INTER-OFFICE CORRESPONDENCE

LOUISIANA DIVISION

BATON ROUGE, LA.

For your file P.A.C.

January 30, 1953

Re: Air Pollution Survey
Dr. A. R. Choppin and Dr. Philip W. West

PLEASE HANDLE / NOTE

FEB 5 1953

PETROLEUM PRODUCTS LAB.
E. M. HATTOX

Dr. E. M. Hattox
Petroleum Products Lab

Dear Dr. Hattox:

I am returning herewith original and five copies of a further revision of the proposed agreement with Dr. A. R. Choppin and Dr. Philip W. West. The figures submitted by Dr. Choppin have been incorporated in the contract, but it will be necessary for the dates to be inserted in the blank spaces when an agreement is reached as to the probable time of the starting of the work.

You will note that under this arrangement we will be required to pay $7,400.00 in the first payment.

Paragraph 1 has been revised so as to change the wording and the other paragraphs have been altered to conform to the understanding reached with Dr. Choppin and Dr. West at our last conference.

Yours very truly,

Powell A. Casey

Powell A. Casey
Law Department

PAC:ca
Enclosure

LOUISIANA STATE UNIVERSITY
COLLEGE OF CHEMISTRY & PHYSICS
UNIVERSITY STATION
BATON ROUGE, LA.

OFFICE OF THE DEAN

January 28, 1953

Esso Standard Oil Company
P. O. Box 551
Baton Rouge, La.

Attention: Dr. E. M. Hattox, Petroleum Products
Mr. M. B. Amis, Chem. Products
Mr. P. N. Casey, Legal Department

Gentlemen:

Pursuant to our recent talks and negotiations, please consider this as our proposal for the air analysis project. Attached are copies of a letter from Louisiana Underwriters Agency covering insurance and a list of the materials and equipment necessary to outfit the truck.

Please note the following:

First Year's Operation

1. Initial payment - $7,000.00

This includes:

Cost of the truck - - - - - - - - - - - -	$2,800.00
Capital outlay - - - - - - - - - - - - -	3,175.26
Construction and glassware - - - - - -	705.00
Insurance - - - - - - - - - - - - - - - -	441.00
Total for these items - -	$7,121.26

2. Personal Services - 4,800.00

Assistants - - - - - - - - - - - - - - - -	3,000.00
West and Choppin - - - - - - - - - - - -	1,800.00

(This sum to be paid in 12 monthly payments of $400.00 each.)

3. Total cost of first year's operation - - - - - - - - - - - $11,800.00

Second Year's Operation

The items to be considered are:

1. Personal services -	3,000.00
2. Operating costs including insurance, maintenance, etc. -	650.00
3. West and Choppin -	3,600.00
4. Total for second year's operation - - - - - - - - - - -	$7,250.00

We trust that this information will permit you to reach a decision and to draw the necessary contractual forms. We will be quite happy to discuss any or all parts of this with you at your convenience.

Yours very truly,

A. R. Choppin, Dean
College of Chemistry and Physics

ARC:1
Enclosures

LIST OF EQUIPMENT NECESSARY FOR EQUIPPING A MOTORIZED LABORATORY FOR THE CHEMICAL AND PHYSICAL ANALYSIS OF THE ATMOSPHERE.

The unit will be completely self-contained. It will not require the services of any auxiliary laboratory facilities. The list contains only those items which are of prime importance, and no attempt is made to itemize the lesser items. The equipment is, therefore, essentially capital outlay items.

