

PPG INDUSTRIES, INC.
INDUSTRIAL CHEMICAL DIVISION
LAKE CHARLES, LOUISIANA

LD-1121C

CONTINUING PROGRAM OF MONITORING ATMOSPHERIC CONTAMINANTS
WITHIN THE LAKE CHARLES PLANT

by

Mark Wood

December 7, 1971

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Key Words

Occupational Environment
Atmospheric Contaminants
Monitaire Sampler
MSA Universal Pump
Andersen Mini-Sampler
Electrostatic Precipitation
Unico Gas Detector
Mercury Vapor Detector
OSHA

1 BB 0000206 1

LABORATORY DEPARTMENT
MARK WOOD

TECHNICAL REPORT
DECEMBER 7, 1971

CONTINUING PROGRAM OF MONITORING ATMOSPHERIC CONTAMINANTS
WITHIN THE LAKE CHARLES PLANT
LD-1121C

ABSTRACT

The tables composing this report are continuations of occupational environment surveys started early in 1969 and contain data from all plant areas from May 1971 to November 1971.

INTRODUCTION

The periodic investigation of employee's occupational environments initiated in 1969 is described in detail in LD-1121. This report is an addendum and contains tabulated data collected from May 1971 through November 1971.

DISCUSSION

The methods and sampling times stated in previous reports have not been changed. The sodium chlorate unit has been shut down and hence is deleted from this report. Data from the anhydrous-FELS® unit has been added.

The passage of the Occupational Safety and Health Act of 1970 has placed this data in a new perspective. It is hoped that Operations Personnel, being more familiar with the units involved, will review the surveys critically and make suggestions to improve or expand future work regarding this program.

This survey's results are appended in Table 1 - 6 and 8 - 10. Table 7 on sodium chlorate has been removed.

Author: Mark Wood 12-9-71
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Approved: C. P. LeBlanc 12/10/71
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MW:rw

BB 0000207

TABLE I
OCCUPATIONAL ENVIRONMENT AIR MONITORING

<u>Area</u>	<u>Monitored Personnel</u>	<u>Date-Time</u>	<u>Contaminant</u>	<u>Concentration</u>	<u>Conditions</u>	<u>Method</u>
Mercury Cell Circuit	Cell Operator	10-28-71 (Mid-Day)	Chlorine	1/2 ppm		Monitaire Sampler
	Area Auxiliary Operator	Ditto	Chlorine	< 1/2 ppm		Ditto
	Cell Repairman	Ditto	Chlorine	< 1/2 ppm		Ditto
	Cell Cut-Out Man	Ditto	Chlorine	< 1/2 ppm		Ditto
	Cell Operator	10-28-71 (Mid-Day)	Mercury	0.050 mg/M ³		Monitaire Sampler
	Area Auxiliary Operator	Ditto	Mercury	< 0.025 mg/M ³		Ditto
	Cell Repairman	Ditto	Mercury	< 0.025 mg/M ³		Ditto
	Cell Cut-Out Man	Ditto	Mercury	0.050 mg/M ³		Ditto

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PA-229-3
Rev. 10/69)

TABLE 2 - AVERAGES (29 SAMPLES)
MERCURY IN AIR AT MERCURY CELL
(Hg in mg/M³)

