

~~CONFIDENTIAL~~ Marine Raw 1980

DO 102186
CONFIDENTIAL

REV
8/81

Block MARINE DOCK #1

Person or Area Monitored Francis Washington
FRANCIS BARLOW
M. Bellamy

Sample No 00611

Monitoring for METHYLENE

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Date 1-2-80

CHLORIDE

BARGE DC-304

Job Classification MARINE SPECIALIST Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities LOADING BARGE

VINYL CHLORIDE

Time Started 1120 - 1-2-80

Time Stopped 0750 - 1-3-80

Beginning Flow Rate 100 cc
0.95 MIN. Respirator used ☐ Yes ☒ No

Ending Flow Rate 100 cc
0.90 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Type?

Wind, Temp. and Humidity

SSE @ 3 MPH 55% Humidity

Form filled in by J.L. Marvan, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #1

Block MARINE DOCK #1

Person or Area Monitored Billy Polyer

Sample No 00612

Monitoring for METHYLENE

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Date 1-2-80

CHLORIDE

BARGE DC-304

Job Classification MARINE SPECIALIST Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities LOADING BARGE

VINYL CHLORIDE

Time Started 1120 1-2-80

Time Stopped 0810 - 1-3-80

Beginning Flow Rate 100 cc
0.94 MIN. Respirator used ☐ Yes ☒ No

Ending Flow Rate 100 cc
1.13 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Type?

Wind, Temp. and Humidity

SSE @ 3 MPH 55% Humidity

Form filled in by J.L. Marvan, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102187
CONFIDENTIAL

L-19-73

DDV

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0020-33DATE THIS REPORT 1-29-80CHARGE 61DEPT. MARINE DOCK #2

REPORT OF ANALYSIS

SAMPLE ID	Compound		Total weight det.		PPM	Remarks
	Bz.		mg.			
00602	"		.328		(2.005)	P
00603	"		1.939		(10.812)	P
00617	"		.008		(0.072)	P
00618	"		.009		(0.083)	P
00619	"		3.536		(85.087)	Low at 11
00620	"		50.330		(1187.350)	
00624	"		.006		(0.289)	
00625	"		.071		(3.597)	P
Blank	"		.006			1 PPM W/11

GC Column 13% Dexil 300OVEN TEMP. 80mls Solvent 10 mls CSIDECT. TEMP. 200Blank .006 "NOT SUBTRACTED"MIN DETECTABLE .006 mg.Spikes NONE

H.V. 6.290

Other Analytical Method Dry Ice Extraction

DO 102188
CONFIDENTIAL

BY A.F.M.

SIGNED

Lums

$\frac{\text{milligrams Benzene} \times 24.4 \times 1000}{\text{MW} \times \text{charcoal efficiency} \times \text{liters of air sampled}} = \text{ppm(V)}$

3-25-80
1016

Benzene Exposure at Marine Deck #2

Sample #

00602 $\frac{.328 \times 24.4 \times 1000}{78 \times 1.00 \times 51.15} = 2.005$

00603 $\frac{1.939 \times 24.4 \times 1000}{78 \times 1.00 \times 56.10} = 10.812$

00617 $\frac{.008 \times 24.4 \times 1000}{78 \times 1.00 \times 34.79} = .072$

00618 $\frac{.009 \times 24.4 \times 1000}{78 \times 1.00 \times 34.08} = .083$

00619 $\frac{3.536 \times 24.4 \times 1000}{78 \times 1.00 \times 13.00} = 85.087$

00620 $\frac{50.330 \times 24.4 \times 1000}{78 \times 1.00 \times 13.26} = 1187.350$

00624 $\frac{.006 \times 24.4 \times 1000}{78 \times 1.00 \times 6.5} = .289$

00625 $\frac{.071 \times 24.4 \times 1000}{78 \times 1.00 \times 6.175} = 3.597$

Blank .006

DO 102189
CONFIDENTIAL

PUMP #1

Block MARINE DOCK # 2Person or Area Monitored H. Cavalliere

Sample No 00602

Monitoring for C-5 BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-348☐ Excursion ☐ OtherDate 11/28/79Job Classification MARINE TECH.

Description of task performed during monitoring period

Other Chemicals Present:

including any unusual activities LOADING BARGENONETime Started 0540Time Stopped 1450Beginning Flow Rate 100 cc
1.00 MIN.Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 1.16 MIN.
100 cc

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No07 MPH N-NECalibration Equipment Used? BUBBLETemp. 52°

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 2

Block MARINE DOCK # 2Person or Area Monitored ~~New Dock~~ F. Barlow

Sample No 00603

Monitoring for C-5 BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-348☐ Excursion ☐ OtherDate ~~Dec~~ Nov. 28/79Job Classification MARINE TECH

Description of task performed during monitoring period

Other Chemicals Present:

including any unusual activities LOADING BARGENONETime Started 0540 AM 0540Time Stopped 1450 1450Beginning Flow Rate 0.97 MIN.
100 ccRespirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 1.00 MIN.
100 cc

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No07 MPH N-NECalibration Equipment Used? BUBBLETemp 52°

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102190
CONFIDENTIAL

PUMP # 4

Block MARINE DOCK #2

Person or Area Monitored

F. Sarlow

Sample No 00617

Monitoring for C-5 BENZENEType Sample: ☒ Personnel ☐ Area☐ Excursion ☐ OtherDate 1/13/80BARGE DC-371Job Classification M-5

Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities LOADING BARGENONETime Started 0630Time Stopped 1425Beginning Flow Rate 0.94 MIN.Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 1.10 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoE. 6 c 6 MPH Temp 54°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 5

Block MARINE DOCK #2

Person or Area Monitored

Tony Sensat

Sample No 00618

Monitoring for C-5 BENZENEType Sample: ☒ Personnel ☐ Area☐ Excursion ☐ OtherDate 1/13/80BARGE DC-371Job Classification M-5

Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities LOADING BARGENONETime Started 0830Time Stopped 1425Beginning Flow Rate 0.99 MIN.Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 1.09 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoE. 6 c 6 MPH Temp 54°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102191
CONFIDENTIAL

PUMP #3
Block MARINE DOCK #2 Person or Area Monitored bow of Barge Sample No 00619
Monitoring for C-5 BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-349 ☐ Excursion ☐ Other _____ Date 1-19-80
Job Classification _____ Description of task performed during monitoring period
including any unusual activities PURGING BARGE WITH NITROGEN PRIOR TO
LOADING -
Other Chemicals Present: NITROGEN
Time Started 2020
Time Stopped 2230
100 cc
Beginning Flow Rate 0.91 MIN. Respirator used ☐ Yes ☐ No Type? _____
100 cc Wind, Temp. and Humidity
Ending Flow Rate 1.09 MIN. FROM EAST 5 MPH - 68°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #4
Block MARINE DOCK #2 Person or Area Monitored Center of barge Sample No 00620
Monitoring for C-5 BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-349 ☐ Excursion ☐ Other _____ Date 1-19-80
Job Classification _____ Description of task performed during monitoring period
including any unusual activities PURGING BARGE WITH NITROGEN PRIOR TO
LOADING -
Other Chemicals Present: NITROGEN
Time Started 2020
Time Stopped 2230
100 cc
Beginning Flow Rate 0.96 MIN. Respirator used ☐ Yes ☐ No Type? _____
100 cc Wind, Temp. and Humidity
Ending Flow Rate 1.01 MIN. FROM EAST 5 MPH - 68°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102192
CONFIDENTIAL

PUMP # 4

Block MARINE DOCK #2Person or Area Monitored Francis Barlow

Sample No 00624

Monitoring for C-5 BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-348☐ Excursion ☐ OtherDate 1/24/80Job Classification MS

Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities Meters worn during purging only
(PURGING WITH NITROGEN ONLY)NITROGENTime Started 2115Time Stopped 2220Beginning Flow Rate 100 cc
0.99 MIN.Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 100 cc
1.01 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoS/SW @ 0.5 MPH 54°Calibration Equipment Used? BUBBLEWET - RAINING

NOTE: Job description must be concise and complete.

Form filled in by J. L. Marcan, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 5

Block MARINE DOCK #2Person or Area Monitored Carl Woods

Sample No 00625

Monitoring for C-5 BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-348☐ Excursion ☐ OtherDate 1/24/80Job Classification SMT

Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities - meters worn to purge only
(PURGING WITH NITROGEN ONLY)NITROGENTime Started 2115Time Stopped 2220Beginning Flow Rate 100 cc
0.99 MIN.Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 100 cc
1.10 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoS/SW @ 0.5 MPH 54°Calibration Equipment Used? BUBBLEWET - RAINING

NOTE: Job description must be concise and complete.

Form filled in by J. L. Marcan, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102193
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REPORT OF ANALYSIS

REFERENCE NO. 0020-42DATE THIS REPORT 3-21-80CHARGE 169DEPT. Marine dock #2Samples - Area & Personnel exposure To Benzene at Marine dock #2.

ID	Compound	Total weight det. mg.	Remarks
00759	Benzene	.22 mg.	1 ppm
00760	"	.62 mg.	4 ppm
00761	"	.87 mg.	5 ppm
00762	"	.06 mg.	0.4 ppm
00763	"	2.35 mg.	24 ppm
Blank	"	.01 mg.	
Back sections "All"		< .01 mg.	

GC Column 10' 5% SP-1200OVEN TEMP. 90 °Cmls Solvent 10 ml's CS₂DECT. TEMP. 200 °CBlank .01 mg.MIN DETECTABLE .005 mgSpikes NoneOther Analytical Method Dry Ice ExtractionBY: A. L. M.DO 102194
CONFIDENTIALSIGNED Lee N. S.

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{78.11 \times 1.00 \times \text{liters of air sampled}} = \text{ppm(v)}$$

(molecular wt) (chemical effc.)

3-21-80
NPK

Benzene Exposure - Mervin Deck #2

Sample #

00759 $\frac{.22 \times 24.4}{78.11 \times 52.53} = .001 = 1 \text{ ppm}$

00760 $\frac{.62 \times 24.4}{78.11 \times 54.06} = .004 = 4 \text{ ppm}$

00761 $\frac{.87 \times 24.4}{78.11 \times 51.0} = .005 = 5 \text{ ppm}$

00762 $\frac{.06 \times 24.4}{78.11 \times 49.52} = .0004 = .4 \text{ ppm}$

00763 $\frac{2.35 \times 24.4}{78.11 \times 30.09} = .024 = 24 \text{ ppm}$

Blank .01 mg

* Back up Sections were analyzed and all were found to be less than .01 milligram.

Block MARINE DOCK # 2

Monitoring for BENZENE
BARGE DC-349

Other Chemicals Present:

NONE

Time Started 1115 PM

Time Stopped 745 AM

Beginning Flow Rate 100 cc
0.93 MIN.

Ending Flow Rate 100 cc
0.95 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

Person or Area Monitored ~~HEAVY METALS~~
FREDDY JACKSON

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Sample No UU10U

Date 3-20-80

Job Classification MTT Description of task performed during monitoring period

Including any unusual activities LOADING BARGE TO DISCONNECT

(DISCONNECT NOT MONITORED)

Type? MSA COMFO II

Wind, Temp. and Humidity

FROM W/NW-4 MPH 67° (1115 PM)

FROM N/NW-10-20 MPH 55° (245 AM)

Form filled in by J. L. Mariani, Jr.

Block MARINE DOCK # 2

Monitoring for BENZENE
BARGE DC-349

Other Chemicals Present:

NONE

Time Started 1115 PM

Time Stopped 745 AM

Beginning Flow Rate 100 cc
0.96 MIN.

Ending Flow Rate 100 cc
0.98 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 1 NOLAN BLANCHARD

Person or Area Monitored ~~HEAVY METALS~~

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Sample No 00759

Date 3-20-80

Job Classification SHIFT SUPR. Description of task performed during monitoring period

Including any unusual activities LOADING BARGE TO DISCONNECT

(DISCONNECT NOT MONITORED)

Type? MSA COMFO II

Wind, Temp. and Humidity

FROM W/NW-4 MPH 67° (1115 PM)

FROM N/NW 10-20 MPH 55° (245 AM)

Form filled in by J. L. Mariani, Jr.

DO 102196
CONFIDENTIAL

PUMP #3 TONY SENSAT

Block MARINE DOCK #2Person or Area Monitored ~~TONY SENSAT~~

Sample No 00761

Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-349☐ Excursion ☐ OtherDate 3-20-80Job Classification MTT

Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities LOADING BARGE TO DISCONNECTNONE(DISCONNECT NOT MONITORED)Time Started 1115 PMTime Stopped 745 AMBeginning Flow Rate 0.94 MIN.Respirator used ☒ Yes ☐ NoType? MSA COMFO IIEnding Flow Rate 1.05 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoFROM W/NW-4MPH 67° (1115PM)Calibration Equipment Used? BUBBLEFROM N/NW-10-20MPH 55° (245AM)

NOTE: Job description must be concise and complete.

Form filled in by J.L. Maran, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #4

Block MARINE DOCK #2Person or Area Monitored TOP DECK OF DOCK OPPOSITE
RISER ON BARGE

Sample No 00762

Monitoring for BENZENEType Sample: ☐ Personnel ☒ AreaBARGE DC-349☐ Excursion ☐ OtherDate 3-20-80

Job Classification

Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities LOADING BARGE TO DISCONNECTNONE(DISCONNECT NOT MONITORED)Time Started 1115 PMTime Stopped 745 AMBeginning Flow Rate 0.97 MIN.Respirator used ☐ Yes ☐ No

Type?

Ending Flow Rate 1.09 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoFROM W/NW 4MPH 67° (1115PM)Calibration Equipment Used? BUBBLEFROM N/NW 10-20MPH 55° (245AM)

NOTE: Job description must be concise and complete.

Form filled in by J.L. Maran, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102197
CONFIDENTIAL

PUMP # 5

Block MARINE DOCK # 2

Person or Area Monitored AT BASE OF RISER ON BARGE

Sample No 00763

Monitoring for BENZENE

Type Sample: ☐ Personnel ☒ Area

BARGE DC-349

☐ Excursion ☐ Other

Date 3-20-80

Other Chemicals Present:

NONE

Job Classification Description of task performed during monitoring period

Including any unusual activities LOADING BARGE TO DISCONNECT

(DISCONNECT NOT MONITORED) - THIS PUMP WAS AT BASE OF RISER VENT STACK WHEN ^{LIQUID} BENZENE WAS VENTED OUT FOR A PERIOD OF 4.5 SECONDS TO ONE MINUTE -

Time Start d 1115 PM

Time Stopped 745 AM

Beginning Flow Rate 1.00 MIN. 100 CC

Respirator used ☐ Yes ☐ No

Type?

Ending Fl w Rate 2.37 MIN. 100 CC

Calibration Ch ck Prior to Monitoring? ☒ Yes ☐ No

Calibrati n Equipment Used? BUBBLE

Wind, Temp. and Humidity

FROM W/NW-4 MPH 67° (1115PM)

FROM N/NW-10-20 MPH 55° (245AM)

NOTE: Job d scription must be concise and complete.

Form filled in by J. L. Mareau, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0020-45DATE THIS REPORT 4-2-80CHARGE 93DEPT. T.E.C. (Methanes)

REPORT OF ANALYSIS

MARINE DOCK #1

Samples - Personnel Exposure To Chloroform ~~of Tank C-11~~

ID	Compound	Concentration mg.	PPm(V)	Remarks
00700	Chloroform	1.1 mg.	(1.1)	H. WALKER
00701	"	0.22 "	(1.0)	E. J. HARRIS
00702	"	1.50 "	(1.5)	M. G. HARRIS
00706	"	.30 "	(1.75)	F. JACKSON
00707	"	.37 "	(2.22)	R. PEAIRS
00743	"	.19 "	(1.84)	D. DUPUY
00757	"	<.004"	(<0.04)	D. HAMMONDS

GC Column 6' 15% TCP Temp. 90 °Cmls Solvent 10 mls CS₂ Dect. 200 °CBlank N/D Min. Det. .004 mg.Spikes NONEOther Analytical Method Dry Ice ExtractionDO 102199
CONFIDENTIALBY A.L.M.SIGNED Le M. P. Abbott

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{M.W.} \times \text{Collection Efficiency} \times \text{Liter of Air Sampled}} = \text{ppm(v)}$$

(charcoal)

4-16-80
ADK

Personnel Exposure to Chloroform ~~at Traction Alley~~ MARINE DOCK #1

Sample ID.

~~00630~~ $\frac{.42 \times 24.4 \times 1000}{119.39 \times 1.00 \times 39.0} = 2.51$

~~00631~~ $\frac{.30 \times 24.4 \times 1000}{119.39 \times 1.00 \times 40.17} = 1.52$

~~00632~~ $\frac{.20 \times 24.4 \times 1000}{119.39 \times 1.00 \times 9.38} = 0.51$

00706 $\frac{.30 \times 24.4 \times 1000}{119.39 \times 1.00 \times 34.97} = 1.75$

00707 $\frac{.37 \times 24.4 \times 1000}{119.39 \times 1.00 \times 34.02} = 2.22$

00743 $\frac{.19 \times 24.4 \times 1000}{119.39 \times 1.00 \times 21.15} = 1.84$

00757 $\frac{<.004 \times 24.4 \times 1000}{119.39 \times 1.00 \times 19.58} < 0.04$

DO 102200
CONFIDENTIAL

PUMP # 2

Block MARINE DOCK #1 Person or Area Monitored Freddy Jackson Sample No 00706
Monitoring for CHLOROFORM Type Sample: ☒ Personnel ☐ Area
BARGE FT-8 ☐ Excursion ☐ Other _____ Date 3-12-80
Job Classification MTT Description of task performed during monitoring period
including any unusual activities Periodical checking & loading of
chloroform barge ft-8
Other Chemicals Present: CAUSTIC
Time Started 1000
Time Stopped 1515
100 cc
Beginning Flow Rate 0.90 MIN Respirator used ☐ Yes ☒ No Type? _____
100 cc
Ending Flow Rate 0.90 MIN.
Wind, Temp. and Humidity
S/SW-14 mph - 74° - 88%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete.
Form filled in by J.L. Moreau, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102201
CONFIDENTIAL

Block MARINE DOCK #1
Monitoring for CHLOROFORM
BARGE FT-8

Person or Area Monitored Kandy Yeairs
Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other

Sample No 00707

Date 3-12-80

Other Chemicals Present:

CAUSTIC

Job Classification SMT Description of task performed during monitoring period
including any unusual activities Periodical checking and loading of
chloroform barge ft-8

Time Started 1000

Time Stopped 1515

Beginning Flow Rate 0.90 MIN
100 CC

Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 0.95 MIN
100 CC

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

SSW 14 MPH - 74° - 88%

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK #1
Monitoring for CHLOROFORM
BARGE FT-8

Person or Area Monitored PUMP #4 DENNIS DUPUY
Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other

Sample No 00743

Date 3-12-80

Other Chemicals Present:

NONE

Job Classification MTT Description of task performed during monitoring period
including any unusual activities LOADING + DISCONNECT

Time Started 1515

Time Stopped 1900

Beginning Flow Rate 0.93 MIN
100 CC

Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 1.18 MIN
100 CC

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

S/SW - 10 MPH

70°

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102202
CONFIDENTIAL

PUMP # 5 D. HAMMONDS

Block MARINE DOCK # 1

Person or Area Monitored

Sample No. 00757

Monitoring for CHLOROFORM

Type Sample: ☒ Personnel ☐ Area

BARGE FT-8

☐ Excursion ☐ Other

Date 3-12-80

Job Classification MTT

Description of task performed during monitoring period

Other Chemicals Present:

including any unusual activities ~~LOADING + DISCONNECT~~ LOADING + DISCONNECT

NONE

Time Started 1515

Time Stopped 1900

Beginning Flow Rate 0.98 MIN.

Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 1.33 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

S/SW - 10 MPH

70°

Calibration Equipment Used? BUBBLE

Form filled in by J. L. Marcan, Jr.

NOTE: Job description must be concise and complete.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102203
CONFIDENTIAL

DOW

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 00 20-50DATE THIS REPORT 4-17-80CHARGE 169DEPT. MARINE DOCK #2

REPORT OF ANALYSIS

Samples - Personnel Exposure to Benzene at Marine Dock #2

ID	Compound	Concentration	ppm(v)	Remarks
00772	BENZENE	.012 mg.	0.177	A TOP L
00774	"	.049 mg.	0.257	A OFFICE
00775	"	.052 "	0.516	P
00776	"	.046 "	0.461	P
00777	"	.54 "	5.073	A BRIDGE
00770	"	.024 "	0.196	A BRIDGE
00771	"	.510 "	4.039	O
00766	"	.022 "	0.805	P
00768	"	.88 "	6.833	P
00769	"	.015 "	0.113	A
Blank	"	.01 "		
				VENTED TO FLARE
				AVG. 2.53

GC Column 10'510 SP-1200 Temp. 90 °Cmls Solvent 10 ml's CS₂ Dect. 200 °CBlank .01 mg.Spikes NONEDO 102204
CONFIDENTIALOther Analytical Method Dry Ice ExtractionBY: A.L.M.

SIGNED

Lee McNeill

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{m.w.} \times \text{Charcoal Effec.} \times \text{liters of air sampled}} = \text{ppm(V)}$$

4-15-80

ADK

Benzene Exposures at Marine Dock #2

Sample I.D.

$$00766 \quad \frac{.022 \times 24.4 \times 1000}{78 \times 1.00 \times 8.55} = 0.805$$

$$00768 \quad \frac{.88 \times 24.4 \times 1000}{78 \times 1.00 \times 40.29} = 6.833$$

$$00769 \quad \frac{.015 \times 24.4 \times 1000}{78 \times 1.00 \times 41.48} = 0.113$$

$$00770 \quad \frac{.024 \times 24.4 \times 1000}{78 \times 1.00 \times 38.32} = 0.196$$

$$00771 \quad \frac{.510 \times 24.4 \times 1000}{78 \times 1.00 \times 39.5} = 4.039$$

$$00772 \quad \frac{.018 \times 24.4 \times 1000}{78 \times 1.00 \times 31.86} = 0.177$$

$$00774 \quad \frac{.049 \times 24.4 \times 1000}{78 \times 1.00 \times 59.54} = 0.257$$

$$00775 \quad \frac{.052 \times 24.4 \times 1000}{78 \times 1.00 \times 31.5} = 0.516$$

$$00776 \quad \frac{.046 \times 24.4 \times 1000}{78 \times 1.00 \times 31.2} = 0.461$$

$$00777 \quad \frac{.54 \times 24.4 \times 1000}{78 \times 1.00 \times 33.3} = 5.073$$

$$\text{Blank} \quad \frac{.01}{\quad} =$$

Block MARINE DOCK # 2Person or Area Monitored John A. Breamp

Sample No 00766

Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-372☐ Excursion ☐ OtherDate 3-27-80Job Classification OS

Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities LOADING BARGE (VENTED TO FLARE)NONETime Started 0730Time Stopped 0900Beginning Flow Rate 0.93 MIN.Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 0.16 MIN.45/min

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoFROM E/SE - 9 MPH 59° (800 AM)Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #1Block MARINE DOCK # 2Person or Area Monitored ERNEST WILLIAMS, Sr

Sample No 00768

Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-372☐ Excursion ☐ OtherDate 3-27-80Job Classification MARINE SPEC.

Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities

NONEE Williams from 0330 to 0730, Cart Woods 0730-0900Time Started 0225Time Stopped 0900Beginning Flow Rate 0.96 MIN.Respirator used ☒ Yes ☐ No

Type?

Ending Flow Rate 1.00 MIN.101/min

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoFROM N/NE - 5 MPH 59° (400 AM)Calibration Equipment Used? BUBBLEFROM E/SE - 9 MPH 59° (800 AM)

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102206
CONFIDENTIAL

Block MARINE DOCK # 2Monitoring for BENZENEBARGE DC-372Person or Area Monitored WALKWAY ON TOP DECKType Sample: ☐ Personnel ☒ Area☐ Excursion ☐ OtherSample No 0076927Date 3-28-80

Other Chemicals Present:

NONETime Started 0225Time Stopped 0900Beginning Flow Rate 100 cc
0.95 MIN.Ending Flow Rate 100 cc
0.95 MIN.Calibration Check Prior to Monitoring? ☒ Yes ☐ NoCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Job Classification _____ Description of task performed during monitoring period

Including any unusual activities LOADING BARGE (VENTED TO FLARE)

Type? _____

Wind, Temp. and Humidity

FROM N/NE-5 MPH 59° (400AM)FROM E/SE-9 MPH 59° (800AM)Form filled in by J. L. Maran, Jr.

DOW

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #3

Block MARINE DOCK # 2Monitoring for BENZENEBARGE DC-372Person or Area Monitored BARGEType Sample: ☐ Personnel ☒ Area☐ Excursion ☐ OtherSample No 0077027Date 3-28-80

Other Chemicals Present:

NONETime Started 0225Time Stopped 0900Beginning Flow Rate 100 cc
1.01 MIN.Ending Flow Rate 100 cc
1.04 MIN.Calibration Check Prior to Monitoring? ☒ Yes ☐ NoCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Job Classification _____ Description of task performed during monitoring period

Including any unusual activities @ in the center of barge(LOADING BARGE)(VENTED TO FLARE)

Type? _____

Wind, Temp. and Humidity

FROM N/NE-5 MPH 59° (400AM)FROM E/SE-9 MPH 59° (800AM)Form filled in by J. L. Maran, Jr.

DOW

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102207
CONFIDENTIAL

Block MARINE DOCK #2Person or Area Monitored HARVEY CAVALIERESample No 00771Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-372☐ Excursion ☐ OtherDate 3-27-80NONEJob Classification OT TRAINEE Description of task performed during monitoring period

Other Chemicals Present:

including any unusual activities LOADING DC-372 (VENTED TO FLARE)NONEH. Cavaliere 0330-0730 J. J. J. 0730-0900Time Started 0225Time Stopped 0900Beginning Flow Rate 0.97 MIN.Respirator used ☒ Yes ☐ NoType? FRESH AIR MASK ON DISCONNECTEnding Flow Rate 1.02 MIN.100/min

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoFROM N/NE-5 MPH 59° (400 AM)Calibration Equipment Used? BUBBLEFROM E/SE-9 MPH 59° (800 AM)

NOTE: Job description must be concise and complete.

Form filled in by J. L. Marcus, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #8

Block MARINE DOCK #2Person or Area Monitored TOP OF DOCKSample No 00772Monitoring for BENZENEType Sample: ☐ Personnel ☒ AreaBARGE DC-374☐ Excursion ☐ OtherDate 3/29/80

Other Chemicals Present:

Job Classification Description of task performed during monitoring period

NONEincluding any unusual activities LOADING of 374Time Started 0815located top of dock next to barge (VENTED TO FLARE)Time Stopped 1310 (Rain)Beginning Flow Rate 0.92 MIN.Respirator used ☐ Yes ☐ No

Type?