Item	Description	Cost	
1.	Truck, Chevrolet	$2,800.00	2,800.00
2.	Motor Generator, Onan 3Ck-1R 3,000 watt, 115 v AC Single phase air-cooled	625.00	
3.	Model B. Beckman spectrophotometer line operated	750.00	
4.	Benzol indicator DM 11-7-92	225.00	
5.	Midget Impinger	135.00	
6.	Direct vision dust counter Vernon Hill Co. 6829	75.00	
7.	Welsh Vacuum Pump 1403 B	190.00	
8.	Carbon dioxide Tester	45.00	
9.	Hydrogen sulfide detector DY 14012	40.00	
10.	Pyrotannic detector CB4598	40.00	
11.	Chloronated hydrocarbon detector	50.00	
12.	Microscope - American Optical with accessories, S57100	305.00	
13.	Analytical Balance and weights Ainsworth LC	231.00	
14.	pH Meter, Beckman N-2	219.30	

15.	Drytest Meter	99.96	
16.	Flo Rite Air Velocity Meter	38.25	
17.	Dust Counting cells C-T-32491	16.00	
18.	Carbon Monoxide Tester BY 47133	45.00	
19.	Polyethylene Bottles	45.75	
	Capital Outlay Total		3,175.26

The following equipment must be built into the truck:

1.	Water tank	25.00	
2.	Air surge tank	30.00	
3.	Sink	40.00	
4.	Vacuum line	10.00	
5.	Titration Bench	20.00	
6.	Storage cabinets	200.00	
7.	Shock mounting for balance, spectrophotometer, and motor generator	50.00	
8.	Lighting and ventilation	95.00	
9.	The remaining glassware and supplies to initially equip the truck with scrubbers, absorbers, filters, burets, pipets, titration stands, etc., are estimated at	235.00	
	Equipment for truck Total		705.00

TOTAL $ 6,68

INTER-OFFICE CORRESPONDENCE

LOUISIANA DIVISION

BATON ROUGE, LA.

January 23, 1953

Re: Air Pollution Survey
Dr. A. R. Choppin and Dr. Philip W. West

Dr. E. M. Hattox
Petroleum Products Lab

For [illegible] P.A.C.

Dear Dr. Hattox:

Attached hereto are original and five copies of the proposed agreement with Dr. A. R. Choppin and Dr. Philip W. West, which has been revised to conform to the agreement reached at our conference yesterday.

Your particular attention is called to the elimination of the paragraph which provided for our Company to receive the benefit of a sale of the truck at the end of the contract. Paragraph 13 permits the contract to be extended for an additional period of one year at our option.

Unless priorities are involved for obtaining some of the equipment needed in this work, I do not see the necessity of a letter of intent, since that letter should normally fix the contract price, which is the main feature needed to complete the attached agreement. If it is desired to advance these parties some money to permit the purchase of certain equipment we can, of course, handle that by a separate letter and rely upon the good faith of all parties to work out the ultimate cost.

I will be glad to discuss this matter further with you.

Yours very truly,

Powell A. Casey

Powell A. Casey
Law Department

PAC:ca
Attachment

EM003538

Sampling Procedures

Dust Count (Impingement).
Collect 0.3 cu. ft. of air at the rate of 0.1 cu ft./min., using midget impinger containing 25 ml. of absolute methanol.

Dust Count (Filter method).
Collect 0.3 cu. ft. of air at the rate of 0.1 cu ft./min., using Whatman No. 50 filter paper in the filter apparatus.

Dust Identification.
Impinge a sample or air on a coated half-slide (Shillaber's 1.5150 N_D immersion oil) until a spot visible to the naked eye is obtained. Add a small drop of additional oil and protect with a cover glass.

Hydrogen Sulfide (Colorimetric).
See instruction sheet.

Hydrogen Sulfide (Titrimetric).
Collect 3.53 cu. ft. of sample, drawing it through two dispersion bubblers in series containing 15 ml. of 5% cadmium chloride each. The rate of sampling should be approximately 0.18 cu. ft./min.

Chlorine (Titrimetric).
Collect 3.53 cu. ft. of sample at a rate of approximately 0.18 cu. ft./min. by trapping the chlorine in 75 ml. of 30% potassium iodide. Insert a filter of 6 inches of slightly dampened lead acetate paper ahead of the scrubber to remove any sulfides.

Run a blank, purifying the air by bubbling it through 75 ml. of 0.01 N sodium hydroxide inserted ahead of the absorption bubbler.

Chlorine (Colorimetric).
Collect 1.0 cu. ft. of sample, drawing the air through a midget impinger at the rate of 0.1 cu. ft./min. The impinger should contain 9.0 ml. of 0.1 N sodium hydroxide.

