

DEPARTMENT OF THE INTERIOR

M E E T I N G

O F

N A T I O N A L P E T R O L E U M C O U N C I L

HELD AT

ROOM 5160, SOUTH INTERIOR BUILDING,
WASHINGTON, D. C.,

ON

WEDNESDAY, OCTOBER 31, 1951.

WALTER S. HALLANAN - CHAIRMAN

JAMES V. BROWN - SECRETARY-TREASURER

Lawrence Lacharity,
Official Reporter,
631 Pennsylvania Ave., N.W.,
Washington, D. C.
EXecutive 1851.

From the Files of the
National Petroleum Council

Record: Council Meeting (Transcript)

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Report adopted at meeting of (Date) _____

Statement or Speech at meeting of (Date) _____

EXCERPTS "relative to exploration, production, refining, transportation marketing, or pricing of petroleum and its products outside the United States."

	<u>Exploration</u>	<u>Production</u>	<u>Refining</u>	<u>Trans.</u>	<u>Marketing</u>	<u>Pricing</u>
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Excerpts pertain solely to petroleum outside the United States - in the rest of the world - in any foreign country and abroad. Excerpts do not include any matter dealing with petroleum inside the United States.

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P R O C E E D I N G S

THE CHAIRMAN: The Council will please come to order.

When this date for the Quarterly Meeting of the Council was fixed, October 31, it was done before there was any knowledge that the same date would be the occasion of the Princess Elizabeth and her consort. I am advised that from three-thirty on, this afternoon, the Washington traffic situation will be hopelessly tied up. It would seem to me, gentlemen, that if we could expedite the consideration of the matters on our agenda today, with the hope that we might conclude in one session, that, for the convenience of those who are anxious to leave later in the day, it would be much better to do so.

I hope, in consideration of the agenda and the matters to be submitted, that we will bear that in mind. As we go along, we can later determine whether it will be necessary to have an afternoon session.

Mr. Secretary, will you call the roll.

R O L L C A L L

ADAMS, K. S. (Endicott - representing)

ANDERSON, R. B. (Not present)

ASHTON, H. T. (Not present)

BAKER, Hines H.

BALL, Max W.

BALL, Munger T. (Not present)
BARTON, T. H. (Not present)
BLAUSTEIN, Jacob
BLAZER, Paul G.
BLODGET, Rush M.
BOYD, William R., Jr.
BRAZELL, Reid (Not present)
BRIDWELL, J. S.
BROWN, Russell B.
BURNS, H. S. M. (S. Stokes Tomlin - representing)
COWDEN, Howard A. (Not present)
CROCKER, Stuart M.
CUMMINS, J. F. (Otis H. Ellis - representing)
DAVENPORT, Horace E.
DAVIES, Ralph K. (Not present)
DeGOLYER, E. (Not present)
DONNELL, J. C., II.
DOW, Fayette B.
DOWNING, Warwick M.
DRAKE, J. Frank (S. A. Swensrud - representing)
DRESSLER, John (Not present)
DUKE, Gordon
DUNNIGAN, James P.
FALCK, Edward
FOLLIS, R. G.

FOREE, Robert L. (T. Thompson - representing)
GRAVES, B. C.
GRAVES, B. I.
HALLAHAN, Walter S.
HAMON, Jake L. (Charles Wyle - representing)
HARDEY, B. A.
HARGROVE, R. H.
HARPER, John
HARTZMAN, I. W. (Not present)
HILTS, Harry B.
HOLMAN, Eugene
HULCY, D. A. (Not present)
JACOBSEN, A.
JENNINGS, B. Brewster
JOHNSON, Carl A.
JONES, Chas. S.
JONES, J. P.
JONES, W. Alton
KECK, William M., Jr. (Patman - representing)
LERCH, Frank H., Jr. (J. French Robinson - representing)
LEYENDECKER, Harry
LOVEJOY, John M.
MAGUIRE, W. G.
MAJEWSKI, B. L.
MARKHAM, Baird H.

MARSHALL, J. Howard

MATTEI, A. G. (Not present)

McCOLLUM, L. F.

McGOWEN, N. C.

MEECE, Brown L.

MOSHER, S. B.

NIELSON, Glenn E.

NINESS, S. F.

NOLAN, Joseph L.

PARTEN, J. R.

POGUE, Joseph E.

PORTER, Frank M.

PYLES, E. E.

REITZ, Walter R.

RICHARDSON, Sid W.

RITCHIE, A. S.

ROBINEAU, M. H. (Norman Meyers - representing)

RODGERS, W. S. S.

RODMAN, Roland V. (Not present)

ROWAN, A. H.

SHANNON, R. S. (R. S. Shannon, Jr. - representing)

THE CHAIRMAN: Gentlemen, I want to introduce to the Council Mr. Dick Shannon, Jr., the son of our member, Dick Shannon, from Denver.

Glad to have you here.

(Applause.)

ROLL CALL (Resumed)

SKELLY, W. G. (Not present)

SMITH, Cecil W.

SPENCER, P. C.

STREETER, Clarendon E.

SUTTER, T. and/or (Not present)
F. M. MAYER

TAYLOR, Reese H. (Not present)

THOMPSON, A. W.

VANDEVEER, W. W.

VOCKEL, Stewart M.

THE CHAIRMAN: Gentlemen, before the next name is called, J. Ed. Warren, I want to take this opportunity, upon behalf of the Council, to express the appreciation of the fine contribution that has been made to this Council by J. Ed. Warren, who has been President of the Independent Petroleum Association of America for the past two years. Mr. Warren is retiring as President of the Independent Petroleum Association. I want him to stand at this time. I want to say, Ed, that we are very grateful to you for the fine service that you have given as a member of this Council.

Ed Warren.

(Applause.)

THE CHAIRMAN: I want, also, to introduce at this time Ed Warren's successor, an outstanding man in the

independent oil industry, a producer in Louisiana, who has been elected as the President of the Independent Petroleum Association, and who will become a member of this Council ex-officio by reason of his position.

I want to present at this time the new President of the Independent Petroleum Association, Mr. Charlton Lyons, of Shreveport, Louisiana.

(Applause.)

ROLL CALL (Resumed)

WESCOAT, L. S.

WILLIAMS, Russel S.

WILSON, Robert E.

ZEHRUNG, W. S. (Donald O'Hara - representing)

PAUL SCHULTZ (Not present)

J. W. FOLEY (Not present)

THE CHAIRMAN: A quorum is present.

The minutes of the previous meeting, of July 24, have been mailed to the members.

What is your pleasure?

(It was moved and seconded that the minutes of the meeting of July 24, 1951, be approved.)

THE CHAIRMAN: It is so ordered.

You will recall, gentlemen, at the last meeting of the Council, there was adopted by this body a resolution proposing an amendment to the By-laws of this organization,

whereby the National Petroleum Council would become the advisory group to the Defense Petroleum Agency. We have proceeded with the formalities of submitting that proposed amendment to the membership for ratification, and the Chair recognizes Mr. Hines Baker to present that amendment, and it will be voted upon at this time.

Mr. Baker.

MR. BAKER: Mr. Baker, Chairman of the Special Committee to consider matters necessary for any change of the Council's Articles of Organization referred to the report of the committee which was approved on December 5, 1950, and presented the following proposed amendment which is to be voted upon at the next meeting of the Council.

"RESOLVED: That the Articles of Organization of the National Petroleum Council be amended by adding at the end of numbered paragraph 1 of the present Articles of Organization a new paragraph reading as follows:

"'During the existence of the Petroleum Administration for Defense the National Petroleum Council shall have as an additional purpose to advise or inform the Administrator or Deputy Administrator of the Petroleum Administration for Defense with respect to any matters relating to petroleum or the petroleum industry submitted to it by or approved by the Petroleum Administrator for Defense or the Deputy Administrator.'"

I move that it be adopted.

THE CHAIRMAN: You have heard the motion. Any discussion?

Is there a second to Mr. Baker's motion?

(The motion was seconded.)

THE CHAIRMAN: Moved and seconded that the proposed amendment which Mr. Baker has presented be adopted by the Council.

All in favor, signify by saying Aye; contrary, No.

The amendment is unanimously adopted.

The Report of the Secretary-Treasurer.

THE SECRETARY: In the ten-months period ending October 31, the total receipts in the General Fund of the Council were \$93,471.00; the total disbursements during that period were \$76,064.00; there was a balance on hand at the beginning of the year of \$2,727.00; that, added to the difference between receipts and disbursements during the period, now leaves us \$20,134.00 on hand in the General Fund.

Our Reserve Fund continues to stand at \$65,000.00.

THE CHAIRMAN: You have heard the report. Any remarks?

(It was moved and seconded that the Report of the Secretary-Treasurer be approved.)

THE CHAIRMAN: All in favor, signify by saying Aye; contrary, No. So ordered.

The next matter, gentlemen, is the Report of the Agenda Committee. The Chair recognizes Mr. Jacobsen, Chairman of that Committee.

MR. JACOBSEN: Mr. Chairman:

Under date of October 18, 1951, Mr. H. A. Stewart, Acting Director of the Oil and Gas Division of the Department of the Interior, addressed a letter (copy of which is hereto attached) to Mr. Hallanan, requesting that a committee be appointed to make an independent analysis of the steps necessary to effect overland movement of specified volumes of petroleum and products to the East Coast in the event that water-borne transportation is completely or partially disrupted and to report with advice and recommendations at the earliest possible time.

As provided in the Articles of Organization of the Council this letter was considered at a meeting on October 30 in Washington, D. C. The Council and its Committees have consistently adhered to the principle that they should confine their activities to factual studies. In order satisfactorily to comply with this request, any Council Committee which might be appointed would have to evolve plans and programs and also would have to make recommendations for the handling of competitive problems. Recognizing that such activities are, and always have been, beyond the proper scope of Council action your Committee deems it improper and in-

advisable for the Council to appoint the requested Committee. It therefore recommends to the Council that it not appoint a committee to make the study and report requested.

Also, under date of October 19, 1951, Mr. Stewart addressed a letter (copy of which is hereto attached) to Mr. Walter S. Hallanan, Chairman of the National Petroleum Council, requesting that the Council make a study to determine the most desirable range of sizes and weights of oil country tubular goods for present needs in petroleum production operations and the relative proportion of each expressed in terms of footage and tonnage, and to report its findings with such recommendations as may be appropriate.

As provided in the Articles of Organization of the National Petroleum Council, this letter was also considered at the meeting of the Agenda Committee held on October 30 in Washington, D. C., at which meeting it was unanimously agreed to recommend to the Council the appointment of a committee to make the study as requested by Mr. Stewart, and report to the Council.

Respectfully submitted,

A. Jacobsen, Chairman

Agenda Committee of the National

Petroleum Council

(Attachments - (2))

C O P Y

UNITED STATES

DEPARTMENT OF THE INTERIOR

OIL AND GAS DIVISION

Washington 25, D. C.

October 18, 1951

Mr. Walter S. Hallanan, Chairman

National Petroleum Council

1625 K Street, N. W.

Washington, D. C.

Dear Mr. Hallanan:

The movement of sufficient petroleum to the Atlantic Seaboard was the biggest transportation problem faced by the domestic petroleum industry in World War II. Losses by enemy action and commandeering by the military removed from the service many of the tankers that had been, as they are now, the basic medium to move crude oil and products to the East Coast.

Prudent defense planning must assume that this same problem with all its critical aspects could easily arise in some future emergency and therefore requires the study of all of the aspects of this problem and the preparation of plans to meet any such emergency which might arise. The Petroleum Administration for Defense already is studying this matter.

The problem is so vital to national security and defense, however, that it is considered desirable for the

National Petroleum Council to make an independent analysis of the steps necessary to effect overland movement of petroleum and products to the East Coast in the event that waterborne transportation is completely or partially disrupted. It is suggested that the analysis consider the overland movement of 600,000, 1,000,000, 1,500,000 and 2,000,000 barrels daily combined total of petroleum and products to the East Coast areas. Upon completion of the study, it would be very helpful if the Council would present specific recommendations as to how best this movement could be made with the relative timing and sequence of the various steps required.

Because of the seriousness of the present world situation and the importance of the matter to our national security and defense, I request that the Council appoint a committee to make the necessary study and to report with advice and recommendations at the earliest possible time.

Sincerely yours,

/S. H. A. Stewart

H. A. Stewart

Acting Director

C O P Y

UNITED STATES

DEPARTMENT OF THE INTERIOR

OIL AND GAS DIVISION

Washington 25, D. C.

October 19, 1951

Mr. Walter S. Hallanan, Chairman

National Petroleum Council

1625 K Street, N. W.

Washington, D. C.

Dear Mr. Hallanan:

Historically, steel mills in producing oil country tubular goods established certain operating patterns for the production of oil field casing, tubing, and drill pipe, based upon the early methods of well drilling and the demands on the mills for the various sizes and weights.

Today, the almost universal use of rotary drilling rigs and the great increase in the number of very deep producing wells result in a need for relatively greater quantities of smaller sizes of casing, as compared to the former days when the larger percentage of wells were drilled with cable tools. In addition, the average depth of producing wells has increased approximately 90 feet per year during the last several years and in drilling approximately the same total number of wells in 1951 as in 1950, the footage drilled will be approximately ten million feet greater, or an average depth increase of roughly 200 feet per well.

The maintenance by the mills of their old production patterns has resulted in an inadequate supply of smaller sizes of casing now required in production strings, and an excessive

supply of large diameter casing.

In the petroleum defense mobilization program, it is necessary for the petroleum industry to get maximum utilization from the amount of steel available for manufacture of oil well casing. The Petroleum Administration for Defense has been able by diligent effort to persuade the mills to roll more of the small sized casing than had heretofore been made available, but there is still an excessive amount of the larger pipe being manufactured.

The Petroleum Administration for Defense is anxious to obtain information which would be helpful in formulating recommendations to the pipe mills as to the most desirable production patterns in order to better utilize the steel available to the petroleum industry. Therefore, the National Petroleum Council is requested to appoint a committee to make a comprehensive study to determine the most desirable range of sizes and weights for present needs in petroleum production operations and the relative proportion of each expressed in terms of footage and tonnage, and to report its findings with such recommendations as may be appropriate.

In view of the critical supply situation in oil country tubular goods a prompt report will be especially useful.

Sincerely yours,

/S. H. A. Stewart Acting Director

MR. JACOBSEN: I move the adoption of the report.

(The motion was seconded.)

THE CHAIRMAN: You have heard the report submitted. Is there any discussion.

All in favor of the adoption of the report, please indicate by saying Aye; contrary, No. The report is unan-
imously adopted.

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In 1946, gentlemen, when this Council was original-
ly created, under the authority of an Executive Order of the
President, it was created as an agency to advise the Secretary
of the Interior and the Oil and Gas Division on all matters
relating to petroleum that affected the national welfare.
That was in peacetime.

It seems to me that the adoption of the amendment
which has been ratified by the Council this morning, which
gives us a further responsibility to advise the Petroleum
Defense Agency in a time of national emergency, enlarges the
responsibility of this organization. It makes it even more
vital, in connection with the serious and critical problems
that face us in matters of the national defense. We all
know that petroleum is the munition of defense and of war.
We are here this morning, in our fourth session of this year,
to advise with the constituted authorities of the Government
on matters on which they may seek information which they
think important to the national defense.

I am privileged at this time to present to the Council the Secretary of the Interior, the Honorable Oscar L. Chapman.

(Applause.)

MR. CHAPMAN: I don't know, it seems that I have the privilege and the honor of coming before this group so often, that it is difficult to find something new to say to you each time.

As you look over the record of what has taken place in the country, you realize that there are new problems arising every day, that are affecting the oil industry and, in turn, affecting the whole economy of the country, itself. So there are constant new problems to be discussed and constant new problems upon which the Secretary of the Interior does need your advice and your help.