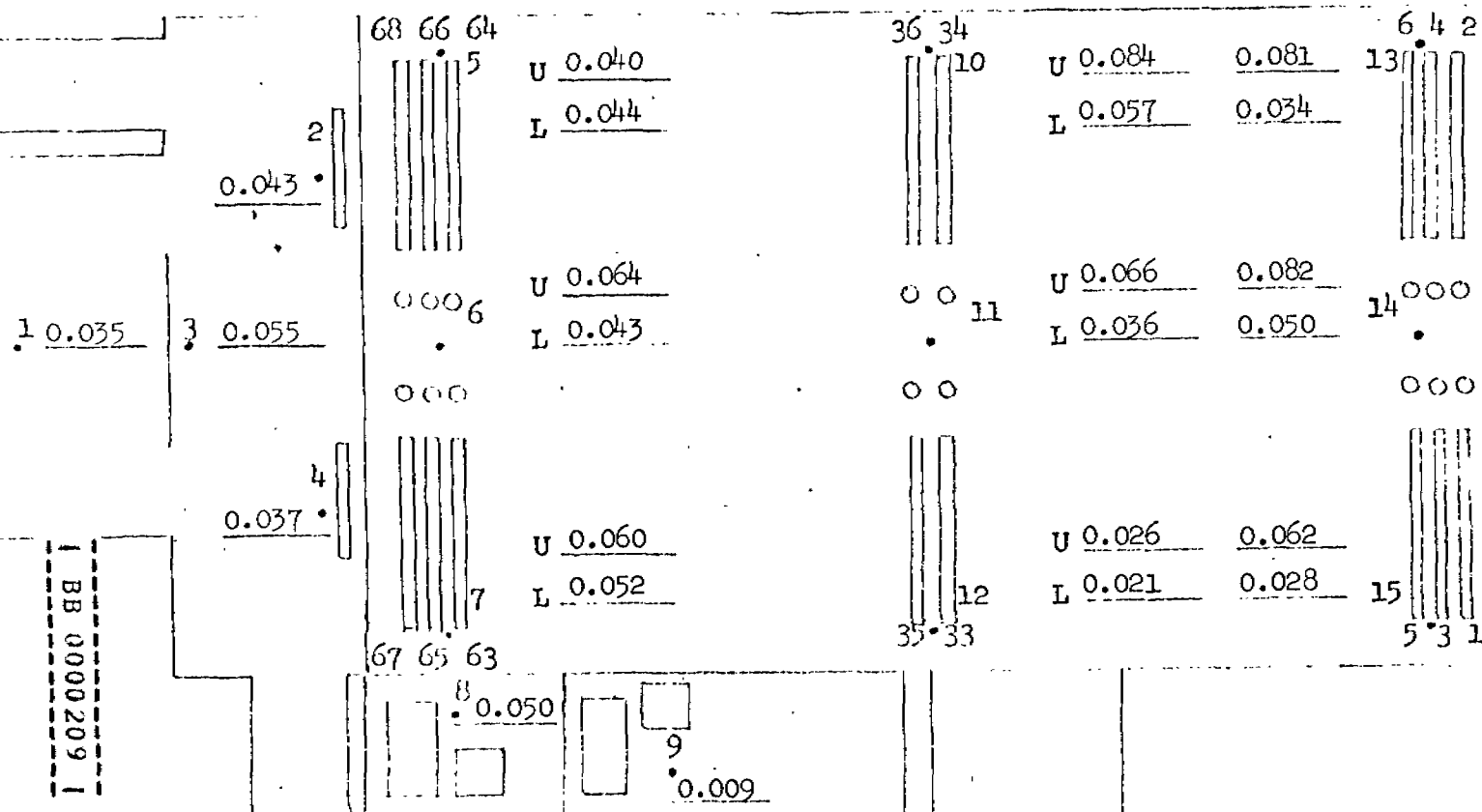
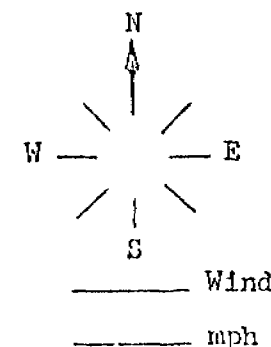
Date: 5/3/71-11/12/71

Laboratory 0.009
Lunch Room 0.032
No. of People 5
Rest Room 0.017
Locker Room 0.011

Control Room 0.010
Office 0.008
Motor Control 0.020
Area Maintenance 0.008
13.8 KV Sw. Gr. < 0.005

H₂ Stack Area 0.005
Open Cells --
Relative Humidity --
Temperature --
Maintenance < 0.005
Lunch Room

16 0.005



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Readings taken with J-W/Lemaire Mercury Vapor Detector, MV-1, MV-2

U - Cell Floor

TABLE 3
OCCUPATIONAL ENVIRONMENT AIR MONITORING

<u>Area</u>	<u>Monitored Personnel</u>	<u>Date-Time</u>	<u>Contaminant</u>	<u>Concentration</u>	<u>Conditions</u>	<u>Method</u>
Brine Treatment - Liquefaction	Liquefaction Operator	10-26-71 (A.M.)	Chlorine	< 1/2 ppm		Monitaire Sampler
	Brine Treatment Operator	10-27-71 (A.M.)	Chlorine	1/2 ppm		Monitaire Sampler
	Liquefaction Operator	10-26-71 (A.M.)	Ammonia	< 5 ppm		Monitaire Sampler
	Brine Treatment Operator	10-27-71 (A.M.)	Ammonia	< 5 ppm		Monitaire Sampler