Sulfur Dioxide.
Collect 3.53 cu. ft. of sample at a rate of approximately 0.18 cu. ft./min. The sample should be scrubbed through 25 ml. of 0.01 N iodine diluted to 50 ml. with distilled water.

Run a blank, purifying the air by bubbling it through 75 ml. of 0.01 N sodium hydroxide inserted ahead of the absorption bubbler.

Composite (Ammonium; chloride; sulfate)
Collect 7.06 cu. ft. of sample at a rate of approximately 0.18 cu. ft./min., using a tall gas bubbler containing 50 ml. of triple distilled water.

Determination of Number of Dust Particles in Air (Filter Method)

Reagents

1. Methanol, absolute.
2. Filter Paper, Whatman No. 50, 5.5 cm.

Apparatus

1. Filter Assembly, as described by Elkins, p. 256
2. Screen, 325 mesh.
3. Microscope, with Whipple disc.
4. Counting Cells, Sedgwick-Rafter.

Procedure

Sample 0.3 cu. ft. of air, drawing it through the apparatus at the rate of 0.1 cu. ft. per minute for three minutes. Carefully remove the filter paper from the apparatus, and immerse it in 25 ml. of methanol in a 250 ml. beaker. Swirl the liquid until all the dust particles are removed from the paper. Filter the suspension through a 325 mesh screen, into a clean flask.

Agitate the contents of the flask so that a uniform suspension is obtained. Remove two 1 ml. aliquots, using a 1 ml. pipet, and just fill two Sedgwick-Rafter counting cells. Allow the dust to settle for 30 minutes before taking the count. After 30 minutes, make a bright-field count, using the Whipple disc with the microscope so adjusted that the large square of the eyepiece covers 1 mm., i.e., encloses the dust in an area of 1 sq. mm. Examine several fields for uniformity and count one quarter of each of five fields in each cell. These ten counts are averaged and a blank count is subtracted.

Calculations

Dust Particles/m^3 = Average net count/quarter x 11.8 x 10^6

Determination of Number of Dust Particles in Air (Impingement Method)

Reagents

1. Methanol, absolute.

Apparatus

1. M.S.A. Midget Impinger.

Procedure

Add 25 ml. of methanol to the sampling tube. Collect 0.3 cu. ft. of air at the rate of 0.1 cu. ft. per minute.

Filter the suspension through a 325 mesh screen, into a clean flask.

Agitate the contents of the flask so that a uniform suspension is obtained. Remove two 1 ml. aliquots, using a 1 ml. pipet, and just fill two Sedgwick-Rafter counting cells. Allow the dust to settle for 30 minutes before taking the count. After 30 minutes, make a bright-field count, using the Whipple disc with the microscope so adjusted that the large square of the eyepiece covers 1 mm., i.e., encloses the dust in an area of 1 sq. mm. Examine several fields for uniformity and count one quarter of each of five fields in each cell. These ten counts are averaged and a blank count is subtracted.

Calculations

Dust Particles/m^3 = Average net count/quarter x 11.8 x 10^6

Determination of Dust Fall

Apparatus

1. Sample collection assembly as described by Jacobs; p. 111

2. Pyrex sintered glass crucibles.

Procedure

Assemble collection set and place in selected area. The collecting funnel should be as much in the open as possible so as to permit the collecting of all free falling dusts. The period of sampling can be varied between one and four weeks, depending on the anticipated rate of fall.

The dust and rain, if any, should be collected over the desired sample period. At the end of the sampling any dust adhering to the funnel walls should be washed into the storage jar, using distilled water, and the sample transported to the laboratory.

Final analysis should be made by first removing extraneous material such as leaves, twigs, etc., which would not be classed as dust. The sample should then be filtered through tared fritted glass crucibles of medium porosity, dried at 110°, and the crucible and contents reweighed. The gain in weight represents the dust fall for the area sampled (funnel top) and the period of collection.

Calculations

Report dust fall in terms of tons of dust per square mile per month.

