10 ppm
Carbon Tetrachloride	10 ppm
Methanol	200 ppm
Ethylene Dichloride	50 ppm
B-trichloroethane	10 ppm
Dimethyl Ether	400 ppm
1,1,1 Trichloroethane (degreaser)	350 ppm
Chlorine	3 mg/m^3
Hydrochloric Acid	7 mg/m^3
Sulfuric Acid	1 mg/m^3
Noise	85 dba

B. CONCLUSIONS FROM 1979 SURVEY

ALL EMPLOYEES IN THE CMP BLOCK WERE MONITORED USING PERSONAL MONITORING. MOST WERE MONITORED A MINIMUM OF THREE OR FOUR TIMES DURING THE YEAR AND ALL THE JOBS WERE COVERED. ENOUGH DATA WAS COLLECTED TO SHOW THAT EMPLOYEES ARE WITHIN THE THRESHHOLD LIMITS WHEN PERFORMING ROUTINE JOBS DAY IN AND DAY OUT. OCCASIONALLY, A HIGH READING SHOWS UP WHERE THERE ARE NO REASONABLE EXPLANATIONS. ONE SUCH HIGH WAS A 9.1 PPM B-TRICHLOROETHANE READING FOR THE SECRETARY. ANOTHER EXAMPLE IS WHERE THE SECRETARY HAD A 33.2 PPM METHYL CHLORIDE LEVEL WITH A 16.7 PPM ETHYLENE DICHLORIDE LEVEL ONE DAY, WITH LEVELS OF 38.1 PPM METHYL CHLORIDE AND 14.1 PPM ETHYLENE DICHLORIDE RECORDED BY THE ASSISTANT CHEMIST. ON THESE MENTIONED OCCASIONS, BOTH OF THESE PEOPLE'S ACTIVITIES HAD BEEN PRIMARILY CONFINED TO THE OFFICE BUILDING; THE SECRETARY SPENDING HER DAY IN HER OFFICE. ANALYTICAL PROBLEMS HAVE CREATED SITUATIONS WHERE THE TIME SPAN BETWEEN THE MONITORING AND THE ANALYSIS WAS SUCH THAT IT WAS DIFFICULT FOR THE PERSON BEING MONITORED TO RECALL PERTINENT DETAILS WHICH MAY HAVE CONTRIBUTED TO ELEVATED EXPOSURE LEVELS (AS WAS HERE). AT THIS POINT THE ANALYTICAL PROBLEM SEEMS TO BE CORRECTED AND FUTURE SAMPLES SHOULD BE ANALYZED SOON AFTER THE MONITORING.

EXCURSION MONITORING FOR MILLWRIGHT WORK AND FOR FITTERS OPENING REBOILERS AND LINES IS STILL BEING DONE AND CONTINUES TO POINT TO ELEVATED EXPOSURE LEVELS. THESE JOBS REQUIRE BREATHING AIR WHILE PEOPLE ARE WORKING IN THESE AREAS.

B. CONCLUSIONS FROM 1979 SURVEY (CONT'D)

SOME OF THE USE OF 1,1,1 TRICHLOROETHANE (ESPECIALLY INDOOR) HAS BEEN REDUCED IN THIS BLOCK WHEN THE INSTRUMENT PEOPLE CEASED CLEANING AND REBUILDING CONTROL VALVES HERE. THE CURRENT PRACTICE IS TO DECONTAMINATE THE VALVES WITH STEAM AND TO TAKE THEM TO THE MAIN INSTRUMENT SHOP FOR REBUILDING.

THE 1979 MONITORING TIMETABLE WAS UPSET BY A NIOSH REQUEST TO MONITOR OUR PLANT IN MID-SUMMER. THIS SCHEDULED VISIT WAS ABORTED BY A HURRICANE WATCH AND RESCHEDULED FOR EARLY FALL. THIS VISIT DID NOT MATERIALIZE EITHER BECAUSE OF A PLANT SHUTDOWN WHICH OCCURRED THAT WEEK. OUR INDUSTRIAL HYGIENE PEOPLE HAD WANTED TO DUPLICATE THE NIOSH MONITORING BY EMPLOYING IDENTICAL EQUIPMENT AND TECHNIQUES AS NIOSH FOR COMPARISON PURPOSES.

SOME GOALS FOR 1980 ARE:

1. USE OF PLANT AIR FOR BREATHING AIR ON JOBS WHERE BREATHING AIR IS REQUIRED. PLANS ARE FOR INSTALLING STATIONS IN THE AREAS WHERE JOBS REQUIRING BREATHING AIR ARE APT TO BE NEEDED. THESE STATIONS WILL UTILIZE INDICATING FILTERS AND PRESSURE REGULATORS. MEANWHILE, PLANT AIR IS BEING MONITORED FOR CO LEVELS, WITH RESULTS INDICATING LEVELS OF LESS THAN 4 PPM. IF PLANT AIR CAN BE UTILIZED IN PLACE OF CYLINDERS, IT WILL FREE PEOPLE FROM THE TASK OF HAVING TO HAUL CYLINDERS (BREATHING AIR) ALL OVER THE PLANT. UNDER THE PRESENT PRACTICE OF USING BREATHING AIR CYLINDERS, IT IS POSSIBLE FOR MORE TIME TO BE CONSUMED IN THE LOCATING OF A CART, GETTING A CYLINDER OUT TO THE JOB, AND RETURNING IT AFTER THE JOB IS FINISHED, THAN THE TIME ACTUALLY SPENT ON THE JOB ITSELF.

B. CONCLUSIONS FROM 1979 SURVEY (CONT'D)

2. CONSTRUCTION AND USE OF A WORK BENCH WITH EXHAUST HOOD IN THE WAREHOUSE FOR USE PRIMARILY WHEN CLEANING PUMP PARTS WITH CHLOROTHENE.

3. USE OF NOISE DAMPENING MATERIAL IN THE WAREHOUSE TO ABSORB NOISE FROM GRINDING AND OTHER NOISE-GENERATING ACTIVITY.

C. Monitoring Results

Personnel monitoring using charcoal adsorption tubes was employed to cover all the jobs for the following chemicals: vinyl chloride, methyl chloride, dimethyl ether, methylene chloride, chloroform, carbon tetrachloride, ethylene dichloride, and B-trichloroethane. The samples revealed the following results, based on TWA.

Chemical	Standard	High/Job Average		High/Indiv.Sample	
Vinyl chloride	1	Laborer	0.37	SOT	0.74
Methyl chloride	50	Mtl. Contrl.	17.8	Mtl. Contrl.	52.8
Dimethyl Ether	400	All Samples	<1.0	All Samples	<1.0
Methylene Chloride	200	EDO	19.1	EDO	87.1
Chloroform	10	Mtl. Contrl.	6.3	Mtl. Contrl.	16.3
Carbon Tetrachloride	10	Laborer	2.3	Mtl. Contrl. Laborer	3.0 3.0
Ethylene Dichloride	50	Secretary	8.5	Secretary	16.7
B-trichloro-ethane	10	Secretary	3.1	Secretary	9.1

C. MONITORING RESULTS (CONT'D)

AREA MONITORING WAS EMPLOYED TO CHECK FOR METHANOL AND 1,1,1 TRICHLOROETHANE (A DEGREASER USED IN THE CLEANING OF PUMP PARTS). FOR METHANOL, SAMPLES WERE COLLECTED IN SARAN BAGS AT VARIOUS POINTS THROUGHOUT THE PLANT, SAMPLE RESULTS AVERAGED, AND TWA FIGURES WERE OBTAINED BY USING THE AVERAGE TIME SPENT IN THESE AREAS FOR EACH JOB. ALL OF THE MONITORING FOR CHLOROTHENE WAS DONE IN THE WAREHOUSE WHERE IT IS USED TO CLEAN PUMP PARTS. THE HIGHEST READING WAS 4.3 PPM, WHICH WAS TAKEN CLOSE TO AN OPEN CONTAINER IN A MILLWRIGHT'S WORK AREA.

MONITORING FOR CHLORINE, HYDROCHLORIC ACID, AND SULFURIC ACID WAS CONDUCTED BY SCRUBBING AIR WITH DISTILLED WATER FOR HCL AND SULFURIC ACID, AND WITH 1.0 N NAOH FOR CHLORINE FOR 7-8 HOURS PER SAMPLE. A TOTAL OF 20 SAMPLES WERE TAKEN.

HIGHS IN PPM

CHEMICAL	STANDARD	HIGH/JOB AVERAGE	HIGH/AREA READING
METHANOL	200	SOT 4.7 EDO 4.7 CONT. MAINT. 4.7	WASTE HEAT BLR 29.0
1,1,1 TRI-CHLORODETHANE	350	MTL. CONTRL. 1.0	WAREHOUSE ONLY 4.3
CHLORINE	1	ALL <0.01	ALL <0.01
HYDROCHLORIC ACID	5	CONT. MAINT 0.01	ACID AREA 0.16
SULFURIC ACID	.25	CONT. MAINT 0.04	DISTILLATION GRND. 0.18

C. MONITORING RESULTS (CONT'D)

EXCURSION MONITORING FOR HEXES WAS CONDUCTED ON MAINTENANCE JOBS ON RE-1 (THE TAR POT EXCHANGER), C-806 REBOILER AND ALSO MILLWRIGHT WORK ON A TAR POT PUMP, AND SAMPLES WERE SUBMITTED TO THE INDUSTRIAL HYGIENE GROUP FOR ANALYSIS. IH WAS HAVING ANALYTICAL PROBLEMS ABOUT THAT TIME, AND WHEN THEY FINALLY TRIED TO RUN THE SAMPLES THEY COULD NOT PRODUCE ANY VALID RESULTS.

