

INDUSTRIAL HYGIENE REVIEW - 1981

AGENDA

1. 1981 ACCOMPLISHMENTS
 - A. LHC I
 - B. LHC II
 - C. LHC III
2. SUMMARY OF I. H. MONITORING DATA
 - A. LHC I
 - B. LHC II
 - C. LHC III
3. MEDICAL DATA REVIEW
4. GOALS AND PLANS FOR 1982

DO 097923
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ACCOMPLISHMENTS LHC III 1981

1. Every three months CBC and urinary phenols were run on all the OT's and S.O.T.'s. O.S.'s were included at six months intervals.
2. Every personnel were monitored for potential exposure to benzene while working in clean up of pyrolysis gasoline spills. Urinary samples were collected at the beginning of the day and at the end of the day to check for any increase in phenol levels. Everyone did wear a half face respirator while working at the spill.
3. A noise survey was run in November. Signs were posted indicating the highest noise area. (Above 90 decibels)
4. Sixty nine boxes to hold six half face respirators were mounted in various sections of the plant. This eliminated the need to carry around a respirator. Once a month the boxes are checked to see that they contain the required number of respirators.
5. We had a 99% participation in the respirator fit test program for the operators, and 84% participation in the program from the technical personnel.

SUMMARY OF INDUSTRIAL HYGIENE
MONITORING DATA

1. JANUARY 16, 1981 - CLEAN UP OF RAIN WATER PIT
2. JANUARY 21, 1981 - CLEAN UP DITCH BY LHC II
3. MARCH 1, 1981 - CLEAN UP OF RAIN WATER PIT
4. JUNE 10, 1981 - ROUTINE PERSONNEL EXPOSURE SURVEY
5. DECEMBER 13, 1981 - CLEAN UP OF OIL WHEN SEAL ON PUMP 10B BLEW
6. DECEMBER 19,20,21 - TANK 1601B RAN OVER INTO THE DIKE AREA AROUND
THE TANK

DO 097925
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January 10, 17, 18 & 19 1981

EMPLOYEE EXPOSURE SUMMARY

QUARTER 1st YEAR 1981FILLED IN BY W. Herrick

DR#

IHG 10 ppm

MINIMAL DETECTABLE

PLANT LHC III BLOCK 68 STRESS Benzene LIMIT AND UNIT 0.5 ppm

		PERSONNEL							EXCURSION					AREA				
NO.	JOB CLASS	AREA/ TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT		3	8 hrs	20	1.56	5.40											
03	SOT		3	8 hrs	12	1.61	4.22											
04	OS		3	8 hrs	2	1.16	1.38											
05	SS		3	8 hrs	1	0.40	0.40											
06	EDO																	
07	LAB																	
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT MAINT																	
16	MATL CONT																	
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG. MGR.																	
26	MFG TECH																	
28	CHEMIST		3	8 hrs	1	0.22	0.22											
29	SET SUPV.																	
30	SHIP COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENT (Use reverse side)

CLEAN UP OF RAIN WATER PIT - EMULSION DEVELOPED IN C-20

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EMPLOYEE EXPOSURE SUMMARY

QUARTER 1st YEAR 1981FILLED IN BY W. Herrick

DR#

IHG 100 ppm

MINIMAL DETECTABLE

PLANT LHC III BLOCK 68 STRESS Toluene LIMIT AND UNIT 0.5 ppm

		PERSONNEL							EXCURSION					AREA				
NO.	JOB CLASS	AREA/ TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT		3	8 hrs	20	2.93	9.9											
03	SOT		3	8 hrs	12	3.30	9.17											
04	OS		3	8 hrs	2	1.93	3.20											
05	SS		3	8 hrs	1	0.86	0.86											
06	EDO																	
07	LAB																	
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT																	
13	MAINT																	
16	MATL																	
16	CONT																	
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG.																	
24	MGR.																	
26	MFG																	
26	TECH																	
28	CHEMIST		3	8 hrs	1	0.41	0.41											
	SET																	
29	SUPV.																	
	SHIP																	
30	COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENTS (Use reverse side)

CLEAN UP OF RAIN WATER PIT - EMULSION DEVELOPED IN C-20

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CLEAN UP RAIN WATER PIT

(FIRST SPILL)

8-HOUR - *TWA

NAME	S. S. #	PPM BENZENE	PPM TOLUENE
JAN. 16, 1981			
C. K. Eagles	437-02-2267	5.4	9.9
S. C. New	250-04-6709	0.22	0.41
D. L. D'Amond	437-66-4769	2.82	4.31
H. Alford	434-88-2220	1.12	1.86
M. F. Browning	437-07-7067	4.22	9.17
D. L. Waits	319-42-1580	0.40	0.86
A. D. Abbott	439-90-9820	5.35	9.85
R. K. Brown	437-02-1933	0.67	1.13
P. J. Musgrow	439-88-8998	0.56	1.20
K. J. Thibodeaux	437-02-1029	2.05	2.40
JAN. 17, 1981			
J. R. Brou	439-84-4057	2.10	3.32
R. J. Aucoin	437-70-9944	1.98	3.61
R. V. Peairs	435-90-6213	0.88	1.80
A. Heinzen	436-21-2065	2.24	3.38
M. L. Percle	436-04-2818	3.03	6.05
S. J. Colletti	435-86-4490	1.92	3.83
J. P. Palmer	439-98-1498	1.38	3.20
C. J. Davenport	437-88-6092	0.72	1.38
R. K. Brown	437-02-1933	2.08	1.28
R. B. McClelland	436-84-7380	0.93	0.65
JAN. 18, 1981			
C. H. Juge	434-98-9830	1.75	4.36
J. P. Templet	438-96-5485	1.06	2.66
W. Reed	434-98-9908	0.04	0.05
C. K. Eagles	437-02-2267	0.02	0.03
M. L. Williams	435-17-5602	1.08	2.50
R. Johnson	433-82-2754	1.86	3.93
F. L. Jamison	435-82-8244	1.54	4.98
K. C. Joseph	438-08-2135	2.70	5.67
K. R. Leatherman	439-84-6647	0.43	1.00
T. B. Pitre	435-96-9940	0.70	1.52
J. L. Davis	436-68-7843	0.04	0.26
S. Neal	351-48-8393	0.05	0.31
S. P. Rawls	433-70-9119	0.25	1.21
JAN. 19, 1981			
J. R. Brou	439-84-4057	0.75	2.03
R. V. Peairs	435-90-6213	0.74	2.05
A. D. Abbott	439-90-9820	0.42	1.06
C. J. Davenport	437-88-6092	--	--