Molecular Identification of Dust Particles in Air

Reagents

1. Shillaber Immersion Oil (N_D 1.5150), Grade B, high viscosity.

Apparatus

1. Petrographic Microscope.
2. Microscope Slides, (half-length).
3. Midget Impinger, as described by Jacobs, p. 141.
4. Cover Glasses.

Procedure

Coat the slides with a thin layer of Shillaber immersion oil (N_D 1.5150), Grade B, high viscosity. Collect a sample of dust on the slide (by direct impingement) until a dust area is visible to the naked eye. Immediately cover the sample with a drop of the immersion oil (N_D 1.5150) and protect with a cover glass.

Identify the particles by observing their optical properties, using for comparison both data from the literature and prepared reference slides. The following table gives pertinent optical data on compounds most likely to be encountered.

Table I

Compound	Classification	Refractive Index Range	Birefringence
Na_2CO_3	Biaxial	1.546-1.415	0.131
$Na_2CO_3H_2O$	Biaxial	1.524-1.420	0.104
Na_2SO_4	Biaxial	1.484-1.471	0.013
SiO_2	Uniaxial pos.	1.544-1.553	0.009
NaCl	Isotropic	1.544	0.000
Al_2O_3	Uniaxial neg.	1.768-1.760	0.008

Apply the Becke line technique for the estimation of refractive index. Examination of the dust particles in immersion oil N_D 1.5150 will give information regarding identity of the crystals if the following facts are kept in mind: Only salt cake (Na_2SO_4) has both refractive indices lower than that of the medium. The birefringence of salt cake is of

medium value compared to the high birefringence of sodium carbonate. Only sodium carbonate has one refractive index higher and one refractive index lower than the medium. Both refractive indices of quartz are higher than that of the mounting medium, and its birefringence is of the same order as that of salt cake.

Alumina (Al_2O_3) has the same order of birefringence as quartz, but its refractive indices are so much higher that it may be identified by its high degree of relief. The refractive index of sodium chloride is very close to the average refractive index of quartz, but it may be readily identified by its isotropic character.

Calculations

None.

Determination of Hydrogen Sulfide in Air

Apparatus

1. The U. S. Bureau of Mines Sulfide Detector; purchased from the Mines Safety Appliances Company.

Procedure

Break the tips of the silver cyanide detector tube and insert the red end in the detector so that it will be nearest the aspirator bulb. Place the retaining head containing the inlet opening over the upper end of the detector tube. Press slightly against the retaining head to insure a snug fit of the tube in the rubber seat. Loosen the thumb nut on the back of the detector and adjust the sliding scale until the zero is directly opposite the beginning of the chemical granules; then tighten the thumb nut.

Collect an air sample (approximately 750 ml.) by squeezing the aspirator bulb ten times, allowing it to expand completely each time.

Calculations

Read the concentration (ppm.) of hydrogen sulfide on the scale midway between the longest and shortest ends of the gray discoloration of the detector tube.

Determination of Hydrogen Sulfide in Air

Reagents

1. Cadmium Chloride Solution; 5%. Dissolve 50 g. of cadmium chloride in approximately 800 ml. of distilled water. Neutralize to litmus, and filter if necessary.

2. Iodine Solution; 0.0100 N. Dissolve exactly 1.27 g. of iodine and 250 g. of potassium iodide in water. Dilute to one liter with distilled water.

3. Sodium Thiosulfate Solution; 0.0100 N. Dissolve 2.50 g. of sodium thiosulfate in distilled water and dilute to one liter.

4. Sulfuric Acid; 6 N.

5. Indicator. Dissolve 1 g. of starch in 25 ml. of hot water. Prepare daily. 0.1 per cent solution of amylose may be substituted for the starch solution and is stable for 2-3 months.

Apparatus

Dispersion Bubbler. Test tube (25 mm. x 150 mm.) with 5 mm. entrance and exit tubes.