SAMPLING FOR DUST WAS CONDUCTED DURING THE DUMPING OF OLD CATALYST AND RECHARGING OF THE R-250's. IN MAY, R-250 A WAS RECHARGED WITH NEW CATALYST AND R-250B WAS RECHARGED IN NOVEMBER. RESULTS OF THE MONITORING SHOWED:

JOB	OPERATOR LOCATION	MONITORING TIME HRS	DUST (MG/M^3)
DUMPING OLD CATALYST	REACTOR MANWAY	1	1.85
DUMPING OLD CATALYST	BY DUMPSTER	1	1.19
BLOWING NEW CATALYST (OUT OF TUBES) (2 OPERATORS)	TOP OF REACTOR	5	3.15 3.81
BLOWING NEW CATALYST (OUT OF TUBES) (2 OPERATORS)	TOP OF REACTOR	2	<0.50 <0.50

AREA NOISE SURVEYS - THE BASIC DIFFERENCE IN READINGS WITHIN SPECIFIC AREAS IS THAT OF ELEVATED READINGS CAUSED BY STEAM TRACING IN WINTER MONTHS. SOME OF THIS EXTRA NOISE COULD BE MINIMIZED. STEAM LEAKS ARE ALSO MAJOR NOISE SOURCES. SINCE STEAM DOES NOT POLLUTE THE ATMOSPHERE SUCH AS PRODUCT SPILLS DO, STEAM LEAKS TEND TO BE IGNORED UNTIL THEY DEVELOP INTO MAJOR LEAKS BEFORE REPAIRS ARE MADE.

INDUSTRIAL HYGIENE JOB ANALYSIS

VERSUS

% OF HYGIENE STANDARD

	STANDARD	100%	50-100%	25-50%	10-25%	<10%
METHYL CHLORIDE	50 PPM	-	-	2	2	9
VINYL CHLORIDE	1 PPM	-	-	1	4	8
METHYLENE CHLORIDE	200 PPM	-	-	-	-	13
CHLOROFORM	10 PPM	-	1	1	7	4
CARBON TETRACHLORIDE	10 PPM	-	-	-	3	10
METHANOL	200 PPM	-	-	-	-	13
ETHYLENE DICHLORIDE	50 PPM	-	-	-	1	12
B-TRICHLOROETHANE	10 PPM	-	-	1	2	10
DIMETHYL ETHER	400 PPM	-	-	-	-	13
1,1,1 TRICHLOROETHANE	350 PPM	-	-	-	-	13
CHLORINE	3 MG/M^3	-	-	-	-	13
HYDROCHLORIC ACID	7 MG/M^3	-	-	-	-	13
SULFURIC ACID	1 MG/M^3	-	-	-	3	10
NOISE	85 DBA	-	-	1	5	7
TOTAL		0	1	6	27	148
% OF TOTAL JOBS		0.00	0.55	3.30	14.83	81.32

DATA BASED ON TWA

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INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROCESS	BLDG NO.	DATE
	CHLORINATED METHANES	16	8/15/79

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
HEXES		PORAPAK QS

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP.
				°F	

REMARKS (VENTILATION, ETC.) Personal Samples associated with Maintenance

SAMPLE NO.	CONTAINER NO.	Date	Employee	DESCRIPTION OF SAMPLE	Job	HRS. TIME START	FLOW INCREMENT CC/MIN.	CONCENTRA
16-6	1	6-05-79	LAMAR (DIS)		RE-1	1.0	190	
16-6	2	6-05-79	WILLIAMS (DIS)		RE-1	1.0	145	
16-6	3	6-06-79	V. ANDERSON (DIS)		C-806 REBOILER	7.5	40	
16-6	4	6-06-79	E. LAMAR (DIS)		C-806 REBOILER	7.5	105	
16-6	5	6-06-79	L. ROGERS (DIS)		C-806 REBOILER	6.0	140	
16-6	6	6-15-79	C. JENNINGS		FITTER	1.5	145	
16-6	7	6-15-79	C.J. TREBEAU	Contr	FITTER	1.0	75	
16-6	8	5-15-79	W. THIBODEAUX		MILLWRIGHT	2.5	200	
	50A	IN-LAB	KNOWN					
		BLANK						

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SIGNATURE ~~Sharon Hibler~~ / Sheryl Schultz

DATE 8/15/79

FORM C-1147 PRINTED 8-1-79

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

8-21-99

HEX SAMPLES FROM CMP

00-19-20.71

SAMPLE ID	CONC. IN Ng. HCE	HCBd	HCBz
1-F	10,084.		97.77
1-B	N/D	9,082	N/D
2-F	1,266	N/D	23.75
2-B	N/D	.352	N/D
3-F	N/D	756.14	21.97
3-B	N/D	2.73	N/D
4-F	19,022.	18.19	20.87
4-B	N/D	5.02	N/D
5-F	N/D	1577.98	63.81
5-B	N/D	49.57	3.35
6-F	N/D	N/D	35.72
6-B	N/D	N/D	N/D
7-F	N/D	N/D	88.62
7-B	N/D	1.46	N/D
8-F	N/D	N/D	3.266
8-B	N/D	N/D	N/D
50-A	160.72	.84	2.86
50-B	N/D	N/D	N/D
Blank	N/D	9.278	N/D
	Detail 300 @ 250		
	Min Det. .2 Ng/ml		
	.1 Ng/ml.		
	.1 ng/ml		

* Samples contained excess amts of contam which interfered with the ability to measure correct peak width & width, result in invalid numbers.

A&M.

Lee MS

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ENVIRONMENTAL HEALTH SURVEY

(NOISE BY JOB)

Job	Dosimeter Reading (A scale) Avg. %
Technical	02
Shift Supervisor	10
Operations Specialist	07
Sr. Operations Technician	22
Operations Technician	26
EDO Supervisor	14
EDO Millwright	14
EDO Misc. Maintenance	18
Loading Coordinator	07
Loader	21
Material Controller	08
Environmentalist	02
Asst. Chemist	03
Instrument Technician	09
Fitter and Ironworker	13
Electrician	08
Laborer	09
Secretary	01

ENVIRONMENTAL HEALTH SURVEY

NOISE BY AREA

MAY, 1979

AREA	
Office	60
Control Room	62
Lab	65
Instrument Shop	62
Warehouse	74-76
Distillation, ground	85-92
Distillation, upper	79-91
V-800's (filters)	83-85
Acid Area	83-88
K-350 Area	87-90
Lewis Unit Deck	86-102
Levels above Lewis Unit	72-90
Waste Heat Boiler and D-1	78-87
R-200 & R-300	84-88
E-200 & E-300 Deck	77-82
River water pump area	83-90
Check Tanks (T-804's & T-806's)	79-83
Check Tanks (T-104's & T-101)	72-85
T/C Load Rack	70
T/T Load Rack (front)	79
T/T Load Rack (back)	75
K-1002 (outside chain area)	90-96

ENVIRONMENTAL HEALTH SURVEY

NOISE BY AREA

DECEMBER, 1979

AREA	
Office	60
Control Room	62
Lab	66
Instrument Shop	62
Warehouse	73-77
Distillation, ground	84-91
Distillation, upper	79-90
V-800's (filters)	84-89
Acid Area	84-91
K-350 Area	88-92
Lewis Unit Deck	89-102
Levels above Lewis Unit	76-90
Waste Heat Boiler & D-1	82-91
R-200 & R-300	82-89
E-200 & E-300 deck	78-81
River water pump area	80-86
Check Tanks (T-804's & T-806's)	82-85
Check Tanks (T-104's & T-101)	72-78
T/C Load Rack	74-76
T/T Load Rack (front)	79
T/T Load Rack (back)	76
K-1002 (outside chain area)	92-104

D. Monitoring Equipment Used in the Survey

1. For Chemicals

A. Personal Monitoring

DuPont pump, model P-200
Sipin pump, model SP-1
DuPont constant flow sample calibrator for checking flow rates

B. Area Monitoring

Science pump, model D-200
Bendix pump, model C-115

2. For Noise

A. Personal Monitoring

DuPont dosimeter, model D-100 (modified for 85 dba)
DuPont dosimeter, model D-285

B. Area Monitoring

Edmont-Wilson dosimeter, model 60-510

Dosimeters calibrated on DuPont Audio Dosimeter Calibrator model C-114.

Analytical Equipment and Methods used in Survey:

1. For organic vapors collected on charcoal and desorbed with CS_2.

Instruments - Varian 3700 with auto-sampler and CDS-111 Data System

Conditions

A. Temperatures

1. injector - 150°C
2. Detector - 240°C
3. column - initial of 100°C programmed to 130°C

ANALYTICAL EQUIPMENT AND METHODS USED IN SURVEY: (CONT'D)

B. CARRIER GAS FLOW - 25 CC/MIN
C. COLUMN - 20' x 1/8" OD SP-1000 (10%) ON 80/100 SUPELCORT
D. RANGE SETTING 10^{-12}
E. SAMPLE SIZE 1.5
F. CALIBRATED WEEKLY, BLANKS PREPARED DAILY

2. FOR ORGANICS IN VAPORS COLLECTED IN SARAN BAGS

INSTRUMENTS: HEWLETT PACKARD 5730A GAS CHROMATOGRAPH WITH 3380A REPORTING INTEGRATOR

CONDITIONS

A. TEMPERATURES:

1. INJECTOR 150°C
2. DETECTOR 250°C
3. COLUMN - INITIAL OF 100°C FOR 4 MINUTES, PROGRAMMED TO 140°C AT 16°/MIN., HOLD FOR 16 MINUTES

B. CARRIER GAS FLOW 25 CC/MIN

C. COLUMN - 20' x 1/8" OD APIEZON L (15%) ON 80/100 CHROMOSORB P, NAW

D. RANGE SETTING 1

E. "B" CONTROLS USING GAS SAMPLING VALVE

F. CALIBRATED WEEKLY

3. FOR METHANOL VAPORS IN AIR

INSTRUMENTS - VARIAN 3700 WITH CDS-111 DATA SAMPLE

CONDITIONS

A. TEMPERATURES

1. INJECTOR 150°C
2. DETECTOR 240°C
3. COLUMN 120°C OPERATING ISOTHERMALLY

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3. For Methanol Vapors in Air (cont'd)