I want to say that we welcome the two members of the staff of the Sellers Committee of the House to sit with us as members have done before, and have been invited at all times. We are glad to have them here.

I want to welcome all the rest of you here; all of you people here today. I wish that the room were larger, but this happens to be the only room in the building where smoking is really permitted. We do welcome you to this crowded room.

It is easy to talk to this group, because you talk

about such noncontroversial questions as tidelands, and synthetic fuel. (Laughter.) So it makes it very easy to talk to you. You are all in such complete agreement on that. (Laughter.)

I appreciate the chance to visit with you. I am going to be with you at your API meeting in Chicago next week. At that time, I hope to say something more specific.

I want to say to Mr. Rodgers, and to you gentlemen, on the synthetic situation, that I have been an advocate and sponsor of synthetic-fuel studies ever since I have been in the Government, and I think it is no more than prudent for the Government to do all it can to study and learn, learn everything it can about synthetic fuels. The question of what you will do with the subject-matter when it reaches the stage of a competitive position with other liquid fuels, is another problem.

I think we have made great strides in the synthetic field in the last few years. We have made tremendous strides.

Obviously, I don't think that the coal hydrogenation program has quite reached the stage where it is on a competitive level with other petroleum products. But I think it is coming. It is close. I don't think it is quite here. I will be glad when it gets here.

I will do everything I can to support synthetic fuels, to develop all the know-how we can get, for the future

of this country. I want it as a matter of security; I think it is a thing that we all would be interested in.

I want to say to Mr. Rodgers, and to you gentlemen, this letter, I tried to work it out in careful language, so that it would be understood. There are so many variations, or interpretations, upon language, that you have to be very careful. That is what I have tried to do in this letter.

I tried in the letter to say to you that I am still for synthetic fuels. I have not opposed a single individual project for hydrogenation of coal. There has been no project presented to my desk. There have been projects discussed with the Bureau, and are in the Department, but none has been recommended to me, specifically.

Now, some people will ask, "Why did you write the letter to Mr. Gibson, to ask for 455 million?" Most people thought that \$455 million was to help build a plant. Far from it. That is not true.

Under the Defense Act, before amended, it was required that the Government had to submit itself and be prepared to purchase the entire output, under contract to purchase. Therefore, we had to commit the whole amount.

In the Amended Defense Act, you will have to do that. So you wouldn't need the \$455 million. But I asked for it, not for a particular project -- I asked that it be set aside, because at the end of the fiscal year, if it had

not been set aside, there would be no money for it, even if you approved a program during the course of the year. So I asked for it as a matter of caution, and what I thought was good judgment.

That was done. As I say, that request was made. It has not been set aside. They have not fully agreed with our letter. They have asked for more information.

I just pass that on to you for clarification, because there has been some misinterpretation upon the meaning of this, as to what we were doing.

Secondly, to move to another question, when I was speaking to API in Los Angeles, you people remember that in that speech I had something to say about the shortage of steel; I made some critical remarks about the steel industry in not expanding its capacity sufficient to meet the needs of the oil industry, and other industries of the country.

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My good friend Ben Moreel had much fun kidding me about that, but it was only about six or seven months later, he came in with an application for amortization for expansion of the steel industry, and his was one of the first.

So I want to say that there is no hard-feelings -- I feel the steel industry, I felt it should have expanded its capacity sooner than it did, and when they get the present expansion completed, and production at a hundred percent, they are still going to need more steel capacity for

this country, if we are to continue to grow, as I think we will, our economy. I think you will need it.

You people here have to do with one of the vital industries of America. The whole war effort would fail if we did not keep the production of the industry at a top level. If we fail in that, we are going to fail in our whole war effort. I feel we must do everything in our power to keep our production up at the level required by the needs and demands.

I want to say this to the industry, I want to compliment you for stepping into a breach -- it was not altogether pleasant for you to do, but you stepped into a breach to make up the losses incident to the Iranian oil situation, the closing-down of its refineries. You stepped into that breach and you did make it up. You have made exchanges, and done other things, to meet it. I think that you are entitled to be complimented for meeting that situation very courageously.

Some people say that while you have done it, you have done it illegally. Some people say that it is a risk that we are running. There has been nothing done, to my knowledge, that hasn't been done under the agreement approved by the Attorney General. So far as I know, there has been nothing done that hasn't been in conformity with that agreement approved by the Attorney General.

You have done a magnificent job in meeting a crisis.

We will have other emergencies coming along from time to time. You are probably so used to them that you don't pay too much attention. I am thinking of the aviation gasoline situation. Some people are unhappy because the aviation gasoline problem is a problem which has presented itself, but it is a problem in the total picture; the war need has made it necessary for the Petroleum Administration to issue some orders, and those orders have been issued, and, naturally, the flying industry, your airplane companies, are not happy about it. I am not happy about it, and I know you are not, but we are trying the best we can to meet the needs. I am hoping this will work. I believe it will work.

I hope that no one will have any undue hardships placed upon them because of these orders.

I don't need to talk to you folks about the details of anything further here this morning, other than to say that I welcome you to the program here with this Department, and welcome you as an Industry Committee to advise the Secretary of the Interior. I will continue to fight for that position, whether it be in or out of Government.]

(Applause.)

THE CHAIRMAN: Gentlemen, following the remarks of Secretary Chapman, I want to take opportunity now to introduce a man who has carried the load here, since the organization

of the Petroleum Defense Agency, Bruce Brown, who has the confidence of everybody in the room, who has done a grand job.

(Applause.)

MR. BROWN: I thought that if I made a few observations before you undertook the consideration of the Synthetic Fuels Report, I might save time.

I am sorry that the Secretary didn't read the letter to you that he wrote to Mr. Rodgers, which expresses his philosophy. I hope you will have copies and get to read it in the course of the morning.

I have had an opportunity to look at the report to be rendered by the Rodgers Committee, which is going to come before you. I assume that it is going to be passed out to the members of the Council.

There is a third document which I agreed, perhaps illegally, could be passed out here today.

Bureau of Mines, Will Schroeder, has been talking to me about the difference of opinion between the Synthetic Fuels Committee of the Council and the Bureau of Mines, not with respect to the extraction of oil from shale, but with respect to the economics of coal hydrogenation. I urged that this was not the type of meeting, nor the type of audience, where a technical discussion would bear much fruit, nor would there be time for it. But I suggested, if they did want to reach the Council with the views of the Bureau

of Mines, that this was a democratic and open meeting, and they could do it; and they have brought down here for us something which I haven't read, but it is the Bureau of Mines' latest report on coal hydrogenation, together with a cover sheet, and we will pass that out, too.

Thank you, Mr. Chairman.

THE CHAIRMAN: Gentlemen, inasmuch as the Secretary opened up the matter of the synthetic fuels question in his remarks, I am going to transfer some part of the agenda, and next take up the Report of the Council Committee on Synthetic Liquid Fuels Production Costs.

You will recall that in a letter of April 19, this Council was asked to undertake a study of this whole question. We recognized, in the beginning, that it involved a tremendous job, involving a tremendous amount of basic research, a tremendous amount of study into a very technical question and subject. I was fortunate to be able to enlist the leadership of Mr. Star Rodgers as Chairman of the Council Committee. The report which he submits to our Council today represents, in my judgment, one of the outstanding works and efforts of this organization.

This is a live issue in this country today, and a live issue with the petroleum industry. This is a report which will represent the industry's viewpoint on this question.

I want to take this opportunity to thank Mr. Rodgers and the staff, and the members of the Committee, for having undertaken a job which has gone to great extremes in the field of research and study. I think it represents a landmark today along the highway which this synthetic fuels problem has created.

Now, with great appreciation of the job that has been done, I present Mr. Star Rodgers, who will give to the Council the report of this Special Committee.

Mr. Rodgers.

MR. RODGERS: Mr. Chairman:]

INTRODUCTION

The Secretary of the Interior, Honorable Oscar L. Chapman, in his letter of April 21, 1950 to Mr. Walter S. Hallanan, Chairman of the National Petroleum Council, requested that the National Petroleum Council create a committee to:

1. Review estimates made by the Bureau of Mines of the cost of producing synthetic liquid fuels, and its estimates of comparative costs of producing liquid fuels from crude oil.
2. Prepare independent cost estimates.
3. Make recommendations as to ways and means, if any, for improvement of future cost estimates by the Bureau of Mines.

Secretary Chapman's request (Attachment 1) was

favorably reported by the Agenda Committee of the National Petroleum Council, and the Council authorized the formation of a Committee on Synthetic Liquid Fuels Production Costs. On June 13, 1950 Mr. Walter S. Hallanan appointed the committee listed in Attachment 2.

In discussions of the project with personnel of the Bureau of Mines, Dr. James Boyd, Director, advised that the Bureau of Mines was not prepared to offer estimates of the costs involved in the production of products from crude petroleum. It was therefore necessary, and the Bureau of Mines so agreed, to remove this phase from the project scope.

COMMITTEE ORGANIZATION

Your committee decided to establish a subcommittee made up of experts in the synthetic fuels field to assist in analyzing the technical aspects of this highly complicated problem. Contributing companies made available the services of a large number of qualified specialists in research, development, and engineering. The main subcommittee, in turn, found it desirable to organize in cooperative groups (Attachment 3) to carry out the assignment in the most effective and expeditious manner. An idea of the complexity of the problems and the thoroughness with which the project has been studied is indicated by the following:

Number of Subcommittee members	47
--------------------------------	----

Additional Technical Personnel used	105
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Total attendance at meetings (man-days)	590
Number of meetings	197
Number of man-trips	338
Total miles traveled	400,000
Total dollars spent	300,000
Outside companies consulted	115

The generous assistance of the outside companies consulted, listed in Attachment 4, is gratefully acknowledged.

SCOPE OF INVESTIGATION

The synthetic fuels work done by the Bureau of Mines falls into three categories:

1. Production of synthetic liquid fuels by hydrogenating coal.
2. Production of liquid fuels from oil shale.
3. Production of synthetic liquid fuels by gasifying coal and converting the resulting mixture of carbon monoxide and hydrogen to liquid fuels by some modification of the Fischer-Tropsch process.

This process includes work completed to date on only the first and second processes. When this work was started the Bureau of Mines did not have adequate information for the proper appraisal of the process identified in category 3. Only recently the Bureau of Mines has presented additional data on this process for review by the Subcommittee.

Process design data representing modifications under categories 1 and 2 have also been prepared by the Bureau of Mines. The Committee plans to continue with these studies to embrace these additional data, on the assumption that the National Petroleum Council desires it to do so.

In accordance with the scope of the work assigned to the Committee, the investigation has been limited to the process steps upon which the Bureau of Mines cost data have been based. It is not the function of this committee to report upon comparative data based on alternative processes developed by industry and which have not been made available to the Bureau of Mines.

To increase the general usefulness of this study it was considered desirable to determine costs not only for possibly unique situations that might arise from a particularly favorable or unfavorable first-plant location, but also for a more nearly average case in which a number of plants would produce a combined total for each process of around 200,000 barrels of liquid fuels per day. Thus estimates of costs and of material requirements were determined for both single plant and multi-plant cases.

The work of the committee has required considerably more time than originally anticipated because it was found that necessary process design data had not been sufficiently developed by the Bureau of Mines. Consequently, subcommittee

members were required to spend much time with the Bureau of Mines personnel to develop additional process design data and to arrive at suitable bases for cost estimates. It was also necessary for the subcommittee to develop information on the cost of offsite facilities such as water supplies, rail and pipe-line transportation, and housing for construction and permanent employees. The Bureau of Mines personnel at all levels were most cooperative in assisting the subcommittee in its work.

DESCRIPTION OF OPERATIONS

COAL HYDROGENATION

The estimates for the coal hydrogenation operation are based on procedures which were developed in Germany and on the assumption that coal is available in sufficient quantity, at a mineable depth and thickness and at a location having water required for the operations. The coal is prepared for hydrogenation by cleaning and crushing operations which reduce the ash content to as low a value as is practical and which bring the coal to a size suitable for the hydrogenation operation. In the cleaning and crushing operations a large amount of higher ash content and other off grade coal is produced and this is used for steam generation and other heat duty.

The clean, fine coal is mixed with heavy oil recycled from the process to produce a paste. This paste is

charged to the liquid phase hydrogenation operation along with a small amount of catalyst. At approximately 10,000 pounds per square inch and at a temperature of 900° F. a large portion of the coal is liquefied. The material leaving this stage of the process is distilled to obtain a light oil and a heavy oil. Part of the heavy oil is recycled to the pasting operation and the remainder is coked to provide a means of rejecting the ash and used catalyst. In a second stage the light oil is hydrogenated over a fixed bed of catalyst at 10,000 pounds per square inch and 900° F. to yield gasoline and liquefied petroleum gas. Certain chemicals (phenol, cresols, xylenols) can be recovered from the first stage product, as was assumed in the coal hydrogenation single plant case in the summary, as presented herein. If not disposed of as chemicals, these products can be processed in the second stage to yield gasoline and liquefied petroleum gas, as was assumed in the multi (eight) plant case. Conventional petroleum refining procedures are used for the final treatment of the products from the coal hydrogenation operation.

OIL SHALE OPERATIONS

The estimates for the oil shale operation are based on the assumption that shale is mined in large scale operations according to techniques developed by the Bureau of Mines. The shale from the mines is then crushed to a suitable size and charged to a retort in which the oil is broken out

by the action of high temperatures. The necessary heat is obtained by burning - in a separate part of the retort - the carbon remaining in the shale after the oil has been driven out.

The crude shale oil thus obtained contains sulphur and nitrogen compounds and is highly unstable. The oil is subjected to coking operation and the resulting coker distillate is catalytically hydrogenated under moderate conditions (1100#/sq. in. and 835° F.). This hydrogenated distillate yields materials which are processed by conventional means to recover finished and semi-finished products which are transported by pipe line from the plant to a major consuming area. Finishing operations as required are carried on at the pipe line terminus.

In each of the coal hydrogenation and oil shale cases a raw material reserve of 20 years has been set as a minimum. Costs have been based upon operations conducted predominantly for production of gasoline and diesel fuel conforming to present market specifications. All labor, material, and equipment costs were adjusted to January 1951 levels. The derived product costs do not include allowance for marketing expense. Chemicals and liquefied petroleum gas have been credited as by-products in developing primary products costs.

DISCUSSION OF RESULTS

As stated above, Secretary Chapman requested that

the committee "1. Review estimates made by the Bureau of Mines of the cost of producing synthetic liquid fuels----." When this study was started the only data available from the Bureau of Mines on the cost of producing synthetic liquid fuels from coal was its Report of Investigation 4564 which was issued in 1949. To make these data realistic it was necessary to escalate these cost estimates to adjust for inflation of material and labor costs. After this adjustment and on the basis of comparable facilities, the Bureau of Mines investment cost estimates were approximately 20% below the cost estimates prepared by this committee. However, the Bureau of Mines estimates omitted such items as certain off-site facilities, necessary interest on borrowed capital, income taxes, reasonable profit on investment and treatment of other important capital cost items which must be considered. Detailed analysis of these differences is presented in the subcommittee reports made available to the Bureau of Mines. It should be emphasized that costs developed by the subcommittee are as authoritative as can be obtained without actual commercial operating experience of the processes considered.

In the case of shale oil operations, the Bureau of Mines had no formal report as a basis of reference for the study made; however, the committee's representatives worked with the Bureau of Mines people in setting up a processing basis for the oil shale case. The Bureau of Mines personnel

have generally agreed to accept the Subcommittee's estimate of investment and operating costs of producing liquid fuels from oil shale according to the processes reported on at this time. Therefore, the only large difference between the Subcommittee and Bureau of Mines estimates in this case will be that resulting from capital cost treatment such as interest, taxes and profit.