Procedure

Collect 100 liters of sample at the rate of 5 liters per minute, bubbling it through two dispersion bubblers, each containing 15 ml. of cadmium chloride solution. A yellow coloration or precipitate indicates the presence of hydrogen sulfide. After sampling has been completed, remove any sulfur dioxide that may have been trapped along with the hydrogen sulfide by aspirating ten liters of purified air through the bubbler. The air for purging can be purified by bubbling it through a scrubber containing 75 ml. of 0.01 N sodium hydroxide.

Transfer the precipitate and solutions from the absorption tubes to a glass-stoppered Erlenmeyer flask and add exactly 5 ml. of 0.01 N iodine solution, followed immediately by 2 ml. of sulfuric acid (6 N). Allow the solution to stand 10 minutes. Titrate the excess iodine with sodium thiosulfate solution (0.01 N), adding indicator as the yellow color becomes faint. If a precipitate of cadmium sulfide (yellow precipitate) adheres to the glassware, it should be dissolved with acidified iodine solution prior to the sodium thiosulfate titration.

Calculations

Subtract the volume of sodium thiosulfate used in the back-titration from the total volume of iodine used.

ppm. H_2S (at 30°C and 760 mm.) = ml. I_2 (net) x 1.24

Determination of Chlorine in Air

Reagents

1. Potassium Iodide Solution; 30%. Dissolve 300 g. of potassium iodide in distilled water and dilute to one liter. Keep in brown bottle and use within 48 hours.

2. Sodium Thiosulfate Solution; 0.01 N. Dissolve 2.50 g. of sodium thiosulfate in distilled water and dilute to one liter.

3. Indicator. Dissolve 1 g. of starch in 25 ml. of hot water. Prepare daily. 0.1 per cent solution of amylose may be substituted for the starch solution and is stable for 2-3 months.

Apparatus

1. Fritted Glass Scrubber.

Procedure

Collect 100 liters of air at the rate of 5 liters per minute in a fritted glass scrubber containing 75 ml. of potassium iodide solution. Transfer the solution to a 250 ml. glass-stoppered Erlenmeyer, add 1 ml. sulfuric acid (6 N), 1 ml. of indicator, and titrate to a colorless end point with standardized sodium thiosulfate (0.01 N) solution.

Notes: A. Run a blank during the sample collection period. Purify the air for the blank sample by passing the air through a glass fritted scrubber containing 75 ml. of sodium hydroxide solution (0.01 N).

B. Bromine, ozone, nitrogen dioxide, and other oxidizing agents interfere but can be grouped under "chlorine" because they are of about the same toxicity.

Calculations

ppm. Cl_2 (at 30° C and 760 mm.) = mls. $Na_2S_2O_3$ x 1.24

Determination of Chlorine in Air (Colorimetric Method)

Reagents

1. Ortho-tolidine Solution. Dissolve 1.35 gm. o-tolidine dihydrochloride in 500 ml. distilled water. Add this solution, with constant stirring, to 500 ml. dilute HCl made by mixing 350 ml. distilled water and 150 ml. concentrated HCl (sp. gr. 1.18-1.19). The reagent should be stored in amber bottles and should not be used after six months.

2. Sodium Hydroxide Solution; 0.1 N. Dissolve 4 gm. NaOH in distilled water and make up to one liter.

3. Sulfuric Acid Solution; 1:1. Add 50 ml. of concentrated H_2SO_4 (sp. gr. 1.84) to 50 ml. of distilled water, stirring constantly.

Apparatus

1. Midget Impinger or Fritted Glass Scrubber (50 ml.).

2. Beckman Model B Spectrophotometer, with 1.00 cm. Corex cells.

Procedure

Collect 2.83 liters of air at the rate of 0.283 liters per minute, drawing the sample through either a midget impinger, or a fritted glass scrubber, containing 9.0 ml. of 0.1 N NaOH.

Add 1 ml. of the o-tolidine reagent and 1 drop of 1:1 H_2SO_4 to the sample. Mix and place in the dark for 5-15 minutes to allow the color to develop. Transfer to a 1.00 cm. Corex cell and read the absorbance at 445 mu.

