

INDUSTRIAL HYGIENE SUMMARY - 1982 - BY J. L. MOREAU, JR.RAILROAD-TANK CAR CLEANING

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MARINE

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ANNUAL REVIEW
FEBRUARY 9, 1983
RAILROAD-TANK CAR CLEANING
MARINE
INDUSTRIAL HYGIENE
MEDICAL

DO 080789
CONFIDENTIAL



DOW CHEMICAL U.S.A.

REV
8/83

JANUARY 6, 1983

LOUISIANA DIVISION
P. O. BOX 150
PLAQUEMINE, LOUISIANA 70764-0150
504 389-8000

P. J. PREJEAN	RAILROAD
SHIFT SUPERVISORS	RAILROAD
O. C. DICKERSON	RAILROAD
BULLETIN BOARD	RAILROAD
J. M. CRONAN	TANK CAR CLEANING/INSPECTION
BULLETIN BOARD	TANK CAR CLEANING
DANNIE KENNEDY	INDUSTRIAL HYGIENE

FOR YOUR INFORMATION, FOLLOWING ARE PERSONNEL EXPOSURE LEVELS, SHOWN
IN PARTS PER MILLION, FROM TANK CAR SAMPLES TAKEN IN 1982 DURING
CLEANING OPERATIONS. TLV'S LISTED ARE MAXIMUM ALLOWABLE EXPOSURES.
SAMPLES WERE TAKEN WITH PERSONNEL MONITORING PUMPS.

J. L. Moreau, Jr.

J. L. MOREAU, JR.
INDUSTRIAL HYGIENE
RAILROAD/MARINE

8 HOUR TIME WEIGHTED AVERAGES

<u>METHYLENE CHLORIDE TLV-100</u>	<u>CARBON TETRACHLORIDE TLV-5</u>	<u>CHLOROFORM TLV-10</u>	<u>PERCHLOROETHYLENE TLV-50</u>	<u>METHYL CHLORIDE TLV-50</u>	<u>ETHYLENE OXIDE TLV-3</u>
0.13	0.47	0.29	1.81	0.65	0.11
0.11	0.32	0.08	4.72	0.63	0.12
7.04	0.11	7.07	0.07	0.14	0.20
10.03	0.11	8.17	0.10	0.08	0.20
10.97	0.09	0.38	0.56	0.05	1.16
13.34	0.12	0.01	10.22	0.05	1.12
	0.22	9.43			
	0.20	6.71			
	16.31				
	9.28				

15 MINUTE EXCURSIONS (SHORT TERM SAMPLES)

<u>METHYLENE CHLORIDE TLV-500</u>	<u>CARBON TETRACHLORIDE TLV-20</u>	<u>PERCHLOROETHYLENE TLV-150 (200)</u>	<u>VINYL CHLORIDE TLV-5</u>	<u>METHYL CHLORIDE TLV-100</u>	<u>ETHYLENE OXIDE TLV-50</u>
213.63	2.98	17.96	0.07	0.65	0.86
223.82	4.46	21.74	0.07	0.61	5.17
386.72	1.04	30.03	0.08	0.68	
	0.33	18.38	0.08	0.19	
	0.09	6.57	0.08		
			0.08		
			0.08		
			0.08		
			0.07		
			0.07		
			0.06		
			0.07		
			0.07		
			0.08		
			0.06		



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AUGUST 23, 1982

LOUISIANA DIVISION
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504 389-8000

J. E. CAMPBELL - IND. RELATIONS/MTLS. HANDLING
P. J. PREJEAN - RAILROAD
J. M. CRONAN - TANK CAR CLEANING
CHARLIE HALPHEN - INDUSTRIAL HYGIENE
DANNIE KENNEDY - INDUSTRIAL HYGIENE
JOHN MCBRIDE - SAFETY

THE ATTACHED NOISE SURVEYS WERE MADE BY MONITORING EMPLOYEES WITH BRUEL & KJAER TYPE 4431 DOSIMETERS TO DETERMINE THE EXTENT OF NOISE DURING THE NORMAL WORK DAY. 100% REPRESENTS MAXIMUM ALLOWABLE EXPOSURE, EQUIVALENT TO 85 DECIBELS (DBA) FOR A DURATION OF 8 HOURS.