Ending Flow Rate 0.93 MIN.108/min

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoSE-3.5 MPH 62°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Marcus, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102208
CONFIDENTIAL

Block MARINE DOCK # 2 Person or Area Monit red Dock office (CONTROL ROOM) Sample NO 00774
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-374 ☐ Excursion ☐ Other _____ Date 3/29/80
Job Classification _____ Description of task performed during monitoring period
Other Chemicals Present: _____ Including any unusual activities loading DC-374
NONE (VENTED TO FLARE)
Time Started 0630 + 1710
Time Stopped 1930 + 1837
Beginning Flow Rate 1.00 MIN. Respirator used ☒ Yes ☐ No Type? Inside Dock office
100 cc Ending Flow Rate 0.90 MIN. 105/min Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No SE 3-5 mph 62°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK # 2 Person or Area Monitored PUMP # 2 C. FIRE Sample NO 00775
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-374 ☐ Excursion ☐ Other _____ Date 3/29/80
Job Classification S/S Description of task performed during monitoring period
Other Chemicals Present: _____ Including any unusual activities Loading DC-374 (Benzene)
None (VENTED TO FLARE)
Time Started 0800
Time Stopped 1300 (Rain)
Beginning Flow Rate 0.95 MIN. Respirator used ☒ Yes ☐ No Type? MSA Chem. CARTRIDGE
100 cc Ending Flow Rate 0.96 MIN. 107/min Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No SE 3-5 mph 62°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102209
CONFIDENTIAL

Block MARINE DOCK # 2Person or Area Monitored JACK MAYO

Sample No 00776

Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-374☐ Excursion ☐ OtherDate 3/29/80

Other Chemicals Present:

NoneJob Classification M/T Description of task performed during monitoring periodincluding any unusual activities Loading DC-374 (Benzene)
(VENTED TO FLARE)Time Started 0800Time Stopped 1300 (Rain)Beginning Flow Rate 0.92 MIN. ^{100 cc}Respirator used ☒ Yes ☐ NoType? COMFO Resp. ^{MSA Chem. Cartridge} -GAS-ACID GASES, ORGANIC VAPORSEnding Flow Rate 0.99 MIN. ^{100 cc}

Wind, Temp. and Humidity

SE 3-5 MPH, 62°Calibration Check Prior to Monitoring? ☒ Yes ☐ NoCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4Block MARINE DOCK # 2Person or Area Monitored DC-374 (Barge)

Sample No 00777

Monitoring for BENZENEType Sample: ☐ Personnel ☒ AreaBARGE DC-374☐ Excursion ☐ OtherDate 3/29/80

Other Chemicals Present:

NoneJob Classification N/A Description of task performed during monitoring periodincluding any unusual activities MONITOR DC-374
(LOCATED CENTER OF BARGE)
(VENTED TO FLARE)Time Started 0810Time Stopped 1310 (Rain)Beginning Flow Rate 0.94 MIN. ^{100 cc}Respirator used ☐ Yes ☐ No

Type?

Ending Flow Rate 0.85 MIN. ^{100 cc}

Wind, Temp. and Humidity

SE-35 MPH 62°Calibration Check Prior to Monitoring? ☒ Yes ☐ NoCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102210
CONFIDENTIAL

REF. CM P "T.C.C"

MARINE DOCK #1

RICHES

5-22-80

AK

Potential Personnel Exposure To Methylene Chloride at
Marine Dock # 1

$$00704 \quad \frac{.03 \times 24.4 \times 1000}{84.93 \times 1.00 \times 28.35} = 0.304$$

$$00705 \quad \frac{.03 \times 24.4 \times 1000}{84.93 \times 1.00 \times 28.65} = 0.301$$

DO 102212
CONFIDENTIAL

PUMP # 4

Block MARI DOCK #1 Person or Area Monitored CARL WOODS Sample No 00704
 Monitoring for _____ Type Sample: ☒ Personnel ☐ Area
METHYLENE CHLORIDE - ☐ Excursion ☐ Other EST Date 2-29-80
BARGE DC-374 Job Classification SMT Description of task performed during monitoring period
 Other Chemicals Present: _____ Including any unusual activities LOADING BARGE, PART LOAD, RAN OUT OF PRODUCT -

Time Started 1005 AM
 Time Stopped 240 PM
100 cc
 Beginning Flow Rate 0.92 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 cc
 Ending Flow Rate 1.02 MIN. Wind, Temp. and Humidity
FRIM SOUTH 4 MPH — 70°
 Calibration Check Prior to Monitoring? ☒ Yes ☐ No
 Calibration Equipment Used? BUBBLE
 NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 3

Block MARINE DOCK #1 Person or Area Monitored JOHN LEFEBVRE Sample No 00705
 Monitoring for _____ Type Sample: ☒ Personnel ☐ Area
METHYLENE CHLORIDE - ☐ Excursion ☐ Other SMT Date 2-29-80
BARGE DC-374 Job Classification _____ Description of task performed during monitoring period
 Other Chemicals Present: _____ Including any unusual activities LOADING BARGE, PART LOAD, RAN OUT OF PRODUCT -

Time Started 1005 AM
 Time Stopped 240 PM
100 cc
 Beginning Flow Rate 0.96 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 cc
 Ending Flow Rate 0.96 MIN. Wind, Temp. and Humidity
FRIM SOUTH 4 MPH — 70°
 Calibration Check Prior to Monitoring? ☒ Yes ☐ No
 Calibration Equipment Used? BUBBLE
 NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102213
 CONFIDENTIAL

DEPT "CMP" Maine Pouch #1

Samples - Personnel Exposure to Chloroform @ Marine Dock #1

[illegible]

Other Analytical Method Dry Ice Extraction

LINEE

La m^s n^e H

DO 102214
CONFIDENTIAL

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{MW} \times \text{Charcoal Effec.} \times \text{liters of Air Sampled}} = \text{ppm (v)}$$

5-20-80
DLC

Potential Personnel Exposure to Chloroform at Maine Dock #1
Sample I.D.

$$\begin{aligned} 00818 \quad & \frac{.91 \times 24.4 \times 1000}{119.38 \times 1.00 \times 111.72} = 1.665 \\ & 85.85 \longrightarrow = 2.167 \end{aligned}$$

$$00819 \quad \frac{<.02 \times 24.4 \times 1000}{119.38 \times 1.00 \times 44.0} = .093$$

$$00820 \quad \frac{<.02 \times 24.4 \times 1000}{119.38 \times 1.00 \times 86.70} = .047$$

Pump on sample 00818 was left on after sampling period was over and left in the control room. The results were calculated both ways - the first calculation included the entire volume of air "pulled" through the pump, while the second calculation was based upon the time that the sampler was being used out in the field. (The remainder was in the control room and considered nil.

PUMP # 4
Block MARINE DOCK #1 Person or Area Monitored DAVE HAMMONDS Sample No 00818
Monitoring for CHLOROFORM Type Sample: ☒ Personnel ☐ Area
BARGE DC-342 ☐ Excursion ☐ Other _____ Date 4-22-80
Job Classification MTT Description of task performed during monitoring period
Other Chemicals Present: _____ including any unusual activities LOADING BARGE
NONE
Time Started 12:20-4-22-80
Time Stopped 0720 4/23/80 - Someone left this one running after loading was completed.
Beginning Flow Rate 0.94 MIN. 100 CC Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 1.11 MIN. 100 CC Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM N/W-5 MPH 84°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Morian, Jr.

DOW

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 5
Block MARINE DOCK #1 Person or Area Monitored R. Beard - M Gelling Sample No 00819
Monitoring for CHLOROFORM Type Sample: ☒ Personnel ☐ Area
BARGE DC-342 ☐ Excursion ☐ Other _____ Date 4-22-80
Job Classification SMT-MTT Description of task performed during monitoring period
Other Chemicals Present: _____ including any unusual activities LOADING BARGE
NONE
Time Started 12:20-4-22-80
Time Stopped 0300-4-22-80
Beginning Flow Rate 0.95 MIN. 100 CC Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 3.05 MIN. 100 CC Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM N/W-5 MPH 84°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Morian, Jr.

DOW

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102216
CONFIDENTIAL

Block MARINE DOCK #1

Person or Area Monitored

PUMP #8 John Le Feuvre

Sample No 00820

Monitoring for CHLOROFORM

Type Sample: ☒ Personnel ☐ Area

BARGE DC-342

☐ Excursion ☐ Other

Date 4-22-80

Job Classification SMT

Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities LOADING BARGE

NONE

Time Started 12:20 - 4-22-80

Time Stopped 0300 - 4-22-80

Beginning Flow Rate 100 cc
0.93 MIN.

Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 100 cc
1.10 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

FROM N/W - 5 MPH 84°

Calibration Equipment Used? BUBBLE

N TE: Job description must be concise and complete.

Form filled in by J.L. Marcus, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102217
CONFIDENTIAL

$$\frac{\text{Milligrams detected} \times 24.4 \times 1000}{78 \times \text{Charcoal Effec.} \times \text{liters gas sampled}} = \text{ppm(v) Benzene}$$

5-2780
ADK

Personal Exposure to Benzene at Maine Dock

Sample I.D.

$$00822 \quad \frac{.07 \times 24.4 \times 1000}{78 \times 1.00 \times 54.59} = 0.401$$

$$00823 \quad \frac{.13 \times 24.4 \times 1000}{78 \times 1.00 \times 54.06} = 0.752$$

$$00824 \quad \frac{1.6 \times 24.4 \times 1000}{78 \times 1.00 \times 55.05} = 9.092$$

$$00827 \quad \frac{.36 \times 24.4 \times 1000}{78 \times 1.00 \times 59.34} = 1.898$$

$$00828 \quad \frac{<.002 \times 24.4 \times 1000}{78 \times 1.00 \times 14.30} = 0.044$$

$$00829 \quad \frac{.39 \times 24.4 \times 1000}{78 \times 1.00 \times 41.28} = 2.955$$

$$00833 \quad \frac{.13 \times 24.4 \times 1000}{78 \times 1.00 \times 60.63} = 0.671$$

$$00834 \quad \frac{.01 \times 24.4 \times 1000}{78 \times 1.00 \times 52.02} = 0.060$$

Blank Non Detected

DO 102219
CONFIDENTIAL

Block MARINE DOCK #2

Monitoring for BENZENE

BARGE EBL-201

PUMP #1

Person or Area Monitored

Carl W. SOT

Sample No 00822

Type Sample: ☒ Personnel

☐ Area

Aug Franklin OTT
2300-0415

☐ Excursion

☐ Other

Date

4-22-80

Job Classification

SOT

Description of task performed during monitoring period

Including any unusual activities

LOADING BARGE (VENTED TO FLARE)

Other Chemicals Present:

NONE

Time Started

2210

Time Stopped

0700

Beginning Flow Rate

0.92 MIN.

Respirator used ☒ Yes

☐ No

Type?

MSA COMFO II

Ending Flow Rate

1.01 MIN.

Wind, Temp. and Humidity

W-SW 2 mph

70°

Calibration Check Prior to Monitoring? ☒ Yes

☐ No

Calibration Equipment Used?

BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by

J.L. Mariani, Jr.

DOW

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #2

Block MARINE DOCK #2

Monitoring for BENZENE

BARGE EBL-201

Person or Area Monitored

F. Pearson E. Williams Sr

Sample No 00823

Type Sample: ☒ Personnel

☐ Area

2300-0700

Date

4-22-80

☐ Excursion

☐ Other

Job Classification

SOT

Description of task performed during monitoring period

Including any unusual activities

LOADING BARGE (VENTED TO FLARE)

Other Chemicals Present:

NONE

Time Started

2210-2330

Time Stopped

2330-0700

Beginning Flow Rate

0.93 MIN.

Respirator used ☒ Yes

☐ No

Type?

MSA COMFO II

Ending Flow Rate

1.04 MIN.

Wind, Temp. and Humidity

W-SW 2 mph 70°

Calibration Check Prior to Monitoring? ☒ Yes

☐ No

Calibration Equipment Used?

BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by

J.L. Mariani, Jr.

DOW

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102220
CONFIDENTIAL

Block MARINE DOCK # 2Person or Area Monitored S.R. PairsSample No 00824Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE EBL-201☐ Excursion ☐ OtherDate 4/22/80SOTJob Classification Hooking up, Loading EBL 201 + d.s. contracting Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities LOADING BARGE (VENTED TO FLARE)NONETime Started 21:55Time Stopped 07:00Beginning Flow Rate 100 CC
0.92 MIN.Respirator used ☒ Yes ☐ NoType? MSA COMFO IIEnding Flow Rate 100 CC
1.06 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoWSW, 2 MPH 70°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Moreau, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #1

Block MARINE DOCK # 2Person or Area Monitored ERNEST WILLIAMS, SRSample No 00827Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE EBL-202☐ Excursion ☐ OtherDate 4-25-80

Other Chemicals Present:

Job Classification 0/5 Description of task performed during monitoring periodIncluding any unusual activities LOADING BARGE (VENTED TO FLARE)NONETime Started 04:5007:30-11:00 John Zylber 1100 Billy BolgerTime Stopped 1535Beginning Flow Rate 100 CC
0.93 MIN.Respirator used ☒ Yes ☐ NoType? Comfo IIEnding Flow Rate 100 CC
1.25 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No64° FROM S/SE - 4 MPHCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Moreau, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102221
CONFIDENTIAL

PUMP # 2

Block MARINE DOCK # 2 Person or Area Monitored HARVEY CAVILLE Sample No 00828
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE EBL-202 ☐ Excursion ☐ Other _____ Date 4-25-80
Job Classification OTT Description of task performed during monitoring period
including any unusual activities LOADING BARGE (VENTED TO FLARE)
Other Chemicals Present: NONE
Time Started 0450
Time Stopped 0700
Beginning Flow Rate 100 cc 0.90 MIN. Respirator used ☒ Yes ☐ No Type? Comfo II
Ending Flow Rate 100 cc 0.91 MIN. (110) Wind, Temp. and Humidity
64° FROM S/SE - 4 MPH
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Moriam, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 3

Block MARINE DOCK # 2 Person or Area Monitored CALOIN YOUNG Sample No 00829
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE EBL-202 ☐ Excursion ☐ Other _____ Date 4-25-80
Job Classification S.O.T. Description of task performed during monitoring period
including any unusual activities LOADING BARGE (VENTED TO FLARE)
Other Chemicals Present: NONE
Time Started 0450 ¹⁵ 7:25 Fuel Service
Time Stopped 1535 1535
Beginning Flow Rate 100 cc 0.92 MIN. Respirator used ☒ Yes ☐ No Type? Comfo II
Ending Flow Rate 100 cc 2.21 MIN. (110) Wind, Temp. and Humidity
64° FROM S/SE - 4 MPH
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be c ncise and complete. Form filled in by J.L. Moriam, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102222
CONFIDENTIAL

Block MARINE DOCK #2 PUMP #4 CENTER OF
Monitoring for BENZENE Person or (Area) Monitored BARGE EBL-202 Sample No. 00833
BARGE EBL-202 Type Sample: ☐ Personnel ☒ Area
☐ Excursion ☐ Other _____ Date 4-25-80
Job Classification _____ Description of task performed during monitoring period
Other Chemicals Present: NONE Including any unusual activities LOADING BARGE (VENTED TO FLARE)
Time Started 04:50
Time Stopped 15:35
Beginning Flow Rate 100 cc 0.95 MIN. Respirator used ☐ Yes ☐ No Type? ~~AUTOMATIC~~
Ending Flow Rate 100 cc 1.18 MIN. 64 Wind, Temp. and Humidity
64° FROM S/SE-4 MPH
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Moriam, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK #2 PUMP #5 J. L. Moriam, Jr.
Monitoring for BENZENE Person or Area Monitored _____ Sample No. 00834
BARGE EBL-202 Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date 4-25-80
Job Classification O/S Description of task performed during monitoring period
Other Chemicals Present: NONE Including any unusual activities LOADING BARGE (VENTED TO FLARE)
Time Started 0730
Time Stopped 1600
Beginning Flow Rate 100 cc 0.97 MIN. Respirator used ☒ Yes ☐ No Type? Comfo II
Ending Flow Rate 100 cc 0.99 MIN. 102 Wind, Temp. and Humidity
64° FROM S/SE-4 MPH
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Moriam, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102223
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0020-61DATE THIS REPORT 5-16-80CHARGE 169DEPT. Marine dock #2REPORT OF ANALYSISSamples - PERSONNEL Exposure To Benzene at Marine Dock #2

ID	Compound	Concentration milligrams	ppm(V)	Remarks
00837	BENZENE	1.02 mg.	(8.158)	A - Dock
00838		.48	(3.657)	P
00839		1.27	(10.813)	P
00840		2.80	(22.917)	P
00841		42.14	(0.016)	A CONT. F. 2-175
00842		1.56	(14.003)	A PAIR DECK
00858		.08	(0.433)	A OFFICE - 2.1
00859		2.14	(12.795)	A 2-175
00860		25.63	(152.114)	A CENTER 175
00861		1.76	(10.523)	P
00862		1.48	(8.941)	=
00863		.14	(0.855)	P
Blank	V	< 2.44		RISER PIPE 1.1

GC Column 13% Decal 300 Temp. 80 °Cmls Solvent 10 ml's C₆H₆ Det. 200 °CBlank < .002 mg min det. 2.44Spikes NONEOther Analytical Method Dry Ice ExtractionDO 102224
CONFIDENTIALBY: A.Z.M.SIGNED A.Z.M.

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{MW} \times \text{Charcoal Effec.} \times \text{liters of air sampled}} = \text{ppm (v)}$$

(78) (1.00)

Personal Exposure to Benzene at Marine Dock #2
Sample III

$$00837 \quad \frac{1.02 \times 24.4 \times 1000}{78 \times 1.00 \times 39.11} = 8.158$$

$$00838 \quad \frac{0.48 \times 24.4 \times 1000}{78 \times 1.00 \times 41.06} = 3.657$$

$$00839 \quad \frac{1.27 \times 24.4 \times 1000}{78 \times 1.00 \times 36.74} = 10.813$$

$$00840 \quad \frac{2.80 \times 24.4 \times 1000}{78 \times 1.00 \times 38.22} = 22.917$$

$$00841 \quad \frac{< 2.45 \times 24.4 \times 1000}{78 \times 1.00 \times 39.11} = 0.016$$

$$00842 \quad \frac{1.56 \times 24.4 \times 1000}{78 \times 1.00 \times 34.85} = 14.003$$

$$00858 \quad \frac{.08 \times 24.4 \times 1000}{78 \times 1.00 \times 57.77} = 0.433$$

$$00859 \quad \frac{2.14 \times 24.4 \times 1000}{78 \times 1.00 \times 52.32} = 12.795$$

$$00860 \quad \frac{25.63 \times 24.4 \times 1000}{78 \times 1.00 \times 53.41} = 150.114$$

$$00861 \quad \frac{1.76 \times 24.4 \times 1000}{78 \times 1.00 \times 52.32} = 10.523$$

$$00862 \quad \frac{1.48 \times 24.4 \times 1000}{78 \times 1.00 \times 51.78} = 8.941$$

$$00863 \quad \frac{.14 \times 24.4 \times 1000}{78 \times 1.00 \times 51.23} = 0.855$$

$$\text{Blank} \quad < 2 \mu\text{g}$$

DO 102225
CONFIDENTIAL

PUMP # 9

Block MARINE DOCK # 2Person or Area Monitored TOP D. R. NEW TO

Sample No 00837

Monitoring for BENZENEType Sample: ☐ Personnel ☒ AreaBARGE PC 2506☐ Excursion ☐ OtherDate 5-4-80

Job Classification _____ Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities LOADING BARGENONEVENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGETime Started 1220 5-4-80Time Stopped 0655 5-5-80Beginning Flow Rate 1.01 MIN.Respirator used ☐ Yes ☐ No

Type? _____

Ending Flow Rate 1.01 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoWIND 3 MPH 98 TEMP 65 HUMIDITYCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Maran, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 1

Block MARINE DOCK # 2Person or Area Monitored I. Johnson / F. Barlow

Sample No 00838

Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE PC 2506☐ Excursion ☐ OtherDate 5-4-80Job Classification JS OS Description of task performed during monitoring period

Other Chemicals Present:

Including any unusual activities LOADING BARGENONEVENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE -Time Started 1220 5-4-80Time Stopped 0651 5-5-80Beginning Flow Rate 0.93 MIN.Respirator used ☒ Yes ☐ NoType? COMFO IIEnding Flow Rate 0.98 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoWIND 3 MPH 93 TEMP 65Calibration Equipment Used? BUBBLEHUMIDITY

NOTE: Job description must be concise and complete.

Form filled in by J.L. Maran, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102226
CONFIDENTIAL

Block MARINE DOCK # 2

Monitoring for BENZENE

BARGE PC 2506

Other Chemicals Present:

NONE

PUMP # 2

Person or Area Monitored

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Job Classification

Description of task performed during monitoring period

Including any unusual activities

LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Sample No 00839

Date 5-4-80

1/4 Time Started 1220 - Change 1500

5 Time Stopped 655

Beginning Flow Rate 1.00 min

Respirator used ☒ Yes ☐ No

Type? COMFO II

Ending Flow Rate 1.16 min

Wind, Temp. and Humidity

N-NE 3 MPH 88 TEMP 65 HUMIDITY

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Mariani, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK # 2

Monitoring for BENZENE

BARGE PC 2506

Other Chemicals Present:

NONE

PUMP # 3

Person or Area Monitored

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Job Classification

Description of task performed during monitoring period

Including any unusual activities

vented barge to atmosphere THRU
RISER PIPE ON BARGE

Sample No 00840

Date 5-4-80

Time Started 1220 5-4-80

Time Stopped 0650 5-5-80

Beginning Flow Rate 0.97 min

Respirator used ☒ Yes ☐ No

Type? COMFO II

Ending Flow Rate 1.08 min

Wind, Temp. and Humidity

NNE 3MPH 88 TEMP 65 HUMIDITY

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Mariani, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102227
CONFIDENTIAL

PUMP # 4
Block MARINE DOCK # 2 Person or Area Monitored INSIDE CONTRA ROOM Sample No 00841
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE PC 2506 ☐ Excursion ☐ Other _____ Date 5-4-80
Job Classification _____ Description of task performed during monitoring period
Other Chemicals Present: _____ Including any unusual activities LOADING BARGE
NONE VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 1220 5-4-80
Time Stopped 0655 5-5-80
Beginning Flow Rate 100 CC 1.00 MIN. Respirator used ☐ Yes ☐ No Type? _____
Ending Flow Rate 100 CC 1.02 MIN. Wind, Temp. and Humidity
NNE 3 MPH 88 TEMP 68 HUMIDITY
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 5
Block MARINE DOCK # 2 Person or Area Monitored PC-2506 - CENTER OF BARGE Sample No 00842
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE PC 2506 ☐ Excursion ☐ Other _____ Date 5-4-80
Job Classification _____ Description of task performed during monitoring period
Other Chemicals Present: _____ Including any unusual activities LOADING BARGE
NONE VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 1220 5-4-80
Time Stopped 0656 5-5-80
Beginning Flow Rate 100 CC 0.97 MIN. Respirator used ☐ Yes ☐ No Type? _____
Ending Flow Rate 100 CC 1.29 MIN. Wind, Temp. and Humidity
NNE 3 MPH 88 TEMP 65 HUMIDITY
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102228
CONFIDENTIAL

PUMP #1
Block MARIA DOCK #2 Person or Area Monitored Office CONTROL ROOM Sample No 00858
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-374 ☐ Excursion ☐ Other _____ Date 5-13-80
Job Classification LOADING BARGE Description of task performed during monitoring period
including any unusual activities VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Other Chemicals Present: NONE
Time Started 1700
Time Stopped 0205
Beginning Flow Rate 0.93 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc Wind, Temp. and Humidity
Ending Flow Rate 0.95 MIN. FROM S/E-3 MPH 82°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #2 TOP DECK NEXT
Block MARINE DOCK #2 Person or Area Monitored Dock Loading Area - TO BARGE Sample No 00859
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-374 ☐ Excursion ☐ Other _____ Date 5-13-80
Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Other Chemicals Present: NONE
Time Started 1700
Time Stopped 0205
Beginning Flow Rate 1.03 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc Wind, Temp. and Humidity
Ending Flow Rate 1.05 MIN. FROM S/E-3 MPH 82°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102229
CONFIDENTIAL

PUMP # 3
Block MARINE DOCK # 2 Person or Area Monitored Barge - DC-374 Sample No 00860
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-374 ☐ Excursion ☐ Other _____ Date 5-13-80
Job Classification _____ Description of task performed during monitoring period
Other Chemicals Present: _____ Including any unusual activities LOADING BARGE —
NONE VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 1700
Time Stopped 0205
Beginning Flow Rate 1.02 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc Ending Flow Rate 1.03 MIN. Wind, Temp. and Humidity
100 cc FROM S/E - 3 MPH 82°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4
Block MARINE DOCK # 2 Person or Area Monitored Dennis Dupree Sample No 00861
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area TONY SENSAT
BARGE DC-374 ☐ Excursion ☐ Other _____ Date 5-13-80
Job Classification JOT Description of task performed during monitoring period
Other Chemicals Present: _____ including any unusual activities LOADING BARGE —
NONE VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 1700
Time Stopped 0205
Beginning Flow Rate 0.98 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc Ending Flow Rate 1.11 MIN. Wind, Temp. and Humidity
100 cc FROM S/E - 3 MPH 82°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102230
CONFIDENTIAL

PUMP #5
Block MARINE DOCK #2 Person or Area Monitored ~~Freddie~~ Freddy JACKSON Sample No 00862
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-374 ☐ Excursion ☐ Other _____ Date 5-13-80
Job Classification J & T Description of task performed during monitoring period
including any unusual activities LOADING BARGE -
Other Chemicals Present: NONE VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 1700
Time Stopped 0205
Beginning Flow Rate 0.97 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100cc Wind, Temp. and Humidity
Ending Flow Rate 1.14 MIN. FROM S/E-3 MPH 82°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Marvan, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #7
Block MARINE DOCK #2 Person or Area Monitored O'neal Bosley Sample No 00863
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-374 ☐ Excursion ☐ Other _____ Date 5-13-80
Job Classification OS Description of task performed during monitoring period
including any unusual activities LOADING BARGE -
Other Chemicals Present: NONE VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 1700
Time Stopped 0205
Beginning Flow Rate 1.03 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100cc Wind, Temp. and Humidity
Ending Flow Rate 1.10 MIN. FROM S/E-3 MPH 82°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Marvan, Jr.

