

PERSONAL AND CONFIDENTIAL

## ETHYL CORPORATION

### INTER-OFFICE

|         |                           |         |                   |
|---------|---------------------------|---------|-------------------|
| To      | T. R. Robinson, M.D.      | Address | Baton Rouge Plant |
| From    | Henry M. Taylor           | Address | Baton Rouge Tower |
| Subject | Industrial Hygiene Report | Date    | January 16, 1975  |

Enclosed find an industrial hygiene report in draft form consequent to our survey of the breathing air system within the Baton Rouge Plant. Please keep in mind this evaluation was intended to give you an idea of what's happening; as such the report is not necessarily complete. For expediency and economy statistical exactness has been tempered with professional judgment. Draft modifications, additions or changes which are of value can be made when we have the benefit of reader comments. In any event, I believe it judicious to retain the draft title.

Basically, I believe the final word about the risk of a health problem from using plant breathing air should be from you, the person responsible for employee health within the plant. At this time, there doesn't seem to be a reliable yardstick for health risk resulting from exposures to volatile chlorinated hydrocarbons. *What about the other chemical components?*

Plant personnel are interested to locate areas within the plant from which "clean" air could be taken to feed shelter havens and control rooms. I understand tech service is responsible to define these "clean" source areas. However, tech service may be hesitant to choose a course of action until something definite is written about the quality of plant air by health experts.

If there are any questions concerning the draft or my interpretations, I shall be happy to discuss them. I will be glad to consult with plant personnel concerning any problems associated with the breathing air system.

Although we plan to assess suspect chemicals not identified to date, barring other assignments, we expect to initiate an industrial hygiene evaluation of worker exposure during processes associated with loading, unloading and storage operations during the next phase of the comprehensive survey.

VC4714

PERSONAL AND CONFIDENTIAL

## ETHYL CORPORATION

INTER-OFFICE

|         |                           |         |                   |
|---------|---------------------------|---------|-------------------|
| To      | T. R. Robinson, M.D.      | ADDRESS | Baton Rouge Plant |
| FROM    | Henry M. Taylor           | ADDRESS | Baton Rouge Tower |
| SUBJECT | Industrial Hygiene Report | DATE    | January 16, 1975  |

Enclosed find an industrial hygiene report in draft form consequent to our survey of the breathing air system within the Baton Rouge Plant. Please keep in mind this evaluation was intended to give you an idea of what's happening; as such the report is not necessarily complete. For expediency and economy statistical exactness has been tempered with professional judgment. Draft modifications, additions or changes which are of value can be made when we have the benefit of reader comments. In any event, I believe it judicious to retain the draft title.

Basically, I believe the final word about the risk of a health problem from using plant breathing air should be from you, the person responsible for employee health within the plant. At this time, there doesn't seem to be a reliable yardstick for health risk resulting from exposures to volatile chlorinated hydrocarbons. *What about the other chemical components?*

Plant personnel are interested to locate areas within the plant from which "clean" air could be taken to feed shelter havens and control rooms. I understand tech service is responsible to define these "clean" source areas. However, tech service may be hesitant to choose a course of action until something definite is written about the quality of plant air by health experts.

If there are any questions concerning the draft or my interpretations, I shall be happy to discuss them. I will be glad to consult with plant personnel concerning any problems associated with the breathing air system.

Although we plan to assess suspect chemicals not identified to date, barring other assignments, we expect to initiate an industrial hygiene evaluation of worker exposure during processes associated with loading, unloading and storage operations during the next phase of the comprehensive survey.

VC4715

Finally, we wish to pass on thanks to Baton Rouge Plant management, R&D analytical, tech service and plant medical who have been supportive to our effort.



Henry M. Taylor  
Industrial Hygienist

HMT:daw

|                       |               |
|-----------------------|---------------|
| cc: Wallace Armstrong | w/ attachment |
| J.J. Bergin           | w/ attachment |
| R.L. Hudson           | w/ attachment |
| D.E. Park             | w/ attachment |
| W.E. Rinehart, Sc.D.  | w attachment  |
| W.C. Strader          | w/ attachment |
| J.D. Watts            | w/ attachment |
| M.R. Zavon, M.D.      | w attachment  |

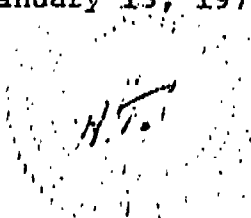
PERSONAL AND CONFIDENTIAL

BATON ROUGE PLANT

INDUSTRIAL HYGIENE DRAFT EVALUATION  
OF THE  
PLANT BREATHING AIR SYSTEM

J.D. Watts, MSEH  
and  
Henry M. Taylor, Jr., MPH, CSP  
Certified in Comprehensive  
Industrial Hygiene Practice

Ethyl Corporation  
Corporate Medical Department  
January 13, 1975



VC4716

# BATON ROUGE PLANT BREATHING AIR

## TABLE OF CONTENTS

|                                          | Page |
|------------------------------------------|------|
| Summary_____                             | 1    |
| Method_____                              | 2    |
| Discription of Breathing Air System_____ | 5    |
| Instrumentation_____                     | 5    |
| Data Summary_____                        | 6    |
| Discussion_____                          | 11   |
| Conclusion_____                          | 14   |
| Recommendations_____                     | 14   |
| Attachments_____                         | 16   |
| Compressor locations                     |      |
| Compressor air quality maintenance data  |      |
| Volume of breathing air                  |      |
| Analytical data                          |      |
| Standards                                |      |
| Photographs                              |      |

BATON ROUGE PLANT

BREATHING AIR

SUMMARY

The Plant breathing air does not meet the anticipated environmental health requirements for breathing air quality. This is chiefly due to the contaminant, vinyl chloride. Alternative breathing air systems should be investigated.

*An alternative approach to better purifying the breathing air systems should be investigated.*

BATON ROUGE PLANT BREATHING AIRMethod of Evaluation

The efficiency of the breathing air system was evaluated by comparing the level of contaminants found at various breathing stations with the level of contaminants found at various air compressor inlets. Professional judgment determined when the system was characterized adequately. Conclusions concerning <sup>analysis of</sup> the present breathing air system and materials found passing through <sup>the system were compared with the proper airborne standards.</sup> this system were made after comparing the contaminant levels which were found with standards. The Recommendations which are presented also take into account how certain other chemical plants deal with their breathing air.

Description of the Breathing Air System

Breathing air is taken from the plant utility air system. The compressed air for the utility air system is supplied by thirteen compressors located at various spots throughout the plant. The air inlets for these compressors range from three feet above grade within the organic lead area to seven feet over grade within the hydrocarbon area. The compressor inlets are shielded by rather coarse particulate filters. Compressors for breathing air are required to have automated shut off devices which should operate when a compressor produces excessive carbon monoxide in its breathing air. Most of the plant compressors are reported to have

temperature sensors which will lock out its compressor if it should over heat. However, the last two times people have apparently become ill reportedly from the effects of compressor fire, the fire was reported to have occurred within a compressor location not protected by these temperature control devices. Plant Maintenance is responsible for these compressors and since May, 1974, maintenance personnel have been checking compressor outlet air quality daily for carbon monoxide and carbon dioxide levels. This is for OSHA compliance. They are employing a detector tube technique at seven sampling points downstream of the various compressor group locations. Detector tubes for this procedure are expected to cost about \$7,000.00 annually. These spot checks for carbon dioxide levels have ranged from a usual of 300 ppm up to an occasional 1,000 ppm. Carbon monoxide has ranged from a usual one ppm up to an occasional 10 ppm. It is believed the portable air compressors have produced the highest contaminant levels. The standard permits a maximum of 20 ppm carbon monoxide and 1,000 ppm carbon dioxide.

The compressed air from all of the compressors passes to the utility air line common to the entire plant. This utility air line is <sup>Tapped</sup> ~~taped~~ to supply breathing air systems where needed. Consequently, inlet air at a compressor within the TEL area may at times be inspired by sandblast personnel on the other side of the plant. The breathing air tap line first passes to a knock out expansion chamber, then to a charcoal filter. The compressed air pressure leaving a charcoal filter is reduced from 100 psi to 28 psi. This air then passes to

a distribution system which is used exclusively for breathing air. Presently there are about 20 sets of knock out pots with charcoal filters and distribution systems within the organic lead area, three within the hydrocarbon area, three within PVC. Portable type filters are used when breathing air is required within the Sodium area. Positive pressure continuous flow respirators may be connected to the distribution systems at any number of quick connect couplings located on the downstream side of the various utility air - knock out, charcoal and reducing - points. A conservative estimate of the weekly requirement for breathing air within the Baton Rouge Plant is: Hydrocarbon Area, 8,000 cubic feet per week; PVC area, 34,000 cubic feet per week; TEL area, 250,000 cubic feet per week, and for the two major sandblasting areas is 90,000 cubic feet per week.

BATON ROUGE PLANT BREATHING AIR  
SURVEY INSTRUMENTATION

Draft-Page 5

| <u>Component Analyzed For:</u> | <u>Method of Analysis:</u>                                                                                                |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| % Oxygen                       | - direct reading Fyrite % O <sub>2</sub> instrument                                                                       |
| Condensed Hydrocarbons         | - extracted oil mist from a millipore filter paper with CCl <sub>4</sub> and analyzed with IR                             |
| Carbon Monoxide                | - direct reading Ecolyzer instrument.<br>- MSA detector tubes                                                             |
| Carbon Dioxide                 | - MSA detector tubes                                                                                                      |
| Nitrogen Dioxide               | - MSA detector tubes                                                                                                      |
| Sulfur Dioxide                 | - MSA detector tubes                                                                                                      |
| Halogenated Solvents           | - Collected organic HC on charcoal, desorbed with CS <sub>2</sub> and analyzed on gas chromatography.                     |
| Inorganic and Organic Pb       | - Pb particulate was collected on a glass fiber filter and organic vapors on charcoal tube; analyzed by dithizone method. |
| Particulate                    | - particulate collected on a millipore filter and proper gravimetric analysis                                             |
| Temperature                    | - dry bulb thermometer                                                                                                    |

