

ETHYL CORPORATION
Inter-Office Memorandum

cc: E. Bartholomew
C. H. Cambrill
R. A. Kehoe
G. F. Kirby
F. J. Schroeter
C. J. Sprunk
Sarcos-Ligett

TO: J. B. Macauley

DATE: August 6, 1952

FROM: A. G. Cassmann

SUBJECT: Joint Industry Conference
on Atmospheric Pollution

Representatives of various industries in the Detroit area met in Room 14-203, General Motors Building, Detroit, on July 31, 1952 to obtain more information on the problem of atmospheric pollution. This was the second meeting of industry representatives -- the first was held June 16, 1952 and was attended by Detroit and Windsor City Officials and representatives from General Motors, Ford, Chrysler, Detroit Edison, Great Lakes Steel and U. S. Rubber. In summary, this was a conference called for the purpose of outlining the problems connected with a study of air pollution in the Detroit area. Government officials want industry to participate in a program designed to collect the necessary data but no specific request for funds or manpower was made.

Chairman of the conference was Mr. L. A. Danse, GM Production Engineering Section. He said that industry was being asked to give help to the city and to government in setting up and operating a program designed to study air pollution. Detroit has done very little and has a very limited budget and would not be able to collect sufficient data to be significant in the desired study which has been requested through government channels by the International Joint Commission.

Mr. Ben Linsky, Chief of Detroit Bureau of Smoke Inspection and Abatement, explained the part that various government agencies have in the program.

Mr. G. J. Clayton, U. S. Public Health Service, said that while control of smoke from vessels on international waters might be handled by U. S. and Canadian Governments, the problem on land was considered to be a local problem. All data collected by the cooperating industries will be available to the cooperators for their own use and comments. He stressed the fact that industry was being asked to help because of financial reasons.

Mr. R. E. Nicholls, Chief Smoke Inspector of Windsor, outlined Windsor's program on air pollution studies. They started collecting data in 1949 and have been in continuous operation with four stations since 1950.

Dr. Cave, Windsor, discussed experimental work done in Windsor. Sulfur dioxide is generally used as an index of air pollution because it is the most common contaminant and on which most information is available. An automatic instrument called the Thomas Autometer, made by Leeds and Northrup, has been used in Windsor since 1950 and found to be very satisfactory. The

principle of operation is based on electrolytic conductivity. A continuous sample of air is passed through a hydrogen peroxide-sulfuric acid solution where the SO_2 is absorbed and oxidized to the sulfate ion. A conductivity cell measures the resulting change in conductivity and this is recorded on a continuous chart by a Speedomax Recorder in units of parts of sulfur dioxide per million parts of air. Interferences include oxides of nitrogen, HCl , H_2S and ammonia -- all of which give high results for SO_2 . The amounts of these interfering gases were found to be very low compared to SO_2 content and were usually ignored.

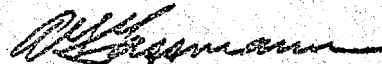
Dr. Cave said that the average SO_2 content in 1951 was 0.061 ppm, the highest concentration was 1.21 ppm recorded on December 27; usually Spring and Fall seasons show increased SO_2 concentration. When questioned regarding "harmful" levels of SO_2 concentration in the atmosphere, Dr. Cave had no definite answers. Mr. Linsky said that 5 ppm for one week would be "very harmful to people".

Mr. George Hama, Detroit Bureau of Industrial Hygiene, discussed the proposed areas wherein test stations would be located as well as the equipment needed for the stations. Twelve stations are proposed for the Detroit area, one of which is the area bounded by Meyers, Livernois, Pembroke and Eight Mile Road. The cost of equipment is estimated at \$5,200 which includes \$1,400 for instruments necessary for meteorological studies. It was stated that the instrument needed to measure wind speed and direction (Bendix Aerovane) would have to be mounted 300 ft. above the ground and this would limit installations to the Ambassador Bridge and radio station towers. The equipment is to be housed in a building having a 110 volt, 60 cycle power supply and facilities for draining two gallons per day of non-corrosive liquid. The building must be heated in the winter. The manpower requirement is estimated at one-half man per man-day for a trained chemical laboratory technician. A copy of a ditto report on the station locations and equipment is attached.

The problem of stack sampling and analysis was discussed by Mr. Hama and members of the Conference. Government personnel want to have industry obtain analyses on stack gases for each plant; industry personnel did not seem to favor this because of cost and the more urgent need for collecting data on air pollution at the "breathing level" at the twelve stations.

Dr. Anderson, Detroit Department of Health, gave a general discussion of the interest of the medical people in air pollution studies. They hope to get data that will allow them to plan for improvement of the general health level.

No specific industry was mentioned as a location for a sampling station and no industry representative was approached regarding any assignment of work. The Chairman said that he would call another meeting in four to six weeks.


A. G. Gasemann

AGG:dec

Encl.

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DETROIT RIVER AREA AIR POLLUTION SAMPLING STATIONS

The United States Technical Advisory Board on Air Pollution of the International Joint Commission, after consultation with other specialists, has established a need for air pollution sampling stations in order to be able to carry out the various phases of the study on the degree and the effects of air pollution on soiling, corrosion, safety, vegetation, nuisance, and public health.

On the basis of present data, stations are considered necessary in the following areas:

Evergreen, Pullerton, Outer Drive.
 St. Aubin, Jos. Campau, Holbrook, R.R.
 Chalmers, Glenfield or Greenfield, Meyers, 7 Mile,
 McNichols.
 Indian Village.
 Meyers, Livernois, Pembroke, 8 Mile Rd.
 Warren, Tireman, East of Epworth or Chene, McDougall.
 Vernon, Monroe.

 Romulus agricultural.
 Trenton.
 Wyandotte.
 River Rouge - Delray.
 Downtown Detroit.
 1 1/2 Mile - Van Dyke.
 Telegraph Rd. - Eureka Rd.

Studies of the problem have resulted in determining that the following equipment should comprise each sampling station:

- | | Approximate
Delivered Cost |
|---|-------------------------------|
| 1. For SO ₂ determination:
Thomas Autometer Model 64251-A1
Available from Leeds and Northrup Co.
18240 James Couzens Highway
Detroit 35, Michigan | \$2700.00 |
| 2. For gross dust settlement:
Detroit Dust Settling Collector
The design is available from the Detroit
Smoke Abatement Bureau | 75.00 |
| 3. For wind speed, wind direction, and turbulence
determination (if the location is suitable to the
meteorological specialists).
Acrovan
Model 120 Transmitter
Model 140 Recorder
8 conductor cable
Available from Frieze Instrument Divn.
Bendix Aviation Corp.
1400 Taylor
Baltimore 4, Md. | 1400.00 |

4. For obtaining small airborne particulate matter for later analysis:

High Volume Particulate Sampler
(Specific design not yet established) 500.00

5. For determining soiling effects:

Continuous discoloration filter tape mechanism
(Specific design not yet established) 500.00

Housing and Installation:

A sheltered area, insulated from summer temperatures, heated in winter, with 6'0" minimum head-room, 6' X 8' floor area, 110 Volt, 60 cycle power supply, and facilities for draining 2 gals. per day of non-corrosive liquid, is required for housing and servicing the equipment. It has been estimated that the above equipment can be installed in a small house trailer for about \$2000.00.

The services of a trained chemical laboratory technician would be required for about one-half working time.

Maintenance and operation costs for the above equipment are estimated at under \$500.00 per year.

Assistance in planning the specific installation and instruction in servicing the equipment are available by inquiry to:

International Joint Commission Detroit Office
TR 2-1540, Ext. 361.

July 30, 1952
Detroit

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