*TWA TIME WEIGHTED AVERAGE

DO 097928
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January 20, 21, 22, 23,
24 & 25, 1981

EMPLOYEE EXPOSURE SUMMARY

QUARTER 1st YEAR 1981
IHG 10 ppm

FILLED IN BY W. Herrick

DR#
MINIMAL DETECTABLE

PLANT LHC III BLOCK 68 STRESS Benzene LIMIT AND UNIT 0.5 ppm

[illegible]

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

##COMMEN. (Use reverse side)

CLEAN UP OF PY. GAS IN DITCH AT LHC II - PY GAS FROM S-31 RAN OVER

DO 097929
CONFIDENTIAL

EMPLOYEE EXPOSURE SUMMARY

QUARTER 1st YEAR 1981

FILLED IN BY W. Herrick

DR#

IHG 100 ppm

MINIMAL DETECTABLE

PLANT LHC III BLOCK 68 STRESS Toluene LIMIT AND UNIT 0.5 ppm

		PERSONNEL							EXCURSION					AREA				
NO.	JOB CLASS	AREA/ TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT		3	8 hrs	8	0.34	.61											
03	SOT		3	8 hrs	16	2.08	22.0											
04	OS		3	8 hrs	7	1.94	9.95											
05	SS		3	8 hrs	1	0.16	0.16											
06	EDO																	
07	LAB																	
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT MAINT																	
16	MATL CONT																	
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG. MGR.																	
26	MFG TECH																	
28	CHEMIST SET																	
29	SUPV. SHIP																	
30	COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENT (Use reverse side)

CLEAN UP OF PY GAS IN DITCH AT LHC II - PY GAS FROM S-31 RAN OVER

DO 097930
CONFIDENTIAL

SECOND CLEAN UP OPERATION

(DITCH BY LHC II)

NAME	S. S. #	TWA BENZENE	POTENTIAL TWA TOLUENE
<u>1-20-81</u>			
S. Neal	351-48-8393	1.00	.50
J. L. Gill	433-04-9730	36.3	22.0
M. P. Cedato	437-88-3476	1.90	1.60
N. P. Hidalgo	433-74-1115	1.21	0.49
C. B. McCoy	264-21-2151	1.76	0.83
E. Amy	433-70-7302	1.76	1.89
C. N. Efferson	433-17-8497	3.15	1.37
T. F. Russell	435-76-3285	0.28	0.16
J. E. Huff	435-17-2757	0.45	0.28
T. B. Pitre	435-96-9940	0.57	0.41
J. P. Templet	438-96-5485	0.57	0.41
D. M. Wallace	377-52-7188	0.34	0.38
C. K. Eagles	437-02-2267	0.59	0.47
M. L. Williams	435-17-5602	0.35	0.27
R. Johnson		0.20	0.27
R. J. Aucoin	437-70-9944	0.72	0.61
<u>1-21-81</u>			
E. P. Hymel	436-92-5795	.01	.01
C. R. Williams	433-90-6009	.08	0.11
P. C. Atkinson	437-68-1893	0.05	0.06
C. M. Carlin	434-88-0500	8.16	6.38
R. L. Fredricks	437-82-5468	9.41	9.95
<u>1-22-81</u>			
J. M. Decuir	438-15-5301	.09	0.09
S. J. Colletti	435-86-4490	.09	0.08
R. Johnson	433-82-2754	.07	0.07
J. P. Templet	438-96-5485	0.41	0.38
<u>1-23-81</u>			
R. G. Gay	434-98-2985	.05	0.04
M. L. Percle	436-04-2818	.25	0.22
<u>1-24-81</u>			
R. K. Brown	437-02-1933	.03	0.03
C. L. Ginn	433-82-0263	.02	0.03
L. A. Russell	309-62-0846	.02	0.03

DO 097931
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-2-

NAME	S S #	TWA BENZENE	POTENTIAL TWA TOLUENE
<u>1-25-81</u>			
C. W. Efferson	433-17-8497	-	-
J. C. Huff	435-17-2757	-	-
C. H. Juge	434-98-9803	.15	0.17
W. Read	434-98-9908	.06	0.09
M. L. Williams	435-17-5602	-	-

DO 097932
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CLEAN UP OF RAINWATER PIT

MARCH 1981

NAME	S.S.NO.	JOB CLASS	PARTS PER MILLION	
			BENZENE	TOLULENE
W. READ	434-98-9908	O.T.	0.12	0.01
K. R. LEATHERMAN	439-84-6647	O.T.	0.14	1.0
C. H. JUGE	434-98-9830	O.T.	0.34	0.87
T. M. DEAN	437-78-8668	S.O.T.	0.24	0.39
J. J. HIEMENZ	381-52-3616	TECH.	0.18	0.25
C. L. DESHOTEL	436-60-4704	O.S.	0.04	0.06
C. L. RAYMOND	546-88-9998	O.T.	0.40	0.67
T. M. DEAN	437-78-8668	S.O.T.	0.09	0.14
J. J. HIEMENZ	381-52-3616	TECH.	0.08	0.14
D. W. HOOVER	436-92-6660	O.T.	0.05	0.14
M. L. WILLIAMS	435-17-5602	O.T.	0.04	0.13
J. M. DECUIR	438-15-5301	S.O.T.	0.24	0.82
S. J. COLLETTI	435-86-4490	S.O.T.	0.11	0.08
R. JOHNSON	433-82-2754	S.O.T.	0.06	0.10
C. L. BOLEN	436-56-5812	O.S.	0.05	0.16
M. P. CEDATOL	437-88-3476	S.O.T.	2.5	3.2
R. G. GAY	434-98-2985	S.O.T.	0.08	0.24
C.R. WILLIAMS	433-90-6009	S.O.T.	0.24	0.06
M. L. PERCLE	436-04-2818	O.T.	0.08	0.38
C. L. RAYMOND	546-88-9988	O.T.	0.08	0.10
R. BLACKWELL	439-94-2663	O.S.	8.2	6.9
C. M. CARLIN	434-88-0508	S.O.T.	4.7	4.5
C. B. Mc COY	264-21-2151	O.S.	2.1	3.2
WILLIAM M. HERRICK				