MUCH PROGRESS HAS BEEN MADE IN REDUCING NOISE LEVELS. MORE ATTENTION WILL BE GIVEN TO TANK CAR CLEANING WHERE INITIAL LEVELS WERE EXTREMELY HIGH. NEW METHODS ARE BEING IMPLEMENTED IN EFFORTS TO FURTHER REDUCE EMPLOYEE EXPOSURE.

J. L. Moreau, Jr.
J. L. MOREAU, JR.
INDUSTRIAL HYGIENE SPECIALIST
RAILROAD/MARINE DEPTS.

SG

COPIES: BULLETIN BOARD - RAILROAD
" " - TANK CAR CLEANING

RAILROAD SWITCHING CREW

<u>DATE</u>	<u>DOSIMETER #</u>	<u>NAME</u>	<u>JOB</u>	<u>DURATION</u>	<u>% ALLOWABLE EXPOSURE</u>
6-23	839609	G. KLEINPETER	FIELD MAN	715AM-245PM	32
"	839611	L. TILLMAN	PIN PULLER	" "	49
"	839610	D. DUGAS	FOREMAN	" "	26
"	839608	L. PARAULT	ENGINEER	" "	86
"	839609	A. HONORE	ENGINEER	300PM-1100PM	88
"	839611	K. LEBOUF	FIELD MAN	" "	46
"	839610	K. BERGERON	FOREMAN	" "	23
"	839608	O. JACKSON	PIN PULLER	" "	58
"	839609	K. DAIGLE	FOREMAN	1100PM-630AM	29
"	839611	L. JACKSON	FIELD MAN	" "	57
"	839610	R. SHANKLIN	ENGINEER	" "	67
"	839608	O. JACKSON	PIN PULLER	" 300AM	41

CONCLUSION: SEE SWITCH ENGINES NOISE SURVEY DATED APRIL 1, 1981 - RECOMMEND CONTINUED WEARING OF HEARING PROTECTION BY ANYONE RIDING FRONT OF ENGINE WHEN HORN IS BLOWING.

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TANK CAR CLEANING

<u>DATE</u>	<u>DOSIMETER #</u>	<u>NAME</u>	<u>JOB</u>	<u>DURATION</u>	<u>% ALLOWABLE EXPOSURE</u>
6-24	839608	M. OSBORNE	LABORER	745AM-245PM	30
"	839609	L. GRANT	"	" "	40
"	839611	W. EDWARDS	"	" "	20
"	839608	W. LAYNES	"	300PM-1100PM	72
"	839609	ED DOMINIQUE	"	" "	609*
"	839608	SON TATE	"	1100PM-600AM	30
"	839609	W. JOHNSON	"	" "	84
6-29	839609	W. JOHNSON	"	300PM-1030PM	309**
"	839611	SON TATE	"	" "	198****
7-21	839608	W. JOHNSON	"	320PM-1030PM	442***
"	839610	SON TATE	"	" "	236*****

* DRIED HOPPER CAR BOTTOM OUTLETS WITH 3/4 IN. AIR HOSE (15 CARS)

** " " " " " " " " " (13 CARS)

*** " " " " " " " " " (12 CARS)

ALSO DRIED INTERIORS OF 4 TANK CARS WITH AIR HOSE

**** DRIED INTERIORS OF 2 TANK CARS WITH AIR HOSE

***** DRIED INTERIORS OF 4 TANK CARS WITH AIR HOSE

CONCLUSION: SEE PREVIOUS NOISE SURVEYS, RECOMMEND CONTINUED WEARING OF HEARING PROTECTION WHEN EXPOSED TO HIGH NOISE LEVELS.