B. Carrier gas flow 42 cc/min

C. Column 3' x 1/8" od Porapak N, 80/100

D. Range setting 10^{-12}

E. Sample size 0.5 cc drawn from saran bag sample

F. Calibrated weekly

FILL IN BY _____ EMPLOYEE EXPOSURE SUMMARY QUARTER _____ YEAR 1979

PLANT CMP BLOCK 46 STRESS Vinyl Chloride 0114-1986 MINIMAL DETECTABLE LIMIT AND UNIT 0.01 ppm TLV = 1ppm(V)

NO.	JOB CLASS	AREA/ TASK	PERSONNEL *PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	AREA SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCURSION EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT		-	8hr	-	-	-								
02	OT		3,5		6	0.01	0.01								
03	SOT		3,5		4	0.19	0.74								
04	OS		1,5		4	0.01	0.01								
05	SS		1,5		8	<0.01	0.01								
06	EDO		3,4,5		5	<0.01	0.01					.75 to 4 hr.	4	0.01	0.02
~~07~~ 28	LAB Chemist		1,5		5	0.03	0.14								
~~08~~ 26	TECH MFG		1,5		5	0.09	0.36								
09	CLER.		-		3	0.13	0.23								
10	INSTR		1,5		4	0.01	0.03								
11	LABORER		1,5		2	0.37	0.72								
12	SUMMER	-	-	-	-	-	-								
13	CONT MAINT		1,4,5		2	0.16	0.32					2 to 5.5 hr	4	0.01	0.03
14	NON-OS SPEC.		-	-	-	-	-								
15	SECUR.		-	-	-	-	-								
16	MATL CONT		1,5		3	0.11	0.31								
~~17~~ 30	LOADING coordinator		4,5		7	0.03	0.15								
18	T/C CLNG		-	-	-	-	-								
19	MGRS/NON-OP		-	-	-	-	-								
20	AREA SAMP (NO JC)		-	-	-	-	-								

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* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protection

FIL IN BY _____

EMPLOYEE EXPOSURE SUMMARY

QUARTER _____ EAR 1979

PLANT CMP BLOCK 46 STRESS Methyl Chloride 0002-3734 MINIMAL DETECTABLE LIMIT AND UNIT 0.1 ppm TLV = 100ppm(V)

			PERSONNEL					AREA				EXCURSION			
NO.	JOB CLASS	AREA/ TASK	*PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT	-	-	8hr	-	-	-								
02	OT		3,5		6	1.0	1.4								
03	SOT		3,5		4	2.2	6.3								
04	OS		1,5		4	0,7	1.3								
05	SS		1,5		8	0,4	0.8								
06	EDO		3,4,5		5	0,5	0.8					.75 to 4 hr	4	1.5	2.8
~~05~~ 07	~~LAB~~ Chemist		1,5		6	8.1	38.1								
~~26~~ 08	~~MFG~~ TECH		1,5		5	1.2	5.2								
09	CLER.		-		3	13.0	33.2								
10	INSTR		1,5		4	0,7	1.4								
11	LABORER		1,5		2	10.3	19.9								
12	SUMMER	-	-	-	-	-	-								
13	CONT MAINT		1,4,5		2	3,9	7,6					2 to 5.5 hr	4	0.8	1.4
14	NON-OS SPEC.	-	-	-	-	-	-								
15	SECUR:	-	-	-	-	-	-								
16	MATL CONT		1,5		3	17.8	52.8								
~~34~~ 17	LOADING Coordinator		4,5		1	0.7	1.5								
18	T/C CLNG	-	-	-	-	-	-								
19	MGRS/NON-OP	-	-	-	-	-	-								
20	AREA SAMP (NO JC)	-	-	↓	-	-	-								

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* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protection

EMPLOYEE EXPOSURE SUMMARY

FILL IN BY _____ QUARTER _____ YEAR 1979

PLANT CMP BLOCK 46 STRESS Dimethyl Ether 0005-5481 MINIMAL DETECTABLE LIMIT AND UNIT 0.1 ppm TLV = 400 ppm(V)

NO.	JOB CLASS	AREA/ TASK	PERSONNEL *PT. EQ.	PERSONNEL TWA BASIS	PERSONNEL NO. SAMPLES	PERSONNEL AVG.	PERSONNEL HIGH	AREA SAMPLE DURATION	AREA NO. SAMPLES	AREA AVG.	AREA HIGH	EXCURSION EXCUR. DURATION	EXCURSION NO. SAMPLES	EXCURSION AVG.	EXCURSION HIGH
01	OTT	-	-	8/hr	-	-	-								
02	OT		3,5		6	<1.0	<1.0								
03	SOT		3,5		4	<1.0	<1.0								
04	OS		1,5		4	<1.0	<1.0								
05	SS		1,5		8	<1.0	<1.0								
06	EDO		3,4,5		5	<1.0	<1.0					.75 to 4 hrs	4	<1.0	<1.0
28 07	Chemist ~~LAB~~		1,5		6	<1.0	<1.0								
26 08	MFG TECH		1,5		5	<1.0	<1.0								
09	CLER.		-		3	<1.0	<1.0								
10	INSTR		1,5		4	<1.0	<1.0								
11	LABORER		1,5		2	<1.0	<1.0								
12	SUMMER	-	-	-	-	-	-								
13	CONT MAINT		1,4,5		2	<1.0	<1.0					2 to 5.5 hrs	4	<1.0	<1.0
14	NON-OS SPEC.	-	-	-	-	-	-								
15	SECUR.	-	-	-	-	-	-								
16	MATL CONT		1,5		3	<1.0	<1.0								
30 17	LOADING Coordinator		4,5		7	<1.0	<1.0								
18	T/C CLNG	-	-	-	-	-	-								
19	MGRS/NON-OP	-	-	-	-	-	-								
20	AREA SAMP (NO JC)	-	-	-	-	-	-								

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* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protection

EMPLOYEE EXPOSURE SUMMARY

QUARTER _____ YEAR 1979

FILL IN BY _____

PLANT CMP BLOCK 46 STRESS Methylene Chloride 0001-5849 MINIMAL DETECTABLE LIMIT AND UNIT 0.1 ppm TLV = 200ppm (V)

			PERSONNEL					AREA				EXCURSION			
NO.	JOB CLASS	AREA/ TASK	*PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT	-	-	8hr	-	-	-								
02	OT		3,5		6	3.3	8.9								
03	SOT		3,5		4	2.7	5.4								
04	OS		1,5		4	1.0	2.7								
05	SS		1,5		8	2.8	15.5								
06	EDO		3,4,5		5	19.1	87.1					.75 to 4 hr	4	30.8	98.8
~~28~~ 07	~~LAB~~ Chemist		1,5		6	1.8	7.4								
~~26~~ 08	MFG TECH		1,5		5	1.0	2.4								
09	CLER.		-		3	0.4	0.6								
10	INSTR		1,5		4	0.9	3.5								
11	LABORER		1,5		2	0.7	1.2								
12	SUMMER	-	-	-	-	-	-								
13	CONT MAINT		1,4,5		2	0.6	1.2					2 to 5.5 hr.	4	84.1	197.8
14	NON-OS SPEC.	-	-	-	-	-	-								
15	SECUR.	-	-	-	-	-	-								
16	MATL CONT		1,5		3	7.8	11.9								
~~17~~ 3B	LOADING Coordinator		4,5		1	16.0	78.3								
18	T/C CLNG	-	-	-	-	-	-								
19	MGRS/NON-OP	-	-	-	-	-	-								
20	AREA SAMP (NO JC)	-	-	-	-	-	-								

DO 093748
CONFIDENTIAL

* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protection

EMPLOYEE EXPOSURE SUMMARY

FILL IN BY _____

QUARTER _____ YEAR 1979

PLANT CMP BLOCK 46 STRESS Chloroform 0002-3609 MINIMAL DETECTABLE LIMIT AND UNIT 0.1 ppm TLV = 10 ppm (C)

			PERSONNEL					AREA				EXCURSION			
NO.	JOB CLASS	AREA/ TASK	*PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT	-	-	8 hr	-	-	-								
02	OT		3,5		6	1.8	6.4								
03	SOT		3,5		4	1.3	4.3								
04	OS		1,5		4	0.7	1.2								
05	SS		1,5		8	1.0	6.4								
06	EDO		3,4,5		5	0.4	1.7					.75 to 4 hr	4	7.6	26.8
~~28~~ 07	~~LAB~~ Chemist		1,5		6	1.8	6.2								
~~29~~ 08	TECH MFG		1,5		5	1.0	2.5								
09	CLER.		-		3	1.2	2.1								
10	INSTR		1,5		4	0.2	0.7								
11	LABORER		1,5		2	0.5	1.0								
12	SUMMER	-	-	-	-	-	-								
13	CONT MAINT		1,4,5		2	1.3	2.6					2 to 5.5 hr	4	22.4	57.8
14	NON-OS SPEC.	-	-	-	-	-	-								
15	SECUR.	-	-	-	-	-	-								
16	MATL CONT		1,5		3	6.3	16.3								
~~30~~ 17	LOADING Coordinator		4,5		7	2.6	8.4								
18	T/C CLNG	-	-	-	-	-	-								
19	MGRS/NON-OP	-	-	-	-	-	-								
20	AREA SAMP (NO JC)	-	-	↙	-	-	-								

DO 093749
CONFIDENTIAL

* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half r Dust Face (4) Air Supply (5) Hearing Pr tection

FILL IN BY _____

EMPLOYEE EXPOSURE SUMMARY

QUARTER _____ YEAR 1979

PLANT CMP BLOCK 46 STRESS Carbon tetrachloride 0002-3654 MINIMAL DETECTABLE LIMIT AND UNIT 0.1 ppm TLV = 10 ppm (V)