DO 097933
CONFIDENTIAL

March, 1981

EMPLOYEE EXPOSURE SUMMARY

QUARTER 1st YEAR 1981

FILLED IN BY W. Herrick

DR#

IHG 10 ppm

MINIMAL DETECTABLE

PLANT LHC III

BLOCK 6E

STRESS Benzene

LIMIT AND UNIT 0.5 ppm

PERSONNEL									EXCURSION					AREA				
NO.	JOB CLASS	AREA/ TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT		3	8 hrs	8	0.15	0.40											
03	SOT		3	8 hrs	9	0.92	4.7											
04	OS		3	8 hrs	4	2.59	8.2											
05	SS																	
06	EDO																	
07	LAB																	
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT																	
16	MAINT																	
16	MATL																	
16	CONT																	
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG.																	
24	MGR.																	
26	MFG																	
26	TECH																	
28	CHEMIST		3	8 hrs	2	.13	.18											
	SET																	
29	SUPV.																	
	SHIP																	
30	COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENT (Use reverse side)

CLEAN UP OF RAIN WATER PIT

DO 097934
CONFIDENTIAL

EMPLOYEE EXPOSURE SUMMARY
 FILLED IN BY W. Herrick DR# _____
 PLANT W. Herrick BLOCK 68 STRESS Toluene MINIMAL DETECTABLE LIMIT AND UNIT _____ ppm
 QUARTER 1st YEAR 1981
 IHG 100 ppm

		PERSONNEL							EXCURSION					AREA				
NO.	JOB CLASS	AREA/ TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT		3	8 hrs	8	0.41	1.0											
03	SOT		3	8 hrs	9	1.06	4.5											
04	OS		3	8 hrs	4	2.57	6.9											
05	SS																	
06	EDO																	
07	LAB																	
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT MAINT																	
16	MATL CONT																	
19	MGRS/NON-OP																	
20	AREA SAMP (NO JC)																	
24	MFG. MGR.																	
26	MFG TECH																	
28	CHEMIST SET	↗	3	8 hrs	2	0.10	0.14											
29	SUPV. SHIP																	
30	COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENT (Use reverse side)

CLEAN UP OF RAIN WATER PIT

DO 097935
 CONFIDENTIAL



DOW CHEMICAL U.S.A.

June 22, 1981

LOUISIANA DIVISION
P. O. BOX 150
PLAQUEMINE, LOUISIANA 70764
804 389-8000

J. D. Weldon
W. Chew
J. T. Holloway
B. Ledford

cc: Shift Supervisors

Sample Date - June 10, 1981

Operations - Day Shift

<u>O. T.</u>	<u>PPM - TWA - Hrs.</u>	
	<u>Benzene</u>	<u>Toluene</u>
C. Raymond	0.16	0.30
D. Landry	0.05	0.20
P. Stone	0.15	0.22
C. Davenport	0.19	0.20
M. Patin	0.05	0.29

<u>S.O.T.</u>		
Randy Gay	0.05	0.20
S. J. Colletti	0.84	0.45
J. Decuir	0.34	0.10
M. Percle	0.58	0.10
C. Williams	*13.64	0.17

<u>O.S.</u>		
Rodney Blackwell	0.02	0.25
Mike Dean	0.06	0.23
C. Deshotel	0.03	0.20
P. Atkinson	0.01	0.46
P. Hymel	0.03	0.82

<u>S.S.</u>		
M. Jenkins	0.02	0.31

LAB SUPERVISOR

W. Herrick	0.02	----
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*Sampled Benzene Barge - Wore half face respirator

Maintenance (EDO)

O. T.

PPM - 8 Hr. TWA
Benzene Toluene

R. Brou	0.04	----
A. Heinzen	0.37	0.21
J. Gilmore	0.06	----
D. Hoover	*1.77	0.80
W. Reed	*8.74	2.32
K. Leatherman	0.09	----

O. T. T.

L. Viator	*1.41	----
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S. O. T.

M. Cox	0.06	----
R. Peairs	0.04	----

O. S.

C. Arceneaux	0.11	----
J. Sibley	0.10	----
B. Gremillion	0.06	----

S. S.

J. T. Whitman	0.15	----
E. Supple	0.07	----

**Sampled Drums

*Trained in Benzene and Lab

William Herrick
Laboratory LHC III

WH/ss

FILLED IN BY W. HEISLER

EMPLOYEE EXPOSURE SUMMARY

QUARTER 2 YEAR 1951

PLANT LHC II

BLOCK 68

STRESS PITTING

MINIMAL DETECTABLE
LIMIT AND UNIT

.01 ppm

0002-5058

NO.	JOB CLASS	AREA/TASK	PERSONNEL					AREA				EXCURSION			
			*PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT	LHC I 9		8 HR	1	1.4	1.4	correct							
02	OT			8 HR	5	.12	1.19								
03	SOT			8 HR	4	.45	0.84								
04	OS			8 HR	5	0.03	0.06								
05	SS			8 HR	1	0.02	0.02								
06	EDO			8 HR	13	0.90	2.7								
26	LAB SOFT TECH	9		8 HR	1	0.02	0.02								
08	TECH														
09	CLER.														
10	INSTR														
11	LABORER														
12	SUMMER														
13	CONT MAINT														
14	NON-OS SPEC.														
15	SECUR.														
16	MATL CONT														
17	LOADING														
18	T/C CLNG														
19	MGRS/NON-OP														
20	AREA SAMP (NO JC)														