**BATON ROUGE PLANT BREATHING AIR  
INDUSTRIAL HYGIENE DATA SUMMARY**

| ppm      |             |            |         |                    |            |                                    |         |               |           |         |         |            |              |                 |                |              | )( mg/m <sup>3</sup> |              |
|----------|-------------|------------|---------|--------------------|------------|------------------------------------|---------|---------------|-----------|---------|---------|------------|--------------|-----------------|----------------|--------------|----------------------|--------------|
| Date     | Location    | Light HC   | Propane | CH <sub>3</sub> Cl | VCl        | CH <sub>3</sub> CH <sub>2</sub> Cl | 1,1-DCE | 1,1,1 TCE EDC | 1,1,2 TCE | Benzene | Toluene | Chloroform | CO           | CO <sub>2</sub> | Inorganic Pb   | Organic Pb   | Particulate          | Condensed HC |
| 9/13/74  | HC-I        |            |         |                    | .35<br>.20 | 1.15                               |         | 1.12<br>.58   |           |         |         |            |              |                 |                |              |                      |              |
| 9/13/74  | HC<br>amb.  |            |         |                    | .27        |                                    |         | .51           |           |         |         |            |              |                 |                |              |                      |              |
| 9/16/74  | HC-I        | 44<br>100  |         | .04<br>.01         | .04        | .17<br>.08                         |         | .17<br>2.24   |           |         |         |            |              |                 |                |              |                      |              |
| 9/16/74  | HC<br>amb.  | .43        |         | .05                | .04        | .14                                |         | 2.53          |           |         |         |            |              |                 |                |              |                      |              |
| 9/18/74  | HC-I        | .14<br>.30 |         | .03                | .09        | .03                                |         | .22           |           |         |         |            |              |                 |                |              |                      |              |
| 9/18/74  | HC<br>amb.  | .11        |         | .04                | .09        | .04                                |         | .21 .01       |           |         |         |            |              |                 |                |              |                      |              |
| 9/20/74  | HC-I        | .17<br>.30 |         | .10<br>.10         | .14<br>.20 | .28                                |         | .96           |           | 6.71    |         |            |              |                 |                |              |                      |              |
| 9/20/74  | HC<br>amb.  | .14        |         | .09<br>.05         | .11        | .25                                |         | .79           |           |         |         |            |              |                 | <.002<br><.002 | .013<br>.019 |                      |              |
| 10/16/74 | HC-O        |            |         | <.19               | <.15       | <.15                               |         | .36           |           |         |         |            | n.d.<br>tube | 150             | .004           | .004         |                      |              |
| 10/18/74 | HC-O        | .12        |         |                    | <.04       |                                    |         | .14           |           |         |         |            | n.d.<br>tube | n.d.            | .008           | .001         |                      |              |
| 10/23/74 | HC-O        |            |         |                    |            |                                    |         |               |           |         |         |            | n.d.<br>tube | 150             |                |              |                      |              |
| 10/25/74 | HC-I        |            |         |                    |            |                                    |         |               |           |         |         |            | 1-2<br>3-5   |                 |                |              |                      |              |
| 10/25/74 | HC-O        |            |         |                    |            |                                    |         |               |           |         |         |            | 1.5-<br>5    |                 |                |              |                      |              |
| 10/28/74 | TEL-I       |            |         |                    |            |                                    |         |               |           |         |         |            | 5-9          |                 |                |              |                      |              |
| 10/28/74 | TEL-O       |            |         |                    |            |                                    |         |               |           |         |         |            | 1-25         |                 |                |              |                      |              |
| 10/29/74 | PAC-I       |            |         |                    |            |                                    |         |               |           |         |         |            | 7-8          |                 |                |              |                      |              |
| 10/29/74 | PAC<br>amb  |            |         |                    |            |                                    |         |               |           |         |         |            | 40-<br>60    |                 |                |              |                      |              |
| 10/29/74 | R1R1<br>amb |            |         |                    |            |                                    |         |               |           |         |         |            | 3-4          |                 |                |              |                      |              |

Key: I=inlet; amb=ambient; comp=unfiltered compressor air; O=breathing air  
HC=hydrocarbon area; nd=none detected; PAC=portable air compressor;  
sand=sandblasting.

**BATON ROUGE PLANT BREATHING AIR  
INDUSTRIAL HYGIENE DATA SUMMARY**

Draft - Page 7

| Date     | Location  | Light HC           | Propane | CH <sub>3</sub> Cl | VCl  | CH <sub>3</sub> CH <sub>2</sub> Cl | ppm     |           |     |           | Benzene | Toluene | Chloroform | CO      | ( mg/m <sup>3</sup> ) |              |            |             | Condensed HC |
|----------|-----------|--------------------|---------|--------------------|------|------------------------------------|---------|-----------|-----|-----------|---------|---------|------------|---------|-----------------------|--------------|------------|-------------|--------------|
|          |           |                    |         |                    |      |                                    | 1,1 DCE | 1,1,1 TCE | EDC | 1,1,2 TCE |         |         |            |         | CO <sub>2</sub>       | Inorganic Pb | Organic Pb | Particulate |              |
| 10/30/74 | TEL-I     |                    | <.12    | .10                | .17  | <.08                               | .25     |           |     |           |         | .15     |            | 2       |                       | .034         | .010       |             |              |
| 10/30/74 | R2-I      |                    |         |                    |      |                                    |         |           |     |           |         |         |            | 3       |                       |              |            |             |              |
| 10/30/74 | R2R3-O    |                    |         |                    |      |                                    |         |           |     |           |         |         |            | 1.5     |                       |              |            |             |              |
| 10/31/74 | TEL-O     |                    | .13     | .31                | .39  | .26                                | <.04    | <.04      |     |           |         |         |            | 1       |                       | .001         | --         |             |              |
| 11/1/74  | TEL-Comp  | <.19               | <.1     | .35                | .77  | <.05                               | .38     |           |     |           |         |         |            |         |                       | .001         | .028       |             |              |
| 11/1/74  | TEL-Comp  |                    | <.09    | .31                | .73  |                                    | .04     |           |     |           |         |         |            |         |                       | .002         | .006       |             |              |
| 11/1/74  | R2R3-Comp |                    |         |                    |      |                                    |         |           |     |           |         |         |            |         |                       |              |            | 3.8         |              |
| 12/16/74 | TEL-I     |                    |         |                    |      |                                    |         |           |     |           | <.05    |         |            |         |                       |              |            |             |              |
| 12/17/74 | R1R4-I    |                    | <.15    | <.13               | .26  | .10                                |         |           |     |           | <.06    |         | .15        |         |                       |              |            |             |              |
| 12/19/74 | PVC-AMB   |                    | <.08    |                    | 3.44 |                                    |         | .08       |     |           |         |         |            |         |                       |              |            |             |              |
| 12/19/74 | PVC-O     |                    | <.08    | .16                | 1.06 | .20                                |         | .05       |     |           |         |         |            |         |                       |              |            | 4.62        | .5           |
| 12/19/74 | PVC-O     | 1.52               | <.01    | .17                | 4.64 | .25                                | .05     | .08       |     |           |         |         |            |         |                       | .002         | .006       |             |              |
| 12/20/74 | HC-O      |                    |         |                    |      |                                    |         |           |     |           |         |         |            | nd      |                       |              |            |             |              |
| 12/20/74 | TEL-O     |                    |         |                    |      |                                    |         |           |     |           |         |         |            | .5      |                       |              |            |             |              |
| 12/20/74 | PVC-O     |                    |         |                    |      |                                    |         |           |     |           |         |         |            | 1-3     |                       |              |            |             |              |
| 12/31/74 | Sand-O    |                    | .39     | .28                | .09  | .06                                | .05     | .45       |     |           |         | .01     | 1.5-5.5    |         |                       |              |            | 2.59        | .2           |
| 1/2/75   | PVC-O     | NO <sub>2</sub> nd | .08     | .08                | .12  | .06                                |         |           |     |           |         |         |            | 5.5     | 150                   |              |            | .36         | .04          |
| 1/2/75   | PVC-O     | SO <sub>2</sub> nd | .09     | .07                | .07  | .07                                | .07     |           |     |           |         |         |            | 5.5-6.5 | 900                   |              |            | 1.18        | .017         |
| 1/3/75   | TEL-I     |                    | .07     | .07                | .30  | .08                                |         | .11       |     |           |         |         |            | 7       |                       |              |            |             |              |
| 1/3/75   | TEL-O     |                    | <.08    | .09                | .85  | .17                                |         | .10       |     |           |         |         |            | 3.5-5   | 150                   |              |            | .31         | .09          |
| 1/3/75   | TEL-O     |                    | <.08    | .08                | .17  | .15                                | .08     | .12       |     |           |         |         |            | 4-4.5   | 1000                  |              |            | .16         | .03          |
| 1/6/75   | HC-O      |                    |         |                    |      |                                    |         |           |     |           |         |         |            | 5.5-10  |                       |              |            |             |              |

Key: I=inlet; amb=ambient; comp=unfiltered compressor air; O=breathing air  
 HC= hydrocarbon area; nd=none detected; PAC=portable air compressor;  
 sand=sandblasting.

VC4725

BATON ROUGE PLANT BREATHING AIR  
INDUSTRIAL HYGIENE DATA SUMMARY

| Date   | Location   | Light HC              | Propane | CH <sub>3</sub> Cl | VCl  | CH <sub>3</sub> CH <sub>2</sub> Cl | 1,1 DCE | 1,1,1 TCE EDC | 1,1,2 TCE | Benzene | Toluene | Chloroform | CO        | CO <sub>2</sub> | Inorganic Pb | Organic Pb | Particulat |
|--------|------------|-----------------------|---------|--------------------|------|------------------------------------|---------|---------------|-----------|---------|---------|------------|-----------|-----------------|--------------|------------|------------|
| 1/6/75 | Sand<br>O  |                       |         |                    |      |                                    |         |               |           |         |         |            | 4-6       |                 |              |            |            |
| 1/7/75 | Sand<br>O  | O <sub>2</sub><br>20% |         |                    |      |                                    |         |               |           |         |         |            | 6-<br>6.5 |                 |              |            |            |
| 1/7/75 | PVC<br>O   | O <sub>2</sub><br>20% |         |                    |      |                                    |         |               |           |         |         |            | 5.5-<br>6 |                 |              |            |            |
| 1/8/75 | TEL<br>O   | O <sub>2</sub><br>20% | .06     | .10                | .16  | .11                                |         | .15           |           |         |         |            | 5.5-<br>8 |                 |              |            |            |
| 1/8/75 | TEL<br>O   | O <sub>2</sub><br>20% | .07     | .17                | .23  | .31                                |         |               |           |         |         |            | 7.5-<br>8 |                 |              |            |            |
| 1/8/75 | PVC<br>O   |                       |         |                    |      |                                    |         |               |           |         |         |            | 5.5       |                 |              |            |            |
| 1/8/75 | Sand<br>O  |                       |         |                    |      |                                    |         |               |           |         |         |            | 4.5       |                 |              |            |            |
| 1/9/75 | M&P<br>amb |                       | .19     | .46                | .37  | .053                               | .075    |               |           |         |         |            |           |                 |              |            |            |
| 1/10   | HC<br>O    |                       | .54     | .21                | .081 | .39                                | .13     | 2             |           |         |         |            |           |                 |              |            |            |

\*Chromatographic techniques did not differentiate 1,1,1 trichloroethylene from ethylene dichloride.

