

FILE NAME: Oil Industry and American Petroleum Institute (API)

DATE: 1952 Jan-May

DOC#: API027

DOCUMENT DESCRIPTION: Letters, Memos, Reports, Financial Reports & Other Relevant Documents from Jan-May, 1952

EC
Please prepare
+ mail this
letter
or

January 9, 1952

To Members of the
Sub-Committee on Carcinogenicity:

On December 10, 1951, a copy of the minutes of the meeting of the R.P.A. Committee, which was held at Kettering Laboratory November 26, 1951, was sent to you along with a letter ballot asking for your vote with respect to the action taken at the Cincinnati meeting. The minutes reflect the mutual agreement of the Kettering Laboratory and the R.P.A. Committee with respect to the immediate objectives of the Research Project on Carcinogenicity. To date fourteen ballots, all in the affirmative, have been returned from the twenty-five members of the sub-committee.

In order that we may advise Dr. Kehoe that the action taken has the approval of the Sub-Committee on Carcinogenicity, I would greatly appreciate it if those whose names are shown below will return their ballots to me at the earliest date possible. A letter ballot is again attached for your convenience.

Very truly yours,



M. N. NEWQUIST, M. D.

Doctors: L.E. Curtis, T.M. Frank, W.R. Levis, James W. Long,
Clark R. Miller, James W. Osborn

Messrs: R.M. Shepardson, L.O. Crockett, R.M. Landon,
C.R. Brown, F.J. Sanders

cc: Dr. E. K. Linder
Mr. D. V. Stroop

AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20, N. Y.

January 10, 1952

To Members and Associates
Subcommittee on Carcinogenicity

Gentlemen:

On December 10, 1951, a copy of the minutes of the meeting of the R.P.A. Committee, which was held at Kettering Laboratory, November 26, 1951, was sent to you along with a letter ballot asking for your vote with respect to the action taken at the Cincinnati meeting. The minutes reflect the mutual agreement of the Kettering Laboratory and the R.P.A. Committee with respect to the immediate objectives of the Research Project on Carcinogenicity. To date fourteen ballots, all in the affirmative, have been returned from the twenty-five members of the subcommittee.

In order that we may advise Doctor Kehoe that the action taken has the approval of the Subcommittee on Carcinogenicity, I would greatly appreciate it if those whose names are shown below will return their ballots to me at the earliest date possible. A letter ballot is again attached for your convenience.

Very truly yours,

M. N. Newquist

M. N. Newquist, M.D.
Chairman, Subcommittee
on Carcinogenicity

Enclosure

Doctors: L. E. Curtis
T. M. Frank
W. R. Lewis
James W. Long
Clark R. Miller
James W. Osborn
Messrs: C. R. Brown
L. O. Crockett
R. M. Landon
F. J. Sanders
R. M. Shepardson
mc: Dr. E. K. Linder
Mr. D. V. Stroop

LETTER BALLOT

of the
Subcommittee on Carcinogenicity
Medical Advisory Committee
American Petroleum Institute

.....
PLEASE MARK AND RETURN TO:

Dr. M. N. Newquist, Chairman
Subcommittee on Carcinogenicity
c/o The Texas Company
135 East 42nd Street
New York 17, New York
.....

Shall the actions and decisions of the Research Project
Advisory Committee, as shown in the minutes of the November 26, 1951
meeting at Kettering Laboratory, Cincinnati, Ohio, be approved by
the Subcommittee:

Yes _____

No* _____

Not voting _____

(* It is requested that any negative vote be accompanied by an
explanation.)

NAME _____

COMPANY _____

DATE _____

January 9, 1952

Dr. R. A. Kehoe
Kettering Laboratory
University of Cincinnati
Eden Avenue
Cincinnati, Ohio

Dear Doctor Kehoe:

It was the consensus when we met with you on November 26, that there should be another meeting of the R.P.A. Committee with your group prior to the meeting of the Medical Advisory Committee of the A.P.I. in April.

Mention was made of holding the meeting the last of February or the 1st of March. I am wondering how February 26th or March 4th would fit in with your plans for a meeting at Kettering Laboratory. Naturally we would like to clear with you as to dates before sending out feelers to the committee members as to preference. There is no question but that a one-day meeting would suffice.

Very truly yours,

M. N. NEWQUIST, M.D.
MEDICAL DIRECTOR
M. N. NEWQUIST, M. D.

MNH:RES

cc: Dr. E. K. Linder

Mr. D. V. Stroop ✓

Garrett

AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20. N. Y.

January 10, 1952

To Members and Associates
Subcommittee on Carcinogenicity

Gentlemen:

On December 10, 1951, a copy of the minutes of the meeting of the R.P.A. Committee, which was held at Kettering Laboratory, November 26, 1951, was sent to you along with a letter ballot asking for your vote with respect to the action taken at the Cincinnati meeting. The minutes reflect the mutual agreement of the Kettering Laboratory and the R.P.A. Committee with respect to the immediate objectives of the Research Project on Carcinogenicity. To date fourteen ballots, all in the affirmative, have been returned from the twenty-five members of the subcommittee.

In order that we may advise Doctor Kehoe that the action taken has the approval of the Subcommittee on Carcinogenicity, I would greatly appreciate it if those whose names are shown below will return their ballots to me at the earliest date possible. A letter ballot is again attached for your convenience.

Very truly yours,

M. N. Newquist

M. N. Newquist, M.D.
Chairman, Subcommittee
on Carcinogenicity

Enclosure

Doctors: L. E. Curtis
T. M. Frank
W. R. Lewis
James W. Long
Clark R. Miller
James W. Osborn
Messrs: C. R. Brown
L. O. Crockett
R. M. Landon
F. J. Sanders
R. M. Shepardson
mc: Dr. E. K. Linder
Mr. D. V. Stroop

API 05212

LETTER BALLOT

of the
Subcommittee on Carcinogenicity
Medical Advisory Committee
American Petroleum Institute

.....

PLEASE MARK AND RETURN TO:

Dr. M. N. Newquist, Chairman
Subcommittee on Carcinogenicity
c/o The Texas Company
135 East 42nd Street
New York 17, New York

.....

Shall the actions and decisions of the Research Project
Advisory Committee, as shown in the minutes of the November 26, 1951
meeting at Kettering Laboratory, Cincinnati, Ohio, be approved by
the Subcommittee:

Yes	_____
No*	_____
Not voting	_____

(* It is requested that any negative vote be accompanied by an
explanation.)

NAME _____

COMPANY _____

DATE _____

January 14, 1952

Dr. M. N. Newquist
The Texas Company
135 East 42nd Street
New York City 17

Dear Doctor Newquist:

I know of no reason for not having the meeting of the R.P.A. Committee on February 26 or thereabouts. March 4 finds me with an engagement out of town. This need not deter you from meeting here on the latter date, since Drs. Hayroth, Horton and Phair will be available. However, if you want me available, I'd appreciate your selecting the 26th.

With kindest regards,

Sincerely yours,


Robert A. Lebow, M. D.

RAK ef

C.C.: Mr. D. V. Stroop
Dr. E.K. Linder

1-22-55

MEMORANDUM

Mr. F. M. Porter

Re: API Medical Advisory Committee

Pursuant to plans discussed with you recently, Mr. Gurn and I conferred informally with H. W. Field, E. K. Linder, W. F. Stroud and R. D. Bent on Monday, January 21st, in Philadelphia.

We reviewed the minutes of the November 6 meeting of the General Committee, Division of Refining, which records a unanimous vote in favor of a resolution -

"That the Chairman of the General Committee of the Division of Refining appoint a subcommittee composed of members of said General Committee to review the past work of said Medical Advisory Committee as it pertains to finished and unfinished petroleum products, and to refinery operations as well as to review work now under way and programs, if any, for future work in this field, and to recommend to the General Committee such steps as it feels should be taken, together with such mechanism as it feels should be established to secure the best possible results from the standpoint of the employees of the petroleum industry and the users of petroleum products.

We also considered a statement in the same minutes that -

"there was unanimous agreement that the Vice President for Refining should confer with the Chairman of the Safety Committee of the Board to determine whether or not a mechanism can be worked out whereby the Medical Advisory Committee can be furnished direct assistance and advice of qualified refiners."

Our discussion led to a consensus that the working out of the mechanism sought by the General Committee would be facilitated and expedited by joint conference and collaboration of two small subcommittees representing the General Committee and the Medical Advisory

Committee.

Accordingly, it was suggested that John R. Suman, Chairman, Safety Committee of the Board, should inform Dr. Linder regarding the General Committee actions, and suggest that Dr. Linder tender to W. L. Stewart, Jr., Chairman, General Committee, the services of a special subcommittee of medical committee members who could assist the refinery subcommittee in its review of the past, present and future API medical research program and in the working out of a mechanism to secure the results described in the resolution.

* * * * *

In my understanding that you plan to discuss this matter with Mr. Suman, I have sent him a copy of this memorandum and a copy of the attached rough draft of possible letter to Dr. Linder.

DVS:rd
att

D. V. Streep

cc - John R. Suman, Chairman, Safety Committee of the Board of Directors
H. W. Field, The Atlantic Refining Company
W. F. Stroud, Member General Committee, Division of Refining
E. K. Linder, M.D., Chairman, API Medical Advisory Committee
R. D. Bent, Associate Member, API Medical Advisory Committee
W. T. Ounn, Director, API Division of Refining

January 24, 1952

RPA COMMITTEE
SUBCOMMITTEE ON CARCINOGENICITY
MEDICAL ADVISORY COMMITTEE - A.P.I.

Dr. R. A. Kehoe
Kettering Laboratory
Eden and Bethesda Avenues
Cincinnati, Ohio

Dear Doctor Kehoe:

For your information I am enclosing two copies of the minutes of the meeting attended on November 26, 1951 by the Research Project Advisory Committee and Dr. Kehoe and associates of the Kettering Laboratory relative to research on carcinogenicity sponsored by the A.P.I.

The minutes have been submitted to all members and associates of the Medical Advisory Committee of the A.P.I. Letter ballots have been returned from 24 of the 25 members and associates of the Subcommittee on Carcinogenicity and the ballots show unanimous approval of the action expressed in the minutes. No doubt you have already effectuated procedures to attain the objectives as discussed at the meeting and expressed in said minutes.

For information of the members of the Subcommittee on Carcinogenicity I will be pleased to receive your outline of fundamental factors considered to be significant to the establishment of standardized procedures as mentioned under Reference Standards on Page 2 of the minutes.

Yours very truly

M.N.Newquist, M.D., Chairman
Subcommittee on Carcinogenicity

MNN:GH

Copies to Subcommittee Members
and Associates
Dr. E. K. Linder
Mr. D. V. Stroop

API 05217

AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20, N. Y.

DEPARTMENT OF TECHNICAL SERVICES
DAVID V. STROOP, DIRECTOR

135 East 42nd Street
New York 17, N. Y.

February 1, 1952

To Members
Research Project Advisory Committee

E. W. Adams	C. H. Hine, M.D.
L. C. Beard, Jr.	R. M. Landon
Kieffer Davis, M.D.	E. K. Linder, M.D.
Robert E. Eckardt, M.D.	K. G. Mackenzie
T. M. Frank, M.D.	R. C. Mithoff
R. M. Shepardson	

Gentlemen:

A meeting of the Research Project Advisory Committee of the Subcommittee on Carcinogenicity will be held on Tuesday, February 26th, at the Kettering Laboratory, Cincinnati, commencing at 9:30 A.M. It is hoped that the business at hand may be completed by 4:00 P.M.

I will circularize Doctor Kehoe's statement on "fundamental objectives and factors pertinent to standardized methodology" as soon as it is received. In the interim you have no doubt given thought to the continuing study on carcinogenicity and I would greatly appreciate hearing from you as to any items that you feel would be helpful to the research project and which should be considered. I will then list such items on our agenda to supplement those which will be presented by Doctors Kehoe, Horton and Phair. I would like to have such an agenda in the hands of the committee members prior to the meeting on February 26th, so your prompt response will be appreciated.

Those staying overnight in Cincinnati should make their own hotel reservations.

Very truly yours,

M. N. Newquist

M. N. NEWQUIST, M.D.
Chairman, Research
Project Advisory Committee

MTN:RMS

cc: Dr. Robert A. Kehoe
Mr. D. V. Stroop

API 05218

MEMORANDUM FROM DR. M. N. NEWQUIST

NEW YORK, N. Y. January 31, 1952

MR. D. V. Stroop

Will you also send a copy
to Dr. George M. Saunders, who
may be an alternate for L. C.
Board.

M. N. N.

RC
PLEASE GET THIS
OUT TODAY - 2-1-52
DS

135 East 42nd Street
New York 17, N. Y.
January 31, 1952

Members of the Research Project
Advisory Committee

A meeting of the Research Project Advisory Committee of the Subcommittee on Carcinogenicity will be held on Tuesday, February 26th, at the Kettering Laboratory, Cincinnati, commencing at 9:30 A.M. It is hoped that the business at hand may be completed by 4:00 P.M.

I will circularize Dr. Kehoe's statement on "fundamental objectives and factors pertinent to standardized methodology" as soon as it is received. In the interim you have no doubt given thought to the continuing study on carcinogenicity and I would greatly appreciate hearing from you as to any items that you feel would be helpful to the research project and which should be considered. I will then list such items on our agenda to supplement those which will be presented by Drs. Kehoe, Horton and Phair. I would like to have such an agenda in the hands of the committee members prior to the meeting on February 26th, so your prompt response will be appreciated.

Those staying overnight in Cincinnati should make their own hotel reservations.

Very truly yours,

M. N. NEWQUIST, M. D.
Chairman, Subcommittee on Carcinogenicity

MNN:RMS

E. W. Adams
L. C. Beard, Jr.
Kieffer Davis, M. D. — AIR MAIL
R. E. Eckardt, M. D.
T. M. Frank, M. D. — AIR MAIL
C. H. Hine, M. D. — AIR MAIL
R. M. Landon
E. K. Linder, M. D.
K. G. Mackenzie
R. C. Mithoff — AIR MAIL
R. M. Shepardson

D. V. Stroop - for information
R. A. Kehoe, M. D.

API 05220

Decision

Copy from M. N. Newquist, M.D., for Information of Members of the Research Project Advisory Committee and Members and Associates of the Subcommittee on Carcinogenicity.

2-4-52

January 30, 1952

Dr. M. N. Newquist
Medical Director
The Texas Company
135 East 42nd Street
New York 17, New York

Dear Doctor Newquist:

Attached is the promised outline of basic studies which are under way to standardize the mouse tests. This is, in effect, an acceleration of the work on that phase of the over-all program, which was designated as section B, "Reference Standards," in our memorandum of November 26, 1951 and the minutes of the first meeting of the Project Advisory Committee.

Since we are a few days past the date on which we had intended to have this outline in your hands, Dr. Kehoe has asked me to send it on to you, although his departure from Cincinnati Monday evening necessitated postponement of any detailed editing of the material on his part.

Sincerely yours,

A. Wesley Horton

AWE:mjg
CC: Dr. E. K. Linder
Mr. D. V. Stroop

STANDARDIZATION OF BIOLOGICAL TESTING METHODS

API RESEARCH PROJECT MC-1

- I. Reproducibility of Results of Mouse Tests
 - A. Effects of variations in health of animals
 1. Toxic effects of materials under test
 - a. Systemic poisoning
 - b. Irritating and lethal effects on epithelial cells
 - c. Relationships between dosage and latent period for induction of tumors
 2. Effects of intercurrent infections
 3. Development of criteria for assaying the degree of validity of results of any given mouse test
 - B. Application of statistical methods to establish confidence limits
- II. Influences of Non-carcinogenic Components of Petroleum Products on Their Effective Potencies
 - A. Inhibitory properties
 1. "Viscosity effects," influencing the potencies of tars, waxes, and cokes
 2. Effects of specific classes of materials, such as benzanthrane derivatives, trace metals (reduced crudes), catalyst fines, etc.
 - B. Specific irritant properties which reduce the latent period for induction of tumors
 - C. Improvement of analytical techniques for estimating potency, resulting from correction factors based on these fundamental catalytic and inhibitory properties

This outline defines certain factors to which consideration will be given in an effort to standardize biological testing methods for determination of relative carcinogenic potencies of petroleum products.

February 13, 1952

Dr. M. N. Newquist, Chairman
MAC Subcommittee on Carcinogenicity
c/o The Texas Company
135 East 42nd Street
New York 17, New York

Dear Doctor Newquist:

For your information and for possible consideration
by the EPA Committee as well as the Subcommittee on Carcinogenicity,
there is enclosed a copy of self-explanatory letter, dated
February 11, 1952, from Doctor Kehoe, with an estimated budget for
the year ending June 30, 1953.

Very truly yours,

DVS:c
Enclosure

UNIVERSITY OF CINCINNATI
DEPARTMENT OF PREVENTIVE MEDICINE AND INDUSTRIAL HEALTH

February 11, 1952

CABLE ADDRESS: KETLAB, CINCINNATI
TELEPHONE: CAPITOL 1414

LABORATORY
OF MEDICINE—EDEN AVENUE
CINCINNATI 19, OHIO

Mr. D. V. Stroop
American Petroleum Institute
50 West 50th Street
New York City 20

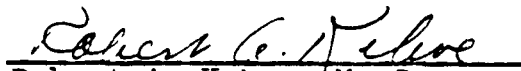
Dear Mr. Stroop:

I send you herewith the estimated budget for the year beginning July 1, 1952. It is based on certain conjectures, of course, but if the work continues as we anticipate that it will and probably should, this is a fairly realistic estimate.

The status of the funds at the end of your fiscal year (July 1, 1952) can be estimated with fair precision as soon as our accounts for the calendar year 1951 are finalized. This will come in the near future, at which time you and we will be able to visualize the situation.

I trust that this information will be satisfactory for present purposes.

Cordially yours,


Robert A. Kehoe, M. D. E

RAK ef

Dictated but not read.

Enc.

BUDGET DATA FOR AMERICAN PETROLEUM INSTITUTE

Investigation of Cutaneous Carcinogenic Materials by
The Kettering Laboratory

Estimated budget from July 1, 1952 to July 1, 1953

Compensation for Personnel (itemized below)	\$43,600.00	
Supervision - general		\$ 5,000.00
Chemical Technology and Epidemiology (Direct Salaries itemized below)		25,500.00
Principal investigators		
Experimental and Technologic	8,000.00	
Epidemiologic Surveys	5,000.00	
Research Chemists	<u>12,500.00</u>	
Biological Testing (Direct salaries itemized below)		6,500.00
Gross pathology and animal records	2,600.00	
Microscopic pathology	2,000.00	
Technicians (testing)	<u>3,700.00</u>	
Total Compensation as Direct Salaries	38,800.00	
Indirect Salaries (itemized below)		4,800.00
Initial postmortem examination	1,200.00	
Preparation of microscopic slides	<u>3,600.00</u>	
Other Expense		
Supplies (indicated below)		7,000.00
Supplies for Technologic and Epide- miologic work	3,500.00	
Supplies for Biological Testing	<u>3,500.00</u>	
Travel		5,000.00
Animals		2,600.00
Overhead - all other items including indirect salaries that cannot be itemized, pensions and annuities, educational expense, heat, light, power, secretarial service, library service, janitor service, general maintenance, etc.		<u>46,560.00</u>
Total Estimated Budget for all purposes		\$104,760.00

AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20. N. Y.