Secretary Chapman requested that the committee "2. Prepare independent cost estimates." Such estimates have been prepared and the conclusions reached represent the combined effort of the most qualified people in the petroleum and coal industries. As an independent check, the committee retained the services of Price Waterhouse & Co. to review the procedures and basic accounting data used by the committee in the determination of the estimated operating costs for the two processes. Price Waterhouse & Co. necessarily had to accept certain engineering data used in the determination of these cost figures, but in so far as the estimates used could be tested by the experience of the petroleum industry in refining operations, it is their opinion that the basic accounting data used have been computed in accordance with generally accepted accounting principles and that the estimated cost figures developed from such basic accounting data are reasonable.

A summary of the data developed in the study by the

Council's committee follows:

	<u>Coal Hydrogenation</u>		<u>Oil Shale</u>	
	<u>Single Plant</u>	<u>Multi Plant (8)</u>	<u>Single Plant</u>	<u>Multi Plant (5)</u>
Coal or Shale: Tons/ Calendar Day	12,960	112,590	76,800	384,000
Products: Barrels (42 Gals)/CD				
Gasoline	19,490	163,830	25,380	126,900
Diesel Fuel			12,200	62,360
Liquefied Petroleum Gas	6,390	52,170	1,780	8,920
Residual Fuel	_____	_____	<u>340</u>	<u>3,050</u>
Total Liquid Fuels, B/CD	25,880	216,000	39,700	201,230
Coke: Tons/CD			1,180	5,900
Fuel Gas, 1060 Btu/cu. ft.: Thousand Standard Cubic Feet/CD			24,830	124,150
Chemicals:				
Phenol, Barrels/CD	229			
Cresols, " "	383			
Xylenols, " "	508			
Ammonia, Tons/CD			92	460
Sulfur, Tons/CD			43	215
Manpower: Total including supervision and admini- stration	5,900	53,800	3,420	15,750

	<u>Coal Hydrogenation</u>		<u>Oil Shale</u>	
	<u>Single Plant</u>	<u>Multi Plant (8)</u>	<u>Single Plant</u>	<u>Multi Plant (5)</u>
Construction Materials				
Steel: Thousand Tons	220	1,710	178	694
Per daily barrel of Total Liquid Fuel Production: Tons	8.5	7.9	4.5	3.5
Construction Labor				
Man hours x 1,000	51	355	26	123
Investment				
Total-Millions of Dollars	533	4,074	333	1,518
Dollars per daily barrel product	20,600	18,900	8,400	7,500
Cost of Gasoline with 6% Return on Invest- ment after Income Tax Cents per gallon				
	41.4	43.5	16.2	14.7

In this study, the income tax rate has been taken at 50% of income before taxes. No effect has been given to excess profits taxes.

Although a figure of 6 per cent return on the investment was employed in computing the gasoline cost, it is regarded as highly doubtful that capital could be attracted to so speculative an enterprise at so low a return. Price Waterhouse & Co. in its letter dated September 27, 1951 (Attachment 5) stated the "opinion that an annual rate of earnings of not less than 15% on the total capital invested

in or retained in a business subject to the risks of a highly competitive and speculative enterprise would be necessary and reasonable in order to attract investment of private capital."

Provision has been made in the estimates for housing for construction workers and permanent employees to the extent necessitated by the prevailing conditions at the individual plant sites. The net contribution of this housing expense to product cost has been determined with due consideration of money returned to the enterprise through rentals.

As pointed out previously, the Bureau of Mines was not prepared to offer estimates of the costs involved in the production of products from crude petroleum. The following are price quotations (October 1, 1951) for gasoline at refinery, terminal, or purchaser's bulk plant for 4 locations in the United States. These are the prices which synthetically produced gasoline would have to meet in free competition today:

	<u>Regular</u>	<u>Premium</u>
Los Angeles	12.00	13.30
Denver	12.30	13.30
Salt Lake City	12.625	13.625
St. Louis	12.50	13.50

Secretary Chapman further requested that the committee "3. Make recommendations as to ways and means, if any, for

improvement of future cost estimates by the Bureau of Mines." From the figures presented above on the extent of the work done on this project it is evident that the preparation of reliable cost estimates is a most complicated and extensive undertaking. During the course of this study Bureau of Mines representatives have had numerous opportunities to review in detail the methods employed by the industry organizations. With this experience to supplement their own backgrounds and with the information which is contained in the technical reports made available to them by the subcommittees, the Bureau of Mines experts should now be in a position to prepare comparable cost estimates for any known or new process combination.

CONCLUSIONS

The information presented in this report which is, in turn, based on detailed technical studies, leads to the conclusion that coal hydrogenation for the production of synthetic liquid fuels is uneconomical.

It has been noted that an effort is being made to promote the installation of a coal hydrogenation plant as a source of chemicals, the most important of which are benzene, toluene and xylene. Study of this proposal is not within the scope of the committee's assignment. Attention is directed, however, to the fact that the disadvantages of high investment cost involved in the basic coal hydrogenation step will still

be present and that additional investment will be required for the further processing, recovery and purification of the chemicals. We are advised that such chemicals can be produced from petroleum at much lower cost.

The oil shale phase of the synthetic fuels program is in a much more favorable position as to steel requirements, capital cost, and operating costs. It is estimated that known oil shale reserves will yield in excess of 100 billion barrels of oil. Excellent work has been done by the Bureau of Mines in the development of shale mining on a large scale. Although it is apparent that the resulting product costs are still significantly higher than those from petroleum the levels are such that this source of fuel warrants continued attention by the petroleum industry. The future trend of oil shale development will, of course, be affected by the trend in cost of gasoline from crude petroleum.

[THE CHAIRMAN: As I understand it, this Committee expects to continue further studies of this problem?

MR. RODGERS: We assume that you wish us to continue. It is going to take at least six months. The technicians say they think they can finish in six months. I am inclined to think it may be a year.

THE CHAIRMAN: Is this presented as a partial report?

MR. RODGERS: Yes.

THE CHAIRMAN: With the understanding that this Committee will continue in its study.

You refer to the report. Are there any questions of Mr. Rodgers?

MR. WILSON: As to the figures, do they include the separation and recovery of the chemicals for the straight coal plant?

MR. RODGERS: Yes.

MR. WILSON: What kind of credit do you take for the chemicals, in figuring the cost of gasoline for that single plant?

MR. RODGERS: The present market.

MR. WILSON: Thank you.

THE CHAIRMAN: Do you desire to call upon your associates for any additional comments in connection with the report, Star?

MR. RODGERS: I think it would be well for both Mr. Kemp and Mr. Schultz to make some general comments.

MR. KEMP: I think Mr. Rodgers' report, which, of course, has been reviewed in detail by the Committee, covers pretty much the situation which was presented in the more detailed report, which will be submitted through the Council to the various groups in the Department of the Interior interested in the matter.

We have quite a volume of technical information.

which has been prepared with the cooperation of this long list of experts that Mr. Rodgers has given you here.

We feel that, although we are still at some points of difference with our friends in the Bureau of Mines, at least we know where we stand, and we have been able to delineate these areas of difference. There will be, no doubt, further discussions on the subject.

THE CHAIRMAN: Thank you, Mr. Kemp.

MR. DOWNING: Do these figures give credit for the petroleum products and the by-products?

MR. RODGERS: Yes. At the market price.

I would like to have Mr. Schultz speak on the report of investigation, 5564. Will you clear that up, and also give them a general idea of your work with Price Waterhouse on this thing.

MR. SCHULTZ: That was the report we started with; it set up the costs of making gasoline by coal hydrogenation. Those costs include an interest charge during the construction period, and the primary theories used were two; one after the construction period, a cost of gasoline with no return, and a cost of gasoline including a three percent return on your capital. Therein rests one of the major differences between the reports submitted by this Committee and the figures prepared by the Bureau of Mines in the handling of capital charges.

In that connection, the Committee retained Price Waterhouse as a consultant, and Price Waterhouse studied the matter. It was indicated that for a venture of this type, a return of 15 percent on investment was what they thought would be necessary to attract capital. We have used 6 percent. We were sure that 6 percent wasn't enough, but thought that 6 percent was a moderate amount and could be, certainly, justified on the basis of return obtained by pipeline companies and the utilities, which are regulated and allowed by the Government to make that type of return.

MR. W. ALTON JONES: What would the incremental cost be?

MR. SCHULTZ: The cost of gasoline would rise about, on coal hydrogenation, about one-and-a-quarter cents per gallon for each one percent return on investment.

MR. W. ALTON JONES: The big item is, of course, interest on investment.

MR. SCHULTZ: The investment cost per barrel of product is so very great.

MR. RODGERS: How much will it raise the shale oil; what will the effect be on the shale oil?

MR. SCHULTZ: I don't have it in mind; about three-quarters-of-a-cent per gallon.

Mr. Kemp asks that I mention something about the chemicals and other by-products. In all of these studies, all

products were credited at today's prices, coal, sulphur, ammonia, various things that were made in the process, were credited at today's prices.

MR. WILSON: It seems to me that this should state that.

MR. RODGERS: I think we have it in here.

MR. WILSON: I didn't see it.

MR. SCHULTZ: It is in the big table.

THE CHAIRMAN: It is in the tabulation.

MR. SCHULTZ: I would like to point out one difference where that was not done, and that was in the case of shale oil, where a major part was heating-oil, and there we credited heating-oil, we have got the cost of gasoline, and part of the heating-oil, based on market value, because we didn't think it fair to throw the increment of cost for the heating oil against the gasoline, and so we went on what we call an equivalent gasoline basis.

MR. WILSON: I don't see anything in the table which indicates that you took into consideration, credited the cost of chemicals.

THE CHAIRMAN: It is page 7, end of the first paragraph.

MR. RODGERS: There are one or two things --

MR. WILSON: You said this did include the investment cost for the chemical recovery, but on page 13 it says

additional investment will be required for further processing, recovery and purification of the chemicals.

MR. SCHULTZ: That is the question of recovering those other chemicals. We took up the chemicals discovered in the first stage. We did not try to recover the gasoline further. We left those products in the gasoline.

MR. JACOBSEN: I believe, dealing with the single plant, it was said they were credited at the market price. Now, does that mean, by implication, that in the multi-plant the output would be sufficiently wide to depress the price of the products?

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MR. RODGERS: Mr. Schultz.

MR. SCHULTZ: I think the answer is that the phenol production from one plant is approximately ten percent of the present consumption of phenol in this production. The production of xylenols, and the cresols, represent approximately 100 percent, from one plant, of what is used in this country.

Therefore, in the single-plant case, we gave credit for all the chemicals at today's market price, assuming that the market would absorb it. We made that assumption.

In the multi-plant case, we forgot chemicals entirely. Had we put chemicals in one plant, it would have reduced the cost of gasoline from that plant, that one plant, about one cent a gallon, and that would be about an eighth-of-a-cent a gallon.

MR. WILLIAMS: Mr. Rodgers, in the analysis, did you consider 27-1/2 percent depletion, as is allowed? It would increase the cost, if you were deprived of that; it would increase the cost of gasoline 3-1/2 or 3 cents. If you haven't taken it into consideration, and a similar allowance is not made on shale oil, the comparison would not be as equitable as I think you might want.

As I understand it, if you take away the depletion allowance, then that would raise the retail cost, and put us in the same position; it would raise the cost from 2-1/2 to 3 cents. If you do that, the synthetic might be comparable.

MR. RODGERS: We didn't go into that. There is no depletion involved in any of the figures here on shale. I get your point, but we didn't go into it.

MR. SCHULTZ: The depletion given on coal was taken into account.

MR. RODGERS: It is small.

MR. SCHULTZ: Yes, because the cost of coal in the process is so small.

MR. POGUE: I don't see in the compilation any provision for the return of the \$455 million. Your depreciation was allowed and that would presumably maintain the plant, if the plant had a life of 20 years, that would be about \$22 million amortization.

MR. RODGERS: I am glad you raised that question.

The 20-year amortization gave it a break.

MR. SCHULTZ: We allowed for maintenance, materials, labor, and depreciation.

MR. RODGERS: The industry couldn't afford a 20-year amortization, but that is what it is figured at.

MR. SCHULTZ: Without any return on your investment, and without any profit on your money, selling gasoline at these prices, you couldn't even pay the operating costs.

We amortized it.

MR. SWENGRUD: Was the income tax on the assumption that you would sell the gasoline at 45 cents a gallon? On what basis was it calculated? Is that on the assumption that the Government would buy the gasoline at that price?

MR. RODGERS: Yes.

MR. MAJEWSKI: I would like to know, Mr. Chairman, what disposition is going to be made of this report, to the public?

MR. RODGERS: There will be a news release of it.

MR. MAJEWSKI: We understand we are on the threshold of a new discovery. I am exercised about how the public finds out that this new find is not a new find.

MR. RODGERS: We have a news release on it.

MR. BLAUSTEIN: Do I understand that if this were eliminated, the cost from oil shale would be brought down six times, three-quarters of a cent, or 4-1/2 cents?

MR. SCHULTZ: You mean, profit, 6 percent profit. If the 6 percent profit were eliminated, the return on investment, interest plus profit, if the 6 percent were taken out, including the income tax you pay, the cost of shale and the cost of oil, as given in the report, would be approximately cut in half.

MR. DOWNING: What does the Bureau of Mines say on it; do they agree with the conclusions of our Committee?

MR. SCHROEDER: If I may, Mr. Chairman, I would like to say something, briefly.

THE CHAIRMAN: Mr. Schroeder.

MR. SCHROEDER: Needless to say, I felt a little bit uneasy, while the comments were made, but I had to sit quiet. I would like to say, first, that the Bureau certainly has appreciated the opportunity to work with your people and to cooperate so closely and so extensively.

I am sure our cost-estimating group has received a great deal of benefit from this work.

I hope, also, that as time goes on, the oil industry will realize the benefit from this more detailed knowledge of synthetic fuels.

I think perhaps we can point out the fact that their understanding of the shale picture is much better than it has been up to a few months ago.

Now, you have in front of you a report which the

Bureau of Mines has presented, which on the first page covers, very briefly, the production costs for oil shale.

We have no strong disagreement with the NPC report cost studies of oil shale. We disagree slightly on the way they handled the housing. We do not think as much money is necessary as they have indicated.

We also feel that the method of financing the plant is not one that you would normally use in the petroleum industry, or any other, at the present time. They have been one that you would have used five or ten years ago.

Attached to that single sheet you will find a long report which deals with coal hydrogenation. Some of you will be interested in going into that. However, if you don't want to read the whole report, I would suggest that you read simply the first 3-1/2 pages, because they cover the Bureau's viewpoint on coal hydrogenation.

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The thing that you will note, first, is the tremendous disagreement in the coal hydrogenation between NPC cost estimates and the Bureau of Mines estimates. NPC believes that it will cost something like 40 or 41 cents, cost plus profit, to put the gasoline on the market from coal hydrogenation. Our figures indicate we can put the gasoline on the market for 12 cents a gallon, making 6 percent on our investment on our Wyoming Plant, and 6 percent return on our equity investment for the West Kentucky Plant.

Why these tremendous differences? I will go into that, briefly.

First, we find that for the plant alone, the NPC cost estimate was about 25 percent higher on the initial investment than the Bureau of Mines investment. The unfortunate thing is that that 25 percent difference is multiplied again and again and again, because you apply percentages to that 25 percent to get your various factors that you use in calculating your operating costs.

Then the operating labor and maintenance for the NPC Plant is -- I don't have the exact figure, but it is roughly twice that of the Bureau of Mines Plant.

We have gone through the figures and find, for example, in the power plant, that NPC recommended 29 operators per shift. The "Electric World" finds, for a similar-sized power plant, the number of operators would be 10 to 18, instead of 29.

For the water system, NPC recommends 10; the accepted figure is 3 to 4 operators per shift.