Key: I=inlet; amb=ambient; comp=unfiltered compressor air; O=breathing air;  
HC=hydrocarbon area; nd=nohe detected; PAC=portable air compressor;  
sand=sandblasting.

## BATON ROUGE PLANT BREATHING AIR

## Summary Analysis

| <u>Halogen<br/>Material</u>        | <u>Inlet,<br/>Ambient<br/>(mean Value)</u> | <u>Breathing Air<br/>Outlet<br/>(mean Value)</u> |
|------------------------------------|--------------------------------------------|--------------------------------------------------|
| CH <sub>3</sub> Cl                 | 0.10 ppm                                   | 0.18 ppm                                         |
| VCl                                | 0.40 ppm                                   | 0.72 ppm                                         |
| CH <sub>3</sub> CH <sub>2</sub> Cl | 0.23 ppm                                   | 0.18 ppm                                         |
| 1,1 DCE                            | 0.16 ppm                                   | 0.07 ppm                                         |
| 1,1,1 TCE/EDC                      | 0.79 ppm                                   | 0.42 ppm                                         |
| Toluene                            | 0.15 ppm                                   |                                                  |
| Chloroform                         | 0.15 ppm                                   | 0.01 ppm                                         |
| CO                                 | 4.4                                        | 4.0                                              |
| CO <sub>2</sub>                    | ---                                        | 357 ppm                                          |
| Inorganic Pb                       | 0.034 mg/m <sup>3</sup>                    | 0.003 mg/m <sup>3</sup> 0.004                    |
| Organic Pb                         | 0.01 mg/m <sup>3</sup>                     | 0.045 mg/m <sup>3</sup> ?                        |
| Particulate                        |                                            | 1.8 mg/m <sup>3</sup> 0.003                      |
| Condensed HC                       |                                            | 0.15 mg/m <sup>3</sup>                           |

## BATON ROUGE PLANT BREATHING AIR

## Threshold Limit Values (TLV's)

8 hour time weighted value  
(ppm)

|                       |                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------|
| Propane               | simple asphyxiant (1,000) <sup>0.5HA</sup>                                                |
| methyl chloride       | 100                                                                                       |
| vinyl chloride        | 1 (with a 5 ppm time weighted ceiling value of 15 minutes and an action level of 0.5 ppm) |
| ethyl chloride        | 1000                                                                                      |
| 1,1 dichloroethane    | 200 - 1000 <sup>0.5HA</sup>                                                               |
| 1,1,1 trichloroethane | 350                                                                                       |
| ethylene dichloride   | 50                                                                                        |
| chloroform            | 25                                                                                        |

Calculation to determine whether the sum of mixed contaminants exceeds the threshold limit value. If the sum of the fractions exceeds unity, the threshold limit of the mixture should be considered as being exceeded.

Ambient air  $\frac{1 + 400 + 0.23 + 1.6 + 15.8 + 6}{1000} =$

mean value found  $\frac{0.1}{100} + \frac{0.40}{1} + \frac{0.23}{1000} + \frac{0.16}{2000} + \frac{.79}{50} + \frac{.15}{25} = 0.42$  ✓

TLV

Breathing outlet air:

$$\frac{0.18}{100} = \frac{0.72}{1} + \frac{0.18}{1000} + \frac{0.07}{2000} + \frac{0.42}{50} + \frac{0.01}{25} = 0.81 \quad (0.73)$$

The mean values are averages of samples collected during 3-4 hours. Peaks are not detected by this technique. Excursions greater than 5 ppm occur as intermittent incidents.

Calculation to determine whether the sum of mixed contaminants in breathing air exceeds one tenth of the threshold limit.

$$\frac{0.18}{10} + \frac{0.72}{1} + \frac{0.18}{1000} + \frac{0.07}{20} + \frac{0.42}{5} + \frac{0.01}{2.5} = 8.1 \quad ?$$

$$\frac{0.18}{10} + \frac{0.72}{1} + \frac{0.18}{100} + \frac{0.07}{20} + \frac{0.42}{5} + \frac{0.01}{2.5} =$$

$$\frac{1.8 + 72 + 0.18 + 0.35 + 8.4 + 0.4}{100} = 0.83$$

Particulate, oil mist and hydrocarbon  
figures are 10 percent low because of sampling bias  
deficiency.

BATON ROUGE PLANT

BREATHING AIR

Discussion

This report deals with the utility-breathing air system as found during the past three months within the Baton Rouge Plant. The estimates herein for breathing air use do not include requirements for additional breathing stations within hydrocarbon and polyvinyl chloride areas.

It is understood Plant Maintenance expects to adjust breathing air to deliver between four and five cubic feet of air per minute per outlet. They also expect to replace the charcoal filter adsorbent material for breathing air on a regular basis. It is believed the present thermal lock out devices were designed for protection of the compressor and not to avert breathing carbon monoxide as is required by OSHA. Hence the system does not meet OSHA requirements.

The OSHA standard for compressed breathing air calls for Type 1 Grade D air which limits the concentration of condensed hydrocarbons and carbon monoxide, however it does not set maximum limiting values for gaseous hydrocarbons or halogenated solvents. Other specifications, for example, that from the National Aeronautics and Space Administration (NASA) do limit these chemical levels and with the exception of vinyl chloride, present plant breathing air was found to be within these limits

most of the time. However, it should be noted NASA also claims it purifies its compressed air <sup>prior to its use as breathing air</sup> to remove all hydrocarbons, condensed or gaseous, and also desorbs and converts all carbon monoxide to carbon dioxide.

Our neighbors, Exxon, reports it uses <sup>commercial grade</sup> compressed air <sup>Since 14</sup> cylinders for breathing air except for sandblast and painting operations. The employees who conduct these tasks use breathing air which is supplied from a compressor located within an air-conditioned shop building. Incidentally, the writer was informed by a local distributor that a two year back order for the availability of compressed air cylinders exists at this time. Dow Chemical, at Freeport, Texas, uses an Ingersoll Rand, 4-stage Robins Aviation Compressor whose inlet is on the Gulf side of their plant (four miles away from the vinyl chloride operation). Reportedly the compressor is used exclusively for breathing air. Compressor air treatment includes a mechanical filter, molecular sieve, dew point monitor, activated charcoal bed and a Hopkolite bed for conversion of carbon monoxide.

Environmental data presented herein indicates vinyl chloride methyl chloride, ethyl chloride, ethylene dichloride and/or 1-1-1 trichloroethane, 1-1 dichloroethane and chloroform cycle through the utility breathing-air system from compressor inlet to breathing outlets at concentrations which are undiminished from start to finish. Due to other priority requirements, R&D analytical could not free an additional chromatograph for quantification of other suspect materials such as vinylidene

chloride, ethylene dibromide, carbon tetrachloride, vinyl acetylene or phosgene. However, in view of the low permissible level (1 ppm) for vinyl chloride further search for chlorinated unknowns is not justified in terms of "go" or "no go" for breathing air quality. The system permits excessive <sup>maybe too strong!</sup> levels of vinyl chloride. The reasoning for another method of evaluation goes something like this: Since there may be chance for exposure to excessive contaminant levels while working around areas which require wearing an air mask, it is thought contaminant levels for mask breathing air should be less than the threshold limit values (TLV's) for work air. An acceptable target here has been 10% of the TLV level. For our breathing air evaluation, this approach has for its target 0.1 ppm which is 10% of the TLV for vinyl chloride. Again, the low OSHA vinyl chloride requirement blocks acceptability of plant breathing air quality. This does not mean the removal of vinyl chloride from the breathing air would guarantee acceptability. It should also be brought out: the data suggests anyone, including those working within the organic lead area, using the breathing air should be included in the action level program for vinyl chloride. Their exposure level will exceed 0.5 ppm. Finally, it was found the vinyl-chloride contaminant level was reduced significantly by the triple charcoal filter system within "C" Building. However it is not expected this would be a permanent solution. Finally, informal data was received which suggested vinyl chloride breathing air levels of two or three parts per million within the breathing

*During the three month study, fourteen samples taken from the breathing air outlets only were analyzed for VCL and 21% of the results exceeded the action level of 0.5 ppm. Consequently, a medical surveillance program similar to that of PVC employees would*

*OSHA  
neg  
in  
b.n.*

VC4/31

air system in the hydrocarbon area. This probably represents some averaging over longer collection periods. Most of the meaningful hydrocarbon samples taken for this <sup>1H</sup> evaluation were collected over a three to four hour period. Thus hydrocarbon peak levels are not identified. Most certainly, peaks exceed the 5 ppm ceiling limit value.

### Conclusion

*Low pollution level suggested*  
The concentration levels of vinyl chloride found within the plant breathing air system make this air <sup>at times</sup> unacceptable <sup>to OSHA</sup> for protected breathing. I believe continuing this evaluation will only <sup>additional eval for</sup> incriminate breathing air quality to a greater extent. <sup>minimum exposure B.A. 5-</sup>

### Recommendations

- For purpose of 1H survey, this study is adequate (sufficient).*
1. Ideally, Consideration should be given for ~~manpower~~ toward develop<sup>ing</sup> a process to polymerize or somehow remove vinyl chloride from the breathing air system.
  2. Consideration should be given to identify an area within or over the plant which is relatively free of vinyl chloride and other chlorinated contaminants.
  3. Consideration should be given to installing a breathing air "oilless" compressor or compressors together with air purifying pretreatment systems. Breathing air from this equipment could be fed into the ~~existing knock-out, charcoal~~, pressure reducing-air distribution network. *for employees using B.A. significantly, see table*
  4. As soon as possible the engine exhaust outlets from the portable air compressors should be ducted to grade level to minimize carbon monoxide contamination of intake air as now occurs. If this is objectional because of excessive engine back pressure,

the compressor air intake opening should be raised at least three feet through an enlarged stack.