DO 102231
CONFIDENTIAL

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{92.15 \times .95 \times \text{liters of air sampled}} = \text{ppm (V)}$$

(M.W.) (Charcoal)
(Efficiency)

100

Potential Personnel Exposure at Marine Dock #2

Sample I.D.

$$00846 \quad \frac{.08 \times 24.4 \times 1000}{92.15 \times .95 \times 74.23} = 3.57$$

$$00847 \quad \frac{.95 \times 24.4 \times 1000}{92.15 \times .95 \times 76.72} = 3.45$$

$$00848 \quad \frac{.77 \times 24.4 \times 1000}{92.15 \times .95 \times 71.43} = 3.00$$

$$00849 \quad \frac{1.14 \times 24.4 \times 1000}{92.15 \times .95 \times 67.77} = 4.69$$

$$00850 \quad \frac{.42 \times 24.4 \times 1000}{92.15 \times .95 \times 52.96} = 2.21$$

$$00851 \quad \frac{1.86 \times 24.4 \times 1000}{92.15 \times .95 \times 71.22} = 7.28$$

PUMP # 1
Block MARIA DOCK # 2 Person or Area Monitored J. Breant Sample No 00846
Monitoring for TOLUENE Type Sample: ☒ Personnel ☐ Area
BARGE DC 348 ☐ Excursion ☐ Other _____ Date 5-7-80
" DC 371 Job Classification OS Description of task performed during monitoring period
Other Chemicals Present: NONE Including any unusual activities UNLOADING BARGES
Time Started 0915 (1500 TO 2115 — Norris Washington)
Time Stopped 2115
100 cc
Beginning Flow Rate 0.97 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 cc Wind, Temp. and Humidity
Ending Flow Rate 0.97 MIN. FROM S/W-6 MPH 75°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Marcan, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 2
Block MARINE DOCK # 2 Person or Area Monitored J. Febre Sample No 00847
Monitoring for TOLUENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-348 ☐ Excursion ☐ Other _____ Date 5-7-80
" DC-371 Job Classification OST Description of task performed during monitoring period
Other Chemicals Present: NONE Including any unusual activities UNLOADING BARGES
Time Started 0915 (1500 TO 2130 — Dennis Dupuy)
Time Stopped 2120
100 cc
Beginning Flow Rate 0.94 MIN. Respirator used ☐ Yes ☒ No Type? TYPE
100 cc Wind, Temp. and Humidity
Ending Flow Rate 0.95 MIN. FROM S/W-6 MPH 75°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Marcan, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102234
CONFIDENTIAL

PUMP # 3
Block MARINE DOCK # 2 Person or Area Monitored Fredie Jackson Sample No 00848
Monitoring for TOLUENE Type Sample: ☒ Personnel ☐ Area
BARGE DC 348 ☐ Excursion ☐ Other _____ Date 5-7-80
" DC-371 Job Classification OT Description of task performed during monitoring period
Other Chemicals Present: NONE Including any unusual activities UNLOADING BARGES
Time Started 0915 (1500 To 2130 — Dale Hammons JOT)
Time Stopped 2120
Beginning Flow Rate 0.95 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 1.08 MIN. Wind, Temp. and Humidity FROM S/W-6 MPH 75°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4
Block MARINE DOCK # 2 Person or Area Monitored Barges DC - 348 - CENTER OF Sample No 00849
Monitoring for TOLUENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-348 ☐ Excursion ☐ Other _____ Date 5-7-80
" DC-371 Job Classification _____ Description of task performed during monitoring period
Other Chemicals Present: NONE Including any unusual activities UNLOADING BARGES
Time Started 0920
Time Stopped 2115
Beginning Flow Rate 1.00 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 1.11 MIN. Wind, Temp. and Humidity FROM S/W-6 MPH 75°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102235
CONFIDENTIAL

PUMP # 5
Block MARINE DOCK # 2 Person or Area Monitored Barge DC. 371 - CENTER OF BARGE Sample No 00850
Monitoring for TOLUENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-348 ☐ Excursion ☐ Other _____ Date 5-7-80
" DC-371 Job Classification _____ Description of task performed during monitoring period
Other Chemicals Present: _____ Including any unusual activities UNLOADING BARGES
NONE
Time Started 0920
Time Stopped 2115
Beginning Flow Rate 100 cc 1.00 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 100 cc 1.70 MIN. Wind, Temp. and Humidity
Calibration Ch ck Prior to Monitoring? ☒ Yes ☐ No FROM S/W-6 MPH 75°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Morahan, Jr.
DOW LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 7
Block MARINE DOCK # 2 Person or Area Monitored UPPER DECK Loading Area Sample No 00851
Monitoring for TOLUENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-348 ☐ Excursion ☐ Other _____ Date 5-7-80
" DC-371 Job Classification _____ Description of task performed during monitoring period
Other Chemicals Present: _____ Including any unusual activities UNLOADING BARGES
NONE
Time Started 0920
Time Stopped 2230
Beginning Flow Rate 100 cc 1.00 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 100 cc 1.05 MIN. Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM S/W-6 MPH 75°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Morahan, Jr.
DOW LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102236
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0020-64DATE THIS REPORT 6-2-80CHARGE 90REPORT OF ANALYSISDEPT. Solvents "TCC"

Samples - Personnel Exposure To Perchloroethylene At ~~7~~ MARINE DOCK #1

ID	Compound	Concentration <i>mg/l</i>	PPM(V)	Remarks
00855	"	1.081	(3.486)	D. HAMMONDS
00855	"	1.081	(3.486)	D. HAMMONDS
00856	"	.56	(1.753)	D. DUPUY
00857	"	1.551	(4.949)	E. ALTABAN

GC Column 10% Carbowax 20m Temp. 90° °Cmls Solvent 10 ml's CSe Dect. 200° °CBlank to 5.011 mg Min. det. Per. .011 mgSpikes NONEOther Analytical Method Day class Extraction

DO 102237
CONFIDENTIAL

BY: L.H. M.

SIGNED _____

6-27-80

N/C

Potential Personnel Exposures to Perchloroethylene at ~~Fort Belvoir~~ ^{MARINE DOCK #1}
 Sample ID.

~~01120 1.081 x 24.4 x 1000 = 13.72~~
~~165.83 x 1.00 x 45.63~~

$$00855 \quad \frac{1.081 \times 24.4 \times 1000}{165.83 \times 1.00 \times 45.63} = 3.986$$

$$00856 \quad \frac{0.56 \times 24.4 \times 1000}{165.83 \times 1.00 \times 45.63} = 1.753$$

$$00857 \quad \frac{1.581 \times 24.4 \times 1000}{165.83 \times 1.00 \times 45.63} = 4.949$$

~~TANK CAR~~ ~~PUMP # 6~~
Block ~~AREA 18-41~~ Person or Area Monitored ~~W. JOHAN~~ Sample No ~~01102~~
Monitoring for ~~PERCHLOROETHYLENE~~ Type Sample: ☒ Personnel ☐ Area
~~CAR CATX 98482~~ ☒ Excursion ☐ Other Date ~~5-22-80~~
Other Chemicals Present: ~~GLYCOL-CHLORINE~~ Job Classification ~~LABORER~~ Description of task performed during monitoring period
~~including any unusual activities OPENING CAR ONLY~~
Time Started ~~1015 AM~~
Time Stopped ~~1030 AM~~
Beginning Flow Rate ~~100 cc~~ ~~0.23 MIN.~~ Respirator used ☐ Yes ☒ No
Ending Flow Rate ~~100 cc~~ ~~0.23 MIN.~~ Wind, Temp. and Humidity
~~FROM S/E-3 MPH 86°~~
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? ~~BUBBLE~~
NOTE: Job description must be concise and complete.
Form filled in by ~~J.L. Moran, Jr.~~
LOUISIANA DIVISION INDUSTRIAL HYGIENE

~~PUMP # 1~~
Block ~~MARINE DOCK # 1~~ Person or Area Monitored ~~DALE HAMMONDS~~ Sample No ~~00855~~
Monitoring for ~~PERCHLOROETHYLENE~~ Type Sample: ☒ Personnel ☐ Area ~~Freddy Jackson~~
~~BARBE NMS-1457~~ ☐ Excursion ☐ Other Date ~~5/10/80~~
Job Classification ~~OTT~~ Description of task performed during monitoring period
including any unusual activities ~~LOADING BARGE~~
Other Chemicals Present: ~~NONE~~
Time Started ~~2040 hrs~~
Time Stopped ~~0430~~
Beginning Flow Rate ~~100 cc~~ ~~0.99 MIN.~~ Respirator used ☐ Yes ☒ No Type?
Ending Flow Rate ~~100 cc~~ ~~1.07 MIN.~~ Wind, Temp. and Humidity
~~FROM WEST - 5 MPH 85°~~
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? ~~BUBBLE~~
NOTE: Job description must be concise and complete.
Form filled in by ~~J.L. Moran, Jr.~~
LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102239
CONFIDENTIAL

Block MARINE DOCK # 1

PUMP # 2
Person or Area Monitored

Dennis Dupuy

Sample No 00856

Monitoring for

Type Sample: ☒ Personnel ☐ Area

PERCHLOROETHYLENE

☐ Excursion ☐ Other

Date 5/14/80

BARGE NMS-1457

Job Classification OTT

Description of task performed during monitoring period

Other Chemicals Present:

including any unusual activities LOADING BARGE

NONE

Time Started

2040 hrs

Time Stopped

0430
100 cc

Beginning Flow Rate

0.94 MIN.
100 cc

Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate

1.05 MIN.

Wind, Temp. and Humidity

FROM WEST-5 MPH

85°

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by

J.L. Mariani, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK # 1

PUMP # 3
Person or Area Monitored

Ed ALTIZAN

Sample No 00857

Monitoring for

Type Sample: ☒ Personnel ☐ Area

Linwood Barbee

PERCHLOROETHYLENE

☐ Excursion ☐ Other

Date 5/15/80

BARGE NMS-1457

Job Classification OTT

Description of task performed during monitoring period

Other Chemicals Present:

including any unusual activities LOADING BARGE

NONE

Time Started

2040 hrs

Time Stopped

0430
100 cc

Beginning Flow Rate

0.96 MIN.
100 cc

Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate

1.03 MIN.

Wind, Temp. and Humidity

FROM WEST-5 MPH

85°

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by

J.L. Mariani, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102240
CONFIDENTIAL

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{molecular wt.} \times \text{chemical effec.} \times \text{liters of air sampled}} = \text{ppm(v)}$$

6-12-80
N/C

Potential Benzene Exposures at Marine Dock
Sample ID number

$$01103 \quad \frac{2.436 \times 24.4 \times 1000}{78 \times 1.00 \times 57.23} = 13.315$$

$$01104 \quad \frac{1.064 \times 24.4 \times 1000}{78 \times 1.00 \times 57.53} = 5.786$$

$$01105 \quad \frac{0.062 \times 24.4 \times 1000}{78 \times 1.00 \times 14.95} = 1.297$$

$$01106 \quad \frac{2.37 \times 24.4 \times 1000}{78 \times 1.00 \times 19.17} = 38.674$$

$$01107 \quad \frac{0.453 \times 24.4 \times 1000}{78 \times 1.00 \times 55.33} = 2.561$$

$$01108 \quad \frac{0.066 \times 24.4 \times 1000}{78 \times 1.00 \times 54.87} = 0.025$$

Block MARINE DOCK #2

Person or Area Monitored IKE Johnson
Type Sample: ☒ Personnel ☐ Area E. Williams, SR
2300 - 0510 AM
☐ Excursion ☐ Other

Sample No. 01103

Monitoring for BENZENE
BARGE PC-2506

Date May 22, 1980

Other Chemicals Present:

NONE

Job Classification S/S Description of task performed during monitoring period
including any unusual activities Loading BENZENE BARGE PC2506
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Time Started 2005

Time Stopped 0510

Beginning Flow Rate 100 cc
0.93 MIN. Respirator used ☒ Yes ☐ No

Type? COMFO II

Ending Flow Rate 100 cc
0.97 MIN.

Wind, Temp. and Humidity

53-5 76° 80%

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Marum, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK #2

Person or Area Monitored PUMP #2 Randy PEARS, MARTIN GELING
Type Sample: ☒ Personnel ☐ Area
2300 - 0500
☐ Excursion ☐ Other

Sample No. 01104

Monitoring for BENZENE
BARGE PC-2506

Date 5-22-80

Other Chemicals Present:

NONE

Job Classification SOT Description of task performed during monitoring period
including any unusual activities Loading BENZENE DC2506 - BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Time Started 2005

Time Stopped 0500

Beginning Flow Rate 100 cc
0.94 MIN. Respirator used ☒ Yes ☐ No

Type? COMFO II

Ending Flow Rate 100 cc
0.92 MIN.

Wind, Temp. and Humidity

53-5 mph 76° 80%

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Marum, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102243
CONFIDENTIAL

PUMP # 3
Block MARINE DOCK # 2 Person or Area Monitored Jony Sensat Sample No 01105
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE PC-2506 ☐ Excursion ☐ Other Date 5-22-80
Other Chemicals Present: NONE Job Classification OT Description of task performed during monitoring period
including any unusual activities Loading Benzene Barge PC-2506
Meter stopped pumping at 2230 (WATER IN PUMP)
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 2005
Time Stopped 2230
Beginning Flow Rate 100 cc 0.97 MIN Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 3-WATER IN PUMP Wind, Temp. and Humidity 5-3-5 mph 76° 80%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE Form filled in by J. L. Marian, Jr.
NOTE: Job description must be concise and complete.
DOW LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4
Block MARINE DOCK # 2 Person or Area Monitored BARGE DC 2506 Sample No 01106
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE PC-2506 ☐ Excursion ☐ Other Date 5-22-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities Loading Benzene BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 2005
Time Stopped 0510
Beginning Flow Rate 100 cc 0.97 MIN Respirator used ☐ Yes ☐ No Type? _____
Ending Flow Rate 100 cc 0.96 MIN Wind, Temp. and Humidity 5-3-5 mph 76° 80%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE Form filled in by J. L. Marian, Jr.
NOTE: Job description must be concise and complete.
DOW LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102244
CONFIDENTIAL

Block MARINE DOCK # 2Person or Area Monitored WALKWAY-OPPOSITE BARGE

Sample No 01107

Monitoring for BENZENEType Sample: ☐ Personnel ☒ AreaBARGE PC-2506☐ Excursion ☐ OtherDate 5-22-80

Other Chemicals Present:

NONE

Job Classification

Description of task performed during monitoring period

Including any unusual activities

LOADING Benzene Barge PC2506
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGETime Started 2005Time Stopped 0510Beginning Flow Rate 0.98 MIN.100 ccRespirator used ☐ Yes ☐ No

Type?

Ending Flow Rate 0.99 MIN.100 cc

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No5-3-5mph 76° 80%Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by

J. L. Moran, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK # 2Person or Area Monitored PUMP #7 Dock office

Sample No 01108

Monitoring for BENZENEType Sample: ☐ Personnel ☒ AreaBARGE PC-2506☐ Excursion ☐ OtherDate 5-22-80

Other Chemicals Present:

NONE

Job Classification

Description of task performed during monitoring period

Including any unusual activities

LOADING Benzene Barge PC2506
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGETime Started 2005Time Stopped 0500Beginning Flow Rate 0.97 MIN.100 ccRespirator used ☐ Yes ☐ No

Type?

Ending Flow Rate 0.98 MIN.100 cc

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No5-3-5mph 76° 80%Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by

J. L. Moran, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102245
CONFIDENTIAL

DEPT. Marine Dock #2

Samples - Personnel
Area Samples For Benzene In Air

SIGNED _____ Lee M^s

$$\frac{\text{mg detected} \times 24.4 \times 1000}{\text{M.W.} \times \text{Charcoal Effac.} \times \text{Liters of Air Sampled}} = \text{ppm(V)}$$

6-17-80
W/K

Potential Exposures for Benzene at Marine Dock #2
Sample I.D.

$$01122 \quad \frac{1.569 \times 24.4 \times 1000}{78 \times 1.00 \times 100.98} = 4.861$$

$$01123 \quad \frac{1.110 \times 24.4 \times 1000}{78 \times 1.00 \times 99.04} = 3.506$$

$$01124 \quad \frac{3.564 \times 24.4 \times 1000}{78 \times 1.00 \times 93.21} = 11.961$$

$$01125 \quad \frac{0.02 \times 24.4 \times 1000}{78 \times 1.00 \times 101.98} = < 0.061$$

$$01126 \quad \frac{23.155 \times 24.4 \times 1000}{78 \times 1.00 \times 99.99} = 72.441$$

$$01127 \quad \frac{1.551 \times 24.4 \times 1000}{78 \times 1.00 \times 104.57} = 4.640$$

DO 102247
CONFIDENTIAL

PUMP #5
Block MARIN DOCK #2 Person or Area Monitored CENTER of BARGE Sample No 01126
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE EBL-203 ☐ Excursion ☐ Other _____ Date 6-7-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
NONE Including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 0900-6-7-80
Time Stopped 0210 6-8-80
Beginning Flow Rate 1.00 MIN. ^{100 cc} Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 1.06 MIN. ^{100 cc} Wind, Temp. and Humidity
SW 82° 10 MPH
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Moreau, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #7
Block MARINE DOCK #2 Person or Area Monitored WALKWAY ON TOP DECK- (OPPOSITE) BARGE Sample No 01127
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE EBL-203 ☐ Excursion ☐ Other _____ Date 6-7-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
NONE Including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 0900-6-7-80
Time Stopped 0210 6-8-80
Beginning Flow Rate 0.97 MIN. ^{100 cc} Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 1.00 MIN. ^{100 cc} Wind, Temp. and Humidity
SW 82° 10 MPH
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Moreau, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102248
CONFIDENTIAL

Pump # 3
Block MARINE DOCK # 2 Person or Area Monitored Billy Bo'er Sample No 01124
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE EBL-203 ☐ Excursion ☐ Other Date 6-7-80
Other Chemicals Present: NONE Job Classification S.O.T Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 0900 - 6-7-80
Time Stopped 0210 6-8-80
Beginning Flow Rate 0.97 MIN. ^{100 cc} Respirator used ☒ Yes ☐ No Type? ComFo II
Ending Flow Rate 1.24 MIN. ^{100 cc} Wind, Temp. and Humidity
SW 82° 10 MPH
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4 INSIDE
Block MARINE DOCK # 2 Person or Area Monitored Control Room Sample No 01125
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE EBL-203 ☐ Excursion ☐ Other Date 6-7-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 0900 - 6-7-80
Time Stopped 0210 6-8-80
Beginning Flow Rate 0.99 MIN. ^{100 cc} Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 1.03 MIN. ^{100 cc} Wind, Temp. and Humidity
SW-10 MPH 82°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102249
CONFIDENTIAL

PUMP #1 0900-1580
Block MARINE DOCK #2 Person or Area Monitored ERNEST Williams SR Sample No 01122
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE EBL-203 ☐ Excursion ☐ Other _____ Date 6-7-80
Other Chemicals Present: NONE Job Classification 015 Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 0900-6-7-80
Time Stopped 0210 6-8-80
Beginning Flow Rate 0.95 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc
Ending Flow Rate 1.09 MIN. Wind, Temp. and Humidity
SW - 10 MPH 82°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marwan, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #2
Block MARINE DOCK #2 Person or Area Monitored LYNN BARBIER Sample No 01123
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE EBL-203 ☐ Excursion ☐ Other _____ Date 6-7-80
Other Chemicals Present: NONE Job Classification OTT Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 0900-6-7-80
Time Stopped 0210 6-8-80
Beginning Flow Rate 0.98 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc
Ending Flow Rate 1.10 MIN. Wind, Temp. and Humidity
SW 82° 10 MPH
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marwan, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102250
CONFIDENTIAL

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{M.W.} \times \text{charcoal efficiency} \times \text{liters air sampled}} = \text{ppm(V)}$$

6-19-80
ADL

Potential Personnel Exposure to EDC and Vinylchloride at
marine Dock #1 and Tankcar Cleaning.

Sample I.D.

EDC	01111	$\frac{0.70 \times 24.4 \times 1000}{98.96 \times 1.00 \times 32.5}$	= 5.311
EDC	01112	$\frac{< 0.05 \times 24.4 \times 1000}{98.96 \times 1.00 \times 40.82}$	= < 0.302
EDC	01113	$\frac{< 0.05 \times 24.4 \times 1000}{98.96 \times 1.00 \times 28.08}$	= < 0.439
EDC	01114	$\frac{< 0.05 \times 24.4 \times 1000}{98.96 \times 1.00 \times 29.23}$	= < 0.422
V ₁	01115	$\frac{0.002 \times 24.4 \times 1000}{62.5 \times 1.00 \times 6.25}$	= 0.125

DO 102252
CONFIDENTIAL

PUMP #1
Block MARINE DOCK #1 Person or Area Monitored GREG. FRANKLIN Sample No 01111
Monitoring for ETHYLENE Type Sample: ☒ Personnel ☐ Area
DICHLORIDE ☐ Excursion ☐ Other _____ Date 5/29/80
BARGE DC-352
Other Chemicals Present: _____ Job Classification OT Description of task performed during monitoring period
GLYCOL including any unusual activities LOADING BARGE

Time Start at 1520
Time Stopped 2045
100 cc
Beginning Flow Rate 0.96 MIN Respirator used ☐ Yes ☒ No Type? _____
100 cc Ending Flow Rate 1.05 MIN Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM 0-5 EAST - 90°
Calibration Equipment Used? BUBBLE
NOTE: - Job description must be concise and complete. Form filled in by J.L. Maran, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #2
Block MARINE DOCK #1 Person or Area Monitored MARTIN. GEHLING III Sample No 01112
Monitoring for ETHYLENE Type Sample: ☒ Personnel ☐ Area
DICHLORIDE ☐ Excursion ☐ Other _____ Date 5-29-80
BARGE DC-352
Other Chemicals Present: _____ Job Classification OT Description of task performed during monitoring period
GLYCOL including any unusual activities LOADING BARGE

Time Started 1520
Time Stopped 2200
100 cc
Beginning Flow Rate 0.96 MIN Respirator used ☐ Yes ☒ No Type? _____
100 cc Ending Flow Rate 1.00 MIN Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM EAST 0-5 MPH — 90°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102253
CONFIDENTIAL

PUMP # 4
Block MARINE DOCK # 1 Person or Area Monitored HARVEY C VALIER Sample No 01113
Monitoring for ETHYLENE
DICHLORIDE Type Sample: ☒ Personnel ☐ Area
BARGE DC-352 ☐ Excursion ☐ Other _____ Date 5-29-80
Other Chemicals Present: GLYCOL Job Classification SOT Description of task performed during monitoring period
including any unusual activities LOADING BARGE
Time Started 1520
Time Stopped 2005
Beginning Flow Rate 1.00 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 cc
Ending Flow Rate 1.03 MIN. Wind, Temp. and Humidity
FROM EAST 0-5 MPH — 90°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 5
Block MARINE DOCK # 1 Person or Area Monitored DOCK OFFICE Sample No 01114
Monitoring for ETHYLENE
DICHLORIDE Type Sample: ☐ Personnel ☒ Area
BARGE DC-352 ☐ Excursion ☐ Other _____ Date 5-29-80
Other Chemicals Present: GLYCOL Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE
Time Started 1520
Time Stopped 2005
Beginning Flow Rate 0.97 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 cc
Ending Flow Rate 0.98 MIN. Wind, Temp. and Humidity
FROM EAST 0-5 MPH — 90°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102254
CONFIDENTIAL

TANK CAR PUMP # 6
Block CLEANING - 41 Person or Area Monitored W. JOHNSON Sample No 01115

Monitoring for VINYL CHLORIDE Type Sample: ☒ Personnel ☐ Area
CAR CATX 46927 ☒ Excursion ☐ Other _____ Date 5-29-80

Other Chemicals Present: _____ Job Classification LABORER Description of task performed during monitoring period

GLYCOL - PROPYLENE OXIDE - including any unusual activities OPENING CAR ONLY

ALKANOLAMINES _____

Time Started 1010 AM _____

Time Stopped 1025 AM _____

Beginning Flow Rate 100 cc
0.24 MIN. Respirator used ☐ Yes ☒ No Type? _____

Ending Flow Rate 100 cc
0.24 MIN. Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM S/E - 12 MPH - 84°

Calibration Equipment Used? BUBBLE _____

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mason, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102255
CONFIDENTIAL

6-24-80
OK

Potential Personnel Exposures to Benzene at marine dock #2
Sample ID.

$$01129 \quad \frac{0.37 \times 24.4 \times 1000}{78 \times .98 \times 57.07} = 2.069$$

$$01130 \quad \frac{1.99 \times 24.4 \times 1000}{78 \times .98 \times 57.35} = 11.076$$

$$01131 \quad \frac{0.57 \times 24.4 \times 1000}{78 \times .98 \times 59.09} = 3.079$$

$$01133 \quad < \frac{.190 \times 24.4 \times 1000}{78 \times .98 \times 46.92} = < 1.293$$

$$01134 \quad < \frac{.190 \times 24.4 \times 1000}{78 \times .98 \times 50.25} = < 1.207$$

DO 102257
CONFIDENTIAL

Block MARINE DOCK #2

Monitoring for BENZENE

BARGE EBL-201

Other Chemicals Present:

UNLOADING NAPHTHA BARGE

Time Started 0930

Time Stopped 1915

Beginning Flow Rate 100cc
0.98 MIN.

Ending Flow Rate 100cc
1.07 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Person or Area Monitored PUMP #2 D. Beard

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Job Classification SOT

Including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Sample No. 01129

Date 6/14/80

Description of task performed during monitoring period

Respirator used ☒ Yes ☐ No

Type? Organic

Wind, Temp. and Humidity

SE 86° 70%
CALM

Form filled in by J. L. Mariani, Jr.

Block MARINE DOCK #2

Monitoring for BENZENE

BARGE EBL-201

Other Chemicals Present:

UNLOADING NAPHTHA BARGE

Time Started 0930

Time Stopped 1915

Beginning Flow Rate 100cc
0.96 MIN.

Ending Flow Rate 100cc
1.08 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Person or Area Monitored PUMP #2 C. Young

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Job Classification SOT

Including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Sample No. 01130

Date 6/14/80

Description of task performed during monitoring period

Respirator used ☒ Yes ☐ No

Type? Organic

Wind, Temp. and Humidity

SE 86° 70%
CALM

Form filled in by J. L. Mariani, Jr.

DO 102258
CONFIDENTIAL

PUMP # 3
Block MARINE DOCK # 2 Person or Area Monitored B-Dock 1 - C. Fire Sample No 01131
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE EBL-201 ☐ Excursion ☐ Other _____ Date 6/14/80
Other Chemicals Present: _____ Job Classification S/S Description of task performed during monitoring period
UNLOADING NAPHTHA BARGE including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 0930
Time Stopped 1915
Beginning Flow Rate 0.98 MIN. Respirator used ☒ Yes ☐ No Type? ORGANIC
100 CC Ending Flow Rate 1.00 MIN. Wind, Temp. and Humidity
100 CC SE 86° 70%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No CALM
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 5
Block MARINE DOCK # 2 Person or Area Monitored Dock Office Sample No 01133
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE EBL-201 ☐ Excursion ☐ Other _____ Date 6-14-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
UNLOADING NAPHTHA BARGE including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 0930 6/14/80
Time Stopped 1745
Beginning Flow Rate 0.99 MIN. Respirator used ☐ Yes ☐ No Type? ORGANIC
100 CC Ending Flow Rate 1.12 MIN. Wind, Temp. and Humidity
100 CC SE 86° 70%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No CALM
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102259
CONFIDENTIAL

Block MARINE DOCK #2 PUMP #7 (NEXT TO BARGE)
Person or Area Monitored WALKWAY ON TOP DECK Sample No. 01134
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE EBL-201 ☐ Excursion ☐ Other _____ Date 6/14/80

Other Chemicals Present: UNLOADING NAPHTHA BARGE Job Classification _____ Description of task performed during monitoring period
Including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Time Started 0930

Time Stopped 1747

Beginning Flow Rate 100 cc 0.97 MIN. Respirator used ☐ Yes ☐ No

Ending Flow Rate 100 cc 1.00 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Type? SE 86° 70% ORGANIC
CALM
Wind, Temp. and Humidity L

Form filled in by J.L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102260
CONFIDENTIAL

REPORT OF ANALYSIS

REFERENCE N 0025-16
DATE THIS REPORT 6/20/80
CHARGE 90
DEPT Tank Car Cleaning

Samples - Carbon Tetrachloride In Air At Tank Car Cleaning

[illegible]

OVEN TEMP. 50 °C

DECT. TEMP. 200 °C

MIN DETECTABLE 7 ug/ml

Other Analytical Method _____

DO 102261
CONFIDENTIAL

EY:

SIGNED

$$\frac{\text{Milligrams detected} \times 24.9 \times 1000}{153.84 \times 1.00 \times \text{liters of air Sampled}} = \text{ppmv}$$

(MW)(Charcoal
efficiency)

7-16-80

40%

Potential Personnel Exposure To Carbon tetrachloride at TCC

Sample ID

$$01135 \quad \frac{0.271 \times 24.4 \times 1000}{153.84 \times 1.00 \times 78.48} = 0.89$$

$$01136 \quad \frac{0.160 \times 24.4 \times 1000}{153.84 \times 1.00 \times 74.04} = 0.58$$

DO 102262
CONFIDENTIAL

TANK CAR PUMP #1
Bl ck CLE NG - 41 Person or Area Monitored WILLIE L NARDS Sample No 01135
M nit ring for ARSON Type Sample: ☒ Personnel ☐ Area
CARS DOW 6182-DOW 3660 ☐ Excursion ☐ Other _____ Date 6-17-80
Oth r Chemicals Present: Job Classification LABORER Description of task performed during monitoring period
METHYLENE CHLORIDE-PROPYLENE Including any unusual activities OPENING + CLEANING CARS
OXIDE-VINYL CHLORIDE
Tim Started 300 PM
Time Stopped 11:00 PM
Beginning Flow Rate 0.95 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 cc
Ending Flow Rate 1.03 MIN. Wind, Temp. and Humidity
100 cc FROM W/SW-7-8 MPH 93°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Morneau, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

TANK CAR PUMP #2
Block CLEANING - 41 Person or Area Monitored MIKE OSBORNE Sample No 01136
Monit ring for ARSON Type Sample: ☒ Personnel ☐ Area
CARS DOW 6182-DOW 3660 ☐ Excursion ☐ Other _____ Date 6-17-80
Other Chemicals Present: Job Classification LABORER Description of task performed during monitoring period
METHYLENE CHLORIDE-VINYL Including any unusual activities OPENING + CLEANING CARS
CHLORIDE-PROPYLENE OXIDE
Time Started 300 PM
Time Stopped 11:00 PM
Beginning Flow Rate 1.00 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 cc
Ending Flow Rate 1.18 MIN. Wind, Temp. and Humidity
100 cc FROM W/SW-7-8 MPH 93°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Morneau, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102263
CONFIDENTIAL

SIGNED

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{MW} \times \text{Charcoal Effec.} \times \text{liters air sampled}} = \text{ppm(v)}$$

6/25/80
2012

Potential Exposures to Benzene at Marine Dock #2
Sample I.D.

$$001141 \quad \frac{< 19 \mu\text{s} \times 24.4}{78 \times 9.00 \times 70.10} = < 0.085$$

$$001142 \quad \frac{1.852 \times 24.4 \times 1000}{78 \times 1.00 \times 58.87} = 9.841$$

$$001143 \quad \frac{0.663 \times 24.4 \times 1000}{78 \times 1.00 \times 61.43} = 3.376$$

$$001144 \quad \frac{0.227 \times 24.4 \times 1000}{78 \times 1.00 \times 60.87} = 1.167$$

$$001145 \quad \frac{0.971 \times 24.4 \times 1000}{78 \times 1.00 \times 62.07} = 4.894$$

$$001146 \quad \frac{1.158 \times 24.4 \times 1000}{78 \times 1.00 \times 59.43} = 6.095$$

MARINE
DOCK #2
Monitoring for BENZENE
BARGE PC-2804

PUMP #1

Person or Area Monitored Trd Room

Sample No. 01141

Type Sample: ☐ Personnel ☒ Area

☐ Excursion ☐ Other

Date 6-22-80

Other Chemicals Present:

NONE

Job Classification _____ Description of task performed during monitoring period

Including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Time Started 0540

Time Stopped 1700

Beginning Flow Rate 100 cc
0.96 MIN.