The oxygen plant, they recommend 7; our Bureau Plant indicates 2 men per shift.

Trackage and loading, they recommend 13 men, while the oil industry experience indicates 6 to 7.

Now, these are just a few examples.

If you go on through that whole study, you will find

that figure after figure is too high.

Operating labor, again, doesn't add up to very much, but when you start to apply percentages for supervision, maintenance, and so forth, which go on operating labor, it multiplies again and again.

We disagree with respect to \$67 million that was allowed for housing. I don't think that amount of money is at all necessary. We think, furthermore, that it is doubtful if you should write off the housing in 20 years as a total loss. I suspect that here in Washington, at the end of 20 years, I will be able to sell my house for more than I paid for it. Maybe the housing shouldn't be written off completely.

Now, I think that perhaps one of the points on which we disagree most is this question of financing. The people in NPC took 100 percent equity capital, and the interest on that, due to your profit taxes, is \$78,000 per year, or 11 cents per gallon of gasoline, in that one item.

I can only point to this fact, that the industry has built one synthetic fuel plant operating on natural gas in this country. Did they use 100 percent equity capital? No. They used 5/10ths of one percent equity capital.

They charge per day in the way of taxes, instead of being \$78,000, was \$392. The Bureau of Mines does not recommend either type of financing. We have taken a middle type.

Sixty percent fixed capital, and forty percent equity capital.

There has been discussion of the fact that this is a risky enterprise. Of course, it is, today. The processes are not well-developed in this country. No plant, no coal hydrogenation plant, has been built. No oil shale plant has been built. But if you presume you are going to build a 250,000-barrel-a-day industry, obviously, you are going to have the technology ironed out before you go into that industry. By the time you move into the industry, you are going to have -- your technology is going to be worked out. Your risk from the technological standpoint will be relatively small. I think, much smaller than drilling holes in the ground.

With respect to the chemical products, I don't think that the crediting of the chemical products has been handled in the right manner. The single plant is not comparable with the single plant proposed to the Department. There are produced, instead of about 15 chemicals, will produce about 45 to 50 percent.

So far as comparison with that single plant, I don't think they have handled this situation at all correctly.

Now, then, let's go back to one more set of figures. That is the actual cost figures exclusive of profit.

We find that the Bureau of Mines figures for the cost of equivalent gasoline is 11 cents per gallon. That takes

account of the chemical credits, and so forth.

The NPC figure is roughly 20 cents per gallon. I think those differences are explainable by such things as this question of operating labor, higher investment cost, and so much.

I would like to point out the way of handling the finances multiplies even that difficulty very greatly before you get to the final cost of the product.

Now, I think I have covered everything. I would like to recommend that you read pages 1, 2 and 3 in the report.

I would like to say that I think you all realize this is a preliminary report. In the first place, this coal hydrogenation plant isn't even a modern-day plant. It is a conventional plant as built in Germany a number of years ago.

In the next study, it is anticipated that the plant will be modernized, various changes will be made.

However, even in spite of that, I think that unless we can resolve these questions of financing and housing, things like that, we are going to continue to divert.

I would like to point out, however, there is some growing experience with coal hydrogenation in this country. Union Carbide have a plant which cost them about \$11 million, on which they expect to make a profit. I think they have some reason for believing that coal hydrogenation is a sound

process.

I would like to see this new information, these new viewpoints, brought into a continuing cost study along this line.

I would like to say, also, that the picture is probably not quite as discouraging with respect to coming to agreement as it seems right now. I say that, for this reason; back in 1948 there were groups of people studying the cost of making gasoline from oil shale. It was much the same groups as are involved in this study. That group came to the conclusion that the cost exclusive of profit was about 16 cents a gallon. On the basis of the present methods of financing, that would raise the cost of gasoline from oil shale about to 30 or 31 cents a gallon. That study was made in 1948. Today we find that in a more careful study the cost of making gasoline from shale has been halved to 15 cents a gallon.

I think that indicates, perhaps, some progress on the part of the Bureau of Mines and various oil industry people, but I think it also represents a changed attitude on the part of the people who were making the cost study, at least in part.

The Bureau of Mines is optimistic enough to hope that we are going to make that same change in their viewpoint with respect to coal hydrogenation.

I would like to say, also, there is still one other

process to come. That is the Fisher-Tropoh method. We are as interested in that, as any other. Our job is to go forward, study each process, and to make known our information to you.

THE CHAIRMAN: Thank you, Dr. Schroeder.

(Applause.)

THE CHAIRMAN: Gentlemen, the question before the Council is the adoption of the interim report submitted by Mr. Rodgers' committee.

Any further discussion?

Mr. Rodgers has moved the adoption of the report.

(The motion was seconded.)

THE CHAIRMAN: All in favor, indicate by saying Aye; contrary, No. The report is unanimously adopted, Mr. Rodgers, with the understanding that your committee will continue its studies.

The Committee on Oil and Gas Availability, Mr. McCollum, Chairman.

MR. MC COLLUM: Mr. Chairman, you will recall at the last meeting the Availability Committee submitted an interim report. We are working on the long-term report. We had hoped to have it completed but it is not complete. A great deal of work has gone into the report. It is approximately finished. The Review Committee reviewed it yesterday. It will be in two parts.

I can only say that a great deal of work has been

done, good work, and it will be an interesting report. We hope it is submitted in finished form at the next meeting.

THE CHAIRMAN: Thank you.

Dr. Wilson, Chairman of the Committee on Capital and Materials Requirements for Increasing Availability of Petroleum Products.

MR. WILSON: This report is presented in response to the request of Mr. H. A. Stewart, Director of the Oil and Gas Division, Department of the Interior, for estimates of the cost in capital and materials of increasing the Western hemisphere availability of petroleum products by one million barrels daily over the level of operations during the period November 1, 1950 through January 31, 1951.

The original request dated January 29, 1951 asked for estimates of costs by increments of 250,000 barrels daily and the assumption of current industry product yields.

This committee was appointed promptly by the National Petroleum Council and held its organization meeting on February 12, 1951. At that time four subcommittees were appointed to study the request and develop the estimates for production, refining, transportation and storage respectively. A list of the committees and subcommittees is attached, in Appendix 1.

The preliminary work of the subcommittees indicated that, in the base period, the available capacity in the

petroleum industry in the United States was substantially higher than the level of operations during the base period, even though that level was substantially higher than for any previous method. A subsequent report by a committee of the National Petroleum Council showed crude oil producing capacity in the United States in January 1951, of 6,727,000 barrels daily, or 867,000 barrels daily more than the average production during the base period. A report of the American Petroleum Institute indicated a refining capacity in the United States on January 1, 1951, of 6,860,000 barrels daily, or 640,000 barrels daily more than the runs during the base period. It was apparent from these figures that without any new refinery construction the industry could deliver in the United States at least 500,000 barrels daily of petroleum products more than during the base period, providing necessary transportation and storage facilities were built.

An interim report was submitted by this Committee to the Council on May 9, 1951. In this report it was suggested that the request on the National Petroleum Council for estimates on capital and materials requirements be modified to take into account the facts developed by the preliminary studies. Accordingly, on May 28, 1951, Mr. H. A. Stewart submitted a revised request, attached hereto as Appendix II. This revised request, which is the basis of the present report, called for estimates of the capital and materials

required for

- (1) Bottleneck removal to permit the year-round utilization of 500,000 barrels daily of the existing reserve producing and refining capacity. This would require the construction of new transportation facilities to move the additional crude oil available to the operable refineries, and storage capacity to enable those transportation and refining facilities to operate year-round at the required rates.
- (2) 300,000 barrels daily of all-new oil production to be found, developed, transported and refined in District III. The necessary refineries to be constructed at two theoretical locations on the Gulf Coast, selected to avoid areas of present congestion, and with new transportation facilities to move the crude oil to the refineries.
- (3) 100,000 barrels daily of all-new oil production to be found and developed in Alberta, Canada, with new refining facilities totaling the same capacity to be constructed in the Pacific Northwest, and with necessary new pipe lines to transport the crude oil from the fields to the refineries.

- (4) 100,000 barrels daily of new oil production to be found and developed in Venezuela, with necessary new pipe lines and tankers for moving this new crude from the assumed points of production to a refinery or refineries to be constructed on the East Coast of the United States.

The studies of the various subcommittees have involved a very large amount of work. For example, the subgroup on new capacity of the Refining Subcommittee has worked out flow sheets and preliminary designs for four different sizes of refineries at three different locations, and their report comprises 113 pages of text, flow sheets and tables. For the purposes of reporting to the Council, the Committee felt that only a summary of this mass of information should be presented, but if the Oil and Gas Division of the Petroleum Administration for Defense so desire, the various subcommittee chairmen and their assistants will be glad to go into detail as to the assumptions, background data, methods of calculation, or other information.

The studies of the Committee and its subcommittees have resulted in the development of the various estimates as requested with the exception that it has been found impossible to present reliable estimates on the capital which will be required, either in this country or abroad, to find and

develop the specified increments of new crude oil production. The exploration and development process for new crude reserves covers such a long period of time that it is impossible for the industry to trace the costs involved in the availability of the new oil currently being developed, let alone to estimate the amount of oil which may be found in the future as a result of the expenditures for exploration currently being made. No one can tell where or at what depth new reserves will be found or what the overall cost of finding those reserves will be. Other major uncertainties are the costs of leases or foreign concessions in the areas to be developed. Consequently the Committee is not presenting estimates of the capital which will be required to develop the specified increments of production and is of the opinion that any estimates on this point could not be reliable and would be subject to misinterpretation.

It has been possible, however, for the Committee to arrive at reasonably reliable estimates of the steel required in developing new crude oil availability, because most of the steel used by the production branch of the industry is for the drilling of new productive wells after the fields have been discovered and for the maintenance of operations in existing wells. Comparatively little steel is used up in the exploratory operations of the industry, such as geophysical and geological work. Even in the drilling of dry

holes, most of the steel used is recovered for further operations -- but the dollars are not!

The following discussion summarizes the methods of making the estimates for the four increments.

(1) In estimating the transportation and storage requirements needed to get crude to, and store products from, the first increment of 500,000 barrels per day to be made from existing reserve producing and refining facilities, questionnaires were sent out to all refineries, and the excellent PAD report, Petroleum Transportation (July, 1951), was used extensively. An effort was made to get the 500,000 barrels per day increment from that part of the shutdown refinery capacity which could most readily be brought into operation (and much of it has already been brought into at least part-time operation). Most of the remaining spare refining capacity was poorly located, expensive to operate, and would have difficulty in making competitive products.

The 367,000 barrels additional producing capacity (above the 500,000 barrels increment figured on) was not used as part of any of the four increments, but was considered to be highly desirable standby capacity in view of our crude imports which averaged about 500,000 barrels per day during the base period.

(2) In figuring the steel requirements for increasing the crude productivity in District III by 500,000

barrels per day, the actual results of exploration and development activities for the past three years were carefully compiled and analyzed in conjunction with the report of the National Petroleum Council Committee on Steel Requirements. The data in this latter report include steel used for pumping equipment and maintenance on existing producing wells; consequently, the relation of these figures to the development of new availability tends to overstate somewhat the steel requirements shown herein for new production; unfortunately, no reliable breakdown appears to be available. In addition, it should be noted that the steel requirements estimated do not represent United States averages, but are for a particular area at a particular time. The refineries for the District III increment were assumed to be located on the Gulf Coast, of the sizes indicated in the tables, and the estimates include the costs of land, utilities, refinery storage, loading facilities, etc. Transportation includes pipe lines to get the crude from the probable areas of discovery to the refineries at two different locations, but does not include tankers to move the products since the destinations were not known.

(3) As in the case in the United States, there is considerable reserve producing capacity in Canada above present production levels. However, the estimated steel requirements for the requested increment of 100,000 barrels daily of new crude production in Canada were based on new wells and new

proven reserves in order to avoid any dependence on present reserve producibility and proved reserves. Four refineries, each of 25,000 barrels per day capacity, were assumed to be located in the Pacific Northwest area, complete with the same appurtenances as mentioned above. Crude oil transportation includes necessary gathering facilities and a pipe line from the Alberta area to Vancouver. Building of this project would free several tankers now supplying this area, but no credit is taken for this.

(4) The increment of 100,000 barrels daily of new Venezuelan crude was based on the assumption of new wells and new discoveries in the eastern part of the country. Western Venezuela was not considered because its extensive acreage of proven reserves would make unrealistic the assumption of all new discoveries. Transportation includes the necessary gathering and trunk pipe lines to bring the crude to deep water, together with the tankers required to complete the haul to a new refinery in the New York area. This refinery was designed to handle the full 100,000 barrels daily of Venezuelan crude, and includes all of the facilities mentioned for the two previous cases.

The following Table I summarizes the estimates of the subcommittees and the main committee as to the steel requirements for each of the above-mentioned increments of capacity, and the capital requirements for everything except

production. The more important assumptions involved are indicated in the table or footnotes thereto. The steel requirements for developing production are substantially different among various areas, both in the United States and in foreign countries, because of many variable factors, including major differences in the production per well.

Table I

Estimated Steel and Capital Requirements for
Developing Availability of Million Barrels Daily of
Petroleum from Sources Specified by Oil and Gas
Division

	<u>Total Steel Required, Thousands of Tons</u>				<u>Total</u>
	<u>500,000</u>	<u>300,000</u>	<u>100,000</u>	<u>100,000</u>	
	<u>Existing</u> <u>U.S.</u>	<u>New</u> <u>Dist. III</u>	<u>New</u> <u>Canada</u>	<u>New</u> <u>Venezuela</u>	
Exploration and Production....	-	1,210(1)	118(2)	55(2)	1,383
Transportation..	624	278	190	101(3)	1,193
Refining.....	-	257(4)	89(5)	72	418
Storage(6).....	<u>237</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>237</u>
Total.....	861	1,745(2)	397	228	3,231
Average tons per daily barrel	1.72	5.82(1)	3.97(2)	2.28(2)	3.23
	<u>Capital Required, Millions of Dollars</u>				
Exploration and Production...	None	- - - - -	Not available	- - - - -	- - - - -
Transportation.	202	109	103	71(3)	485

Refining.....	-	257(4)	98(5)	73	428
Storage(6)...	52	-	-	-	52

NOTES:

- (1) Includes steel used for maintenance of existing wells; does not include credit for natural gas which on the average would be equivalent in heat value to 234,000 B/D of additional oil.
- (2) The lower steel requirements per daily barrel for foreign production, especially Venezuela, reflect the difference among various areas, both in the United States and abroad, due to many variable factors, including major differences in the production per well.
- (3) Includes pipe line to coast of Venezuela and tankers from there to East Coast.
- (4) Based on three 50,000 B/D, four 25,000 B/D, and five 10,000 B/D refineries, all designed to minimum specification for average industry yields of products.
- (5) Based on four 25,000 B/D refineries, designed as above.
- (6) Covers only the additional storage needed in order to utilize fully on a year-round basis 500,000 B/D of the excess capacity existing in the base period. The storage requirements of new production, transportation, and refining capacity for the last three increments are included with those figures on capital and steel.

One of the most difficult problems in presenting

this summary arises from the fact that in estimating the steel requirements of exploring for and developing oil production in District III (based on actual experience in recent years) the operations inevitably discover a large amount of natural gas, both associated with oil and in dry gas fields. Since these discoveries are also highly desirable for national defense, it is unfair to charge all the steel requirements against the oil only. It should, therefore, be kept in mind that, on the average, for each barrel of oil production developed in District III, an amount of gas equivalent on a B.T.U. basis to about 0.78 barrel of additional oil would be expected. Similarly, gas will be obtained from the Canadian exploration and development work postulated, but the amount cannot be estimated at all closely.