ATTACHMENTS

|                                         |                            |
|-----------------------------------------|----------------------------|
| Compressor locations                    | A-1                        |
| Compressor air quality maintenance data | B-1, B-2                   |
| Volume of breathing air                 | C-1, C-2, C-3, C-4         |
| Analytical data - Organic Lead Area     | D-1, D-2, D-3, D-4         |
| Sandblast and PVC Areas                 | D-5, D-6, D-7              |
| Hydrocarbon Area                        | D-8, D-9, D-10, D-11, D-12 |
| CO - CO <sub>2</sub> Summary            | D-13, D-14,                |
| M&P Building                            | D-15                       |
| Standards                               | E-1, E-2, E-3, E-4         |
| Photographs                             | F-1, F-2, F-3, F-4         |

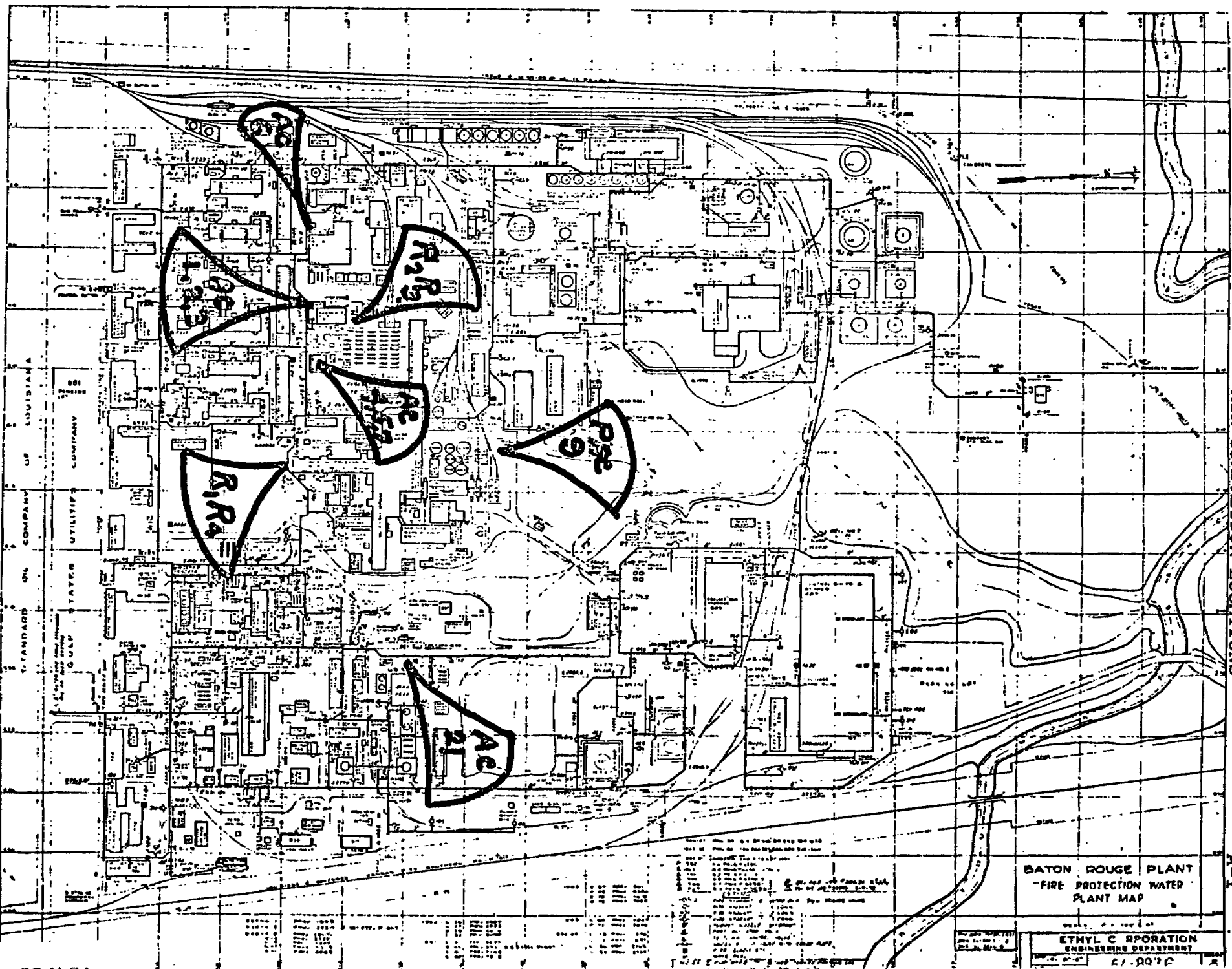
# AIR COMPRESSOR LOCATIONS

A-1

BATON ROUGE PLANT  
"FIRE PROTECTION WATER  
PLANT MAP"

ETHYL CORPORATION  
ENGINEERING DEPARTMENT

21.007C



AC=Air Compressor; R=Rental Air Compressor; P=Portable

# 1974 DAILY AIR SAMPLES

B-1

## PORTABLE AIR COMPRESSORS

| MONTH | AG-1 THRU 4       |                   | AG-5 & 7 |                 | AC-6     |                 | AC-21 |                 | So. No 1 C.R. |                 | N. No 2 RESVR |                 | No. 13 WEL |      |
|-------|-------------------|-------------------|----------|-----------------|----------|-----------------|-------|-----------------|---------------|-----------------|---------------|-----------------|------------|------|
|       | CO <sub>ppm</sub> | CO <sub>2</sub> % | CO       | CO <sub>2</sub> | CO       | CO <sub>2</sub> | CO    | CO <sub>2</sub> | CO            | CO <sub>2</sub> | CO            | CO <sub>2</sub> | CO         | CO   |
| 1     | 0                 | 0.03              | 0        | 0.02            | 0        | 0.03            | 0     | 0.02            | 1             | 0.02            | 2             | 0.03            | 0          | 0.02 |
| 2     | 2                 | 0.04              | 0        | 0.02            | 2        | 0.03            | 1     | 0.02            | 1             | 0.02            | 0             | 0.02            | 0          | 0.02 |
| 3     | 0                 | 0.03              | 0        | 0.02            | 2        | 0.03            | 0     | 0.03            | 2             | 0.03            | 0             | 0.04            | 0          | 0.02 |
| 4     | 0                 | 0.03              | 0        | 0.03            | 2        | 0.02            | 2     | 0.03            | 1             | 0.02            | 0             | 0.02            | 2          | 0.02 |
| 5     | 0                 | 0.02              | 0        | 0.02            | 2        | 0.03            | 0     | 0.03            |               |                 |               |                 | 0          | 0.02 |
| 6     | 0                 | 0.02              | 0        | 0.03            | 2        | 0.03            | 0     | 0.02            | 0             | 0.03            | 0             | 0.02            | 0          | 0.02 |
| 7     | 0                 | 0.03              | 0        | 0.03            | 0        | 0.02            | Busy  |                 | 2             | 0.02            | 2             | 0.03            | Busy       |      |
| 8     | 0                 | 0.03              | 2        | 0.04            | 1        | 0.02            | ditto |                 | 1             | 0.03            | 0             | 0.04            | ditto      |      |
| 9     | 0                 | 0.02              | 0        | 0.03            | 2        | 0.03            | 0     | 0.03            | 1             | 0.02            | 0             | 0.02            | 0          | 0.02 |
| 10    | 2                 | 0.04              | 0        | 0.03            | 2        | 0.03            | Busy  |                 | 0             | 0.02            | 0             | 0.01            | Busy       |      |
| 11    | 0                 | 0.02              | 1        | 0.03            | 0        | 0.02            | Busy  |                 | Busy          |                 | Busy          |                 | Busy       |      |
| 12    | 0                 | 0.03              | 0        | 0.02            | 2        | 0.04            |       |                 | 0             | 0.02            | 0             | 0.02            | Busy       |      |
| 13    | 2                 | 0.02              | 0        | 0.03            | not test |                 | Busy  |                 | 0             | 0.02            | 1             | 0.02            | Busy       |      |
| 14    | 2                 | 0.02              | 0        | 0.03            | not test |                 | Busy  |                 | 0             | 0.02            | 2             | 0.03            | Busy       |      |
| 15    | 2                 | 0.02              | 0        | 0.03            | not test |                 | 0     | 0.03            | 0             | 0.02            | 0             | 0.02            | 0          | 0.02 |
| 16    | 0                 | 0.03              | 0        | 0.02            | 0        | 0.03            |       |                 | 1             | 0.02            | 1             | 0.02            |            |      |
| 17    | 0                 | 0.02              | 0        | 0.02            | 0        | 0.02            |       |                 | 0             | 0.02            | 0             | 0.02            |            |      |
| 18    | 2                 | 0.03              | 2        | 0.03            | 2        | 0.03            | 0     | 0.02            | 0             | 0.02            | 2             | 0.02            | 0          | 0.02 |
| 19    | 0                 | 0.02              | 0        | 0.02            | 0        | 0.02            | Busy  |                 | 0             | 0.02            | 2             | 0.02            | Busy       |      |
| 20    | 0                 | 0.03              | 0        | 0.04            | 0        | 0.02            | Busy  |                 | 1             | 0.03            | 2             | 0.02            | Busy       |      |
| 21    | 0                 | 0.02              | 0        | 0.02            | 0        | 0.02            | 0     | 0.02            | 1             | 0.03            | 1             | 0.02            | 0          | 0.02 |
| 22    | 2                 | 0.03              | 0        | 0.03            | 2        | 0.02            | 0     | 0.02            | 1             | 0.04            | 1             | 0.04            | 0          | 0.02 |
| 23    | 2                 | 0.03              | 2        | 0.03            | 2        | 0.02            | 0     | 0.03            | 1             | 0.02            | 0             | 0.03            | 2          | 0.02 |
| 24    | 1                 | 0.02              | 1        | 0.03            | 1        | 0.02            | Busy  |                 | 1             | 0.04            | 1             | 0.04            | Busy       |      |
| 25    | 1                 | 0.02              | 0        | 0.02            | 0        | 0.02            | 0     | 0.03            | 1             | 0.03            | 1             | 0.03            |            |      |
| 26    | 1                 | 0.02              | 1        | 0.02            | 0        | 0.02            | 0     | 0.03            | 1             | 0.03            | 1             | 0.03            | Busy       |      |
| 27    | 1                 | 0.02              | 1        | 0.02            | 0        | 0.02            | 0     | 0.02            | 1             | 0.03            | 2             | 0.03            | 0          | 0.02 |
| 28    | 0                 | 0.02              | 0        | 0.03            | 0        | 0.03            | 2     | 0.03            | 0             | 0.03            | 0             | 0.02            | 1          | 0.02 |
| 29    | 0                 | 0.03              | 0        | 0.03            | 0        | 0.03            | 0     | 0.02            | 0             | 0.03            | 0             | 0.03            | 0          | 0.03 |
| 30    | 0                 | 0.03              | 0        | 0.03            | 0        | 0.04            | 2     | 0.04            | 0             | 0.03            | 2             | 0.03            | 0          | 0.02 |
| 31    | 0                 | 0.02              | 0        | 0.03            | 0        | 0.03            | 1     | 0.03            | 1             | 0.02            | 0             | 0.02            | 0          | 0.02 |