NO.	JOB CLASS	AREA/ TASK	PERSONNEL *PT. EQ.	PERSONNEL TWA BASIS	PERSONNEL NO. SAMPLES	PERSONNEL AVG.	PERSONNEL HIGH	AREA SAMPLE DURATION	AREA NO. SAMPLES	AREA AVG.	AREA HIGH	EXCURSION EXCUR. DURATION	EXCURSION NO. SAMPLES	EXCURSION AVG.	EXCURSION HIGH
01	OTT	-	-	8hr	-	-	-								
02	OT		3,5		6	0.4	1.0								
03	SOT		3,5		4	0.4	1.2								
04	OS		1,5		4	0.4	0.7								
05	SS		1,5		8	0.1	0.9								
06	EDO		3,4,5		5	1.0	1.7					.75 to 4hr	4	27.4	108.9
~~07~~ 28	~~LAB~~ Chemist		1,5		6	0.3	0.8								
~~08~~ 26	TECH MFG		1,5		5	0.5	1.2								
09	CLER.		-		3	0.1	0.3								
10	INSTR		1,5		4	0.6	1.2								
11	LABORER		1,5		2	2.3	3.0								
12	SUMMER	-	-	-	-	-	-								
13	CONT MAINT		1,4,5		2	0.3	0.6					2 to 5.5hr	4	0.6	2.4
14	NON-OS SPEC.	-	-	-	-	-	-								
15	SECUR.	-	-	-	-	-	-								
16	MATL CONT		1,5		3	1.6	3.0								
~~27~~ 30	LOADING		4,5		7	0.3	1.4								
18	T/C CLNG Coordinator	-	-	-	-	-	-								
19	MGRS/NON-OP	-	-	-	-	-	-								
20	AREA SAMP (NO JC)	-	-	"	-	-	-								

DO 093750
CONFIDENTIAL

* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protection

EMPLOYEE EXPOSURE SUMMARY

QUARTER _____ YEAR 1979

FILL IN BY _____

PLANT CMP BLOCK 46 STRESS Ethylene dichloride 0001-8531 MINIMAL DETECTABLE LIMIT AND UNIT 0.1 ppm TLV = 50 ppm (V)

			PERSONNEL					AREA				EXCURSION			
NO.	JOB CLASS	AREA/ TASK	*PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT	–	–	8 hr.	–	–	–								
02	OT		3,5		6	0.1	0.4								
03	SOT		3,5		4	0.2	0.4								
04	OS		1,5		4	0.3	0.9								
05	SS		1,5		8	0.1	0.3								
06	EDO		3,4,5		5	<0.1	0.1					.75 to 4 hr	4	0.3	0.9
26 ~~27~~	Chemist ~~LAB~~		1,5		6	2.5	14.7								
26 ~~28~~	MFG TECH		1,5		5	0.2	0.3								
09	CLER.		–		3	8.5	16.7								
10	INSTR		1,5		4	0.4	1.6								
11	LABORER		1,5		2	0.2	0.2								
12	SUMMER	–	–	–	–	–	–								
13	CONT MAINT		1,4,5		2	1.4	2.9					2 to 5.5 hr	4	1.7	4.2
14	NON-OS SPEC.	–	–	–	–	–	–								
15	SECUR.	–	–	–	–	–	–								
16	MATL CONT		1,5		3	3.6	5.8								
39 ~~17~~	LOADING		4,5		7	1.3	6.4								
18	Coordinator T/C CLNG	–	–	–	–	–	–								
19	MGRS/NON-OP	–	–	–	–	–	–								
20	AREA SAMP (NO JC)	–	–	–	–	–	–								

DO 093751
CONFIDENTIAL

* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protecti n

FILL IN BY _____ EMPLOYEE EXPOSURE SUMMARY QUARTER _____ YEAR 1979

PLANT CMP BLOCK 46 STRESS B-trichloroethane 0002-3687 MINIMAL DETECTABLE LIMIT AND UNIT 0.1 ppm TLV = 10ppm (A)

NO.	JOB CLASS	AREA/ TASK	PERSONNEL *PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	AREA SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCURSION EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT	-	-	8hr.	-	-	-								
02	OT		3,5		5	1.3	6.3								
03	SOT		3,5		4	<0.1	0.1								
04	OS		1,5		4	0.1	0.2								
05	SS		1,5		8	0.6	4.4								
06	EDO		3,4,5		5	0.1	0.3					.75 to 4 hr	4	0.0	0.2
28 07	~~LAB~~ Chemist		1,5		5	0.8	4.1								
26 08	~~TECH~~ MFG		1,5		5	0.6	2.7								
09	CLER.		-		3	3.1	9.1								
10	INSTR		1,5		4	1.4	5.4								
11	LABORER		1,5		2	<0.1	0.1								
12	SUMMER	-	-	-	-	-	-								
13	CONT MAINT		1,4,5		2	<0.1	0.1					2 to 5.5 hr	4	0.6	1.2
14	NON-OS SPEC.	-	-	-	-	-	-								
15	SECUR.	-	-	-	-	-	-								
16	MATL CONT		1,5		3	<0.1	0.0								
30 17	LOADING		4,5		7	0.1	0.4								
18	~~T/C CLNG~~ Operator	-	-	-	-	-	-								
19	MGRS/NON-OP	-	-	-	-	-	-								
20	AREA SAMP (NO JC)	-	-	-	-	-	-								

DO 093752
CONFIDENTIAL

* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protection

EMPLOYEE EXPOSURE SUMMARY

QUARTER _____ YEAR 1979

FILL IN BY _____

PLANT CMP BLOCK 46 STRESS Methanol 0002-3938 MINIMAL DETECTABLE LIMIT AND UNIT 0.1 ppm TLV = 200 ppm(v)

			PERSONNEL					AREA				EXCURSION			
NO.	JOB CLASS	AREA/ TASK	*PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT		-	~~0~~				15 min.	127	-	-				
02	OT		3,5							4.2	15.7				
03	SOT		3,5							4.7	15.7				
04	OS		1,5							1.5	15.7				
05	SS		1,5							3.0	12.8				
06	EDO		3,4,5							4.7	15.7				
07	LAB		1,5							2.1	12.8				
08	TECH		1,5							1.5	12.8				
09	CLER.		-							0.3	2.0				
10	INSTR		1,5							3.7	15.7				
11	LABORER		1,5							2.9	12.8				
12	SUMMER		-							-	-				
13	CONT MAINT		1,4,5							4.7	15.7				
14	NON-OS SPEC.		-							-	-				
15	SECUR.		-							-	-				
16	MATL CONT		1,5							1.2	12.0				
17	LOADING		4,5							2.2	5.8				
18	T/C CLNG		-							-	-				
19	MGRS/NON-OP		-							-	-				
20	AREA SAMP (NO JC)		-							-	-				

DO 093753
CONFIDENTIAL

* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protection

EMPLOYEE EXPOSURE SUMMARY

QUARTER _____ YEAR 1979

FILL IN BY _____

PLANT CMP BLOCK 46 STRESS 1,1,1 Trichloroethane MINIMAL DETECTABLE LIMIT AND UNIT 0.1 ppm

9999-0215 TLV = 350 ppm (V)

			PERSONNEL					AREA				EXCURSION			
NO.	JOB CLASS	AREA/ TASK	*PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT		-					15 min	18	-	-				
02	OT		3,5							0.1	4.3				
03	SOT		3,5							0.1	4.3				
04	OS		1,5							<0.1	4.3				
05	SS		1,5							0.1	4.3				
06	EDO		3,4,5							0.5	4.3				
07	LAB		1,5							<0.1	4.3				
08	TECH		1,5							<0.1	4.3				
09	CLER.		-							<0.1	<0.1				
10	INSTR		1,5							<0.1	4.3				
11	LABORER		1,5							0.2	4.3				
12	SUMMER		-							-	-				
13	CONT MAINT		1,4,5							0.4	4.3				
14	NON-OS SPEC.		-							-	-				
15	SECUR.		-							-	-				
16	MATL CONT		1,5							1.0	4.3				
17	LOADING		4,5							<0.1	4.3				
18	T/C CLNG		-							-	-				
19	MGRS/NON-OP		-							-	-				
20	AREA SAMP (NO JC)		-							-	-				

DO 093754
CONFIDENTIAL

* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protection

EMPLOYEE EXPOSURE SUMMARY

QUARTER _____ YEAR 1979

FILL IN BY _____

PLANT CMP BLOCK 46 STRESS Chlorine 0006-7834 MINIMAL DETECTABLE LIMIT AND UNIT 0.001 mg/m³

			PERSONNEL					AREA				EXCURSION			
NO.	JOB CLASS	AREA/ TASK	*PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT		-					7-8 hrs.	20	-	-				
02	OT		3,5							<0.001	0.003				
03	SOT		3,5							<0.001	0.003				
04	OS		1,5							<0.001	0.003				
05	SS		1,5							<0.001	0.003				
06	EDO		3,4,5							<0.001	0.003				
07	LAB		1,5							<0.001	0.003				
08	TECH		1,5							<0.001	0.003				
09	CLER.		-							<0.001	<0.001				
10	INSTR		1,5							<0.001	0.003				
11	LABORER		1,5							<0.001	0.003				
12	SUMMER		-							-	-				
13	CONT MAINT		1,4,5							<0.001	0.003				
14	NON-OS SPEC.		-							-	-				
15	SECUR.		-							-	-				
16	MATL CONT		1,5							<0.001	0.003				
17	LOADING		4,5							<0.001	<0.001				
18	T/C CLNG		-							-	-				
19	MGRS/NON-OP		-							-	-				
20	AREA SAMP (NO JC)		-							-	-				

DO 093755
CONFIDENTIAL

* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protection

EMPLOYEE EXPOSURE SUMMARY

QUARTER _____ YEAR 1979

FILL IN BY _____

PLANT CMP BLOCK 46 STRESS Hydrochloric Acid MINIMAL DETECTABLE LIMIT AND UNIT 0.01 mg/m³