It must, again be emphasized that while these figures represent realistic estimates of what the Committee believes could be done by way of increasing production, refining, transportation and storage requirements at the different specified locations and under the specified assumptions, the Committee is not recommending this as a program, or even indicating that the proposed increments are the most economical or desirable ones. Given a favorable economic climate, the industry will and should continue to expand in the future as in the past, based on the individual decisions of many different companies using their own funds. Indeed, a major part of the indicated

amount of expansion has already taken place, and more than this amount of expansion will be accomplished before the end of 1952 if adequate steel supplies are available. The actual expansion, particularly in the "all new" category, will, of course, be quite different in size and location from those herein postulated.

The ability and willingness of the industry to expand with its own funds to meet the growing needs of the civilian economy and the military establishments are well illustrated by the following two charts. The crude producibility figures in Chart I are based on the recent report of the National Petroleum Council Committee on Domestic Crude Producibility, and include none of the foreign increments which are also under way. The domestic refinery capacities shown in Chart II are based on definite industry plans as revealed by questionnaires from the refining subcommittee, and are dependent only on the availability of steel.

I think you will find the two charts very interesting. It shows how the industry goes ahead and does it without any program or any central planning attempt. It does it, I think, in the places where it is most efficient.

Chart I shows the natural crude production. The dotted line, the arbitrary one million barrels per day.

On production, even the minimum expected availability, was reached by the middle of this year. We are now

in or past the minimum of a million barrels.

You have a million barrels surplus producibility at the present time.

On refining capacity, it was at a high peak during the past period, in comparison with previous runs, up about 93 percent of crude capacity in the country. Since then, it has continued at an average rate of around 93 percent of capacity.

The slope of the curve is higher than in the case of production. By the end of 1951, we are getting close to the one million barrels a day, and we will be well past it by the middle of 1952, if we get the steel.

Thank you, gentlemen.

THE CHAIRMAN: Thank you.

(Applause.)

THE CHAIRMAN: Any questions?

Thank you, Doctor.

I should like to ask you, Mr. Brown, and Mr. Stewart, whether or not you feel that this report is adequate for the purpose, and if the adoption of this report discharges the Committee's responsibility?

MR. BRUCE BROWN: I think it is very adequate. It will be useful in many places.

THE CHAIRMAN: The question is upon the adoption of the report submitted by Dr. Wilson. All in favor, signify by

saying Aye; contrary, No. So ordered.

Thank you very much, Doctor.

We now pass to the report of the Committee on Liquefied Petroleum Gas Availability, Transportation and Materials Requirements, to be submitted by Mr. Warren.

MR. WARREN: Mr. Chairman:

The Committee on Liquefied Petroleum Gas Availability, Transportation and Materials Requirements, appointed by the National Petroleum Council May 24, 1951, has completed its assignment and submits this report.

The Committee was appointed following a request of the Oil and Gas Division of the Department of the Interior that such a study be made. The request was initiated by the Natural Gas Production and Processing Division of the Petroleum Administration for Defense.

Subsequent to this request and shortly after the Committee was appointed, the preliminary plans for the introduction of the Controlled Materials Plan necessitated a telegraphic poll of the liquefied petroleum gas producing industry as to its minimum materials requirements. This telegraphic poll gave the Petroleum Administration for Defense the information it desired and that part of the Committee's original assignment later was withdrawn by the Oil and Gas Division, in order to avoid a duplication of effort.

Meanwhile, the Transportation Division of the

Petroleum Administration for Defense was engaged in a comprehensive study of transportation requirements under the direction of Mr. John W. Boatwright and in cooperation with the Transportation Committee of the Council. Several of this LP-Gas Committee's members assisted in the drafting of that report, which was presented to the Council at its July 1951 meeting. In view of the comprehensive nature of the report - in which was included the transportation requirements for liquefied petroleum gas - that portion of the assignment to this Committee also was withdrawn to avoid a duplication of effort since the Petroleum Administration for Defense already had the information it desired.

This report, accordingly, deals primarily with the availability of liquefied petroleum gas and the adequacy of transportation facilities in the light of the liquefied petroleum gas available.

The Chairman of this Committee requested Mr. K. W. Rugh of Phillips Petroleum Company to be chairman of a sub-committee to determine the availability of liquefied petroleum gas.

This sub-committee canvassed the producing industry by questionnaire and was highly gratified by the response, estimating that 122 companies replying represented 99 percent of the United States total production. This sub-committee's findings are attached and made a part of this report.

Although the transportation portion of the assignment was officially withdrawn, the Chairman assumed the responsibility of asking the previously-appointed sub-committee on transportation, of which Mr. B. C. Graves of Union Tank Car Corporation is chairman, to submit a short report on the adequacy of transportation facilities in the light of the figures reported by the sub-committee on liquefied petroleum gas availability. That report also is attached and made a part of this report.

The Chairman desires to point out, for the record, that this Committee at the outset gave serious consideration to the determination of the number of privately-owned liquefied petroleum gas trucks, by states, in service in the United States. It was learned subsequently that a questionnaire already had been sent out under the auspices of the Liquefied Petroleum Gas Association, and a request was made to incorporate the returns in this report rather than attempt a duplication of this endeavor. The replies, however, represented less than 50 percent of the mailing and it was decided that the results were not sufficiently conclusive to be incorporated in this report.

The Committee, on the basis of its study, has concluded that:

1. The availability of liquefied petroleum gas, beginning with January 1952 will be at an estim-

ated monthly rate of 380,386,269 gallons, or 9,056,816 barrels, as compared with a monthly rate beginning with January 1951 of 328,690,040 gallons, or 7,825,953 barrels. This represents an increase of 15.7 percent.

2. Pressure tank car construction has kept pace with the increased production of liquefied petroleum gas.

I think I might say that it is possible, in my belief, that the demand for liquefied petroleum gas for the first ten months of this year is somewhere in the neighborhood of 20 percent of what it was last year.

We are pleased to submit the final tabulation of the total availability of liquefied petroleum gas in the United States for the month of January 1951, and an estimate for January 1952. This information was obtained by mailing a questionnaire to the liquefied petroleum gas producers.

We believe that the 122 companies reporting availability this year represent approximately 99 percent of the United States total production and have, therefore, only increased the actual figures reported by 1 percent rather than the 5 percent used last year. Only 13 companies contacted did not answer the inquiry and they were all small producers. The January 1951 actual total production was 328,690,040 gallons versus the estimate for January 1951 used in the

last report of 323,807,641 gallons. This means actual production was only 1.5 percent above the estimate.

The percent increases estimated for January 1952 over January 1951 are as follows:

	<u>January 1951</u>	<u>January 1952-Estimated</u> (Figures in Gallons)	<u>% Increases</u>
Propane	201,605,611	234,064,834	16.6
Butane	88,040,114	108,198,907	22.9
Mixtures	<u>39,045,315</u>	<u>38,122,528</u>	<u>- 2.4</u>
Totals	328,690,040	380,386,269	15.7

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The Defense Transportation Administration census of tank cars as of January 1, 1951, reveals that there were 10,302 pressure cars in the liquefied petroleum gas service. It is estimated that these 10,302 pressure cars are capable of moving 164,832,000 gallons per month or approximately one-half of the availability of liquefied petroleum gas in January 1951.

Assuming that 50% of the liquefied petroleum gas availability was consumed where produced or moved by pipe line, highway, or water, then 50 to 75 percent of the 52,000,000 gallons increase in production January 1, 1952 over January 1, 1951 need to be moved by rail.

Since the first of January and up to the first of October 1951, 1,270 Class 105-A-300 cars have already been constructed capable of moving 20,320,000 gallons of increased

production. However, 1,071 Class 106-A-300 cars are scheduled for completion during the months of October, November and December 1951, capable of transporting 17,136,000 gallons or a total of 37,456,000 additional gallons or 72% of the total increased liquefied petroleum gas availability January 1, 1952 as compared with January 1, 1951. Of course, additional Class 105-A-300 cars will be completed in January, February and March 1952 but these have been disregarded.

In addition to the above-mentioned constructed cars and those to be completed this year which are definitely identified as liquefied petroleum gas cars, there are 377 Class 105-A-300 cars programmed for construction which are doubtful as to their availability for liquefied petroleum gas as they have been described as anhydrous ammonia-propane cars, and it is probable that additional cars of this description will be completed in October, November and December of this year, some of which may be made available for liquefied petroleum gas.

In the foregoing analysis no consideration has been given to additional pipe line transportation which may become available prior to January 1, 1952 and its effect on the transportation of the increased availability of liquefied petroleum gas.

It is concluded from this study that tank car construction has kept pace with the increased production of

liquefied petroleum gas.

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C O P Y

UNITED STATES

DEPARTMENT OF THE INTERIOR

OIL AND GAS DIVISION

Washington 25, D. C.

September 28, 1951

Mr. Walter S. Hallanan, Chairman

National Petroleum Council

1625 K Street, N. W.

Washington, D. C.

Dear Mr. Hallanan:

On May 8, 1951, I requested that the National Petroleum Council make a study of the probable availability of Liquefied petroleum gas, adequacy of transportation facilities for movement thereof, and minimum materials required for production and transportation to alleviate possible shortages.

This is to advise that studies already completed by the Petroleum Administration for Defense satisfactorily cover the matter of transportation and of material requirements, and make it unnecessary for Council to cover these matters.

In view of the situation, I am formally withdrawing my request to the Council to include the study of adequacy of transportation facilities and of minimum materials

required for production and transportation.

It is requested, however, that the National Petroleum Council continue its study of probable availability of liquefied petroleum gas, and I trust that the report may be available at an early date.

Sincerely yours,

/s/ H. A. Stewart

H. A. Stewart

Acting Director

C O P Y

UNITED STATES

DEPARTMENT OF THE INTERIOR

OIL AND GAS DIVISION

Washington 25, D. C.

May 8, 1951

Mr. Walter S. Hallanan, Chairman

National Petroleum Council

1625 K Street, N. W.

Washington, D. C.

Dear Mr. Hallanan:

Significant changes in the liquefied petroleum gas situation have occurred since the submission by the National Petroleum Council of its last over-all report on this subject. During the winter of 1950-51, there were repeated local spot shortages of liquefied petroleum gas and

there are indications that spot shortages or tight situations could easily occur during the coming winter.

The National Petroleum Council is requested to study the probable availability of liquefied petroleum gas, adequacy of transportation facilities for movement thereof, and minimum materials required for production and transportation to alleviate possible shortages, and submit such report and recommendations with respect thereto as it may deem appropriate.

Sincerely yours,

/s/ H. A. Stewart

H. A. Stewart

Acting Director

-oOo-

MR. WARREN: I move the adoption of the report.

(The motion was seconded.)

THE CHAIRMAN: You have heard the report. Are there any questions?

You have heard the motion. All in favor of it, indicate by saying Aye; contrary, No. It is adopted.

Thank you very much, Mr. Warren, for the report.

Mr. Jones, I am sure you do not have a formal report of your Committee on Government Personnel, but I think it would be interesting for the Council to have some knowledge of the problems that your Committee is dealing with in con-

nection with the matter.

MR. W. ALTON JONES: Mr. Chairman, there is no formal report.

As most of you know, this Committee on Personnel was created at the time of the formation of the PAD for the purpose of making available, to the Secretary and to the Petroleum Administrator, personnel from the industry competent to staff the various activities here.

I think the job was fairly well done, and we had two or three things which were fundamental in the beginning. One was that it was early determined that in requesting them to come to Washington on these assignments, commitments would be made that they would not be expected to come for an indefinite period.

We felt that was necessary, for many reasons. It is unfair to ask a man to leave an important position and come to Washington, a position in a company where he has hope of a future, and to which he has devoted his life, to come here for an indefinite time, and so lose his place in the industry.

In the selection of the men, commitments were made that at the end of a certain period of service they would be released.

I want to remind you gentlemen that some of those commitments are now about to mature, and that in the next 90

days it will be necessary to restaff a number of important positions here at the PAD.

It is the obligation of the industry to do this. There should not be any flinching or double-talk about it. We have no power or authority to order you to do it. I think good sense and good business judgment, and your patriotic obligation to your Government, requires that responsible men, not men that you just don't need, be made available.

There are some of you fellows that haven't done much lately for the PAD. Without being tough, doing any arm-twisting, I want to put you on notice that within the next 90 days some of you will be called upon, and when the light is put on you, I expect you to flinch a little, but I expect you to give.

We have had the services of many men. It was an unselfish service. That is the reason the PAD effort has gone on. It is the envy of every Department of the defense effort. We want to keep it on that high level, and we can do it. If you don't do it, you will pay a big bill.

So, please, when your number is up, we expect you to respond without much helping.

Thank you.

(Applause.)

THE CHAIRMAN: I think you have adequately put them on notice, Mr. Jones.

Gentlemen, Mr. John Suman is probably the expert of all experts on the subject of Quebracho Requirements. Mr. Suman was here yesterday and has completed his report. I had hoped, as Chairman of the Committee, he might be available today to send it, but on account of having to attend a funeral, he could not be here. His report has been filed with the Committee, and a copy has been mailed to all the members of the Council.

The question at this time, what do you propose to do with it? Do you desire that it be read at this time?

MR. WILSON: No.

MR. JACOBSEN: I move the adoption of the report.

(The motion was seconded.)

THE CHAIRMAN: All in favor, signify by saying Aye; contrary, No. So ordered.

Mr. Spencer, Chairman of the Committee on Petroleum Transportation.

MR. SPENCER: Mr. Chairman: The Chairman has to report to the Council today that the Committee is at work on the assignment. The assignment in this instance is a truck census. Progress is being made. The report is not completed. We hope at the next meeting to have a report to submit to you.

THE CHAIRMAN: Thank you very much.

MR. DUKE: Mr. Chairman, what happened to the PAD

study as a whole?

MR. BROWN: I am very happy to say it is at the Government Printing Office, being printed as a public document. While the Government moves slowly, and it is difficult to predict, our people feel that it may be only three weeks before it will be generally available.

MR. DUKE: Thank you.

THE CHAIRMAN: Gentlemen, we now pass to the report of the Committee on Trends in Petroleum Consuming Equipment. Mr. Albert McIntosh is Chairman of that Committee.

Mr. McIntosh, will you come forward, and present your report, please.

MR. MC INTOSH: Mr. Chairman, this report will be short and sweet.

THE CHAIRMAN: It is a very important report.

MR. MC INTOSH: In response to the request of May 8, 1951, of Mr. H. A. Stewart, Acting Director of the Oil and Gas Division of the Department of the Interior, that a report be made on the trends of the manufacture, sale, installation and uses of petroleum consuming equipment, Chairman Hallanan, acting after unanimous adoption by the Council on May 9th of the recommendation of its Agenda Committee, dated May 8th, appointed this Committee.

It was your Committee's understanding that what was desired was a gathering together in one place of tabulations

and other indicators of the trend in the use of the various kinds of equipment which consume petroleum in one form or other. From the outset the Committee felt that since there were available many previously published reports, books or publications containing reliable and acceptable data, it should not attempt to reproduce those records in the detail shown in these original sources. The Committee, therefore, has confined its presentation to United States summaries and has selected those sources which in its opinion present the best available data on the individual series. A portion of these data is also presented in graphic form showing the trends in the accumulated number of oil consuming devices of the more important types.

No adequate data were available showing the number of devices in use which consume kerosene or #1 fuel oil. Therefore, data on factory shipments of these cooking, space and water heating units have been included as an alternative. The Census data on the numbers of dwelling units heated by space heaters shown in Table #8 do not reflect the total number of space heaters, because many homes use more than one space heater and such heaters are also used in buildings other than dwelling units. Informed opinion indicates that the total of space heaters in use is in all probability considerably larger than the Census data indicates. The Census data, however, were plotted on the graph merely to

indicate the probable rate of change.