February 15, 1952

To Members
Special Coordinating Committee

Kieffer Davis, M.D. - Phillips Petroleum Co.
Kenneth R. Fourcher, M.D. - Standard Oil Co. (New Jersey)
James W. Long, M.D. - Gulf Oil Corp.
M. N. Newquist, M.D. - The Texas Co.
B. B. Reeve, M.D. - Standard Oil Co. (Indiana)

Gentlemen:

Mr. Stewart has accepted the suggestion made in my letter of February 1, 1952, and I have made arrangements for a meeting of the liaison subcommittees to be held on

WEDNESDAY FEBRUARY 27, 1952 AT 10:00 A.M.

in the Netherland Plaza Hotel, Cincinnati, Ohio.

So that you may be fully informed on the status of the Kettering research project, Doctor M. N. Newquist, Chairman, Research Project Advisory Committee, invites you to attend the RPA Committee meeting to be held at the Kettering Laboratory, University of Cincinnati, at 10:00 A.M., on Tuesday, February 26.

By copy of this letter we are also inviting the members of the Refining Liaison Subcommittee to attend the RPA Committee meeting on February 26.

Very truly yours,



E. K. Linder, M.D.
Chairman
Medical Advisory Committee

cc: Messrs. W. T. Gunn
F. M. Porter
W. L. Stewart, Jr.
D. V. Stroop
John R. Suman

cc: Members, Refining Liaison Subcommittee
Messrs. W. R. Argyle - Sinclair Refining Co.
M. Halpern - The Texas Co.
William Naden - Esso Standard Oil Co.
Harold G. Osborn - Continental Oil Co.
Max G. Paulus - Standard Oil Co. (Indiana)
C. S. Teitsworth - Socony-Vacuum Oil Co., Inc.

cc: Mr. Wilbur Wright

API 05226

AMERICAN PETROLEUM INSTITUTE

50 WEST 30TH STREET

NEW YORK 20, N. Y.

DEPARTMENT OF TECHNICAL SERVICES
DAVID V. STROOP, DIRECTOR

February 15, 1952

MEMORANDUM TO:

Messrs. W. R. Argyle
M. Halpern
William Naden
Harold G. Osborn
Max G. Paulus
C. S. Teitsworth

Gentlemen:

Doctor Linder has asked me to send you the enclosed information, as follows:

1. List of members and associates of the Medical Advisory Committee.
2. Outline of Objectives, Functions and Procedures of the Medical Advisory Committee.
3. Minutes of the RPA Committee meeting held November 26, 1951.

Mr. Wilbur Wright, Reservations Manager, Netherland Plaza Hotel, Cincinnati, is holding single guest rooms available for your use. Please notify him as to the date and time of your arrival.

Very truly yours,

W. Stroop

DVS:c

Enclosures

cc: Mr. W. T. Gunn
Dr. E. K. Linder
Dr. M. N. Newquist

STANDARD OIL COMPANY

(INDIANA)

MEDICAL DEPARTMENT
WILLIAM B. REEVE, M. D.
MEDICAL DIRECTOR
WILLIAM W. BOLYARD, M. D.
ASSISTANT MEDICAL DIRECTOR

910 SOUTH MICHIGAN AVENUE

CHICAGO 80, ILL.

February 13, 1952

Mr. D. V. Stroop, Director
Department of Technical Services
American Petroleum Institute
50 West 50th Street
New York 20, N. Y.

Dear Mr. Stroop:

I received my appointment as a member of the Special Coordinating Committee of the Medical Advisory Committee.

In his letter of February 1, Dr. Linder suggested that a meeting of this committee be held on February 27 in Cincinnati. To date I have had no notice of any set time for this meeting. Has any decision been made as to the date? Please let me know so that I can make plans accordingly.

I was in Texas last week and had a very nice visit with Dr. Frank of Pan Am and Dr. Baird of the Humble Oil Company. Dr. Frank will probably discuss some of the things we talked about if he sees you in Cincinnati at the meeting on February 26.

Yours very truly,

B. B. Reeve

M.D.

Medical Director

BER:S

February 4, 1952

To Members of
Special Coordinating Committee

Kieffer Davis, M.D.
Kenneth R. Fourcher, M.D.
James W. Long, M.D.
M. H. Newquist, M.D.
B. B. Reeve, M.D.

Gentlemen:

As stated in the enclosed copy of letter dated February 1 to W. L. Stewart, Jr., Doctor Linder, Chairman, Medical Advisory Committee, has appointed you to serve as a Special Coordinating Committee to collaborate with a special subcommittee of the General Committee, Division of Refining, in the working out of the mechanism referred to in the attached letter dated January 25 from John R. Suman.

Doctor Linder will serve ex officio as Chairman of the Special Coordinating Committee.

Very truly yours,

DVB:c
Enclosures

cc: Dr. E. K. Linder

THE ATLANTIC REFINING COMPANY
PETROLEUM PRODUCTS

260 SOUTH BROAD STREET
PHILADELPHIA 1. PA.

INDUSTRIAL RELATIONS DEPARTMENT
E. KERN LINDER M.D. DIRECTOR MEDICAL DIVISION

February 1, 1952

Mr. D. V. Stroop
American Petroleum Institute
50 West 50th Street
New York 20, N. Y.

Dear Mr. Stroop:

As per my telephone discussion, I am enclosing copy of letter to Mr. Stewart, trusting you have a copy of Mr. Suman's letter to me, in order that you may take the necessary steps to advise this newly appointed Special Coordinating Committee of this action and of their appointment.

Dr. Fourcher has indicated that he desires to be a member of the committee with the understanding that he may be able to appoint a designee.

Very truly yours,

E. Kern Linder

E. KERN LINDER, M. D.

EKL:mb
Enc.

February 1, 1952

Mr. W. L. Stewart, Jr.
Union Oil Company of California
617 West Seventh Street
Los Angeles 17, California

Dear Mr. Stewart:

In accord with Mr. Suman's letter to me, dated January 23, 1952, it is my desire to expedite any action on the part of the Medical Advisory Committee which will aid the General Committee, Division of Refining, work out the mechanism referred to in their resolution as quoted.

I am appointing a subcommittee composed of six members of the Medical Advisory Committee, which subcommittee will be prepared to collaborate with a subcommittee of the General Committee, Division of Refining. These liaison subcommittees, I am certain, can discuss and promote a better mutual understanding.

Immediately following the November meeting of the Medical Advisory Committee a Research Project Advisory Subcommittee was appointed for the express purpose of maintaining a closer contact with Dr. Kehoe and associates of the Kettering Laboratory relative to their research on carcinogenicity sponsored by the American Petroleum Institute. A meeting of this subcommittee and Dr. Kehoe and associates was held on November 26 and another meeting is planned for February 26. It is my personal opinion that the November meeting proved of value both to Dr. Kehoe and his associates and also to the Subcommittee on Carcinogenicity. This past meeting, and future meetings, I am sure, will serve their purpose to provide a closer bond of understanding and collaboration in direction of work so as to accomplish the objectives in the least possible time and at the least possible cost.

Inasmuch as there will be available up-to-date information on the research on carcinogenicity at the Kettering Laboratory immediately following the meeting of February 26, may I take the liberty of suggesting that the liaison subcommittees meet on February 27 in Cincinnati? Should this not be agreeable, or should it be in conflict with previous

Mr. W. L. Stewart, Jr.

February 1, 1952

commitments, we will be quite willing to meet at any other time or place you may suggest.

The subcommittee, which we shall refer to as the Special Coordinating committee of the Medical Advisory Committee, will be composed of the following members:

Kieffer Davis, M. D.
Phillips Petroleum Company
Bartlesville, Oklahoma

Kenneth R. Fourcher, M. D.
Standard Oil Company (New Jersey)
30 Rockefeller Plaza
New York 20, N. Y.

E. Kern Linder, M. D.

James W. Long, M. D.
Gulf Oil Corporation
Port Arthur, Texas

M. H. Houquist, M. D.
The Texas Company
135 East 42nd Street
New York 17, N. Y.

B. B. Reeve, M. D.
Standard Oil Company (Indiana)
910 South Michigan Avenue
Chicago 80, Illinois

Very truly yours,

E. Kern Linder, M. D.
Chairman
API Medical Advisory Committee

KL:mb

cc: Mr. W. T. Gunn
Mr. F. M. Porter
Mr. J. R. Guman
cc: Dr. Kieffer Davis
Dr. K. R. Fourcher
Dr. J. W. Long
Dr. M. H. Houquist
Dr. B. B. Reeve
bc: Mr. D. V. Stroop ✓

January 25, 1938

Dr. E. E. Linder, Chairman
API Medical Advisory Committee
c/o The Atlantic Refining Company
260 South Broad Street
Philadelphia 1, Pennsylvania

Dear Doctor Linder:

The General Committee, Division of Refining, has resolved:

"That the Chairman of the General Committee of the Division of Refining appoint a subcommittee composed of members of said General Committee to review the past work of said Medical Advisory Committee as it pertains to finished and unfinished petroleum products, and to refinery operations as well as to review work now under way and programs, if any, for future work in this field, and to recommend to the General Committee such steps as it feels should be taken, together with such mechanism as it feels should be established to secure the best possible results from the standpoint of the employees of the petroleum industry and the users of petroleum products."

The General Committee also has agreed unanimously:

"...that the Vice President for Refining should confer with the Chairman of the Safety Committee of the Board to determine whether or not a mechanism can be worked out whereby the Medical Advisory Committee can be furnished direct assistance and advice of qualified refiners."

Pursuant to this agreement, W. L. Stewart, Jr., Chairman, General Committee, Division of Refining, has conferred with me.

Possibly the working-out of the mechanism sought by the General Committee would be facilitated and expedited by joint conference and collaboration of members of the refinery subcommittee, which is to be appointed by Mr. Stewart, and of a special subcommittee of medical committee members which you might appoint.

If such a course of action seems appropriate to you, I would suggest that you communicate directly with Mr. Stewart and tender the services of a special subcommittee of medical committee

members which could assist the refinery subcommittee in its review of the past, present and future API medical research program and in working out a mechanism to accomplish the results stated in the resolution.

Very truly yours,

John E. Susan
Chairman,
API Safety Committee of the
Board of Directors

cc: Mr. W. T. Gunn
Mr. F. M. Porter
Mr. W. L. Stewart, Jr.

~~CONFIDENTIAL~~

Dr. E. K. Linder
Chairman, Medical Advisory Committee
c/o The Atlantic Refining Company
260 South Broad Street
Philadelphia, Pa.

Dear Dr. Linder:

The General Committee, Division of Refining has resolved -

"That the Chairman of the General Committee of the Division of Refining appoint a subcommittee composed of members of said General Committee to review the past work of said Medical Advisory Committee as it pertains to finished and unfinished petroleum products, and to refinery operations as well as to review work now under way and programs, if any, for future work in this field, and to recommend to the General Committee such steps as it feels should be taken, together with such mechanism as it feels should be established to secure the best possible results from the standpoint of the employees of the petroleum industry and the users of petroleum products."

The General Committee also has agreed unanimously -

"...that the Vice President for Refining should confer with the Chairman of the Safety Committee of the Board to determine whether or not a mechanism can be worked out whereby the Medical Advisory Committee can be furnished direct assistance and advice of qualified refiners."

Pursuant to this agreement, W. L. Stewart, Jr., Chairman, General Committee, Division of Refining, has conferred with me.

Possibly the working out of the mechanism sought by the General Committee would be facilitated and expedited by joint conference and collaboration of members of the refinery subcommittee, which is to be appointed by Mr. Stewart, and of a special subcommittee of medical committee members which you might appoint.

API 05235

If such a course of action seems appropriate to you, I would suggest that you communicate directly with Mr. Stewart and tender the services of a special subcommittee of medical committee members which could assist the refinery subcommittee in its review of the past, present and future API medical research program and in working out a mechanism to accomplish the results stated in the resolution.

To be signed by

John R. Suman,
Chairman,
Safety Committee of API
Board of Directors

cc - W. L. Stewart, Jr.
F. M. Porter
W. T. Gunn

*filed
8/11/55-5*

February 19, 1952

Mr. R. M. Landon
Gulf Oil Corporation
P.O. Box 1166
Pittsburgh 30, Pennsylvania

Dear "Hungry":

If you plan to be in Cincinnati on Tuesday, February 26, you might plan also to remain for the meeting of the liaison subcommittee on February 27.

I believe you will be invited to do so because of the sudden death of Doctor Long who was a member of the Special Coordinating Committee of the Medical Advisory Committee.

Very truly yours,

DVS:e

cc: Dr. E. K. Linder
Dr. M. H. Newquist

THE TEXAS COMPANY
135 EAST 42ND STREET
NEW YORK 17, N. Y.

M. NEWQUIST, M. D.
MEDICAL DIRECTOR

February 19, 1952

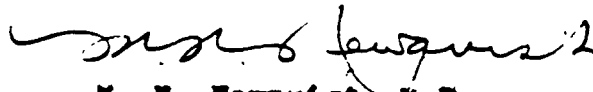
Members of the Research Project Advisory Committee
Research Project MC-1, American Petroleum Institute

Dear Sirs:

The attached communication of February 13, 1952 from Mr. J. J. Sullivan is self-explanatory and is for your confidential information.

I am placing Mr. Sullivan's request that the RPA Committee prepare a report outlining the past and proposed future activities on Carcinogenicity at the Kettering Laboratory on the agenda for our meeting in Cincinnati next Tuesday, February 26. This will not require any discussion before the Kettering Laboratory staff other than your opinion and vote as to whether or not the RPA Committee should prepare such a report.

Very truly yours,



M. H. Newquist, M.D.
Chairman, Research Project
Advisory Committee

MHN:OH
Attach.

R. W. Adams
L. C. Beard, Jr.
Elieff Davis, M.D.
R. E. Eckardt, M.D.
T. M. Frank, M. D.
C. H. Hine, M.D.
R. H. Landon
E. G. Mackenzie
R. C. Mithoff
R. H. Shephardson

cc: E. K. Linder, M.D.
Mr. D. V. Stroop ✓

GULF OIL CORPORATION
GULF BUILDING
PITTSBURGH 30, PA.

T. J. SULLIVAN
VICE PRESIDENT

February 13, 1952

Dr. J. W. Newquist, Chairman
Research Project MC-1 Advisory Committee
The Texas Company
135 East 42nd Street
New York 17, New York

Dear Dr. Newquist:

At the meeting of the General Committee, Division of Refining, API, in Chicago last November, a resolution was passed "That the chairman of the General Committee appoint a sub-committee composed of members of the General Committee to review the past work of the Medical Advisory Committee as it pertains to finished and unfinished petroleum products, and to refinery operations, as well as to review work now under way and programs, if any, for future work in this field, and to recommend to the General Committee such steps as it feels should be taken, together with such mechanism as it feels should be established to secure the best possible results from the standpoint of the employees of the petroleum industry and the users of petroleum products."

In accordance with the above resolution, Mr. W. L. Stewart, Chairman of the General Committee, appointed a Study Committee composed of the following members of the General Committee, to review the work of the Medical Advisory Committee, Department of Safety, and report to the General Committee at San Francisco on May 15, 1952:

T. J. Sullivan, Chairman	Gulf Oil Corporation
G. A. Davidson	Standard Oil of California
H. W. Ferguson	Humble Oil & Refining Co.
J. P. Langfitt	The Pure Oil Company

Upon receipt of Mr. Gunn's letter of January 23, advising me of the appointment as Chairman of the Study Committee of the General Committee, Division of Refining, I wrote the other members of the committee on February 1 giving my views on a method of action. A copy of my letter of February 1 is attached hereto.

I now have replies from my letter of February 1 from each member of the Study group and they are in reasonable agreement with my suggestion that the Research Project MC-1 Advisory Committee prepare a report outlining the past and proposed future activities of the project at Kettering Laboratory. If you are agreeable to accepting the preparation of the report, I thought you would like to know of the task before the meeting of your committee in Cincinnati on February 26. Will you please let me have your comments.

RMZ/rj -Att.
cc: Mr. G. A. Davidson
Mr. H. W. Ferguson
Mr. J. P. Langfitt

Very truly yours,
(signed)
T. J. Sullivan,
Vice-President.

API 05239

C O P Y

February 1, 1952

Mr. G. A. Davidson, Vice-President,
Standard Oil Company of California,
225 Bush Street,
San Francisco 20, California.

Mr. H. W. Ferguson, Vice-President,
Humble Oil & Refining Company,
P. O. Box 2180,
Houston 1, Texas.

Mr. J. P. Langfitt, Vice-President,
The Pure Oil Company,
35 East Wacker Drive,
Chicago, Illinois.

Gentlemen:

Please refer to Mr. Gunn's letter of January 23 advising that Mr. Stewart had appointed you gentlemen, along with the undersigned, as a committee to review the work of the Medical Advisory Committee, Department of Safety, and to report to the General Committee at the San Francisco meeting in May.

For your ready reference, I am attaching hereto a copy of Item XII of Minutes of Meeting of the General Committee, held on November 6, 1951, at the Conrad Hilton Hotel, Chicago.

Since the meeting in Chicago, a Research Project MC-1 Advisory Committee has been appointed by Dr. Newquist (The Texas Company), Chairman of the Sub-Committee on Carcinogenicity, by direction of the Medical Advisory Committee in their meeting on November 3, 1951, in Chicago. The purpose of this committee is to afford a "closed bond of understanding between committee members and research workers." This committee met in Cincinnati on November 26, 1951, with Dr. Kehoe and his associates, and many of the problems or objections (brought out previously by some Medical Advisory Committee members) to a trend by Kettering Laboratory to expand the scope of the project beyond its original outline were settled to the satisfaction of the Medical Advisory Committee. As a safeguard to keep the project at Kettering Laboratory running in a manner that would be satisfactory to the refiners, periodic meetings of the Research Project MC-1 Advisory Committee are to be held, every two or three months, at Kettering Laboratory. The next meeting is scheduled for February 26-27. The makeup of the Research Project MC-1 Advisory Committee is as follows:

Medical Doctors: M. N. Newquist, Chairman
Kieffer Davis (Phillips Petroleum Company)
Richard Eckardt (Standard Oil Development Co.)
T. M. Frank (Pan American Refining Corp.)
C. R. Hine (Shell Oil Company)
E. K. Linder (Atlantic Refining Company)

API 05240

Mr. G. A. Davidson
Mr. H. W. Ferguson
Mr. J. P. Langfitt

-2-

February 1, 1951.

Advisory Members: E. W. Adams (Standard Oil Company - Indiana)
L. C. Beard (Socony-Vacuum Oil Company)
R. M. Landon (Gulf Oil Corporation)
K. G. Mackenzie (The Texas Company)
R. M. Shepardson (Standard Oil Development Co.)
R. C. Mithoff (Standard Oil Company of Calif.)

In my opinion, the above group of six medical doctors and six advisors who have been following the project at Kettering Laboratory are better qualified to prepare a report for submission to the General Committee than the four of us. It is my suggestion that we ask Dr. Newquist, as Chairman of the Sub-Committee, to have his committee (the above-named group) prepare such a report on the MC-1 research project at Kettering Laboratory, outlining past and future activities of the project at Kettering Laboratory for our approval and/or editing before submission to the General Committee.

If you are agreeable to the above-outlined procedure, will you please let me know promptly so I can advise Dr. Newquist ahead of the February 26-27 meeting of the Research Project MC-1 Advisory Committee. However, if any of you have thoughts other than those proposed here, let me know, as you may have a better and easier way to carry out the assignment.