Calculations

By means of the working curve, convert the absorbance to micrograms of chlorine.

ppm. = micrograms Cl_2 found x 0.124

Determination of Sulfur Dioxide in Air

Reagents

1. Iodine Solution; 0.01 N. Dissolve exactly 1.27 g. of iodine and 250 g. of potassium iodide in water. Dilute to one liter.

2. Sodium Thiosulfate Solution; 0.01 N. Dissolve 2.50 g. of sodium thiosulfate in distilled water and dilute to one liter.

3. Indicator. Dissolve 1 g. of starch in 25 ml. of hot water. Prepare daily. 0.1 per cent solution of amylose may be substituted for the starch solution and is stable for 2-3 months.

Apparatus

1. Dispersion Scrubber; fritted glass.

Procedure

Collect 100 liters of sample at the rate of 5 liters per minute in a fritted glass scrubber containing approximately 50 ml. of distilled water and exactly 25 ml. (use pipets) of iodine solution (0.01 N). Lift frit clear of the iodine solution, blow out any absorbed iodine and rinse thoroughly. Remove frit completely and proceed with titration as outlined below.

Acidify with 2 ml. of hydrochloric acid (0.1 N) and immediately titrate with standardized sodium thiosulfate solution (0.01 N) adding starch indicator just before the end point.

Note: A. To eliminate interference from possible sodium oxide in air the sample is acidified prior to the sodium thiosulfate titration.

B. The interference from unsaturated organic compounds (olefins) and losses of iodine due to vapor pressure is eliminated by running a blank simultaneously with the sample. Purify the air used for the blank correction by scrubbing with 0.01 N sodium hydroxide solution.

C. Hydrogen sulfide interference is eliminated by trapping sulfides on lead acetate paper.

Calculations

Determine the volume of iodine consumed by the blank and the sample and from this the net volume of iodine consumed by the sample.

ppm. SO_2 (at 30° C and 760 mm.) = mls. I_2 (net) x 1.22

Determination of Ammonium Ion in Air

Reagents

Nessler's Reagent. Dissolve 50 g. KI in 35 ml. cold ammonia-free water. Slowly add a saturated solution of mercuric chloride until a slight red precipitate appears. Add 400 ml. clear 36% sodium hydroxide. Dilute to 1 liter, let stand to sediment, decant to filter. Store in a brown bottle.

Apparatus

1. Beckman Model B Spectrophotometer.
2. Corex Cells; 1 cm.

Procedure

Collect 200 liters of sample at a rate of 5 liters per minute in a fritted glass scrubber containing 50 ml. of triple distilled water. Take a 10 ml. aliquot of the composite, add 1 ml. Nessler's Reagent, and after 15 minutes read the optical density of the sample at 410 mμ. Obtain the concentration of ammonium ion from the standard curve.

Calculations

Milligrams NH_4^+/m^3 = mg. NH_4^+ found x 25

Determination of Chloride in Air

Reagents

1. Nitric Acid; 1:1. Mix equal quantities of acid and water.

2. Silver Nitrate Crystals; 20-30 mesh.

Apparatus

Beckman Model B Spectrophotometer, with 1.0 cm. Corex cells.

Procedure

Collect 200 liters of air at a rate of 5 liters per minute in a fritted glass scrubber containing 50 ml. of triple distilled water. Take a 10 ml. aliquot of the composite, add 1 ml. of 1:1 HNO_3 and 0.1 g. 20-30 mesh $AgNO_3$.

Let stand in the dark for 15 minutes and read the absorbance at 525 mμ, using a 1.0 cm. Corex cell.

Convert the absorbance to milligrams chloride by means of the working curve.

Calculations

$$mg.\ Cl^-/m^3 = mg.\ Cl^-\ found \times 25$$

Determination of Total Sulfate in Air

Reagents

1. Barium Chloride Dihydrate; 20-30 mesh.

2. Salt-Acid Solution. Dissolve 240 g. of sodium chloride in 200 ml. water. Add 20 ml. concentrated hydrochloric acid. Dilute to 1 liter with water.

Apparatus

Beckman Model B Spectrophotometer, with 1.0 cm. Corex cells.

