

MEMORANDUM

DATE September 15, 1967

SUBJECT: W. L. FAITH'S REPORT

to: Mr. John N. Lehnert, Attorney
Legal Department - MTO

1. Per your request, attached is a copy of Mr. W. L. Faith's report.

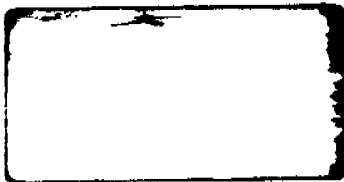
FILE: POLLUTION
BATON ROUGE
NLL

S. Campanella
S. Campanella
Plant Manager

/hmc

Attachment

C-640 (6-63) (F)



ASI-PR 0004248

6/21/67 copies sent to Smyth + Rosenberg

W. L. FAITH
2540 HUNTINGTON DRIVE
SAN MARINO, CALIF. 91108

CONSULTING CHEMICAL ENGINEER

213-287-9383

March 30, 1967

Mr. M.J. Guillory

Mr. C.E. McKay

Mr. R.D. Anding

✓ Mr. J.J. Bergin

✓ Mr. Salvatore Campanella

Mr. J.W. Kirkland

Mr. R.F. Howe

Mr. D.O. Howe

Mr. J.W. Melancon

Mr. J.R. Davis

Mr. A.J. Knight

Consolidated Chemical Industries Div.,
Stauffer Chemical Company
Copolymer Rubber and Chemical Corp.
Enjay Chemical Company
Ethyl Corporation
Industrial Chemical Division, South Works
Allied Chemical Corporation
Gulf States Utilities Company
Humble Oil and Refining Company
Ideal Cement Company
Kaiser Aluminum and Chemical Company
Plastics Division, Allied Chemical Corp.
Industrial Chemical Division, North Works
Allied Chemical Corporation

Gentlemen:

I am attaching to this letter to each of you, a copy of my report, "Air Pollution in Baton Rouge - March 1967."

It was a pleasure to meet and talk with each of you, some for the first time. You are doing a good job in controlling air pollution in Baton Rouge, but I must urge each of you to follow through with your plans to further reduce emissions. Such action will certainly forestall Federal intervention. In the near future you will probably have to help the Louisiana Air Control Commission get some operating funds and good leadership. When the Commission finally gets around to adopting rules and regulations, your own situation should stabilize.

My invoice for your portion of my fee and expenses (one-eleventh of the total) is attached.

Sincerely yours,

W. L. FAITH

BATON ROUGE WORKS

MAR 3 1967

SC	SC	AFM	AWC
CP	CP	CHS	RAC
JLH	JLH	JMO	JLL
W. L. FAITH	TLO	EJ	
DDR	EMH	HLS	
CPS	RVW		
HLA	RCR		

Initial After Noting, Forward
to West Baton Rouge District

ASI-PR 0004249

Invoice 3-31-67 \$153.15

Paid by BROW

Payment Receipt 4/4/67

W. L. Faith

AIR POLLUTION IN BATON ROUGE - MARCH 1967

W. L. Faith

Consulting chemical engineer, San Marino, Calif.

During my visit to Baton Rouge, March 20-23, 1967, I evaluated the air monitoring data in the Kem-Tech reports for Nov-Dec 1966 and Jan. 1967, and discussed emissions with plant managers and technical representatives of the companies comprising the Associated Industries of Baton Rouge. Along with Messrs. P'Pool and Mayfield, I talked with Fred Brooks of Channel 2 concerning air pollution in Baton Rouge and elsewhere, and made a 5-minute TV tape for future showings. On Thursday, March 23, I met with the plant managers and gave them a verbal report of my findings and recommendations. This report is essentially a written recapitulation of my verbal report.

Evaluation of Kem-Tech Data

Measurements made by the Kem-Tech organization were directed toward an assessment of atmospheric concentrations of particulate matter (fine particles), sulfur dioxide, and oxidant at 3 stations (designated as North, South, and East Analyzers). The period covered by the reported data is essentially December, 1966 and January, 1967.