You will note that the above covers only one phase of the Medical Advisory Committee - that of carcinogenicity. It will be a simple matter to have the Chairman of the other sub-committees of the Medical Advisory Committee prepare similar reports, as their activities are minor compared to the work and expense on carcinogenicity.

May I have your comments.

Very truly yours,

(signed)

T. J. Sullivan,
Vice-President.

RML/rj
Att.

EXCERPT FROM MINUTES - GENERAL COMMITTEE

XII EXECUTIVE SESSION

Non-members of the General Committee were excused from the room, and the Committee met in Executive Session to consider matters pertaining to the Medical Advisory Committee of the Department of Safety.

K. G. Mackenzie of The Texas Company addressed the General Committee expressing some concern about matters pertaining specifically to refining activities upon which the Medical Advisory Committee should have the advice and consultation of refiners. Mr. Mackenzie offered the following resolution:

WHEREAS, the Medical Advisory Committee of the Department of Safety reports solely to, and receives directions solely from, the Safety Committee of the Board of Directors, and

WHEREAS, said Medical Advisory Committee in its studies of the possible production of skin cancer by petroleum products has extended its operations much beyond the medical aspects of the problem to include such matters as

Source, physical properties and chemical composition of charge stocks.

Methods of refining including temperatures pressures to which said charge stocks are subjected, and a complete description of other refining steps.

Physical and chemical properties of the products of such refinery operations together with disposition of such products.

Physical and chemical properties of finished petroleum products together with the quantitative composition of such finished products, with the source, method or methods of refining, and physical and chemical properties of said components, and

WHEREAS, said Medical Advisory Committee has had and still has before it the possible development of methods of refining to remove constituents of said petroleum products which it believes may produce skin cancer in man, and

WHEREAS, as the aforesaid non-medical activities come properly within the scope of the Division of Refining, be it

RESOLVED, that the Chairman of the General Committee of the Division of Refining appoint a subcommittee composed of members of said General Committee to review the past work of said Medical Advisory Committee as it pertains to finished and unfinished petroleum products, and to refinery operations as well as to review work now under way and programs, if any, for future work

in this field, and to recommend to the General Committee such steps as it feels should be taken, together with such mechanism as it feels should be established to secure the best possible results from the standpoint of the employees of the petroleum industry and the users of petroleum products, and be it

FURTHER RESOLVED, That this subcommittee be requested to issue a progress report at the May Meeting of the General Committee in San Francisco in 1952.

Upon the motion duly made and seconded the following action was taken:

ACTION: The Resolution was passed unanimously.

In addition, there was unanimous agreement that the Vice President for Refining should confer with the Chairman of the Safety Committee of the Board to determine whether or not a mechanism can be worked out whereby the Medical Advisory Committee can be furnished direct assistance and advice of qualified refiners.

THE TEXAS COMPANY
135 EAST 42ND STREET
NEW YORK 17. N. Y.

M. NEWQUIST, M. D.
MEDICAL DIRECTOR

February 20, 1952

To Members of the R.P.A. Committee
of Subcommittee on Carcinogenicity

Dear Sirs:

I am attaching the agenda for the meeting of the R.P.A.
Committee at Kettering Laboratory on February 26, 1952.

Trusting that you will be able to attend the meeting,
I am

Very truly yours,



M. N. NEWQUIST, M.D.
Chairman, Research Project
Advisory Committee

MMN:RMS
ENCS.

E. W. Adams
L. C. Beard, Jr.
Kieffer Davis, M.D.
R. E. Eckardt, M.D.
T. M. Frank, M.D.
C. M. Hine
R. M. Landon
E. K. Linder, M.D.
K. G. Mackenzie
R. C. Mithoff
R. M. Shepardson

Mr. D. V. Stroop ✓

Dr. Robert A. Kehoe

API 05244

AGENDA
RP(MC-1)A Committee meeting - Kettering Laboratory
February 26, 1952
9:30 A.M.

- 1 - Consideration of items listed in "Standardization of Biological Testing Methods" as prepared by Dr. Kehoe and associates.
- 2 - Report on current status of work:
 - (a) On items acted on at the November 26, 1951, meeting of the R.P.A. Committee and Kettering Laboratory Staff as reflected in the minutes.
 - (b) On items, if any, not included in "a" above.
- 3 - Questions from committee members
 - (a) Justification for performing any considerable amount of work on carcinogenicity?
- 4 - Relation of oil mist lubrication to lung infection and cancer.
- 5 - Expediting of epidemiological surveys.
- 6 - Preparation by the R.P.A. Committee of report on past and future activities, including budgetary requirements, of the Sub-committee on Carcinogenicity for the General Committee, Division of Refining, API.
- 7 - Publication of article on this subject by Dr. Kehoe - when and where?
- 8 - Budgetary requirements in light of research program
 - (a) For year beginning July 1, 1952 (Dr. Kehoe's estimate attached)
 - (b) " " " " " 1953
- 9 - Format of progress reports prepared by Dr. Horton.
- 10 - Other business.
- 11 - Time and place of the next meeting.

COPY

UNIVERSITY OF CINCINNATI

Department of Preventive Medicine and Industrial Health

The Kettering Laboratory
College of Medicine - Eden Avenue
Cincinnati 19, Ohio

February 11, 1952

Mr. D. V. Strop
American Petroleum Institute
50 West 50th Street
New York City 20

Dear Mr. Strop:

I send you herewith the estimated budget for the year beginning July 1, 1952. It is based on certain conjectures, of course, but if the work continues as we anticipate that it will and probably should, this is a fairly realistic estimate.

The status of the funds at the end of your fiscal year (July 1, 1952) can be estimated with fair precision as soon as our accounts for the calendar year 1951 are finalized. This will come in the near future, at which time you and we will be able to visualize the situation.

I trust that this information will be satisfactory for present purposes.

Cordially yours,

/s/ Robert A. Kehoe

Robert A. Kehoe, M.D.

RAK ef

Dictated but not read.

Enc.

BUDGET DATA FOR AMERICAN PETROLEUM INSTITUTE
Investigation of Cutaneous Carcinogenic Materials by
The Kettering Laboratory

Estimated budget from July 1, 1952 to July 1, 1953

Compensation for Personnel (itemized below)	\$43,600	
Supervision - general		\$ 5,000
Chemical Technology and Epidemiology (Direct Salaries itemized below)		25,500
Principal investigators		
Experimental and Technologic	8,000	
Epidemiologic Surveys	5,000	
Research Chemists	<u>12,500</u>	
Biological Testing (Direct salaries itemized below)		8,300 .
Gross pathology and animal records	2,600	
Microscopic pathology	2,000	
Technicians (testing)	<u>3,700</u>	
Total Compensation as Direct Salaries	38,800	
Indirect Salaries (itemized below)		4,800
Initial postmortem examination	1,200	
Preparation of microscopic slides	<u>3,600</u>	
Other Expense		
Supplies (indicated below)		7,000
Supplies for Technologic and Epidemiologic work	3,500	
Supplies for Biological Testing	<u>3,500</u>	
Travel		5,000
Animals		2,600
Overhead - all other items including indirect salaries that cannot be itemized, pensions and annuities, educational expense heat, light, power, secretarial service, li- brary service, janitor service, general maintenance, etc.		<u>46,560</u>
Total estimated Budget for all purposes		\$104,760

UNIVERSITY OF CINCINNATI
PROJECT ON CARCINOGENICITY

1-1-52	\$ 31,692.42
7-1-51	50,000.00
1-1-51	9,065.12
7-1-50	50,000.00
1-1-50	39,963.39
7-1-49	49,413.00
1-1-49	0
7-1-48	65,000.00
1-1-48	0
7-1-47	0
1-1-47	0
7-1-46	0
2-1-46	6,000.00

300,133.93

2-21-52

API 05248

February 29, 1952

Dr. M. N. Newquist
Medical Director
The Texas Company
135 E. 42nd Street
New York 17, New York
Dear Doctor Newquist:

Before the Memorandum from the Kettering Laboratory, dated February 26, 1952, is duplicated for distribution as part of the minutes of Tuesday's meeting of the Project Advisory Committee, one error should be corrected. Under section E.1., the number 6 (the API Research Project at Ohio State University) should be changed to 45.

Sincerely yours,

A. Wesley Horton

AWH:mjg

CC: Mr. D. V. Stroop

API 05249

March 6, 1952

Dr. M. N. Newquist, Chairman
Subcommittee on Carcinogenicity
c/o The Texas Company
135 East 42nd Street
New York 17, New York

Dear Doctor Newquist:

For your submittal to the Subcommittee on Carcinogenicity we enclose copy of Doctor Kehoe's letter of March 4th with revised presentation of the 1952-1953 budget for the investigation of cutaneous carcinogenic materials.

Very truly yours,

DVS:c
Enclosure
cc: Dr. Robert A. Kehoe

UNIVERSITY OF CINCINNATI
DEPARTMENT OF PREVENTIVE MEDICINE AND INDUSTRIAL HEALTH

March 4, 1952

CABLE ADDRESS: KETLAB, CINCINNATI
TELEPHONE: CAPITOL 1414

RECEIVING LABORATORY
SCHOOL OF MEDICINE—EDEN AVENUE
CINCINNATI 19, OHIO

Mr. D. V. Stroop
American Petroleum Institute
50 West 50th Street
New York City 20

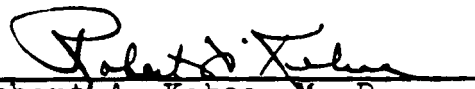
Dear Mr. Stroop:

At the last meeting of the special Committee with us on February 26, it was suggested that the budget for the next year be revised in its manner of presentation. I have done this in a way that is probably more complete than is necessary. In any case, it is illustrative of the facts as to what we spend money for, and I believe that no one is likely to conclude that our "overhead" is highly excessive.

If this suits your purposes, it can be sent out in this form. If you think it better to express the same figures in another way, I'll be glad to follow your suggestions.

With best regards,

Sincerely yours,


Robert A. Kehoe, M. D.

RAK ef

BUDGET DATA FOR AMERICAN PETROLEUM INSTITUTE

Investigation of Cutaneous Carcinogenic Materials

by

The Kettering Laboratory

Estimated budget from July 1, 1952 to July 1, 1953

Compensation for Personnel

Supervision		\$5,000.00
Chemical technology		
Principal investigator	\$ 8,000.00	
Research chemists	12,500.00	
Total		20,500.00
Biological Testing		
Gross pathology and records	2,600.00	
Microscopic pathology	2,200.00	
Technicians (animal tests)	3,700.00	
Post-mortem examinations	1,200.00	
Preparation of microscopic slides	3,600.00	
Total		13,300.00
Epidemiology		
Principal investigator	5,000.00	
Total		5,000.00
Other Personnel (indirect)		
Administration (General administration, accounting, etc.)	4,600.00	
Other	15,900.00	
Secretarial and clerical		
Library		
Animal Care		
Glass-ware washing		
Draughting		
Janitor and sundry		
Total		<u>20,550.00</u>
Total Compensation for Personnel		64,350.00

Miscellaneous Expense

Scientific supplies	7,000.00
General supplies and replacements	5,620.00
Annuities and pensions	4,260.00
Travel	5,000.00
Animals and food	4,600.00
Maintenance, heat, light, power, telephone service	5,700.00
Stationery, postage, office supplies, and medical art	1,070.00

API 05252

Miscellaneous Expense Continued

Educational expense, development
work and periodicals
Total Miscellaneous Expense

7,160.00

40,410.00

Total estimated expenditures

\$104,760.00

COPY

UNIVERSITY OF CINCINNATI

Department of Preventive Medicine and Industrial Health

The Kettering Laboratory
College of Medicine - Eden Avenue
Cincinnati 19, Ohio

March 12, 1952

Mr. D. V. Stroop
American Petroleum Institute
50 West 50th Street
New York City 20

Dear Mr. Stroop:

For your information I am sending you herewith a statement of expenditures made on behalf of American Petroleum Institute during the fourth quarter of 1951. The check in the amount of \$31,692.42 which was acknowledged in my letter of December 29 was received too late for inclusion in the accounting records of the University, and therefore is not shown on the statement as received in 1951. I believe that otherwise the statement is self-explanatory, but if you have any questions or comments, Doctor Kehoe would appreciate your bringing them to his attention.

Very truly yours,

/s/ E. R. Fortlage

E. R. Fortlage, Secretary
to Dr. Kehoe

cc

Enc.

UNIVERSITY OF CINCINNATI
KETTERING LABORATORY
ACCOUNT OF AMERICAN PETROLEUM INSTITUTE

For the Fourth Quarter 1951

SALARIES (Based on Proportion of Time Actually
Spent on Project)

Robert A. Kehoe	- Supervision	90.00
Francis Heyroth	- General Technical Supervision	67.50
John Phair	-	1,375.02
Wesley Horton	- Coordination of Experimental Work	2,133.24
Russel Tye	- Technical Assistance	1,125.00
Ruth Pierle	- " "	1,200.00
Dorothy Templeton	- " "	563.16
Marion Duvall	- " "	295.24
Ralph Denham	- " "	345.00
Carrie Sivley	- " "	304.82
Waldo Younker	- " "	79.12
Frank Cleveland	- Pathological Assistance	84.23
Karl Krantle	- Technical Assistance	28.00
Frank Dutra	- Pathological Assistance	9.26

7,699.59

MISCELLANEOUS EXPENSE

Purchase of Animals	306.00
Traveling Expense	826.52
Laboratory Supplies	361.79
Proportion of Secretarial, Library, Janitors, Wash Boys, Draftsmen, Shipping Clerks, Animal Caretakers, etc. ..	7,541.72
Histopathological Preparation	1,657.50
Proportion of Heat, Gas, Electricity, Steam, Telephone, Postage, Pensions, Ammities, Maintenance, Animal Food and Supplies, etc.	6,330.77

TOTAL

24,723.89

Balance Available for Further Work
at End of 3rd Quarter 1951 \$43,718.95

Expenditures - 4th Quarter 1951 24,723.89

Balance Available for Further Work
at End of 4th Quarter 1951 18,995.06

PC
PCo make & send
copy to M.N. Neuman MD.

n

UNIVERSITY OF CINCINNATI

DEPARTMENT OF PREVENTIVE MEDICINE AND INDUSTRIAL HEALTH

March 12, 1952

CABLE ADDRESS: KETLAB. CINCINNATI
TELEPHONE: CAPITOL 1434

LABORATORY
OF MEDICINE—EDEN AVENUE
CINCINNATI 19, OHIO

Mr. D. V. Stroop, Director
American Petroleum Institute
20 West 50th Street
New York City 20

Dear Mr. Stroop:

For your information I am sending you herewith a statement of expenditures made on behalf of American Petroleum Institute during the fourth quarter of 1951. The check in the amount of \$31,692.42 which was acknowledged in my letter of December 29 was received too late for inclusion in the accounting records of the University, and therefore is not shown on the statement as received in 1951. I believe that otherwise the statement is self-explanatory, but if you have any questions or comments, Doctor Kehoe would appreciate your bringing them to his attention.

Very truly yours,

E. R. Fortlage
E. R. Fortlage, Secretary to
Dr. Kehoe

ef

Enc.

18 995
31 692
\$50,687 available
Jan 1 to June 30

UNIVERSITY OF CINCINNATI
KETTERING LABORATORY
ACCOUNT OF AMERICAN PETROLEUM INSTITUTE

For the Fourth Quarter 1951

WAGES (Based on Proportion of Time Actually
Spent on Project)

Robert A. Kehoe	- Supervision	90.00
Francis Heyroth	- General Technical Supervision	67.50
John Phair	-	1375.02
Wesley Horton	- Coordination of Experimental Work	2133.24
Russell Tye	- Technical Assistance	1125.00
Ruth Pierle	- " "	1200.00
Dorothy Templeton	- " "	563.16
Marion Duvall	- " "	295.24
Ralph Denham	- " "	345.00
Carrie Sivley	- " "	304.82
Waldo Younker	- " "	79.12
Frank Cleveland	- Pathological Assistance	84.23
Karl Krautle	- Technical Assistance	28.00
Frank Dutra	- Pathological Assistance	9.26

7699.59

MIANROUS EXPENSE

Purchase of Animals	306.00
Traveling Expense	826.52
Laboratory Supplies	361.79
Proportion of Secretarial, Library, Janitors, Wash Boys, Draftsman, Shipping Clerks, Animal Caretakers etc	7541.72
Histopathological Preparation	1657.50
Proportion of Heat, Gas, Electricity, Steam, Telephone, Postage, Pensions, Annuities, Maintenance, Animal Food and Supplies etc	6330.77

TOTAL 24,723.89

Balance Available for Further Work
at End of 3rd Quarter 1951 \$43,718.95

Expenditures - 4th Quarter 1951 24,723.89

Balance Available for Further Work
at End of 4th Quarter 1951 18,995.06

Carcin

AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20, N. Y.

March 20, 1952

To Members and Associates
Subcommittee on Carcinogenicity

Gentlemen:

I am enclosing a copy of the minutes of the meeting of the Research Project Advisory Committee which was held at Kettering Laboratory, Cincinnati, Ohio, February 26, 1952.

Will you kindly indicate your approval or disapproval of the actions and decisions of the R.P.A. Committee on the enclosed letter ballot and return it to me. Negative votes should be accompanied by an explanation.

I will also appreciate receiving any comments and suggestions you may have concerning the research project at Kettering Laboratory.

Very truly yours,

M. N. Newquist

M. N. NEWQUIST, M.D.
Chairman, Subcommittee
on Carcinogenicity

MNH:RMS

Enclosures

cc: Members and Associates
Medical Advisory Committee
(Without letter ballot)

LETTER BALLOT

of the
Subcommittee on Carcinogenicity
Medical Advisory Committee
American Petroleum Institute

.....
PLEASE MARK AND RETURN TO:

Dr. M. N. Newquist, Chairman
Subcommittee on Carcinogenicity
c/o The Texas Company
135 East 42nd Street
New York 17, New York
.....

Shall the actions and decisions of the Research
Project Advisory Committee, as shown in the minutes of the
February 26, 1952 meeting at Kettering Laboratory, Cincinnati,
Ohio, be approved by the Subcommittee:

Yes	_____
No*	_____
Not voting	_____

(* It is requested that any negative vote be accompanied by
an explanation.)

NAME _____

COMPANY _____

DATE _____

For Information Only - Not For Publication

REPORT ON SECOND MEETING

Research Project MC-1 Advisory Committee
February 26, 1952
Kettering Laboratory
Cincinnati, Ohio

.....

MEMBERS PRESENT OR REPRESENTED

M. N. Newquist, M.D. - Chairman
E. W. Adams
L. C. Beard, Jr.
Kieffer Davis, M.D.
Robert E. Eckardt, M.D.
T. M. Frank, M.D.
R. M. Landon
E. K. Linder, M.D.
K. G. Mackenzie
R. C. Mithoff
R. M. Shepardson

MEMBERS ABSENT AND NOT REPRESENTED

C. H. Hine, M.D.

OTHERS PRESENT

Kenneth R. Fourchar, M.D.
F. F. Heyroth, M.D.
A. W. Horton
Robert A. Kehoe, M.D.
John J. Phair, M.D.
B. B. Reeve, M.D.

.....