Respirator used ☐ Yes ☐ No

Type? _____

Ending Flow Rate 100 cc
0.98 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

FROM S/E-5 MPH

72°

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Maroney, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK #2

PUMP #2

Person or Area Monitored D. Hammond / R. SENECA

Sample No. 01142

Monitoring for BENZENE

Type Sample: ☒ Personnel ☐ Area

BARGE PC-2804

☐ Excursion ☐ Other

Date 6-22-80

Other Chemicals Present:

NONE

Job Classification MTT Description of task performed during monitoring period

including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Time Started 0540

Time Stopped 1700

Beginning Flow Rate 100 cc
0.96 MIN.

Respirator used ☒ Yes ☐ No

Type? COMFO II

Ending Flow Rate 100 cc
1.35 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

FROM S/E-5 MPH

72°

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Maroney, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102266
CONFIDENTIAL

MARINE
PUMP DOCK # 2

PUMP # 3

Person or Area Monitored on top of Dock Next to Barge Sample No. 01143

Monitoring for DENZENE

Type Sample: ☐ Personnel ☒ Area

BARGE PC-2804

☐ Excursion ☐ Other

Date 6-22-80

Other Chemicals Present:

Job Classification _____ Description of task performed during monitoring period

NONE

including any unusual activities LOADING BARGE -

VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Time Started 0630

Time Stopped 1700

Beginning Flow Rate 100 cc
1.00 MIN.

Respirator used ☐ Yes ☐ No

Type? _____

Ending Flow Rate 100 cc
0.95 MIN.

Wind, Temp. and Humidity

FROM S/E - 5 MPH

72°

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Marmon, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4

Block MARINE DOCK # 2

Person or Area Monitored on top of Barge

Sample No. 01144

Monitoring for BENZENE

Type Sample: ☐ Personnel ☒ Area

BARGE PC-2804

☐ Excursion ☐ Other

Date 6-22-80

Other Chemicals Present:

Job Classification _____ Description of task performed during monitoring period

NONE

including any unusual activities LOADING BARGE -

VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Time Started 0630

Time Stopped 1700

Beginning Flow Rate 100 cc
0.97 MIN.

Respirator used ☐ Yes ☐ No

Type? _____

Ending Flow Rate 100 cc
1.10 MIN.

Wind, Temp. and Humidity

FROM S/E - 5 MPH

72°

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Marmon, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102267
CONFIDENTIAL

Block MARINE DOCK #2

Monitoring for BENZENE
BARGE PC-2804

Other Chemicals Present:

NONE

Time Started 0630

Time Stopped 1700

Beginning Flow Rate 0.99 MIN.

Ending Flow Rate 1.04 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #5

Person or Area Monitored

E. Alatz

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Sample No 01145

Date 6-22-80

Job Classification Marine Tech. In. Description of task performed during monitoring period

including any unusual activities LOADING BARGE -

VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Type? COMFO II

Wind, Temp. and Humidity

FROM S/E - 5 MPH

72°

Form filled in by J. L. Marwan, Jr.

Block MARINE DOCK #2

Monitoring for BENZENE
BARGE PC-2804

Other Chemicals Present:

NONE

Time Started 0630

Time Stopped 1700

Beginning Flow Rate 0.99 MIN.

Ending Flow Rate 1.13 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #7

Person or Area Monitored

L. Dupuy - F. Barlow

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Sample No 01146

Date 6-22-80

Job Classification MTT/M.S. Description of task performed during monitoring period

including any unusual activities LOADING BARGE -

VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Type? COMFO II

Wind, Temp. and Humidity

FROM S/E - 5 MPH

72°

Form filled in by J. L. Marwan, Jr.

DO 102268
CONFIDENTIAL

T.S.W

$$\frac{\text{Micrograms detected} \times 24.4 \times 1000}{\text{molecular wt.} \times 1.00 \times \text{liters of air sampled}} = \text{ppm(v)}$$

8-12-80
ADK

Potential Personnel Exposure to Vinyl Chloride at Tasker Clinic
Sample I.D.

$$01148 \quad \frac{<.006. \times 24.4 \times 1000}{62.5 \times 1.00 \times 6.0} = < 0.39$$

DO 102270
CONFIDENTIAL

TANK CAR
Block CLEANING - 41 PUMP # 6 Person or Area Monitored HERBERT WALKER Sample No Q1148
Monitoring for VINYL CHLORIDE Type Sample: ☒ Personnel ☐ Air
CAR DOW 4432 ☒ Excursion ☐ Other _____ Date 6-24-80
Other Chemicals Present: PERCHLOROETHYLENE-GLYCOL- Job Classification LABORER Description of task performed during monitoring period
HCL-VINYLDENE CHLORIDE including any unusual activities OPENING CAR ONLY
Time Started 955 AM
Time Stopped 1010 AM (1010)
Beginning Flow Rate 0.25 MIN. ^{100 cc} Respirator used ☒ Yes ☐ No Type? FULL-FACE, BREATHING AIR
Ending Flow Rate 0.25 MIN. ^{100 cc} Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM W/SW-10-12 MPH 87°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Moran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102271
CONFIDENTIAL

$$\frac{\text{micrograms detected} \times 24.4}{62.5 \times 1.00 \times \text{liters of air sampled}} = \text{ppm (V)}$$

(M.W.) (Charcoal)
(effec)

8-12-80

D/K

Excursion Sample Opening Vinylchloride Can @ T.C.C.
Sample I.D.

01160

$$\frac{6 \times 24.4}{62.5 \times 1.00 \times 5.78} = < 0.41$$

TANK CAR PUMP #11
Block CLEAN 'G-41 Person or Area Monitored EDWARD DOMINIQUE Sample No 01160
Monitoring for VINYL CHLORIDE Type Sample: ☒ Personnel ☐ Area
CAR CATX 46955 ☒ Excursion ☐ Other _____ Date 7-8-80
Other Chemicals Present: BUTADIENE-GLYCOL Job Classification LABORER Description of task performed during monitoring period
Including any unusual activities OPENING CAR ONLY
Time Started 1055 AM
Time Stopped 1110 AM
Beginning Flow Rate 0.26 MIN. 100 cc Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 0.26 MIN. 100 cc Wind, Temp. and Humidity
FROM E/NE-3 MPH - 89°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #1
Block MARINE DOCK #1 Person or Area Monitored NORTH END OF DOCK ON GOM CRANE Sample No 01161
Monitoring for VINYL CHLORIDE Type Sample: ☐ Personnel ☒ Area
IN AMBIENT AIR ☐ Excursion ☐ Other _____ Date 7-11-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
Including any unusual activities NO LOADING OR UNLOADING DURING THIS PERIOD.
Time Started 910 AM
Time Stopped 200 PM
Beginning Flow Rate 0.95 MIN. 100 cc Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 1.02 MIN. 100 cc Wind, Temp. and Humidity
FROM NW 2-3 MPH 94°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102274
CONFIDENTIAL

$$\frac{\text{Micrograms detected} \times 24.4}{62.5 \times 1.00 \times \text{liters of air sampled} \times \text{charcoal effec.}} = \text{ppm(V)}$$

8-12-80
OK

Area Samples - Vinyl Chloride at marine Dock #1

Sample I.D.

$$01161 \quad \frac{< 6 \times 24.4}{62.5 \times 1.00 \times 29.44} = < 0.08$$

$$01162 \quad \frac{< 6 \times 24.4}{62.5 \times 1.00 \times 28.29} = < 0.08$$

$$01163 \quad \frac{< 6 \times 24.4}{62.5 \times 1.00 \times 28.57} = < 0.08$$

$$01164 \quad \frac{< 6 \times 24.4}{62.5 \times 1.00 \times 29.29} = < 0.08$$

$$01321 \quad \frac{< 6 \times 24.4}{62.5 \times 1.00 \times 29.0} = < 0.08$$

$$01388 \quad \frac{< 6 \times 24.4}{62.5 \times 1.00 \times 29.9} = < 0.08$$

DO 102276
CONFIDENTIAL

TANK CAR
Block CLEANING - 41 Pump # 11 Person or Area Monitored EDWARD DOMINIQUE Sample No 01160
Monitoring for VINYL CHLORIDE Type Sample: ☒ Personnel ☐ Area
CAR GATX 46955 ☒ Excursion ☐ Other _____ Date 7-8-80
Other Chemicals Present: _____ Job Classification LABORER Description of task performed during monitoring period
BUTADIENE - GLYCOL Including any unusual activities OPENING CAR ONLY
Time Started 1055 AM
Time Stopped 1110 AM
Beginning Flow Rate 0.26 MIN. Respirator used ☒ Yes ☐ No Type: _____
Ending Flow Rate 0.26 MIN. Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM E/NE-3 MPH - 89°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 1
Block MARINE DOCK #1 Person or Area Monitored NORTH END OF DOCK ON GOTH CRANE Sample No 01161
Monitoring for VINYL CHLORIDE Type Sample: ☐ Personnel ☒ Area
IN AMBIENT AIR ☐ Excursion ☐ Other _____ Date 7-11-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
NONE Including any unusual activities NO LOADING OR UNLOADING DURING THIS PERIOD.
Time Started 910 AM
Time Stopped 200 PM
Beginning Flow Rate 0.95 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 1.02 MIN. Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM NW 2-3 MPH 94°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102277
CONFIDENTIAL

PUMP # 2 EAST SIDE OF DOCK AT END

Block MARINE DOCK # 1 Person or Area Monitored OF DRIVEWAY Sample No 01162
Monitoring VINYL CHLORIDE Type Sample: ☐ Personnel ☒ Area
IN AMBIENT AIR ☐ Excursion ☐ Other _____ Date 7-11-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
NONE including any unusual activities NO LOADING OR UNLOADING DURING THIS PERIOD.
Time Started 910AM
Time Stopped 200 PM
Beginning Flow Rate 0.95 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 1.10 MIN. Wind, Temp. and Humidity
FROM NW 2-3 MPH 94°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4 WEST SIDE OF DOCK OPPOSITE

Block MARINE DOCK # 1 Person or Area Monitored LOADING HOSES Sample No 01163
Monitoring VINYL CHLORIDE Type Sample: ☐ Personnel ☒ Area
IN AMBIENT AIR ☐ Excursion ☐ Other _____ Date 7-11-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
NONE including any unusual activities NO LOADING OR UNLOADING DURING THIS PERIOD.
Time Started 910AM
Time Stopped 200 PM
Beginning Flow Rate 0.97 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 1.06 MIN. Wind, Temp. and Humidity
FROM NW 2-3 MPH 94°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102278
CONFIDENTIAL

PUMP # 5

Block MARIA DOCK # 1 Person or Area Monitored INSIDE CONTROL ROOM Sample No 01164

Monitoring for VINYL CHLORIDE Type Sample: ☐ Personnel ☒ Area
IN AMBIENT AIR ☐ Excursion ☐ Other _____ Date 7-11-80

Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities NO LOADING OR UNLOADING DURING THIS PERIOD.

Time Started 910 AM

Time Stopped 200 PM

Beginning Flow Rate 0.96 MIN 100 cc Respirator used ☐ Yes ☒ No Type? _____
100 cc

Ending Flow Rate 1.02 MIN

Calibration Check Prior to Monitoring? ☒ Yes ☐ No Wind, Temp. and Humidity FROM NW 2-3 MPH 94°

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 6

Block MARINE DOCK # 1 Person or Area Monitored ON WORK BARGE SOUTH OF DOCK Sample No 01321

Monitoring for VINYL CHLORIDE Type Sample: ☐ Personnel ☒ Area
IN AMBIENT AIR ☐ Excursion ☐ Other _____ Date 7-11-80

Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities NO LOADING OR UNLOADING DURING THIS PERIOD.

Time Started 910 AM

Time Stopped 200 PM

Beginning Flow Rate 0.98 MIN 100 cc Respirator used ☐ Yes ☒ No Type? _____
100 cc

Ending Flow Rate 1.02 MIN

Calibration Check Prior to Monitoring? ☒ Yes ☐ No Wind, Temp. and Humidity FROM N/W 2-3 MPH 94°

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102279
CONFIDENTIAL

Block MARINE DOCK #1 Pump # 7 ON WORK BARGE EAST SIDE
Person or Area Monitored (FRONT) OF DOCK Sample No 01388

Monitoring for VINYL CHLORIDE Type Sample: ☐ Personnel ☒ Area

IN AMBIENT AIR

☐ Excursion ☐ Other _____

Date 7-11-80

Other Chemicals Present:

NONE

Job Classification _____

Description of task performed during monitoring period

Including any unusual activities NO LOADING OR UNLOADING DURING THIS PERIOD.

Time Started 910AM

Time Stopped 200PM ??? PUMP NOT RUNNING AT END OF SAMPLE PERIOD -

Beginning Flow Rate 100 CC
0.97 MIN. Respirator used ☐ Yes ☒ No

Type? _____

Ending Flow Rate ???

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

FROM NW 2-3 MPH 94°

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mariani, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102280
CONFIDENTIAL

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 92-43
DATE THIS REPORT 7/31/80
CHAPTER 90
DEPT. Solvents

REPORT OF ANALYSIS

Samples - CCl₄ in Air at Marine Dock #1 & Tank Car Cleaning

ID	Total weight detected -- milligrams	DATE SAMPLED	Remarks
D1389	.375	7/13/80	Personnel Tank Car Clk
D1390	.265		"
D1391	3.528		Personnel / Excursion
D1156	L .0398	7/7/80	Area (office) Main
D1157	.67		Personnel
D1158	1.91		" "
D1159	2.22		" "

GC Column 1/8" x 5' S 0.1% SP2100/Carbowack C

OVEN TEMP. 45 °

mls Solvent 10 ml CS₂

JECT. TEMP. 250 °

Blank ND

Limit of Determination 3.9 µg/ml

Spikes none

Other Analytical Method _____

DO 102281
CONFIDENTIAL

D. R. Smith

Permanently

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{153.84 \times 1.00 \times \text{liters of air Sampled}} = \text{ppm(V)}$$

8-11-80
D/K

Potential Carbon Tetrachloride Exposure at Marine #1

Sample ID.

$$01156 \quad \frac{0.0398 \times 24.4 \times 1000}{153.84 \times 1.00 \times 22.06} = 0.29$$

$$01157 \quad \frac{0.67 \times 24.4 \times 1000}{153.84 \times 1.00 \times 24.46} = 4.34$$

$$01158 \quad \frac{1.91 \times 24.4 \times 1000}{153.84 \times 1.00 \times 21.15} = 14.32$$

$$01159 \quad \frac{2.22 \times 24.4 \times 1000}{153.84 \times 1.00 \times 18.63} = 18.90$$

DO 102282
CONFIDENTIAL

PUMP #1
Block MARINE DOCK #1 Person or Area Monitored CONTROL ROOM Sample No 01156
IRBON
Monitoring for TETRACHLORIDE Type Sample: ☐ Personnel ☒ Area
BARGE JAR-2 ☐ Excursion ☐ Other _____ Date 7-3-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
NONE Including any unusual activities LOADING BARGE
Time Started 1315
Time Stopped 1700
Beginning Flow Rate 1.00 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 cc
Ending Flow Rate 1.04 MIN. Wind, Temp. and Humidity
100 cc E - 90° 78%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marian, Jr.
DOW LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #2
Block MARINE DOCK #1 Person or Area Monitored KEN BARNETT Edward Altazan Sample No 01157
CARBON
Monitoring for TETRACHLORIDE Type Sample: ☒ Personnel ☐ Area
BARGE JAR-2 ☐ Excursion ☐ Other _____ Date 7-3-80
Other Chemicals Present: _____ Job Classification MTT Description of task performed during monitoring period
NONE Including any unusual activities LOADING BARGE
Time Started 1315
Time Stopped 1700
Beginning Flow Rate 0.92 MIN. Respirator used ☒ Yes ☐ No Type? _____
100 cc
Ending Flow Rate 0.92 MIN. Wind, Temp. and Humidity
100 cc E - 90° 78%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marian, Jr.
DOW LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102283
CONFIDENTIAL

PUMP # 4
Block MARINE DOCK # 1 Person or Area Monitored Frederick Jackson Sample No 01158
Monitoring for IRBON TETRACHLORIDE Type Sample: ☒ Personnel ☐ Area
BARGE JAR-2 ☐ Excursion ☐ Other _____ Date 7-3-80
Other Chemicals Present: _____ Job Classification MTT Description of task performed during monitoring period
NONE including any unusual activities LOADING BARGE
Time Started 1320
Time Stopped 1700
Beginning Flow Rate 100 cc 1.00 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 100 cc 1.08 MIN. Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No East 90 76
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 5
Block MARINE DOCK # 1 Person or Area Monitored MARTINA GEHLING Sample No 01159
Monitoring for CARBON TETRACHLORIDE Type Sample: ☒ Personnel ☐ Area
BARGE JAR-2 ☐ Excursion ☐ Other _____ Date 7-3-80
Other Chemicals Present: _____ Job Classification MTT Description of task performed during monitoring period
NONE including any unusual activities LOADING BARGE
Time Started 13:50 1/2
Time Stopped 17:00
Beginning Flow Rate 100 cc 0.97 MIN. Respirator used ☒ Yes ☐ No Type? _____
Ending Flow Rate 100 cc 1.07 MIN. Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No WINDY, TEMP 90, 76
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102284
CONFIDENTIAL

REFERENCE NO 6025-23

DATE THIS REPORT 8-13-80

CHARGE 82

DEPT. Marine Dock #
Date Sampled 8-13-80

Samples - Personnel Exposure To Vinyl Chloride

GC Column 12' 100/100 OVEN TEMP. 200

mls Solvent 10 mls CS₂ DET. TEMP. 200 °C

Blank N/A Limit of Det. 0.60 μ g/g

Spikes N/A

Other Analytical Notes 100% Pure 1,1-Dichloroethane - 94%

DO 102285
CONFIDENTIAL

$$\frac{\text{micrograms detected} \times 24.4 \times 1000}{\text{M.W.} \times \text{chemical Effec.} \times \text{liters in Sampled}} = \text{ppm (V)}$$

8-14-80
OK

Potential Vinyl Chloride Exposures at marine Dock # 2
Sample I.D.

$$01393 \quad \frac{0.33 \times 24.4 \times 1000}{62.5 \times 1.00 \times 15.98} = 8.062$$

$$01394 \quad \frac{1.31 \times 24.4 \times 1000}{62.5 \times 1.00 \times 12.48} = 40.979$$

$$01395 \quad \frac{4.63 \times 24.4 \times 1000}{62.5 \times 1.00 \times 10.30} = 175.490$$

DO 102286
CONFIDENTIAL

PUMP #1 GREG, FRANKLIN
Block MARINE DOCK #2 Person or Area Monitored ~~Greg, Franklin~~ Dick Sample No 01393
Monitoring for VINYL CHLORIDE Type Sample: ☒ Personnel ☐ Area
SHIP SUNNY DUKE ☒ Excursion ☐ Other Date 8-13-80
Other Chemicals Present: NONE Job Classification OTT Description of task performed during monitoring period
Including any unusual activities LOADING VINYL CHLORIDE SHIP -
MONITORED DISCONNECT ONLY -
Time Started 0730
Time Stopped 0845
Beginning Flow Rate 0.94 MIN. 200 CC Respirator used ☒ Yes ☐ No Type? BREATHING AIR
Ending Flow Rate 0.94 MIN. 200 CC Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM N/NW - 6 MPH 81°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marwan, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #2 DICK BEARD
Block MARINE DOCK #2 Person or Area Monitored ~~Greg, Franklin~~ Dick Sample No 01394
Monitoring for VINYL CHLORIDE Type Sample: ☒ Personnel ☐ Area
SHIP SUNNY DUKE ☒ Excursion ☐ Other Date 8-13-80
Other Chemicals Present: NONE Job Classification S.D.T. Description of task performed during monitoring period
Including any unusual activities LOADING VINYL CHLORIDE SHIP -
MONITORED DISCONNECT ONLY
Time Started 0730
Time Stopped 0830
Beginning Flow Rate 0.94 MIN. 200 CC Respirator used ☒ Yes ☐ No Type? ~~Breathing Air~~ BREATHING AIR
Ending Flow Rate 0.98 MIN. 200 CC Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM N/NW - 6 MPH 81°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marwan, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102287
CONFIDENTIAL

Block MARINE DOCK #2 Person or Area Monitored PUMP #3 / Dennis Dupuy Sample No 01395
Monitoring for VINYL CHLORIDE Type Sample: ☒ Personnel ☐ Area
SHIP SUNNY DUKE ☒ Excursion ☐ Other Date 8-13-80
Other Chemicals Present: NONE Job Classification OT Description of task performed during monitoring period
including any unusual activities LOADING VINYL CHLORIDE SHIP -
MONITORED DISCONNECT ONLY -
Time Started 0730
Time Stopped 0820
Beginning Flow Rate 200 cc 0.94 MIN. Respirator used ☒ Yes ☐ No Type? Breathing Air
Ending Flow Rate 200 cc 1.00 MIN. Wind, Temp. and Humidity
FROM N/NW - 6 MPH 81°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marston, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102288
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0025-33DATE THIS REPORT 9/10/80CHARGE 164DEPT. Marine Dock No. 6REPORT OF ANALYSISSamples - Personnel Exposure to Benzene

ID	Total weight detected -- milligrams					Remarks
01404	2.72					Barge PC - 2804
01405	11.67					Date Sampled 8/24/80
01406	6.89					
01407	1.78					
01408	0.99					
Spike	Theor. 1.76	Act. 1.78	(Recovery) 99%			
						Barge EBL-83
01412	0.02					Date Sampled - 8/28/80
01413	2.80					"
01414	ND*					"
01415	ND*					"
01416	0.85					"
01417	0.02					"

GC Column 0.2 % Carbowax 1500OVEN TEMP. 120 °Cmls Solvent 10 mls CS₂DECT. TEMP. 200 °CBlank ND*Limit of Determination 2 µg/mlSpikes Charcoal Tube Injection and recovery

Other Analytical Method

DO 102289
CONFIDENTIAL*Not DeterminedBY TJW

SIGNED

Terry J Wilks

$$\frac{\text{Milligrams distilled} \times 24.4 \times 1000}{\text{mL} \times \text{density} \times \text{liters sampled}} = \text{ppm (V)}$$

(78) (.99)

9-10-86
D/C

Potential Benzene Exposure at Marine Deck #2.
Sample I.D.

$$\text{C1404} \quad \frac{2.72 \times 24.4 \times 1000}{78 \times .99 \times 57.07} = 15.06$$

$$\text{C1405} \quad \frac{11.67 \times 24.4 \times 1000}{78 \times .99 \times 56.50} = 65.27$$

$$\text{C1406} \quad \frac{6.89 \times 24.4 \times 1000}{78 \times .99 \times 64.20} = 33.91$$

$$\text{C1407} \quad \frac{1.78 \times 24.4 \times 1000}{78 \times .99 \times 55.12} = 10.20$$

$$\text{C1408} \quad \frac{0.99 \times 24.4 \times 1000}{78 \times .99 \times 68.88} = 4.54$$

* BARGE PC-2804

DO 102290
CONFIDENTIAL

PUMP # 2
WALKWAY
Block MARI DOCK # 2 Person or Area Monitored TOP DECK Sample No 01404
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE PC-2804 ☐ Excursion ☐ Other _____ Date 8-24-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
LOADING Including any unusual activities LOADING BARGE -
VINYL CHLORIDE VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 1150
Time Stopped 2115
Beginning Flow Rate 100 CC 1.00 MIN. Respirator used ☐ Yes ☐ No Type? _____
Ending Flow Rate 0.98 MIN. Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM E/SE - 0-4 MPH 83°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete.
Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 3
Block MARINE DOCK # 2 Person or Area Monitored CENTER BARGE Sample No 01405
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE PC-2804 ☐ Excursion ☐ Other _____ Date 8-24-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
LOADING Including any unusual activities BARGE LOADING -
VINYL CHLORIDE VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 1150
Time Stopped 2115
Beginning Flow Rate 100 CC 1.02 MIN. Respirator used ☐ Yes ☐ No Type? _____
Ending Flow Rate 0.97 MIN. Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM E/SE 0-4 MPH 83°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete.
Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102291
CONFIDENTIAL

Block MARINA DOCK #2 Pump #4 1150-1500 1500-2115
Monitoring for BENZENE Person or Area Monitored TOU MARTIN GETHLING Sample No 01406
BARGE PC-2804 Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other Date 8-24-80
Other Chemicals Present: Job Classification OT, OT Description of task performed during monitoring period
LOADING Including any unusual activities LOADING BARGE -
VINYL CHLORIDE VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 1150-1500
Time Stopped 2115
Beginning Flow Rate 1.04 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc Ending Flow Rate 0.72 MIN. Wind, Temp. and Humidity
0.72 MIN. Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM E/SE 0-4 MPH 83°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marcan, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK #2 Pump #5 1150-1500 1500-2115
Monitoring for BENZENE Person or Area Monitored KEN & Leonard Sample No 01407
BARGE PC-2804 Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other Date 8-24-80
Other Chemicals Present: Job Classification OTT, OTT Description of task performed during monitoring period
LOADING Including any unusual activities LOADING BARGE -
VINYL CHLORIDE VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 1150-1500
Time Stopped 2115
Beginning Flow Rate 0.98 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc Ending Flow Rate 1.07 MIN. Wind, Temp. and Humidity
1.07 MIN. Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM
Calibration Equipment Used? BUBBLE E/SE 0-4 MPH 83°
NOTE: Job description must be concise and complete. Form filled in by J.L. Marcan, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102292
CONFIDENTIAL

PUMP # 6

Block MARINE DOCK # 2 Person or Area Monitored ~~Site~~ BILLY BOLYER Sample No 01408

Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE PC-2804 ☐ Excursion ☐ Other Date 8-24-80

Other Chemicals Present: Job Classification SOT (Marine tech) Description of task performed during monitoring period
~~LOADING~~ Including any unusual activities LOADING BARGE -
VINYL CHLORIDE VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE

Tim Started 1150

Time Stopped 2:45 7305
100 cc

Beginning Flow Rate 0.98 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc

Ending Flow Rate 0.98 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No Wind, Temp. and Humidity FROM
~~SE~~ E/SE-0-4 MPH 83°

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete. Form filled in by J.L. Mariani, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102293
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0025-33DATE THIS REPORT 9/10/80CHARGE 169DEPT Marine Deck No. 2REPORT OF ANALYSISSamples - Personnel Exposure to Benzene

ID	Total weight detected -- milligrams					Remarks
01404	2.72					Barge PC - 2804
01405	11.67					Date Sampled 8/24/80
01406	6.89					
01407	1.78					
01408	0.99					
Spike	Theor. 1.76	Act. 1.78	(Recovery) 99%			
						Barge ERL-83
01412	0.02					Date Sampled - 8/28/80
01413	2.80					"
01414	ND*					"
01415	ND*					"
01416	0.85					"
01417	0.02					"

GC Column 0.2 % Carbowax 1500OVEN TEMP. 120 °Cmls Solvent 10 mls CS₂DECT. TEMP. 200 °CBlank ND*Limit of Determination 2 µg/mlSpikes Charcoal Tube Injection and recovery

Other Analytical Method _____

*Not DeterminedDO 102294
CONFIDENTIALBY: TJW

SIGNED

Terry S Wilks

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{78 \times .99 \times \text{liters air sampled}} = \text{ppm(V)}$$

9-10-80
SK

Potential Benzene Exposure at Merin Dock #2
Sample I.D.

$$01412 \quad \frac{0.02 \times 24.4 \times 1000}{78 \times .99 \times 35.64} = 0.18$$

$$01413 \quad \frac{2.80 \times 24.4 \times 1000}{78 \times .99 \times 37.50} = 23.59$$

$$01414 \quad \frac{<0.02 \times 24.4 \times 1000}{78 \times .99 \times 36.00} < 0.18$$

$$01415 \quad \frac{<0.02 \times 24.4 \times 1000}{78 \times .99 \times 35.82} < 0.18$$

$$01416 \quad \frac{0.85 \times 24.4 \times 1000}{78 \times .99 \times 33.80} = 7.95$$

$$01417 \quad \frac{0.02 \times 24.4 \times 1000}{78 \times .99 \times 36.48} = 0.18$$

* BARGE EBL-83

DO 102295
CONFIDENTIAL

PUMP # 1
Block MARIA DOCK # 2 Person or Area Monitored TOP WALK (TOP DECK NEXT TO BARGE) Sample No. 01412
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE EBL-83 ☐ Excursion ☐ Other _____ Date 8-28-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 0030
Time Stopped 0630
Beginning Flow Rate 0.97 MIN. 100 CC Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 1.05 MIN. 100 CC Wind, Temp. and Humidity
FROM WEST 3 MPH — 71°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Maran, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 2
Block MARINE DOCK # 2 Person or Area Monitored Center of Barge Sample No. 01413
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE EBL-83 ☐ Excursion ☐ Other _____ Date 8-28-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 0030
Time Stopped 0630
Beginning Flow Rate 0.98 MIN. 100 CC Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 0.94 MIN. 100 CC Wind, Temp. and Humidity
FROM WEST 3 MPH — 71°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Maran, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102296
CONFIDENTIAL

PUMP #3
Block MARINE DOCK #2 Person or Area Monitored J. L. Mariani Sample No. 01414
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE EBL-83 ☐ Excursion ☐ Other _____ Date 8-28-80
Other Chemicals Present: NONE Job Classification MARINE SPECIALIST Description of task performed during monitoring period
including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 0030
Time Stopped 0630
Beginning Flow Rate 100 cc 1.00 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 100 cc 1.00 MIN. Wind, Temp. and Humidity
FROM WEST 3 MPH — 71°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #4
Block MARINE DOCK #2 Person or Area Monitored unlabeled Control Room Sample No. 01415
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE EBL-83 ☐ Excursion ☐ Other _____ Date 8-28-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 0030
Time Stopped 0630
Beginning Flow Rate 100 cc 1.00 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 100 cc 1.01 MIN. Wind, Temp. and Humidity
FROM WEST 3 MPH — 71°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102297
CONFIDENTIAL

PUMP #5
Block MARINE DOCK #2 Person or Area Monitored John Mayo Sample No. 01416
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE EBL-83 ☐ Excursion ☐ Other _____ Date 8-28-80
Other Chemicals Present: NONE Job Classification MTT Description of task performed during monitoring period
including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 0030
Time Stopped 0630
Beginning Flow Rate 100 cc Respirator used ☒ Yes ☐ No Type? COMFO II
0.98 MIN. Ending Flow Rate 100 cc Wind, Temp. and Humidity
1.15 MIN. FROM WEST 3 MPH - 71°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Moraw, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #6 **BRETT FERGUSON**
Block MARINE DOCK #2 Person or Area Monitored Brett Ferguson Sample No. 01417
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE EBL-83 ☐ Excursion ☐ Other _____ Date 8-28-80
Other Chemicals Present: NONE Job Classification MTT Description of task performed during monitoring period
including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 0030
Time Stopped 0630
Beginning Flow Rate 100 cc Respirator used ☒ Yes ☐ No Type? COMFO II
0.97 MIN. Ending Flow Rate 100 cc Wind, Temp. and Humidity
1.02 MIN. FROM WEST 3 MPH - 71°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Moraw, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102298
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0027-7DATE THIS REPORT 9/23/80CHARGE 169DEPT. Marine Dock #2Samples taken 8/17/80REPORT OF ANALYSIS

Samples - Potential Personnel Exposure to Benzene

ID	Total weight detected -- milligrams	Remarks
01426	.076	
01427	.229	
01428	.135	
01429	.020	
01430	.186	
01431	.268	

GC Column .1% CW1500/Carbopack COVEN TEMP. 130 °Cmls Solvent 10 mls CS₂DECT. TEMP. 250 °CBlank .007mg compensated for in calculationsLimit of Determination .010 mg (.0010 mg)Spikes - 98% recovery

Other Analytical Method _____

DO 102799
CONFIDENTIALBY DRS.SIGNED LSMS TJW

$$\frac{\text{Milligrams Absorbed} \times 24.4 \times 1000}{\text{molecular wt} \times \text{Charcoal Effec.} \times \text{Liters Air Sampled}} = \text{ppm(V)}$$

10-13-80

ADIC

Potential Personnel Exposure to Benzene at Marine Dock #2
Sample I.D.

$$01426 \quad \frac{.076 \times 24.4 \times 1000}{78 \times .98 \times 53.66} = 0.452 = \textcircled{0.45}$$

$$01427 \quad \frac{.229 \times 24.4 \times 1000}{78 \times .98 \times 54.73} = 1.336 = \textcircled{1.34}$$

$$01428 \quad \frac{.135 \times 24.4 \times 1000}{78 \times .98 \times 56.12} = 0.768 = \textcircled{0.77}$$

$$01429 \quad \frac{.020 \times 24.4 \times 1000}{78 \times .98 \times 53.14} = 0.120 = \textcircled{0.12}$$

$$01430 \quad \frac{.186 \times 24.4 \times 1000}{78 \times .98 \times 44.33} = 1.339 = \textcircled{1.34}$$

$$01431 \quad \frac{.268 \times 24.4 \times 1000}{78 \times .98 \times 56.41} = 1.517 = \textcircled{1.52}$$

PUMP # 5

Block MARIA DOCK # 2Person or Area Monitored D. Hamme 2, Tony Sensat Sample No. 01426Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE PC-2805☐ Excursion ☐ OtherDate 9-17-80

Other Chemicals Present:

Job Classification MTT - MTT Description of task performed during monitoring periodNONEIncluding any unusual activities LOADING BARGE - VENTED TO ATMOSPHERETHRU BARGE'S OWN VENT PIPETime Started 0520-07000520-0700-HAMMONDSTime Stopped 0700-14300700-1430-SENSATBeginning Flow Rate 0.97 MIN.Respirator used ☒ Yes ☐ NoType? COMFO IIEnding Flow Rate 1.08 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No3 SW 73° 80%Calibration Equipment Used? BUBBLEINTERMITTENT SHOWERS

NOTE: Job description must be concise and complete.

Form filled in by J. L. Moreau, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 6

Block MARINE DOCK # 2Person or Area Monitored E. A. Atazan 438-13-3680 Sample No. 01427Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE PC-2805☐ Excursion ☐ OtherDate 9-17-80

Other Chemicals Present:

Job Classification MTT - MTT Description of task performed during monitoring periodNONEIncluding any unusual activities Loading of Barge - VENTED TO ATMOSPHERETHRU BARGE'S OWN VENT PIPETime Started 0520-0730ATAZANTime Stopped 0730-1430FERGUSON (0730-1430)Beginning Flow Rate 0.97 MIN.Respirator used ☒ Yes ☐ NoType? 2 cartridge (COMFO II)Ending Flow Rate 1.04 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoSW. 3 mph. 80%Calibration Equipment Used? BUBBLEINTERMITTENT SHOWERS

NOTE: Job description must be concise and complete.

Form filled in by J. L. Moreau, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102301
CONFIDENTIAL

PUMP # 7
Block MARINE DOCK #2 Person or Area Monitored N. Walsh Sample No .01428
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE PC-2805 ☐ Excursion ☐ Other _____ Date 9-17-80
Other Chemicals Present: _____ Job Classification OS OS Description of task performed during monitoring period
NONE Including any unusual activities LOADING BARGE - VENTED TO ATMOSPHERE
THRU BARGE'S OWN VENT PIPE
Time Started 0520 - 730 - WASHINGTON
Time Stopped 0730 - 1430 - BREUX
Beginning Flow Rate 0.98 MIN. Respirator used ☒ Yes ☐ No Type? Canister (COMFO II)
100 cc Ending Flow Rate 0.98 MIN. Wind, Temp. and Humidity
SW 0-3, 73° 80%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No INTERMITTENT SHOWERS
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 8
Block MARINE DOCK #2 Person or Area Monitored Control Room Sample No .01429
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE PC-2805 ☐ Excursion ☐ Other _____ Date 9-17-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
NONE Including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THRU BARGE'S OWN VENT PIPE
Time Started 0520
Time Stopped 1430
Beginning Flow Rate 0.95 MIN. Respirator used ☐ Yes ☐ No Type? _____
100 cc Ending Flow Rate 1.12 MIN. Wind, Temp. and Humidity
FROM SW - 3 MPH 73°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102302
CONFIDENTIAL

PUMP # 9 (43586-4557)
Block MARINE DOCK # 2 Person or Area Monitored N.D. my Sample No 01430
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE PC-2805 ☐ Excursion ☐ Other _____ Date 9-17-80
Other Chemicals Present: _____ Job Classification MTT Description of task performed during monitoring period
NONE including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THRU BARGE'S OWN VENT PIPE
Time Started 0700
Time Stopped 1430
Beginning Flow Rate 100 cc Respirator used ☒ Yes ☐ No Type? Cartridge (COMFO II)
0.97 MIN. Wind, Temp. and Humidity SW - 0-3 MPH 73°, 80%
Ending Flow Rate 100 cc INTERMITTENT SHOWERS
1.06 MIN. Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Equipment Used? BUBBLE Form filled in by J.L. Morahan, Jr.
Description must be concise and complete.
LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 10
Block MARINE DOCK # 2 Person or Area Monitored MARTINA GEXLING II Sample No 01431
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE PC-2805 ☐ Excursion ☐ Other _____ Date 9/17/80
Other Chemicals Present: _____ Job Classification MARINE SPECIALIST Description of task performed during monitoring period
NONE including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THRU BARGE'S OWN VENT PIPE
Time Started 0700
Time Stopped 1420
Beginning Flow Rate 100 cc Respirator used ☒ Yes ☐ No Type? 2 CARTRIDGE - (COMFO II)
1.01 MIN. Wind, Temp. and Humidity 3 MPH SW 73° 80%
Ending Flow Rate 100 cc INTERMITTENT SHOWERS
0.55 MIN. Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Equipment Used? BUBBLE Form filled in by J.L. Morahan, Jr.
Description must be concise and complete.
LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102303
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0027-BDATE THIS REPORT 9/24/80CHARGE 169DEPT. Marine Dock #2Samples taken
8/28 to 9/5REPORT OF ANALYSISSamples - Personnel Exposure to Benzene

ID	Total weight detected -- milligrams	Remarks
		Back-up sections
01404	.211	
01405	.023	
01406	.134	
01407	.179	
01413	.103	

GC Column .1% CW15M/Cartopak COVEN TEMP. 130 °Cmls Solvent 10 mls CS₂DECT. TEMP. 250 °CBlank .007mg (compensated for in calculations)Limit of Determination .010 mg (.0010 mg/ml)Spikes 98% recovery

Other Analytical Method _____

DO 102304
CONFIDENTIALBY: D.R.S.

SIGNED _____

for msT.H.W.

10-14-80
D/K

Benzene Samples

Comparison of Front Sections and Back up Sections

Sample ID	Front	<u>vs</u> Back	% Break thru
01404	15.06	1.18	8
01405	65.27	0.13	0
01406	33.91	0.67	0
01407	10.20	1.04	10
01413	23.59	0.48	2

DO 102305
CONFIDENTIAL

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{molecular wt} \times \text{Charcoal Effec.} \times \text{liters air sampled}} = \text{ppm(v)} \quad 10-14-80 \quad ADK$$

Analyzed Back up sections on series of samples to determine if break thru occurred

Sample I.D. (Break thru Section)

$$01404 \quad \frac{.211 \times 24.4 \times 1000}{78 \times .98 \times 57.07} = 1.180 = \textcircled{1.18}$$

$$01405 \quad \frac{.023 \times 24.4 \times 1000}{78 \times .98 \times 56.50} = 0.130 = \textcircled{0.13}$$

$$01406 \quad \frac{.134 \times 24.4 \times 1000}{78 \times .98 \times 64.20} = 0.666 = \textcircled{0.67}$$

$$01407 \quad \frac{.179 \times 24.4 \times 1000}{78 \times .98 \times 55.12} = 1.037 = \textcircled{1.04}$$

$$01413 \quad \frac{.103 \times 24.4 \times 1000}{78 \times .98 \times 68.88} = 0.477 = \textcircled{0.48}$$

$$\frac{\text{Milligrams titrated} \times 24.4 \times 1000}{\text{mL} \times \text{normality} \times \text{liters air sampled}} = \text{ppm (V)}$$

(78) (.99)

9-10-86
ARC

Potential Benzene Exposures at Marine Deck #2
Sample I.D.

01404 $\frac{2.72 \times 24.4 \times 1000}{78 \times .99 \times 57.07} = 15.06$

01405 $\frac{11.67 \times 24.4 \times 1000}{78 \times .99 \times 56.50} = 65.27$

01406 $\frac{6.89 \times 24.4 \times 1000}{78 \times .99 \times 64.20} = 33.91$

01407 $\frac{1.78 \times 24.4 \times 1000}{78 \times .99 \times 55.12} = 10.20$

01408 $\frac{0.99 \times 24.4 \times 1000}{78 \times .99 \times 68.88} = 4.54$

* BARGE PC-2804

DO 102307
CONFIDENTIAL

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{78 \times .99 \times \text{liters air sampled}} = \text{ppm(v)}$$

9-10-80

SK

Potential Benzene Exposures at Merim Dock #2
Sample I.D.

$$01412 \quad \frac{0.02 \times 24.4 \times 1000}{78 \times .99 \times 35.64} = 0.18$$

$$01413 \quad \frac{2.80 \times 24.4 \times 1000}{78 \times .99 \times 37.50} = 23.59$$

$$01414 \quad \frac{< 0.02 \times 24.4 \times 1000}{78 \times .99 \times 36.00} < 0.18$$

$$01415 \quad \frac{< 0.02 \times 24.4 \times 1000}{78 \times .99 \times 35.82} < 0.18$$

$$01416 \quad \frac{0.85 \times 24.4 \times 1000}{78 \times .99 \times 33.80} = 7.95$$

$$01417 \quad \frac{0.02 \times 24.4 \times 1000}{78 \times .99 \times 36.48} = 0.18$$

* BARGE EBL-83



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0027-BDATE THIS REPORT 9/24/80CHARGE 169DEPT Marine Dock #2Samples taken
8/28 to 9/25REPORT OF ANALYSISSamples - Personnel Exposure to Benzene

ID	Total weight detected -- milligrams					Remarks
						Back-up sections
01404				.211		
01405				.023		
01406				.134		
01407				.179		
01413				.183		

GC Column .1% CW1500/Carbopack COVEN TEMP. 130 °Cmls Solvent 10 mls CS₂DECT. TEMP. 250 °CBlank .007mg (compensated for in calculations)Limit of Determination .010 mg (-0.0010 mg/ml)Spikes 98% recovery

Other Analytical Method _____

DO 102309
CONFIDENTIALBY D.R.S.

SIGNED

Be mePLW



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REPORT OF ANALYSIS

REFERENCE NO. 0025-33
DATE THIS REPORT 9/10/80
CHARGE 169
DEPT. Marine Deck No.

Samples - Personnel Exposure to Benzene

ID	Total weight detected -- milligrams					Remarks
01404	2.72					Barge PC - 2804
01405	11.67					Date Sampled 8/24/80
01406	6.89					
01407	1.78					
01408	0.99					
Spike	Ther. 1.76	Act. 1.78	(Recovery) 99%			
						Barge EBL-83
01412	0.02					Date Sampled - 8/28/80
01413	2.80					"
01414	ND*					"
01415	ND*					"
01416	0.85					"
01417	0.02					"

GC Column 0.2 % Carbowax 1500OVEN TEMP. 120 °Cmls Solvent 10 mls CS₂DECT. TEMP. 200 °CBlank ND*Limit of Determination 2 µg/mlSpikes Charcoal Tube Injection and recovery

Other Analytical Method _____

*Not DeterminedDO 102310
CONFIDENTIALBY TJW

SIGNED

Terry S Wilks



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0027-13DATE THIS REPORT 10/8/80CHARGE 93DEPT. Tank Car Cleaning - 8/26/80
Marine Dock #1 6/26/80REPORT OF ANALYSIS

Samples - Potential Personnel Exposure to Chloroform

ID	Total weight detected -- milligrams				Remarks
<u>TANK CAR</u>					
<u>01410</u>					
<u>01411</u>					
<u>MARINE DOCK</u>					
<u>01151</u>				<u>1.17</u>	
<u>01152</u>				<u>2.67</u>	
<u>01153</u>					
<u>01154</u>					
<u>mg/ml</u>	<u>calculator</u>		<u>actual</u>		
<u>spike</u>	<u>.075</u>		<u>.074</u>		

GC Column 0.2% CW1500/Carbopack COVEN TEMP. 75°Cmls Solvent 10 mls CS₂DECT. TEMP. 200°CBlank none detectedLimit of Determination .042 mg (4.2 ug/ml)Spikes 98.6% recovery

Other Analytical Method _____

DO 102311
CONFIDENTIALBY: IRSSIGNED Lee MS JW

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{mL} \times \text{Charcoal effec.} \times \text{liters of air Sampled}} = \text{ppm (v)}$$

10-14-80

DL

Potential Personnel Exposure to Chloroform at Marine Dock #1

Sample I.D.

$$\begin{array}{lcl} 01151 & \frac{1.13 \times 24.4 \times 1000}{119.38 \times 1.00 \times 70.05} & = 3.30 \end{array}$$

$$\begin{array}{lcl} 01152 & \frac{.314 \times 24.4 \times 1000}{119.38 \times 1.00 \times 41.42} & = 1.55 \end{array}$$

$$\begin{array}{lcl} 01153 & \frac{160 \times 24.4 \times 1000}{119.38 \times 1.00 \times 73.77} & = 443.30 \end{array}$$

$$\begin{array}{lcl} 01154 & \frac{.056 \times 24.4 \times 1000}{119.38 \times 1.00 \times 65.22} & = 0.18 \end{array}$$

PUMP #1
Block MARINE DOCK #1 Person or Area Monitored Bro J. Furman Sample No. 01151
Monitoring for CHLOROFORM Type Sample: ☒ Personnel ☐ Area MARTIN
BARGE DC-342 ☐ Excursion ☐ Other _____ Date 6-25-80
Other Chemicals Present: _____ Job Classification OT Description of task performed during monitoring period
METHYLENE CHLORIDE Including any unusual activities LOADING BARGE
Time Started 1115-1500
Time Stopped 2145
Beginning Flow Rate 0.95 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 cc Ending Flow Rate 1.02 MIN. Wind, Temp. and Humidity
100 cc Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM W/SW - 10-15 MPH 92°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Morahan, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #2
Block MARINE DOCK #1 Person or Area Monitored Reginald Walth Sample No. 01152
Monitoring for CHLOROFORM Type Sample: ☒ Personnel ☐ Area
BARGE DC-342 ☐ Excursion ☐ Other _____ Date 6-25-80
Other Chemicals Present: _____ Job Classification OTT Description of task performed during monitoring period
METHYLENE CHLORIDE Including any unusual activities LOADING BARGE
Time Started 1115 D.K. NOTE: MONITORED 1115 TO 2145 - NEW EMPLOYEE FORGOT TO
415 TURN OFF PUMP - PUMP WAS TURNED OFF AT 0730 - 6/26/80 -
Time Stopped 0730 Jun 26
Beginning Flow Rate 0.96 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 cc Ending Flow Rate 1.43 MIN. Wind, Temp. and Humidity
100 cc Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM W/SW - 10-15 MPH 92°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Morahan, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102313
CONFIDENTIAL

PUMP # 3

Block MARINE DOCK # 1 Person or Area Monitored CENTER OF BARGE Sample No. 01153
Monitoring for CHLOROFORM Type Sample: ☐ Personnel ☒ Area
BARGE DC-342 ☐ Excursion ☐ Other _____ Date 6-25-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
METHYLENE CHLORIDE Including any unusual activities LOADING BARGE

Time Started 6-25-80 @ 1115
Time Stopped 2130
Beginning Fl w Rate 0.98 MIN ^{100 cc} Respirator used ☐ Yes ☒ No Type? _____
Ending Fl w Rate 0.85 MIN ^{100 cc} Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM W/SW - 10-15 MPH 92°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Morahan, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4

Block MARINE DOCK # 1 Person or Area Monitored INSIDE CONTROL ROOM Sample No. 01154
Monitoring for CHLOROFORM Type Sample: ☐ Personnel ☒ Area
BARGE DC-342 ☐ Excursion ☐ Other _____ Date 6-25-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
METHYLENE CHLORIDE Including any unusual activities LOADING BARGE

Time Started 6-25-80 @ 1115 ^{100 cc}
Time Stopped 2130
Beginning Flow Rate 0.98 MIN ^{100 cc} Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 1.09 MIN Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM W/SW - 10-15 MPH 92°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Morahan, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102314
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0027-74DATE THIS REPORT 10/10/80CHARGE 169DEPT. Marine Dock #2Samples take 9/19/80REPORT OF ANALYSIS

Samples - Potential Personnel Exposure to Benzene

ID	Total weight detected -- milligrams					Remarks
Samples						
01432				ND		
01434				ND		
01436				1.88		
01437				ND		
01438				8.28		
01439				1.57		
01440				3.10		

GC Column 0.2% CW 1500/Carbopack COVEN TEMP. 130 °Cmls Solvent 10 mls CS₂DECT. TEMP. 250 °CBlank 0.007mg (compensated for in calculations)MIN DETECTABLE 0.010 ug (1ug/ml)Spikes 95% recovery

Other Analytical Method _____

* ND none determinedDO 102315
CONFIDENTIALBY: D.R.S.SIGNED T.S.W.

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{molecular wt} \times \text{Charcoal Effec.} \times \text{liters air sampled}} = \text{ppm(V)}$$

10-13-80

10K

Potential Personnel Exposure to Benzene at Marine Dock #2
Sample ID

$$01432 < \frac{.010 \times 24.4 \times 1000}{78 \times .95 \times 53.41} = < .062$$

$$01434 < \frac{.010 \times 24.4 \times 1000}{78 \times .95 \times 55.28} = < .060$$

$$01436 \frac{1.88 \times 24.4 \times 1000}{78 \times .95 \times 51.87} = 11.935$$

$$01437 < \frac{.010 \times 24.4 \times 1000}{78 \times .95 \times 48.26} = < .068$$

$$01438 \frac{8.28 \times 24.4 \times 1000}{78 \times .95 \times 34.37} = 79.327$$

$$01439 \frac{1.57 \times 24.4 \times 1000}{78 \times .95 \times 34.50} = 14.984$$

$$01440 \frac{3.10 \times 24.4 \times 1000}{78 \times .95 \times 35.71} = 28.585$$

DO 102316
CONFIDENTIAL

CK #2 Person or Area Monitored
BENZENE Type Sample: ☒ Personnel ☐ Excursion ☐ Other
2804
Present: Job Classification 0/5 Description
1A Including any unusual activities ~~EXCURSION BARGE~~ BARGE
CONNECTED FOR ENTIRE MONITORING PERIOD, AWAITING INSTRUCTIONS.
2330 NO PURGING OR LOADING WAS DONE AND PUMPS WERE LEFT RUNNING.
Stopped 0835
Flow Rate 100 cc 0.94 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
Flow Rate 100 cc 1.10 MIN. Wind, Temp. and Humidity
FROM EAST-4 MPH 78°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete.
Form filled in by J.L. Morahan, Jr.
LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #7
Location MARINE DOCK #2 Person or Area Monitored Eddie ALTAN Sample No 01434
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE PC-2804 ☐ Excursion ☐ Other Date 9-18-80
Other Chemicals Present: Job Classification OT Description of task performed during monitoring period
NAPHTHA Including any unusual activities ~~EXCURSION BARGE~~ BARGE WAS CONNECTED AND LEFT
CONNECTED FOR ENTIRE MONITORING PERIOD, AWAITING INSTRUCTIONS.
Time Started 2330 NO PURGING OR LOADING WAS DONE AND PUMPS WERE LEFT RUNNING.
Time Stopped 0840
Beginning Flow Rate 100 cc 0.99 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 100 cc 1.02 MIN. Wind, Temp. and Humidity
FROM EAST-4 MPH 78°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete.
Form filled in by J.L. Morahan, Jr.
LOUISIANA DIVISION INDUSTRIAL HYGIENE

Form filled in by J.L. Morahan, Jr.

complete.

DO 102317
CONFIDENTIAL

PUMP # 1
Block MARINE DOCK # 2 Person or Area Monitored MARTIN A. 'EHLING III Sample No 01438
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE PC-2804 ☐ Excursion ☐ Other Date 9-19-80
Other Chemicals Present: Job Classification NOT Description of task performed during monitoring period
NAPHTHA including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE.
Time Started 1000
Time Stopped 1530
Beginning Flow Rate 100cc Respirator used ☒ Yes ☐ No Type? 2 CARTRIDGE (COMFO II)
0.97 MIN. Ending Flow Rate 100cc Wind, Temp. and Humidity
0.95 MIN. ENE 3 MPH. - 79° - 82%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Mariani, Jr.

DOW

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 6
Block MARINE DOCK # 2 Person or Area Monitored C. L. Mariani Sample No 01439
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE PC-2804 ☐ Excursion ☐ Other Date 9-19-80
Other Chemicals Present: Job Classification SOX Description of task performed during monitoring period
NAPHTHA including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE.
Time Started 0945
Time Stopped 1530
Beginning Flow Rate 100cc Respirator used ☒ Yes ☐ No Type? 2 Cartridges (COMFO II)
0.96 MIN. Ending Flow Rate 100cc Wind, Temp. and Humidity
1.04 MIN. ENE 3 mph. 79° 82%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Mariani, Jr.