In order that the industry may follow the current and future developments in the trends of these consuming equipments, a bibliography has been included showing the various sources from which basic information may be obtained. These original sources very often give data by states and show many sub-classifications. The Committee hopes that the summary tables included and the bibliography references will provide the Council and the Department of the Interior with useful information and reliable sources from which further analyses can be made.

Some of the data shown in these tables include new information not previously published in source material releases. As an example, the total numbers of passenger cars, buses and trucks registered, including privately and publicly owned, are shown individually for the last 20 years. Previous releases have not shown complete analysis of these data. Revisions have also been included for the history of oil burners installed so as to make these data homogeneous with releases covering recent years. The reports on the registrations of vessels have been assembled from many sources and probably give the first comprehensive listing of these various kinds of craft. There are other parts of the report which give new data which have been assembled with the help of many of the reporting agencies and members of

the Committee.

Where data were available showing accumulated number of installations on hand at the end of each year, the Committee felt that sufficient indication would be available in most cases as to the number manufactured, sold or installed during the year, but in several cases information on the installations or factory shipments have also been included. In addition, the bibliography refers to source material on the manufacture, sale or installation for many of the items.

It is interesting to note from the graph and tables presented herewith that the numbers of petroleum consuming equipment in use in the United States have steadily and almost uninterruptedly increased over the last 20 years. The effect of the depression of the 1930's shows up, of course, in automotive equipments, and the effect of the war is also clearly evident, as is the tremendous upsurge since the end of the war. The graph attached has been designed to bring out only the differences in the rates of change between the various kinds of consuming equipment in use. If we had shown these data on a scale giving equal space to equal quantities instead of equal rates of change, it would immediately have become evident that the magnitude of the automotive equipment involved, for instance, would be so great that the relatively more rapid changes in the rate of such items as diesel en-

gines, aircraft and large (marine) craft would be almost entirely lost in comparison. For this reason tables were also included from which actual changes can easily be calculated.

Respectfully submitted,

The Committee on Trends in

Petroleum Consuming Equipment

Albert J. McIntosh, Chairman

Samuel Dunckel

Robert Gray

Harry B. Hilts

Joseph E. Pogue

Fred Van Govern

I have been asked to take about a minute to state what the various tables include.

Some of you probably will want to give these tables to your technicians. Maybe some of those that you have, write your speeches for you. These tables contain various information.

Table 1 includes all of the information that you might need readily on passenger cars, buses, trucks, and the total, and includes a study of the combined cars for privately as well as publicly owned, although there are no military vehicles included, because those are not available.

On the right-hand side, you similar data for tractors on farms. And there are other tractors shown.

Table No. 2 is simply a specimen table of the kind of information you can get in detail, yearly, from the Bureau of Roads, Public Road. It shows the complete detail by states and breakdowns by places of use.

Table No. 3 shows the fuel oil and oil heat estimates of the number of installations. It carries it back for twenty years. It has been reconstructed. It shows the number installed, how many new users there were, and the numbers of central heating plant burners that we think are in existence today.

Table 4 shows the data for two periods; the one immediately after the war, and where we are today, and shows the relative changes in the various sections.

Table No. 5 gives you all of this new material, the material on boats, and various kinds of watercraft.

Table 6 gives you the commercial installations, or those that use the larger burners, and gives an indication down below of the approximate kind of oil used.

Table 7 gives you the data available on aircraft over the years and, likewise, on railroad equipment.

Table 8 gives you, for the two census periods, what data we have on what kind of fuel does what in the home.

Table 9 gives you data prepared on the kerosene and No. 1 fuel oil burning devices over the last six or seven years. It has some spaces which had to be bracketed there.

Table 10, to and including 18, were prepared by the people here in Washington, giving the data made available to the industry over the last few years, showing where they have sold various kinds of heating equipment, and the distribution, and from which you can get some idea of the various sections of the country, and how they have been changing their use of those kinds of equipment.

For your technicians, you will find, I think, the pages of sources of data and manufacture which will be most helpful. Even I, who have been in the business for almost forty years, found out a lot of things when I had to do this job.

Thank you very much.

(Applause.)

THE CHAIRMAN: You have heard the report.

(Adoption of the report was moved and seconded.)

THE CHAIRMAN: All in favor, indicate by saying Aye; contrary, No. The report is unanimously adopted.

Mr. McIntosh, may I ask you to remain a short time after the adjournment of the Council, for a meeting with the representatives of the press.

The next item is the report of the Committee on Underground Storage of Petroleum Products.

Mr. Burns was unable to be here today. The report will be submitted by Mr. Berlin.

Stokes Tomlin, Jr.

Mr. Tomlin, will you please come around.

MR. TOMLIN: Mr. Chairman:

There has been no meeting of the full Committee on Underground Storage of Petroleum Products because the subject was considered to be essentially technical. Instead, the members of the committee were asked to make available persons from their organizations qualified to study and report on the technical phases. Those who were in a position to do so responded, and a Technical Subcommittee was organized as shown below.

CHAIRMAN

B. F. Hake

Gulf Oil Corporation

Gulf Building

Pittsburgh, Pennsylvania

GROUP I - PRODUCTION

W. F. Matheny (Group Leader)

Sid Richardson Company

629 Fort Worth Club Building

Fort Worth, Texas

Paschal Martin

The Pure Oil Company

35 East Wacker Drive

Chicago, Illinois

GROUP II - EXPLORATION

S. H. Gester (Group Leader)

Standard Oil Co. of California

San Francisco 20, California

Douglas Ball

1025 Vermont Avenue

Washington, D. C.

GROUP III - REFINING

H. G. M. Fischer (Group Leader)	Paul Williams
Standard Oil Development Co.	Western Petroleum Re- finers Assn.
15 West 51st Street	1414 Hunt Building
New York, New York	Tulsa 3, Oklahoma

GROUP IV - TRANSPORTATION AND SUPPLIES

M. E. Foster (Group Leader)
Phillips Petroleum Company
Bartlesville, Oklahoma

The first meeting of the Technical Subcommittee was held in Houston, Texas, on October 1 and 2, 1951. A second meeting is tentatively scheduled for January 14 and 15, 1952, in New York.

The objective assigned to this committee was a broad one. We felt that without some clarification, it might involve us in a protracted study, therefore, a letter requesting clarification was sent to Mr. James V. Brown, Secretary, National Petroleum Council. For general information, I have included excerpts of our letter addressed to Mr. Brown, and excerpts of the letter received from Mr. Hugh A. Stewart, Acting Director, Oil and Gas Division, U. S. Department of the Interior, in reply.

EXCERPT OF LETTER - N.P.C. COMMITTEE ON UNDERGROUND STORAGE
MR. JAMES V. BROWN, SECRETARY, NATIONAL PETROLEUM COUNCIL

DATED AUGUST 27, 1951

"The objective of the Underground Storage Committee, as set forth in Mr. Hallanan's letter of May 23, 1951, was to 'make a study of the feasibility of the use of underground storage for petroleum products, including liquefied petroleum gases.' This objective can be given a very broad interpretation and might result in a great deal of information being developed that would be of no real value; For instance, to state that a certain type of underground storage is 'feasible' without knowledge of the kinds of products, in what quantities, where needed, and under what operating conditions, would be extremely shortsighted on our part and might lead to some very unfortunate conclusions.

"We have listed below those aspects of the problem we feel must be cleared up before we can intelligently complete our study. Will you please give us the benefit of your thinking on these points.

1. "By 'petroleum products' is it intended that crude oil and natural gas be included?
2. "How much underground storage capacity would be necessary and in what areas?
3. "What type of products will be stored underground?

Are they to be -

- a. Finished, ready for use.

- b. Blending components.
 - c. Raw material for use as charging stock.
4. "Are the stored products required to meet quality standards for -
- a. Military usage.
 - b. Civilian usages.
5. "What operating conditions are planned? Is this storage to be working with frequent deposits and withdrawals, or is it to be dormant except in case of extreme emergency?
6. "Many possibilities for underground storage exist in mines, caves, and other cavities that normally are not involved in the production of petroleum and, consequently, the oil industry would not be qualified to advise on their use. Is it intended this study cover such matters even though it will be necessary to request assistance outside the oil industry?"

EXCERPT LETTER - U.S. DEPARTMENT OF INTERIOR - HUGH A. STEWART
TO MR. JAMES V. BROWN, SECRETARY, NATIONAL PETROLEUM COUNCIL
DATED SEPTEMBER 4, 1951

"The petroleum products to be considered should be gasoline, kerosene, distillate, residual fuel oil, and should include liquefied petroleum gases.

1. "Petroleum products" refers to products derived directly from petroleum, including liquefied petroleum gases, but does not include crude oil or natural gas.
2. "Various studies indicate that 100 million barrels of storage capacity should be set as the goal.
 - (a) "Location of storage should be in or adjacent to large market areas, thereby 'storing' transportation as well as products.
3. "Products stored should be finished and ready for use.
4. "For this study stored products should meet qualified standards for civilian usage.
5. "Storage should be considered substantially dormant, but if or where practical, it might be made subject to periodical turnover to reduce deterioration.
6. "All practical types of underground storage should be considered. The petroleum industry today is adding additional tankage to the extent that steel is available and apparently is willing to build even more. Consideration of underground storage in which limited amounts

of scarce materials would result in large storage capacity would prove interesting and valuable.

- (a) "Artificial chambers, enlarged by circulating fresh water in wells drilled into salt beds, are apparently now feasible for storage of liquefied petroleum gases. The study should indicate to what extent similar storage would be feasible for petroleum products. Likewise, it may be feasible to use abandoned salt mine or other underground mine cavities."

RESUME OF THE REPORT OF THE TECHNICAL SUBCOMMITTEE

In the light of Mr. Stewart's letter defining the scope of this study, the Technical Subcommittee reached the following tentative conclusions:

- (1) The underground storage of petroleum products, including liquefied petroleum gases, appears to be feasible subject to study on an individual site basis of contaminates, and further subject to unpredictable irregularities of geological formations.

These conclusions are largely based on study of actual projects where underground storage has been created for the purpose of storing

the peak seasonal volumes of propane and butane.

- (2) The types of underground formations that seem to be most practical, based on cost, dependability, and general availability for the creation of underground storage, are salt beds and salt domes. Artificial caverns can be created in these formations by circulating fresh water and withdrawing the saturated brine. Since salt formations offer the greatest possibilities for underground storage, the committee decided to concentrate on that phase of the study initially. Other types of storage, such as natural caverns, mines, and shale formations, will be investigated at a later date.

The availability of salt formations has been shown on the map of the United States which has been attached to this report (Exhibit A). It can be readily seen that these formations are reasonably close to areas of large consumption - a requirement stipulated in the letter from Mr. Stewart.

- (3) Whereas it is impossible to estimate, from available information, the total amount of

storage that could be provided, it is safe to state that amounts considerably in excess of the 100,000,000-barrel goal, as set by Mr. Stewart, could be made available in salt formations alone.

An incomplete survey of salt mining companies indicates that a considerable amount of storage might be made available by merely rehabilitating existing chambers.

- (4) Two important reasons for undertaking this study were (a) to find ways of protecting petroleum supplies against enemy attack, and (b) to save steel normally used for petroleum storage. Attached to this report is a graphical analysis (Exhibit B) showing that considerable savings in manpower and steel can be made if underground storage were used in place of aboveground tankage.

I wish to emphasize that the above are tentative conclusions of the Technical Subcommittees and should not be considered as representing the opinions of the full Committee.

The Technical Subcommittee will continue its study, enlisting such assistance from other sources that might be available. A second meeting has been scheduled for January of 1952 and we hope, at that time, to be able to present a

more comprehensive report.

THE CHAIRMAN: Thank you very much.

Unless there is objection, the report of the Special Committee will be received as an interim report, and will not be acted upon at this meeting pending the receipt of the final report of this Committee.

10 Gentlemen, I think it is fair to make the observation here, that in the special committee reports that have been received here this morning, representing the answer of this Council to the request that has been made upon it by the representatives of the Government at different times, that we find here an indication of the tremendous amount of work that goes into the various reports on special subjects upon which the Government has asked that they be given this information.

Now, this work, and this great detail of research that goes into these reports, represents no cost whatever to the Government. It is a contribution that comes from this Council and from the men who compose it, and from those who counsel and advise with us, representing the best technical minds in the industry.

I doubt if this information could be compiled for the Government at any expense. Certainly, it would not have available the technical information which these Council Committees reach out and get in the compilation of these reports.

I think, anyone who would survey the reports that

have been submitted upon these important questions here this morning, upon which the Government seeks information from the industry, would conclude that they represent a very worthwhile effort of compilation from the petroleum industry.

Admiral Biggs, from the time of creation of this Council, you have been very, very close to us. We have tried to work with you as a representative of the Military Department of Government, and at all times to give our full cooperation to the matter of adequate supplies for the military.

Admiral Biggs, unfortunately, is about to be sent to sea, and will leave us; I know I bespeak the sentiment of every member of this Council and every member of the organization of PAD, and the oil and gas division, to say to you that we are sorry to have you go to sea; we are sorry that you will not be with us at these meetings in the future, but it has been a happy relationship and one which I hope may be renewed at sometime in the future.

In this last meeting, perhaps, which we will have, at least for this Council, I want to present Admiral Biggs to express what he has to say to this Council, and as to the work it has done, and what we may do in the future.

Admiral Biggs.

(Applause.)

ADMIRAL BIGGS: As usual, gentlemen, I start off by saying, these figures are not for general publication. You

will be receiving by mail in the future orders to the tune of about 5-1/2 million barrels of Navy Special, on the West Coast, and 8 million on the Gulf; about 900,000 barrels of Class 1, diesel, on the West Coast; about 1,700,000, Gulf and Caribbean; Class 3 Diesel, about 1 million barrels on the West Coast; motor, combat motor gasoline, about 2.9, Gulf and Caribbean, 3.6 million barrels.

These are the requirements between January and July, 1952. The deadline on the aviation gasoline requirements is Friday, unfortunately; but they won't be less than 8 million barrels of 110, and I hope not more than 9-1/4.

The 100 and 130 will not be less than 6; and I hope they aren't more than 10.

That news will be duly communicated to you, in due course.

I appear before you today with considerable mixed emotions, I might say. I don't know of an outfit that I have enjoyed sparring with, and that may be an understatement, as much as I have with the National Petroleum Council.

I would also like to express my very heartfelt thanks for the things you gentlemen have done to keep me and the rest of the Defense Department out of the rain -- and it wasn't raining water.

You have done things for us at no cost, with your subsidiary, prior to PAD, of the Military Petroleum Advisory

Board, that in my opinion no one else could do.

I would be willing to be challenged by experts on that. In fact, I have.

But, nevertheless, it is certainly incumbent upon me to express the appreciation of the Department I work for, for your thorough support and invaluable education, the education that we have received at your hands.

You know, 90 percent of this racket, from what I have been able to determine, is trying to get the fellow across the table educated as to what-in-the-devil you are really talking about.

I had one member of the Military Petroleum Advisory Board say to me, "I always considered that so-and-so, that sits across the table from me in the MPAB as being the prize member of the local club of you know-what." You can take your choice of a wide variety of questionable appellations.

He said, he worked with that so-and-so for a year-and-a-half, and, he said, "I am almost convinced that he is practically a gentleman."

To a great extent, that is one of our big troubles, and probably, by our associating closely with each other, we are able to dispense with some of that, what some people call asthma, I believe, but we have been able to clear that up a bit, so that we can see what the other fellow really looks like when he gets his coat off.

I can't imagine any outfit that I would rather take on, individually and collectively, than this one, because I certainly learned things fast, and I learned them the hard way.

I made the statement to you gentlemen a number of times, that the only thing I know about the oil industry is what has been collected by a process of osmosis.

Incidentally, gentlemen, that is the slowest and the toughest method known to man. Although nature goes into it at great length, with very fine root hairs, I was short on the root hairs, although I get them sometimes in the tap root department.