I

PROPOSED OBJECTIVES AND STUDIES

The following memorandum was presented by Dr. W. A. Horton and Dr. John J. Phair, with full discussion by those present:

A. Experiments on Samples of High Potency to Improve Analytical Tools

1. Emphasis on cracked sidestreams from F.C.C. and Coking units, and some cracked residua from T.C.C. units, which have exhibited much higher potencies than predicted on the basis of absorption spectra in the 350-450 m μ range.
 - a. Contribution of white oil fractions to effective potencies (initial work on API-8 and 71).
 - b. Contribution of fractions, boiling below 675° F., to effective potencies.
 - c. Catalytic influence on carcinogenesis of dodecylbenzene used previously not dependent on highly branched side chain; same effect observed with straight chain 2-phenyldodecane.
 - d. Consideration of earlier work on limited application tests.
2. Relative contributions of various types of polycyclic compounds to effective potencies of oils.
 - a. Pyrene type (including benzpyrenes) more important than non-pyrene type in API-23, F.C.C. cracked sidestream.
 - b. Reverse true in fractions 8-10 and 8-11, in which 4-ringed polycyclics predominate, of API-8, F.C.C. cracked residuum.
 - c. Further experimentation planned along this line with the aim of developing correction factors to extend the range of applicability of available analytical techniques for estimating potencies.

B. Experiments on Samples of Low to Moderate Potency

1. Untreated lube distillates.
 - a. Spectra of fractions of Oklahoma, Kuwait, and Lagunillas crudes received from British Medical Research Council.
 - b. Comparison of spectra of distillates from Gulf Coastal crudes with those above and with spectra of API-56, Mid-Continent paraffin distillate, and API-79, San Joaquin (California) naphthenic distillate.
 - c. Prediction of potency of many of these distillates from physical properties still more an art than a science; more study needed.

2. Experiments on skin creams and cleansing agents.
 - a. Time of appearance of tumors induced by API-8 retarded by barrier cream used (Experiments 312 and 306 described in report of September 25, 1951).
 - b. Further experiments along this line, using cream made up of lanolin and olive oil.
- C. Modification of Method of Presentation of Data on Individual Animal Experiments
 1. Inclusion of average weight curves (see examples attached).
 2. Correction of tumor index curves based on "normal" distribution of times of appearance of tumors.
 - a. Deviation from "normal" distribution ascribed to variations in health of animals.
 - b. Average latent periods for tumor induction (and correlated values of relative potency, P_{MC}) based on corrected tumor index curves.
- D. Standardization of Testing Methods (see outline dated January 30, 1952)
 1. Control of variations in health of animals.
 - a. Efforts to prevent spread of intercurrent infections by sterilization of cages and equipment and isolation of sick animals.
 - b. Proportional reduction of total dosage of oil per application and area of skin covered to alleviate systemic toxic effects without lengthening the average latent periods for tumor induction.
 - c. Possible elimination of traces of highly toxic constituents of oils by percolation through a suitable adsorbent (probably not applicable to residual fuel oils).
 2. The relative carcinogenic potency, P_{MC} , as a value dependent only upon the composition of the material tested, but independent of variations in strain of mice, frequency of application and dosage per application.
 3. Reproducibility of determinations of relative potency, P_{MC} .
 - a. Repeat experiments on selected oils for biological reproducibility.
 - b. Application of statistical methods to analyze observed variance.

E. Procurement of Pure Hydrocarbons for Determination of Catalytic Effects (Alkylaromatics) and Identification of Polycyclics Isolated from Oils

1. API Research Project 6 at Ohio State University possible source of 1-phenyldecane; other alkylaromatics from API Research Project 45.
2. Generous contribution by Dr. M. S. Newman, Ohio State University, of methyl derivatives of chrysene, pyrene, phenanthrene, benzo-(c)-phenanthrene, and 1,2-benzanthracene.
3. Possible sources of dimethylpyrenes and benzacridines in Paris and Brussels being developed.
4. Thanks also due to Professor W. Bergmann, Yale, and Dr. R. N. Jones, National Research Council (Canada), for samples of perylene and various pyrenes.

F. Central Cancer Registry (to date)

1. Reporting

- a. 872 case reports
- b. 12 companies

2. Tabulation

- a. Coding 50 per cent complete
- b. Punching 25 per cent complete

LEGEND FOR DATA SHEETS ON INDIVIDUAL EXPERIMENTS

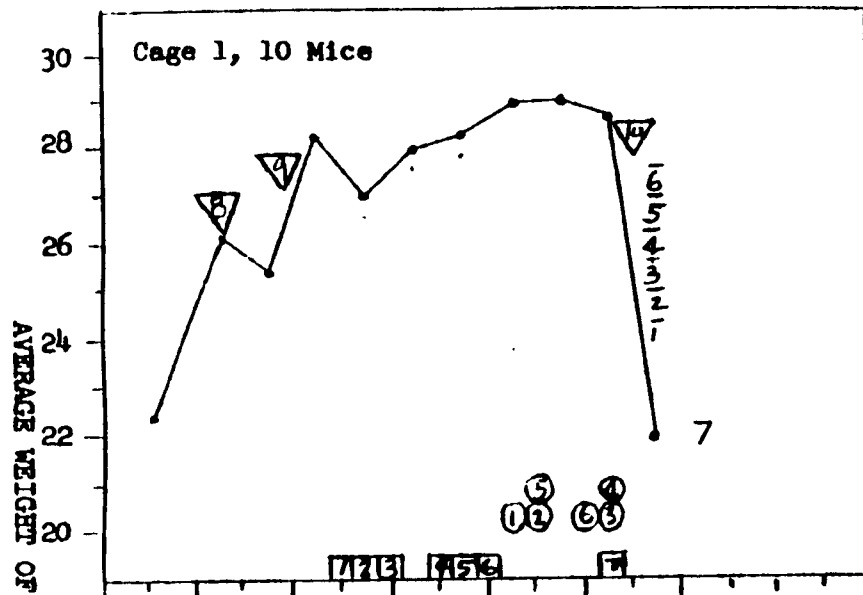
symbols used in connection with average weight curves:

-  Time of death of i th tumor-free mouse by "natural" causes.
- i Time of death of i th tumor-bearing mouse by "natural" causes.
-  or $\bar{i}$ Time mouse killed.
-  Time of appearance of 1st papilloma in i th mouse.
-  Time of appearance of gross changes indicative of malignancy in tumor of i th mouse (when this symbol is used for a given mouse after its death, the malignancy of the tumor was determinable only by histopathology).

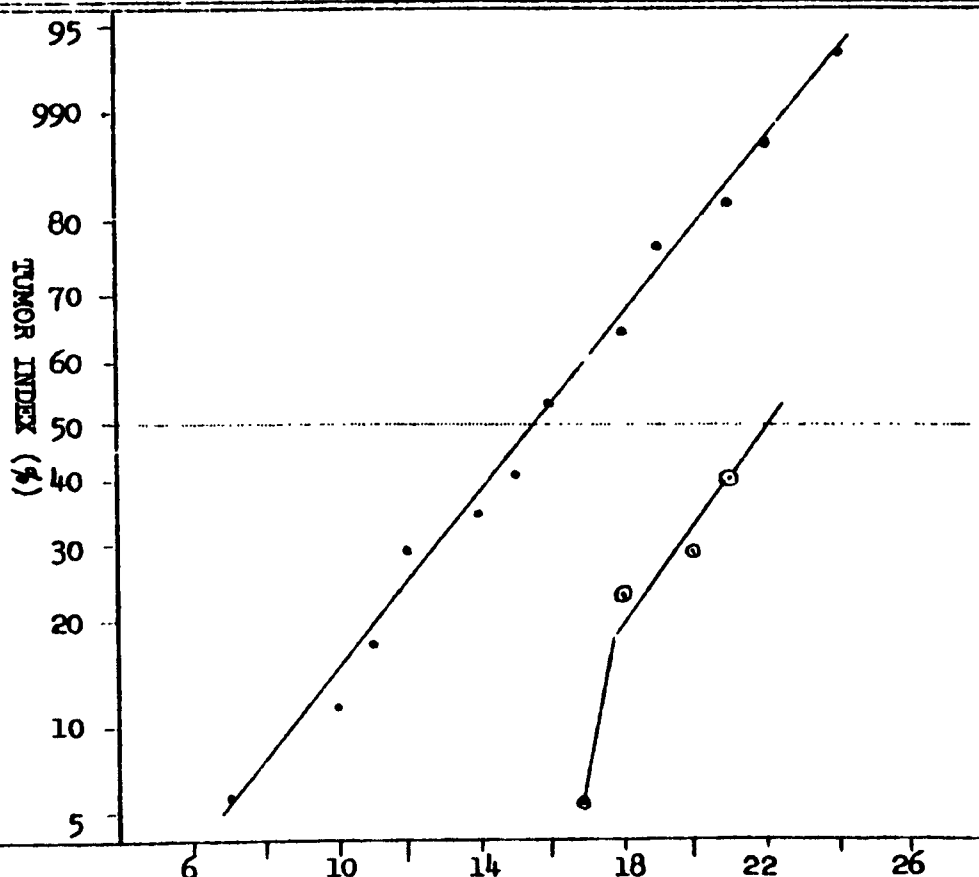
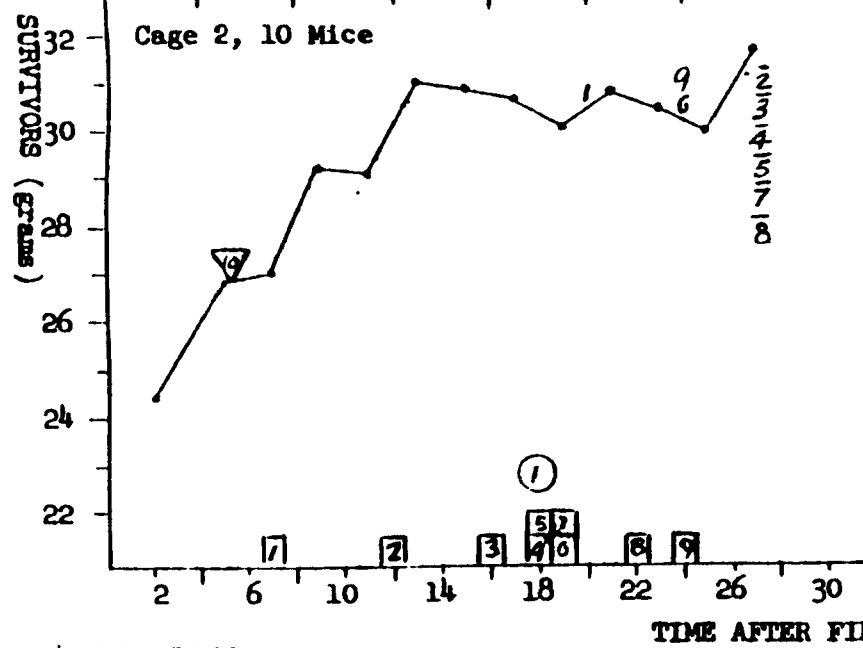
Cumulative dose-response curves:

-  Experimental curve for benign papillomas.
-  Hypothetical curve for papillomas.
-  Experimental curve for malignant tumors.

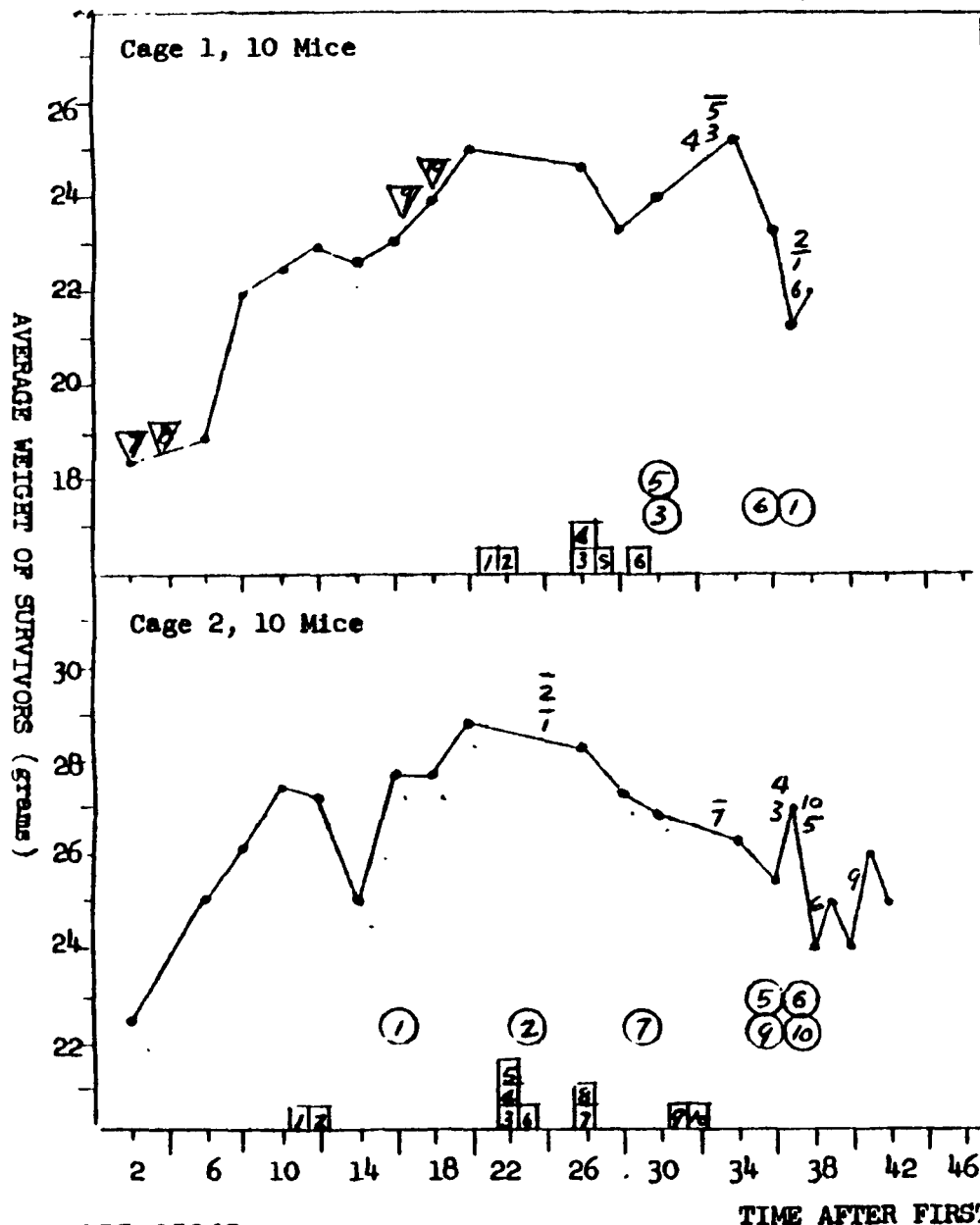
SKIN PAINTING EXPERIMENT
API-8, F.C.C. Cracked Residuum



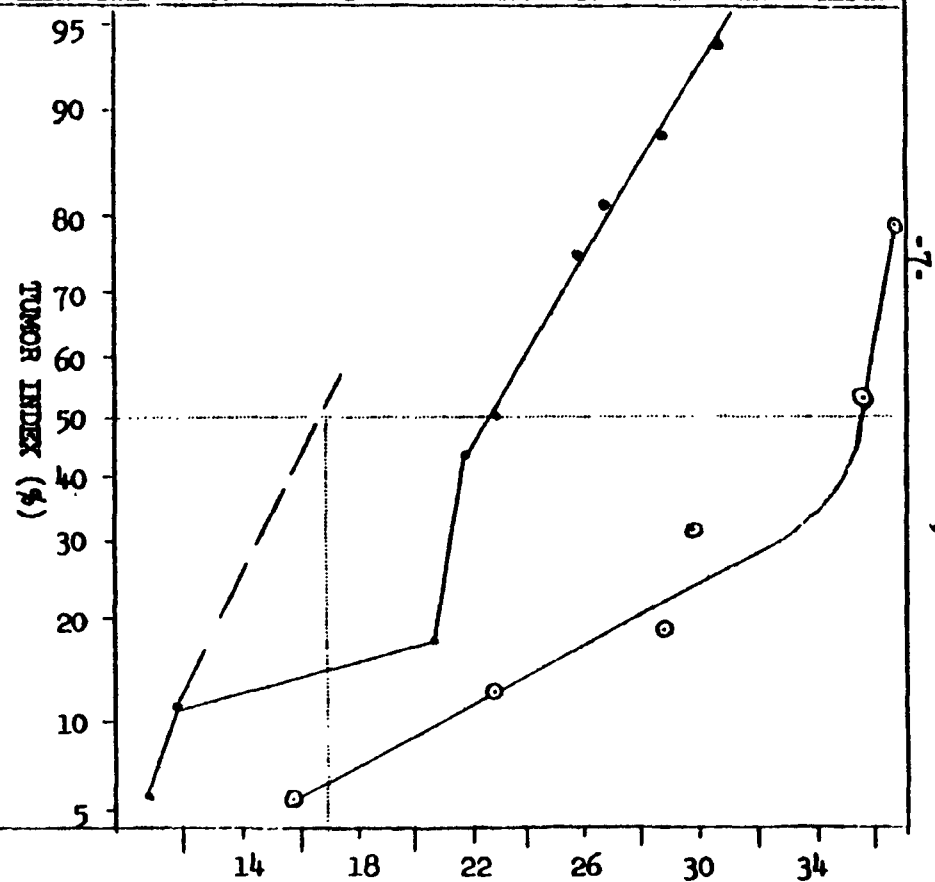
STARTING DATE: 6/13/50
STRAIN OF MICE: C3H
NUMBER OF APPLICATIONS PER WEEK: 1
DOSE PER APPLICATION: 100 mg.



SKIN PAINTING EXPERIMENT
API-8, F.C.C. Cracked Residuum



STARTING DATE: 5/7/51
STRAIN OF MICE: C3H
NUMBER OF APPLICATIONS PER WEEK: 1
DOSE PER APPLICATION: 100 mg.



McBEE KEY-SORT CODE

API CASE STUDY

<u>Banks</u>		<u>Banks</u>	
T 1-2-3	<u>Case Number</u>	B 1-2-3	<u>Type of Tumor -</u> <u>American Cancer</u> <u>Society Code</u>
T 4-5	<u>Company Number</u>	B 4-5	<u>Primary Site - Maryland</u> <u>State Code</u>
T 6-7- 8-9	<u>For Future Use</u>	B 6	<u>Stage of Disease</u>
T 10	<u>Geographic Location</u>	B 7-8	<u>For Future Use</u>
		B 9	<u>Age at Onset</u>
		B 10	<u>Sex and Race</u>
L 1-2	<u>Primary Petroleum</u> <u>Occupation</u>	R 1-2	<u>Principal Other</u> <u>Occupation - National</u> <u>Code</u>
L 3-4	<u>Secondary Petroleum</u> <u>Occupation</u>	R 3	<u>Approximate No. of Years</u> <u>Employed at Principal</u> <u>Other Occupation</u>
L 5	<u>Principal Petroleum</u> <u>Product to Which</u> <u>Exposed</u>	R 4	<u>Principal Irritant Other</u> <u>Than Petroleum</u>
L 6	<u>Secondary Petroleum</u> <u>Product to Which</u> <u>Exposed</u>	R 5	<u>Approximate No. of Years</u> <u>Exposed to Principal</u> <u>Irritant</u>
L 7	<u>Approximate No. of</u> <u>Years in the Petroleum</u> <u>Industry Prior to Onset</u>	R 6	<u>Secondary Irritant Other</u> <u>Than Petroleum</u>
		R 7	<u>Approximate No. of Years</u> <u>Exposed to Secondary</u> <u>Irritant</u>

ACTION ON THE ABOVE MEMORANDUM:

1. It was the consensus that more rapid progress would be made in developing an analytical tool if known carcinogens in pure solvents were also used in order to establish reliable base lines.
2. It was agreed to conduct a series of tests on a limited number of rabbits and mice using known carcinogens to establish comparative data and to coordinate, if possible, our findings with those of the British research workers.
3. It was agreed that we modify our previous action limiting studies on crude to include a heavy distillate of heavy gulf coastal crude and that such a sample should be referred to in subsequent reports by its spectroscopic character or other appropriate identifying data rather than by its source. This principle of labeling to be observed if other studies are made of domestic crudes even though no further studies are contemplated at this time.
4. It was agreed to study the effects of viscosity by altering the physical rather than the chemical properties of a sample, which could be accomplished by use of additives such as vistanex, methyl stearates, acryloids, etc. Mr. R. M. Shepardson offered to supply vistanex in suitable quantities.
5. It was agreed that study of any possible accelerating or inhibiting effects of trace metals on carcinogenicity be referred in view of the press of other work.
6. Dr. Phair made a progress report calling attention to the need for adequate records in various medical departments throughout the industry and to the need for obtaining both historical and current epidemiological data. Practically all reports submitted have been historical. In view of the importance and urgency of collecting reliable biostatistics, it was voted to request the Subcommittee on Carcinogenicity to initiate prompt action aimed at adequate records and filing practices and the gathering of the indicated reports for the central cancer registry.