DOW

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102318
CONFIDENTIAL

PUMP # 8
Block MARINE DOCK # 2 Person or Area Monitored Dennis J. Dupuy Sample No 01440
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE PC-2804 ☐ Excursion ☐ Other Date 9-19-80
Other Chemicals Present: NAPHTHA Job Classification OT Description of task performed during monitoring period
including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE.
Time Started 0945
Time Stopped 1530
Beginning Flow Rate 100 cc 0.98 MIN. Respirator used ☒ Yes ☐ No Type? 2 Canister (COMFO II)
Ending Flow Rate 100 cc 1.09 MIN. Wind, Temp. and Humidity E-NE 3 mph. 79° 82%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Mariani, Jr.

 DOW

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102319
CONFIDENTIAL

Samples Collected 9-30-80

Samples - Personnel Exposure And Area Exposure To Benzene

SIGNED /s/ J. A. W. [Signature]

10-16-80

pk

Potential Personnel Exposure to Benzene at Marine Dock #2
Sample ID.

area 01459 $\frac{<.010 \times 24.4 \times 1000}{78 \times .98 \times 61.33} = <0.052 = \textcircled{0.05}$

area 01461 $\frac{<.010 \times 24.4 \times 1000}{78 \times .98 \times 57.51} = <0.056 = \textcircled{0.06}$

area 01462 $\frac{3.10 \times 24.4 \times 1000}{78 \times .98 \times 57.51} = 17.206 = \textcircled{17.21}$

area 01463 $\frac{1.01 \times 24.4 \times 1000}{78 \times .98 \times 54.15} = 5.954 = \textcircled{5.95}$

Personnel 01464 $\frac{2.62 \times 24.4 \times 1000}{78 \times .98 \times 63.07} = 13.260 = \textcircled{13.26}$

Personnel 01465 $\frac{<.010 \times 24.4 \times 1000}{78 \times .98 \times 56.92} = 0.056 = \textcircled{0.06}$

DO 102321
CONFIDENTIAL

PUMP #1 2015-0530

Block MARINE DOCK #2 ~~Personnel~~ Area Monitored TOP OF DOCK Sample No 01459

Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area

BARGE DC-349 ☐ Excursion ☐ Other _____ Date 9-30-80

Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period

NONE Including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE

Time Started 9/30/80 @ 2015

Time Stopped 10-1-80 @ 0530

Beginning Flow Rate 0.92 MIN. ^{100 CC} Respirator used ☒ Yes ☐ No Type? COMFO II

Ending Flow Rate 0.89 MIN. ^{100 CC} Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No CALM 67° 81%

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete. Form filled in by J. L. Marum, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #7 2015-0530

Block MARINE DOCK #2 ~~Personnel~~ Area Monitored DOCK OFFICE Sample No 01461

Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area

BARGE DC-349 ☐ Excursion ☐ Other _____ Date 9-30-80

Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period

NONE Including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE

Time Started 9/30/80 @ 2015

Time Stopped 10-1-80 @ 0530

Beginning Flow Rate 0.96 MIN. ^{100 CC} Respirator used ☒ Yes ☐ No Type? COMFO II

Ending Flow Rate 0.97 MIN. ^{100 CC} Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No CALM 67° 81%

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete. Form filled in by J. L. Marum, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102322
CONFIDENTIAL

Block MARINE DOCK #2

2015-0530
Area Monitored CENTER OF BARGE

Sample No 01462

Monitoring for INZENE

Type Sample: ☐ Personnel ☒ Area

BARGE DC-349

☐ Excursion ☐ Other

Date 9-30-80

Other Chemicals Present:

Job Classification _____ Description of task performed during monitoring period

NONE

Including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE

Time Started 9/30/80 @ 2015

Time Stopped 11-80 @ 2030

Beginning Flow Rate 0.97 MIN. Respirator used ☒ Yes ☐ No

Type? COMFO II

Ending Flow Rate 0.96 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calm 67° 81%

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK #2

PUMP #8 2015-2300
Person or Area Monitored R. BEARD

Sample No 01463

Monitoring for BENZENE

Type Sample: ☒ Personnel ☐ Area

BARGE DC-349

☐ Excursion ☐ Other

Date 9-30-80

Other Chemicals Present:

Job Classification SOT Description of task performed during monitoring period

NONE

Including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE

Time Started 9/30/80 @ 2015-2300 Dick Book D

Time Stopped 11-80 @ 0630

Beginning Flow Rate 1.02 MIN. Respirator used ☒ Yes ☐ No

Type? COMFO II

Ending Flow Rate 1.03 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calm 67° 81%

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102323
CONFIDENTIAL

PUMP #9 2015-2230 2315-0530
Block MARINE DOCK #2 Person or Area Monitored Carl Woods & Ken Barthel Sample No 01464
Monitoring for JENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-349 ☐ Excursion ☐ Other Date Sept. 30, 1980
Other Chemicals Present: NONE Job Classification S.O. I. Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE
Time Started 9/30/80 @ 2015-2230 - CARL WOODS
Time Stopped 10-1-80-2230-0530 - KEN BARTHEL
Beginning Flow Rate 1.00 MIN. 100 CC Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 0.76 MIN. 100 CC Wind, Temp. and Humidity
Calm 67° 81%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marano, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #10 2015-2300 2300-0530
Block MARINE DOCK #2 Person or Area Monitored C. Pitre & I. Johnson Sample No 01465
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-349 ☐ Excursion ☐ Other Date 9-30-80
Other Chemicals Present: NONE Job Classification S/S Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE
Time Started 9/30/80 @ 2015-2300 - C. PITRE
Time Stopped 10-1-80-2300-0530 - I. JOHNSON
Beginning Flow Rate 1.00 MIN. 100 CC Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 0.95 MIN. 100 CC Wind, Temp. and Humidity
Calm 67° 81%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marano, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102324
CONFIDENTIAL

Samples collected 10/3/80

Samples - Personnel And Area Exposure To Benzene

SIGNED

Terry Switzer

10-16-80
NJC

1 Potential Personnel Exposures to Benzene at Marine Dock #2
Sample ID.

ana 01466 $\frac{<.010 \times 24.4 \times 1000}{78 \times .98 \times 40.91} = <0.078$

Personnel 01467 $\frac{.049 \times 24.4 \times 1000}{78 \times .98 \times 42.21} = 0.371$

Personnel 01468 $\frac{.286 \times 24.4 \times 1000}{78 \times .98 \times 35.21} = 2.593$

Personnel 01469 $\frac{<.010 \times 24.4 \times 1000}{78 \times .98 \times 40.91} = <0.078$

DO 102326
CONFIDENTIAL

PUMP #1

Block MARU DOCK #2 Person or Area Monitored Middle o' Barge Sample No 01466
Monit ring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-308 ☐ Excursion ☐ Other _____ Date 10-3-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
NONE including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE
Time Started 0800
Time Stopped 1445
Beginning Flow Rate 100 cc 0.98 MIN. Respirator used ☒ Yes ☐ No Type? 2 stage - COMFO II
Ending Flow Rat 100 cc 1.00 MIN. Wind, Temp. and Humidity
N-NE 0-4 mph 70° 67%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marcan, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #4

Block MARINE DOCK #2 Person or Area Monitored Dale Hammond Sample No 01467
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-308 ☐ Excursion ☐ Other _____ Date 10-3-80
Other Chemicals Present: _____ Job Classification OT Description of task performed during monitoring period
NONE including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE
Time Started 0800
Time Stopped 1500
Beginning Flow Rate 100 cc 0.98 MIN. Respirator used ☒ Yes ☐ No Type? 2 stage - COMFO II
Ending Fl w Rate 100 cc 1.01 MIN. Wind, Temp. and Humidity
N-NE 0-4 mph 70° 67%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: J b description must be concis and complete. Form filled in by J.L. Marcan, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102327
CONFIDENTIAL

Block MARINE DOCK #2

Monitoring for DENZENE

DC-308

Other Chemicals Present:

NONE

Time Started 0800

Time Stopped 1415

Beginning Flow Rate 0.97 MIN.

Ending Flow Rate 1.16 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #5
Person or Area Monitored Calvin Young

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Sample No 01468

Date 10-3-80

Job Classification SOT Description of task performed during monitoring period

Including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE

Type? Two stage - COMFO II

Wind, Temp. and Humidity

N-NE 0-4 mph 70° 67%

Form filled in by J.L. Marian, Jr.

Block MARINE DOCK #2

Monitoring for BENZENE

BARGE DC-308

Other Chemicals Present:

NONE

Time Started 0800

Time Stopped 1445

Beginning Flow Rate 0.96 MIN.

Ending Flow Rate 1.02 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #6
Person or Area Monitored Orval Basley

Type Sample: ☒ Personnel ☐ Area

☐ Excursion ☐ Other

Sample No 01469

Date 10-3-80

Job Classification OS Description of task performed during monitoring period

Including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE

Type? ~~Two stage - COMFO II~~ COMFO II

Wind, Temp. and Humidity

N-NE 0-4 mph 70° 67%

Form filled in by J.L. Marian, Jr.

DO 102328
CONFIDENTIAL

Samples Collected 10/3/80

Samples - Personnel And Area Exposure To Benzene

SIGNED Tony S. Wilks

10-15-80
ADK

Potential Personnel Exposure to Benzene at Marine Dock #2
Sample ID.

$$01473 F \quad \frac{5.58 \times 24.4 \times 1000}{78 \times .98 \times 43.52} = 40.927 = \textcircled{40.93}$$

$$01473 B < \frac{.010 \times 24.4 \times 1000}{78 \times .98 \times 43.52} = .073 = \textcircled{.07}$$

$$01474 F \quad \frac{2.86 \times 24.4 \times 1000}{78 \times .98 \times 57.50} = 15.877 = \textcircled{15.88}$$

01474 B did not analyze =

$$01475 F \quad \frac{18.0 \times 24.4 \times 1000}{78 \times .98 \times 41.50} = 138.456 = \textcircled{138.45}$$

$$01475 B < \frac{.010 \times 24.4 \times 1000}{78 \times .98 \times 41.50} = 0.077 = \textcircled{0.08}$$

$$01476 F \quad \frac{77.7 \times 24.4 \times 1000}{78 \times .98 \times 33.47} = 741.028 = \textcircled{741.03}$$

$$01476 B \quad \frac{41.3 \times 24.4 \times 1000}{78 \times .98 \times 33.47} = 393.880 = \textcircled{393.88}$$

DO 102330
CONFIDENTIAL

Block MARINE DOCK # 2

Monitoring for LENZENE

BARGE PC-2805

Other Chemicals Present:

NONE

Time Started 2025

Time Stopped 0315

Beginning Flow Rate 0.95 MIN.

Ending Flow Rate 0.98 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 1

Person or Area Monitored Carl Woods ^{quit 2330}

Type Sample: ☒ Personnel ☐ Area in Mayo - start 2300

☐ Excursion ☐ Other

Sample No. 01473

Date 10-3-80

Job Classification SOT Description of task performed during monitoring period

Including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE

Type? COMFO II

Wind, Temp. and Humidity

N-NE 05 MPH 65°

Form filled in by J.L. Maroney, Jr.

PUMP # 8

Block MARINE DOCK # 2

Monitoring for BENZENE

BARGE PC-2805

Other Chemicals Present:

NONE

Time Started 2025 10-3-80

Time Stopped 0550 10-4-80

Beginning Flow Rate 0.95 MIN.

Ending Flow Rate 1.05 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Person or Area Monitored John Lefebvre ^{quit 2300}

Type Sample: ☒ Personnel ☐ Area Martin Gehling - start 2300

☐ Excursion ☐ Other

Sample No. 01474

Date 10-3-80

Job Classification SOT Description of task performed during monitoring period

Including any unusual activities LOADING BARGE

VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE

Type? COMFO II

Wind, Temp. and Humidity

N-NE 05 MPH 65°

Form filled in by J.L. Maroney, Jr.

DO 102331
CONFIDENTIAL

PUMP # 10 (Center)
Block MARINE DOCK #2 Person or Area Monitored Barge (PC 2805) Sample No. 01476
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE PC-2805 ☐ Excursion ☐ Other _____ Date 10-3-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
Including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE
Time Started 2025
Time Stopped 0315
Beginning Flow Rate 0.96 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc Ending Flow Rate 1.55 MIN. Wind, Temp. and Humidity
N-NE 05 MPH 65°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marwan, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 9
Block MARINE DOCK #2 Person or Area Monitored F. Barlow Sample No. 01475
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE PC-2805 ☐ Excursion ☐ Other _____ Date 10-3-80
Other Chemicals Present: NONE Job Classification OS Description of task performed during monitoring period
Including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THRU RISER PIPE ON BARGE
Time Started 2025
Time Stopped 0310
Beginning Flow Rate 0.97 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc Ending Flow Rate 1.03 MIN. Wind, Temp. and Humidity
N-NE 05 MPH 65°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Marwan, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102332
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0027-17DATE THIS REPORT 10/23/80CHARGE 90DEPT. Marine Dock #2Samples taken 10/20/80REPORT OF ANALYSIS

Samples - Benzene - Potential Personnel Exposures to Benzene at Marine Dock #2

ID	Total weight detected -- milligrams					Remarks
01603				.187		Personnel
01604				.237		" "
01605				16.2		" "
01606				17.0		Center of Barge
01607				6.51		" "
01608				.031		Personnel
01609				348		" "
01610				6.21		" "

GC Column 6.5' 70% CW1500
30% Oranite NW/Carbopack COVEN TEMP. 130 °Cmls Solvent 10 mls CS₂DECT. TEMP. 250 °CBlank interferences corrected for in calculations Limit of Determination .010 mgSpikes 98% recovery

Other Analytical Method _____

DO 102333
CONFIDENTIALBY: DRS

SIGNED

Terry S. Wilke

Milligrams detected $\times 24.4 \times 1000 = \text{ppm(V)}$
m.w. $\times$ Charcoal Effec. $\times$ liters air Sampled

10-11-80
ADK

Potential Personnel Exposure to Benzene at Marine Dock #.
Sample ID

$$01603 \quad \frac{.187 \times 24.4 \times 1000}{78 \times .98 \times 15.45} = 3.864 = \textcircled{3.86}$$

$$01604 \quad \frac{.237 \times 24.4 \times 1000}{78 \times .98 \times 16.73} = 1.619 = \textcircled{1.62}$$

$$01605 \quad \frac{16.2 \times 24.4 \times 1000}{78 \times .98 \times 60.90} = 84.912 = \textcircled{84.91}$$

$$01606 \quad \frac{17.0 \times 24.4 \times 1000}{78 \times .98 \times 67.0} = 80.992 = \textcircled{80.99}$$

$$01607 \quad \frac{6.51 \times 24.4 \times 1000}{78 \times .98 \times 39.33} = 52.836 = \textcircled{52.84}$$

$$01608 \quad \frac{.031 \times 24.4 \times 1000}{78 \times .98 \times 12.60} = 0.785 = \textcircled{0.79}$$

$$01609 \quad \frac{3.48 \times 24.4 \times 1000}{78 \times .98 \times 13.74} = 80.847 = \textcircled{80.85}$$

$$01610 \quad \frac{6.21 \times 24.4 \times 1000}{78 \times .98 \times 13.13} = 150.972 = \textcircled{150.97}$$

Block MIA & Duck #2 Pump # 1 Person or Area Monitored X F. O. V. ... Sample No 01603
Monitoring for Benzene Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date X 10-20-80
Other Chemicals Present: _____ Job Classification DOT Description of task performed during monitoring period
Including any unusual activities LOADING BARGE PC2804
Hooked up barge - started loading at 14¹⁰ (this
stopped at 14⁵⁵ to catch heel sample started back up
at 16¹⁰ - completed filling at 20²⁵.
Time Started X 1245
Time Stopped X 1515
Beginning Flow Rate X 103 cc/min Respirator used ☒ Yes ☐ No Type? Comfo II
Ending Flow Rate _____ Wind, Temp. and Humidity
N to NE at 5-7 mph
temp low 60's to mid 50's
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? Soap Bubblemeter
NOTE: Job description must be concise and complete. Form filled in by Norman & Kennedy

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARTIN DUCK #2 Pump # 4 Person or Area Monitored X ~~COLEMAN~~ MARTIN GENUAIG Sample No 01604
Monitoring for Benzene Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date X 10-20-80
Other Chemicals Present: _____ Job Classification DOT Description of task performed during monitoring period
Including any unusual activities _____
Time Started X 1520
Time Stopped X 2245
Beginning Flow Rate X 105 cc/min Respirator used ☒ Yes ☐ No Type? DOUBLE CARTRIDGE Comfo II
Ending Flow Rate _____ Wind, Temp. and Humidity
NNE at 5-7 mph
temp low 60's
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? Soap Bubblemeter
NOTE: Job description must be concise and complete. Form filled in by ERNEST WILLIAMS

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102335
CONFIDENTIAL

Block Deck #2 Pump # 5
Monitoring for Benzene Person or Area Monitored ERNEST WILLIAMS, SR Sample No 01605
Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date 10-20-80
Other Chemicals Present: _____ Job Classification O/S Description of task performed during monitoring period
including any unusual activities Loading Barge PC 2804 including
hooking up
Time Started 1345
Time Stopped 2325
Beginning Flow Rate 105 cc/min Respirator used ☒ Yes ☐ No Type? Compo II
Ending Flow Rate _____ Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No Wind NNE to NNW 5-7
Calibration Equipment Used? Soap Bubblemeter low 60' to mid 50'
NOTE: Job description must be concise and complete. Form filled in by _____

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block Marine Deck #2 Pump # 6
Monitoring for Benzene Person or Area Monitored CENTER OF BARGE PC 2804 Sample No 01606
Type Sample: ☐ Personnel ☒ Area
☐ Excursion ☐ Other _____ Date 10-20-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
including any unusual activities _____
Time Started 1300
Time Stopped 0010 ON 10-21-80
Beginning Flow Rate 100 cc/min Respirator used ☐ Yes ☐ No Type? _____
Ending Flow Rate _____ Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No Temp low 60' to mid 50'
Calibration Equipment Used? Soap Bubblemeter Wind ^{N to} NE at 5-7 mph
NOTE: Job description must be concise and complete. Form filled in by ERNEST WILLIAMS (START)
NOLAN BLANCHARD (FINISH)

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102336
CONFIDENTIAL

PUMP #9
Block MA Dock #2 Person or Area Monitored CENTER OF BARGE PC-2805 Sample No 01607
Monitoring for benzene Type Sample: ☐ Personnel ☒ Area
☐ Excursion ☐ Other _____ Date 10-21-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
including any unusual activities _____
Time Started 0400 HRS.
Time Stopped 0835
Beginning Flow Rate 143 cc/min. Respirator used ☒ Yes ☐ No Type? _____
Ending Flow Rate _____ Wind, Temp. and Humidity
wind NNW to NNE at 2 mph
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? Seep Bubblemeter Temp mid 50°
NOTE: Job description must be concise and complete. Form filled in by N. Blanchard

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #8
Block MARINE DOCK #2 Person or Area Monitored NOLAN BLANCHARD Sample No 01608
Monitoring for benzene Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date 10-21-80
Other Chemicals Present: _____ Job Classification S/S Description of task performed during monitoring period
including any unusual activities Supervisor looking PC 2805
Time Started 0403
Time Stopped 0620
Beginning Flow Rate 92 cc/min Respirator used ☒ Yes ☐ No Type? Comp II
Ending Flow Rate _____ Wind, Temp. and Humidity
N to NE 5-7 mph
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? Seep Bubblemeter Temp mid 50°
NOTE: Job description must be concise and complete. Form filled in by N. Blanchard

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102337
CONFIDENTIAL

Block MAINE DOCK #2 PUMP #7 Person or Area Monitored RUEL NECA Sample No 01609
Monitoring for Benzene Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date 10-21-80
Other Chemicals Present: _____ Job Classification O.T.I.T. Description of task performed during monitoring period
Including any unusual activities PC 2805 Loading
Time Started 0406
Time Stopped 0622
Beginning Flow Rate 101 cc/min Respirator used ☒ Yes ☐ No Type? Comfo II
Ending Flow Rate _____ Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No Wind NNW to NNE at 2 mph
Calibration Equipment Used? Soap Bubblemeter Temp mid 50's
NOTE: Job description must be concise and complete. Form filled in by R. Blanchard

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MAINE DOCK #2 ~~ATTA~~ PUMP #10 Person or Area Monitored REGGIE WATTS Sample No 01610
Monitoring for Benzene Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date 10-21-80
Other Chemicals Present: _____ Job Classification O.T.I. Description of task performed during monitoring period
Including any unusual activities PC 2805 Loading
Time Started 0410
Time Stopped 0624
Beginning Flow Rate 98 cc/min Respirator used ☒ Yes ☐ No Type? Comfo II
Ending Flow Rate _____ Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No Wind NNW to NNE at 2 mph
Calibration Equipment Used? Soap Bubblemeter Temp mid 50's
NOTE: Job description must be concise and complete. Form filled in by _____

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102338
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0027-15DATE THIS REPORT 10/23/80CHARGE 90DEPT. Marine Dock #1

Samples take 9/9/80

REPORT OF ANALYSISSamples - Potential Exposure of Area and Personnel to CCl₄

ID	Total weight detected -- milligrams				Remarks
01422				.309	Office Area
01423				2.42	Personnel
01424				35.6	" "
01425				5.04	" "

GC Column 6' Oronite N110 + CW1500/Carbowack COVEN TEMP. 130 °Cmls Solvent 10 mls CS₂DECT. TEMP. 250 °CBlank *BLDLimit of Determination .030mgSpikes none

Other Analytical Method _____

*BLD - Below Limits of DeterminationDO 102339
CONFIDENTIALBY DRS

SIGNED

Terry J. Wilk

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{MW} \times \text{Charcoal Eff} \times \text{liters of air sampled}} = \text{ppm(V)}$$

11-20-80

OK

Potential Carbon tetrachloride Exposure at Marine Dock^{II}

Sample ID.

$$01422 \quad \frac{.309 \times 24.4 \times 1000}{153.84 \times 1.00 \times 38.74} = 1.27$$

$$01423 \quad \frac{2.42 \times 24.4 \times 1000}{153.84 \times 1.00 \times 38.73} = 9.91$$

$$01424 \quad \frac{35.6 \times 24.4 \times 1000}{153.84 \times 1.00 \times 41.37} = 136.49$$

$$01425 \quad \frac{5.04 \times 24.4 \times 1000}{153.84 \times 1.00 \times 30.13} = 26.53$$

DO 102340
CONFIDENTIAL

PUMP # 1

Block MARINE DOCK #1 Person or Area Monitored DOCK OFFICE Sample No 01422
Monitoring for CARBON TETRACHLORIDE Type Sample: ☐ Personnel ☒ Area
☐ Excursion ☐ Other _____ Date 9-5-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE JAR-2
Time Started 1705 ^{5⁰⁰}
Time Stopped 2315
Beginning Flow Rate 100 cc 0.94 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 100 cc 0.97 MIN. Wind, Temp. and Humidity
95° F 3 MPH E-SE
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Maroney, Jr.

PUMP # 2

Block MARINE DOCK #1 Person or Area Monitored JOHN LEBEVEURE Sample No 01423
HARVEY CAVALIERE
Monitoring for CARBON TETRACHLORIDE Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date 9-5-80
Other Chemicals Present: NONE Job Classification SOT Description of task performed during monitoring period
including any unusual activities LOADING BARGE JAR-2
Time Started 1710 ³⁰
Time Stopped 2345
Beginning Flow Rate 100 cc 0.99 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 100 cc 1.05 MIN. Wind, Temp. and Humidity
95° F 3 MPH E-SE
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Maroney, Jr.

DO 102341
CONFIDENTIAL

PUMP # 3

Block MARINE DOCK #1 Person or Area Monitored REGGIE WATTS Sample No 01424
 Monitoring for CARBON TETRACHLORIDE Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date 9-8-80
 Other Chemicals Present: NONE Job Classification O.T.T. Description of task performed during monitoring period
 Including any unusual activities LOADING BARGE JAR-2

Time Started 1713 ^{4th}Time Stopped 2315Beginning Flow Rate 0.94 MIN. _{100 cc} Respirator used ☐ Yes ☒ NoEnding Flow Rate 0.71 MIN.Calibration Check Prior to Monitoring? ☒ Yes ☐ NoCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Type? _____

Wind, Temp. and Humidity

95°F 3 MPH E-SEForm filled in by J. L. Morahan, Jr.

DOH LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4

Block MARINE DOCK #1 Person or Area Monitored RUEL SENECA Sample No 01425
 Monitoring for CARBON TETRACHLORIDE Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date 9-8-80
 Other Chemicals Present: NONE Job Classification O.T.T. Description of task performed during monitoring period
 Including any unusual activities LOADING BARGE JAR-2

Time Started 1715 ^{7th}Time Stopped 2315Beginning Flow Rate 0.99 MIN. _{100 cc} Respirator used ☐ Yes ☒ NoEnding Flow Rate 1.40 MIN.Calibration Check Prior to Monitoring? ☒ Yes ☐ NoCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Type? _____

Wind, Temp. and Humidity

95°F 3 MPH E-SEForm filled in by J. L. Morahan, Jr.

DOH LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102342
CONFIDENTIAL

Samples taken 9/2/80

Samples - Potential Exposure of Area and Personnel to C. CO₂

PUMP # 7
Block MARI DOCK #1 Person or Area Monitored LD A1-AZAN Sample No 01418
Monitoring for CARBON TETRACHLORIDE Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date 8-28-80
Other Chemicals Present: NONE Job Classification MT Description of task performed during monitoring period
including any unusual activities LOADING BARGE JAR-2
Time Started 1750
Time Stopped 2230
Beginning Fl w Rat 100 cc 1.01 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Flow Rate 100 cc 1.04 MIN. Wind, Temp. and Humidity 41/62 W 78° 80%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Moreau, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 8
Block MARINE DOCK #1 Person or Area Monitored DENNIS DUFFY Sample No 01419
Monitoring for CARBON TETRACHLORIDE Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date 8-28-80
Other Chemicals Present: NONE Job Classification MT Description of task performed during monitoring period
including any unusual activities LOADING BARGE JAR-2
Time Started 1750
Time Stopped 2230
Beginning Flow Rate 100 cc 1.00 MIN. Respirator used ☐ Yes ☒ No Type? _____
Ending Fl w Rat 100 cc 0.98 MIN. Wind, Temp. and Humidity 41/62 W 78° 80%
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Moreau, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102344
CONFIDENTIAL

PUMP #9

Block MARI DOCK #1 Person or Area Monitored Dock #1 (Area) Sample No 01420

Monitoring for CARBON TETRACHLORIDE Type Sample: ☐ Personnel ☒ Area
☐ Excursion ☐ Other _____ Date 8-28-80

Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
Including any unusual activities LOADING BARGE JAR-2

Time Started 1750 hr
Time Stopped 2230
Beginning Fl w Rate 0.98 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 CC
Ending Flow Rate 0.75 MIN. Wind, Temp. and Humidity 4 MPH SW 78° 80%
100 CC

Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete. Form filled in by J. L. Morneau, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #10

Block MARINE DOCK #1 Person or Area Monitored Richard Brown Sample No 01421

Monitoring for CARBON TETRACHLORIDE Type Sample: ☒ Personnel ☐ Area
☐ Excursion ☐ Other _____ Date 8-28-80

Other Chemicals Present: NONE Job Classification SMT Description of task performed during monitoring period
Including any unusual activities LOADING BARGE JAR-2

Time Started 1750
Time Stopped 2230
Beginning Flow Rate 1.00 MIN. Respirator used ☐ Yes ☒ No Type? _____
100 CC
Ending Fl w Rate 1.12 MIN. Wind, Temp. and Humidity 4 MPH SW 78° 80%
100 CC

Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete. Form filled in by J. L. Morneau, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102345
CONFIDENTIAL

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{78 \times .98 \times \text{liters of air sampled}} = \text{ppm(V)}$$

(MW.) (charcoal)
Effec.