# Compressed Air CO & CO<sub>2</sub> Samples

B-2

| Date    | Stationary Compressors |                 |        |                 |             |                 |       |                 | Portable Compressors |                 |               |                 |             |                 |                 |                 |
|---------|------------------------|-----------------|--------|-----------------|-------------|-----------------|-------|-----------------|----------------------|-----------------|---------------|-----------------|-------------|-----------------|-----------------|-----------------|
|         | AC 1-2-3-4             |                 | AC 5-7 |                 | AC 6        |                 | AC 21 |                 | # 11 Well            |                 | N. of #2 Res. |                 | No. 13 Well |                 | S. of No 1 C.E. |                 |
|         | CO                     | CO <sub>2</sub> | CO     | CO <sub>2</sub> | CO          | CO <sub>2</sub> | CO    | CO <sub>2</sub> | CO                   | CO <sub>2</sub> | CO            | CO <sub>2</sub> | CO          | CO <sub>2</sub> | CO              | CO <sub>2</sub> |
| 6-1-74  | 0                      | 0.02            | 0      | 0.02            | 0           | 0.03            | 7     | 0.02            |                      |                 |               |                 |             |                 |                 |                 |
| 6-2-74  | 0                      | 0.02            | 0      | 0.02            | not running |                 | 5     | 0.02            |                      |                 |               |                 |             |                 |                 |                 |
| 6-3-74  | 0                      | 0.02            | 0      | 0.02            | not running |                 | 3     | 0.03            | ✓                    | ✓               | 10            | 0.02            | NOT RUNNING |                 |                 |                 |
| 6-4-74  | 0                      | 0.03            | 0      | 0.15            | 0           | 0.15            | 0     | 0.04            |                      |                 | 15            | 0.02            | 0           |                 |                 |                 |
| 6-5-74  | 5                      | 0.03            | 0      | 0.2             | 0           | 0.02            |       |                 | ✓                    | ✓               |               |                 |             |                 |                 |                 |
| 6-6-74  | 5                      | 0.02            | 2      | 0.02            | 0           | 0.02            |       |                 |                      |                 |               |                 |             |                 |                 |                 |
| 6-7-74  | 2.5                    | 0.04            | 2      | 0.02            | 0           | 0.02            |       |                 |                      |                 |               |                 |             |                 |                 |                 |
| 6-8-74  | 5                      | 0.04            |        | 0.04            | not running |                 | 5     | 0.02            |                      |                 | 10            | 0.04            |             |                 |                 |                 |
| 6-9-74  | 0                      | 0.04            | 0      | 0.02            | 0           | 0.04            | 5     | 0.02            | not running          |                 |               |                 |             |                 |                 |                 |
| 6-10-74 | 0                      | 0.04            | 0      | 0.04            | 0           | 0.04            |       |                 |                      |                 |               |                 | NOT RUNNING |                 |                 |                 |
| 6-11-74 | 0                      | 0.04            | 0      | 0.04            | not running |                 | 5     | 0.04            |                      |                 |               |                 | NOT RUNNING |                 |                 |                 |
| 6-12-74 | 0                      | 0.03            | 0      | 0.02            | 0           | 0.02            | 5     | 0.03            |                      |                 |               |                 |             |                 |                 |                 |
| 6-13-74 | 2                      | 0.02            | 0      | 0.02            | 0           | 0.02            | 4     | 0.03            |                      |                 |               |                 |             |                 |                 |                 |
| 6-14-74 | 0                      | 0.04            | 0      | 0.02            | 0           | 0.04            | 3     | 0.04            |                      |                 |               |                 |             |                 |                 |                 |
| 6-15-74 | 2                      | 0.03            | 0      | 0.03            | 0           | 0.03            | 5     | 0.03            | NOT RUNNING          |                 | NOT RUNNING   |                 |             |                 | NOT RUNNING     |                 |
| 6-16-74 | 0                      | 0.02            | 0      | 0.02            | 0           | 0.04            | 5     | 0.04            | "                    | "               | NOT RUNNING   |                 | "           | "               | "               | "               |
| 6-17-74 | 0                      | 0.02            | 0      | 0.02            | 0           | 0.03            | 3     | 0.02            | "                    | "               | "             | "               | "           | "               | "               | "               |
| 6-18-74 | 0                      | 0.02            | 2      | 0.02            | 0           | 0.03            | 0     | 0.03            |                      |                 |               |                 |             |                 |                 |                 |
| 6-19-74 | 0                      | 0.02            | 0      | 0.03            | 0           | 0.04            | 3     | 0.04            | "                    | "               | "             | "               | "           | "               | "               | "               |
| 6-20-74 | 0                      | 0.04            | 0      | 0.02            | 0           | 0.03            |       |                 | "                    | "               | "             | "               | "           | "               | "               | "               |
| 6-21-74 | 0                      | 0.02            | 0      | 0.02            | 0           | 0.03            |       |                 |                      |                 |               |                 |             |                 |                 |                 |
| 6-22-74 | 0                      | 0.03            | 0      | 0.03            | 0           | 0.02            | 2     | 0.03            | "                    | "               | "             | "               | "           | "               | 2               | 0.03            |
| 6-23-74 | 0                      | 0.03            | 0      | 0.02            | 0           | 0.02            | 0     | 0.02            | None                 |                 | 0             | 0.04            | "           | "               | 0               | 0.03            |
| 6-24-74 | 0                      | 0.02            | 0      | 0.03            | 0           | 0.03            |       | 0.03            | None                 |                 | 0             | 0.04            | "           | "               | not running     |                 |
| 6-25-74 | 0                      | 0.02            | 0      | 0.03            | 0           | 0.02            | 0     | 0.03            | "                    | "               | 0             | 0.04            | "           | "               |                 |                 |
| 6-26-74 | 0                      | 0.03            | 0      | 0.02            | 0           | 0.02            | 0     | 0.02            | "                    | "               | 0             | 0.03            | "           | "               | 0               | 0.02            |
| 6-27-74 | 0                      | 0.03            | 0      | 0.03            | 0           | 0.02            | 0     | 0.03            | "                    | "               |               |                 | "           | "               |                 |                 |
| 6-28-74 | 0                      | 0.03            | 0      | 0.02            | 0           | 0.02            | 0     | 0.02            | "                    | "               | 0             | 0.02            | "           | "               | 0               | 0.02            |
| 6-29-74 | 0                      | 0.03            | 0      | 0.03            | 0           | 0.03            | 0     | 0.03            | "                    | "               | 0             | 0.03            | "           | "               | 0               | 0.03            |
| 6-30-74 | 0                      | 0.03            | 0      | 0.02            | 0           | 0.02            | 0     | 0.03            | "                    | "               | 5             | 0.03            | "           | "               | 3               | 0.03            |

VC4737

## BATON ROUGE PLANT BREATHING AIR VOLUME

| Hydrocarbon area     | #/mo | #mask | Time<br>mask<br>(hr) | Volume<br>(ft <sup>3</sup> )<br>Mo |
|----------------------|------|-------|----------------------|------------------------------------|
| 1,1,1 TCE Stab. Shed | 10   | 1     | 0.5                  | 1,300                              |
| Per Tri Stab. Shed   | 7.5  | 1     | 0.75                 | 1,400                              |
| #3 EDC Catalyst Shed | 30   | 2     | 0.33                 | 5,200                              |
| Vinyl Loading        | 30   | 1     | 2.0                  | 15,000                             |
| Miscellaneous        |      |       |                      | <u>11,000</u>                      |
|                      |      | Total |                      | 33,900                             |
| PVC Area             |      |       |                      |                                    |
| Autoclave Cleaning   | 30   | 1     | 6                    | 46,000                             |
| Peak Requirements    | 6    | 10    | 3                    | 46,000                             |
| Miscellaneous        |      |       |                      | <u>46,000</u>                      |
|                      |      | Total |                      | 138,000                            |
| Sandblast Areas      | 20   | 16    | 8                    | 250,000                            |
| Miscellaneous        |      |       |                      | <u>120,000</u>                     |
|                      |      | Total |                      | 370,000                            |

## BATON ROUGE PLANT BREATHING AIR VOLUME

Lead Alkyls Building and Wash House  
Air Mask Air Users

|                                                                        | <u>Floor</u>  | <u>Item</u>                         | <u>#/mo</u> | <u># Masks</u> | <u>Time/Mask (HR)</u> | <u>Total Volume mo (M.C.F.)</u> |
|------------------------------------------------------------------------|---------------|-------------------------------------|-------------|----------------|-----------------------|---------------------------------|
| Buildings and Wash House (maintenance)<br><br>Tot. Vol. = 320.9 M.C.F. | 4th           | Angle Valve Change                  | 6           | 2              | 8                     | 25.0                            |
|                                                                        | 5th           | C.H.P.C. Change                     | 30          | 3              | 2                     | 46.8                            |
|                                                                        | 4th           | A/C Disc Change                     | 10          | 2              | 1                     | 5.2                             |
|                                                                        | 4th & 5th     | Reflux & Still Cond. Chg.           | 4           | 4              | 4                     | 16.6                            |
|                                                                        | 4th           | A/C Change                          | .25         | 4              | 16                    | 4.2                             |
|                                                                        |               |                                     |             | 6              | 8                     | 3.1                             |
|                                                                        | 3rd           | Still Change                        | .5          | 15             | 4                     | 7.8                             |
|                                                                        |               | Wash House Filter Chg.              | 8           | 3              | 4                     | 25.0                            |
|                                                                        | Miscellaneous | 90                                  | 2           | 4              | 187.2                 |                                 |
| Buildings and Wash House (operations)<br><br>Tot. Vol. = 131.0 M.C.F.  | 2nd           | Wash TEL Bldg. Inlet Mid. Sep. Tk.  | 26          | 1              | 1.5                   | 10.1                            |
|                                                                        | 2nd           | Wash W.H. Inlet Mid. Sep. Tk.       | 16          | 1              | 1                     | 4.2                             |
|                                                                        | 2nd           | Wash TEL Bldg. Outlet Mid. Sep. Tk. | 9           | 1              | 1.5                   | 3.5                             |
|                                                                        | 2nd           | Wash W.H. Outlet Mid. Sep. Tk.      | 8           | 1              | 1                     | 2.1                             |