DO 097938
CONFIDENTIAL

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

June 10, 1981

EMPLOYEE EXPOSURE SUMMARY

QUARTER 2nd YEAR 1981

FILLED IN BY W. Herrick

DR#

IHG 10 ppm

MINIMAL DETECTABLE

PLANT LHC III BLOCK 68 STRESS Benzene LIMIT AND UNIT 0.5 ppm

PERSONNEL									EXCURSION					AREA				
NO.	JOB CLASS	AREA/ TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT			8 hrs	5	0.12	0.19											
03	SOT			8 hrs	4	0.45	0.84		sampled Bz barge	1	13.64	13.64						
04	OS			8 hrs	5	0.03	0.06											
05	SS			8 hrs	1	0.02	0.02											
06	EDO																	
07	LAB			8 hrs	1	0.02	0.02											
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT MAINT																	
16	MATL CONT																	
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG. MGR.																	
26	MFG TECH																	
28	CHEMIST SET																	
29	SUPV. SHIP																	
30	COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENT. (Use reverse side)

*WORE HALF FACE RESPIRATOR

REGULAR PERSONNEL EXPOSURE SURVEY

DO 097939
CONFIDENTIAL

EMPLOYEE EXPOSURE SUMMARY

QUARTER 2nd YEAR 1981

FILLED IN BY W. Herrick

DR#

IHG 100

PLANT LHC III BLOCK 68

STRESS Toluene

MINIMAL DETECTABLE
LIMIT AND UNIT 0.5 ppm

		PERSONNEL							EXCURSION					AREA				
NO.	JOB CLASS	AREA/ TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT			8 hrs	5	0.24	0.30											
03	SOT			8 hrs	5	0.20	0.45											
04	OS			8 hrs	5	0.39	0.82											
05	SS			8 hrs	1	0.02	0.31											
06	EDO																	
07	LAB			8 hrs	1	< .01	< .01											
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT																	
16	MAINT																	
16	MATL																	
19	CONT																	
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG.																	
24	MGR.																	
26	MFG																	
26	TECH																	
28	CHEMIST																	
29	SET																	
29	SUPV.																	
30	SHIP																	
30	COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENT (Use reverse side)

REGULAR PERSONNEL EXPOSURE SURVEY

DO 097940
CONFIDENTIAL



DOW CHEMICAL U.S.A.

November 6, 1981

LOUISIANA DIVISION
P. O. BOX 180
PLAQUEMINE, LOUISIANA 70764
804 388-8000

To: W. Chew
K. Zezulka
B. Ledford
Dr. Flanagan

Results of air samples taken around the reactor area
during turnaround in the benzene plant in October, 1981:

DATE

10/20/81

AREA of	<u>E-511 A</u>	<u>E-522 B</u>	<u>R-520</u>
PPM (WT.) BENZENE	0.07	0.03	0.03
PPM (WT.) TOLUENE	0.14	0.03	0.01
VOLUME AIR SAMPLED	25.4 L.	16.1 L.	20.4 L
WORK GOING ON	Unloading Catalyst		

DATE

10/28/81

AREA OF	<u>E-522A</u>	<u>E-522 B</u>	<u>R-520</u>
PPM (WT.%) BENZENE	0.02	0.07	0.04
PPM (WT.%) TOLUENE	0.24	2.2	0.87
VOLUME AIR SAMPLE	24.0 L	20.2 L.	24.8 L
WORK GOING ON	Dumping Liquid from		
FILE DATA BOOK	0040		R-520

William Herrick

William Herrick

Lab - LHC III

SS

DO 097941
CONFIDENTIAL

AN OPERATING UNIT OF THE DOW CHEMICAL COMPANY



DOW CHEMICAL U.S.A.

December 16, 1981

LOUISIANA DIVISION
P. O. BOX 160
PLAQUEMINE, LOUISIANA 70764
804 389-8000

To: J. D. Weldon
J. T. Holloway
Dr. Flanagan

W. Chew
B. Ledford

cc: Shift Supervisors

Vapor monitoring for Benzene and Toluene using 3M charcoal badges during clean up of Quench Oil-Pyrolysis Gasoline spill after seal on Pump P10B had blown.

<u>MAN NO.</u>	<u>DATE</u>	<u>8 HR-TWA</u> <u>PPM BENZENE</u>	<u>8 HR-TWA</u> <u>PPM TOLUENE</u>
433300	12/13/81	0.08	0.09
433832	"	0.08	0.27
433842	"	0.19	0.40
434175	"	0.13	0.15
432277	"	0.07	0.16
433808	"	0.08	0.26
434158	"	0.05	0.04
433828	"	0.12	0.38
431211	"	0.11	0.13
433781	"	0.04	0.10
70745	"	0.14	0.08

William M. Herrick

William M. Herrick
Lab - LHC III

ss

EMPLOYEE EXPOSURE SUMMARY

QUARTER 4th YEAR 1981FILLED IN BY W. Herrick

DR#

IHG 10 ppm

MINIMAL DETECTABLE

PLANT LHC III BLOCK 68 STRESS Benzene LIMIT AND UNIT .5 ppm

PERSONNEL

EXCURSION

AREA

NO.	JOB CLASS	AREA/ TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT		3	8 hrs	5	0.10	0.19											
03	SOT		3	8 hrs	2	0.10	0.12											
04	OS		3	8 hrs	3	0.10	0.14											
05	SS		3	8 hrs	1	0.11	0.11											
06	EDO																	
07	LAB																	
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT MAINT																	
16	MATL CONT																	
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG.																	
26	MFG TECH																	
28	CHEMIST SET																	
29	SUPV. SHIP																	
30	COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENT. (Use r v rse side)

CLEAN UP OF PYROLYSIS GAS - QUENCH OIL - SEAL BLOW ON P-10B

DO 097943
CONFIDENTIAL

12-15-81

EMPLOYEE EXPOSURE SUMMARY

QUARTER 4th YEAR 1981FILLED IN BY W. Herrick

DR#

IHG 100 ppm

MINIMAL DETECTABLE

PLANT LHC III BLOCK 68 STRESS Toluene LIMIT AND UNIT 0.5 ppm

		PERSONNEL							EXCURSION					AREA				
NO.	JOB CLASS	AREA/TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT		3	8 hrs	5	0.19	0.40											
03	SOT		3	8 hrs	2	0.33	0.38											
04	OS		3	8 hrs	3	0.11	0.16											
05	SS		3	8 hrs	1	0.13	0.13											
06	EDO																	
07	LAB																	
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT MAINT																	
16	MATL CONT																	
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG. MGR.																	
26	MFG TECH																	
28	CHEMIST																	
29	SET SUPV.																	
30	SHIP COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENT (Use reverse side)

CLEAN UP OF PYROLYSSI GAS & QUENCH OIL - SEAL BLOW ON P-10B

DO 097944
CONFIDENTIAL



DOW CHEMICAL U.S.A.