II

PROGRESS OF WORK SINCE LAST RPA COMMITTEE MEETING 11/26/51

A review of the minutes of the above meeting revealed that the items were either covered by the memorandum presented on 2/26/52 by Drs. Horton and Phair or they were either under study or about to be studied.

With respect to the study of Scottish shale oil and fractions thereof, Dr. Horton commented that the studies may be run outside of the API project.

Work on an analytical tool is progressing, using a spectrophotometric approach. Eventual success is hoped for, but considerable work remains to be done. Accomplishments, future objectives and budgetary requirements can only be determined as the work progresses.

With respect to accomplishment, it was the consensus that sufficient work has now been done at Kettering Laboratory on the subject of carcinogenicity to warrant publishing an article or report in an appropriate scientific journal. Dr. Kehoe agreed to do this in the reasonably near future.

III

BUDGET

Dr. Kehoe presented his estimated budget of \$104,760 for one year beginning July 1, 1952, covering research project MC-1 API as submitted to Mr. D. V. Stroop on February 11, 1952.

ACTION

It was voted that the budget submitted by Dr. Kehoe, totaling \$104,760 be recommended to the Subcommittee on Carcinogenicity for acceptance and that the budget so submitted show amounts assigned to the different types of work such as chemical, biological and epidemiological studies.

IV

TIME AND PLACE OF NEXT MEETING

It was agreed that the RPA Committee would meet again at the call of the chairman.

V

ADJOURNMENT

There being no further business, the meeting was adjourned.

Approved:

M. N. Newquist, M.D.
Chairman

T. M. Frank, M.D.
Acting Secretary

AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20, N. Y.

March 21, 1952

To Members and Associates
Subcommittee on Carcinogenicity ✓

Gentlemen:

For the personal and confidential information of each of you I am attaching a copy of the Second Report on Mule Spinners' Cancer of the Joint Advisory Committee of the Cotton Industry. This includes a report of their Technical Committee on Mule Spinners' Cancer, all of which was received from the Institute of Petroleum.

Very truly yours,

M. N. Newquist

M. N. NEWQUIST, M.D.
Chairman, Subcommittee
on Carcinogenicity

MNN:RMS
Enclosure

mc: Members and Associates, Medical Advisory Committee
Members, General Committee, Division of Refining
Dr. Robert A. Kehoe

CONFIDENTIAL

Received IP
19 Feb 1952

This report is issued for confidential information only and on no account are the contents to be published or communicated to others.....

72, Bridge Street,
MANCHESTER, 3.

December, 1951

to: H. M. Chief Inspector of Factories

sir,

Joint Advisory Committee of the Cotton Industry

Second Report on Mule Spinners' Cancer

In May, 1945, we forwarded to you a report from our Sub-Committee dealing with the above subject and this was published by you and circulated to the trade later that year. That report recommended that anti-splash and wiping-down devices be provided on mules, that lubricating oils should comply with the Manchester Cancer Committee's formula and be subject to an annual check as regards conformity to standard, and that all mule spinners should be subject to periodical medical examination. In our covering report, we confirmed those recommendations and suggested that, if possible, Regulations should be made to cover these points with the exception of wiping-down devices which we considered could well be dealt with by voluntary agreement.

In 1948 highly refined oils, known as technical white oils, became available and, as the attached report indicates, there are reasons for believing that they are likely to be biologically inactive. Although complete confirmation of this would necessitate the lapse of a number of years, it seemed desirable to consider the possibility of the use of these oils in the cotton industry. Accordingly the Federation of Master Cotton Spinners Associations, Ltd., took the lead in convening a committee representative of the industry, the oil industry and the Factory Department under the chairmanship of Dr. D. W. Hill of the British Cotton Industry Research Association. After its initial discussions, this Committee was adopted by us as a Sub-Committee and asked to pursue its work.

We now attach its Report advocating the use of these oils and setting up a standard to which they should conform. The Sub-Committee is satisfied from its tests that the lubricating properties of these oils are equally as good as those of the oils now in use. At the same time, it was well known to them that many mills added a fatty oil to their mineral oils with the idea that lubricity was thereby improved: they therefore envisaged that such additions might have still to be allowed but pointed out that, after any such addition, the blended oil could not be tested in the manner they proposed.

API 05272

As it seemed to us desirable that this difficulty should be removed if possible, we asked that a further set of tests should be made. The results of these tests are given as an Appendix to the report and they confirm its findings so closely that, in our view, the equal lubricity of these oils should be accepted as a fact and blending with fatty oils should not be allowed.

In accepting this Report and commending it to your notice, we have again considered the question of Regulations. As it seems to us that the satisfactory use of anti-splash devices is not yet fully established, mainly on mules on which paste is used, we now think that their use should not be made statutory, at any rate for the present. We accordingly withdraw our former recommendation on this particular point and recommend that Regulations be made dealing with two points - (1) that the oils used for lubricating mule spindles be restricted to technical white oils which meet the specification laid down in the Report and (2) that all persons engaged in mule spinning be medically examined every six months in a manner conforming to the suggestions made in the previous Sub-Committee's Report. We also recommend that the British Cotton Industry Research Association be asked to make arrangements to continue the annual and independent testing of oils as hitherto.

We wish to conclude by expressing our warmest thanks to Dr. Hill and all the members of his Sub-Committee for their work on this difficult question, which work we venture to think will be found to be by no means the least step forward towards the end which we all desire.

We are,

Yours faithfully,

(Signed)

T. P. Threlkeld (Chairman)
R. Bramley-Harker,
H. S. Butterworth,
C. B. Clegg,
G. B. Fielding,
S. Hird,
J. Lindley,
A. Naesmith,
A. C. C. Robertson,
C. Schofield,
F. Titherington,
F. C. Toy

L. K. Blackburn,
Secretary

CONFIDENTIAL

REPORT ON FURTHER TESTS OF THE COMPARATIVE LUBRICATING
VALUES OF STANDARD AND TECHNICAL WHITE SPINDLE OILS FOR MULES

The Joint Committee on Conditions of Work in the Cotton Trade at its 13th Meeting on 23rd April considered the report of Sub-Committee D. Before coming to a conclusion on the recommendations of the report, it was agreed that further tests should be carried out on the lubricating value of the Technical White Oils. Four mills were suggested by the Committee as being suitable for the tests. The necessary arrangements were therefore made with these mills and samples of the spindle oils normally used were examined for their viscosity at the Shirley Institute and by the oil company. The two examinations agreed fairly closely and the average viscosities (in centistokes) were as follows:-

Mill 1	..	15.8
Mill 2	..	18.4
Mill 3	..	18.1
Mill 4	..	18.0

These results are sufficiently close to justify supplying the same Technical White Oil to all four of the mills. The oil supplied had a viscosity of 17.4 centistokes.

The power consumption of a mule at each of the four mills was measured first using ordinary spindle oil and, secondly, the Technical White Oil supplied by means of a specially-designed dynamometer fastened to the rim shaft. At each mill the same mule was used for the comparative tests and in each case the mules were run for a period of one to two weeks after changing oils before fresh measurements were made. Plain spindle bearings were fitted on each mule. Particulars of the mules are given in Table I and the results of the power consumption tests in Table II.

CONFIDENTIAL

TABLE I
PARTICULARS OF MULES

<u>Mill No.</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
No. of spindles	1032	1074	1092	1080
Gauge, inch	1 1/8	1 3/8	1 5/8	1 3/8
Weight of full cop, oz.	1.3	1.6	1.6	1.6
Yarn count	22	22	39	10
Spindle speed, r.p.m.	10,880	10,200	7,920	8,200

TABLE II
HORSE POWER PER 1,000 SPINDLES

<u>Time of day a.m.</u>	<u>Mill 1</u>		<u>Mill 2</u>		<u>Mill 3</u>		<u>Mill 4</u>	
	<u>Ordinary</u>	<u>White</u>	<u>Ordinary</u>	<u>White</u>	<u>Ordinary</u>	<u>White</u>	<u>Ordinary</u>	<u>White</u>
7.30	23.8	22.6	21.9	22.0	19.6	20.5	20.4	20.4
40	18.8	17.9	17.4	17.6	14.8	13.6	16.4	14.3
50	15.6	16.1	16.9	16.7	13.4	12.9	13.8	13.3
8.00	14.6	15.9	16.0	16.1	12.7	12.5	13.0	12.7
15	14.0	15.0	15.7	15.3	12.4	12.3	12.8	12.6
45	14.4	13.9	14.7	14.6	12.1	12.1	12.6	12.5
9.15	12.9	13.9	14.1	14.5	11.8	11.7	11.9	12.3
45	12.8	13.9	14.1	14.3	11.8	11.4	11.7	12.3
10.15	12.8	13.6	14.1	14.3	11.4	11.0	11.9	12.2
45	12.7	13.3	14.0	14.2	11.3	11.1	11.9	11.9
11.15	12.6	13.3	14.1	14.2	11.4	11.2	11.9	11.9
45	12.6	13.0	14.1	14.0	11.2	11.2	11.9	11.9

The results for Mills 2, 3 and 4 show that the power consumption was almost identical over a complete morning run for the two oils. The power consumptions at Mill 1 were initially the same but the white oil led to a slightly higher power consumption after the mules had been running for a time. This may be caused by the higher viscosity of the white oil over that of the oil normally used at this mill. The results, therefore, lead to the conclusion that the ordinary and the white spindle oils have similar lubricating values.

CONFIDENTIAL

REPORT OF TECHNICAL COMMITTEE

ON

MULE SPINNERS' CANCER

F.P. Threlkeld, Esq., O.B.E.,
H.M. Superintending Inspector of Factories,
Chairman, Main Committee on Conditions of Work in the
Cotton Trade.

Sir,

(1) In July, 1948, an ad hoc joint committee composed of representatives of the Federation of Master Cotton Spinners' Associations, Ltd., the Operative Spinners Amalgamation, the Factory Department, the oil companies supplying spindle oils, and the Shirley Institute was constituted with the following terms of reference:-

(i) To consider methods which may be adopted to reduce the incidence of Mule Spinners' Cancer.

(ii) To investigate the qualities of any oils that may be brought to the notice of the Committee, with particular reference to lubricating efficiency and viscosity.

(iii) In particular, to enquire into the suitability of Technical White Oils for use in mule spinning rooms in cotton mills.

(iv) To consider the comparative costs of any oils found to be satisfactory.

(2) After its first meeting, this ad hoc committee was placed upon a permanent and official basis by being reconstituted, in conformity with the recommendation made in April, 1945, by its predecessors, as Sub-Committee D of the main Committee set up to advise on the conditions of work in the cotton trade.

(3) Like its predecessors, the Committee holds the view that the most certain method of preventing Mule Spinners' Cancer is to restrict oils for lubrication to those which, so far as is known, are non-cancer producing. From the first, therefore, the Committee directed its attention particularly to consideration of the use and specification of the technical white oils which have recently become available to the industry. Present information suggests that the cancer-producing components of existing spindle oils are aromatic and unsaturated in character. Fortunately, methods have been devised, based largely on treatment with sulphuric acid, by which, according to the severity of the treatment accorded, greater or lesser proportions of the undesirable components can be removed.

(4) It was necessary to establish whether such oils, when sufficiently drastically refined to remove all detectable quantities of the deleterious components, were still suitable as lubricating agents or whether they could be made so by blending with fatty oils of harmless character. Four mills assigned mules for trials which were carried out under the supervision of the Shirley Institute. The measure of lubricating power adopted was based upon a comparison of the power consumption by the mules under defined conditions with standard spindle oils and with new ones based on technical white oils. At two of the mills the mules were driven by electric motors and at the others by the mill engine. Two technical white oils were used in the trials, one being a straight mineral oil and the other a compounded oil containing fatty oil to confer additional lubricity.

The results of the tests showed clearly that:-

- (1) In none of the trials was power consumption greater with the new oils than with standard oils.
- (ii) Although the trials were carried out on mules fitted with plain bearing spindles, no more frequent oiling was necessary with the new oils than with standard oils.
- (iii) This in spite of the fact that the new oils were of slightly lower viscosity than the standard oils.
- (iv) There was no detectable difference in power consumption between the straight mineral oil and the compounded oil.

(6) The Committee therefore decided that technical white oils are completely satisfactory as mule spindle lubricants and that it is unnecessary to provide additional lubricity by compounding with a fatty oil. The Committee recommends therefore that technical white oils should be used for the oiling of mule spindles, in view of the fact that there is a prima facie case for their non-carcinogenicity and in view of the fact that experiments have shown that their viscosity and lubricating qualities are at least equal to those of spindle oils at present commonly used.

(7) The Committee, through its sub-committee, considered many possible tests which might be used for characterising technical white oils thereby serving as the basis for a specification. Because of their characteristics, the undesirable components impart the colour usually associated with spindle oils and the greater the degree of their removal, the less coloured becomes the final product. The Committee is of the opinion therefore that although the test for colour given in the Appendix to this Report may appear to some to be too simple to be effective, it is the most conclusive test of drastic refining which we have been able to accept. It is, for example, so sensitive in the range proposed that the addition of 0.5 per cent of an ordinary spindle oil to an oil conforming to the Specification would reduce its Saybolt colour from + 30 to + 25. The Committee recommends therefore that the oils used for the lubrication of spinning mules should conform to the Specification given as an Appendix to this Report.

(8) One difficulty which presented itself was that, in practice, it is not uncommon to blend straight mineral oils with fatty oils with the object of improving the lubricity of the former. No reliable test for such a compounded oil has been placed before the Committee, which has therefore restricted the specification to the mineral oil. Moreover the tests described above showed no difference in lubricating value between a straight mineral oil and a blended oil. Nevertheless there may be some who would prefer to use a blended oil and the Committee is of the opinion that the addition of up to 10 per cent of suitable fatty oils such as acidless tallow, lard, sperm rapeseed, whale, ground-nut or neatsfoot would present no health hazard and that such an addition may be permitted at the wish and discretion of the purchaser.

(9) It is emphasised that the mineral oil component will be expected to conform to the Specification for Saybolt colour and the blended oil to the viscosity requirements but the latter can no longer be tested against the Specification. The Committee recommends therefore that, so far as possible, users of blended oils should take special care to ensure that they obtain the right kind of oil and that suppliers should facilitate this by supplying the oils in readily identifiable containers preferably under a registered name.

(10) The Committee is of the opinion that the introduction of technical white oils is a great step forward in the conquest of Mule Spinners' Cancer and that the adoption of the recommended Specification will help to ensure their wide adoption in the industry. It regards the whole question as one of the great urgency and importance and therefore recommends very strongly that appropriate action should be taken to make the Specification as effective as possible at the earliest possible date.

(11) The Committee wishes also to endorse the recommendations of their predecessors, first, that there should be periodic medical examinations of all persons engaged in mule spinning and second, that suitable devices to prevent the splashing of oil from mule spindles shall be provided so far as practicable.

(12) In the view of the Committee the proposed Specification is severe and more than adequate on the basis of present information to ensure that oils used are innocuous. It is aware that a comprehensive programme of research into the carcinogenicity of mineral oils has been initiated by the Medical Research Council and the Institute of Petroleum. It is possible that future investigations may make it desirable to modify the proposed Specification. The present position is based on the facts as known at this date only. Future improvements are to be hoped for and expected, and as they become available they should be made known to the trade. To this end the Committee recommends that it be kept in being and that the way be left open for a revision of the Specification as and when sufficient evidence to warrant it becomes available.

Summary

The Committee's recommendations are:-

1. That Technical White Oils should be used for the oiling of mule spindles.
2. That the oils used for the lubrication of mule spindles should conform to the Specification given as an Appendix to this report.

3. That so far as possible users of blended oils should take special care to ensure that they obtain the right kind of oil and that suppliers should facilitate this by supplying the oils in readily identifiable containers preferably under a registered name.
4. That appropriate action should be taken to make the Specification as effective as possible at the earliest possible date.
5. That the Committee be kept in being and that the way be left open for a revision of the Specification as and when sufficient evidence to warrant it becomes available.

The Committee wishes to express its appreciation of the valuable services of its Secretary, Mr. Gregson, of the great help which it has received from the representatives of the oil companies and of Mrs. Collier and Miss Mone for the great care taken in the recording and preparation of the Minutes of the Committee Meetings.

We are, Sir,

Yours faithfully,

(Signed) Douglas W. Hill Chairman

S. J. M. Auld,

H. S. Butterworth,

F. Charnley,

Robert Gregson,

C. Henniker-Heaton,

Albert Knowles,

W. S. Moore,

R. Murray,

Charles Schofield,

H. W. Stevenson,

J. A. Witworth

R. Gregson
Secretary

CONFIDENTIAL

A P P E N D I X

Specification for White Oils for the Lubrication
of Mule Spindles

These Oils shall be hydrocarbon oils of petroleum origin which have been drastically refined with sulphuric acid and which are generally understood in the Petroleum Industry as "White Oils".

They shall meet the following specification:-

- Colour - Saybolt A.S.T.M. D156-38, (I.P. 18/42) not darker than + 30. As an alternative the WOMA instrument may be used, in which case the colour shall be not darker than W.O.M.A. 3.
- Viscosity - Centistokes at 140°F. 16 - 21. (I.P. 71/47).

THE TEXAS COMPANY

135 EAST 42ND STREET

NEW YORK 17, N.Y.

M N NEWQUIST, M. D.
MEDICAL DIRECTOR

March 18, 1952

Mr. D. V. Stroop
Department of Technical Service
American Petroleum Institute
50 West 50th Street
New York 20, New York

Dear Mr. Stroop:

I believe that the attached report is of sufficient importance to warrant sending it to the General Committee, Division of Refining. Mr. L. C. Beard and Mr. K. G. Mackenzie concur in this opinion. You may wish to submit this matter to Mr. Gunn for possible distribution to members of the General Committee.

In any event will you kindly arrange to mimeograph and circularize the report to the members and associates of the Subcommittee on Carcinogenicity and the others on the Medical Advisory Committee.