RAILROAD TRACK MAINTENANCE

<u>LINE</u>	<u>DOSIMETER #</u>	<u>NAME</u>	<u>JOB</u>	<u>DURATION</u>	<u>% ALLOWABLE EXPOSURE</u>
7-2	839608	L. FIELDS	LABORER	730AM-300PM	72*
"	839609	W. RAY	"	" "	41
"	839610	W. ELZY	"	" "	45
"	839611	B. WASHINGTON	FOREMAN	" "	68**
7-26	839608	F. WHITE	LABORER	745AM-330PM	79*
"	839610	G. MELANCON	"	" "	47

* OPERATED AIR DRIVEN SPIKE DRIVER

** OPERATED TIE PULLER

CONCLUSION: SEE PREVIOUS NOISE SURVEY. RECOMMEND CONTINUED WEARING OF HEARING PROTECTION WHEN OPERATING OR IN CLOSE PROXIMITY TO HIGH NOISE EQUIPMENT.

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RAILROAD TIE TAMPER

<u>DATE</u>	<u>DOSIMETER #</u>	<u>NAME</u>	<u>JOB</u>	<u>DURATION</u>	<u>% ALLOWABLE EXPOSURE</u>
8-13	839608	K. BERGERON	IN CAB	730AM-230PM	104
"	839610	F. WHITE	OPERATOR	" "	88
8-16	839608	B. PICKERING	ON GROUND	" "	83
		P. POLITZ	IN CAB	715AM-200PM	
		B. PICKERING	OPERATOR		
8-17	839608	B. PICKERING	ON GROUND	715AM-230PM	85
		P. POLITZ			

CONCLUSION: SEE PREVIOUS NOISE SURVEY. RECOMMEND CONTINUED WEARING OF HEARING PROTECTION BY OPERATOR IN CAB AND ALSO BY MAN ON GROUND WHEN IN CLOSE PROXIMITY TO TAMPER WHEN TAMPER IS OPERATING. NOISE LEVELS COULD BE GREATLY REDUCED BY INSULATING INTERIOR OF TAMPER CAB AND BY INSTALLING AN AIR CONDITIONER. AT PRESENT, FOR OPERATOR COMFORT IN HOT WEATHER, IT IS NECESSARY TO KEEP CAB DOORS OPEN, THEREBY INCREASING NOISE EXPOSURE.

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MARCH 5, 1982

LOUISIANA DIVISION
P. O. BOX 150
PLAQUEMINE, LOUISIANA 70764-0150
504 389-8000

P. J. PREJEAN - RAILROAD
J. M. CRONAN - TANK CAR CLEANING
CHARLIE HALPHEN - INDUSTRIAL HYGIENE
DANNIE KENNEDY - INDUSTRIAL HYGIENE
JOHN MCBRIDE - SAFETY

ATTACHED IS A NOISE SURVEY OF THE COMPRESSOR AND PUMP AREA, UNDER ROOF AND OPEN ON 3 SIDES, ON WEST END OF BLDG, 4101. THIS IS ADJACENT TO A WORK AREA AND IS DESIGNATED AS AN AREA OF EXCESSIVE NOISE, WITH HEARING PROTECTION REQUIRED.

IN ADDITION TO THE SURVEY USING A SOUND LEVEL METER TO MEASURE INTENSITY, AN OCTAVE BAND ANALYZER WAS USED TO SEPARATE AND IDENTIFY THE COMPRESSOR PROBLEM FREQUENCIES. MAINLY, THE PROBLEM WAS FOUND TO BE IN THE LOWER FREQUENCIES, WHICH SHOULD BE RECTIFIED BY THE PROPOSED BARRIER.

IT IS RECOMMENDED THAT A THREE SIDED BARRIER (LEAVING SOUTH SIDE OPEN) MADE OF CONCRETE BLOCK, WITH ONE DOOR, BE CONSTRUCTED. THIS SHOULD PROVIDE A PERMANENT SOLUTION TO THIS NOISE PROBLEM.