January 6, 1982

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

To: J. D. Weldon
J. T. Holloway
W. Chew

B. Ledford
Dr. Flannigan

cc: Shift Supervisors

Vapor monitoring for Benzene and Toluene using 3M charcoal badges during clean up of Pyrolysis Gasoline - Fuel Oil spill after overfilling Tank 1601B on December 19, 1981. Every one wore a respirator when working on the clean-up.

Name	Date	8-hour TWA PPM Benzene	PPM Toluene
D. Wallace	12/19/81	1.32	0.62
C. Juge	"	0.33	0.71
T. Bradley	"	0.16	0.40
T. Morrison	"	0.21	0.45
A. Hebert	12/20/81	0.02	0.03
J. Palmer	"	0.03	0.06
S. Dotson	"	0.02	0.08
C. Langlois	"	0.03	0.05
J. Gill	"	0.08	0.09
D. D'Armond	"	0.09	0.12
C. Efferson	"	0.06	0.04
D. Landry	"	0.22	0.14
R. Gay	"	0.03	0.13
T. Pitre	"	0.19	0.17
C. Davenport	"	0.04	0.07
J. Hill	12/21/81	0.03	0.13
B. Perry	12/22/81	0.13	0.18
K. Dixon	"	0.10	0.15
A. Bourgeois	"	0.08	0.16
K. Dixon	12/23/81	0.04	0.02
B. Perry	"	0.13	0.10
C. Langlois	"	0.12	0.01
S. Rawls	"	0.01	0.02
S. Rawls	12/24/81	0.04	0.01
D. Fontane	"	0.05	0.02
K. Dixon	"	0.08	0.04
B. Perry	"	0.07	0.03

DO 097945
CONFIDENTIAL

Name	Date	8-Hour TWA PPM Benzene	PPM Toluene
C. Eagles	12/28/81	0.09	0.15
A. Heinzen	"	0.08	0.11
J. Gilmore	"	0.06	0.05

William m. Herrick

Bill Herrick

ss

Lab - LHC III

DECEMBER 19, 20, 21, 22,
24, & 28 - 1981

EMPLOYEE EXPOSURE SUMMARY

QUARTER 4th YEAR 1981
IHG 10 ppm

FILLED IN BY W. Herrick

DR#
MINIMAL DETECTABLE

PLANT LHC III BLOCK 58 STRESS Benzene LIMIT AND UNIT 0.5 ppm

PERSONNEL								EXCURSION					AREA					
NO.	JOB CLASS	AREA/ TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT		3	8 hrs	15	0.10	0.22											
03	SOT		3	8 hrs	10	0.08	0.33											
04	OS		3	8 hrs	3	0.48	1.32											
05	SS																	
06	EDO																	
07	LAB																	
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT																	
13	MAINT																	
16	MATL																	
16	CONT																	
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG.																	
24	MGR.																	
26	MFG																	
26	TECH																	
28	CHEMIST		3	8 hrs	2	0.19	0.21											
29	SET																	
29	SUPV.																	
30	SHIP																	
30	COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENT (Use reverse side)

Clean up of Spill after overfilling T-1601B (Mixture of Pyrolysis Gas & Fuel Oil)

DO 097947
CONFIDENTIAL

22, 24 & 28 - 1981

EMPLOYEE EXPOSURE SUMMARY

QUARTER 4th YEAR 1981

FILLED IN BY Bill Herrick

DR#

IHC 100 ppm

MINIMAL DETECTABLE

PLANT LHC III

BLOCK 68

STRESS Toluene

LIMIT AND UNIT 0.5 ppm

		PERSONNEL							EXCURSION					AREA				
NO.	JOB CLASS	AREA/TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT		3	8 hrs	15	0.10	0.18											
03	SOT		3	8 hrs	10	0.12	0.71											
04	OS		3	8 hrs	3	0.28	0.62											
05	SS																	
06	EDO																	
07	LAB																	
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT																	
16	MAINT																	
16	MATL																	
16	CONT																	
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG.																	
24	MGR.																	
26	MFG																	
26	TECH																	
28	CHEMIST		3	8 hrs	2	0.43	0.45											
29	SET																	
29	SUPV.																	
30	SHIP																	
30	COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENTS: (Use reverse side)

Cl an up of Spill after overfilling T-1601 B (Pyrolysis Gas - Fuel Oil)

DO 097948
CONFIDENTIAL



DOW CHEMICAL U.S.A.

November 24, 1981

LOUISIANA DIVISION
P. O. BOX 160
PLAQUEMINE, LOUISIANA 70764
804 389-8000

To: W. Chew
J. Holloway
J. D. Weldon

NOISE SURVEY - BLOCK 68 1981

DATE	* 5-13-80	**10-17-80	* 11-23
Laboratory	70	68	70
Plant road - 683, by Lab.	81	73	77
N.E. Corner Control House	83	78	87
Pumps - 1205 (within 3')	92	90	93
On road - 683 - opposite P-1205	--	86	93
On road - 683 - opposite K-71	83	75	93
On road - 683 - opposite S.G. Bldg.	--	75	87
On road - opposite E-1230	--	--	92
N. Boundry on road 683	73	62	74
N. side cooling tower	--	72	78
W. side C.T. - opposite P-1000E	--	84	88
S.E. corner cooling tower	--	80	77
Underneath fans opposite C.B. 590	--	84	89
By compressor house K-551	--	86	89-
Between C-540 and clay beds	--	84	87-
Between H ₂ F-520 and RX Feed	--	80	83
By Quench oil pumps P-10	--	80	87
By E-9's South Side	80	--	87
South Side K-71	83	73	101
Opposite K-120 Center of walkway	94	84	94-
Opposite D-121 Center of walkway	95	77	95
Opposite D-131 Center of walkway	90	70	91
Opposite C- 51 Center of walkway	83	66	87
Opposite C- 52	87	69	87
Opposite A - House - 10	80	67	83
N.W. corner Block 68	--	--	72
Opposite C-151 Center of walkway	--	--	82
Opposite C- 54 Center of walkway	--	--	86-
Opposite C- 57 Center of walkway	--	--	84