Very truly yours,



M. N. NEWQUIST, M. D.

MNN:RMS
ENC.

AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20, N. Y.

March 13, 1952

Members and Associates
Subcommittee on Carcinogenicity

Gentlemen:

For the personal & CONFIDENTIAL

INFORMATION OF EACH OF YOU

I am attaching ~~for your information~~ a copy of the Second Report on Mule Spinners' Cancer of the Joint Advisory Committee of the Cotton Industry. This includes a report of their Technical Committee on Mule Spinners' Cancer, all of which was received from the Institute of Petroleum.

Very truly yours,

M. N. Newquist

M. N. NEWQUIST, M. D.
Chairman, Subcommittee
on Carcinogenicity

MNN:RMS
ENC.

mc: Members and Associates, Medical Advisory Committee

MEMBERS - GENERAL COMMITTEE - DIVISION OF REFINING

DR. ROBERT A. KENOE

RC These are to be given to W. G. Brown for distribution

This report is issued for confidential information only and on no account are the contents to be published or communicated to others.....

....., 1951.

To: H.M. Chief Inspector of Factories

CONFIDENTIAL

Sir,

Joint Advisory Committee of the Cotton Industry

Second Report on Mule Spinners' Cancer

RECEIVED 1P
19 FEB 1952

In May, 1945, we forwarded to you a report from our Sub-Committee dealing with the above subject and this was published by you and circulated to the trade later that year. That report recommended that anti-splash and wiping-down devices be provided on mules, that lubricating oils should comply with the Manchester Cancer Committee's formula and be subject to an annual check as regards conformity to standard, and that all mule spinners should be subject to periodical medical examination. In our covering report, we confirmed those recommendations and suggested that, if possible, Regulations should be made to cover these points with the exception of wiping-down devices which we considered could well be dealt with by voluntary agreement.

In 1948 highly refined oils, known as technical white oils, became available and, as the attached report indicates, there are reasons for believing that they are likely to be biologically inactive. Although complete confirmation of this would necessitate the lapse of a number of years, it seemed desirable to consider the possibility of the use of these oils in the cotton industry. Accordingly the Federation of Master Cotton Spinners Associations, Ltd., took the lead in convening a committee representative of the industry, the oil industry and the Factory Department under the chairmanship of Dr. D.W. Hill of the British Cotton Industry Research Association. After its initial discussions, this Committee was adopted by us as a Sub-Committee and asked to pursue its work.

We now attach its Report advocating the use of these oils and setting up a standard to which they should conform. The Sub-Committee is satisfied from its tests that the lubricating properties of these oils are equally as good as those of the oils now in use. At the same time, it was well known to them that many mills added a fatty oil to their mineral oils with the idea that lubricity was thereby improved; they therefore envisaged that such additions might have still to be allowed but pointed out that, after any such addition, the blended oil could not be tested in the manner they proposed.

As it seemed to us desirable that this difficulty should be removed if possible, we asked that a further set of tests should be made. The results of these tests are given as an Appendix to the report and they confirm its findings so closely that, in our view, the equal lubricity of these oils should be accepted as a fact and blending with fatty oils should not be allowed.

In accepting this Report and commending it to your notice, we have again considered the question of Regulations. As it seems to us that the satisfactory use of anti-splash devices is not yet fully established, mainly on mules on which paste is used, we now think that their use should not be made statutory, at any rate for the present. We accordingly withdraw our former recommendation on this particular point and recommend that Regulations be made dealing with two points - (1) that the oils used for lubricating mule spindles be restricted to technical white oils which meet the specification laid down in the Report and (2) that all persons engaged in mule spinning be medically examined every six months in a manner conforming to the suggestions made in the previous Sub-Committee's Report. We also recommend that the British Cotton Industry Research Association be asked to make arrangements to continue the annual and independent testing of oils as hitherto.

We wish to conclude by expressing our warmest thanks to Dr. Hill and all the members of his Sub-Committee for their work on this difficult question, which work we venture to think will be found to be by no means the least step forward towards the end which we all desire.

We are,

Yours faithfully,

(Signed) T. P. Threlkeld (Chairman)
R. Bramley-Harker,
H.S. Butterworth,
C.B. Clegg,
G.B. Fielding,
S. Hird,
J. Lindley,
A. Naesmith,
A.C.C. Robertson,
C. Schofield,
F. Titherington,
F.C. Toy

E.K. Blackburn,
Secretary

REPORT ON FURTHER TESTS OF THE COMPARATIVE LUBRICATING
VALUES OF STANDARD AND TECHNICAL WHITE SPINDLE OILS FOR MULES

The Joint Committee on Conditions of Work in the Cotton Trade at its 13th Meeting on 23rd April considered the report of Sub-Committee D. before coming to a conclusion on the recommendations of the report, it was agreed that further tests should be carried out on the lubricating value of the Technical White Oils. Four mills were suggested by the Committee as being suitable for the tests. The necessary arrangements were therefore made with these mills and samples of the spindle oils normally used were examined for their viscosity at the Shirley Institute and by the oil company. The two examinations agreed fairly closely and the average viscosities (in centistokes) were as follows:-

Mill 1	..	15.8
Mill 2	..	18.4
Mill 3	..	18.1
Mill 4	..	18.0

These results are sufficiently close to justify supplying the same Technical White Oil to all four of the mills. The oil supplied had a viscosity of 17.4 centistokes.

The power consumption of a mule at each of the four mills was measured first using ordinary spindle oil and, secondly, the Technical White Oil supplied by means of a specially-designed dynamometer fastened to the rim shaft. At each mill the same mule was used for the comparative tests and in each case the mules were run for a period of one to two weeks after changing oils before fresh measurements were made. Plain spindle bearings were fitted on each mule. Particulars of the mules are given in Table I and the results of the power consumption tests in Table II.

TABLE I

PARTICULARS OF MULES

Mill No. →	1	2	3	4
No. of spindles	1032	1074	1092	1080
Gauge, inch	1 $\frac{3}{8}$	1 $\frac{3}{8}$	1 $\frac{3}{8}$	1 $\frac{3}{8}$
Height of full cop, oz.	1.3	1.6	1.6	1.6
Yarn count	22	22	39	10
Spindle speed, r.p.m.	10,880	10,200	7,920	8,200

TABLE II

HORSE POWER PER 1,000 SPINDLES

Time of day A.M.	Mill 1		Mill 2		Mill 3		Mill 4	
	Ordinary	White	Ordinary	White	Ordinary	White	Ordinary	White
1:30	23.8	22.6	21.9	22.0	19.6	20.5	20.4	20.4
40	18.8	17.9	17.4	17.6	14.8	13.6	16.4	14.3
50	15.6	16.1	16.9	16.7	13.4	12.9	13.8	13.3
00	14.6	15.9	16.0	16.1	12.7	12.5	13.0	12.7
15	14.0	15.0	15.7	15.3	12.4	12.3	12.8	12.6
45	14.4	13.9	14.7	14.6	12.1	12.1	12.6	12.5
15	12.9	13.9	14.1	14.5	11.8	11.7	11.9	12.3
45	12.8	13.9	14.1	14.3	11.8	11.4	11.7	12.3
15	12.8	13.6	14.1	14.3	11.4	11.0	11.9	12.2
45	12.7	13.3	14.0	14.2	11.3	11.1	11.9	11.9
15	12.6	13.3	14.1	14.2	11.4	11.2	11.9	11.9
45	12.6	13.0	14.1	14.0	11.2	11.2	11.9	11.9

The results for Mills 2, 3 and 4 show that the power consumption was almost identical over a complete morning run for the two oils. The power consumptions at Mill 1 were initially the same but the white oil led to a slightly higher power consumption after the mules had been running for a time. This may be caused by the higher viscosity of the white oil over that of the oil normally used at this mill. The results, therefore, lead to the conclusion that the ordinary and the white spindle oils have similar lubricating values.

REPORT OF TECHNICAL COMMITTEE

ON

MULE SPINNERS' CANCER

T.P. Threlkeld, Esq., O.B.E.,
H.M. Superintending Inspector of Factories,
Chairman, Main Committee on Conditions of Work in the
Cotton Trade.

Sir,

(1) In July, 1948, an ad hoc joint committee composed of representatives of the Federation of Master Cotton Spinners' Associations, Ltd., the Operative Spinners Amalgamation, the Factory Department, the oil companies supplying spindle oils, and the Shirley Institute was constituted with the following terms of reference:-

(i) To consider methods which may be adopted to reduce the incidence of Mule Spinners' Cancer.

(ii) To investigate the qualities of any oils that may be brought to the notice of the Committee, with particular reference to lubricating efficiency and viscosity.

(iii) In particular, to enquire into the suitability of Technical White Oils for use in mule spinning rooms in cotton mills.

(iv) To consider the comparative costs of any oils found to be satisfactory.

(2) After its first meeting, this ad hoc committee was placed upon a permanent and official basis by being reconstituted, in conformity with the recommendation made in April, 1945, by its predecessors, as Sub-Committee D of the main Committee set up to advise on the conditions of work in the cotton trade.

(3) Like its predecessors, the Committee holds the view that the most certain method of preventing Mule Spinners' Cancer is to restrict oils for lubrication to those which, so far as is known, are non-cancer producing. From the first, therefore, the Committee directed its attention particularly to consideration of the use and specification of the technical white oils which have recently become available to the industry. Present information suggests that the cancer-producing components of existing spindle oils are aromatic and unsaturated in character. Fortunately, methods have been devised, based largely on treatment with sulphuric acid, by which, according to the severity of the treatment accorded, greater or lesser proportions of the undesirable components can be removed.

(4) It was necessary to establish whether such oils, when sufficiently drastically refined to remove all detectable quantities of the deleterious components, were still suitable as lubricating agents or whether they could be made so by blending with fatty oils of harmless character. Four mills assigned mules for trials which were carried out under the supervision of the Shirley Institute. The measure of lubricating power adopted was based upon a comparison of the power consumption by the mules under defined conditions with standard spindle oils and with new ones based on technical white oils. At two of the mills the mules were driven by electric motors and at the others by the mill engine. Two technical white oils were used in the trials, one being a straight mineral oil and the other a compounded oil containing fatty oil to confer additional lubricity.

The results of the tests showed clearly that:-

- (i) In none of the trials was power consumption greater with the new oils than with standard oils.
 - (ii) Although the trials were carried out on mules fitted with plain bearing spindles, no more frequent oiling was necessary with the new oils than with standard oils.
 - (iii) This in spite of the fact that the new oils were of slightly lower viscosity than the standard oils.
 - (iv) There was no detectable difference in power consumption between the straight mineral oil and the compounded oil.
- (6) The Committee therefore decided that technical white oils are completely satisfactory as mule spindle lubricants and that it is unnecessary to provide additional lubricity by compounding with a fatty oil. The Committee recommends therefore that technical white oils should be used for the oiling of mule spindles, in view of the fact that there is a prima facie case for their non-carcinogenicity and in view of the fact that experiments have shown that their viscosity and lubricating qualities are at least equal to those of spindle oils at present commonly used.
- (7) The Committee, through its sub-committee, considered many possible tests which might be used for characterising technical white oils thereby serving as the basis for a specification. Because of their characteristics, the undesirable components impart the colour usually associated with spindle oils and the greater the degree of their removal, the less coloured becomes the final product. The Committee is of the opinion therefore that although the test for colour given in the Appendix to this Report may appear to some to be too simple to be effective, it is the most conclusive test of drastic refining which we have been able to accept. It is, for example, so sensitive in the range proposed that the addition of 0.5 per cent of an ordinary spindle oil to an oil conforming to the Specification would reduce its Saybolt colour from + 30 to + 25. The Committee recommends therefore that the oils used for the lubrication of spinning mules should conform to the Specification given as an Appendix to this Report.
- ✓(8) One difficulty which presented itself was that, in practice, it is not uncommon to blend straight mineral oils with fatty oils with the object of improving the lubricity of the former. No reliable test for such a compounded oil has been placed before the Committee, which has therefore restricted the specification to the mineral oil. Moreover the tests described above showed no difference in lubricating value between a straight mineral oil and a blended oil. Nevertheless there may be some who would prefer to use a blended oil and the Committee is of the opinion that the addition of up to 10 per cent of suitable fatty oils such as acidless tallow, lard, sperm, rapeseed, whale, ground-nut or neatsfoot would present no health hazard and that such an addition may be permitted at the wish and discretion of the purchaser.
- (9) It is emphasised that the mineral oil component will be expected to conform to the Specification for Saybolt colour and the blended oil to the viscosity requirements but the latter can no longer be tested against the Specification. The Committee

recommends therefore that, so far as possible, users of blended oils should take special care to ensure that they obtain the right kind of oil and that suppliers should facilitate this by supplying the oils in readily identifiable containers preferably under a registered name.

(10) The Committee is of the opinion that the introduction of technical white oils is a great step forward in the conquest of Mule Spinners' Cancer and that the adoption of the recommended Specification will help to ensure their wide adoption in the industry. It regards the whole question as one of great urgency and importance and therefore recommends very strongly that appropriate action should be taken to make the Specification as effective as possible at the earliest possible date.

(11) The Committee wishes also to endorse the recommendations of their predecessors, first, that there should be periodic medical examinations of all persons engaged in mule spinning and second, that suitable devices to prevent the splashing of oil from mule spindles shall be provided so far as practicable.

(12) In the view of the Committee the proposed Specification is severe and more than adequate on the basis of present information to ensure that oils used are innocuous. It is aware that a comprehensive programme of research into the carcinogenicity of mineral oils has been initiated by the Medical Research Council and the Institute of Petroleum. It is possible that future investigations may make it desirable to modify the proposed Specification. The present position is based on the facts as known at this date only. Future improvements are to be hoped for and expected, and as they become available they should be made known to the trade. To this end the Committee recommends that it be kept in being and that the way be left open for a revision of the Specification as and when sufficient evidence to warrant it becomes available.

Summary

The Committee's recommendations are:-

1. That Technical White Oils should be used for the oiling of mule spindles.
2. That the oils used for the lubrication of mule spindles should conform to the Specification given as an Appendix to this report.
3. That so far as possible users of blended oils should take special care to ensure that they obtain the right kind of oil and that suppliers should facilitate this by supplying the oils in readily identifiable containers preferably under a registered name.
4. That appropriate action should be taken to make the Specification as effective as possible at the earliest possible date.
5. That the Committee be kept in being and that the way be left open for a revision of the Specification as and when sufficient evidence to warrant it becomes available.

The Committee wishes to express its appreciation of the valuable services of its Secretary, Mr. Gregson, of the great help which it has received from the representatives of the oil companies and of Mrs. Collier and Miss Mone for the great care taken in the recording and preparation of the Minutes of the Committee Meetings.

We are, Sir,

Yours faithfully,

(Signed) Douglas W. Hill Chairman

S.J.M. Auld,

H.S. Butterworth,

F. Charaley,

Robert Gregson,

C. Henniker-Heaton,

Albert Knowles,

W.S. Moore,

R. Murray,

Charles Schofield,

H.W. Stevenson,

J.A. Whitworth

H. Gregson,
Secretary

A P P E N D I X

Specification for White Oils for the Lubrication of Mule Spindles

These Oils shall be hydrocarbon oils of petroleum origin which have been drastically refined with sulphuric acid and which are generally understood in the Petroleum Industry as "White Oils".

They shall meet the following specification:-

Colour - Saybolt A.S.T.M. D156-38, (I.P. 18/42) not darker than + 30. As an alternative the WOMA instrument may be used, in which case the colour shall be not darker than W.O.M.A. 3.

Viscosity - Centistokes at 140°F. 16 - 21. (I.P. 71/47).

TEXACO DEVELOPMENT CORPORATION

New York 17, N. Y., March 24, 1952

**MEDICAL ADVISORY COMMITTEE
SUBCOMMITTEE ON CARCINOGENICITY
RESEARCH PROJECT ADVISORY COMMITTEE**

Dr. M. N. Newquist
Building

Dear Sir:

Referring to your letter of March 20, 1952 enclosing the minutes of the meeting of the above committee held in Cincinnati on February 26.

I am returning my ballot approving the minutes. I have one suggestion, however, to make. In paragraph 6, page 9, it states: "it was voted to request the Subcommittee on Carcinogenicity to initiate prompt action aimed at adequate records, etc." Since I think we should not in any way offend the Subcommittee on Medical Practices, the action really was to request the Subcommittee on Carcinogenicity to request the Medical Advisory Committee. The Subcommittee on Carcinogenicity has no authority over the work of the Subcommittee on Medical Practices. The Subcommittee on Carcinogenicity has one of two courses to follow - to request the Medical Advisory Committee to initiate such work through the Subcommittee on Medical Practices or to suggest to the Subcommittee that such work is desirable. I, personally, much prefer the directive rather than suggestive method of procedure.

Very truly yours,

Signed: K. G. Mackenzie

K. G. MACKENZIE

KGM-VRC

Attachment

cc: Mr. D. V. Streop

API 05292

New York 17, N. Y., March 25, 1952

12c
FILE

**MEDICAL ADVISORY COMMITTEE
SUBCOMMITTEE ON CARCINOGENICITY
RESEARCH PROJECT ADVISORY COMMITTEE**

Mr. K. G. Mackenzie

Building

Dear Sir:

In connection with your letter of March 24, the same objective can be reached by submitting the request to the Subcommittee on Carcinogenicity and letting them refer it to the proper committee - viz the Medical Advisory Committee. The Medical Advisory Committee can then assign it to the Medical Practices Committee. In that manner the R.P.A. Committee will not be running the whole show.

Very truly yours,

M. N. NEWQUIST, M.D.
MEDICAL DIRECTOR

M. N. NEWQUIST, M. D.

MNN:RMS

cc: Mr. D. V. Streop ✓

April 4, 1952

To: Members of the
Special Coordinating Committee

Kieffer Davis, M.D.
Kenneth R. Fourcher, M.D.
M. N. Newquist, M.D.
B. B. Reeve, M.D.

Gentlemen:

At the request of Dr. Linder there is enclosed for your information, a copy of letter dated March 25 from W. T. Gunn enclosing report by Mr. William Naden on your meeting of February 27 with representatives of the Division of Refining.

Very truly yours,

DVS:rd
Enc

cc - E. K. Linder
R. M. Landon

AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20, N. Y.

DIVISION OF REFINING

W. T. GUNN, DIRECTOR

OFFICERS

R. E. WESCOAT, CHAIRMAN OF BOARD
FRANK M. PORTER, PRESIDENT
J. C. DONNELL, II, VICE-PRESIDENT
J. L. STEWART, JR., VICE-PRESIDENT
HARRY J. KENNEDY, VICE-PRESIDENT
J. C. SPENCER, VICE-PRESIDENT
BREWSTER JENNINGS, TREASURER
JACKY WALKER, SECY. AND ASST. TREAS.