0064-3845

NO.	JOB CLASS	AREA/ TASK	PERSONNEL *PT. EQ.	PERSONNEL TWA BASIS	PERSONNEL NO. SAMPLES	PERSONNEL AVG.	PERSONNEL HIGH	AREA SAMPLE DURATION	AREA NO. SAMPLES	AREA AVG.	AREA HIGH	EXCURSION EXCUR. DURATION	EXCURSION NO. SAMPLES	EXCURSION AVG.	EXCURSION HIGH
01	OTT		-					7-8 hr	20	-	-				
02	OT		3,5							0,02	0.23				
03	SOT		3,5							0.01	0.23				
04	OS		1,5							<0.01	0.23				
05	SS		1,5							0.01	0.13				
06	EDO		3,4,5							0.03	0.23				
07	LAB		1,5							<0.01	0.13				
08	TECH		1,5							<0.01	0.13				
09	CLER.		-							<0.01	<0.01				
10	INSTR		1,5							0.02	0.23				
11	LABORER		1,5							0.01	0.13				
12	SUMMER		-							—	—				
13	CONT MAINT		1,4,5							0.03	0.23				
14	NON-OS SPEC.		-							—	—				
15	SECUR.		-							—	—				
16	MATL CONT		1,5							<0.01	0.13				
17	LOADING		4,5							<0.01	<0.01				
18	T/C CLNG		-							-	-				
19	MGRS/NON-OP		-							—	—				
20	AREA SAMP (NO JC)		-							—	—				

DO 093756
CONFIDENTIAL

* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half r Dust Face (4) Air Supply (5) Hearing Protection

EMPLOYEE EXPOSURE SUMMARY

FILL IN BY _____ QUARTER _____ YEAR 1979

PLANT CMP BLOCK 46 STRESS Sulfuric Acid 0009-3583 MINIMAL DETECTABLE LIMIT AND UNIT 0.1 mg/m³

			PERSONNEL					AREA				EXCURSION			
NO.	JOB CLASS	AREA/ TASK	*PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT		-					7-8 hrs.	20	-	-				
02	OT		3,5							<0.1	0.71				
03	SOT		3,5							<0.1	0.71				
04	OS		1,5							<0.1	0.71				
05	SS		1,5							<0.1	0.71				
06	EDO		3,4,5							0.1	0.71				
07	LAB		1,5							<0.1	0.71				
08	TECH		1,5							<0.1	0.71				
09	CLER.		-							<0.1	<0.1				
10	INSTR		1,5							0.1	0.71				
11	LABORER		1,5							<0.1	0.71				
12	SUMMER		-							-	-				
13	CONT MAINT		1,4,5							0.1	0.71				
14	NON-OS SPEC.		-							-	-				
15	SECUR.		-							-	-				
16	MATL CONT		1,5							<0.1	0.71				
17	LOADING		4,5							<0.1	<0.1				
18	T/C CLNG		-							-	-				
19	MGRS/NON-OP		-							-	-				
20	AREA SAMP (NO JC)		-							-	-				

DO 093757
CONFIDENTIAL

* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protection

FILL IN BY _____

EMPLOYEE EXPOSURE SUMMARY

QUARTER _____ YEAR 1979

PLANT CMP BLOCK 46 STRESS Noise MINIMAL DETECTABLE LIMIT AND UNIT 1% of 85dBA

9999-0006

			PERSONNEL					AREA					EXCURSION				
NO.	JOB CLASS	AREA/ TASK	*PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH		EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH	
01	OTT		-	-	-	-	-										
02	OT		5		4	26	40										
03	SOT		5		3	22	28										
04	OS		5		3	07	16										
05	SS		5		4	12	19										
06	EDO		5		4	16	26										
~~07~~ 08	Chemist LAB		5		3	03	03										
~~08~~ 04	MFG TECH		5		3	02	02										
09	CLER.		5		1	01	01										
10	INSTR		5		3	09	12										
11	LABORER		5		2	09	16										
12	SUMMER		-	-	-	-	-										
13	CONT MAINT		5		3	11	14										
14	NON-OS SPEC.		-	-	-	-	-										
15	SECUR.		-	-	-	-	-										
16	MATL CONT		5		1	08	08										
~~17~~ 30	LOADING Coordinator		5		4	14	24										
18	T/C CLNG		-	-	-	-	-										
19	MGRS/NON-OP		-	-	-	-	-										
20	AREA SAMP (NO JC)		-	-	-	-	-										

DO 093758
CONFIDENTIAL

* PROTECTIVE EQUIPMENT: (1) Mouthbit (2) Full Face (3) Half or Dust Face (4) Air Supply (5) Hearing Protection

L-18-B-A (REV. 8-66)

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE N

DATE THIS REPORT Jun 22, 79

CHARGE 93

DEPT CMP

REPORT OF ANALYSIS

Samples - Methyl Chloride Spikes S-6-14

ID	Compound	Total weight det. mg	Remarks
1-F	m_1	1.60	
	m_2		
	m_3	1.08	
	m_4	1.00	
1-B	m_1	N/D	
	m_2		
	m_3	N/D	
	m_4	N/D	
2-F	m_1	.98	
	m_2		
	m_3	.99	
	m_4	.96	

GC Column DC 550

mls Solvent 10: CS_2

Blank N/D

Spikes

Other Analytical Method efficiency - 1.0

OVEN TEMP. 75 °C

DECT. TEMP. 200 °C

MIN DETECTABLE

DO 093759
CONFIDENTIAL

BY: Lee MS

SIGNED Lee MS Nabb

L-10-8-A (REV. 8-66)

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. _____

DATE THIS REPORT _____

CHARGE _____

DEPT _____

REPORT OF ANALYSIS

Samples -

ID	Compound	Total weight det.	Remarks
2-B	m1	.01	
	m2		
	m3	.02	
	m4	N/D	
3-F	m1	.96	
	m2		
	m3	.90	
	m4	.84	
3-B	m1	.04	
	m2		
	m3	N/D	
	m4	N/D	

GC Column _____ OVEN TEMP. _____ °C

mls Solvent _____ DECT. TEMP. _____ °C

Blank _____ MIN DETECTABLE _____

Spikes _____

Other Analytical Method _____

_____ DO 093760
CONFIDENTIAL

BY: _____

SIGNED Le MS

L-19-B-A (REV. 8-66)

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. _____

DATE THIS REPORT _____

CHARGE _____

DEPT _____

REPORT OF ANALYSIS

Samples -

ID	Compound	Total weight det.	Remarks
4-F	m_1	0.9	
	m_2		
	m_3	1.16	
	m_4	.94	
4-B	m_1	.07	
	m_2		
	m_3	N/D	
	m_4	N/D	
5-F	m_1	N/D	
	m_2		
	m_3	1.29	
	m_4	1.30	

GC Column _____ OVEN TEMP. _____ °C

mls Solvent _____ DECT. TEMP. _____ °C

Blank _____ MIN DETECTABLE _____

Spikes _____

Other Analytical Method _____

_____ DO 093761 CONFIDENTIAL

BY: _____

SIGNED LaMS

L-15 D-A (REV. 8-66)

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. _____

DATE THIS REPORT _____

CHARGE _____

DEPT. _____

REPORT OF ANALYSIS

Samples -

ID	Compound	Total weight det.	Remarks
5-B	m_1	N/D	
	m_2		
	m_3	1.40	
	m_4	1.58	

GC Column _____ OVEN TEMP. _____ °C

mls Solvent _____ DECT. TEMP. _____ °C

Blank _____ MIN DETECTABLE _____

Spikes _____

Other Analytical Method _____

DO 093762
CONFIDENTIAL

BY: _____

SIGNED Lee MS

L-19-5-A (REV. 5-66)

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO.

DATE THIS REPORT 6-20-79

CHARGE 93

DEPT. 9 CMP

REPORT OF ANALYSIS

Samples - MeCl SPIKED TUBES [S-6-13-1]

ID	Compound	Total weight det.	Remarks
A-F	MeCl	0.71	
A-B	"	N/D	
B-F	"	1.61	
B-B	"	N/D	
C-F	"	0.78	
C-B	"	0.006	
D-F	"	1.23	
D-B	"	0.16	
E-F	"	0.69	
E-B	"	0.07	
F-F	"	1.17	
F-B	"	0.07	
G-F	"	1.63	
G-B	"	N/D	

GC Column DC 550

mls Solvent 10 : CS_2

Blank N/D

Spikes

Other Analytical Method

OVEN TEMP. 75 °C

DECT. TEMP. 200 °C

MIN DETECTABLE .006 mg

DO 093763
CONFIDENTIAL

BY: ALMS

page 1

SIGNED ALMS

L-10-8-A (REV. 8-66)

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. _____

DATE THIS REPORT _____

CHARGE _____

DEPT _____

REPORT OF ANALYSIS

Samples -

ID	Compound	Total weight det.	Remarks
H-F	meCl	0.78	
H-B	"	.009	
J-F	"	N/D	
J-B	"	N/D	

GC Column _____ OVEN TEMP. _____ °C

mls Solvent _____ DECT. TEMP. _____ °C

Blank _____ MIN DETECTABLE .006 mg

Spikes _____

Other Analytical Method _____

BY: _____ page 2

SIGNED _____

DO 093764
CONFIDENTIAL

Methyl Chloride

	mg Reported	mg Blank	mg $MeCl_2$	l. air	8-hr TWA ppm	Theoretical	% Recovered	Est. % R
5-14-1 F	.0031	nd	.0043	35	.094			
B	.0074	.0043						
5-14-2 F	.0050	.0019	.0019	36	.040			
B	.0025	nd						
5-14-3 F	.1290	.1259	.2183			.51	43%	65
B	.0955	.0924						
5-14-4 F	.0942	.0911	.1605			.53	30%	76%
B	.0725	.0694						
5-14-5 F	.0025	AVG. .0031						
B	.0037							
5-14-6 F	.2902	.2871	.4278			.59	73%	35
B	.1438	.1407						

DO 093765
CONFIDENTIAL

May (6) 1979

Spiked Tubes – Methyl chloride to include with T/c samples

5-14-3

Gas standard prepared in Saran bag
1.0 l/min × 10 min. = 10 liters air
using (Nominal 95%) Constant Humidity (Na_2HPO_4 sat. sol.)
Measured 65%RH + 75°F

0.50 cc MeCl gas in 10 l. humid air ⇒ 50 ppm

Flow rate through carbon tube	=	103 cc/min.
Minutes sampled	=	76.0 min.
Volume of sampled air	=	7.83 l.
Theoretical mg on tube	=	~~7.83~~ 0.51 mg.

$$50 = \frac{mg \times 24{,}450}{7.8 \times 32}$$

5-14-4

Gas standard same as 5-14-4
except using H_2O bubbler for 76%RH + 75°F

0.50 cc MeCl gas in 10 l. humid air ⇒ 50 ppm

Flow rate through carbon tube	=	101 cc/min.
Minutes sampled	=	80.0
Volume of sampled air	=	8.05 l.
Theoretical mg on tube	=	0.53 mg.