## Baton Rouge Plant Breathing Air Volume, Cont'd

Lead Alkyls Building and Wash House  
Air Mask Air users

|         |                                      |     |   |     |      |
|---------|--------------------------------------|-----|---|-----|------|
| 1st     | Wash TEL Bldg. 4x10 Tank             | 60  | 1 | 1   | 15.6 |
| 1st     | Wash W.H. 4x10 Tank                  | 60  | 1 | 1   | 15.6 |
| 2nd     | Wash TEL Bldg. Wall &<br>39 Tank     | 2   | 1 | 2   | 1.0  |
| 2nd     | Wash TEL Bldg. Cont.<br>Cutting Tank | 60  | 1 | 1   | 15.6 |
| 2nd     | Wash W.H. Wash Tank                  | 8   | 1 | 1   | 2.1  |
| 2nd     | Wash W.H. E. Crude Tank              | 8   | 1 | 1   | 2.1  |
| 2nd     | Wash W.H. W. Crude Tank              | 8   | 1 | 1   | 2.1  |
| 2nd     | Wash W.H. #48 Tank                   | 8   | 1 | 1   | 2.1  |
| 3rd     | Wash TEL Bldg. Receivers             | 400 | 1 | .25 | 26.0 |
| 3rd     | Wash TML Bldg. Receivers             | 24  | 1 | .25 | 1.6  |
| 2nd     | Wash TML Bldg. Wall Tank             | 1   | 1 | 2   | .5   |
| 2nd     | Wash TML Bldg. AB-4                  | 4   | 1 | 2   | 2.1  |
| 1st     | Wash TML Bldg. 4x10                  | 4   | 1 | 1   | 1.0  |
| 4th     | Change Angle Valve Seat              | 3   | 1 | 1   | .8   |
| 4th&5th | Decontamination for<br>Maint. Jobs   | 25  | 1 | 1   | 6.5  |

Maint. & Op  
Tot. Vol. =  
451.9 M.C.F.  
MO

## Baton Rouge Plant Breathing Air Volume, Cont'd

Lead Alkyls Building and Wash HouseAir Mask Air Users

| <u>Floor</u> | <u>Item</u>                       | <u>#/mo</u> | <u># Masks</u> | <u>Time/Mask<br/>(HR)</u> | <u>Total Volume<br/>mo (M.C.F.)</u> |
|--------------|-----------------------------------|-------------|----------------|---------------------------|-------------------------------------|
| 4th          | Washing A/C                       | 1.5         | 2              | 18                        | 14.0                                |
| ?            | Clean Vent Ells                   | 1           | 1              | 3                         | .8                                  |
| 3rd          | Still Disc and<br>Thermxwell work | 1           | 1              | 6                         | 1.6                                 |

Blender Air Mask Air Users

|                                       | <u>Item</u>          | <u>#/mo</u> | <u># Masks</u> | <u>Time/Mask</u> | <u>Total Volume<br/>mo (M.C.F.)</u> |
|---------------------------------------|----------------------|-------------|----------------|------------------|-------------------------------------|
| Maintenance<br>Vol. = 116.5<br>M.C.F. | Bag Filter Change    | 4           | 2              | 5                | 10.4                                |
|                                       | Polish Filter Change | 8           | 2              | 4                | 16.6                                |
|                                       | AD-2 & 3 Bed Change  | 6           | 4              | 4                | 25.0                                |
|                                       | Lewis Pump Change    | 1           | 2              | 4                | 2.1                                 |
|                                       | Miscellaneous        | 30          | 2              | 4                | 62.4                                |
| Operations<br>Vol. 3.0 M.C.F.         | AD-2 & 3 Bed Change  | 6           | 2              | .5               | 1.6                                 |
|                                       | Lewis Pump Change    | 1           | 1              | .5               | .1                                  |
|                                       | Miscellaneous        | 5           | 1              | 1                | 1.3                                 |

Total Blender Volume = 119.5  $\frac{\text{M.C.F.}}{\text{MO.}}$

BATON ROUGE PLANT BREATHING AIR

Draft

D-1

|                    | TEL AC 2 Intake<br>10/30/74              | AD-3 MLA<br>unit<br>10/31/74            |
|--------------------|------------------------------------------|-----------------------------------------|
| % O <sub>2</sub>   |                                          |                                         |
| Cond. HC           |                                          |                                         |
| CO                 | 2 ppm                                    | 1 ppm                                   |
| odor               |                                          | none                                    |
| CO <sub>2</sub>    |                                          |                                         |
| gaseous HC         |                                          |                                         |
| NO <sub>2</sub>    |                                          |                                         |
| SO <sub>2</sub>    |                                          |                                         |
| halog.<br>solvents | propane <0.12                            | propane 0.13                            |
| (ppm)              | CH <sub>3</sub> Cl 0.10                  | CH <sub>3</sub> Cl 0.31                 |
|                    | VCl 0.17                                 | VCl 0.39                                |
|                    | CH <sub>3</sub> CH <sub>2</sub> Cl <0.08 | CH <sub>3</sub> CH <sub>2</sub> Cl 0.26 |
|                    | 1,1 DCE 0.25                             | 1,1 DCE <0.04                           |
|                    | unknown -----                            | unknown -----                           |
|                    | toluene 0.15                             | EDC; 1,1,1 TCE <0.04                    |
| misc.              | inorg Pb 0.034 mg/m <sup>3</sup>         | inorg Pb 0.001 mg/m <sup>3</sup>        |
|                    | org Pb 0.010 mg/m <sup>3</sup>           | org Pb -----                            |
| particu-<br>late   |                                          |                                         |
| tempera-<br>ture   |                                          |                                         |

weather: clear, 80°F, SE wind

PC, 80°F

## BATON ROUGE PLANT BREATHING AIR

|                                      | TEL AC 1,2,3<br>outlet from compressor<br>11/1/74                                              | TEL AC 4,5,7<br>outlet from compressor<br>11/1/74                    | Portable AC R <sub>2</sub> R <sub>3</sub><br>Outlet on Post<br>11/1/74 |
|--------------------------------------|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------|
| % O <sub>2</sub>                     |                                                                                                |                                                                      |                                                                        |
| cond. HC                             |                                                                                                |                                                                      |                                                                        |
| CO                                   |                                                                                                |                                                                      |                                                                        |
| odor                                 |                                                                                                |                                                                      |                                                                        |
| CO <sub>2</sub>                      |                                                                                                |                                                                      |                                                                        |
| gaseous HC                           | propane <0.10 ppm<br>light HC <0.19 mg/m <sup>3</sup>                                          | propane <0.09 ppm                                                    |                                                                        |
| NO <sub>2</sub>                      |                                                                                                |                                                                      |                                                                        |
| SO <sub>2</sub>                      |                                                                                                |                                                                      |                                                                        |
| halog.<br>solvents                   | CH <sub>3</sub> Cl 0.35<br>VCl 0.77<br>1,1 DCE <0.05<br>unknown ----<br>EDC; 1,1,1 TCE 0.38    | CH <sub>3</sub> Cl 0.31<br>VCl 0.73<br>1,1 DCE 0.04<br>unknown ----- |                                                                        |
| misc.                                | inorg Pb 0.001 mg/m <sup>3</sup><br>org Pb 0.028 mg/m <sup>3</sup>                             | inorg Pb 0.002 mg/m <sup>3</sup><br>org Pb 0.006 mg/m <sup>3</sup>   |                                                                        |
| particu-<br>late<br>tempera-<br>ture |                                                                                                |                                                                      | 3.8 mg/m <sup>3</sup>                                                  |
| weather:                             | PC 80°F, SE wind<br>TEL AC 1 Intake<br>Sample Date: 12/16/74<br>Analysis for benzene <0.05 ppm | same                                                                 | same                                                                   |

## BATON ROUGE PLANT BREATHING AIR

|                    | Portable AC R <sub>1</sub> R <sub>4</sub><br>Intake<br>12/17/74 | TEL AC 3 Intake<br>1/3/75               | TEL "B" Bldg. 2nd<br>floor B.A.S.<br>1/3/75 |
|--------------------|-----------------------------------------------------------------|-----------------------------------------|---------------------------------------------|
| % O <sub>2</sub>   |                                                                 |                                         |                                             |
| cond. HC           |                                                                 |                                         | 0.09 mg/m <sup>3</sup>                      |
| CO                 |                                                                 | 7 ppm                                   | 4.5-5.0 ppm                                 |
| odor               |                                                                 |                                         | None                                        |
| CO <sub>2</sub>    |                                                                 |                                         | 0.015%                                      |
| gaseous HC         | propane <0.15                                                   | propane <0.07                           | propane <0.08                               |
| NO <sub>2</sub>    |                                                                 |                                         | -----                                       |
| SO <sub>2</sub>    |                                                                 |                                         | -----                                       |
| halog.<br>solvents | CH <sub>3</sub> Cl <0.13                                        | CH <sub>3</sub> Cl 0.07                 | CH <sub>3</sub> Cl 0.09                     |
| (ppm)              | VC1 0.26                                                        | VC1 0.30                                | VC1 0.85                                    |
|                    | CH <sub>3</sub> CH <sub>2</sub> Cl 0.10                         | CH <sub>3</sub> CH <sub>2</sub> Cl 0.08 | CH <sub>3</sub> CH <sub>2</sub> Cl 0.17     |
|                    | CHCl <sub>3</sub> 0.15                                          | EDC; 1,1,1 TCE 0.11                     | EDC; 1,1,1 TCE 0.10                         |
| misc.              | benzene <0.06                                                   |                                         |                                             |
| particu-<br>late   |                                                                 |                                         | 0.31 mg/m <sup>3</sup>                      |
| tempera-<br>ture   |                                                                 |                                         | 75°F                                        |
| weather            | clear, 50°F, WNW                                                | cloudy & humid, 64°F<br>NW wind         | same                                        |