ALL SURVEY RESULTS ARE IN DECIBELS (DBA).

A COST ESTIMATE FROM ENGINEERING IS INCLUDED.

J. L. Moreau, Jr.

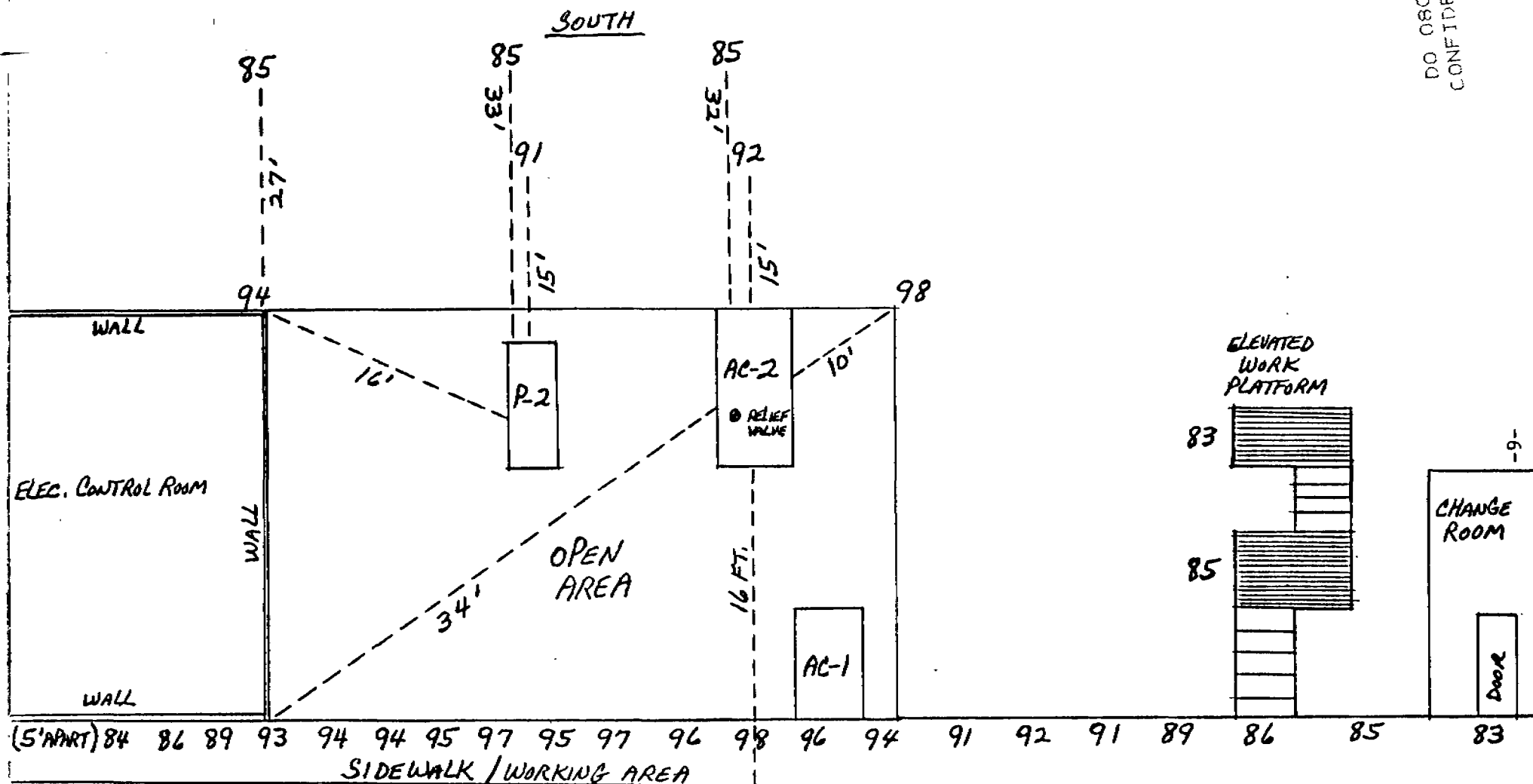
J. L. MOREAU, JR.
INDUSTRIAL HYGIENE - RAILROAD/MARINE

SG

L-23-02 WEST END DUMP. 1101 1100 1100

AC-2 AND PUMP P-2 RUNNING (AC-2 PANELS OFF)

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← TRACK 414 - POLY HOPPER CARS SPOTTED →

READINGS ON SIDEWALK / WORKING AREA TAKEN 5 FT. APART NEXT TO CARS

NORTH

NOISE SURVEY AIR COMPRESSORS & PUMPS
WEST END OF BLDG. 4101

2-19-82 WIND ESE - 9 MPH
AC-1 (OLD) AIR COMPRESSOR - RUNNING ALONE

<u>DISTANCE</u>	<u>NORTH</u>	<u>SOUTH</u>	<u>EAST</u>	<u>WEST</u>
1'	92	94	92	92
3'	90	91	90	90
5'	88	90	89	88
10'		88	85	
17'		85		

2-23-82 WIND CALM
AC-2 (NEW) AIR COMPRESSOR WITH PANELS OFF - RUNNING ALONE

<u>DISTANCE</u>	<u>NORTH</u>	<u>SOUTH</u>	<u>EAST</u>	<u>WEST</u>
1'	105	101	107	102
3'	103	99	104	101
5'	100	97	102	100
10'	97	95	99	97
15'	96	93	96	95

AC-2 RELIEF VALVE NOISE AT 31 SECOND INTERVALS (13 ON - 18 OFF)

<u>DISTANCE</u>	<u>NORTH</u>	<u>ALONG SIDEWALK/WORK AREA</u>
5'	106	CORNER - EAST END - 96 CORNER - WEST END - 97