5-14-5 Blank

DO 093766
CONFIDENTIAL

5-14-6

Gas standard same as 5-14-4 + 5-14-5 (0.5 cc MeCl / 10 l. air)
except using silica gel tube in-line for ~35%RH at 7

Flow rate through carbon tube	=	99.4
Minutes sampled	=	90.0
Volume of sampled air	=	8.95 l.
Theoretical mg on tube	=	0.59 mg.

BY Sheryl Schultz DATE 5/16/79

READ BY _____ DATE _____

L-19-73

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

CMP AREA SAMPLES 14-Aug-79

	M1	M2	M3	M4
63 F	.15	-	.04	-
63 B	.01	-	.03	-
63 S6	.03	.03	.05	-
64 F	.12	-	.03	-
64 B	.02	-	.03	-
64 S6	.11	.04	.05	-
65 F	.04	-	.03	-
65 B	.01	-	.04	-
65 S6	.02	.01	.03	-
66 F	.04	-	.03	-
66 B	.01	-	.04	-
66 S6	.02	.01	.04	-
Blank	.01	-	.03	-

10' Carbowax 2
70° C
Rx 10

Lee M

DO 093767
CONFIDENTIAL

RAW DATA

LOCATION	NO.	DATE	FLOW RATE (LPM)	TIME (MIN)	VOL. (LITERS)	M1 (PPM)	M2 (PPM)	M3 (PPM)	M4 (PPM)	* Corrected M1 for 59% RECOV.
LAB	63	8/2/79	.019	264	5.0	15	1.7	1.2	nd	25
LAB	64	8/2/79	.019	264	5.0	21	2.3	0.82	nd	36
CONTROL RM.	65	8/2/79	.018	257	4.6	4.2	0.63	0.45	nd	7.1
CONTROL RM.	66	8/2/79	.019	257	4.9	4.0	0.59	0.84	nd	6.8

AT OR BELOW DETECTION LIMIT

DO 093768
CONFIDENTIAL

L-10-5 A (REV. 5-66)

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. DO 14-62-6
DATE THIS REPORT 8-6-79
CHARGE 93
DEPT. CMP

REPORT OF ANALYSIS

Samples - Personnel Exposure to M_1, M_2, M_3, M_4

ID	Compound	Concentration mg.	Remarks
44-F	M_1	.145 mg	
	M_2	N/D "	
45-F	M_1	.147 "	
	M_2	N/D "	
46-F	M_1	.028 "	
	M_2	N/D "	
47-F	M_1	.311 "	
	M_2	.078 "	
48-F	M_1	.054 "	
	M_2	.046 "	
49-F	M_1	.310 "	
	M_2	.069 "	
50-F	M_1	.178 "	
	M_2	N/D	

GC Column 20' FFAP Temp. 180 °C

mls Solvent 10 mls CS_2 Dect. 200

Blank N/D

Spikes NONE

Other Analytical Method DRY ICE EXTRACTION

DO 093769
CONFIDENTIAL

BY: A.J.M.

SIGNED LeMS

L-10-5-A (REV. 5-66)

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0014-62-63
DATE THIS REPORT 8-6-79
CHARGE 93
DEPT. CMP

REPORT OF ANALYSIS

Samples - Personnel Exposure to M_1, M_2, M_3, M_4

ID	Compound	Concentration mg.	Remarks
51-F	M_1	.356 mg	
	M_2	N/D "	
52-F	M_1	.285 "	
	M_2	N/D "	

GC Column 20' FFAP Temp. 180 °C

mls Solvent 10 mls CS_2 Dect. 200 °C

Blank N/D

Spikes NONE

Other Analytical Method DRY ICE EXTRACTION

BY: A.L.M.

DO 093770
CONFIDENTIAL

SIGNED

L-19-73

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

8-6-79

LOWER LIMIT OF DETECTION AND MCL STUDY 0014-67

Sample ID	Recorder in mg.				Integrator in mg.			
	M1	M2	M3	M4	M1	M2	M3	M4
53-F	.182 mg,		N/D	N/D	.191 mg,		N/D	N/D
53-B	.001		N/D	N/D	.001		N/D	N/D
54-F	.147		N/D	N/D	.149		N/D	N/D
54-B	N/D		N/D	N/D	N/D		N/D	N/D

Column - 8' 20% DC-550 @ 70°C Det. 200°C

L.L.D. - M1 .0005 mg/ml
M2 .0037 mg/ml
M4 .00398 mg/ml

Lewis

DO 093771
CONFIDENTIAL

L-10-5-A (REV. 5-66)

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0014-63
DATE THIS REPORT 8-8-79
CHARGE 93
DEPT. CMP

REPORT OF ANALYSIS

Samples - Silica Gel Samples from M.C.I. sample.

ID	Compound	Concentration	Remarks
53-SG	M_1	.016 mg.	
	M_2	.086 "	
	M_3	.057 "	
	M_4	.080 "	
54-SG	M_1	.014 "	
	M_2	.047	
	M_3	.057	
	M_4	.080	
Blank	M_1	N/D	
	M_2	"	
	M_3	"	
	M_4	"	

GC Column 10% Carbowax Temp. 70 °C

mls Solvent 10 mls CS$_2$ Dect. 200 °C

Blank N/D

Spikes None

Other Analytical Method DRY ICE METHOD

DO 093772
CONFIDENTIAL

BY: R.T.M.

SIGNED Lee M.S.

L-19-73

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

M1 - M4 STUDY 6-AUG-79

	M1	M2	M3	M4
71 F	.001		.648	
72 F	.011		.68	
73 F	1.03		.03	
74 F	.33			
75 F	.02			
76 F	.05			7.62
79 F	.02	5.47	.03	
81 F	.01		.03	
81 B	.01		.04	
81 SG		.63	.66	.24
80 F	.01	6.32	7.29	9.18

10' Carbowax 20m
- 70° C

Le M4

DO 093773
CONFIDENTIAL

1

L-19-73

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

M1 - M4 SURVEY

7-AUG-79

	M1 (& low, due to low attenuation?)	M2	M3	M4	
80	.01	6.63	7.71	8.77	
82	.016	-	1.63	-	
42F	.04	-	.05	-	
43F	.68	.01	.05	-	
44F	.08	-	.05	-	
45F	.02	.06	.04	-	
48F	.03	.06	.04	-	
49F	.13 ~?	-	.05	-	
51F	.28	-	-	-	
71B	.01	-	.02	-	
72B	.01	-	.04	-	
73B	.02	-	.02	-	
74B	.01	-	.03	-	
75B	.01	-	.04	-	
78B	.1	-	.04	.23	
71 SG	-	-	.49	-	
72 SG	-	-	.87	-	
73 SG	.03	-	-	-	
74 SG	.03	-	-	-	
75 SG	-	-	-	.54	
78 SG	-	.6	-	-	
CS2/CARBON	.02	-	.03	-	BLANK

10' Carbowax 20M
70°C

DO 093774
CONFIDENTIAL

L-19 B-A (REV. 8-66)

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0014-60 e

DATE THIS REPORT 2-Aug-79

CHARGE 93

DEPT CMP

REPORT OF ANALYSIS

Samples - Personnel Samples from CMP

ID	Compound	Total weight det.	Remarks
42 F	m1	.086	
	m2	N/D	
	m3	.024	
	m4	.166	
42 B	m1	.086	
	m2	N/D	
	m3	.012	
	m4	.166	
43 F	m1	1.47	
	m2	N/D	
	m3	———	
	m4	.166	
43 B	m1 m2	.023 N/D	
	m3 m4	.012 .166	

GC Column DC-550

OVEN TEMP. 70 °C

mls Solvent 10:CS2

DECT. TEMP. 200 °C

Blank ~~N/D~~ .166 mg m4

MIN DETECTABLE mg
m1 - .001 m3 - .012
m2 - .027 m4 - .036

Spikes

Other Analytical Method

BY: ALMS

DO 093775
CONFIDENTIAL

SIGNED ALMS

ENVIRONMENTAL CONTROL ANALYSIS REQUEST

DATE 7-17-79

PLANT OR PROJECT CMP CHARGE NO. 93

NO. OF SAMPLES 4 2F 26 SAVE EXTRACT YES ✓ NO ____ HOW LONG 2 wks

PRIORITY

☐ ROUTINE (1 OR 2 WEEKS)

☑ HIGH (1 TO 5 DAYS)

SAMPLE DESCRIPTION (CHARACTERIZE AS FULLY AS POSSIBLE)

1. SAMPLE ORGIN AND COMPOSITION (IF KNOWN)

   Air Samples

2. REASON FOR ANALYSIS OR PROBLEM CAUSED BY MATERIAL

3. KNOWN OR SUSPECTED DANGEROUS PROPERTIES (EXPLAIN)

☑ TOXIC

☑ FLAMMABLE

☐ CORROSIVE

REQUESTED ANALYSIS AND RESULTS

Analyze for Methylchloride, Methylene chloride, chloroform, carbon tet

BACKUP SECTION HANDLING Run all

REQUESTED BY: Sheryl DATE NEEDED

PHONE NO. SEND REPORT TO (LOCATION)

DO 093776
CONFIDENTIAL

Chlorinated Methanes Plant

7/12/79

(42)

M. Barbier 7/12/79
T/C loader.
Loading 1 Methylene T/C's
+ 4 Methyl T/C's
Pump new for about 1½ hrs
Pump count 247, factor 5.5 cc/stroke ⇒ 1,36 liters

M1: $\frac{.172 \times 24450}{1.36 \times 50.5}$ = (61 PPM) (>50% Breakthrough)

M3: $\frac{.036 \times 24450}{1.36 \times 119}$ = (5.4 PPM) (33% Breakthrough)

M4: nd at < $\frac{.072 \times 24450}{1.36 \times 154}$ = <8.4 PPM (n.d.)