DO 097949
CONFIDENTIAL

NOISE SURVEY

DATE	* 5-13-80	**10-17-80	*11-23
W. of LPSH - 1A on road	83	72	86
West side K-130	93	64	9
North west corner D-121	97	--	94
West side K-120	--	--	93-
West of D-122	100-104	--	95
West of Reactor 2B on road	--	64	77
Between R-1B-R1A	--	--	81
Opposite Pump 1215 A	92	80	94
Opposite 1 E B	90	86	89
Opposite C-20	89	88	93
Between HPSH 1A and 1B	89	80	92
Between 1F-1 and 1F-7	--	82	93
Between waste heat boiler B 1A and B1B	--	76	88
South side Boiler B-3	--	90	96
West side B-3 on first step	--	94	102
South end warehouse (on road)	--	68	72
East side warehouse (on road)	--	70	75
East side D-1400	--	--	81
East side D-1400 (Blowing Down)	--	--	105

* Ethylene and Benzene Plants both running

** Benzene Plant running. Ethylene down.

William M. Herrick

William Herrick
LAB - LHC III

ss

DO 097950
CONFIDENTIAL

GOALS AND PLANS FOR 1982

1. CONTINUE TO INFORM ALL PLANT PERSONNEL ON BENZENE TOXICITY DATA.
2. TAKE EXCURSION DATA IN AREA WHERE PERSONNEL MAY BE EXPOSED TO BENZENE WHILE CHANGING FILTERS, OR PUMP SEALS AND ETC.
3. DEVELOP METHOD FOR RUNNING AIR SAMPLES FOR DICYCLOPENTADIENE, METHYL CYCLOPENTADIENES AND BIPHENYL.
4. TAKE EXCURSION DATA IN VARIOUS AREAS OF THE PLANT TO DETERMINE EXPOSURE TO DICYCLOPENTADIENE, BIPHENYL AND METHYL CYCLOPENTADIENE.
5. START A PROGRAM TO DETERMINE HOW MUCH EXPOSURE THERE IS TO WELDING FUMES IN THE WAREHOUSE.
6. COLLECT AIR SAMPLES TO CHECK FOR METALS WHEN CATALYST IS BEING DUMPED.
7. CONTINUE TO MONITOR PERSONNEL FOR EXPOSURE TO BENZENE WHEN CLEANING UP SPILLS. THIS INCLUDES TAKING URINE SAMPLES BEFORE AND AFTER THE WORK PERIOD.
8. RUN YEARLY NOISE SURVEY.

BH/ss
3/22/82

DO 097951
CONFIDENTIAL

1981 ACCOMPLISHMENTS

LHC I

1. Completed annual 8 hour exposure monitoring for benzene and toluene. All job classifications were monitored in the survey.
2. Completed annual area noise survey. Caution signs are located in areas where noise levels exceed 85 dB.
3. All employees were informed of the benzene, toluene, and noise exposure results. Consequences of overexposure were also covered for benzene, 1-3 butadiene, TBC, caustic, MMC, slop oil, styrene, toluene, xylene, and noise.
4. Twenty-seven boxes containing six half-face (Comfo-II) respirators were mounted throughout Blocks 38 and 39. This eliminated the need to carry a respirator in these areas. The boxes are checked monthly to make sure each box contains six unused respirators.
5. We had 100% participation in the respirator fit test program, including operators, technical personnel, and permanent block contract maintenance.

3-22-82

DO 097952
CONFIDENTIAL

1981 ACCOMPLISHMENTS

LHC II

1. Fit-tested 100% of permanent block personnel for the "Comfo II" respirators.
2. Established 18 respirator "station" throughout the block. Each "station" consists of a bright yellow box, containing 6, "Comfo II" respirators, mounted in a highly visual location. These boxes are maintained by the block Safety Chairman.
3. Continued our program of checking C₃ pumps, when being disassembled for maintenance, for radiation. So far, we have not found any significant radiation.
4. Checked all pumps in the block that pump propane or propylene material, for gamma radiation and discovered only insignificant amounts.

3-22-82

DO 097953
CONFIDENTIAL

LHC I BENZENE EXPOSURE DATA

	1979	1980	1981
8 HR. TLV	10 ppm	10 ppm	10 ppm
Highest ppm	2.4	1.6	0.33
Average ppm	0.4	0.2	0.09
# Samples	14	37	7
O.T.			
Max ppm	2.4	0.32	---
Avg ppm	0.8	0.27	---
Sampled	4	4	---
S.O.T.			
Max ppm	0.6	0.3	0.33
Avg ppm	0.2	0.28	0.33
Sampled	3	5	1
O.S.			
Max ppm	0.9	0.27	0.09
Avg ppm	0.16	0.20	0.08
Sampled	6	6	2
SHIFT SUPV.			
Max ppm	0.03	0.21	0.06
Avg ppm	0.03	0.20	0.06
Sampled	1	2	1
TECHNICAL			
Max ppm	---	0.41	0.04
Avg ppm	---	0.23	0.03
Sampled	---	3	3
CONTRACT MAINTENANCE			
Max ppm	---	1.61	---
Avg ppm	---	0.27	---
Sampled	---	13	---

3-22-82

DO 097954
CONFIDENTIAL

LHC I TOLUENE EXPOSURE DATA

	1979	1980	1981
8 HR. TLV	100 ppm	100 ppm	100 ppm
Highest ppm	1.00	0.29	0.05
Average ppm	0.14	0.15	0.10
# Samples	14	32	7
O.T.			
Max ppm	0.60	0.26	---
Avg ppm	0.20	0.16	---
Sampled	4	4	---
S.O.T.			
Max ppm	0.05	0.27	.05
Avg ppm	0.01	0.15	.05
Sampled	3	5	1
O.S.			
Max ppm	0.04	0.28	.01
Avg ppm	0.01	0.13	.10
Sampled	6	5	2
SHIFT SUPV.			
Max ppm	1.00	0.14	.01
Avg ppm	1.00	0.13	.01
Sampled	1	2	1
TECHNICAL			
Max ppm	---	0.27	.01
Avg ppm	---	0.21	.10
Sampled	---	3	3
CONTRACT MAINTENANCE			
Max ppm	---	0.29	---
Avg ppm	---	0.15	---
Sampled	---	13	---