I am sure that you will give the same good, fatherly instruction to my relief, and I might ask him to stand up, gentlemen: General Johnson, of the Air Force. (Applause.)

In the back row is a man, Captain in the U. S. Navy, who will take over as the Navy Deputy. (Applause.)

You will still have with you Colonel Montgomery, of the Army, who is back in that general area (indicating). (Applause.)

And the young man who is really the arm-twister is still around. (Applause.)

Jack Worcester, Colonel in the Air Force, the other Deputy, will be departing about the same time I am. (Applause.)

That is the line-up, gentlemen.

I am positive that with your very delicate methods of instructing unsuspecting members of the Armed Forces, they will grow up to be a credit to you. (Applause.)

THE CHAIRMAN: I desire at this time to recognize Mr. Howard Marshall, to introduce a resolution.

MR. MARSHALL: A number of us thought it appropriate to not let Burton get out without a resolution. So it fell upon me the pleasant task of preparing one. I had some of his famous wisecracks in it, but when Walter looked it over, he said, "Howard, one or two of these things are a little undignified"; and I said I wanted it to be in character, but, nonetheless, I took them out.

The resolution reads as follows:

"WHEREAS, the tour of duty of Rear Admiral Burton Beecher Biggs as Executive Secretary of the Munitions Board Petroleum Committee has been terminated by his transfer to a new assignment, and,

"WHEREAS, in the unanimous judgment of the National Petroleum Council Admiral Biggs has served since 1948 with great distinction in this high office as well as with the Armed Forces Petroleum Board, the Armed Services Petroleum Purchasing Agency and the Military Petroleum Advisory Board, and,

"WHEREAS, in the performance of his duties during this period Admiral Biggs has contributed immeasurably to

the defense efforts of this Nation by bringing to both the National Military Establishment and the petroleum industry of the United States represented on this National Petroleum Council, a mutual understanding of the complex and continuing problems relating to current and prospective supplies of petroleum and its many products and existing in future military and essential civilian requirements for these products,

"NOW, THEREFORE, BE IT RESOLVED by the National Petroleum Council at its meeting held in the Office of the Secretary of the Interior in the City of Washington, D. C. this 31st day of October 1951 that this Council express its very great appreciation for the able service which Admiral Biggs has rendered during the years of his association with this Council and commendation for the good judgment, statesmanship and wisdom of the many decisions he has been called upon to make or recommend regarding petroleum to the National Military Establishment and the petroleum industry, and

"BE IT FURTHER RESOLVED that this Council record its admiration for the clear, forceful and realistic manner with which Admiral Biggs has always presented the petroleum problems of the National Military Establishment to this Council and for the never-failing appreciation and understanding of operations of the petroleum

industry which Admiral Biggs has always displayed, and,

"BE IT FURTHER RESOLVED, that copies of this resolution signed by the Chairman and Secretary of the National Petroleum Council be forwarded to Rear Admiral Burton Beecher Biggs and the Secretary of Defense, the Secretary of the Navy and the Secretary of the Interior."

Mr. Chairman, I move the adoption of that resolution.

THE CHAIRMAN: I will ask for a rising vote of the adoption of that resolution.

(Rising ovation.)

ADMIRAL BIGGS: Mr. Chairman, may I say, there is nothing like having the papers to prove it. (Laughter.)

THE CHAIRMAN: That practically concludes the agenda of the Council, itself.

I want now to translate our order of business to the direction of Mr. Bruce Brown, and to have him bring before the Council members of his staff, for such statements as they may desire to offer to the Council, on any question relating to the work of this group.

Mr. Brown, will you take over.

MR. BRUCE BROWN: Mr. Chairman, our British friends seem to trouble PAD quite a lot. I didn't realize I was going to have to compete with Princess Elizabeth.

I am going to talk about a variety of things that

are in my mind, things that I think there may be questions on in your minds. When I finish, I will introduce some new members of the PAD Staff.

As far as the state of PAD is concerned, we are busted. The Bureau of the Budget felt we should have \$3,170,000 to run the fiscal year that expires June 30th next. The House Appropriations Committee thought we should have \$2,400,000. They voted us nothing in the House. The Senate Committee voted us \$2,900,000. The Senate, itself, votes us \$2,400,000.

I went back to the Senate Appropriations Committee, in a most unusual procedure, unusual in the sense that they let me return, and I talked them into giving us the \$2,900,000. What finally happened was that we got about \$2,250,000.

What that means to us, that if we cut out the geological work that was asked be done, cut out all the work we ask for the Bureau of Mines to do, except the statistical work, and fire sixteen people before the winter, we could get along on that amount of money. And, to help us, Congress passed a pay-raise. So, out of those funds we would have to increase the pay of the people.

That puts us in the impossible position, practically, but we have some hope that Congress, when it reconvenes, will provide the money for the pay-raise.

I would like to talk a little bit about our gas

branch, something that doesn't come before the National Petroleum Council, although many members are interested in the gas phase of the industry. The Gas Branch, we have had considerable difficulty in getting started, but I am very pleased with the results we have had. They work with the other branches of the agency. I think they are doing a fine job.

You don't hear so much about the Foreign Branch of PAD, either. This is essentially a domestic Council. You will hear more of that. Later, I will ask the Assistant Deputy in charge of foreign oil operations to speak.

On the general subject of work, we have a very devoted staff. I wish you could see what I have seen, on Saturdays and Sundays, people working at their jobs. It is amazing, the morale these people have.

And, speaking of work, one of the little jobs we have is answering letters, and you would be surprised how easy it is to make PAD write a lot of letters. Northwest Airlines' president wrote four or five telegrams to four or five Senators, and now we have to do some answering. When we get letters, we must answer them. And while we are answering letters, we can't do anything useful, of course.

On materials, pre-Korea, the oil and gas industry was using over 2 million tons of carbon steel per quarter. I have forgotten the exact figure. Two-million-one, or two-

million-three. What they have been getting on allocations from Defense Production is in the order of 1,600,000 tons of steel per quarter.

That has been the basis for the remarks made, that we are running at about 25 percent less materials than we need.

When we break that down, subtracting out the gas requirements, steel requirements for the gas industry, from the claims we have made, and subtracting out the allocations we have made, the material shortage in the case of oil has been nearer ten percent than twenty-five. The difference is that there is the much larger unsatisfied demand for line pipe, which has put the gas-supplying industry in the hole.

I have been taken to task in the papers about crying 'Wolf' about rationing. What we have said has been frequently misinterpreted. Actually, what we have said, what the Secretary has said before the Committees, and what I have said, is that if you continue to try to feed a horse a little sawdust along with the corn, he will keep going for awhile, but eventually he will fall down.

I have reminded people that we got into a bad supply situation solely because the industry has been so long without adequate supplies of material.

We don't have a policy here of saying there is

12 there is going to be rationing. We don't think there will be. We are talking about oil. We are rationing gas now. The gas industry advisory council meets in this room tomorrow. We are trying to have the Council meetings at about the same time, because it is helpful.

On aviation gasoline, we are in a tight spot, but I imagine that the later speakers will refer to that.

I would like to refer briefly to some things I am not doing.

Under the setup as we have had it in PAD, it was the way I personally wanted it, and the Secretary is in agreement, PAD is not having anything to do with tidelands. We regard that as a permanent problem of Government. What you hear, read and talk about, as far as tidelands is concerned, I am only an interested observer; I am not participating in any discussions. I have nothing to do with any decisions.

The same is true with respect to synthetic fuels. PAD would have to give the approval on construction. We are not either advocating or blocking the interests of any group that wants to build a plant to hydrogenate coal or extract shale. We are sitting back in the same position with respect to shale oil or coal hydrogenation as we are with respect to refining.

Also, PAD has nothing to do officially with the negotiations with respect to the Texas situation. We have

had much to do in both PAD and through the foreign petroleum supply division trying to alleviate the supply difficulties caused by the shutdown in Iran. There is no Government policy with respect to the Iranian crisis being made in or by PAD.

K. B. ...
Bo... Mr. Snodgrass has been in close communication daily with the State Department, because we must deal with the State Department on all foreign oil matters. I know that some of you were distressed about newspaper releases of Sunday, about a report issued by the Anti-Monopoly Subcommittee of the House, called the Seller Subcommittee; but if you look at the report, you would not be so disturbed as you would be from reading the headlines. It takes nearly every agency to task for something or other. It makes three specific references to PAD.

First, it is mildly critical of the operation of the voluntary agreement between the foreign oil companies. In so far as the criticism is concerned, it was definitely written by someone who didn't understand how it worked.

I would like to say that we are doing what was approved by the Department of Justice and the Federal Trade Commission.

The Committee did not call us; we would have been able to answer some of the questions.

There is a reference to all industry advisory committees, that they should conform to certain rules that were

established by Graham Morrison. I don't know whether the committee staff that wrote this report knew that the Attorney General had approved the National Petroleum Council form of organization or not.

I think you need not worry about the criticism, because the Attorney General did approve what you are doing now.

The report also goes into the subject of, "without compensation," dollar-a-year people; it goes into that subject. In fact, it says some nice things about WOCP. Nothing too bad. Their figures weren't too good as far as PAD is concerned. They said, out of twelve operating service divisions, ten were headed by men serving without compensation; two on Government salary.

Actually, if they read all across the chart, they will find, out of 19 divisions, we have seven that are headed by men not on leave from industry, and being paid by industry, but are working on Government salary. They are in key positions.

So I don't think we need worry about it.

I hope you are not dismayed by the slightly unfavorable odor of that report.]

I would like to introduce some new acquisitions to our staff. I would like to talk, first, a little bit about the first man, before I ask him to stand.

We have acquired a very valuable worker for PAD, who is attending our domestic oil operating committee, our gas operating committee, our materials committee; has participated in the battles with EPA for steel, proving himself very useful -- Carl Madder. (Applause.)

You all know General Davis. I will ask him to speak later.

General Davis. (Applause.)

Charlie Webber went back to Sun Oil, and left the National Gas Production and Processing Division, and Bud Walsh became the Director. Is Bud here? He must be somewhere working.

Last week, or ten days ago, we were happy to acquire a director of our distribution and marketing division, Lawrence Lee. Mr. Lee. (Applause.)

I will not ask these men to stand, but you recall, when Mr. Wolf left us, Elmer Basil took over. George Gibson became Finance Counsellor.

I would like to call a few of our directors and officials up to make brief remarks.

I will ask Mr. Snodgrass to talk to you from the standpoint of what is going on in the foreign oil branch of PAD.

MR. SNODGRASS: Mr. Chairman, and Gentlemen of the Council:

It is getting so late, that I suggest that I might just try to cover very briefly and broadly the moves that we have made and are making in our endeavors to make up the shortages of the running supplies, rather than going into foreign operation.

THE CHAIRMAN: I think it is a matter that the Council is very much interested in knowing about. I suggest that you carry out your original intention, and give us all the information you have.

MR. SNODGRASS: Government-Industry cooperation has made a major contribution toward relieving the Foreign petroleum supply situation resulting from stoppage of shipments from Iran on June 22, 1951. Largely through the efforts of the Foreign Petroleum Supply Committee, its subcommittees, and comparable British committees, deficiencies of supply are being made up and serious disruptions, economic unrest, and political upheavals have been avoided.

The deficiency comprised approximately 610,000 B/D of crude oil and products which formerly were supplied to world trade from Iran. Of this total some 150,000 B/D represented crude oil and the balance products which were shipped largely to Europe and the Far East.

The measures which are being taken to alleviate these shortages include:

- a. Increases in crude oil production in other

countries of the Middle-East -- Arabia, Kuwait, Qatar -- which by September amounted to 270,000 B/D, thereby making available 120,000 B/D for running in spare European capacity in order to offset part of the loss of petroleum products from Iran.

b. Increasing production and refining operations in other foreign areas.

c. By diverting crude oil formerly imported from the Middle East into East Coast U.S.A. refineries and replacing it with domestically produced crude. The amount of these diversions is estimated to average about 80,000 B/D during the Third Quarter.

d. The remaining deficit of some 340,000 B/D of products is being offset through purchases, by British as well as American companies, from the U.S. (averaging 144,000 B/D in the Third Quarter), through purchases of products in other parts of the world, and by means of stock withdrawals or the elimination of stock increases thereby reducing requirements formerly met from Iran.

During the Fourth Quarter of this year product exports for this purpose are expected to average approximately 130,000 B/D and crude oil diversions to European refineries are expected to average some 106,000 B/D. The amount of additional crude oil production that can be achieved abroad will be an important factor in determining the impact of the Iranian

loss during the First Quarter 1952.

It goes without saying that foreign facilities are taxed to the utmost. Products in critical supply are aviation gasoline and fuel oil. Foreign refineries, British, Dutch, and French as well as American, have gone a long way towards solving the fuel oil problem by maximizing its production. As an example, our latest reports show that the incremental British refining capacity which has been brought into operation to help make up the Iranian deficit is running with an average yield of fuel oil of 70 percent and overall yield of gasoline of only 15 percent.

In the light of the increasing military demands for aviation gasoline, the loss of Abadan production amounting to 18,000 B/D poses a critical problem. Aviation gasoline stocks are critically low and show a steadily declining trend in many overseas areas.

However, Petroleum Administration for Defense feels confident that, with the continued cooperation and help of the American Petroleum Industry, the supply deficiency due to the loss of Iran will be eventually met not only in respect of aviation gasoline but for all essential petroleum products.

(a) Demand

Post-war demand abroad is estimated to increase about 87% from 1946 through 1951, an average annual increment of between 13 and 14%. This compares with

an increase in U.S. demand of 45% during the same period.

Post-war demand abroad is estimated to increase about 87% from 1946 through 1951, an average annual increment of between 13 and 14%. This compares with an increase in U.S. demand of 45% during the same period.

For 1952 crude and product demand in foreign countries outside the Russian orbit is expected to approximate 4,300,000 B/D as compared with 4 million in 1951 and almost 3.6 million in 1950. In the light of the NATO mobilization program with its attendant high level of industrial and agricultural activity these demand estimates may well prove on the conservative side.

(b) Production

PAD's projected foreign program anticipates total foreign production of some 5,015,000 B/D, an increase of 415,000 B/D over the estimated production of 4,600,000 B/D in 1951. This production is divided about evenly between the Eastern and Western Hemisphere in 1951.

(e) REFINING

Foreign refining runs are scheduled at 4,437,000 B/D (approximately 95% of capacity) an increase of

772,000 B/D over 1950. Foreign refinery construction projects planned or under construction at present total some 816,000 B/D divided 340,000 B/D in 1952, 253,000 B/D in 1953, and 223,000 B/D in 1954. By areas this is divided:

Western Europe	307,000	B/D
South America & Carib. Area	234,000	"
Canada	135,000	"
All other areas	<u>140,000</u>	"
Total	816,000	"

This compares with an annual construction of 3 to 400,000 B/D additional foreign refining capacity which is estimated as necessary to meet foreign consumption.

On an overall basis it is estimated that more than 50% of the total steel requirements for the foreign refining program is derived from sources outside the United States.

(d) TRANSPORTATION

For the program as now anticipated, the 1952 tanker position is expected to be almost in balance. Some 1,800,000 to 2,000,000 deadweight tons of new tonnage is scheduled for delivery during the year.

A number of crude and product pipelines are scheduled for completion in 1952, the most significant of which is the 30-32" line from Kirkuk, Iraq, to Barlas, Syria with a capacity of some 300,000 B/D.

THE CHAIRMAN: Gentlemen, any questions in connection with the subject Mr. Snodgrass has been speaking on?

Thank you very much, Mr. Snodgrass.

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Mr. Rodgers advises me that the information he has is that they are closing the airport after two o'clock this afternoon and will not reopen until five. Is that for private planes?

MR. RODGERS: Yes. I think it is two-thirty. You won't be able to get out. If we don't get away from here at a quarter-to-two, I think we are stuck.