(43)

M2: < $\frac{.054 \times 24,450}{1.36 \times 85}$ = < 11 PPM (n.d.)

T. JACKSON 7/12/79
OT.
One full round of sample catching + running. Additional samples of Methyl and Chloroform also.
4 hours, 761 strokes, 5.5 factor cc/stroke ⇒ 4.22 liters

M1: $\frac{1.49 \times 24,450}{4.22 \times 50.5}$ = 170 PPM (1.5% Breakthrough)

M3: ?

M4: $\frac{.072 \times 24450}{4.22 \times 154}$ = <2.7 (n.d)

M2: < $\frac{.054 \times 24450}{4.22 \times 85}$ = <3.7 (n.d)

Est. Temp. 93°, RH 75%

L-19-73

Dow

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

	M1			M2			M3			M4		
	mg FRONT	mg BACK	PPM	mg FRONT	mg BACK	PPM	mg FRONT	mg BACK	PPM	mg FRONT	mg BACK	PPM
Note 34-41	(M1+V1)	Combined										
34	.386	(.001) nd					.047	.023		(.037) nd	nd	
35	.108	nd					.023	.011		nd	nd	
36	.085	nd					.023	(.011) nd		nd	nd	
37	.580	nd					nd	nd		nd	nd	
38	nd	nd					nd	nd		nd	nd	
39	.617	nd					nd	nd		nd	nd	
40	.418	nd					nd	nd		nd	nd	
41	nd						nd			nd		
42	.086	.086		(.027) nd	nd		.024	.012		(.036) nd	nd	
43	1.47	.023		nd	nd		—	.012		nd	nd	
44												
45												
46												
47												

DO 093778
CONFIDENTIAL

Low MDA P-9-0981 $f = 5.4$ cc/stroke

Tube Trains 35+36

Pump start 20044.6 12:04

21301.5 15:24

1256.9 3 hrs. 20 min. = 200 min.

Medium MDA P-9-0979 $f = 5.3$ cc/stroke

(Broke w/Tubing) Tube Trains 37+40

Pump ~~start~~ 20819.1 12:08

22354.4 16:08

1535.3 4 hrs.

High MDA P-9-0993 $f = 5.9$ cc/stroke

Tube Trains 34+39

Pump Start 16568.8 12:11

17882.3 16:11

1313.5 4 hrs.

(1)

9-0981

20760.5
20753.5 } 1.11 min.

7.0 6.31 strokes/min.

(2)

9-0993

17242.3
17242.3 } 1.12 min.

6.0 5.36 strokes/min.

(C)

9-0979

21637.4
21629.5 } 1.25 min.

7.9 6.32 strokes/min.

			f	
(36)	10cc in 0.509 min., 0.511	⇒ 19.6 cc/min.	3.11 cc/stroke	A
(35)	.535, 0.552	⇒ 18.4 cc/min.	2.92 cc/stroke	A
(37)	.539, .514, .525	⇒ 19.0	3.01 cc/stroke	C
(40)	20cc in 1.083, 10cc in .531, .549	⇒ 18.5	2.93 cc/stroke	C
(34)	.650, .652	⇒ 15.4	2.87 cc/stroke	B
(39)	20cc 1.107, 10 .558, 20 1.103	⇒ 18.0	3.36 cc/stroke	B

		M2			M3				M4			
	Liquid	mg/1.5	Theor. mg	mg Found	% Recov.	mg/10 l.	Theor. mg	mg Found	% Recov.	mg/10 l.	Theor. mg	mg Found	% Recov.
-1-F	7.70	1.34	1.03			1.48	1.14	1.08	95	1.59	1.22	1.00	82
-E								nd				nd	
-2-F	8.64	1.34	1.16			1.48	1.28	.99	79	1.59	1.37	.96	70
-D								.02				nd	
-3-F	8.74	1.34	1.17			1.48	1.29	.90	70	1.59	1.39	.84	60
-C								nd				nd	
-4-F		1.34	1.15			1.48	1.27	1.16	91	1.59	1.36	.94	69
-C								nd				nd	
-5-F		1.34					1.48	1.29	87		1.59	1.30	82
-B		1.34					1.48	1.40	95		1.59	1.58	99

DO 093780
CONFIDENTIAL

CMP – Pre-Survey

SAMPLE No.	PUMP FLOW RATE (cc/min)	PUMP STROKE FACTOR (cc/str.)	TIME STARTED	TIME ENDED	COUNTER START	COUNTER END	SAMPLE VOL. (L)	M1 PPM	M2 PPM	M3 PPM	M4 PPM	PERSON/LOCATION SAMPLED
1-A S 1973 6/27/79	F 600 24.5 / B 600 -14.5 (FLOW RATE CHGD.)	.38 / .47	9:52	13:52	216322	188622	11.1					SOT-MIKED $MeCl_2$→DRUM WASTE HEAT B M3 SAMPLES HCl LINE
1-B S 1047 6/27	F 600 46 / B 600 -45	.54 / .54	9:52	13:52	168186	190959	12.3					MIKE DIDIE
2-A S 2423 6/27	F 600 16.0 / B 600	.61	Tube Broken				—					GAYE BAGGE LOADING OFF
2-B S 6426 6/27	F 600 56 / B 600 -53	—	10:15	14:30			13.9					FILTER AR[illegible]
3 6/27	F 600 19 / B 600 -14	—	10:15	14:30			4.21					FILTER ARE[illegible]
4 6/27	F 600 19 / B 600 -21	—	10:02	14:07			4.78					OT (NEW) RICHARD ELE[illegible] 10-1130 [illegible] SAMPLE [illegible] AREA 12-[illegible] 1230-[illegible]
5 6/27	F 600 41 / B 600 -41	—	10:00	14:30			11.7					GAYE BAGGE[illegible] [illegible] 2-M2 [illegible] 3-M[illegible]
6 6/27	F 600 44 / B 600 -37		10:02	14:07			9.92					RICHARD EBE
7 6/28	F 600 21.6 / B 600 -17.6	—	0830	1230			4.70					W. Thibodeaux
8 6/28	F 600 48 / B 600 -17.6	—	0830	1230			7.87					W. Thibodeaux
9 7/[illegible]	SG-600 F - 600 B 19 / -50		1000	1330		1 1900 whole time	3.99					C. Davis
10 7/3	SG-600 F - 600 B 21 / -50 / 1.25		0830	1215+			4.73					G. Baggett Ldg.
11 7/3	C-600 F - C 600 B 11.5-3.6 / ?-63		0830 / 1030	1030 / 1200	.918 / 5.67		6.58					T.A. Jackson OT

DO 093781
CONFIDENTIAL

FIELD TESTS

Samples Desorbed in CS_2 (10cc) 2 - 600 mg tubes in Series	MI mg FRONT	MI mg BACK	% of FRONT found in BACK	% Back of Total	Total Found as PPM (not inflated for 100% Recovery)
1 - B (45.5 cc/min. - 12.3 l)	.016	.018	113%	53	1.34
2 - B (54.5 cc/min. - 13.9 l.)	.037	.028	76%	43	2.26
5 (43.5 cc/min. - 11.7 l.)	.35	.51	146%	59	(35.6)
6 (40.5 cc/min. - 9.92 l)	.011	.12	109%	92	6.39
8 (68 1/2 cc/min - 7.87 l.)	.030	.017	57%	36	2.89

Detection Limit .0049 mg/sample

2-600 mg tubes	corrected for blanks			
9 (w/sil. gel) 19 cc/min. - 3.99 l.	.090	.0012	1%	11.1
10 (w/sil. gel) 21 cc/min. - 4.73 l.	.507	.062	11%	(58.2)
11 (no sil. gel) 4-63 cc/min. - 6.58 l.	.055	.114	67%	>12.4

DO 093782
CONFIDENTIAL

L-19-73

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

$m_1 - m_4$ Survey

10-Aug-79

	mg m_1		mg m_2		mg m_3		mg m_4
Blank	.01		–		.03		–
89 F	.04		–		.03		–
89 B	.01		–		.03		–
89 SG	.08		.53		.69		.76
90 F	.10		–		.04		–
90 B	.01		–		.02		–
90 SG	.01		.52		.68		.78
91 F	.05		–		.03		–
91 B	.01		–		.03		–
91 SG	.09		.51		.66		.73
92 F	.10		.27		.09		.15
92 B	.01		–		.02		–
92 SG	.02		.28		.64		.48
93 F	.164		–		.03		–
93 B	.01		–		.03		–
93 SG	.045		.77		.94		1.0
94 F	.18		–		.03		–
94 B	.01		.05		.026		–
94 SG	.044		.80		.98		1.07

10' Carbowax 20m
70°C

DO 093783
CONFIDENTIAL

Breakthrough

	Tube	Conc.	Flow Rate	5% Breakthru
M2 Breakthru	150 mg	1900 PPM (dry)	187 cc/min.	18.5 min
ref - S329 Backup				
desorbed with CS_2 100% Recovery discard glass + foam				
M1 Breakthru		200 PPM	24 cc/min.	No Breakthru 65 min
ref - S99 Backup				
desorbed with M2		600 PPM	105 cc/min.	No Breakthru 65 min
desorp. efficiencies:				
CS_2 78%				
M3 67%				
Ethanol 89%				
M2 100%				
Humidity?				
Tube size?				
S99 Method 600 mg	82% RH	200 PPM	24 cc/min.	Breakthru @ 135 min
	84% RH	692 PPM	105 cc/min.	@ 24 min

L-19-73

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

8-16-79

MeCl Study @ CMP - Badger 0014-67

Sample ID	Conc. in mg. M1	M2	M3	M4					
#55	.028	.032	.163	.127					
#56	.022	.120	.142	.096					
#57	.017	.014	.071	.006					
#58	.053	.014	.210	N/D					
#59	.131	.219	.329	N/D					
#60	.315	.013	.052	N/D					
Client Ref. #61	.026	N/D	.051	N/D					
Blank 3M #62	.007	.019	.132	N/D					
#67	.015	.037	N/D	.005					
#68	.070	.040	.067	N/D					
#69	.017	.110	.020	.028					
#70	.183	.128	.103	N/D					
Blank TOCE	.018	N/D	.032	N/D	(not subtracted)				
	L.L.D.		M1 .005 mg		M2 .003 mg		M3 .003 mg		M4 .003 mg

Column: 10% Carbowax @ 70°C

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L. M. C.