GENERAL COMMITTEE

J. L. STEWART, JR., CHAIRMAN
H. HALPERN, VICE-CHAIRMAN
DAVID E. DAY, SECRETARY

R. E. ARGYLE
R. E. BERINGER
W. E. BLAZER
R. L. BOOKER
T. B. BOWLES
J. H. BURRUS
R. A. CARTHAUS
R. A. CHASE
R. A. DAVIDSON
R. E. DAVIS
J. J. DIWOKY
R. E. BURN
R. E. EMMER
R. E. FERGUSON
R. E. FISHER
R. W. HANCOCK
R. A. HELLING
R. L. HULCY
R. E. ITDE
R. E. KINGMAN

R. A. LA FORTUNE
R. E. LANGFITT
R. E. LEBN
R. E. LUTON
R. E. LYNCH
R. E. MACHRIS
R. E. SAGRUDE
R. E. BARTIN
R. E. BATEER
R. E. MCCONNELL
R. E. MCCURRY
R. E. MILLER
R. E. MOORE
R. E. NADEN
R. E. NEWTON
R. E. NIELSEN
R. E. OSBORN
R. E. PAULSEN
R. E. PAULUS
R. E. PFARR
R. E. ROBBIE
R. E. ROGERSON
R. E. SHEA
R. E. SHERWOOD
R. E. SONDREGGER
R. E. SONNENBORN, III
R. E. STROUD
R. E. SULLIVAN
R. E. TATE
R. E. TETSWORTH
R. E. THAYER
R. E. TOLLETT
R. E. VAIDEN
R. E. WERTZ
R. E. WILLIAMS
R. E. WOODWARD
R. E. WYNN
R. E. ZENRUNG

March 25, 1952

To the Members of the
General Committee,
Division of Refining.

Gentlemen:

Enclosed is copy of a report by Mr. William Naden, dated March 11, 1952, on a meeting held February 27, 1952, between representatives of the Division of Refining and representatives of the Medical Advisory Committee, Department of Safety.

This matter will be on the agenda of the meeting of the General Committee in San Francisco, May 15, 1952.

Your attention is called to Mr. Naden's recommendation "that consideration should be given to having a permanent committee...to advise the General Committee regarding the actions taken and recommendations made by the Medical Advisory Committee."

Yours very truly,



WTG:ms

Enclosure

C O P Y

ESSO STANDARD OIL COMPANY
15 West 51st Street
New York 19, N. Y.

March 11, 1952

Mr. W. L. Stewart, Jr., Vice-President
American Petroleum Institute
50 West 50th Street
New York 20, N. Y.

Dear Mr. Stewart:

In accordance with your instructions, as outlined in Mr. W. T. Gunn's letter of February 14th, the Coordinating Committee which you appointed met with a Subcommittee of the Medical Advisory Committee at the Netherlands Plaza Hotel, Cincinnati, Ohio, on February 27, 1952. The following were in attendance:

Special Coordinating Committee of the Division of Refining

W. R. Argyle.....Sinclair Refining Co.
Dr. L. B. Beard, for C. S. Teitsworth..Socony-Vacuum Oil Co., Inc.
F. H. Holmes, for M. Halpern.....The Texas Company
D. R. Johnson, for H. G. Osborn.....Continental Oil Co.
W. J. McGill, for M. G. Paulus.....Standard Oil Co. (Indiana)
Wm. Naden.....Esso Standard Oil Co.

Subcommittee of Medical Advisory Committee

Kieffer Davis, M.D.....Phillips Petroleum Co.
Kenneth R. Fourcher, M.D.....Standard Oil Co. (N.J.)
E. K. Linder, M.D.....The Atlantic Refining Co.
M. W. Newquist, M.D.....The Texas Company
B. B. Reeve, M.D.....Standard Oil Co. (Indiana)
R. M. Landon, representing
James W. Long, M.D.....Gulf Oil Group

At the start of our meeting there were some discussions as to the duties of the two Refining Division committees that were recently appointed to meet with the Subcommittee of the Medical Advisory Committee -- the above committee and also the committee under the chairmanship of Mr. T. J. Sullivan. It was finally felt that Mr. Sullivan's committee was appointed to review the work of the Medical Advisory Committee, but that our

March 11, 1952

committee was appointed "to determine whether or not a mechanism can be worked out whereby the Medical Advisory Committee can be furnished direct assistance and advice of qualified refiners."

In our discussion we reviewed the makeup of the Medical Advisory Committee which is composed of medical doctors from the member companies, together with a comparable number of associate or technical advisors. It was established that the work of the Medical Advisory Committee is to make recommendations as to medical problems and policies as they pertain to the petroleum industry and that decisions regarding the recommendations to be made is the sole responsibility of the fully accredited members (M.D.s) of the Medical Advisory Committee. Associates have been available to the committee to give advice on matters pertinent to refining and such technical advisors have always had representation on the subcommittees of the Medical Advisory Committee.

After a thorough review and discussions of the workings of the Medical Advisory Committee and its subcommittees together with the associate members or technical advisors, it was unanimously agreed that a mechanism already exists to furnish qualified assistance and advice on problems that pertain to the Refining Division. It was felt that if the member companies continue to nominate competent technical advisors to this committee that there would be no need for any further assistance.

Although it might not have been pertinent to the subject we were commissioned to deal with, your committee did express the thought that consideration should be given to having a permanent committee, such as the committee now working under Mr. T. J. Sullivan, to review the work of the Medical Advisory Committee, and to advise the General Committee on Refining regarding the actions taken and recommendations made by the Medical Advisory Committee.

At the close of the meeting the group accepted an invitation to visit with Dr. Kehoe and his associates at the Kettering Laboratory where we were privileged to witness the work in progress that is going on for A.P.I., as well as work going on for other industries. We not only found it extremely interesting but were very favorably impressed with Dr. Kehoe and his associates. We were impressed with the fact of his long association with industry problems in general, and we all felt that he is eminently qualified to handle the medical research projects that have been assigned to the Kettering Laboratory by the A.P.I.

Mr. W. L. Stewart, Jr.

-3-

March 11, 1952

I trust you will accept the above as a report of the
Special Coordinating Committee.

Sincerely,

/s/ Wm. Naden

WN:m

cc - Mr. W. R. Argyle - Sinclair Refining Co.
Mr. W. T. Gunn - Division of Refining, A.P.I.
Mr. M. Halpern, Att. Mr. F. H. Holmes - The Texas Co.
Mr. H. G. Osborn, Att. Mr. D. R. Johnson - Continental Oil Co.
Mr. M. G. Paulus, Att. Mr. W. J. McGill - Standard Oil Co.
(Indiana)
Mr. C. S. Teitsworth, Att. Dr. L. C. Beard - Socony-Vacuum
Oil Co., Inc.

AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20, N. Y.

DEPARTMENT OF TECHNICAL SERVICES
DAVID V. STROOP, DIRECTOR

April 7, 1952

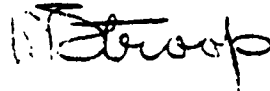
To: Members and Associates
Medical Advisory Committee

Gentlemen:

For your information and future reference we enclose copy of memorandum from Doctor Raymond R. Suskind, outlining the skin physiology project at Kettering Laboratory.

Our contribution of \$2,500 for the six-months period ending June 30, 1952 has been sent to Dr. Kehoe.

Very truly yours,



DVS:rd
Enc.

API 05299

RESEARCH PROGRAM

SKIN PHYSIOLOGY PROJECT

KETTERING LABORATORY, UNIVERSITY OF CINCINNATI

1952

I. Background and Purpose

The concept of the skin physiology project at the Kettering Laboratory is a natural outgrowth of the increasing demand for information about medical problems, industrial and non-industrial, in which skin function is an important factor. The establishment of this project is an attempt to satisfy a pressing need for well established scientific knowledge about the chemistry and physiology of normal skin as well as skin in abnormal environments. Since the inception of the project, the field of skin chemistry and physiology has been explored to ascertain not only what specific problems might be effectively attacked, but what techniques of study require development to facilitate an orderly approach to these separate problems.

During this period, too, the original program of the project has undergone a process of natural maturation which was characterized by expansion and the gradual inclusion of new problems in the investigative program. The latter has been possible only with an increase in trained personnel and research facilities. It has been necessary, therefore, to meet the expanding budgetary requirements of this project.

II. Specific Research Problems

The following is an outline in brief of skin problems which have been or are under investigation.

A. Sebaceous Gland Chemistry

1. The identification and localization of lipids and enzymes and other chemical constituents of the sebaceous gland and their secretions in normal and diseased states.
2. The quantitative study of pilosebaceous constituents in normal and diseased skin.
3. A quantitative study of lipids in various levels of the skin.

The observations which were made on the lipids and enzymes by histochemical methods are now being verified and enlarged by the study of normal and

abnormal sebaceous material employing micro-chemical techniques. The particular interest of the group is to ascertain the normal chemical constituents of human sebum, the locale of their development and change, and the chemical alterations which occur in diseases of the pilosebaceous apparatus such as acne vulgaris, occupational acne and keratin cysts. A systematic study of the metabolism and function of the sebaceous glands is closely linked with the project's interest in percutaneous absorption since the pilosebaceous unit is probably the most important portal of entry for non-gaseous, noxious substances which pass through or into the intact skin.

The following is a list of publications of the group in connection with its sebaceous gland study:

1. Suskind, R.R.: The chemistry of the human sebaceous gland. I. Histochemical observations. J. Invest. Dermat. 17: 37-54, 1951.
2. Schmidt-Nielsen, K., Suskind, R.R. and Taylor, E.: The chemistry of the human sebaceous gland. II. Analysis of human sebaceous material from individual orifices. J. Invest. Dermat. 17: 281-290, 1951.
3. Schmidt-Nielsen, K. and Taylor, E.: Use of a quartz fiber micro balance for histochemical investigations of skin. J. Invest. Dermat. (in press).

B. Percutaneous Absorption

1. The study of factors which influence absorption through animal skin.
2. The application of radioisotopes to the study of skin absorption problems. This includes route of penetration as well as the rate of absorption.
3. The knowledge and experience of the group with respect to absorption is employed in a practical fashion in problems of industrial hygiene. It is consulted by industry and other interested groups on such matters as cutaneous protective measures with relation to irritants, sensitizers, acnegenic and carcinogenic materials.

C. Cutaneous Irritation and Sensitization

1. The study of physiological, chemical and biological factors which influence irritation and sensitization. Problems which have been assailed and currently being studied are:
 - (a) The influence of the endocrines on cutaneous irritation and sensitization.
 - (b) The influence of percutaneous absorption on irritation and sensitization.
2. The development and improvement of techniques to measure the irritant and sensitizing capacity of chemical compounds. This includes both human and animal methods of evaluation (See E below).

The following are the publications in connection with the cutaneous irritation and sensitization studies:

1. Nilzen, A.: Some endocrine aspects of skin sensitization and primary irritation.
J. Invest. Dermat. 18: 7-35, 1952.
2. Nilzen, A.: Some aspects of epidermal testing of guinea pigs sensitized and not sensitized to 2, 4-Dinitrochlorbenzene. For Dr. H. Haxthausen's "Festschrifte" to be issued October 1952.

D. Participation in the A.P.I. Project on Carcinogenicity

Several problems which have arisen in the A.P.I. project require and will continue to require the cooperation and advice of the members of the skin physiology group and their participation in the A.P.I. program. These problems include:

1. The role of percutaneous absorption and primary irritation on experimental tumor rates.
2. The role of cocarcinogenicity in skin painting experiments.
3. The effect of barrier creams and washing on experimental tumor induction.

E. The Use of Cutaneous Techniques in Problems of Industrial Toxicology

The personnel of this project in cooperation with the other divisions of the laboratory are frequently called upon to delve into matters of industrial hygiene at a fundamental or

testing level when the skin is a potential or prominent factor in the exposure. The group is organized:

1. To evaluate industrial and consumer materials for potential cutaneous irritancy, sensitizing capacity, percutaneous toxicity, acnegenic properties, etc.
2. To investigate clinical industrial problems when they may arise by surveying the plant or industry and studying the problems involved at a laboratory or clinical level. The facilities available are particularly helpful in the study of such practical problems.

III. Personnel

In its present form the program's activities are being carried out under the direction of Dr. Raymond R. Suskind. Dr. Knut Schmidt-Nielsen, a physiologist, is in charge of the microchemical and radioisotope percutaneous absorption studies. The other members of the staff include a chemical engineer who is in charge of the isotope laboratory, a technician in the isotope laboratory, a full time assistant for microchemical work and a full time technician for histochemical, cutaneous irritation and sensitization studies.

IV. Facilities

The facilities allocated to the work of the project include a well-equipped histological and histochemical laboratory, an analytical laboratory especially designed for microchemical work, a constant temperature room in which a wide range of atmospheric conditions may be produced, a radioisotope laboratory, and animal quarters for breeding a hypersensitive strain of guinea pig and for housing animals on cutaneous experiments. The facilities and services of the other departments of the Kettering Laboratory have been effectively integrated into the work of the project as the particular needs have arisen.

V. Finances

The financial sponsorship of the skin physiology project was initially undertaken completely in 1948 by the Bristol-Myers Company which allocated funds for a three year period. The sponsor contributed \$20,000 per year from 1948-1951.

Until recently the original endowment satisfied the needs of the program. With the normal development and growth of the project, the general increase in equipment costs and salaries, the economic requirements of the full program are now several times the amount of the project as originally planned.

As of October 1950, a grant of \$10,000 per year was initiated by the Procter and Gamble Company in partial support of the irritation and sensitization studies. This endowment continues. Several months ago the Monsanto Chemical Company contributed \$5,000 towards the general support of the project during the year 1951. Monsanto has made an additional contribution of \$3,000 for the year 1952. Additional support is available under the terms of a contract with the United States Air Force for the work on percutaneous absorption of liquid organic compounds. This will probably not exceed the sum of \$10,000 in 1952. A further grant of \$3,000 has been made for the year 1952 by the Abbott Laboratories. Two other pharmaceutical companies have expressed interest recently in the support of the program. The funds made available so far towards this work have been without strings except in the case of the Air Force in which instance they are earmarked for work in the absorption section of the program.

A tabulation below summarizes the situation with respect to funds now available for 1952 including that represented in the recent recommendation of the A.P.I. Medical Advisory Committee.

<u>Sponsors</u>	<u>Amounts</u>
Monsanto Chemical Company	\$ 3,000.00
Abbott Laboratories	3,000.00
U. S. Air Force (approximately)	10,000.00
Procter and Gamble Company	10,000.00
A. P. I.	<u>5,000.00</u>
Total	\$31,000.00

The total sum shown above is not sufficient to support the entire program which we have in mind, and it allows nothing for future development, but it is hoped and believed that additional sums can be obtained. Meanwhile the work will be retarded somewhat to fit the funds available.

10. member + associates
4-10-52

New York, N. Y., April 9, 1952

To Members and Associates
Subcommittee on Carcinogenicity

Gentlemen:

For your information I am enclosing a copy of Dr. Robert A. Kehoe's letter of March 4, 1952, which gives his estimate of the budgetary requirements to carry on the research program on carcinogenicity of petroleum and petroleum products for one year beginning July 1, 1952.

Very truly yours,

M. N. NEWQUIST, M. D.
Chairman, Subcommittee
on Carcinogenicity

MNN:RMS
ENC.

mc: Members and Associates Medical Advisory Committee
Mr. D. V. Stroop
Dr. R. A. Kehoe

API 05305

C.O P Y

UNIVERSITY OF CINCINNATI

Department of Preventive Medicine and Industrial Health

The Kettering Laboratory
College of Medicine - Eden Avenue
Cincinnati 19, Ohio

March 4, 1952

Mr. D. V. Stroop
American Petroleum Institute
50 West 50th Street
New York City 20

Dear Mr. Stroop:

At the last meeting of the special Committee with us on February 26, it was suggested that the budget for the next year be revised in its manner of presentation. I have done this in a way that is probably more complete than is necessary. In any case, it is illustrative of the facts as to what we spend money for, and I believe that no one is likely to conclude that our "overhead" is highly excessive.

If this suits your purposes, it can be sent out in this form. If you think it better to express the same figures in another way, I'll be glad to follow your suggestions.

With best regards,

Sincerely yours,

/s/ Robert A. Kehoe

Robert A. Kehoe, M.D.

RAK/ef

API 05306

BUDGET DATA FOR AMERICAN PETROLEUM INSTITUTE
Investigation of Cutaneous Carcinogenic Materials

by

The Kettering Laboratory

Estimated budget from July 1, 1952 to July 1, 1953

Compensation for Personnel

Supervision		\$ 5,000.00
Chemical technology		
Principal investigator	\$ 8,000.00	
Research chemists	12,500.00	
Total		20,500.00
Biological Testing		
Gross pathology and records	2,600.00	
Microscopic pathology	2,200.00	
Technicians (animal tests)	3,700.00	
Post-mortem examinations	1,200.00	
Preparation for microscopic slides	3,600.00	
Total		13,300.00
Epidemiology		
Principal investigator	5,000.00	
Total		5,000.00
Other personnel (indirect)		
Administration (General administration, accounting, etc.)	4,600.00	
Other	15,900.00	
Secretarial and clerical		
Library		
Animal care		
Glass-ware washing		
Draughting		
Janitor and sundry		
Total		<u>20,550.00</u>
Total Compensation for Personnel		64,350.00

Miscellaneous Expense

Scientific supplies	7,00.00
General supplies and replacements	5,620.00
Annuities and pensions	4,260.00
Travel	5,000.00
Animals and food	4,600.00
Maintenance, heat, light, power, telephone service	5,700.00

API 05307

Stationery, postage, office supplies, and medical art	\$ 1,070.00	
Educational expense, develop- ment work and periodicals	7,160.00	
Total Miscellaneous Expense		<u>\$ 40,410.00</u>
Total estimated expenditures		104,760.00

AMERICAN PETROLEUM INSTITUTE

50 WEST 50TH STREET

NEW YORK 20, N. Y.

C
C
P
Y

April 30, 1952

Mr. T. J. Sullivan, Vice President
Gulf Oil Corporation
P.O. Box 1166
Pittsburgh 30, Pennsylvania

Epidemiological Survey
Subcommittee on Carcino-
genicity
Medical Advisory Committee
API

Dear Mr. Sullivan:

I am enclosing a progress report of the activities of the Subcommittees on Carcinogenicity of the Medical Advisory Committee, API.

Inasmuch as Mr. G. A. Davidson plans to present the report to the General Committee of the Division of Refining in your absence, I am taking the liberty of sending 65 mimeographed copies directly to Mr. Davidson.

In connection with the study of the carcinogenicity of petroleum and petroleum products, our subcommittee considered originally that an epidemiological study should consist of two parts: (1) the study of the incidence of cancer among employees of the petroleum industry and, (2) the study of cases of cancer (mostly skin cancers) among employees of customers where the cancer was allegedly due to exposure to petroleum products. Item one is already underway. Item two is so involved that we have done nothing about it. We have, of course, been alerted by recent verbal reports of alleged skin cancer cases occurring among customer employees but we believe this situation should have the careful consideration of the Divisions of API which would be concerned. Your advice in this connection would be greatly appreciated by our Subcommittee.

Very truly yours,

/s/ M. N. Newquist
M. N. NEWQUIST, Chairman
Subcommittee on Carcinogenicity

MNN:RMS

Copies:

Mr. G. A. Davidson - Standard Oil of California

Mr. H. W. Ferguson - Humble Oil and Refining Company

Mr. J. P. Langfitt - The Pure Oil Company

Mr. W. T. Gunn - API

Members and Associates, Medical Advisory Committee, API

API 05309

COPY

Mr. T. J. Sullivan
Vice President
Gulf Oil Corporation
Pittsburgh 30, Pennsylvania

135 E. 42nd Street
New York 17, N. Y.

April 30, 1952

Subcommittee on Carcinogenicity
Medical Advisory Committee
API

Dear Sir:

This resume prepared by the Research Project (MC-1) Advisory Committee in accordance with your request of February 13, 1952, summarizes the activities of the Subcommittee on Carcinogenicity of the Medical Advisory Committee API.