10'	102	WORK PLATFORM - 94
17'	100 (MIDDLE OF SIDEWALK)	CHANGE ROOM DOOR - 88

3-5-82

AIR COMPRESSOR AC-2, CHECKED WITH OCTAVE BAND ANALYZER.
ALL READINGS MEASURED 5 FT. FROM SOURCE IN ALL 4 DIRECTIONS.

<u>OCTAVE BAND FREQUENCY Hz</u>	<u>WEST</u>	<u>NORTH</u>	<u>EAST</u>	<u>SOUTH</u>
31.5	91	92	92	93
63	81	85	85	87
125	95	92	94	96
250	92	91	90	94
500	94	96	92	95
1000	91	89	89	88
2000	85	84	85	81
4000	80	80	79	77

PLANT-
CONTACT-
PROBLEM

NOISE OVERVIEW

RECOMMENDATIONS

ink Car Cleaning
w/ Motion
noise noise
work area

See attached noise
survey
↓

Three sid.
block with a
net to dec
leakage will
be above 11
should exceed
minimum
500, 1000 &

TL 500 =

TL 1000 =

TL 1000 =

average TL:

The N.R. loss
wall is open
is readily.

The above
is strictly as

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RAILROAD - TANK CAR CLEANING

ACCOMPLISHMENTS - 1982

EMPLOYEE EDUCATION PROGRAM - 100% PARTICIPATION

NOISE SURVEYS WITH EMPHASIS ON PROBLEM AREAS.

ZERO NON-COMPLIANCES - COMPOSITE SAMPLER MONITORS 24 HOUR DISCHARGE.

5,000 GALLON TANK TRAILER TO FACILITATE REMOVAL OF GLYCOLS FROM
ISOLATED HOLDING PIT TO GLYCOL #2 FOR DISPOSAL.