L-19-73

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

8-1-79 Ref. 0014-61

CMP METHOD VALIDATION FOR MeCl CHARGE 93

SAMPLE ID	Concentration mg. M1	M3	M4
34-F	.386	.047	N/D
34-B	N/D	.023	N/D
35-F	.108	.023	N/D
35-B	N/D	.011	N/D
F 36-F	.085	.023	N/D
-B	N/D	N/D	N/D
37-F	.580	N/D	N/D
37-B	N/D	N/D	N/D
38-F	N/D	N/D	N/D
38-B	N/D	N/D	N/D
39-F	.617	N/D	N/D
39-B	N/D	N/D	N/D
41-F	.418	N/D	N/D
-B	N/D	N/D	N/D
41-F	N/D	N/D	N/D

DC-550 @ 70°C Det 200°C

10 ml's CS_2

Blank N/D

MIN. DET. M_1 .001 mg.
M_3 .011 "
M_4 .033 "

RF for V_i = .000073 mg./mm.
M_4 = .000136 " "

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F B
2g. 600mg 42% RH SS Meter

	Air	MeCl	PPM	Beg. Flow	End Flow	Time
3-6-13-1-A	10 l. air w/ carbon Tube in line	0.5 cc	50	50.0 cc/.479 .475 .474 .474	.481 .481	10:48- 12:17
3-6-13-1-B	10 l. air	1 cc	100	50.0 cc/.479 .475 .474	.482 .483	10:44- 12:14

Wet Bulb 63°F
Dry Bulb 78°F

2g. 600mg Water Bubbler

3-6-13-1-C	10 l. air	0.5 cc	50	50 cc/.481 .483 .484	.491 .483 .482	15:20- 16:50
3-6-13-1-D	10 l. air	1 cc	100	50/.489 .483 .484	.496 .491 .489	15:19- 16:49

	SS Meter	
	54% RH	56% RH
Wet Bulb	73°F	73°F
Dry Bulb	78°F	78°F

2g. 600mg Na_2HPO_4 sol.

3-6-13-1-E	10 l.	0.5 cc	50	50/.484 .489 .481	.491 .494 .492	17:11 - 18:41
3-6-13-1-F	10 l.	1.0 cc	100	50.0/.489 .489 .489	.500 .499 .501	17:04- 18:34

	Before SS Meter	After SS Meter
	60% RH	52% RH
Wet	74°F	72°F
Dry	78°F	78°F

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w/ charcoal + Silica gel tubes in line

	Air	$MeCl_2$	PPM	Beg. Flow	End. Flow	Time
3-6-13-1-G	10 l.	0.5 cc	50	50 cc/.538 .546 .545	.531 .541	17:55- 19:20
				55/.579		

38% RH
wet 60°F
Dry 78.5°F

3-6-13-1-H	10. l.	1.0 cc	100	50/.501 .500 .498	.511 .510 .509	17:55- 19:20

3-6-13-1-J Blanks

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Sample	SS % RH	Air Vol. 10 l.	MeCl	$MeCl_2$	$MeCl_3$	$MeCl_4$
			1 cc = 100 ppm	d = 1.34 1 µl/10l = 38 ppm	100/168 MW 119 .33 µl/10l = 19 ppm	d = 1.59 1 µl = 25 ppm
6-14-1-F -B	15-16 *	10	.5 cc	1 µl	1 µl	1 µl
6-14-2-F -B	30 *		.5 cc	1 µl	1 µl	1 µl
6-14-3-F -B			5			
6-14-4-F B	** 59		.7			
6-14-5-F -B						

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.5cc
1μl
1μl
1μl

S-6-14-1- Air + clean.	Bf 50 cc / .553, .551, .551 Aft. / .615, .650, .625, .620, .629	14:49 - 90 (4:19)	
S-6-14-2	50 cc / .531, .529, .531 .518, .510, .514	14:48 - 90 (4:18)	
-3 Air + Na₂ 904	50 cc / .539, .545, .534 .551, .549, .549 (91)	16:04 - 5:34	17:39 (95)
-4	50 cc / .549, .548, .546 .784, .788, .759, .760 / .558 .559 .560	16:04 - 5:34	17:39 (95)

S-6-14-5

	M2	M3	M4
F Direct Inj.	1μl	1μl	1μl
B	1μl	1μl	1μl

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Rev 5

Block CMP Pers n or Area Monitored Ernest Ventress Jr. Date 5-04-79

Tim Started _____ J b Classificati n and D scripti n: Fitter, Tearing down old piping with asbestos insulation

Time Stopped _____ Start reading 39414

Beginning Flow Rate 1.5 l/m Stop reading 40364

Ending Flow Rate _____ (57 l. TOTAL)

Monitoring For _____ Wind Conditions _____

Any unusual activities or pertinent info that should be mentioned? Person was on ground slightly upwind of asbestos cutting activity in pipeway above. Was (23 l. air) 15 min. of actual activity involving asbestos

Calibration Check Prior to Monitoring? ☑ Yes ☐ No

Calibration Equipment Used? ROTAMETER 7668/1 Calib.: 40389 − 40364 = 25 cts./min. 1.5 l/min ÷ 25 cts./min. = .060 l/ct

NOTE: Job description must be concise and complete. LOUISIANA DIVISION INDUSTRIAL HYGIENE

46-5-2-2

Block 46 Person or Area Monitored Larry Stallard Date 5-04-79

Time Started _____ Job Classification and Description: Fitter, Tearing down old piping with asbestos insulation

Time Stopped _____ Start reading 33053

Beginning Flow Rate 1.5 l/m Stop reading 34493

Ending Flow Rate _____ (66 Total Liters)

Monitoring For Asbestos Wind Conditions _____

Any unusual activities or pertinent info that should be mentioned? Person was in pipeway cutting insulation off pipe for 15 minutes (23 l.)

Calibration Check Prior to Monitoring? ☑ Yes ☐ No

Calibrati n Equipment Used? ROTAMETER 7668/1 Calib.: 35037 − 34993 = 44 cts./min. 1.5 l/min. ÷ 44 cts./min. = .034 l/ct

NOTE: Job description must b concise and romplete. DO 093791 CONFIDENTIAL LOUISIANA DIVISION INDUSTRIAL HYGIENE

L-19-73

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

8-21-79

HEX SAMPLES FROM CMP

00-19-70.71

SAMPLE ID			CONC. IN Ng. HCE		HCBd		HCBz					
1-F			10,084.				97.77					
1-B			N/D		9,082.		N/D					
2-F			1,266		N/D		23.75					
2-B			N/D		.352		N/D					
3-F			N/D		756.14		21.97					
3-B			N/D		2.73		N/D					
4-F			19,022.		18.19		20.87					
4-B			N/D		5.02		N/D					
5-F			N/D		1477.98		63.81					
5-B			N/D		49.57		3.35					
6-F			N/D		N/D		35.72					
6-B			N/D		N/D		N/D					
7-F			N/D		N/D		88.62					
7-B			N/D		1.96		N/D					
8-F			N/D		N/D		3.266					
8-B			N/D		N/D		N/D					
50-A			160.72		.84		2.86					
50-B			N/D		N/D		N/D					
Blank			N/D		9.278		N/D					
	Detect 300		@ 250									
	min det.		.2 Ng/ml									
			.1 Ng/ml									
			.1 ng/ml									

* Samples contained excess amts of contamin which interfered with the ability to measure correct peak width & width results in invalid numbers.

A.M.

L. M. S

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INDUSTRIAL HYGIENE SAMPLE RECORD

FILE NUMBER	PROCESS	BLDG. NO.	DATE
	SOLVENTS	16	8/15/79

MATERIAL	SAMPLING METHOD	TRAPPING MEDIUM
HEXES		PORAPAK QS

EQUIPMENT NUMBER	TYPE OF EQUIPMENT	FLOW INDICATOR SETTING	SAMPLE FLOW RATE	OUTSIDE TEMP.	INSIDE TEMP.

REMARKS (VENTILATION, ETC.) Personal Samples associated with Maintenance

SAMPLE NO.	CONTAINER NO.	Date	Employee	DESCRIPTION OF SAMPLE	Job	HRS. TIME START	FLOW INCREMENT	CONCENTRATION
16-6	1	6-05-79	LAMAR (DIS)		RE-1	1.0	cc/MIN, 190.	
16-6	2	6-05-79	WILLIAMS (DIS)		RE-1	1.0	145	
16-6	3	6-06-79	V. ANDERSON (DIS)		C-806 REBOILER	7.5	40	
16-6	4	6-06-79	E. LAMAR (DIS)		C-806 REBOILER	7.5	105	
16-6	5	6-06-79	L. ROGERS (DIS)		C-806 REBOILER	6.0	140	
16-6	6	6-15-79	C. JENNINGS		FITTER	1.5	145	
16-6	7	6-15-79	C. J. TREBEAU		Coker Op'r FITTER	1.0	75	
16-6	8	5-15-79	W. THIBODEAUX		MILLWRIGHT	2.5	200	
	50A	IN-LAB	KNOWN					
		BLANK						

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SIGNATURE Sharon Miller / Sharyl Schultz DATE 8/15/79

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