Experimental evidence on mice was developed about 1943 by Dr. E. V. Cowdry at the Barnard Hospital, St. Louis, attributing carcinogenic properties to residues from catalytic cracking. Late in 1944 Dr. R. E. Wilson called attention to the desirability of investigating any possible cancer hazards which might arise from newer refining processes. These were the chief factors leading to the organization in 1945 of the API Medical Advisory Committee. At its first meeting in May 1945, this committee, among other things, recommended a study of the possible carcinogenic properties of petroleum and petroleum products. This recommendation was approved by the Executive Committee of the Board of Directors of the API and a fund of \$25,000 was authorized to initiate this and other medical studies.

After careful consideration Kettering Laboratory, University of Cincinnati, was selected to make an initial study of the problem. A grant of \$6,000 was made February 1, 1946, to conduct a limited amount of animal testing on eight samples of high boiling fractions selected by the Subcommittee on Carcinogenicity. The results of this study completed in 1948 showed that high boiling gas oils from catalytic cracking produced skin cancers on repeated application to mice. This finding led to the formulation of a

API 05310

comprehensive program of research at Kettering Laboratory. This program necessitated a capital grant to Kettering Laboratory of \$40,000 for the construction of animal quarters. (See attached list of expenditures.) The expanded research program got under way late in 1949.

OBJECTIVES - The research program includes the following primary objectives:

1. The determination of which refinery streams and products are carcinogenic and to identify if possible the causative agents in such streams and products.
2. Development of reliable analytical techniques for quick and inexpensive determination of the carcinogenic potency of any stream or product.
3. Investigation of protective measures which might be applicable to man.
4. Epidemiological studies to determine the incidence of cancer among employees of the petroleum industry as compared to the general population.

PROGRESS TOWARDS ACCOMPLISHING THE OBJECTIVES -

1. Identification of carcinogenic streams or products and causative agents. To date 110 different petroleum fractions from representative processes have been tested on mice. Fractions of four different crudes are also being studied. Products of catalytic cracking and thermal cracking of catalytic gas oils have been sampled fairly completely. Vacuum distillates including lube stocks are also under study. A sufficient variety of samples is on hand to consummate this phase of the program.

It has been demonstrated that some carcinogens exist in the original crude oils and that certain refinery processing of oils concentrates and/or synthesizes carcinogenic materials. High boiling gas oils from catalytic

cracking have continued to show relatively high carcinogenic potency to mice. Thermal cracking of high potency catalytically cracked residua does not reduce the potency. Furthermore, high boiling gas oils produced in severe thermal cracking of straight run residua have demonstrated high potency. Untreated distillates show low to moderate carcinogenicity to mice.

Polycyclic aromatics which fall into the general classes of benzo(c) phenanthrene, benzpyrene and benzanthrane have been identified specifically in carcinogenic oils. Certain compounds in these classes have been known for years to be carcinogenic to mice. The ratios of these classes of compounds or of individual carcinogens vary in oils depending upon their source and subsequent processing. Complicating the picture is the presence of materials which in themselves are not carcinogenic, but which have the ability to enhance the potency of carcinogens in these oils.

2. Analytical Tool - Many of the pure polycyclic compounds with known carcinogenic activity have an identifiable absorption spectrum in certain parts of the ultra-violet and visible range. This knowledge has been used as the basis for developing an analytical tool. Empiric correlations of biological data with absorption spectra have not thus far been entirely satisfactory, in part due to the non-quantitative nature of the biological tests and in part due to compounds whose chemical or physical properties influence carcinogenicity, but do not exhibit a characteristic absorption spectrum.

The first of these factors has necessitated a program adjustment to study the basic fundamentals which lead to a quantitative biological test. The second factor has led to a study of those chemical and physical properties which influence the carcinogenicity of an oil such as solvents, viscosity and enhancing compounds. Obviously the intricate nature of the problem of developing an accurate analytical tool plus the identification of the causative agents in sufficiently broad classes to permit evaluation of carcinogenic refinery

streams will require more time and effort than originally anticipated. Without an analytical tool, any laboratory proof of carcinogenicity rests upon animal testing which is expensive and time-consuming (three to twelve months required for each test on mice).

3. Preventive Measures - Animal experimentation and practical experience in industry where occupational cancer hazards have existed indicate that this hazard can be controlled by minimizing exposure and by adequate medical supervision which will include periodic physical examinations.

Minimizing exposure entails:

- a. Identifying the sources of exposure.
- b. Informing the persons who may be exposed, of the hazard involved and of preventive measures.
- c. Providing of protective equipment or facilities where exposure is otherwise unavoidable.
- d. Good personal cleanliness.

Skin cancer if detected early is curable. An adequate medical program will insure early detection.

4. Epidemiological Survey - It is not possible to transfer directly the data from the mouse testing experiments into figures representing relative carcinogenicity of the various fractions for man. From a scientific standpoint it would be desirable to test carcinogenic potency on several higher species of animals including man. However, such testing is not feasible at the present time. Interpretation of the significance of the experimental data, therefore, must await procurement of data on human cases from epidemiological surveys. An epidemiological survey will develop the facts concerning the incidence of cancer among petroleum workers and, if correlated with the occupational history, should disclose whether any particular occupation in the petroleum industry is associated with an occupational cancer hazard. In addition, it will detect any

increase in cancers which may be the result of failure of protective measures. Without such information a problem of major magnitude could develop undetected and protection of the petroleum industry from unsubstantiated claims for compensation for alleged occupational cancer would be almost impossible. This phase of the program must be continued for a number of years in order to be of value. This study is now underway and the annual cost is low.

CONCLUSION - Occupational cancers comprise a very small percentage of the total number of cancers. However, experience in the British coal tar industry where over 1,400 cases of skin cancer were diagnosed in a 20-year period, and experience from contact with British shale oil where over 1,500 cases of skin cancer were diagnosed in a similar period, indicate that a cancer hazard may assume a serious magnitude in industry before control measures are instituted. British statistics are probably more accurate than those in the United States because reporting of cases to the Government is required and enforced. Medical literature and unpublished reports both in this country and abroad incriminate certain petroleum products which, having been demonstrated on animals to have a low degree of carcinogenicity, have caused human skin cancers after exposure of many years duration.

The importance of such observations to the petroleum industry emphasizes the necessity of a continuing program to develop the facts as well as to promote any precautionary measures that may be indicated. In this connection certain petroleum companies in the United States have already instituted precautionary measures within their own organizations. In Great Britain it is now mandatory that white lubricating oil be used in one phase of textile manufacturing.

It is planned that the research project (MC-1) at Kettering Laboratory will proceed along lines of the objectives set forth above. Such

research activities have now reached the peak and it is expected that there will be a gradual decline in a year or two from now unless unforeseen situations arise in the interim.

This committee will be pleased to render any further progress reports which you may desire.

Submitted on behalf of the committee by

/s/ M. N. Newquist
Chairman

Members of Research Project (MC-1) Advisory Committee.

M. N. Newquist, M.D., Chairman	The Texas Company
E. W. Adams	Standard Oil Co. (Indiana)
L. C. Beard, Jr.	Socony-Vacuum Oil Co., Inc.
Kieffer Davis, M.D.	Phillips Petroleum Co.
R. E. Eckardt, M.D.	Standard Oil Development Co. (N.J.)
T. M. Frank, M.D.	Pan American Refining Corp.
C. E. Hine, M.D.	Shell Development Co.
R. M. Landon	Gulf Oil Corporation
E. K. Linder, M.D.	The Atlantic Refining Co.
K. G. Mackenzie	The Texas Company
E. C. Mithoff	California Research Corp.
R. M. Shepardson	Standard Oil Development Co. (N.J.)

PAYMENTS BY API
to
UNIVERSITY OF CINCINNATI
for
RESEARCH PROJECT (MC-1) ON CARCINOGENICITY

2-1-46	\$ 6,000.00
7-1-46	0
1-1-47	0
7-1-47	0
1-1-48	0
7-1-48	65,000.00 (includes \$40,000 grant for animal quarters)
1-1-49	0
7-1-49	49,413.00
1-1-50	39,963.39
7-1-50	50,000.00
1-1-51	9,065.12
7-1-51	50,000.00
1-1-52	31,692.42

\$ 301,133.93 to June 30, 1952

Budget July 1, 1952, to June 30, 1953 \$ 104,760.00

THEOREM 1.1

(1) $\mathcal{H}^1$ is a Borel measure.

(2) $\mathcal{H}^1$ is a Radon measure.

(3) $\mathcal{H}^1$ is a Borel measure.

(4) $\mathcal{H}^1$ is a Borel measure.

(5) $\mathcal{H}^1$ is a Borel measure.

THE TEXAS COMPANY
135 EAST 42ND STREET
NEW YORK 17, N. Y.

M. NEWQUIST, M. D.
MEDICAL DIRECTOR

April 30, 1952

Mr. T. J. Sullivan, Vice President
Gulf Oil Corporation
P. O. Box 1166
Pittsburgh 30, Pennsylvania

Epidemiological Survey
Subcommittee on Carcino-
genicity
Medical Advisory Committee
API

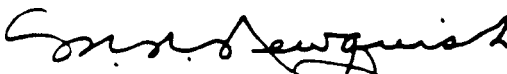
Dear Mr. Sullivan:

I am enclosing a progress report of the activities of the subcommittees on Carcinogenicity of the Medical Advisory Committee, API.

Inasmuch as Mr. G. A. Davidson plans to present the report to the General Committee of the Division of Refining in your absence, I am taking the liberty of sending 65 mimeographed copies directly to Mr. Davidson.

In connection with the study of the carcinogenicity of petroleum and petroleum products, our subcommittee considered originally that an epidemiological study should consist of two parts: (1) the study of the incidence of cancer among employees of the petroleum industry and, (2) the study of cases of cancer (mostly skin cancers) among employees of customers where the cancer was allegedly due to exposure to petroleum products. Item one is already underway. Item two is so involved that we have done nothing about it. We have, of course, been alerted by recent verbal reports of alleged skin cancer cases occurring among customer employees but we believe this situation should have the careful consideration of the Divisions of API which would be concerned. Your advice in this connection would be greatly appreciated by our Subcommittee.

Very truly yours,



M. N. NEWQUIST, Chairman
Subcommittee on Carcinogenicity

MNH:RMS

Copies:

Mr. G. A. Davidson - Standard Oil of California
Mr. H. W. Ferguson - Humble Oil and Refining Company
Mr. J. P. Langfitt - The Pure Oil Company
Mr. W. T. Quinn - API
Members and Associates, Medical Advisory Committee, API

API 05318

1 E. 42nd Street
New York 17, N. Y.
April 30, 1952

Dr. T. J. Sullivan
Vice President
Gulf Oil Corporation
Pittsburgh 30, Pennsylvania

Subcommittee on Carcinogenicity
Medical Advisory Committee
API

Dear Sir:

This resume prepared by the Research Project (MC-1) Advisory Committee in accordance with your request of February 13, 1952, summarizes the activities of the Subcommittee on Carcinogenicity of the Medical Advisory Committee API.

Experimental evidence on mice was developed about 1943 by Dr. E. V. Cowdry at the Barnard Hospital, St. Louis, attributing carcinogenic properties to residues from catalytic cracking. Late in 1944 Dr. R. E. Wilson called attention to the desirability of investigating any possible cancer hazards which might arise from newer refining processes. These were the chief factors leading to the organization in 1945 of the API Medical Advisory Committee. At its first meeting in May, 1945, this committee, among other things, recommended a study of the possible carcinogenic properties of petroleum and petroleum products. This recommendation was approved by the Executive Committee of the Board of Directors of the API and a fund of \$25,000 was authorized to initiate this and other medical studies.

After careful consideration Kettering Laboratory, University of Cincinnati, was selected to make an initial study of the problem. A grant of \$6,000 was made February 1, 1946, to conduct a limited amount of animal testing on eight samples of high boiling fractions selected by the Subcommittee on Carcinogenicity. The results of this study completed in 1949 showed that high boiling gas oils from catalytic cracking produced skin cancers on repeated application to mice. This finding led to the formulation of a comprehensive program of

research at Kettering Laboratory. This program necessitated a capital grant to Kettering Laboratory of \$40,000 for the construction of animal quarters. (See attached list of expenditures.) The expanded research program got under way late in 1949.

OBJECTIVES - The research program includes the following primary objectives:

1. The determination of which refinery streams and products are carcinogenic and to identify if possible the causative agents in such streams and products.
2. Development of reliable analytical techniques for quick and inexpensive determination of the carcinogenic potency of any stream or product.
3. Investigation of protective measures which might be applicable to man.
4. Epidemiological studies to determine the incidence of cancer among employees of the petroleum industry as compared to the general population.

PROGRESS TOWARDS ACCOMPLISHING THE OBJECTIVES -

1. Identification of carcinogenic streams or products and causative agents. To date 110 different petroleum fractions from representative processes have been tested on mice. Fractions of four different crudes are also being studied. Products of catalytic cracking and thermal cracking of catalytic gas oils have been sampled fairly completely. Vacuum distillates including lube stocks are also under study. A sufficient variety of samples is on hand to consummate this phase of the program.

It has been demonstrated that some carcinogens exist in the

original crude oils and that certain refinery processing of oils concentrates and/or synthesizes carcinogenic materials. High boiling gas oils from catalytic cracking have continued to show relatively high carcinogenic potency to mice. Thermal cracking of high potency catalytically cracked residua does not reduce the potency. Furthermore, high boiling gas oils produced in severe thermal cracking of straight run residua have demonstrated high potency. Untreated lube distillates show low to moderate carcinogenicity to mice.

Polycyclic aromatics which fall into the general classes of benzo(c) phenanthrene, benzpyrene and benzanthracene have been identified chemically in carcinogenic oils. Certain compounds in these classes have been known for years to be carcinogenic to mice. The potencies of these classes of compounds or of individual carcinogens vary in oils depending upon their source and subsequent processing. Complicating the picture is the presence of materials which in themselves are not carcinogenic, but which have the ability to enhance the potency of carcinogens in these oils.

2. Analytical Tool - Many of the pure polycyclic compounds with known carcinogenic activity have an identifiable absorption spectrum in certain parts of the ultra-violet and visible range. This knowledge has been used as the basis for developing an analytical tool. Empirical correlations of biological data with absorption spectra have not thus far been entirely satisfactory, in part due to the non-quantitative nature of the biological tests and in part due to compounds whose chemical or physical properties influence carcinogenicity, but do not exhibit a characteristic absorption spectrum.

The first of these factors has necessitated a program of adjustment to study the basic fundamentals which lead to a quantitative

biological test. The second factor has led to a study of those chemical and physical properties which influence the carcinogenicity of an oil such as solvents, viscosity and enhancing compounds. Obviously the intricate nature of the problem of developing an accurate analytical tool plus the identification of the causative agents in sufficiently broad classes to permit evaluation of carcinogenic refinery streams will require more time and effort than originally anticipated. Without an analytical tool, any laboratory proof of carcinogenicity rests upon animal testing which is expensive and time-consuming (three to twelve months required for each test on mice).

3. Preventive Measures - Animal experimentation and practical experience in industry where occupational cancer hazards have existed indicate that this hazard can be controlled by minimizing exposure and by adequate medical supervision which will include periodic physical examinations.

Minimizing exposure entails;

- a. Identifying the sources of exposure.
- b. Informing the persons who may be exposed, of the hazard involved and of preventive measures.
- c. Providing of protective equipment or facilities where exposure is otherwise unavoidable.
- d. Good personal cleanliness.

Skin cancer if detected early is curable. An adequate medical program will insure early detection.

4. Epidemiological Survey - It is not possible to transfer directly the data from the mouse testing experiments into figures representing relative carcinogenicity of the various fractions for man. From a scientific standpoint it would be desirable to test carcinogenic potency on several higher species of animals including man. However, such

Testing is not feasible at the present time. Interpretation of the significance of the experimental data, therefore, must await procurement of data on human cases from epidemiological surveys. An epidemiological survey will develop the facts concerning the incidence of cancer among petroleum workers and, if correlated with the occupational history, should disclose whether any particular occupation in the petroleum industry is associated with an occupational cancer hazard. In addition, it will detect any increase in cancers which may be the result of failure of protective measures. Without such information a problem of major magnitude could develop undetected and protection of the petroleum industry from unsubstantiated claims for compensation for alleged occupational cancer would be almost impossible. This phase of the program must be continued for a number of years in order to be of value. This study is now underway and the annual cost is low.

CONCLUSION - Occupational cancers comprise a very small percentage of the total number of cancers. However, experience in the British coal tar industry where over 1,400 cases of skin cancer were diagnosed in a 20-year period, and experience from contact with British shale oil where over 1,500 cases of skin cancer were diagnosed in a similar period, indicate that a cancer hazard may assume a serious magnitude in industry before control measures are instituted. British statistics are probably more accurate than those in the United States because reporting of cases to the Government is required and enforced. Medical literature and unpublished reports both in this country and abroad incriminate certain petroleum products which, having been demonstrated in animals to have a low degree of carcinogenicity, have caused human skin cancers after exposures of many years duration.

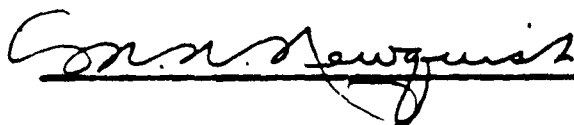
The importance of such observations to the petroleum industry emphasizes the necessity of a continuing program to develop the facts

as well as to promote any precautionary measures that may be indicated. In this connection certain petroleum companies in the United States have already instituted precautionary measures within their own organizations. In Great Britain it is now mandatory that white lubricating oil be used in one phase of textile manufacturing.

It is planned that the research project (MC-1) at Kettering Laboratory will proceed along lines of the objectives set forth above. Such research activities have now reached the peak and it is expected that there will be a gradual decline in a year or two from now unless unforeseen situations arise in the interim.

This committee will be pleased to render any further progress reports which you may desire.

Submitted on behalf of the committee by

 Chairman

Members of Research Project (MC-1) Advisory Committee.

L. N. Hewquist, M.D., Chairman	The Texas Company
L. S. Adams	Standard Oil Co. (Ind.)
L. C. Beard, Jr.	Socony-Vacuum Oil Co.
Kieffer Davis, M.D.	Phillips Petroleum Co.
R. E. Eckardt, M.D.	Standard Oil Development Co. (N.J.)
T. M. Frank, M.D.	Pan American Refining Co.
C. E. Hine, M.D.	Shell Development Co.
R. M. Landon	Gulf Oil Corporation
E. F. Linder, M.D.	Atlantic Refining Co.
K. O. Mackenzie	The Texas Company
R. C. Mithoff	California Research Corp.
R. M. Shepardson	Standard Oil Development Co. (N.J.)

PAYMENTS BY API
to
UNIVERSITY OF CINCINNATI
for
RESEARCH PROJECT (MC-1) ON CARCINOGENICITY

8-1-46	\$ 6,000.00	
7-1-46	0	
1-1-47	0	
7-1-47	0	
1-1-48	0	
7-1-48	65,000.00	(includes \$40,000 grant for animal quarters)
1-1-49	0	
7-1-49	49,413.00	
1-1-50	39,963.39	
7-1-50	50,000.00	
1-1-51	9,065.12	
7-1-51	50,000.00	
1-1-52	31,692.42	

\$ 301,133.93 to June 30, 1952

Budget July 1, 1952, to June 30, 1953 \$ 104,760.00