Oxidant. Oxidant concentrations were measured only at the South Analyzer. The values reported were very high (maxima up to 999 micrograms per cubic meter, or 0.5 ppm, and daily averages not much lower on some days). Similar concentrations in Los Angeles would be accompanied by intense eye irritation, extensive vegetation damage, and very low visibility. It is conceivable that such values could be found in Baton Rouge particularly in the winter times when sun intensity is low. It may well be that a small ozone source in the vicinity of the South Analyzer (an ozone generator or high tension sparking) may have confounded the results. Even a source of interfering NO₂ could also be the culprit. In any event, the high oxidant values in no way can reflect on the industrial complex. Atmospheric oxidant results almost entirely from the photochemical reaction between the major constituents of motor vehicle exhaust and thus, a measure of motor vehicle pollution. 1/s

Inasmuch as there have been no reports of eye irritation, typical vegetation damage, and low visibility at low humidities, I do not believe a motor vehicle pollution problem exists in Baton Rouge. The excellent ventilation of the community during periods of intense sunshine will probably preclude the development of a motor vehicle pollution problem.

Sulfur dioxide. Sulfur dioxide was measured continually during the 2-month period. A recapitulation of daily averages is shown below:

Range of daily average concentrations of SO₂ (microg/cu. m.)

Month	North	South	East
December	48-245	19-356	0-99
January	10-328	0-262	0-147

Measured daily average concentration of SO₂ by month

December	161	160	37
January	134	83	45

To convert the above values to parts per million, a more widely used unit for expressing the atmospheric concentration of SO₂, one should divide the value shown in micrograms per cubic meter by 2620. Thus the highest day for January at the South station showed a concentration of 262/2620, or 0.1 ppm. Detailed analyses of the data in the Kem-Tech report shows the worst condition found was from Dec. 7 through Dec. 12 when the daily averages at the South Analyzer were 0.11, 0.12, 0.11, 0.11, 0.14, and 0.11 ppm for the six days respectively.

The foregoing values are less than those which would cause damage to indigent vegetation and also below those chosen by State of New York as ambient air goals for industrial areas (0.15 ppm per 24 hours not to be exceeded 99% of the time, i.e. 4 days a year). Ambient air quality standards set by the State of California are stated in a different time reference. The lowest value mentioned is 0.3 ppm for 8 hours which concentration is not believed to damage sensitive vegetation or to affect people.

It should be noted that during the six-day period of interest at the South Analyzer, no daily average exceeded 0.07 ppm at the North Analyzer or 0.035 ppm at the East Analyzer. In my opinion, air pollution from sulfur dioxide emissions should give the public no concern in Baton Rouge.

On the other hand, industry should be aware of the activities of the United States Public Health Service in this regard. A USPHS team studying air pollution in the St. Louis Metropolitan Area recommended very sensitive ambient air goals in the area, and they were later adopted by the Missouri Air Pollution Commission. The USPHS report says: "These goals specify that the annual arithmetic mean concentration (of SO₂) should not exceed 0.02 ppm, and that the concentration of 0.1 ppm should not be exceeded on more than 1 percent of the days in any consecutive 100-day period."

Of course, the restrictions which will be most meaningful in Baton Rouge will be those eventually set by the Louisiana Air Control Commission. During 1967, the Texas Air Control Board expects to set

standards for sulfur compounds. The values selected may well influence the Louisiana Air Control Commission.

Particulate matter. Dust and smoke in the Baton Rouge atmosphere was assessed by Kem-Tech by three different methods: 2-hour coefficient of haze (COH) values using an AISI tape sampler; dust stain index using the same equipment; and 24-hour suspended solids loadings using a high-volume sampler. Basically, the COH values and dust stain index measure the soiling capacity of atmospheric particulates; the high-vol "suspended particulates" are reported as the weight of particulate matter in an air sample taken continuously over a 24-hr period. The weight is reported as micrograms per cubic meter.