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TABLE 4
OCCUPATIONAL ENVIRONMENT AIR MONITORING

<u>Area</u>	<u>Monitored Personnel</u>	<u>Date-Time</u>	<u>Contaminant</u>	<u>Concentration</u>	<u>Conditions</u>	<u>Method</u>
Caustic Plant	DH Operator	10-26-71 (A.M.)	Chlorine	< 1/2 ppm		Monitaire Sampler
	Evaporator Operator	11-08-71 (Mid-Day)	Chlorine	< 1/2 ppm		Ditto
	Filter Operator	11-08-71 (Mid-Day)	Chlorine	1/2 ppm		Ditto
	Caustic Area Janitor	11-08-71 (Mid-Day)	Chlorine	1/2 ppm		Ditto
	DH Operator	10-26-71 (A.M.)	Ammonia	>> 50 ppm	Bad leaks in NH ₃ system.	Monitaire Sampler
	Evaporator Operator	11-08-71 (Mid-Day)	Ammonia	5 ppm		Ditto
	Filter Operator	11-08-71 (Mid-Day)	Ammonia	< 5 ppm		Ditto
	Caustic Area Janitor	11-08-71 (Mid-Day)	Ammonia	< 5 ppm		Ditto
Caustic Bird Area	-	11-18-71 (Mid-Day)	NaOH Mist	0.040 mg/M ³		Water Scrubber - Sodium analysis by Atomic Absorption
ELS®/Anhydrous	Operator	11-09-71 (Mid-Day)	Chlorine	1/2 ppm		Monitaire Sampler
	PELS® Shipping Packer	11-09-71 (Mid-Day)	Chlorine	1/2 ppm		Ditto

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TABLE 5
OCCUPATIONAL ENVIRONMENT AIR MONITORING

<u>Area</u>	<u>Monitored Personnel</u>	<u>Date-Time</u>	<u>Contaminant</u>	<u>Concentration</u>	<u>Conditions</u>	<u>Method</u>
Diaphragm Cell Circuits	Tender, Circuits 1,2	10-27-71 (A.M.)	Chlorine	< 1/2 ppm		Monitaire Sampler
	Tender, Circuits 5,6	Ditto	Chlorine	2 ppm	Back pressure on chlorine header for maintenance.	Ditto
	Tender, Circuits 7,8	Ditto	Chlorine	1 ppm		Ditto
	Tender, Circuits 1,2	11-10-71 (A.M.)	Chlorine	1/2 ppm		Ditto
	Tender, Circuits 5,6	Ditto	Chlorine	< 1/2 ppm		Ditto
	Tender, Circuits 7,8	Ditto	Chlorine	< 1/2 ppm		Ditto

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TABLE 6
OCCUPATIONAL ENVIRONMENT AIR MONITORING

<u>Area</u>	<u>Monitored Personnel</u>	<u>Date-Time</u>	<u>Contaminant</u>	<u>Concentration</u>	<u>Conditions</u>	<u>Method</u>
Diaphragm Cell Repair and Manufacturing	Lead Pot Area	11-08-71 (A.M.)	Lead	< 0.05 mg/M ³	Not pouring.	MSA Universal Pump with Pb Kit
	Solder Wiping Area	Ditto	Lead	< 0.05 mg/M ³	Not wiping.	Ditto
	Solder Wiping Area	Ditto	Lead	0.05 mg/M ³	Wiping solder.	Ditto
	Lead Pot Area	11-10-71 (A.M.)	Lead	0.10 mg/M ³	Pouring lead.	Ditto
	Diaphragm Cleaner	11-08-71 (Mid-Day)	Chlorine	1/2 ppm		Monitaire Sampler
	Repairman at Mastic Area	11-10-71 (Mid-Day)	Chlorine	3/4 ppm		Ditto
	Diaphragm Cleaner	11-08-71 (Mid-Day)	Ammonia	< 5 ppm		Monitaire Sampler
	Repairman at Mastic Area	11-10-71 (Mid-Day)	Ammonia	< 5 ppm		Ditto

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TABLE 8
OCCUPATIONAL ENVIRONMENT AIR MONITORING

<u>Area</u>	<u>Monitored Personnel</u>	<u>Date-Time</u>	<u>Contaminant</u>	<u>Concentration</u>	<u>Conditions</u>	<u>Method</u>
Overhouses	"A" Watch Engineer	11-02-71 (Mid-Day)	Chlorine	< 1/2 ppm		Monitaire Sampler
	"A" Utility Operator	Ditto	Chlorine	< 1/2 ppm		Ditto
	"B" Watch Engineer	Ditto	Chlorine	1/2 ppm		Ditto