12-9-80

10K

Potential Personnel Exposures to Benzene at Marine Dock #

Sample ID.

$$01483 \quad \frac{.237 \times 24.4 \times 1000}{78 \times .98 \times 58.67} = 1.29$$

$$01484 \quad \frac{.023 \times 24.4 \times 1000}{78 \times .98 \times 59.37} = 0.12$$

$$01485 \quad \frac{<.010 \times 24.4 \times 1000}{78 \times .98 \times 60.96} < 0.05$$

$$01486 \quad \frac{.291 \times 24.4 \times 1000}{78 \times .98 \times 56.65} = 1.64$$

PUMP # 1
Block MARINE DOCK # 2 Person or Area Monitored D. Dupuy 340-0700 Sample No 01483
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area C. Young From 0700 To 0915 15
BARGE DC-370 ☐ Excursion ☐ Other _____ Date 10-15-80
Other Chemicals Present: NONE Job Classification MTT / SMT Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 2340
Time Stopped 0915
Beginning Flow Rate 100 cc 0.95 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 100 cc 1.01 MIN. Wind, Temp. and Humidity
FROM EAST 5 MPH — 69°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4
Block MARINE DOCK # 2 Person or Area Monitored M. W. Barlow 2345-0700 Sample No 01484
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area F. Barlow From 0700 To 0915
BARGE DC-370 ☐ Excursion ☐ Other _____ Date 10-15-80
Other Chemicals Present: NONE Job Classification MARINE SPEC. / SPEC. Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 2345
Time Stopped 0915
Beginning Flow Rate 100 cc 0.95 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 100 cc 0.97 MIN. Wind, Temp. and Humidity
FROM EAST 5 MPH — 69°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102348
CONFIDENTIAL

PUMP # 5

Block MARI DOCK # 2Person or Area Monitored DALE HAI OAPSSample No 01485Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-370☐ Excursion ☐ OtherDate 10-15-80

Other Chemicals Present:

Job Classification MTT

Description of task performed during monitoring period

NONEincluding any unusual activities LOADING BARGEVENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGETime Started 2340Time Stopped 0910Beginning Fl w Rate 100 cc
0.94 MIN.Respirator used ☒ Yes ☐ NoType? COMFO IIEnding Fl w Rate 100 cc
0.93 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoFROM EAST 5 MPH — 69°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Maran, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 6

Block MARINE DOCK # 2Person or Area Monitored Center of BargeSample No 01486Monitoring for BENZENEType Sample: ☐ Personnel ☒ AreaBARGE DC-370☐ Excursion ☐ OtherDate 10-15-80

Other Chemicals Present:

Job Classification

Description of task performed during monitoring period

NONEincluding any unusual activities LOADING BARGEVENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGETime Started 2340Time Stopped 0915Beginning Flow Rate 100 cc
1.00 MIN.Respirator used ☒ Yes ☐ NoType? COMFO IIEnding Flow Rate 100 cc
1.03 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoFROM EAST 5 MPH — 69°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Maran, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102349
CONFIDENTIAL

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. DO 102350-27

DATE THIS REPORT 12/1/80

CHARGE 90

REPORT OF ANALYSIS

DEPT. Marine Dock # 2

DATE SAMPLES COLLECTED 11/21/80

Samples - Potential Area & Personnel Exposure to Benzene at Marine Dock # 2

ID	Total weight detected -- milligrams					Remarks
01291				.134		Area
01292				*BLD		Area
01293				*BLD		Personnel
01294				.690		Personnel
01295				.394		Personnel

GC Column CW1500/Chromatex 100 m Carbowack C

OVEN TEMP. 130 °C

mls Solvent 10 mls CS₂

DECT. TEMP. 250 °C

Blank 1124 area units accounted for in calculations

LIMIT OF DETERMINATION .001 mg/ml

Recovery Efficiency 98%

*BLD - Below Limit of Determination

Other Analytical Method _____

DO 102350
CONFIDENTIAL

BY: DRS

SIGNED Terry Swick

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{78 \times .98 \times \text{liters of air Sampled}} = \text{ppm(v)}$$

(n.w.) (charcoal effe.)

12-9-80
1016

Potential Personnel Exposures to Benzene at Marine Dock⁺

Sample ID.

$$01291 \quad \frac{.134 \times 24.4 \times 1000}{78 \times .98 \times 40.68} = 1.05$$

$$01292 \quad < \frac{0.01 \times 24.4 \times 1000}{78 \times .98 \times 38.97} = < 0.08$$

$$01293 \quad < \frac{0.01 \times 24.4 \times 1000}{78 \times .98 \times 16.40} = < 0.19$$

$$01294 \quad \frac{.690 \times 24.4 \times 1000}{78 \times .98 \times 17.11} = 12.87$$

$$01295 \quad \frac{.394 \times 24.4 \times 1000}{78 \times .98 \times 16.16} = 7.78$$

DO 102351
CONFIDENTIAL

Block MARI - DOCK #2 PUMP #5 Person or Area Monitored Center of Barge Sample No 01291
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-310 ☐ Excursion ☐ Other _____ Date 11-20-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE - VENTED TO ATMOSPHERE
THROUGH RISER PIPE ON BARGE
Time Started 2135 11-20-80
Time Stopped 2434 11-21-80
Beginning Flow Rate 1.00 MIN. 100 CC Respirator used ☐ Yes ☐ No Type? _____
Ending Flow Rate 1.06 MIN. 100 CC Wind, Temp. and Humidity
44°F 5 MPH - FROM NW
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK #2 PUMP #4 Person or Area Monitored Central Room Sample No 01292
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-310 ☐ Excursion ☐ Other _____ Date 11-20-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE - VENTED TO ATMOSPHERE
THROUGH RISER PIPE ON BARGE
Time Started 2135 11-20-80
Time Stopped 2432 11-21-80
Beginning Flow Rate 1.01 MIN. 100 CC Respirator used ☐ Yes ☐ No Type? _____
Ending Flow Rate 1.13 MIN. 100 CC Wind, Temp. and Humidity
44°F 5 MPH - FROM NW
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102352
CONFIDENTIAL

PUMP # 3
Block MARINE DOCK # 2 Person or Area Monitored M. Washington & M. L. L... Sample No 01293
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-310 ☐ Excursion ☐ Other Date 11-20-80
Other Chemicals Present: NONE Job Classification M/S - S/S Description of task performed during monitoring period
including any unusual activities LOADING BARGE - VENTED TO ATMOSPHERE
THROUGH RISER PIPE ON BARGE
Time Started 1950 M. Washington 11-20-80
Time Stopped 2235 M. Washington 11-20-80
Beginning Flow Rate 100 CC 0.96 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 100 CC 0.93 MIN. Wind, Temp. and Humidity 44 ° F FROM NW
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 2
Block MARINE DOCK # 2 Person or Area Monitored C. Young & RUEL SENECA Sample No 01294
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-310 ☐ Excursion ☐ Other Date 11-20-80
Other Chemicals Present: NONE Job Classification SMT - MTT Description of task performed during monitoring period
including any unusual activities LOADING BARGE - VENTED TO ATMOSPHERE
THROUGH RISER PIPE ON BARGE
Time Started 1950 C. YOUNG 11-20-80
Time Stopped 2230 C. YOUNG 11-20-80
Beginning Flow Rate 100 CC 0.95 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 100 CC 0.92 MIN. Wind, Temp. and Humidity 44 ° F 3 MPH FROM NW
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Mariani, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102353
CONFIDENTIAL

PUMP #1

Block MARINE DOCK #2 Person or Area Monitored E. Altman & J. LEFTNER Sample No 01295

Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-310 ☐ Excursion ☐ Other _____ Date 11-20-80

Other Chemicals Present: NONE Job Classification MTT - SMT Description of task performed during monitoring period
including any unusual activities LOADING BARGE - VENTED TO ATMOSPHERE
THROUGH RISER PIPE ON BARGE

Time Started 1950 E. ALTMAN J. LEFTNER 11-20-80
Time Stopped 1730 _____ 0430 J. LEFTNER _____

Beginning Fl w Rat 100 cc 0.93 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc
Ending Fl w Rate 1.05 MIN.

Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE

Wind, Temp. and Humidity 7-10
FROM S.W.

NOTE: Job description must be concise and complete. Form filled in by J. L. Moran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102354
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION

Environmental Control

REFERENCE NO. 0027-27

DATE THIS REPORT 12/1/80

CHARGE 90

DEPT. Marine Dock #2

REPORT OF ANALYSIS

DATE SAMPLES COLLECTED 11/22/80

Samples - Potential Area & Personnel Exposure to Benzene at Marine Dock #2

ID	Total weight detected -- milligrams					Remarks
D1296				BLD		Personnel
D1297				.064		Personnel
D1298				.327		Area
D1299				RLD		Personnel
D1300				RLD		Area

GC Column 60/1500/poronite ALB in General C.

mls Solvent 10 mls C.S.

Blank 11724 area units accounted for in calculations

Recovery Efficiency 98%

Other Analytical Method _____

OVEN TEMP. 130 °C

DECT. TEMP. 250 °C

LIMIT OF DETERMINATION .001 mg/ml

*BLD - Below Limit of Determination

DO 102355
CONFIDENTIAL

by D.R.C.

0 1-1/1

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{78 \times .98 \times \text{liters of air sampled}} = \text{ppm (V)}$$

(mw.) (Charcoal)
(effec.)

12-9-80

DAK

Potential Personnel Exposure To Benzene at Marine Dock #2

Sample I.D.

$$01296 \quad \frac{.001 \times 24.4 \times 1000}{78 \times .98 \times 35.12} = < 0.09$$

$$01297 \quad \frac{.064 \times 24.4 \times 1000}{78 \times .98 \times 36.50} = 0.56$$

$$01298 \quad \frac{.327 \times 24.4 \times 1000}{78 \times .98 \times 32.29} = 3.23$$

$$01299 \quad \frac{.001 \times 24.4 \times 1000}{78 \times .98 \times 34.62} = < 0.09$$

$$01300 \quad \frac{.001 \times 24.4 \times 1000}{78 \times .98 \times 34.78} = < 0.09$$

PUMP # 6

Block MARINE DOCK # 2 Person or Area Monitored 71. Martin + Animal Body Sample No 01296
Monitoring for BENZENE Type Sample: ☒ Personnel ☒ Area
BARGE DC-309 ☐ Excursion ☐ Other Date 11-21-80
Other Chemicals Present: NONE Job Classification MS - MS Description of task performed during monitoring period
including any unusual activities LOADING BARGE - VENTED TO ATMOSPHERE
THROUGH RISER PIPE ON BARGE.
Time Started 1930 - 2215 - WASHINGTON
Time Stopped 2215 - 0130 - BOSLEY
Beginning Flow Rate 0.99 MIN. 100 cc Respirator used ☒ Yes ☐ No Type? Double Cartridge COMFO II
Ending Flow Rate 1.06 MIN. 100 cc Wind, Temp. and Humidity
FROM N/E 5 MPH - 57°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Marcus, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 7

Block MARINE DOCK # 2 Person or Area Monitored D. Dupuy + Ken Barthel Sample No 01297
Monitoring for BENZENE Type Sample: ☒ Personnel ☒ Area
BARGE DC-309 ☐ Excursion ☐ Other Date 11-21-80
Other Chemicals Present: NONE Job Classification MTT - MTT Description of task performed during monitoring period
including any unusual activities LOADING BARGE - VENTED TO ATMOSPHERE
THROUGH RISER PIPE ON BARGE.
Time Started 1925 - 2215 - DUPUY
Time Stopped 2215 - 0130 - BARTHEL
Beginning Flow Rate 0.98 MIN. 100 cc Respirator used ☒ Yes ☐ No Type? 2 Stage, COMFO II
Ending Flow Rate 1.02 MIN. 100 cc Wind, Temp. and Humidity
FROM N/E 5 MPH - 57°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Marcus, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102357
CONFIDENTIAL

Block MARIA DOCK # 2 Pump # 8 Person or Area Monitored Center of Barge Sample No 01298
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
PARCE DC-309 ☐ Excursion ☐ Other _____ Date 11-21-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
Including any unusual activities LOADING BARGE-VENTED TO ATMOSPHERE
THROUGH RISER PIPE ON BARGE.
Time Started 1930
Time Stopped 0130
Beginning Flow Rate 1.01 MIN. Respirator used ☐ Yes ☐ No Type? _____
100 cc Wind, Temp. and Humidity
Ending Flow Rate 1.22 MIN. FROM N/E 5 MPH - 57°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mann, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK # 2 Pump # 9 Person or Area Monitored P. Young Sample No 01299
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
PARCE DC-309 ☐ Excursion ☐ Other _____ Date 11-21-80
Other Chemicals Present: NONE Job Classification SMT Description of task performed during monitoring period
Including any unusual activities LOADING BARGE-VENTED TO ATMOSPHERE
THROUGH RISER PIPE ON BARGE.
Time Started 1930
Time Stopped 0130
Beginning Flow Rate 1.02 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc Wind, Temp. and Humidity
Ending Flow Rate 1.06 MIN. FROM N/E 5 MPH - 57°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Mann, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102358
CONFIDENTIAL

Block PUMP # 10 MARINE DOCK # 2 Person or Area Monitored Control Room Sample No 01300
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-309 ☐ Excursion ☐ Other _____ Date 11-21-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
Including any unusual activities LOADING BARGE-VENTED TO ATMOSPHERE
THROUGH RISER PIPE ON BARGE.
Time Started 1930
Time Stopped 0130
Beginning Flow Rate 1.01 MIN. Respirator used ☐ Yes ☐ No Type? _____
Ending Fl w Rat 1.06 MIN. Wind, Temp. and Humidity FROM N/E 5 MPH - 57'
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Moran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102359
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0075-43DATE THIS REPORT 12-12-80CHARGE 167DEPT. Marine Park #2REPORT OF ANALYSISDATE SAMPLES COLLECTED 12-5-80Samples - Benzene In Air

ID	Total weight detected -- <i>milligrams</i>					Remarks
01307	11.7					
01308	.049					
01310	214					
01313	.064					
01314	.071					
01315	7.09					
01316	24.4					
01317	2.53					
01318	2.09					
01309	.066					

GC Column C₁₈ H₁₈ 1500OVEN TEMP. 130 °C-1s Solvent 10 ml CS₂DECT. TEMP. 250 °CBlank Results have been corrected for interferencesLIMIT OF DETERMINATION .001 mg/mlRecovery Efficiency 98%

BLD - Below Limit of Determination

Other Analytical Method _____

DO 102360
CONFIDENTIAL

TJW/PS

Terry S. White

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{MW} \times \frac{\text{charcoal}}{\text{Efficiency}} \times \text{liters of air sampled}} = \text{ppm (V)}$$

12-15-80

AK

Potential Benzene Exposures at marine Deck #2

Sample ID.

$$01307 \quad \frac{11.7 \times 24.4 \times 1000}{78 \times .98 \times 76.14} = 49.05$$

$$01308 \quad \frac{.049 \times 24.4 \times 1000}{78 \times .98 \times 65.80} = 0.24$$

$$01309 \quad \frac{.066 \times 24.4 \times 1000}{78 \times .98 \times 29.07} = 0.72$$

$$01310 \quad \frac{214 \times 24.4 \times 1000}{78 \times .98 \times 18.50} = 3692.42$$

$$01313 \quad \frac{.064 \times 24.4 \times 1000}{78 \times .98 \times 78.96} = 0.26$$

$$01314 \quad \frac{.071 \times 24.4 \times 1000}{78 \times .98 \times 50.49} = 0.45$$

$$01315 \quad \frac{7.09 \times 24.4 \times 1000}{78 \times .98 \times 51.62} = 43.84$$

$$01316 \quad \frac{24.4 \times 24.4 \times 1000}{78 \times .98 \times 50.49} = 154.26$$

Sample ID.

$$01317 \quad \frac{2.53 \times 24.4 \times 1000}{78 \times .98 \times 38.52} = 20.97$$

$$01318 \quad \frac{2.09 \times 24.4 \times 1000}{78 \times .98 \times 44.59} = 14.96$$

DO 102362
CONFIDENTIAL

PUMP # 9
Block MARI DOCK # 2 (Person) r Area Monitored Carl Wood ✓ Calvin Young ✓ Sample No 01307
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-309 ☐ Excursion ☐ Other Date 12-5-80
Other Chemicals Present: NONE Job Classification SMT/SMT Description of task performed during monitoring period
Including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 1100-1420 started for Calvin 1420
Time Stopped 1420 to 2245 stopped
Beginning Flow Rate 0.98 MIN. Respirator used ☒ Yes ☐ No Type? Comp II
100 cc
Ending Flow Rate 0.87 MIN. Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM S-SE 5 mph - 67°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Marcan, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 8
Block MARINE DOCK # 2 Person or Area Monitored Francis Barlow ✓ O. Bosley ✓ Sample No 01308
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-309 ☐ Excursion ☐ Other Date 12-5-80
Other Chemicals Present: NONE Job Classification MS/MS Description of task performed during monitoring period
Including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 1105 TO 1545 - F. BARLOW
Time Stopped 1545 to 2245 - O. BOSLEY
Beginning Flow Rate 0.97 MIN. Respirator used ☒ Yes ☐ No Type? Comp II
100 cc
Ending Flow Rate 1.15 MIN. Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM S-SE @ 05 MPH 67°
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Marcan, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102363
CONFIDENTIAL

Block MARINE DOCK # 2 PUMP # 7 Person or Area Monitored DOCK OFFICE (CONTROL ROOM) Sample No 01309
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-309 ☐ Excursion ☐ Other _____ Date 12-5-80
Other Chemicals Present: NONE Job Classification 11/H Description of task performed during monitoring period
including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 1045
Time Stopped 2330
Beginning Flow Rate 100 CC 0.98 MIN. Respirator used ☒ Yes ☒ No Type? COMFO II
Ending Flow Rate 100 CC 0.98 MIN. Wind, Temp. and Humidity
5 mph S-SE 67°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maroney, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK # 2 PUMP # 6 Person or Area Monitored center of DC-309 Sample No 01310
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-309 ☐ Excursion ☐ Other _____ Date 12-5-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE -
VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE
Time Started 1000
Time Stopped 0105 12-6-80
Beginning Flow Rate 100 CC 0.96 MIN. Respirator used ☒ Yes ☒ No Type? COMFO II
Ending Flow Rate 100 CC 1.05 MIN. Wind, Temp. and Humidity
FROM S/SE 5 MPH - 67°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J.L. Maroney, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102364
CONFIDENTIAL

PUMP # 10

Block MARINE DOCK # 2 Person or Area Monitored John LeBlanc Sample No 01313

Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area

BARGE DC-309 ☐ Excursion ☐ Other _____ Date 12-5-80

Other Chemicals Present: NONE Job Classification SMT Description of task performed during monitoring period

VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Time Started 1100

Time Stopped 22:45 11:00 11:00

Beginning Flow Rate 0.94 MIN 100 cc Respirator used ☒ Yes ☐ No Type? Comfo II

Ending Flow Rate 0.84 MIN 100 cc Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM S-SE 5 mph 67°

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete. Form filled in by J.L. Marano, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 1

Block MARINE DOCK # 2 Person or Area Monitored Central Area Sample No 01314

Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area

BARGE DC-310 ☐ Excursion ☐ Other _____ Date 12-5-80

Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period

VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGE

Time Started 2335

Time Stopped 0750 100 cc

Beginning Flow Rate 0.96 MIN 100 cc Respirator used ☒ Yes ☐ No Type? COMFO II

Ending Flow Rate 1.01 MIN 100 cc Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM EAST 4 MPH 61°

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete. Form filled in by J.L. Marano, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102365
CONFIDENTIAL

PUMP # 2

Block MARINE DOCK #2Person or Area Monitored On Barge

Sample No 01315

Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-310☐ Excursion ☐ OtherDate 12-5-80

Other Chemicals Present:

Job Classification OS

Description of task performed during monitoring period

NONEincluding any unusual activities LOADING BARGE -VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGETime Started 2335Time Stopped 0720Beginning FI w Rate 100 cc
0.95 MINRespirator used ☒ Yes ☐ NoType? COMFO IIEnding FI w Rate 100 cc
0.85 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoFROM EAST 4 MPH - 61°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mariani, Jr.

DOW

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 3

Block MARINE DOCK #2Person or Area Monitored Cabin of Barge

Sample No 01316

Monitoring for BENZENEType Sample: ☐ Personnel ☒ AreaBARGE DC-310☐ Excursion ☐ OtherDate 12-5-80

Other Chemicals Present:

Job Classification _____ Description of task performed during monitoring period

NONEincluding any unusual activities LOADING BARGE -VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGETime Started 2335Time Stopped 0750Beginning FI w Rate 100 cc
0.94 MIN.Respirator used ☒ Yes ☐ NoType? COMFO IIEnding Flow Rate 100 cc
1.02 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoFROM EAST 4 MPH - 61°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Mariani, Jr.DO 102366
CONFIDENTIAL

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4

Block MARINE DOCK # 2Person or Area Monitored T. SeneSample No 01317Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-310☐ Excursion ☐ OtherDate 12-5-80

Other Chemicals Present:

Job Classification MTT

Description of task performed during monitoring period

NONEIncluding any unusual activities LOADING BARGE -VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGETime Started 2345 6 HRTime Stopped 0545Beginning Flow Rate 100 cc
0.97 MIN.Respirator used ☒ Yes ☐ NoType? COMFO IIEnding Flow Rate 100 cc
0.90 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoFROM EAST 4 MPH - 61°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 5

Block MARINE DOCK # 2Person or Area Monitored E. H. HaysSample No 01318Monitoring for BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-310☐ Excursion ☐ OtherDate 12-5-80

Other Chemicals Present:

Job Classification MTT

Description of task performed during monitoring period

NONEIncluding any unusual activities LOADING BARGE -VENTED TO ATMOSPHERE THROUGH RISER PIPE ON BARGETime Started 2345 8 HRTime Stopped 0720Beginning Flow Rate 100 cc
0.99 MIN.Respirator used ☒ Yes ☐ NoType? COMFO IIEnding Flow Rate 100 cc
1.06 MIN.

Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ NoFROM EAST 4 MPH - 61°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Mariani, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102367
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0025-43

DATE THIS REPORT 12-12-80

CHARGE 169

DEPT. Marine Park #2

REPORT OF ANALYSIS

DATE SAMPLES COLLECTED 12-3-80

Samples - Benzene In Air

ID	Total weight detected -- <u>milligrams</u>					Remarks
01301	1.52					
01302	1.23					
01303	.150					
01304	.045					
01305	2.45					

GC Column Carbowax 1500

OVEN TEMP. 135 °C

m/s Solvent 10mls CS₂

INLET TEMP. 250 °C

Blank Results corrected for interferences

LIMIT OF DETERMINATION .001 mg/l

Recovery Efficiency 98%

*BLD - Below Limit of Determination

Other Analytical Method _____

DO 102368
CONFIDENTIAL

by T.W.

by Tracy R. White

$$\frac{\text{Milligram detected} \times 24.4 \times 1000}{\text{M.W.} \times \text{Charcoal} \times \text{liters of Air Sampled} \times \text{Efficiency}} = \text{ppm(V)}$$

12-15-80
ADK

Potential Benzene Exposure at Marine Dock #2

Sample ID.

$$01301 \quad \frac{1.52 \times 24.4 \times 1000}{78 \times .98 \times 36.50} = 13.29$$

$$01302 \quad \frac{1.23 \times 24.4 \times 1000}{78 \times .98 \times 30.43} = 12.90$$

$$01303 \quad \frac{.150 \times 24.4 \times 1000}{78 \times .98 \times 36.20} = 1.32$$

$$01304 \quad \frac{.045 \times 24.4 \times 1000}{78 \times .98 \times 35.53} = 0.40$$

$$01305 \quad \frac{2.45 \times 24.4 \times 1000}{78 \times .98 \times 39.29} = 19.90$$

Block MARINE DOCK # 2Monitoring for BENZENEBARGE DC-359

Other Chemicals Present:

NONE

PUMP # 1

Person or Area Monitored NOLAN BLANCHARD + JANESE WILLIAMSSample No 01301Type Sample: ☒ Personnel ☐ Area☐ Excursion ☐ OtherDate 12-2-80Job Classification S/S - SMT-SMT Description of task performed during monitoring periodIncluding any unusual activities LOADING BARGE + PURGING WITH NITROGEN -Time Started 1705 HRS.NOLAN1310 HRSJANESE2310 - 0720Time Stopped 2310 HRS.NOLAN0740BEARDPURGING1215 - STOPPEDBeginning Fl w Rate 100 CC
0.95 MIN.Respirator used ☒ Yes ☐ NoType? COMFO IIEnding Fl w Rate 100 CC
1.05 MIN.

Wind, Temp. and Humidity

E/ 5 MPH 72°Calibration Check Prior to Monitoring? ☒ Yes ☐ NoCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Moreau, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

(VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE)

PUMP # 2

Block MARINE DOCK # 2Monitoring for BENZENEBARGE DC-359

Other Chemicals Present:

NONE

Person or Area Monitored

JOHN LEFEVRE+ GREG FRANKLIN
+ DALE HAMMONDSOTTSample No 01302Type Sample: ☒ Personnel ☐ Area☐ Excursion ☐ OtherDate 12-2-80Job Classification SOT-OTT-OTT Description of task performed during monitoring periodIncluding any unusual activities LOADING BARGE + PURGING WITH NITROGENTime Started 1707 HRS.JOHN LEFEVRE0740 DALE HAMMONDS1215 STOPPEDTime Stopped 23052306 HRS.GREG FRANKLIN2306 - 0720Beginning Fl w Rate 100 CC
0.95 MIN.Respirator used ☒ Yes ☐ NoType? COMFO IIEnding Flow Rate 100 CC
1.40 MIN.