## BATON ROUGE PLANT BREATHING AIR

|                    | TEL "C" Bldg.<br>2nd Floor B.A.S.<br>1/3/75 | AD-3 MLA unit<br>B.A.S.<br>1/8/75       | TEL "D" Bldg. 2nd floor<br>B.A.S.<br>1/8/75 |
|--------------------|---------------------------------------------|-----------------------------------------|---------------------------------------------|
| % O <sub>2</sub>   |                                             | 20.5                                    | 20                                          |
| cond. HC           | 0.03 mg/m <sup>3</sup>                      |                                         |                                             |
| CO                 | 4-4.5 ppm                                   | 5.5-6<br>8 ppm                          | 7.5-8 ppm                                   |
| odor               | none                                        | none                                    | none                                        |
| CO <sub>2</sub>    | 0.1%                                        |                                         |                                             |
| gaseous<br>HC      | propane <0.08                               | propane 0.06                            | propane 0.07                                |
| NO <sub>2</sub>    |                                             |                                         |                                             |
| SO <sub>2</sub>    |                                             |                                         |                                             |
| halog.<br>solvents | CH <sub>3</sub> Cl 0.08                     | CH <sub>3</sub> Cl 0.10                 | CH <sub>3</sub> Cl 0.17                     |
| (ppm)              | VC1 0.17                                    | VC1 0.16                                | VC1 0.23                                    |
|                    | CH <sub>3</sub> CH <sub>2</sub> Cl 0.15     | CH <sub>3</sub> CH <sub>2</sub> Cl 0.11 | CH <sub>3</sub> CH <sub>2</sub> Cl 0.31     |
|                    | 1,1 DCE 0.08                                | EDC; 1,1,1 TCE 0.15                     |                                             |
|                    | EDC; 1,1,1 TCE 0.12                         |                                         |                                             |
| particu-<br>late   | 0.16 mg/m <sup>3</sup>                      |                                         |                                             |
| tempera-<br>ture   |                                             | 77.5° ambient<br>79° B.A.S.             | 77.5° ambient<br>80.5° B.A.S.               |
| weather:           | cloudy & humid<br>64°F, NW wind             | PC-clear<br>70°F                        | same                                        |

## BATON ROUGE PLANT BREATHING AIR

|                       | Sandblasting Shed<br>12/31/74                                                                                                                  | Sandblasting Shed<br>1/7/75                                                                             | Sandblasting Shed<br>1/8/75 |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-----------------------------|
| SO <sub>2</sub>       |                                                                                                                                                | 19.5-20                                                                                                 | .20                         |
| cond. HC              | 0.20 mg/m <sup>3</sup>                                                                                                                         |                                                                                                         |                             |
| CO                    | 1.5 - 5.5 ppm                                                                                                                                  | 6 - 6.5 ppm                                                                                             | .4-5 ppm                    |
| odor                  |                                                                                                                                                |                                                                                                         |                             |
| CO <sub>2</sub>       | --                                                                                                                                             |                                                                                                         |                             |
| gaseous HC            | propane 0.39                                                                                                                                   | propane 0.21                                                                                            |                             |
| NO <sub>2</sub>       | --                                                                                                                                             |                                                                                                         |                             |
| SO <sub>2</sub>       | --                                                                                                                                             |                                                                                                         |                             |
| halog. solvents (ppm) | CH <sub>3</sub> Cl 0.28<br>VCl 0.09<br>CH <sub>3</sub> CH <sub>2</sub> Cl 0.06<br>1,1DCE 0.05<br>CHCl <sub>3</sub> 0.01<br>EDC; 1,1,1 TCE 0.45 | CH <sub>3</sub> Cl <0.07<br>VCl 0.13<br>CH <sub>3</sub> CH <sub>2</sub> Cl <0.06<br>EDC; 1,1,1 TCE 0.37 |                             |
| particulate           | 2.59 mg/m <sup>3</sup>                                                                                                                         |                                                                                                         | 0.18 mg.m <sup>3</sup>      |
| temperature           | ambient 79°<br>B.A.S. 82°                                                                                                                      |                                                                                                         |                             |
| weather:              | Clear - PC<br>79°F<br>SE wind                                                                                                                  | rainy<br>S wind                                                                                         | PC - Clear.                 |

## BATON ROUGE PLANT BREATHING AIR

|                         | PVC area (outside<br>compounding bldg.)<br>Environmental Sample<br>12/19/74 | PVC Compounding<br>Blender B.A.S.<br>12/19/74 | PVC Centrifuge<br>Drying Deck<br>B.A.S. - 2nd Floor<br>12/19/74 |
|-------------------------|-----------------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------|
| SO <sub>2</sub>         |                                                                             |                                               |                                                                 |
| cond. HC                |                                                                             | 0.50 mg/m <sup>3</sup>                        |                                                                 |
| CO                      |                                                                             |                                               |                                                                 |
| odor                    |                                                                             | slight                                        |                                                                 |
| CO <sub>2</sub>         |                                                                             |                                               | --                                                              |
| gaseous<br>HC           | propane <0.08                                                               | propane <0.08                                 | light HC <0.152 mg/m <sup>3</sup><br>propane <0.08              |
| NO <sub>2</sub>         |                                                                             |                                               |                                                                 |
| SO <sub>2</sub>         |                                                                             |                                               |                                                                 |
| halog.<br>sol-<br>vents | CH <sub>3</sub> Cl <0.07                                                    | CH <sub>3</sub> Cl 0.16                       | CH <sub>3</sub> Cl 0.17                                         |
| (ppm)                   | VCl 3.44                                                                    | VCl 1.06                                      | VCl 4.64                                                        |
|                         | EDC; 1,1,1 TCE 0.08                                                         | CH <sub>3</sub> CH <sub>2</sub> Cl 0.20       | CH <sub>3</sub> CH <sub>2</sub> Cl 0.25                         |
|                         |                                                                             | EDC; 1,1,1 TCE 0.05                           | 1,1 DCE 0.05                                                    |
|                         |                                                                             |                                               | EDC; 1,1,1 TCE 0.08                                             |
| misc.                   |                                                                             |                                               | inorg. Pb 0.002<br>mg/m <sup>3</sup>                            |
| partic-<br>ulate        |                                                                             | 4.62 mg/m <sup>3</sup>                        | org Pb 0.006 mg/m <sup>3</sup>                                  |
| temper-<br>ature        | ambient 64°                                                                 | ambient 64°                                   | ambient 64°                                                     |
|                         |                                                                             | B.A.S. 67°                                    | B.A.S. 75°                                                      |
| weather:                | PC<br>60°F<br>NNW wind                                                      | same                                          | same                                                            |

## BATON ROUGE PLANT BREATHING AIR

|                    | PVC Compounding<br>Blender B.A.S.<br>1/2/75 | PVC Centrifuge<br>Drying Deck<br>B.A.S.<br>2nd Floor<br>1/2/75 | PVC Compounding<br>Blender<br>B.A.S.<br>1/7/75 | PVC Centrifuge<br>Drying Deck<br>1/7/75 |
|--------------------|---------------------------------------------|----------------------------------------------------------------|------------------------------------------------|-----------------------------------------|
| % O <sub>2</sub>   |                                             |                                                                | 20                                             | 20                                      |
| Cond. HC           | 0.09 mg/m <sup>3</sup>                      | 0.017 mg                                                       |                                                |                                         |
| CO                 | 5.5 ppm                                     | 5.5-6.5 ppm                                                    | 5.5 ppm                                        | 6 ppm                                   |
| odor               | -                                           |                                                                |                                                |                                         |
| CO <sub>2</sub>    | 0.015%                                      | 0.09%                                                          |                                                |                                         |
| gaseous<br>HC      | propane 0.08                                | propane 0.09                                                   |                                                |                                         |
| NO <sub>2</sub>    | nil                                         | nil                                                            |                                                |                                         |
| SO <sub>2</sub>    | nil                                         | nil                                                            |                                                |                                         |
| halog.<br>solvents | CH <sub>3</sub> Cl 0.08                     | CH <sub>3</sub> Cl 0.07                                        |                                                |                                         |
| (ppm)              | VCl 0.12                                    | VCl 0.07                                                       |                                                |                                         |
|                    | CH <sub>3</sub> CH <sub>2</sub> Cl 0.06     | CH <sub>3</sub> CH <sub>2</sub> Cl 0.07                        |                                                |                                         |
|                    |                                             | 1,1 DCE 0.07                                                   |                                                |                                         |
| partic-<br>ulate   | 0.36 mg/m <sup>3</sup>                      | 1.18 mg                                                        |                                                |                                         |
| temper-<br>ature   | ambient 62°<br>B.A.S. 66°                   | ambient 66°<br>B.A.S. 68°                                      |                                                | ambient 62°<br>B.A.S. 62°               |

## BATON ROUGE PLANT BREATHING AIR

## Hydrocarbon Area - Air Compressor 21 - Intake Analyses

| Sample Date                                            | Components Found                                                                                                                                                                        | Concentration (ppm)                                                                                                                      |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 9/13/74<br><br>weather: very humid<br>cloudy<br>S wind | VC1<br><br>CH <sub>3</sub> CH <sub>2</sub> Cl<br>EDC; 1,1,1 TCE<br>VC1<br>CH <sub>3</sub> CH <sub>2</sub> Cl<br>EDC; 1,1,1 TCE                                                          | 0.20<br>-----<br>0.58<br>0.35<br>1-15*<br>1.12                                                                                           |
| 9/16/74<br><br>weather: north wind                     | light HC<br>CH <sub>3</sub> Cl<br>VC1<br>CH <sub>3</sub> CH <sub>2</sub> Cl<br>EDC; 1,1,1 TCE<br>light HC<br>CH <sub>3</sub> Cl<br>CH <sub>3</sub> CH <sub>2</sub> Cl<br>EDC; 1,1,1 TCE | 0.44 mg/m <sup>3</sup><br>0.04<br>0.04<br>0-17<br>3.24<br>0.10 mg/m <sup>3</sup> *<br>0.01<br>0.08<br>2.24                               |
| 9/18/74<br><br>weather: clear<br>76 F<br>N wind        | light HC<br>CH <sub>3</sub> Cl<br>VC1<br>unknown<br>CH <sub>3</sub> CH <sub>2</sub> Cl<br>EDC; 1,1,1 TCE<br>light HC                                                                    | 0.14 mg/m <sup>3</sup><br>0.03<br>0.09<br>?<br>0.03<br>0.22<br>0.30 mg/m <sup>3</sup> *<br>*Possible breakthru<br>in Sipin tube analysis |