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TABLE 9
OCCUPATIONAL ENVIRONMENT AIR MONITORING

Area	Monitored Personnel	Date-Time	Contaminant	Concentration	Conditions	Method
Silica Pigments (See note for locations of sampling.)	C	9-09-71 (A.M.)	Particulates	< 1 mg/M ³	Bagging and loading.	Electrostatic Precipitation
	D	Ditto	Ditto	5 mg/M ³	Ditto	Ditto
	E	Ditto	Ditto	2.4 mg/M ³	Lunch break (no activity).	Ditto
	F	Ditto	Ditto	1.4 mg/M ³	Ditto	Ditto
	Sampling personnel wearing Midget Cascade Impactor while sampling above points - approximately 1 hour.	9-09-71 (A.M.)	(Total Dust (Respirable (Portion of (Total	6.3 mg/M ³ 4.6 mg/M ³		Andersen Mini-Sampler
	C	10-20-71 (P.M.)	Particulates	< 0.1 mg/M ³	No activity.	Electrostatic Precipitation
	D	Ditto	Ditto	< 0.1 mg/M ³	No activity.	Ditto
	E	Ditto	Ditto	26.6 mg/M ³	Bagging and loading.	Ditto
	F	Ditto	Ditto	14.6 mg/M ³	Ditto	Ditto

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SILICA PIGMENTS AREA
PARTICULATE AIR SAMPLING LOCATIONS

- A Downstairs in Frit Reactor area of Furnace Building
- B Upstairs, over the south end of the furnace in Furnace Building
- C North-East corner of the Pigments Shipping Building where trucks and boxcars are loaded
- D Center of Pigments Shipping Building, under North-South conveyors
- E On the Bagging Platform between Baggers in Pigments Shipping Building
- F Center of Lower Roadway leading out the west door of Pigments Shipping Building, adjacent to Bagging Area and Hopper Car Loading

TABLE 10
OCCUPATIONAL ENVIRONMENT AIR MONITORING

<u>Location</u>	<u>Monitored Personnel</u>	<u>Date-Time</u>	<u>Contaminant</u>	<u>Concentration</u>	<u>Conditions</u>	<u>Method</u>
Organics (see map for sample points)	2	9-08-71 (P.M.)	Ethylene	None Detected	10 mph NE Wind	Unico Gas Detection Tubes
	3	Ditto	Ditto	Ditto	Ditto	Ditto
	4	Ditto	Ditto	Ditto	Ditto	Ditto
	7	Ditto	Ditto	Ditto	Ditto	Ditto
	1	Ditto	Phosgene	Ditto	Ditto	Ditto
	2	Ditto	Ditto	Ditto	Ditto	Ditto
	5	Ditto	Ditto	Ditto	Ditto	Ditto
	6	Ditto	Ditto	Ditto	Ditto	Ditto
	7	Ditto	Ditto	Ditto	Ditto	Ditto
	8	Ditto	Ditto	Ditto	Ditto	Ditto
	4	Ditto	Vinyl Chloride	Ditto	Ditto	Ditto
	1	Ditto	Per and Tri	Ditto	Ditto	Ditto
	2	Ditto	Ditto	20 ppm	Ditto	Ditto
	5	Ditto	Ditto	5 ppm	Ditto	Ditto
	6	Ditto	Ditto	None Detected	Ditto	Ditto
	7	Ditto	Ditto	5 ppm	Ditto	Ditto
	8	Ditto	Ditto	Trace	Ditto	Ditto

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TABLE 10 - (Cont'd.)
OCCUPATIONAL ENVIRONMENT AIR MONITORING

ea	Monitored Personnel	Date-Time	Contaminant	Concentration	Conditions	Method
	2	9-08-71 (P.M.)	Methyl Chloroform	None detected.	10 mph NE wind.	Unico Gas Detection Tubes
	5	Ditto	Ditto	Ditto	Ditto	Ditto
	6	Ditto	Ditto	Ditto	Ditto	Ditto
	7	Ditto	Ditto	Ditto	Ditto	Ditto
	1	Ditto	Carbon Tetrachloride	Ditto	Ditto	Ditto
	8	Ditto	Ditto	Ditto	Ditto	Ditto

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Organic's Area

Sampling

Points