COH values, a measure of the "blackness" of atmospheric particulate matter may range from 0 to 10. A value below 1.0 represents a clean atmosphere; greater than 2.0 usually indicates undesirable levels of smoke or particulate matter; and 10 represents an atmosphere laden with heavy black smoke.

Using the above values as criteria, Baton Rouge had satisfactory air quality. During the 74-day period (Nov. 18 - Jan, 31) when COH values were determined, only about a dozen 2-hour periods showed COH values above 2.0 at any analyzer station. The daily average for all days at all analyzers averaged less than 0.5 COH, a highly satisfactory value. The only monthly concentrations above 0.5 were 0.9 at the North Analyzer during November (only 12 days of record), and 0.7 at the same analyzer during January. The dozen or so 2-hour periods above 2.0 probably reflected the presence near the ground of black smoke from a localized source, either a dump, a mal-operating flare, or other source of black particles. All of the high values, all but one at the North Analyzer, were obtained during periods of variable, low winds. The State of Colorado has adopted an air quality standard of 0.5 COH, when measured in the central business district of a city or community and averaged over a 3-month period. This is a highly restrictive standard, but I would suspect it is met in Baton Rouge.

Kem-Tech also measured the dust stain index of the dark spots on the AISI and reported these along with COH values. DSI values appear to vary in a fashion similar to COH values but inasmuch as there is no experience in other communities with the method, no evaluation can be made of these data.

The most widely used measurement of air quality as reflected by atmospheric particulate matter is the 24-hr high-vol determination, reported in micrograms of particulates per cubic meter of air. Kem-Tech made daily measurements for suspended particulates at all three stations beginning Dec. 9, 1966. Ranges of values and averages for each of the two months were as follows:

Suspended Particulates in Micrograms per Cubic Meter of Air

	Dec. Range	Dec. Average	Jan. Range	Jan. Average
North	8.8-90	42.6	23-136	65
South	12-196	49.9	10-129	62
East	3-75	24.3	9-58	29

Values over a longer period of time have been obtained at the Public Health Bldg. at Florida and 19th. The values published by the United States Public Health Service, are:

Years	No. of samples	Avg. conc. (microg/cu. m.)
1957	24	170
1960	26	125
1964	26	86
1965	26	93

Thus it may be seen that over the years, suspended particulate loadings in Baton Rouge have been decreasing. The Kem-Tech data for Dec. 1966 and Jan. 1967 are even lower, but cover only a portion of the year.

The data throw little light, of course, on the source of the particulate matter in the air. Normally it comes from industrial dust sources, smoke from open burning, traffic on dusty highways and road shoulders, construction sites, aircraft take-offs, etc. In fact, the relatively high values found at 19th and Florida may well reflect construction work, such as street widening, at the time.

To put the data in their proper context, I compared them with the air quality standards for suspended particulate matter recently adopted by the State of Texas. They are as follows:

1. Type A land use, residential and recreation - not to exceed 125 micrograms of suspended matter per cubic meter of air at least 90% of the time in any 30-day period.

2. Type B land use, commercial and business - same as above except 150 micrograms per cubic meter.

3. Type C land use, industrial - same as 1 except 175 etc.

4. Type D land use, open spaces - same as 1 except 200, etc.

Thus it may be seen that Baton Rouge values are well within the Texas limits.

The State of Colorado has adopted an ambient air quality standard

for suspended particulates of 120 micrograms per cubic meter. The standard is based on the average of samples collected at least once every third day over a 3-month period in the central business district of the community. The air in Baton Rouge meets this standard.

Meeting with Fred Brooks of KBRZ (Channel 2)

During my stay in Baton Rouge, I met with Mr. Fred Brooks, a newsman from Channel 2, along with Messrs. P'Pool and Mayfield.