## BATON ROUGE PLANT BREATHING AIR

## Air Compressor 21 Intake - Page 2

| Sample Date       | Compounds Found                    | Concentration (ppm)      |
|-------------------|------------------------------------|--------------------------|
| 9/20/74           | light HC                           | 0.17 mg/m <sup>3</sup>   |
|                   | CH <sub>3</sub> Cl                 | 0.10                     |
| weather: clear-PC | VCL                                | 0.14                     |
| 78°F              | unknown                            | ?                        |
| variable wind     | CH <sub>3</sub> CH <sub>2</sub> Cl | 0.28                     |
|                   | unknown                            | ?                        |
|                   | CHCl <sub>3</sub>                  | 0.10                     |
|                   | EDC; 1,1,1 TCE                     | 0.96                     |
|                   | VCL                                | 0.20                     |
|                   | light HC                           | 0.30 mg/m <sup>3</sup>   |
|                   | VCL                                | 0.08                     |
|                   | benzene                            | <6.71                    |
| 10/10/74          | inorg Pb                           | <0.002 mg/m <sup>3</sup> |
| weather: clear    | org Pb                             | 0.013 mg.m <sup>3</sup>  |
| NE wind           | inorg Pb                           | <0.002 mg/m <sup>3</sup> |
|                   | org Pb                             | 0.019 mg/m <sup>3</sup>  |
| 12/13/74          | benzene                            | <0.04                    |

## BATON ROUGE PLANT BREATHING AIR

## Hydrocarbon Area - Environmental Samples\*

| Sample Date        | Components Found                   | Concentration (ppm)    |
|--------------------|------------------------------------|------------------------|
| 9/13/74            | VCl                                | 0.27                   |
| weather: cloudy    | CH <sub>3</sub> CH <sub>2</sub> Cl | ----                   |
| humid              |                                    |                        |
| S wind             | EDC; 1,1,1 TCE                     | 0.51                   |
| 9/16/74            | light HC                           | 0.43 mg/m <sup>3</sup> |
|                    | CH <sub>3</sub> Cl                 | 0.05                   |
| weather: N wind    | VCl                                | 0.04                   |
|                    | unknown                            | ?                      |
|                    | unknown                            | ?                      |
|                    | CH <sub>3</sub> CH <sub>2</sub> Cl | 0.14                   |
|                    | EDC; 1,1,1 TCE                     | 2.53                   |
| 9/18/74            | light HC                           | 0.11 mg/m <sup>3</sup> |
|                    | CH <sub>3</sub> Cl                 | 0.04                   |
| weather: clear     | VCl                                | 0.09                   |
| 76°F               | unknown                            | ?                      |
| N wind             | CH <sub>3</sub> CH <sub>2</sub> Cl | 0.04                   |
|                    | EDC; 1,1,1 TCE                     | 0.21                   |
|                    | 1,1,2 TCE                          | 0.01                   |
| 9/20/74            | light HC                           | 0.14 mg/m <sup>3</sup> |
|                    | CH <sub>3</sub> Cl                 | 0.09                   |
| weather: clear- PC | VCl                                | 0.11                   |
| 78°F               | unknown                            | ?                      |
| variable           |                                    |                        |
| wind               | CH <sub>3</sub> CH <sub>2</sub> Cl | 0.25                   |

\*Samples taken approx. 21 ft. southwest of AC 21

Draft D-11

BATON ROUGE PLANT BREATHING AIR

Hydrocarbon Area - Environmental Samples - Page 2

| Sample Date      | Components Found  | Concentration (ppm) |
|------------------|-------------------|---------------------|
| 9/20/74 (cont'd) | unknown           | ?                   |
|                  | CHCl <sub>3</sub> | 0.05                |
|                  | unknown           | ?                   |
|                  | EDC; 1,1,1 TCE    | 0.79                |

VC4752

BATON ROUGE PLANT BREATHING AIR

Draft - 12

Hydrocarbon Area - Breathing Air Stations - Page 2

|                          | 1,1,1 TCE Stabilizer<br>Shed                                                                                                          | #3 EDC Catalyst<br>Shed                                                                                                 | 1,1,1 TCE Stabilizer<br>Shed |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Sample Date              | 10/16/74                                                                                                                              | 10/18/74                                                                                                                | 10/23/74                     |
| CO                       | nil                                                                                                                                   | nil                                                                                                                     | nil                          |
| CO <sub>2</sub>          | 0.015%                                                                                                                                | nil                                                                                                                     | 0.015%                       |
| Halog. solvents<br>(ppm) | CH <sub>3</sub> Cl <0.19<br>VC1 <0.15<br><br>CH <sub>3</sub> CH <sub>2</sub> Cl <0.15<br>EDC; 1,1,1 TCE<br>0.36                       | VC1 <0.04<br>EDC; 1,1,1 TCE<br>.0.14                                                                                    |                              |
| misc.                    | inorg Pb 0.004<br>mg/m <sup>3</sup><br><br>org Pb 0.004<br>mg/m <sup>3</sup><br><br><1 ft <sup>3</sup> /min                           | light HC <0.12<br>mg/m <sup>3</sup><br><br>inorg Pb<br>0.006 mg/m <sup>3</sup><br><br>org Pb<br>0.001 mg/m <sup>3</sup> | benzene ?                    |
|                          | VCL Load Rack                                                                                                                         |                                                                                                                         |                              |
| Sample Date              | 1/10/75                                                                                                                               |                                                                                                                         |                              |
| Halog. Solvents<br>(ppm) | propane 0.54<br>CH <sub>3</sub> Cl 0.21<br>VC1 0.081<br>CH <sub>3</sub> CH <sub>2</sub> Cl 0.39<br>1,1 DCE 0.13<br>EDC; 1,1,1 TCE 2.0 |                                                                                                                         |                              |

VC4753

## BATON ROUGE PLANT BREATHING AIR

Summary: Carbon Monoxide, Carbon dioxide, & % Oxygen

| Sample Date | Location                                                                                                                                                                                                                   | CO                                                                  | CO <sub>2</sub>       | %O <sub>2</sub> |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------|-----------------|
| 10/16/74    | 1,1,1 TCE Stab. Shed                                                                                                                                                                                                       | nil                                                                 | 0.015%                |                 |
| 10/18/74    | #3 EDC Catalyst Shed                                                                                                                                                                                                       | nil                                                                 | nil                   |                 |
| 10/23/74    | 1,1,1 TCE Stab. Shed                                                                                                                                                                                                       | nil                                                                 | 0.015%                |                 |
| 10/25/74    | HC AC 21 intake<br>#3 EDC Catalyst Shed<br>1,1,1 TCE Stab. Shed                                                                                                                                                            | 1-2*<br>3.5<br>2-3*<br>3-3.5<br>2-5*<br>1.5-3                       | *Wilks IR<br>Analyzer |                 |
| 10/28/74    | AD-3 MLA unit<br>#5 blender load spot<br>CH <sub>3</sub> CH <sub>2</sub> Cl purification column<br>AC 1,2,3 intake<br>TEL AC #4 intake<br>"B" Bldg. 2nd Floor                                                              | 1.5<br>1.5-2.5<br>1.0<br>7-9<br>5<br>1.0                            |                       |                 |
| 10/29/74    | PAC R <sub>8</sub> intake<br>PAC R <sub>8</sub> exhaust<br>PAC R <sub>9</sub> intake<br>PAC R <sub>9</sub> exhaust<br>No loading shed<br>Cl <sub>2</sub> cleaning spot<br>PAC R <sub>1</sub> R <sub>4</sub> Outlet on post | 3<br>2-3<br>7-8<br>40-60 (excursions 90-100 ppm)<br>1.0<br>4<br>3-4 |                       |                 |
| 10/30/74    | TEL AC #2 intake<br>PAC R <sub>2</sub> intake<br>Sample outlet valve<br>by PAC R <sub>2</sub> R <sub>3</sub>                                                                                                               | 2<br>3<br>1-1.5                                                     |                       |                 |
| 10/31/74    | AD-3 MLA unit                                                                                                                                                                                                              | 1.0                                                                 |                       |                 |

BATON ROUGE PLANT BREATHING AIR

Draft D-14

Summary: Carbon monoxide, Carbon dioxide, & % Oxygen Page 2

| Sample Date | Location             | CO      | CO <sub>2</sub> | %O <sub>2</sub> |
|-------------|----------------------|---------|-----------------|-----------------|
| 12/19/74    | PVC Centrifuge Deck  |         | nil             |                 |
| 12/20/74    | 1,1,1 TCE Stab. Shed | nil     |                 |                 |
|             | Per, Tri Stab. Shed  | nil     |                 |                 |
|             | "B" Bldg. 2nd floor  | nil     |                 |                 |
|             | "B" Bldg. 3rd floor  | 0.5     |                 |                 |
|             | "C" Bldg. 2nd floor  | nil     |                 |                 |
|             | "C" Bldg. 3rd floor  | nil     |                 |                 |
|             | PVC Compd. Blender   | 2-3     |                 |                 |
|             | PVC Centrifuge Deck  | 1-2     |                 |                 |
| 12/31/74    | Sandblasting Shed    | 1.5-5.5 |                 |                 |
| 1/2/75      | PVC Compd. Blender   | 5-5.5   | 0.015%          |                 |
|             | PVC Centrifuge Deck  | 5.5-6.5 | 0.09%           |                 |
| 1/3/75      | TEL AC #3 intake     | 7       |                 |                 |
|             | "B" Bldg. 2nd floor  | 3.5-5   | 0.015%          |                 |
|             | "C" Bldg. 2nd floor  | 4-4.5   | 0.1%            |                 |
| 1/6/75      | 1,1,1 TCE Stab. Shed | 9-10    |                 |                 |
|             | Per, Tri Stab. Shed  | 5.5-6   |                 |                 |
|             | #3 EDC Catalyst Shed | 5.5-6   |                 |                 |
|             | Sandblasting Shed    | 4-6     |                 |                 |
| 1/7/75      | Sandblasting Shed    | 6-6.5   |                 | 19.5-20         |
|             | PVC Compd. Blender   | 5.5     |                 | 20              |
|             | PVC Centrifuge Deck  | 6       |                 | 20              |
| 1/8/75      | MLA AD-3 unit        | 5.5-8   |                 | 20.5            |
|             | "D" Bldg. 2nd floor  | 7.5-8   |                 | 20              |
|             | Sandblasting Shed    | 4-5     |                 | 20              |
|             | PVC Compd. Blenders  | 5.5     |                 |                 |

VC4755

## BATON ROUGE PLANT BREATHING AIR

M&amp;P Building-Medical Office #4

| Sample Date | Components Found                          |
|-------------|-------------------------------------------|
| 1/9/75      | Halogen Solvents                          |
|             | propane 0.19                              |
|             | (ppm) CH <sub>3</sub> Cl 0.46             |
|             | VC1 0.37                                  |
|             | CH <sub>3</sub> CH <sub>2</sub> Cl <0.053 |
|             | 1,1,1 DCE 0.075                           |
|             | unknown                                   |

weather: high humidity, overcast  
temperature inversion