DO 097955
CONFIDENTIAL

LHC I SHORT TERM EXPOSURE

BENZENE STEL = 25 ppm (15 MIN. EXCURSION)

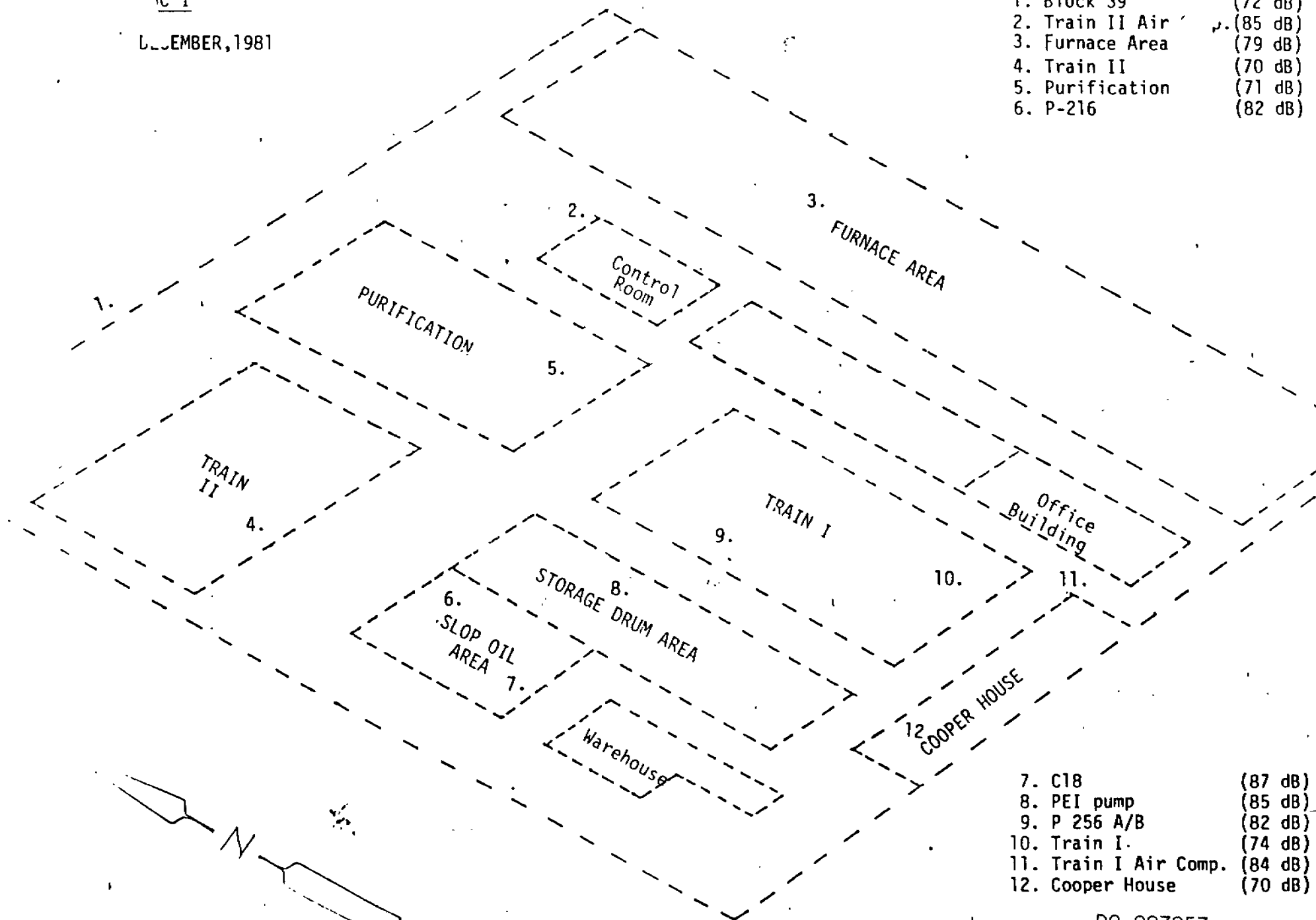
	<u>MAX PPM</u>	<u>AVG PPM</u>	<u>#SAMPLES</u>	
OLD PIT CLEANING	8.8	5.9	3	(1979)
API'S	0.7	0.7	1	(1977)
P 256'S	0.4	0.3	2	(1977)
E 455 CLEANING	1.61	1.61	1	(1980)

DO 097956
CONFIDENTIAL

IC 1

DECEMBER, 1981

- | | |
|-----------------|---------|
| 1. Block 39 | (72 dB) |
| 2. Train II Air | (85 dB) |
| 3. Furnace Area | (79 dB) |
| 4. Train II | (70 dB) |
| 5. Purification | (71 dB) |
| 6. P-216 | (82 dB) |



- | | |
|-----------------------|---------|
| 7. C18 | (87 dB) |
| 8. PEI pump | (85 dB) |
| 9. P 256 A/B | (82 dB) |
| 10. Train I | (74 dB) |
| 11. Train I Air Comp. | (84 dB) |
| 12. Cooper House | (70 dB) |

DO 097957
CONFIDENTIAL

GOALS AND PLANS FOR 1982: LHC I AND LHC II

1. Increase short term excursion sampling for exposure to hazardous chemicals. Concentrate on specific areas of the plant and specific duties which may expose plant personnel to high levels of benzene. Monitor each vessel entry, on an individual basis, for toxic agents.
2. Clean waste oil area to reduce contact with waste oil.
3. Improve documentation of Industrial Hygiene information. Include consequences of overexposure of hazardous chemicals, handling procedures for hazardous materials, and results of exposure surveys in a single volume made accessible to all block personnel. Use this volume to increase employee awareness of Industrial Hygiene procedures and precautions.
4. Collect noise and benzene exposure data during plant shutdowns, startups, and upsets.
5. Repair mufflers on furnace burners and put lead shields on lines and valves which are excessively noisy.
6. Continue annual 8 hour TWA benzene/toluene exposure surveys.
7. Continue area noise exposure surveys and collect personnel noise exposure data.
8. Continue to inform employees of survey results and consequences of overexposure of hazardous chemicals in the block.
9. Test for B radiation from scale on C₃ pumps before beginning maintenance work.
10. Investigate possible overexposure to Kaswool in furnaces.