IMPROVED CLEANING PROCEDURE FOR VINYL CHLORIDE TANK CARS REDUCING
CLEANING AND PERSONNEL EXPOSURE TIME FROM APPROXIMATELY 18 HOURS
TO 10 HOURS PER CAR. ALL PERSONNEL EXPOSURE SAMPLES WERE BELOW
TLV.

RAILROAD - TANK CAR CLEANING

GOALS - 1983

PROTECTING THE PHYSICAL WELFARE OF EMPLOYEES BY REDUCING CHEMICAL AND NOISE EXPOSURES.

CONTINUING EDUCATION OF EMPLOYEES - CONSEQUENCES OF OVEREXPOSURE TO CHEMICALS, SURVEY RESULTS, ETC.

COMPLETION OF EXTENSIVE NOISE SURVEYS USING MUFFLERS.

CONTINUING MONITORING PERSONNEL CHEMICAL EXPOSURES WITH EMPHASIS ON SUSPECT CARCINOGENS.

PIPELINE TO CENTRAL WASTE TREATMENT FOR PERMANENT DISCHARGE OF ALL WASTE OR WASH WATER FROM CLEANING OF RAIL CARS.

ZERO NON-COMPLIANCES

IMPROVEMENTS TO OR REPLACEMENT OF CONTINUOUS ANALYZER DUE TO HIGH MAINTENANCE COSTS.



DOW CHEMICAL U.S.A.

REV
8/8

January 18, 1983

LOUISIANA DIVISION

P. O. BOX 150

PLAQUEMINE, LOUISIANA 70764-0150

504 389-8000

A. R. Kirby	Marine
D. R. Fabre	Marine
Shift Supervisors	Marine
Bulletin Board	Dock #1
Dannie Kennedy	Industrial Hygiene

FOR YOUR INFORMATION, ATTACHED ARE PERSONNEL EXPOSURE LEVELS, SHOWN IN PARTS PER MILLION, FROM BARGE LOADING AND SHIP DISCONNECT OPERATIONS IN 1982. SAMPLES WERE TAKEN WITH PERSONNEL MONITORING PUMPS. TLV'S LISTED ARE MAXIMUM ALLOWABLE EXPOSURES.

J. L. Moreau, Jr.

J. L. Moreau, Jr.
Industrial Hygiene
Railroad/Marine

tt

8 HOUR TWA - PERSONNEL SAMPLES - BARGES

<u>METHYLENE CHLORIDE TLV-100</u>	<u>CHLOROFORM TLV-10</u>	<u>PERCHLOROETHYLENE TLV-50</u>	<u>ETHYLENE DICHLORIDE TLV-10</u>	<u>CARBON TETRACHLORIDE TLV-5</u>
36.11	0.58	0.32	0.39	1.55
34.78	1.01	0.17	8.22	0.07
45.16	6.01	1.24	10.20	0.17
0.12	5.62	0.57	8.05	0.78
	5.29		0.06	0.39
	4.41		2.80	0.44
	12.12		0.13	0.39
	11.66		0.06	0.43
	33.95		12.20	
	18.16		0.21	
			0.91	
			4.99	
			0.08	
			5.27	



DOW CHEMICAL U.S.A.

REV
8/82

JUNE 22, 1982

LOUISIANA DIVISION

P. O. BOX 150

PLAQUEMINE, LOUISIANA 70764-0150

504 389-8000

DR. K. J. FLANAGAN - MEDICAL
TONY EKKER - MARINE
AL KIRBY - MARINE
CHARLIE HALPHEN - INDUSTRIAL HYGIENE
DANNIE KENNEDY - INDUSTRIAL HYGIENE

ATTACHED IS A BENZENE MONITORING SURVEY OF BARGE LOADING EXPOSURES SHOWING RESULTS OF BOTH PERSONNEL PPM AND URINARY PHENOLS FOR COMPARISON PURPOSES.