MR. MAJEWSKI: Mr. Chairman --

THE CHAIRMAN: Mr. Majewski.

B.L.
MR. MAJEWSKI: I spend a little time reading, every time I come down here I find something to read, that depresses me, and, may I say, I have listened with a great deal of attention to the reports that were presented, and as to the costs, and the number of people involved, and then I read the report of the subcommittee on the study of monopoly power, of the committee on the Judiciary, that says that all of that is a lot of hokum.

I wasn't as optimistic as Mr. Brown. What I read in this report is that these people on this committee either don't understand what this Council is doing, or they purposefully, as I read the report, controvert the facts.

I am kind of glad that two members of that staff

are here. Maybe they would like to amend this report for the people of the midwest, because we don't understand this hokum.

I would like to take one minute more. This gets a lot of publicity. It is not true -- about this Council.

Sometime, I would like to get a chance to debate with Mr. Seller, to show what this Council has done.

MR. W. ALTON JONES: Have you read the report?

MR. MAJEWSKI: Every word.

MR. W. ALTON JONES: If you have read it, will you answer this question: Does it attack business organizations, companies such as yours, or mine?

MR. MAJEWSKI: It doesn't go that far.

MR. W. ALTON JONES: The principal purpose of the committee is to attack business organizations.

MR. MAJEWSKI: It puts an odium on business. I don't like it.

MR. W. ALTON JONES: You don't like to be --

MR. MAJEWSKI: I don't like to be thought of as a guy that isn't trying to help in the defense effort.

And then you can't get the money to conduct your operations -- when we do it for free.

I just wanted to take the time to protest before you all go away.

(Applause.)

Pointing to minority members

MR. STEVENS: Mr. Chairman, I represent the minority members of the committee, and there is a member of the majority staff here.

I appreciate Mr. Brown's comments.

I am not sure that the report was read accurately by the other gentlemen. I hope that, rather than rely on the misimpressions that were created by the press, that most of you will take the time to study the report.

I know that the minority members did not intend to be critical.

MR. MAJEWSKI: May I add, now that we have seen a demonstration of what happens, could the gentleman, as a minority staff member, impress on the majority that they ought to make a few corrections?

I read well. I have been on the school board for some years.

MR. BROWN: Well, we will try to take care of the private planes and Princess Elizabeth.

I would like to call on four people.

First, I will call on Mr. Morrison.

MR. MORRISON: Mr. Chairman, I prepared a nice speech, I thought it was swell, and now I get the rush act, and so I can't read it.

But the material situation can be summed up by saying there is not enough of it.

I have also come to the conclusion that, in a situation where a civilian economy must be maintained, and where labor must not be upset in any way, and automobile production must be maintained, and I don't criticize -- I think it is a good idea that the industrial machinery should be turning over fully, so they will be in motion when the time comes -- but I do arrive at the conclusion that it is the type of war we cannot afford materialwise.

We have been getting our share, there isn't any question about that, but what is our share? That is always the question.

We have received about ten percent of our requests of carbon steel.

We have a situation with the oil-field manufacturers, of some 400 members, who have been getting by with a 60 percent cut in their copper and alloy.

To maintain the program now approved, to say nothing about future plans, we are going to have to get relief on various products.

I don't say we should get 100 percent of what we want in every quarter, but certainly we must get relief in the next few quarters, relief for the petroleum transportation, relief for oil-field equipment manufacturers, and other things.

I think all the figures quoted do not take into

consideration all of the matters.

We can keep up just what we are doing, but we cannot continue to expand.

And I have come to another conclusion: If we could get a written guarantee from the State Department, and the Military, that there would not be a national emergency for an 18-months period, we could probably go along.

We are just barely getting by with the presently expanded program. Any more additional lines, such as the line they speak about, from Canada to the West Coast, you cannot do that and continue to operate and take care of the increasing requirements of the civilian and industrial expansion.

We either have to make up our minds that we are going to eke by, slipping here and there, and using baling wire, or else we will have to convince the PAD that the petroleum industry is more essential than they think it is.

There are a lot of facets to the material situation that we could talk about for a long time. When they put restrictions on you for all types of programs, you cannot operate, you cannot operate on that basis.

With all the help that everyone has been able to give us, and with the ingenuity of the petroleum industry, they have just barely gotten along, but cannot continue forever, and I do think pressure has to be put on PAD to declare

that the petroleum industry is more essential than they think it is now, and that to make up their mind whether or not they are going to prepare for an all-out emergency, because you cannot exist on what they are giving us today -- you can barely get by.

(Applause.)

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MR. BROWN: If Mr. Pete Jones' predictions are carried out, and the industry people continue, if they don't fail in their responsibility to PAD, and the independent producers are as healthy as they say they are, this is the last meeting you will be able to look at Dick Lawton, because he will have finished his service by next January.

If you like what Dick has done, you don't have to tell him right now, but you can tell him in the hall, and I am going to call on him.

Mr. Lawton.

MR. LAWTON: The truth is, Bruce Brown told me that they were going to shut my pay off on the thirty-first of December, so I am quitting. (Laughter.)

I would like to say this: I don't know whether you gentlemen realize what you represent, but I would like to tell you that, from the vantage point I have had, watching the Production Division of the oil industry of the United States for ten months, it has been magnificent, it has been a privilege to witness it.

Now, with that out of the way, with that apple polished and out of the way, I will give you some facts.

With material in short supply, up through October 13, 1951, the industry has drilled 8,850,000 more holes than they did in the like period of 1950.

We have had a total increase of 7-1/10 percent in footage. They have found 30 percent more oil and gas fields than they found last year; a total of 325 more fields in 1951 than they found in 1950, as of October 13. They have drilled 34,308 wells, against 33,744 in 1950.

Now, we have made some checks. That is not due to any one segment of the industry. We took the 32 large units to see how they were doing. We had two-quarters' history on them. We moved from the 1950 history base up to the last half of 1950 and the first half of 1951, and found that they had drilled 6 percent more holes, against a national average of 7.1; they had drilled three percent more wells, against a national average increase of 1.7; they still had in inventory 453,000 tons of tubular steel.

I think, however, I can say that is quite an accomplishment. That also shows that nobody is losing in this deal, with them drilling six percent more, they are not hogging it, and three percent more wells against a national average of 1.7. It is pretty well-distributed throughout the industry.

Speaking of the inventory, California, they requested a survey for California, and California had 68,000 tons of tubular goods in 1950. We got them up for June; they had 68,779, they had increased the program 40 percent -- and nobody had any pipe in California. (Laughter.)

We wrote Mr. Smoggrass a letter and told him that if they got in trouble, we would save them. (Laughter.)

Now, on this tubular goods situation, as to the sizes, it must be recognized, if we are to do this job, as to the vast increase in footage, we started drumming on that, talked to the mills time and again. We had a meeting with NPA the other day, and they said they believed there was something to our story, for the first time. We planted some seed for the Council, and I believe, if you give us a good report, they will go with us.

Thank you.

MR. BROWN: May I ask Bill Boyd to stand up.

(Applause.)

MR. BROWN: Mr. Gene Davis, Director of Finance.

MR. DAVIS: Gentlemen, you heard Secretary Chapman, and Admiral Biggs, and Bruce Brown, say that aviation gas is short. That is not news, I am sure, to any of you. In case you forget it when you go home, I am the character that will be digging to the bottom of the barrel every day.

It will be a big problem in the next few months.

keeping our head above water, in this field of aviation gasoline.

We thought we were doing very well in the early part of this year, after overcoming a rather severe shortage in the last quarter and early part of the year. After we had gotten by the first impact, and production had gone to reasonably high gear, we found, in the second quarter, that things were rather comfortable, and thought that we could relax somewhat, but beginning with July, the situation changed rapidly, with the shutdown of the refinery in Abadan, which put an additional burden on the aviation sources in this country; and that was followed by a substantial step-up in demand from the military service, and so we wind up today, in terms of 130 aviation gasoline, short 100,000 barrels a day for the fourth quarter of this year.

In reaching for the bottom, we have done about everything we could do to get the maximum production. We have issued the PAD order numbers 3 and 4, -No. 3 to insure that capacity is operated at maximum, and production throughout the period ahead of us undiminished from any cause.

PAD Order 4 caused some controversy with the airlines and with some members on the hill. But we believe both orders are essential. They cannot be avoided if we are to avoid the situation in aviation gasoline.

PAD Order No; 3, we think, will give us a signifi-

cant increase in production, amounting to perhaps several thousand barrels a day.

PAD Order No. 4 will give us even more production, by raising the lead content of domestic commercial aviation from 3 to 4 cc. per gallon, and export commercial aviation from 4 to 4.6.

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Both of these should give us well over 10,000 barrels per day of aviation production. We are still quite short. From all indications, the estimate we have received for the first half of next year indicates that there will be no let-up in demand from all sources requiring aviation gasoline.

No more than do we find a reasonable solution for one difficulty, than another crops up.

In September, they cut the allocation of primary lead by almost half. That was made up by additional imports. In October, ceilings went on metallic lead, both domestic and export. So that we are practically where we were, really, in September.

The export is drying up because of the reduced price of the ceiling. On the one hand, we are trying to increase production with a higher ceiling price on domestic lead, and are cutting out the foreign lead by reduction in the ceiling price.

That accounts for the rather hectic situation for

the next few months.

It is unpredictable. It is difficult to see how it will come out. But I think it is safe to assume that we will not be on easy street on tetraethylene lead for some time. We hope, in PAD, it will not be necessary to make any change in PAD Order No. 1. Our objectives were, with that order, very successful. We increased production.

One further point: We have completed the benzine program, given to PAD some months ago, when they were asked to generate an additional 138 million gallons a year. Since that time, a total of 130 million gallons have been processed. Applications for certificates have been processed. Of the 130,000,000 gallons, 40 million have been completed, leaving 90 million under construction.

That is about all. Thank you.

(Applause.)

MR. BROWN: When the Committee meets in January, Mr. George Wilson will be leaving us. Mr. George Wilson, our Director of Supply and Transportation.

MR. WILSON: Mr. Chairman, and gentlemen:

In view of the lateness of the hour, I will omit part of my prepared speech, Mr. Chairman, and give you the highlights. (Laughter.)

Seriously, Mr. Brown had asked me to comment particularly on the supply outlook for the coming heating

heating season, and those of you whose knowledge goes back to the war years, will recall me as one of the chronic pessimists on this subject.

I find myself in a little different position today, because, as best I can appraise it, the stock levels of the four principal products are quite comfortable. If there is no material increase, or drastic increase, in either Admiral Biggs' requirements, or unless the weather conditions prove different from what the forecast is based on the "wooly bears" would indicate, I think we will come through the heating season with nothing more serious than what are usually denominated as spot shortages, which will be the product, usually, of temporary transportation stringencies, plus the lack of flexibility, except for the impact of the price regulation, that they make it difficult and slow to establish unusual changes, either in types of products available or the cost of unusual and temporary transportation that must be utilized in meeting those shortages.

Outside of that sort of problem, though, I do not view with alarm the prospect for fuels during the heating season.

Now, we have made, in PAD, some considerable plans toward meeting this spot shortage, if it arises. Unfortunately, however, the keystone in those plans is participation of industry working committees, as has been done in

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the past, and under the climate existing today, as reflected by Mr. Majewski, there is considerable trouble ahead for us, unless we secure, unless our presently-in-motion efforts, with the Justice Department, to secure authorization for that sort of committee, creation and activity, are successful, PAD can't do the job, the fire can break out in any one of many places, either at one time or simultaneously, and you, in our opinion, have to have a local fire department organized, that can quickly gather the facts for any extraordinary action that can be accomplished through Government direction.

MR. WILSON: Some of the northern governors can put heat on that. They know what was done last time.

MR. BROWN: Yes. And I think that maybe we will accomplish even this committee clearance. If we don't, and if the spot shortages become epidemic, we are in a rather hopeless position for dealing with them, within the time, with the time element that will be required.

MR. WILSON: Maybe the Seller Committee would handle it for you.

MR. BROWN: I don't think that would be productive.

Now, one word on materials. That is also slightly optimistic.

In this current parade of production, of refining, and of transportation, up until a fairly recent date, transportation has been considerably behind the rest of the units

in the parade, and we have oil available, that if we required it, cannot be put into commerce because of the lack of transportation.

I am glad to be able to report to you, though, that our allocations to the petroleum industry, of steel, for the first quarter of 1952, represents slightly more than double the quantity that was available in the fourth quarter of this year, and that was some improvement over the third quarter.

So I think, with a continuation of that material availability for oil transportation, that is, by pipeline, we should see completed, or substantially completed, several large important pipeline projects in the third quarter of 1952; and if the Admiral will restrain his activities at least until that date, perhaps we will be in a better position to meet the necessary civilian demands as well as some increase in the military.

I think, Mr. Chairman, in view of the lateness of the hour, I will forego the balance of my speech.

THE CHAIRMAN: Are there any questions?

Thank you very much. (Applause.)

THE CHAIRMAN: Mr. Stewart, these reports today which the Council has received from its committees, representing the replies to your requests, are you interested in making any comments as to these reports?

MR. STEWART: I would like to make one comment. I will make it short.

The reports we have received, and the ones that you have in process, are going to be of great value to us. I am astonished at the amount of time, effort, experience and judgment that you were able to pour into them. I think that these reports are one of the major fruits that we in OGD and PAD get from this Council.

I want to express my thanks to the Chairman, to the committee members, and to the members of all your subcommittees, the boys who really did the heavy work, my appreciation for what they have done.

I thank you. (Applause.)

THE CHAIRMAN: Is there any new business?

[^{Borden} MR. DUKE: I wanted to say one thing, Mr. Chairman. I haven't read the Seller Committee report, so I am not addressing my comments to it. But it would be unfair to us members of the Seller Committee, or members of the working staff, to let the members of the staff who are here, go out without knowing that there are some people in the oil business who are glad that there is a committee of Congress who watches, let's call it, the competitive forces in the industry.

I am a member of the Study Committee of a group of oil men. I can tell you that they are glad to have some-

one watching the competitive forces at play.

We hope the criticism is always fair and reasonable, but it is a democracy at work, that has its checks and balances. It is a free play of what I would call differences of opinion.

I know that Barney doesn't have any less love of independence than I have.

MR. MAJEWSKI: I would like to say something on that.

You are a past master of giving hell in reverse, defending.

I am the strongest defender of democracy there is. I believe in it. I did something about removing the skull-duggery in Chicago.

All I want to say to you, Gordon, is this: that I think your defense was proper, but you saw democracy at work when I spoke, and when Mr. Stevens spoke. I think that is democracy.

I will also say that I don't like monopoly any more than you do. But when you have been in the business for 42 years, Gordon, like I have, and have fought for the cause of democracy, and also against the monopoly, then you can justify criticism, my boy.

I don't mind your saying what you did, but read the report.

I love Congress, but they ought to do something for what they are getting. They ought to do something.

What I object to is that they slug you, when you are performing like this group is, and I wonder why you take it without saying something.

I know that some of you are afraid for fear of further assailment. Thank God, that in the midwest we plant our crops and do some fertilizing, and also do some removal of thistles and rocks.

(Applause.)

THE CHAIRMAN: Well, may I say that on behalf of the Council, in the original organization of this group, it was specifically provided that members of Congress would at all times be welcome to sit in at our meetings, and these gentlemen, as representatives of the committees of Congress, are certainly welcome. I am very happy that we have had the opportunity today to see the petroleum industry moving in what we conceive to be an entirely proper cooperation with the Government of the United States.]

Mr. Jones moves that we adjourn.

MR. JONES: I do.

(The motion was seconded.)

THE CHAIRMAN: We are adjourned.

(Whereupon, at 1:50 o'clock p.m., the meeting was adjourned.)