Wind, Temp. and Humidity

E/ 5 MPH 72°Calibration Check Prior to Monitoring? ☒ Yes ☐ NoCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Moreau, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

(VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE)DO 102370
CONFIDENTIAL

PUMP # 3 CALVIN YOUNG

Block MARINA DOCK # 2 Person or Area Monitored _____ Sample No 01303
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-359 ☐ Excursion ☐ Other _____ Date 12-2-80
Other Chemicals Present: NONE Job Classification SOT Description of task performed during monitoring period
including any unusual activities LOADING BARGE + PURGING WITH NITROGEN.
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 1710 6 HR _____
Time Stopped 2312 _____
Beginning Fl w Rate 1.00 MIN. Respirator used ☒ Yes ☐ No Type? Comfo II
100 CC _____
Ending Flow Rate 1.01 MIN. _____
100 CC Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No E/5 MPH 72°
Calibration Equipment Used? BUBBLE _____
NOTE: Job description must be concise and complete. Form filled in by J.L. Maran, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 4

Block MARINE DOCK # 2 Person or Area Monitored CONTROL ROOM Sample No 01304
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-359 ☐ Excursion ☐ Other _____ Date 12-2-80
Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE + PURGING WITH NITROGEN.
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE
Time Started 1712 423 minutes _____
Time Stopped 0015 12-3-80 _____
Beginning Fl w Rate 1.00 MIN. Respirator used ☒ Yes ☐ No Type? Comfo II
100 CC _____
Ending Fl w Rate 1.37 MIN. _____
100 CC Wind, Temp. and Humidity
Calibration Check Prior to Monitoring? ☒ Yes ☐ No E/5 MPH 72°
Calibration Equipment Used? BUBBLE _____
NOTE: Job description must be c ncis and complete. Form filled in by J.L. Maran, Jr.
 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102371
CONFIDENTIAL

Block PUMP #5 CENTER
MARINE DOCK # 2 Area Monitored DC-357 - OF BARGE Sample No 01305
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-359 ☐ Excursion ☐ Other _____ Date 11-2-80

Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
Including any unusual activities LOADING BARGE + ~~DISCHARGING~~ PURGING WITH NITROGEN.
VENTED TO ATMOSPHERE VIA OPEN HATCHES ON BARGE

Time Started 1717
Time Stopped 1015 10-3-80

Beginning Flow Rate 100 cc 1.01 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 100 cc 1.12 MIN. Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No FROM EAST 5 11:11 72°

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Merriam, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102372
CONFIDENTIAL



THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
Environmental Control

REFERENCE NO. 0027-30DATE THIS REPORT 12/29/80CHARGE 169REPORT OF ANALYSISDEPT. Marine Dock #2Samples collected 12/18-19Analyzed 12/24

Samples - Potential Area & Personnel Exposure to Benzene at Marine Dock #2

ID	Total weight detected -- milligrams				Remarks
01613				.020	
01614				.229	
01615				.671	
01616				.396	
01617				14.1	
01618				8.22	

GC Column 70% Chromat NW
30-2 CW1500 / 1m Carboxpack COVEN TEMP. 130 °Cmls Solvent 10 ml CS₂DECT. TEMP. 250 °CBlank interference accounted for in calculations Limit of Determination .001 mg/mlSpikes 98% recovery

Other Analytical Method _____

DO 102373
CONFIDENTIALBY: DRS

SIGNED

$$\frac{\text{milligrams detected} \times 24.4 \times 1000}{\text{m.w.} \times \text{Charcoal effec} \times \text{liters of air Sampled}} = \text{ppm(V)}$$

12-29-80
ADK

Potential Personnel and Area Exposure to Benzene at Marine ^{#2}
Sample I.D.

$$01613 \quad \frac{.020 \times 24.4 \times 1000}{78 \times .98 \times 30.30} = 0.21$$

$$01614 \quad \frac{.229 \times 24.4 \times 1000}{78 \times .98 \times 34.65} = 2.11$$

$$01615 \quad \frac{.671 \times 24.4 \times 1000}{78 \times .98 \times 36.17} = 5.92$$

$$01616 \quad \frac{.396 \times 24.4 \times 1000}{78 \times .98 \times 29.77} = 4.29$$

$$01617 \quad \frac{14.1 \times 24.4 \times 1000}{78 \times .98 \times 29.68} = 151.64$$

$$01618 \quad \frac{8.22 \times 24.4 \times 1000}{78 \times .98 \times 29.19} = 89.89$$

PUMP #1

Block MARINE DOCK #2 Person or Area Monitored M. Washington Sample No 01613
Monitoring for BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-370 ☐ Excursion ☐ Other _____ Date 12-18-80
Other Chemicals Present: _____ Job Classification OS Description of task performed during monitoring period
NONE Including any unusual activities LOADING BARGE
VENTED TO NEW BLOWER FAN ON SOUTH PLATFORM
Time Started 2150
Time Stopped 0250 12-19-80
Beginning Flow Rate 0.98 MIN. 100 cc Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 1.00 MIN. 100 cc Wind, Temp. and Humidity
FROM S/SE 5 MPH - 55°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #2

Block MARINE DOCK #2 Person or Area Monitored Control Room Sample No 01614
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-370 ☐ Excursion ☐ Other _____ Date 12-18-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
NONE Including any unusual activities LOADING BARGE
VENTED TO NEW BLOWER FAN ON SOUTH PLATFORM
Time Started 2240
Time Stopped 0430
Beginning Flow Rate 1.00 MIN. 100 cc Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 1.02 MIN. 100 cc Wind, Temp. and Humidity
FROM S/SE 5 MPH - 55°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102375
CONFIDENTIAL

PUMP #3
Block MARINE DOCK #2 Person or Area Monitored Center of Barge Sample No 01615
Monitoring for DENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-370 ☐ Excursion ☐ Other _____ Date 12-18-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
NONE Including any unusual activities LOADING BARGE
VENTED TO NEW BLOWER FAN ON SOUTH PLATFORM
Time Started 2240
Time Stopped 0430
Beginning Fl w Rate 0.95 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc Ending Flow Rate 0.93 MIN. Wind, Temp. and Humidity
FROM S/SE 5 MPH - 55°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Marian, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP #4
Block MARINE DOCK #2 Person or Area Monitored Platform, North of Blower Sample No 01616
Monitoring for BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-370 ☐ Excursion ☐ Other _____ Date 12-18-80
Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period
NONE Including any unusual activities LOADING BARGE
VENTED TO NEW BLOWER FAN ON SOUTH PLATFORM
Time Started 2240
Time Stopped 0430
Beginning Fl w Rate 0.95 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 cc Ending Flow Rate 1.36 MIN. Wind, Temp. and Humidity
FROM S/SE 5 MPH - 55°
Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE
NOTE: Job description must be concise and complete. Form filled in by J. L. Marian, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102376
CONFIDENTIAL

Block MARINE DOCK # 2

PUMP # 5

Person or Area Monitored John LEFEBURE

Sample No 01617

Monitoring for BENZENE

Type Sample: ☒ Personnel ☐ Area

BARGE DC-370

☐ Excursion ☐ Other

Date 12-19-80

Other Chemicals Present:

Job Classification SET

Description of task performed during monitoring period

NONE

Including any unusual activities LOADING BARGE

VENTED TO NEW BLOWER FAN ON SOUTH PLATFORM

Time Started 11:00

Time Stopped 0445

Beginning Flow Rate 100 cc
0.99 MIN.

Respirator used ☒ Yes ☒ No

Type? COMFO II

Ending Flow Rate 100 cc
1.20 MIN.

Wind, Temp. and Humidity

FROM S/SE 5 MPH - 55°

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Maran, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

Block MARINE DOCK # 2

PUMP # 6

Person or Area Monitored Reggie WATTS

Sample No 01618

Monitoring for BENZENE

Type Sample: ☒ Personnel ☐ Area

BARGE DC-370

☐ Excursion ☐ Other

Date 12/18/80

Other Chemicals Present:

Job Classification MTT

Description of task performed during monitoring period

NONE

Including any unusual activities LOADING BARGE

VENTED TO NEW BLOWER FAN ON SOUTH PLATFORM

Time Started 1330

Time Stopped 0425

Beginning Flow Rate 100 cc
1.03 MIN.

Respirator used ☒ Yes ☐ No

Type? COMFO II

Ending Flow Rate 100 cc
1.06 MIN.

Wind, Temp. and Humidity

FROM S/SE 5 MPH - 55°

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Maran, Jr.

DO 102377
CONFIDENTIAL

LOUISIANA DIVISION INDUSTRIAL HYGIENE

$\frac{\text{Milligrams detected} \times 24.4 \times 1000}{\text{MW} \times \text{Charcoal Effec.} \times \text{Liters Air Sampled}} = \text{ppm (v)}$

1-20-81

012

Potential Personnel and Area Exposure to Benzene at Marin
Sample ID.

$$01619 \quad \frac{<.007 \times 24.4 \times 1000}{78 \times .98 \times 72.15} = <0.03$$

$$01620 \quad \frac{<.007 \times 24.4 \times 1000}{78 \times .98 \times 65.20} = <0.03$$

$$01621 \quad \frac{.035 \times 24.4 \times 1000}{78 \times .98 \times 77.0} = 0.15$$

$$01622 \quad \frac{<.007 \times 24.4 \times 1000}{78 \times .98 \times 75.71} = <0.03$$

$$01623 \quad \frac{<.007 \times 24.4 \times 1000}{78 \times .98 \times 79.10} = <0.03$$

$$01624 \quad \frac{<.007 \times 24.4 \times 1000}{78 \times .98 \times 31.53} = <0.07$$

$$01625 \quad \frac{.056 \times 24.4 \times 1000}{78 \times .98 \times 43.72} = 0.41$$

DO 102378
CONFIDENTIAL

PUMP # 6 SOUTH PLATFORM ON EXHAUST
SIDE OF FAN BLOWER

Block MARINE DOCK # 2 Person or Area Monitored _____ Sample No 01619

Monitoring for C-5 BENZENE Type Sample: ☐ Personnel ☒ Area
BARGE DC-374 ☐ Excursion ☐ Other _____ Date 12-30-80

Other Chemicals Present: NONE Job Classification _____ Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO NEW FAN BLOWER ON SOUTH PLATFORM

Time Started 0935 AM
Time Stopped 1045 PM

Beginning Flow Rate 1.03 MIN. Respirator used ☐ Yes ☐ No Type? _____
100 CC
Ending Flow Rate 1.16 MIN. Wind, Temp. and Humidity
FROM N/NW 10-12 MPH — 45°

Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete. Form filled in by J. L. Marum, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 5 BILLY BOLYER

Block MARINE DOCK # 2 Person or Area Monitored ~~_____~~ Sample No 01620

Monitoring for C-5 BENZENE Type Sample: ☒ Personnel ~~Area~~
BARGE DC-374 ☐ Excursion ☐ Other _____ Date 12-30-80

Other Chemicals Present: NONE Job Classification SOT Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO NEW FAN BLOWER ON SOUTH PLATFORM

Time Started ~~_____~~ 1000 AM
Time Stopped 1020 PM

Beginning Flow Rate 1.03 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
100 CC
Ending Flow Rate 1.24 MIN. Wind, Temp. and Humidity
FROM N/NW 10-12 MPH — 45°

Calibration Check Prior to Monitoring? ☒ Yes ☐ No
Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete. Form filled in by J. L. Marum, Jr.

 LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102379
CONFIDENTIAL

FAN BLOWER NOT ALLING FAST ENOUGH CAUSING PRESSURE
BUILT UP IN BARGE - LEFEBURE + WATTS CRACKED OPEN HATCHES
SEVERAL TIMES TO RELIEVE PRESSURE.
COMFO II MASKS WERE WORN.

PUMP # 4

Block MARINE DOCK # 2 Person or Area Monitored CENTER OF BARGE Sample No 01621Monitoring for C-5 BENZENE Type Sample: ☐ Personnel ☒ AreaBARGE DC-374 ☐ Excursion ☐ Other _____ Date 12-30-80

Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period

NONE including any unusual activities LOADING BARGEVENTED TO NEW FAN BLOWER ON SOUTH PLATFORM.Time Started 0935 AMTime Stopped 1115 PMBeginning Flow Rate 100 CC 0.98 MIN. Respirator used ☐ Yes ☐ No Type? _____Ending Flow Rate 100 CC 1.15 MIN. Wind, Temp. and HumidityCalibration Check Prior to Monitoring? ☒ Yes ☐ No FROM N/NW 10-12 MPH — 45°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Marwan, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 3

Block MARINE DOCK # 2 Person or Area Monitored INSIDE CONTROL ROOM Sample No 01622Monitoring for C-5 BENZENE Type Sample: ☐ Personnel ☒ AreaBARGE DC-374 ☐ Excursion ☐ Other _____ Date 12-30-80

Other Chemicals Present: _____ Job Classification _____ Description of task performed during monitoring period

NONE including any unusual activities LOADING BARGEVENTED TO NEW FAN BLOWER ON SOUTH PLATFORMTime Started 0935 AMTime Stopped 1050 PMBeginning Flow Rate 100 CC 1.00 MIN. Respirator used ☐ Yes ☐ No Type? _____Ending Flow Rate 100 CC 1.10 MIN. Wind, Temp. and HumidityCalibration Check Prior to Monitoring? ☒ Yes ☐ No FROM N/NW 10-12 MPH — 45°Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J.L. Marwan, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102380
CONFIDENTIAL

PUMP # 2

JOHN

Block MARINE DOCK # 2

Person or Area Monitored

LEFEBVRESample No. 01623Monitoring for C-5 BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-374☐ Excursion ☐ OtherDate 12-30-80

Other Chemicals Present:

NONEJob Classification SOT

Description of task performed during monitoring period

including any unusual activities LOADING BARGEVENTED TO NEW FAN BLOWER ON SOUTH PLATFORMTime Started 10⁰⁰ AMTime Stopped 1115 PMBeginning Flow Rate 100 cc
0.98 MIN.Respirator used ☒ Yes ☐ NoType? COMFO IIEnding Flow Rate 100 cc
1.03 MIN.

Wind, Temp. and Humidity

FROM N/NW 10-12 MPH — 45°Calibration Check Prior to Monitoring? ☒ Yes ☐ NoCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Marcano, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

PUMP # 1

Block MARINE DOCK # 2

Person or Area Monitored

NORRIS WASHINGTONSample No. 01624Monitoring for C-5 BENZENEType Sample: ☒ Personnel ☐ AreaBARGE DC-374☐ Excursion ☐ OtherDate 12-30-80

Other Chemicals Present:

NONEJob Classification OS

Description of task performed during monitoring period

including any unusual activities LOADING BARGEVENTED TO NEW FAN BLOWER ON SOUTH PLATFORMTime Started 0935 AMTime Stopped 255 PMBeginning Flow Rate 100 cc
0.99 MIN.Respirator used ☐ Yes ☒ No

Type?

Ending Flow Rate 100 cc
1.04 MIN.

Wind, Temp. and Humidity

FROM N/NW 10-12 MPH — 45°Calibration Check Prior to Monitoring? ☒ Yes ☐ NoCalibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Marcano, Jr.

LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102381
CONFIDENTIAL

Block MARINE DOCK # 2 Pump # 7 Person or Area Monitored REGGIE WATTS Sample No. 01625
Monitoring for C-5 BENZENE Type Sample: ☒ Personnel ☐ Area
BARGE DC-374 ☐ Excursion ☐ Other _____ Date 12-30-80

Other Chemicals Present: NONE Job Classification OTT Description of task performed during monitoring period
including any unusual activities LOADING BARGE
VENTED TO NEW FAN BLOWER ON SOUTH PLATFORM

Time Started 400 PM
Time Stopped 1115 PM
Beginning Flow Rate 100 CC
0.99 MIN. Respirator used ☒ Yes ☐ No Type? COMFO II
Ending Flow Rate 100 CC
1.00 MIN. Wind, Temp. and Humidity

Calibration Check Prior to Monitoring? ☒ Yes ☐ No

Calibration Equipment Used? BUBBLE

NOTE: Job description must be concise and complete.

Form filled in by J. L. Morahan, Jr.



LOUISIANA DIVISION INDUSTRIAL HYGIENE

DO 102382
CONFIDENTIAL

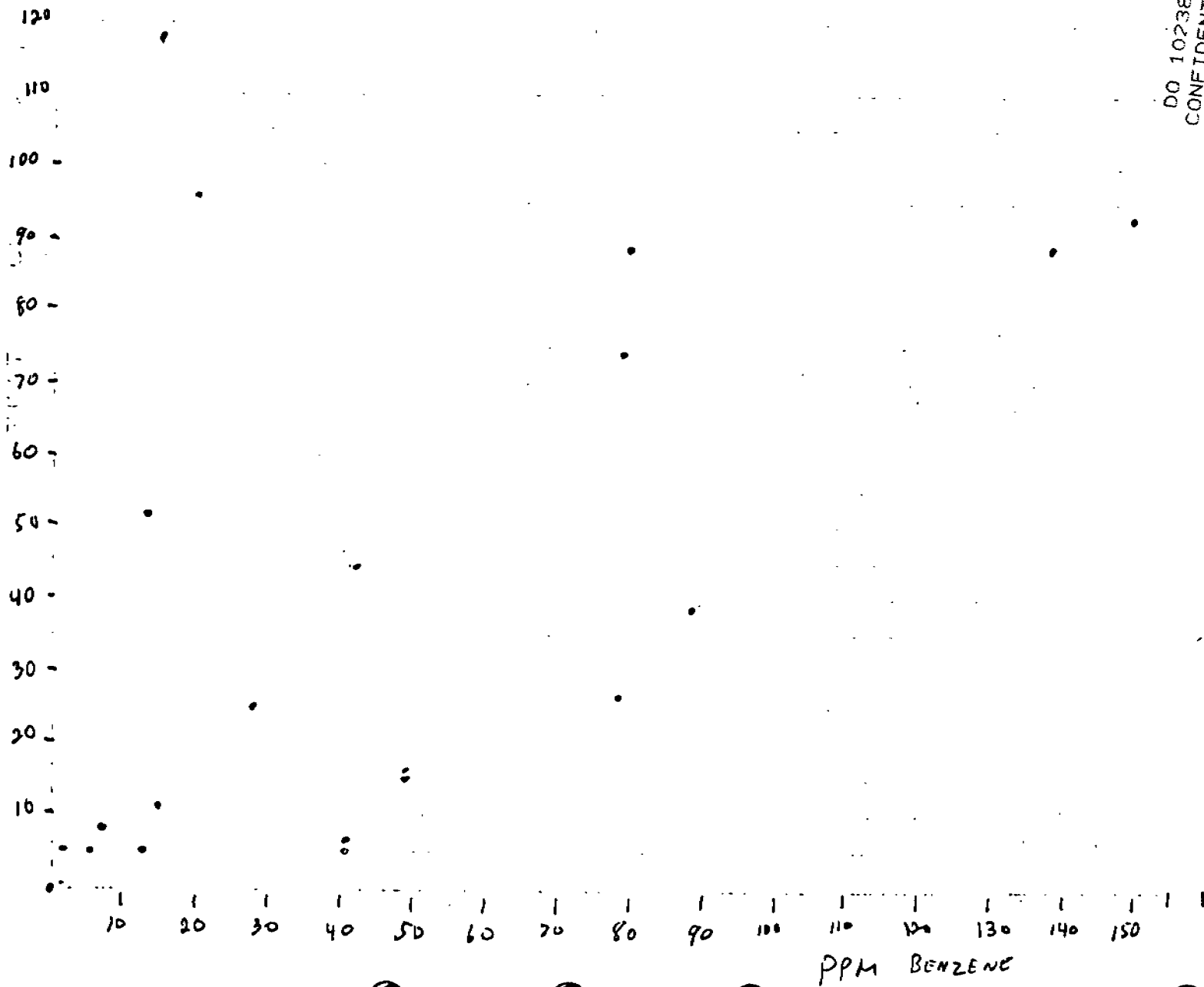
Leadship

29.	C5-Benzene	DC-348	P.G.
-80	C-5	DC-321	P.G.
50	C-5	DC-348	P.G.
-82		DC-348	P.G.

	Benzene	DC-349	
	"	DC-322	
-50	"	PC-2506	
3.60	"	DC-324	
22.80	"	EBL-201	
25.80	"	EBL-202	
14.50	"	EBL-201	
22.30	"	PC-2804	
1.60	"	EBL-203	
22.80	"	PC-2506	
24.50	"	PC-2804	
26.50	"	EBL-03	
9-12.80	"	PC-2805	
9-18.50	"	PC-2804	
10-3.50	"	PC-2805	
10-3.50	"	DC-343	
9-31.50	"	DC-349	
10-15.50	"	DC-320	
10-22.50	"	PC-2804	
10-21.30	"	PC-2805	
11-20.80	"	DC-310	
12-3.80	"	DC-309	
12-5.80	"	DC-310	
12-2.50	"	DC-359	
12-18.80	"	DC-320	
12-32.80	* C-5-Benzene	DC-324-	PGBZ 0.02
1-29.81	Benzene	DC-349	
1-12.31	Benzene	DC-322	
1-24.81	Benzene	DC-312	
1-15.81	* C-5-Benzene	DC-321	PGBZ 0.04
1-16.81	Benzene	DC-309	
1-27.81	"	DC-310	
1-25.81	"	DC-309	
2-6.31	* C-5-Benzene	DC-321	PGBZ 0.03
2-11.51	* C-5-Benzene	DC-321	
2-13.81	Benzene	Web 185	
3-16.81	Benzene	2805	
3-11.81	"	DC-308	
2-28.81	"	DC-308	
3-11.81	"	DC-310	
3-16.81	"	PC-2805	

2-3-81
 MEETING:
 WALKER HALPHEN
 EKKER KENNEDY
 CURRIER MOREAU
 KIRBY

1-11-81
 2-2-81



DO 102384
 CONFIDENTIAL

Yellow - indicates that Benzene and Phenol levels relate to each other based on probable non use of respiratory protection.

Blue indicates that Benzene and Phenol levels do not relate to each other. (Respiratory protection probably being used!)

Green - Some high levels on first phenol rather than second. Question on curves about retention time.

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

Barge	Sample I.D.	Date Received (Date Sampled)	Phenol Before	Phenol After	Net Phenol	PPM Benzene	Distillation (minutes)				
PC-2805	01426	9-18-80	8	11	+3	0.45	550	Loading Barge thru Barge Vent to			
	01427	(9-17-80)	10	15	+5	1.34	420				
	01428	(9-17-80)	<2	<2	0	0.77	550				
	01430	(9-17-80)	5	8	+3	1.34	450				
	01431	(9-17-80)	3	6	+3	1.52	440				
PC-2804	01434	9-19-80	not analyzed			<0.06	550	No Pumping or Loading			
"	01438	(9-19-80)	7	34	+27	79.33		Loading Barge - Vent to thru Open H.			
"	01439	(9-19-80)	not analyzed			14.98		Loading Barge - Vent to thru Open H.			
"	01440	(9-19-80)	6	31	+25	28.59		Loading Barge - Vent to thru Open H.			
DC-349	01463	10-1-80	3	3	0	5.95	555	Loading Barge - Rise Pipe to			
"	01463	(9-30-80)	4	9	+5	5.95					
"	01464	(9-30-80)	6	5	-1	13.26	555				
"	01464	(9-30-80)	5	5	0	13.26					
"	01465	(9-30-80)	3	<2	-1	0.06	555				
"	01465	(9-30-80)	4	2	-2	0.06					
PC-2805	01473	10-6-80	12	17	+5	41.0	400	Loading Barge - Rise Pipe to			
"	01473	(10-3-80)	<2	8	+6	41.0					
" ?	01474	(10-3-80)	65	76	+11	15.88	565				
"	01474	(10-3-80)	10	13	3	15.88					
"	01475	(10-3-80)	<2	91	+89	138.53	405				
DC-370	01483	10-16-80	<2	2	0	1.29	565	Loading Barge - Rise Pipe to			
"	01483	(10-15-80)	<2	<2	0	1.29					
"	01484	(10-15-80)	<2	2	0	0.12	560				
"	01484	(10-15-80)	4	3	-1	0.12					
"	01485	10-15-80	2	6	+4	<0.05	570				

DO 102386
CONFIDENTIAL

THE DOW CHEMICAL COMPANY
LOUISIANA DIVISION
DATA SHEET

(2)

Barge	Sample H	Date to Method (Date Collected)	Phenol Before	Phenol After	Net Phenol	ppm Benzene	Duration (Minutes)				
PC-2804	01603	10-21-80	10	8	-2	3.86	150	Loading Barge - River Pipe use			
"	01604	10-20-80	6	7	+1	1.62	445	"			
"	01605	10-20-80	5	79	+74	84.91	580	"			
PC-2805	01608	10-21-80	68	61	-7	0.79	137	"			
"	01609	10-21-80	71	159	+88	80.85	136	"			
"	01610	10-21-80	4	97	+93	150.97	134	"			
DC-310	01293	11-20-80	3	<2	-1	<0.19	155	Loading Barge - River Pipe use			
"	01293	11-20-80	28	9	-19	<0.19		"			
"	01294	11-20-80	2	4	+2	12.87	160	"			
"	01294	11-20-80	2	<2	0	12.87		"			
"	01295	11-20-80	5	4	-1	7.78	160	"			
"	01295	11-20-80	50	58	+8	7.78		"			
* DC-309	01296	11-24-80	6	4	-2	<0.09	165	Loading Barge - River Pipe use			
"	01297	11-21-80	9	8	-1	0.56	365	Loading Barge - River Pipe use			
"	01299	11-21-80	3	2	-1	<0.09	360	Loading Barge - River Pipe use			
* PC-359	01301	12-3-80	-2	5	+3	13.29	365	N ₂ Purging and Loading			
"	01301	12-2-80	4	5	+1	13.29		"			
"	01301	12-2-80	57	62	+5	13.29		"			
"	01302	12-2-80	3	54	+51	12.90		"			
"	01302	12-2-80	63	66	+3	12.90	358	N ₂ Purging and Loading			
"	01302	12-2-80	2	2	0	12.90	↓	"			
"	01303	12-2-80	7	6	-1	1.32	362	N ₂ Purging and Loading			

DO 102387
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DO 102388
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VENT BLOWER SYSTEM

1-20-81 (1-9-81)	1-26-81 (1-10-81)	1-26-81 (1-12-81)	1-20-81 (1-14-81)	1-27-81 (1-15-81)	2-2-81 (1-16-81)
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DC-309 SW 1mph	DC-349 ENE 0.4mph	DC-370 NNW 5mph	DC-310 SW 4mph	DC-371 N 3mph	DC-309 N 13mph
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<0.07	0.10	26.12 [✓]	1.88	0.75	<0.05
<0.07	<0.08	<0.55	<0.05	2.77	8.87 [✓]
<0.07	0.61	13.34	2.98	1.62	4.69
PERSONNEL AVG—	<0.07	0.26	1.64	1.71	4.54

<0.07	—	<0.05	<0.05	0.36	<0.05
<0.07	—	2.99	1.11	179.52 [✓]	9.95 [✓]
<0.07	—	0.39	0.58	<0.08	<0.05
<0.07	—	0.11		0.35	<0.05
AREA AVG—	<0.07	0.89		45.1	<0.05
				0.26	<0.05
					1.70

Loading and disconnect
Center of Barge (North end)
Bow of Barge (North end)

BENZENE BARGE LOADING DOCK #2 - 1980

<u>DATE</u>	<u>PERSONNEL NAME</u>	<u>PPM</u>	<u>AREA CONTROL ROOM</u>	<u>AREA TOP DECK NEXT TO BARGE</u>	<u>AREA CENTER OF BARGE</u>	<u>VAPORS</u>
3-20	JACKSON	4.0		0.4	24	RISER
"	BLANCHARD	1.0				
"	SENSAT	5.0				
3-27	BREAUX	0.8		0.1	0.2	FLARE
"	WILLIAMS	6.8				
"	CAVALIERE	4.0				
3-29	PITRE	0.5	0.3	0.2	5.0	FLAR.
"	MAYO	0.5				
4-22	WOODS	0.4				FLAR
"	BARLOW	0.8				
"	PEAIRS	9.1				
4-25	CAVALIERE	0.04			0.7	FLAK
"	WILLIAMS	1.9				
"	YOUNG	2.9				
"	BREAUX	0.1				
5-4	JOHNSON	3.7	0.02	8.2	14.0	RISE
"	BOLYER	10.8				
"	BARBIER	22.9				
5-13	DUPUY	10.5	0.4	12.8	150.1	RISE
"	JACKSON	8.9				
"	BOSLEY	0.9				
5-22	JOHNSON	13.3	0.03	2.6	38.7	RISE
"	PEAIRS	5.8				
"	SENSAT	1.3				
6-7	BOLYER	12.0	0.06	4.6	72.4	RISE
"	WILLIAMS	4.9				
"	BARBIER	3.5				
6-22	HAMMONDS	9.8	0.09	3.38	1.17	RISE
"	ALTAN	4.9				
"	DUPUY	6.1				

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BENZENE CONT'D.

<u>DATE</u>	<u>PERSONNEL</u> <u>NAME</u>	<u>PPM</u>	<u>AREA</u> <u>CONTROL ROOM</u>	<u>AREA</u> <u>TOP DECK</u> <u>NEXT TO BARGE</u>	<u>AREA</u> <u>CENTER</u> <u>OF BARGE</u>	<u>VAPORS</u>
6-14	BEARD	(?)	(?)	(?)		RISEK
"	YOUNG	(?)				
"	DUHON	(?)				

BENZENE BARGES LOADED TO DATE 8-18-80 : 29

C-5 BENZENE - 1980

<u>DATE</u>	<u>PERSONNEL NAME</u>	<u>PPM</u>	<u>ACTIVITY</u>
1-13	BARLOW	0.02	LOADING BARGE
" :	SENSAT	0.03	" "
1-19	BOW OF BARGE	85.0	PURGING BARGE WITH NITROGEN PRIOR TO LOA.
"	CENTER OF BARGE	1199.0	" " " "
1-24	BARLOW	0.03	" " " "
"	WOODS	3.29	" " " "

1-21-80

OK

Methylene Chloride Exposure at Marine Deck #1

Sample #

00611

$$\frac{3.29 \times 24.4}{84.93 \times .95 \times 55.19}$$

$$= .01804 = 18.04 \text{ ppm}$$

06112

$$\frac{3.36 \times 24.4}{84.93 \times .95 \times 51.21}$$

$$= .01984 = 19.84 \text{ ppm}$$