THE DIFFERENCE BETWEEN PHENOL A.M. AND P.M. LEVELS DETERMINES EXPOSURE, WITH ANY NUMBER BELOW 16 MG BEING CONSIDERED NORMAL. A LEVEL OF 75 MG PHENOL CORRESPONDS TO AN AIR LEVEL OF 10 PPM BENZENE, WHICH IS THE OSHA STANDARD.

WITH THE POSSIBLE EXCEPTION OF THE THREE HIGH PHENOLS, THESE FINDINGS INDICATE THAT EMPLOYEES ARE USING RESPIRATORS PROPERLY.

J. L. Moreau, Jr.

J. L. MOREAU, JR.
INDUSTRIAL HYGIENE - RAILROAD/MARINE

SG

<u>BENZENE BARGE</u>	<u>DATE</u>	<u>NAME</u>	<u>S.S. NO.</u>	<u>PERSONNEL SAMPLE PPM</u>	<u>MG PHENOL AM-PM</u>
PC 2506	1-22-82	STEVEN PREJEAN	437-04-4550	8.07	2-10 NORMAL
"	"	CALVIN YOUNG	438-56-9003	0.06	1-5 "
"	"	EDWARD ALTAZAN	437-02-3076	26.45	2-8 "
"	"	FRANCIS BARLOW	437-58-8467	0.66	1-1 "
DC-372	1-28-82	C. J. WOODS	438-11-9731	0.07	1-1 "
"	"	D. T. HAMMONDS	436-04-4137	4.56	1-1 "
PC-2506	2-10-82	B. W. BOLYER	435-84-9657	3.64	3-4 "
"	"	A. C. WILSON	437-13-2018	2.96	1-34 HIGH
"	"	R. C. WATTS	439-19-5274	3.49	3-25 "
"	"	N. WASHINGTON	434-64-8694	0.04	24-13 "
PC-2506	3-17-82	CALVIN YOUNG	438-56-9003	7.23	1-5 NORMAL
"	"	MARTIN GEHLING	437-02-0936	9.52	1.5-1 "
"	"	FRANCIS BARLOW	437-58-8467	8.49	1-6 "
DC-306	3-23-82	J. H. LEFEBVRE	435-17-5371	4.26	15-11.4 "
"	"	R. J. DUHON	436-76-7683	1.31	1.8-2.8 "
"	"	GARY BENSON	435-23-5281	35.90	0.5-3.7 "
DC-310	3-26-82	MARK HUTSON	433-04-8585	17.47	5-15 "
"	"	O'NEAL BOSLEY	439-90-9452	0.05	1-3 "
"	"	FREDERICK JACKSON	437-90-8525	23.96	1-4 "
DC-306	4-13-82	PHILIP DOIRON	439-23-5347	16.77	7-3 "
"	"	KEN BARTHEL	437-70-9689	53.08	11-1 "
"	"	HARVEY CAVALIERE	435-80-5906	0.46	2-1 "

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MARINE DOCK #1
VINYL CHLORIDE SHIP DISCONNECT EXCURSIONS - PERSONNEL
TLV-5

<u>DATE</u>	<u>SHIP</u>	<u>TOP DECK ONLY NO RESPIRATORY PROTECTION</u>	<u>WORKED DISCONNECT USED BREATHING AIR</u>
1/20	PRINS FREDERIK HENDRIK	0.13 0.0	1.08 1.99
1/26	OSCO BELLONA	0.19 0.07	1.16 12.25
2/8	GP-801		0.16 0.0002
2/8	GP-802	0.0002	0.06 3.1
3/8	GP-801	27.57	30.51 85.25
3/8	GP-802	49.15	4.0 25.19
3/20	EIRIK RAUDE	9.15	6.0 9.16
3/22	OSCO BELLONA	0.11 0.10	32.5
4/14	PRINS FREDERIK HENDRIK	0.38	1.18 0.21
4/20	SOFIE MAERSK	0.20	30.98 3.9
4/27	SVENDBORG MAERSK	0.32	21.76 1.23
5/9	AMELIA	0.08	8.09 125.55
6/17	PRINS MAURITS	0.095	2.86 0.26
7/8	PRINS MAURITS	0.49	7.04 8.11
7/26	PRINS MAURITS	0.20	0.41 0.35
8/1	OSCO BELLONA	4.03	38.5 1.3