Procedure

Collect 200 liters of sample at a rate of 5 liters per minute in a fritted glass scrubber containing 50 ml. of triple distilled water. Take a 10 ml. aliquot of the composite, add 1 ml. salt-acid solution and approximately 15 crystals (20-30 mesh) of barium chloride. Mix thoroughly.

Measure at once on the spectrophotometer at 525 mμ using 1.0 cm. cells.

Refer the reading to a standard curve prepared using standard sodium sulfate solution.

Calculations

Net mg. $SO_4^{=}/m^3$ = mg. $SO_4^{=}$ found x 25

LOUISIANA UNDERWRITERS AGENCY, Inc.
LOUISIANA NATIONAL BANK BUILDING
BATON ROUGE, LA.

January 22, 1953

Esso Standard Oil Company
P. O. Box 551
Baton Rouge, Louisiana

Gentlemen:

We will be pleased to write the insurance for Dr. Choppin according to the requirements of your insurance certificate.

We quote below the premiums that are applicable. Some of these are estimates, for workmen's compensation and public liability insurance, as you know, are based upon payrolls.

If you need any additional information, please telephone us at 2-4766, and we can readily give it to you.

Automobile		
Public Liability	$100/300,000.00	$ 58.80
Property Damage	$ 50,000.00	$ 50.00
Fire and Theft	Actual Value	$ 39.00
Collision	$50.00 Deductible	$ 59.00
Workmen's Compensation		$ 75.00 (Estimate)
Comprehensive General Liability		
Public Liability	$100/300,000.00	$ 40.00 (Estimate)
Property Damage	$ 50,000.00	$ 25.00 (Estimate)
Cargo on Truck		$ 60.00.

Yours very truly,
Warren Berwick

EM003555

Warren Berwick
President

GENERAL
MEMORANDUM

DATE December 30, 1952

TO Dr. F. A. L. Holloway Mr Leet

FROM J. E. Wood JEW

I suggest that we obtain Mr. Leet's concurrence to ask ~~Arnie Matthies~~ Erwin Hasten to coordinate and complete final negotiations of the attached contract with Dr. Choppin and Dr. West. It will be necessary for ~~Arnie~~ Erwin and Pat Casey to hold an informal discussion with Dr. Choppin in order to develop the information to be inserted in the blank spaces in the attached draft. We would submit the draft, signed by HJV, to Dr. Choppin for his signature.

I would ~~then~~ suggest that ~~John Cogan~~ Erwin be given the responsibility for coordinating the work to be done under the contract with the assistance of ~~Erwin Hatten~~ Charlie Peyton and Maurice Amis. I would visualize that we would request all reports to be submitted in triplicate, with a copy to each of these three persons. Dr. Choppin would be requested to contact ~~John Cogan~~ Erwin Hatten on all matters pertaining to the contract and ~~John Cogan~~ he in turn would submit all special requests to Dr. Choppin.

Does this sound all right to you?

I agree
FALH

EM003556

DUPONT

Petroleum Chemicals

PLEASE | J.M.C. | J.L.C. | D.M.M. | H.R.W. | L.A.B. | L.C.B. | E.D.F. | P.C.K. | D.T.L. | E.C.R. | L.O.W. | E.J.
HANDLE | | | | | | | | | | | | | |
NOTE | | | | | | | | | | | | | |

JAN 23 1953

PETROLEUM PRODUCTS LAB.

Dr. Hattox

This is in relation to the question we talked I believe he mentioned an electric hot plate would be used which requires a "hot work" permit. When we select the final location I will arrange for a blanket hot work permit for this specific job, for these locations, for the duration of the job. There is an explosion proof hot plate available which if used could be used without a hot work permit.

Ernie Miller

EM003557

[redacted]

GENERAL-7—OF-503

MEMORANDUM

DATE 1/14

TO JEW

FROM FALK

CL agrees to the attached but would like to be sure chapter and what get a reasonable response — at least $250 a year each.

A letter of intent can be issued to ensure start in the second semester if necessary.