Mr. Brooks appeared to be interested mainly in the facts concerning the Baton Rouge atmosphere, the nature of air pollution problems in general, and specifically the importance of the various plumes he saw when flying over or riding by the industrial areas, or when viewing it from the State Capitol. As a result of a 2-hr interview, he asked me questions which were recorded on TV tape. My answers were essentially as follows: Air pollution is worst during periods of stagnant air, or inadequate ventilation, which in Baton Rouge is usually the fall months. During such periods atmospheric pollution from smoke and dust build up to give Baton Rouge a mild to moderate visibility problem. Aiding visibility reduction is fog formation which is also most prevalent during the same period of the year. On the other hand, Baton Rouge has much better ventilation than many industrial cities, so the potential for an air pollution problem is minimized. The only important air pollution effect noticed was visibility. Concentrations of pollutants measured by Kem-Tech show they are far below levels that would effect health or cause property damage, e.g. to paint or vegetation. There appears to be no motor vehicle pollution problem in Baton Rouge, but there are probably visibility and nuisance problems related to open burning in dumps, trash piles, sugar-cane field burning, and even burning of leaves. A properly-designed municipal incinerator or cut-and-fill disposal site would alleviate problems caused by open burning.

Reviews with plant managers

I talked with most of the plant managers or their representatives concerning their plans for further reducing air pollutant emissions. Generally, I found all plants to have plans (1) to reduce dust plumes, and (2) to reduce emissions from disposal of solid waste and flared gases. Some progress had been made since my visit in November, 1965. More remains to be done and the various companies know which plumes are most amenable to control. Plans should be converted to action. The industry should also make a concerted effort to solve the solid combustible waste problem. When trash is being burned, the effluent is quite noticeable and draws attention to the industrial complex. In fact, it is what people see and smell that activates them to an "awareness" of pollution.

The three things that were most noticeable to me were reduced

visibility at the street level caused by low-level dust plumes, occasional odors as I rode past some parts of the industrial complex, and lung irritation from an acid plume looping to ground level. If we could get rid of these the industry would have a good story to tell based on favorable ventilation in the Baton Rouge area, low values of pollutants in the atmosphere as measured by Kem-Tech, lack of any health and property damage effects, and a bare minimum of visibility and odor problems.

Future monitoring

The present monitoring system being operated by Kem-Tech appears to be adequate. The three-month period selected should more nearly conform with the periods of low air movement. Daily measurements for SO_2 , suspended particulates (high-volume sampler), and COH values are the minimum that should be done. I suspect DSI values are not expensive to obtain inasmuch as the same tape is used for COH analyses. Therefore, inasmuch as DSI values over a period of years are available, it may be worthwhile to continue them for another year. Obviously measurements of wind velocity and direction should be continued. The need for oxidant values is doubtful and I would discontinue them.

The minimum program outlined above should certainly be continued. Nowhere else, to my knowledge, has an industrial complex had the foresight to gather atmospheric data over a 10-year period as has been done in Baton Rouge. Perhaps industry should talk about it a little bit.

San Marino, Calif.
March 30, 1967

CONSULTING CHEMICAL ENGINEER

W. L. FAITH
2540 HUNTINGTON DRIVE
SAN MARINO, CALIF. 91108

213-237-9333

March 31, 1967

Industrial Chemical Division, South Works
Allied Chemical Corp.
P.O. Box 2830
Baton Rouge, Louisiana

Attention: Mr. Salvatore Campanella

INVOICE FOR SERVICES

For professional services in connection with
air pollution study in Baton Rouge (March, 1967)
5 1/2 days at \$250 per day times one-eleventh

\$125.00

Relevant expenses times one-eleventh

Air fare	\$277.20
Hotel and meals	58.93
Local transportation	6.55

\$342.68

31.15

Total

\$156.15

Copy
Paid by BRSW
Payment Draft
SOD
4/1/7

Kern-Tech-
West PSU - started
Polk -
Lages -

ASI-PR 0004256