MARINE DOCK #1 (cont'd)
 VINYL CHLORIDE SHIP DISCONNECT EXCURSIONS - PERSONNEL
 TLV-5

<u>DATE</u>	<u>SHIP</u>	<u>TOP DECK ONLY NO RESPIRATORY PROTECTION</u>	<u>WORKED DISCONNECT USED BREATHING AIR</u>
8/31	SOFIE MAERSK	1.31	3.67 2.91
9/19	SUNNY PRINCE	0.21	11.98 15.52
9/27	OSCO BELLONA	0.7	18.46 23.49
9/29	REINA DEL RAMA	7.17	0.34 1.93
10/20	ZETA GAS	7.27	20.4 20.9

MARINE DOCK #2
VINYL CHLORIDE SHIP DISCONNECT EXCURSIONS - PERSONNEL
TLV-5

<u>DATE</u>	<u>SHIP</u>	<u>TOP DECK ONLY NO RESPIRATORY PROTECTION</u>	<u>WORKED DISCONNECT USED BREATHING AIR</u>
1/26	GAZANA	10.1	34.0 46.3
2/20	GAMBADA	1.25 4.81	17.1 2.94
2/23	OSCO BELLONA	0.19	2.64 9.13
5/26	GAZANA	0.04	1.52 0.19
6/24	GAMBADA	0.45	0.83 0.94
9/3	TARQUIN ROVER	0.0	12.1 8.3
10/1	SUNNY PRINCE	0.0	58.3 57.4
10/7	GAZANA	97.5	864.0 900.0
10/18	GARBETA	2.96	0.82 5.99
11/8	SUNNY PRINCE	0.0	47.1 29.6
11/12	SOFIE MAERSK	0.43	100.05 20.72
11/21	GAMBADA	0.39	2.40 1.38
12/1	GAMBADA	0.0	2.78 1.68
12/8	MERWE GAS	0.21	41.4 319.0
12/16	BERGE FISTER	58.4	308.0 257.0
12/29	BERGE FISTER	0.31	32.4 76.8

MARINE

ACCOMPLISHMENTS - 1982

EMPLOYEE EDUCATION PROGRAM - 100% PARTICIPATION

CONTINUOUS AIR MONITOR IN SERVICE - DOCK #2

PERSONNEL MONITORING OF BENZENE EXPOSURES IN CONJUNCTION WITH
PHENOL SURVEYS.

MORE SELECTIVE PERSONNEL MONITORING DETERMINED BY PREVIOUS
EXPOSURE DATA.

MONITOR FOR FRESH AIR INTAKE TO CONTROL ROOM DOCK #2.

MARINE

GOALS - 1983

PROTECTING THE PHYSICAL WELFARE OF EMPLOYEES BY REDUCING CHEMICAL EXPOSURES.

CONTINUING EDUCATION OF EMPLOYEES - CONSEQUENCES OF OVEREXPOSURE TO CHEMICALS, SURVEY RESULTS, ETC.

IMPROVEMENTS TO FAN BLOWER VENT SYSTEM - USED TO VENT BENZENE VAPORS AWAY FROM PERSONNEL LOADING BARGES - DOCK #2.

CONTINUING SELECTIVE MONITORING WITH EMPHASIS ON PERSONNEL EXPOSURES TO SUSPECT CARCINOGENS.

RESCUE BOAT AND MOTOR - DOCK #1

REBUILDING DOCK #1 - FOUR YEAR PROGRAM

CONTINUING EMPHASIS ON LOWERING VINYL SHIP DISCONNECT EXPOSURES.