DOW CHEMICAL U.S.A.

REV
12/81

December 11, 1981

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

To: J. D. Weldon
Cy Barrios
Ron Usie
Bill Ledford

LHC I Vapor Monitoring For Benzene - 12-8-81

<u>Classification</u>	8 Hour TWA <u>PPM Benzene</u>	<u>PPM Toluene</u>
Lab (O.T.)	0.03	0.01
Material Controller	0.04	0.01
Operation Specialist	0.09	0.01
Sr. Operator Tech.	0.33	0.05
✓ Janitor	0.01	0.01
S. Supervisor	0.06	0.01
Operation Spec.	0.07	0.01

William Herrick
William Herrick
Lab - LHC III

ss

DO 097959
CONFIDENTIAL

EMPLOYEE EXPOSURE SUMMARY

FILLED IN BY W. E. L. d. FordDR# 0002-5058QUARTER 4 YEAR 81IHG 10 ppm CPLANT LHC I BLOCK 38STRESS Benzene

MINIMAL DETECTABLE

LIMIT AND UNIT 0.01 ppm

1

PERSONNEL

EXCURSION

AREA

NO.	JOB CLASS	AREA/TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT	9		8h	1	0.03	0.03											
03	SOT			8h	1	0.33	0.33											
04	OS			8h	2	0.08	0.09											
05	SS			8h	1	0.06	0.06											
06	EDO																	
07	LAB																	
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT MAINT			8h	1	0.01	0.01											
16	MATL CONT			8h	1	0.04	0.04											
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG. MGR.																	
26	MFG TECH																	
28	CHEMIST SET																	
29	SUPV. SHIP																	
30	COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENTS (Use reverse side)

DO 097960
CONFIDENTIAL

FILLED IN BY

Ron Hoie

EMPLOYEE EXPOSURE SUMMARY

QUARTER

7

YEAR

01

PLANT

LHC I

BLOCK

38

STRESS

BENZENEMINIMAL DETECTABLE
LIMIT AND UNIT0.03

NO.	JOB CLASS	AREA/ TASK	PERSONNEL					AREA				EXCURSION			
			*PT. EQ.	TWA BASIS	NO. SAMPLES	AVG.	HIGH	SAMPLE DURATION	NO. SAMPLES	AVG.	HIGH	EXCUR. DURATION	NO. SAMPLES	AVG.	HIGH
01	OTT														
02	OT														
03	SOT			8hr	1	0.33	0.33								
04	OS			8hr	2	0.08	0.09								
05	SS			8hr	1	0.06	0.06								
06	EDO														
07	LAB			8hr	1	0.03	0.03								
08	TECH														
09	CLER.														
10	INSTR														
11	LABORER			8hr	1	0.01	0.01								
12	SUMMER														
13	CONT MAINT														
14	NON-OS SPEC!														
15	SECUR.														
16	MATL CONT			8hr	1	0.04	0.04								
17	LOADING														
18	T/C CLNG														
19	MGRS/NON- OP														
20	AREA SAMP (NO JC)														

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

DO 097961
CONFIDENTIAL

FILLED IN BY W.C. Ledford

EMPLOYEE EXPOSURE SUMMARY

DR# 0002-5070

QUARTER 4th YEAR 81

MINIMAL DETECTABLE

IHG 100 ppm

PLANT LHC I BLOCK 38 STRESS Toluene LIMIT AND UNIT 0.01 ppm

PERSONNEL								EXCURSION					AREA					
NO.	JOB CLASS	AREA/ TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT	9		8h	1	0.01	0.01											
03	SOT			8h	1	0.05	0.05											
04	OS			8h	2	0.01	0.01											
05	SS			8h	1	0.01	0.01											
06	EDO																	
07	LAB																	
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT MAINT			8h	1	0.01	0.01											
16	MATL CONT			8h	1	0.01	0.01											
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG. MGR.																	
26	MFG TECH																	
28	CHEMIST SET																	
29	SUPV. SHIP																	
30	COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENTS (Use reverse side)

DO 097962
CONFIDENTIAL

FILLED IN BY W HERRICK

EMPLOYEE EXPOSURE SUMMARY

DR# 0002-5070

QUARTER 4th YEAR 1991

PLANT LHC I BLOCK 38

STRESS TOLUENE

MINIMAL DETECTABLE

LIMIT AND UNIT 101 ppm

ING 100 ppm

PERSONNEL									EXCURSION					AREA				
NO.	JOB CLASS	AREA/ TASK	*PT EQ.	TWA BASIS	NO. SAMP.	AVG.	HIGH	** C	EXCUR. DURATION	NO. SAMP.	AVG.	HIGH	** C	SAMPLE DURATION	NO. SAMP.	AVG.	HIGH	** C
01	OTT																	
02	OT																	
03	SOT			8	1	0.05	0.05											
04	OS			8	2	0.01	0.01											
05	SS			8	1	0.01	0.01											
06	EDO																	
07	LAB			8	1	0.01	0.01											
09	CLER.																	
10	INSTR																	
11	LABORER																	
13	CONT MAINT			8	1	0.01	0.01											
16	MATL CONT			8	1	0.01	0.01											
19	MGRS/NON- OP																	
20	AREA SAMP (NO JC)																	
24	MFG. MGR.																	
26	MFG TECH																	
28	CHEMIST																	
29	SET SUPV.																	
30	SHIP COORD.																	

*PROTECTIVE EQUIPMENT: (1) MOUTHBIT (2) FULL FACE (3) HALF FACE OR DUST (4) AIR SUPPLY (5) HEARING PROTECTION

**COMMENTS (Use reverse side)

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